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MFN 07-237, Supplement 2

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Subject: **NEDO-33201, Revision 2, "ESBWR Probabilistic Risk Assessment," Sections 13, 14 and 15, Rev 2**

Enclosure 1 contains the subject partial ESBWR Probabilistic Risk Assessment (PRA), NEDO-33201, Revision 2. The entire PRA will be submitted by September 28, 2007 as detailed in Reference 1.

Should you have any questions about the information provided here please contact me.

Sincerely,

Kathy Sedney for

James C. Kinsey
Project Manager, ESBWR Licensing

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NRO

References:

1. MFN 07-200, Letter from James C. Kinsey to U.S. Nuclear Regulatory Commission, *Integrated Plan and Schedule – ESBWR Design Certification Application,* April 19, 2007

Enclosure:

1. MFN 07-237, Supplement 2 – NEDO-33201, Revision 2, "ESBWR Probabilistic Risk Assessment:" Enclosure 1, Attachment 1

Section	– 13	Probabilistic Flood Analysis
Section	– 14	High Wind Risk
Section	– 15	Seismic Margins Analysis

MFN 07-237 – List of Changes. Enclosure 1, Attachment 2

cc:	AE Cubbage	USNRC (with enclosure)	
	GB Stramback	GEH/San Jose (with enclosure)	
	RE Brown	GEH/Wilmington (with enclosure)	
	eDRF Section:	Section 13	0000-0073-6370
		Section 14	0000-0073-1109
		Section 15	0000-0073-9247

Attachment 1 to Enclosure 1 of MFN 07-237, Supplement 2

NEDO-33201, Revision 2

Section – 13 Probabilistic Flood Analysis
Section – 14 High wind Risk
Section – 15 Seismic Margins Analysis

13 PROBABILISTIC FLOOD ANALYSIS

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13 PROBABILISTIC FLOOD ANALYSIS

This section documents the internal flooding analysis of the ESBWR PRA.

13.1 INTRODUCTION

The objective of the ESBWR internal probabilistic flood analysis is to identify and provide a quantitative assessment of the core damage frequency and releases due to internal flood events. It models potential flood vulnerabilities, in conjunction with random failures modeled as part of the internal events PRA. Through this process, flood vulnerabilities that could jeopardize core integrity and containment integrity are identified.

The floods may be caused by large leaks due to rupture or cracking of pipes, piping components, or water containers such as storage tanks. Another possible flooding cause is the operation of fire protection equipment. Spray will not be considered in the flooding analysis because spray damage will be avoided by moving the required equipment or pipe or providing spray protection. (Reference 13.9-4)

The scope of the analysis includes both at-power and shutdown flood-induced accident scenarios and releases.

13.2 METHODOLOGY

The internal probabilistic flood analysis is performed taking into account that final piping layout specifics are not known. Current equipment locations are assumed based on existing plant layout drawings. It is further assumed that the pipe routed to or from the equipment would follow certain logical paths. For example, pipe routing is through pipe chases in battery rooms instead of routing the pipe through the battery room. Another logical path would be to take the shortest path which reduces piping and fabrication cost.

A flooding event may result in an initiating event and may also disable mitigating systems. As such, buildings containing mitigating equipment credited in the PRA accident sequence analysis, or equipment whose loss could cause an initiating event, are of interest to the flooding analysis. Therefore, this analysis considers flood scenarios in the following buildings:

- Reactor Building,
- Control Building,
- Fuel Building,
- Turbine Building,
- Electrical Building,
- Service Water Building,
- Circulating Water Pumphouse,
- Fire Protection Enclosure, and
- Tunnels and Galleries connected with the buildings indicated above.

Floods in the remaining ESBWR buildings are not considered in the study because the flood water cannot propagate to any of the above buildings.

Buildings were divided into flood zones based on separation for flooding. Flood zones which do not contain flood sources or PRA equipment were screened from consideration. The screening has been documented in Table 13-10. Zones which are not hydraulically coupled are considered independent flood zones. For example, zones which are separated by walls and watertight doors are considered separate flood zones. Stairwells are considered part of the flood zone located at the bottom of the stairwell because there is no mechanism to retain the water at higher elevations of the stairwells.

The frequencies of flood scenarios in these buildings are based on best available equipment location information. The number of feet of pipe is multiplied by the number of feet of pipe for each flood zone times the failure probability per year per linear foot of pipe for the given pipe type and size of leak. The failure probability per year per linear foot of pipe was obtained from Reference 13.9-1. Reference 13.9-1 has categories for service water and non-service water pipes. Each of these is further divided into leaks less than 50 gpm and leaks greater than or equal to 50 gpm. Additional contributions to the frequencies of flood scenarios in each flood zone are various types of equipment which can contribute to flooding. These include pumps, valves, heat exchangers, tanks and expansion joints. All of the flood initiators contributions to the initiating event frequency for each zone are summed to provide the initiating event frequency for each type of pipe in each zone. Initiators are further divided by system and/or train impact. For example, an RWCU/SDC Train A pipe may break failing all the equipment in the zone. In addition, to the equipment lost due to flooding, RWCU/SDC Train A equipment is lost. This is a different sequence than a pipe break in the CRD piping which again will flood the equipment in the room, but now fails the CRD system instead of the RWCU/SDC Train A.

Flooding propagates between areas. Where propagation is likely, it has been included in the model unless adequate water removal is available to prevent flooding of the target area (i.e. sump pumps). Systems which do not have enough capacity to flood an area have been removed from consideration. Table 13-1 provides a list of systems which have not been considered as flood sources, reason for exclusion and when volume is considered inadequate include the tank capacity of the system.

The analysis considers aspects that affect flood progression in each building. Depending on the building and the origin of the flood, the following aspects are considered:

- Automatic flood detection systems,
- Automatic systems to terminate flooding,
- Watertight doors to prevent the progression of flooding,
- Sump pumps, and
- Other design or construction characteristics that contribute to minimize the consequences of flooding.

The systems inside each building that could represent a flood source are considered. From these systems, the building flood source that presents the most critical characteristics for flood progression and which has the capacity to damage mitigation equipment is chosen.

The following general assumptions are used in the analysis:

(1) Flooding resulting from component ruptures is considered in this analysis.

(2) For each tank rupture, it is assumed that the entire tank inventory is drained.

(3) For this analysis, non-qualified submerging equipment (motors or solenoids for valves, control cabinets and circuitry) is assumed to result in equipment failure.

(4) The expected effect of flooding electrical equipment such as motor control centers, electrical cabinets, and terminal boxes, is a short to ground, removing power from the loads served by the component. This analysis addresses all such failures of electrical equipment as ground shorts.

(5) Motor-operated valves (MOVs) require the application of current to the motor to change the valve position. Without power, the valve will remain in its current position. Flooding and/or spraying of a motor-operated valve will therefore cause the valve to fail as is.

(6) Passive components, such as check valves, pipes, and tanks are not considered to be vulnerable to flooding effects.

(7) Flooding has no effect on test and maintenance unavailability. Additional testing and maintenance may be required after a flood. Prior to and during a flood, the unavailability of equipment from test and maintenance is unaffected by flooding.

(8) Flooding has no effect on common cause failures..

(9) Water in a stairwell or propagating into a stairwell preferentially continues to travel down the stairwell as opposed to propagating under a door leading outside the stairwell.

(10) The mission time of the active equipment credited in the flooding risk analysis is 24 hours. This is the same as the internal events PRA.

(11) Concurrent flooding events from different sources are not considered in the flooding analysis.

(12) Components that are environmentally qualified inside containment are considered to be invulnerable to the effects of flooding because they are qualified for a post-LOCA environment inside containment. Environmentally qualified equipment outside containment may not be qualified to as severe an environment.

(13) It is assumed that insulation properties are not lost at any point of cable routing and that interaction with water can only occur at termination points except environmentally qualified termination points inside containment.

(14) The internal flooding analysis uses the same systemic success criteria as used in the internal events PRA. The shutdown flooding analysis uses the same systemic success criteria as used in the shutdown PRA.

(15) Electrical connections in the termination boxes on the containment wall are adequately protected to prevent flood-induced failure.

(16) The solenoid valve associated with an air-operated valve is located in the vicinity of the air-operated valve.

(17) Fire doors are not watertight.

(18) Walls are assumed to be capable of withstanding the expected maximum flood loading. Therefore, walls are assumed to remain intact throughout a flooding event.

(19) It is assumed that electrical circuit fault protection has been designed to provide protection for plant electric circuits via protective relaying, circuit breakers, and fuses. Therefore, loss of a component due to flooding will not result in the loss of the bus that supplies power to the affected component.

(20) For floor drains, appropriate precautions such as check valves, back flow preventers, and siphon breaks are assumed to prevent back flow and any potential flooding.

(21) It is assumed that the doors that connect the Control and Reactor Buildings with the Electrical Building galleries are watertight, for flooding of the galleries up to the ground level elevation. It is also assumed that the watertight doors are normally closed at power. Opening of the doors would generate an alarm in the Control Room, and procedures direct their immediate closure upon receipt of an alarm.

(22) It is assumed that the operation of the components located in Containment would not be affected in the event of a LOCA or if the Drywell was flooded to a level equivalent to the level of the suppression pool.

(23) It is assumed that the opening of the hatches, which communicate the Containment with others buildings, would be carried out in Mode 5, Mode 5 Open and Mode 6-Unflooded.

(24) It is assumed that, during shutdown, manual and automatic depressurization (ADS) of the vessel are available while the vessel head is in place.

(25) It is assumed that the actuation of the GDCS due to an RPV Level 1 water level signal is available during the entire shutdown period.

(26) Dry pipe systems (such as a pre-action FPS system) are not modeled as flood sources due to the low frequency of a failure of the dry pipe coincident with spurious opening of the actuation valve.

(27) Flooding in the containment during shutdown will not affect ICS components or the DPVs because these components are relatively high in the containment.

(28) Equipment located in the yard is not considered susceptible to internal flooding damage.

The at power core damage frequency for each flood damage state is obtained via the quantification of the internal event PRA models. The internal event initiator, %T-GEN and associated accident sequence structure for %T-GEN, adjusted for the equipment failed by the flood is used to model the flood. In general, if equipment is located in a flood zone which is being flooded, the equipment is assumed to fail. The exception is containment where equipment located in the upper section of containment is not failed by flooding in containment. This is because the equipment is located a minimum of approximately 60 feet above the bottom of containment and because of the large volume of containment available for flooding below the equipment. The damage caused by the flood is input into the accident sequence quantification through the use of flag files which set the basic event for the affected equipment to TRUE (failed), as appropriate.

The shutdown core damage frequency for each flood damage state is obtained via quantification of the shutdown PRA models. The shutdown initiators %M5-G31 (Mode 5 loss of RWCU/SDCS), %M5O-G31 (Mode 5 Open loss of RWCU/SDCS), and %M6U-G31 (Mode 6 Unflooded loss of RWCU/SDCS). Mode 6 Flooded was not considered since in this mode adequate water is available above the core to provide cooling. The associated accident sequence structure for each was used, adjusted for the equipment failed by the flood. The damage caused by the flood is input into the accident sequence quantification through the use of flag files which set the basic event for the affected equipment to TRUE (failed), as appropriate.

The flooding scenarios considered are discussed in more detail in Section 13.5 below.

13.3 FLOOD SOURCES

A screening was performed on a general review of all systems for the ESBWR. This screening removed systems which would not be considered flood sources from further consideration. After the general screening, a more detailed review of the remaining systems was performed. This review considered the volume available from the system. If the volume of the system was not sufficient to cause equipment failure, it was not considered further. Where surge tanks were available, the volume of the surge tank was used as the volume of the system available for flooding. Once the surge tank empties, it is expected the pumps will trip on low NPSH. One final review of the flood sources was performed to determine which flood sources would not be available at shutdown.

The results of these reviews is provided in Table 13-1. The plant systems considered as potential flood sources at power are:

- Nuclear Boiler System (NBS, B21),
- Control Rod Drive System (CRDS, C12),
- Standby Liquid Control System (SLCS, C41),
- Fuel and Auxiliary Pools Cooling System (FAPCS, G21),
- Reactor Water Cleanup and Shutdown Cooling System (RWCU/SDCS, G31),
- Resin Transfer System (RTS, K15),
- Turbine Main Steam System (TMSS, N11),
- Condensate and Feedwater System (C&FS, N21),
- Heater Drain and Vent System (HDVS, N22),
- Condensate Purification System (CPS, N25),
- Moisture Separator Reheater System (MSRS, N35),
- Extraction Steam System (ESS, N36),
- Circulating Water System (CWS, N71),
- Make Up Water System (MWS, P10),
- Condensate Storage and Transfer System (CS&TS, P30),
- Plant Service Water System (PSWS, P41),
- Fire Protection System (FPS, U43),
- Station Water System (SWS, Y41), and
- Aux Boiler Oil Storage and Transfer System (OS&TS, Y52).

Systems inside Containment considered in the flooding analysis as potential flood sources are those in which a break would cause a LOCA. LOCA scenarios in Containment are already modeled in the internal events PRA analysis and as such are not analyzed in the internal flooding analysis. Therefore, there are no flood scenarios in Containment that are analyzed further in the at power internal flooding analysis.

The plant systems considered as potential flood sources during shutdown are:

- Nuclear Boiler System (NBS, B21),
- Isolation Condenser System (ICS, B32),
- Control Rod Drive System (CRDS, C12),
- Standby Liquid Control System (SLCS, C41),
- Gravity Driven Cooling System (GDCS, E50),
- Fuel and Auxiliary Pools Cooling System (FAPCS, G31),
- Reactor Water Cleanup and Shutdown Cooling System (RWCU/SDCS, G31),
- Resin Transfer System (RTS, K15),
- Condensate Purification System (CPS, N25),
- Make Up Water System (MWS, P10),
- Condensate Storage and Transfer System (CS&TS, P30),
- Plant Service Water System (PSWS, P41),
- Fire Protection System (FPS, U43),
- Station Water System (SWS, Y41), and
- Aux Boiler Oil Storage and Transfer System (OS&TS, Y52).

Breaks in the RWCU/SDCS drain lines from the reactor vessel inside containment are already modeled in the shutdown PRA in Section 16 and as such are not analyzed as part of the internal flooding analysis.

13.4 FLOODING FREQUENCIES

The flooding sources considered in the flooding analysis are the piping, pumps, valves, tanks, heat exchangers, and circulating water expansion joints. Table 13-2 provides a list of rupture groups considered in the flooding analysis, the frequencies of failures used for small and large failures, and the reference document for the frequency information.

The initiating event frequency was calculated for each flood zone by summing the frequencies for flood components and piping for the system under consideration. For example, if the P41 system is failed in the TB-1400 flood zone, the P41 pipes, pumps, valves and heat exchangers, if any, located in TB-1400 are summed to calculate the initiating event frequency for flooding in TB-1400 due to failures in the P41 system.

13.4.1 At-Power Flooding Frequencies

At power flooding frequencies are included if the failure of the system directly cause a reactor trip or the flooding caused by the failure fails equipment which leads to a reactor trip or if PRA related equipment would be expected to be affected. Initiating event frequencies used for at power scenarios are provided in Table 13-3 as "%T-GEN set to".

13.4.2 Shutdown Flooding Frequencies

A shutdown initiating event is defined as any event that provokes a disturbance in the desired state of the plant and requires some kind of action to prevent damage to the core. The postulated shutdown initiating events related to internal events, fire and flooding, will challenge:

- Decay Heat Removal (includes Loss of RWCU/SDC, Loss of Preferred Power, and Loss of all Service Water), or
- Reactor Coolant System Inventory Control (includes several postulated LOCAs during shutdown).

All initiating event frequencies for shutdown are recalculated from those at power to account for the number of hours in each operating mode and the fact that the plant will only be shut down once every two years.

If operating in mode 5, the initiating event frequency at power will be adjusted as follows:

(IE Frequency per year/8760 hrs per year) * 192 hrs in Mode 5 * 0.5 outages per year

or

IE Frequency * 0.011.

If operating in mode 5 Open, the initiating event frequency at power will be adjusted as follows:

(IE Frequency per year/8760 hrs per year) * 48 hrs in Mode 5O * 0.5 outages per year

or

IE Frequency * 0.0027

If operating in mode 6 Unflooded, the initiating event frequency at power will be adjusted as follows:

(IE Frequency per year/8760 hrs per year) * 59 hrs in Mode 6 * 0.5 outages per year

or

IE Frequency * 0.0034

13.5 ANALYSIS OF FLOODING SCENARIOS

Flooding initiating events are the starting point for flood-induced accident sequence analysis. The magnitude of the flood and the associated plant damage impact from the flood effects determine the appropriate accident sequence analysis. The accident sequence analysis is also determined by whether the plant is at-power or shutdown.

The flooding scenarios are divided by flooding zones and are further subdivided by systems which have the potential to cause flooding within the flooding zone. Flood zones which do not contain flood sources and do not have floods propagating to the zone are not considered in the analysis. Flood zones which do not cause a reactor trip at power or do not contain mitigating equipment modeled in the PRA are also screened from further analysis. Finally, if the flood zone contains mitigating equipment, such as sump pumps, which would prevent unacceptable flood levels, the flood zone is not analyzed further.

13.5.1 At Power Flooding Scenarios

For postulated flood events occurring at power, the general transient initiating event category and associated accident sequence logic is used to model the accident sequence progression. The calculated flood initiator frequency and associated equipment impacts are propagated through the general transient Level 1 internal events accident sequence logic for the flood scenario. The component location information is provided in NEDE-33386 (Reference 13.9-5). Equipment located in the flood zone which is susceptible to flooding is failed by setting the equipment basic event to TRUE in a flag file used for quantification of the scenario. A recovery factor of 0.01 was applied to circulating water flooding scenarios in the turbine building to account for automatic closure of isolation valves and automatic trip of circulating water pumps.

A Level 2 analysis was also performed for the at power flooding scenarios. The shutdown scenarios are all assumed to be bypass scenarios. Therefore, the shutdown CDF is equal to the containment bypass frequency. The contribution of flooding to releases was calculated and is provided in the summary Table 13-4.

13.5.2 Shutdown Flooding Scenarios

For postulated flood events occurring during shutdown, the Mode 5 (M5), Mode 5 Open (M5O) and Mode 6 Unflooded (M6U) transient initiating event categories and associated accident sequence logics are used to model the accident sequence progression. The calculated flood initiator frequencies and associated equipment impacts are propagated through the shutdown events accident sequence logic for the flood scenario. NEDE-33386 (Reference 13.9-5) contains the equipment location information. Equipment located in the flood zone which is susceptible to flooding is failed by setting the equipment basic event to TRUE in a flag file used for quantification of the scenario.

It is assumed that all shutdown flooding scenarios lead directly to release. Therefore, the release frequency for flooding is the same as the CDF for shutdown flooding scenarios.

13.6 RESULTS

This analysis begins by assigning a flood initiation frequency to every flood scenario based on the piping and components which would contribute to flooding from the system in the flood zone. The accident sequence is quantified with equipment affected by the flooding having basic events set to TRUE (failed). The total flood risk is the sum of the CDFs for each of the flooding scenarios.

The core damage frequency results of the ESBWR probabilistic flooding analysis are summarized in the following tables:

- CDF Contribution of At-Power Flooding Scenarios (Table 13-3),
- Flooding Release Frequencies (Table 13-4), and
- CDF Contribution of Shutdown Flooding Scenarios (Table 13-5).

Each table lists the scenario ID and the resulting core damage frequency. As can be seen from these tables, the at-power internal flooding CDF is estimated at 1.62E-09/yr, the at power flooding release frequency excluding Technical Specification Leakage (TSL) is 2.07E-10, the shutdown internal flooding CDF is estimated at 5.24E-09/yr and the shutdown flooding release frequency, which is the same as the shutdown internal flooding CDF, is estimated at 5.24E-09.

The top 200 cutsets for the at-power internal flooding CDF are provided in Table 13-6, and those for shutdown internal flooding CDF are provided in Table 13-7.

The risk importance measures for the at-power internal flooding CDF are provided in Table 13-8, and those for shutdown internal flooding CDF are provided in Table 13-9.

13.7 INSIGHTS GAINED FROM THE ANALYSIS

The ESBWR probabilistic shutdown flooding analysis highlights the following key insights regarding the flooding mitigation capability of the ESBWR:

(1) The ESBWR, due to its basic layout and safety design features, is inherently capable of mitigating potential flooding. Safety system redundancy and physical separation providing protection from flooding by large water sources, along with alternate safe shutdown features in buildings separated from flooding of safety systems provide the ESBWR with significant flooding mitigation capability.

(2) Due to the inherent ESBWR flooding mitigation capability, only a small number of flooding specific design features are key in the mitigation of significant flood sources, for example:

- Using watertight doors in the accesses to tunnels and galleries from the Control and Reactor Buildings.
- Not locating flood sources with a significant volume of water in the electrical equipment rooms located in the Reactor Building.
- Locating an automatic CWS pump trip and valve closure on high water level in the condenser pit.

(3) The internal flooding at power credits feedwater pump trip on loss of control power. This feature enables several of the top cutsets to be removed.

(4) The model conservatively assumes that both SLCS trains are required for success because of uncertainties associated with the SLCS flow model. The result of this conservatism is that flooding in the reactor building at +17500 elevation or failure of a SLCS pipe and failure of rods to insert results in core damage. Some of the top cutsets would be eliminated if one train of SLCS were adequate for shutdown.

13.8 CONCLUSIONS

The main conclusion that can be drawn from the ESBWR probabilistic flooding analysis is that the risk from internal flooding is acceptably low.

The estimated at-power core damage frequency from internal flood sources is 1.62E-09 per calendar year. The estimated release frequency for at-power from internal flooding sources is 2.07E-10.

The estimated shutdown core damage frequency from internal flooding sources is 5.24E-09 per calendar year. The estimated release frequency for shutdown from internal flooding sources is 5.24E-09.

The core damage frequency for flooding at-power and shutdown is not additive.

The core damage frequencies for flooding are not additive with the core damage frequencies from other sections.

The ESBWR is inherently safe with respect to internal flood events and no operator actions are required to mitigate postulated floods (although timely operator action can reduce damage to equipment and flood severity). It has been shown that the plant can be safely shut down at low risk to plant personnel and the general public.

13.9 REFERENCES

13.9-1 NUREG/CR-6928. "Industry-Average Performance for Components and Initiating Events at U.S. Commercial Nuclear Power Plants", February 2007.

13.9-2 NUREG/CR-4639, "Nuclear Computerized Library for Assessing Reactor Reliability (NUCLARR)", Revision 1, May 1990.

13.9-3 NSAC-60, The Nuclear Safety Analysis Center and Duke Power Company, Oconee PRA; "A Probabilistic Risk Assessment of Oconee Unit 3," June 1984.

13.9-4 General Electric Nuclear Energy, "ESBWR Design Control Document Tier 2, Chapter 3, Design of Structures, Components, Equipment, and Systems", 26A6642AJ, Rev. 3

13.9-5 GE-Hitachi Nuclear Energy Americas, LLC, "ESBWR Plant Flood Zone Definition Drawings and Other PRA Supporting Information", NEDE-33386, Class II (GEH Proprietary), Revision 0, September 2007.

Table 13-1

Systems Not Considered as Flood Sources

SYS CODE	SYS ACRONYM	SYSTEM NAME	REASON EXCLUDED	CAPACITY OF SOURCE (gal)
B11	RPVS	Reactor Pressure Vessel System	Analyzed as Excessive LOCA in Section 2	
C11	RC&IS	Rod Control and Information System	Dry System	
C21	LD&IS	Leak Detection and Isolation System	Dry System	
C31	FWCS	Feedwater Control System	Dry System	
C51	NMS	Neutron Monitoring System	Dry System	
C61	RSS	Remote Shutdown System	Dry System	
C62	N-DCIS	Nonsafety DCIS	Dry System	
C63	Q-DCIS	Safety Related DCIS	Dry System	
C71	RPS	Reactor Protection System	Dry System	
C72	DPS	Diverse Protection System	Dry System	
C74	SSLC	Safety System Logic and Control	Dry System	
C82	PAS	Plant Automation System	Dry System	
C85	SB&PCS	Steam Bypass and Pressure Control System	Dry System	
C93	PSS	Plant Simulator System	Dry System	
D11	PRMS	Process Radiation Monitoring System	Dry System	
D21	ARMS	Area Radiation Monitoring System	Dry System	
F11	FSE	Fuel Servicing Equipment	Dry System	
F12	MSE	Miscellaneous Servicing Equipment	Dry System	
F13	RPVSE	Reactor Pressure Vessel Servicing Equipment	Dry System	
F14	RPVISE	RPV Internal Servicing Equipment	Dry System	
F15	RFE	Refueling Equipment	Dry System	
F16	FSR	Fuel Storage Racks	Dry System	
F17		Under-RPV Servicing Equipment	Dry System	
F21	CRDME	CRD Maintenance Equipment	Dry System	
F32	FCCE	Fuel Cask Cleaning Equipment	Dry System	
F41	PS&TE	Plant Startup and Test Equipment	Dry System	
F42	FTS	Fuel Transfer System	Dry System at Power	
H11	MCRP	Main Control Room (MCR) Panels	Dry System	
H12	MCRB	Main Control Room Back Room Panels	Dry System	
H14	RWCP	Radwaste Control Room Panels	Dry System	
H21	LCPR	Local Panels and Racks	Dry System	
J10	CFS	Core & Fuel Services	Dry System	
J11	FUEL	Nuclear Fuel	Dry System	
J12	CHAN	Fuel Channel	Dry System	
K10	LWMS	Liquid Waste Management System	Dry System during normal operation	
K20	SWMS	Solid Waste Management Sysem	Dry System	
K30	OGS	Offgas System	Dry System	

Table 13-1

Systems Not Considered as Flood Sources

SYS CODE	SYS ACRONYM	SYSTEM NAME	REASON EXCLUDED	CAPACITY OF SOURCE (gal)
N31	TURB	Main Turbine	Subsumed by Turbine Bldg Analysis	
N32	TGCS	Turbine Generator Control System	Dry System	
N33	TGSS	Turbine Gland Seal System	Subsumed by Turbine Bldg Analysis	
N34	TLOS	Turbine Lube Oil System	Subsumed by Turbine Bldg Analysis	
N37	TBS	Turbine Bypass System	Dry System during normal operation	
N38	TH	Turbine Hydraulics	Subsumed by Turbine Bldg Analysis	
N39	TASS	Turbine Auxiliary Steam System	Subsumed by Turbine Bldg Analysis	
N41	GEN	Generator	Dry System	
N42	HGCS	Hydrogen Gas Control System	Dry System	
N43	SCWS	Stator Cooling Water System	Subsumed by Turbine Bldg Analysis	
N44	GLSOS	Generator Lube and Seal Oil System	Subsumed by Turbine Bldg Analysis	
N45	H2&CO2	Hydrogen & Carbon Dioxide Bulk Gas Storage	Dry System	
N51	GES	Generator Excitation System	Dry System	
N61	CDSR	Main Condenser and Auxiliaries	Subsumed by Turbine Bldg Analysis	
P21A	RCCWSA	Reactor Component Cooling Water System A	Insufficient Volume	4227
P21B	RCCWSB	Reactor Component Cooling Water System B	Insufficient Volume	4227
P22	TCCWS	Turbine Component Cooling Water System	Insufficient Volume	4227
P25	CWS	BOP Chilled Water System	Insufficient Volume	4227
P25A	CWSA	NI Chilled Water System A	Insufficient Volume	4227
P25B	CWSB	NI Chilled Water System B	Insufficient Volume	4227
P32	OIS	Oxygen Injection System	Dry System	
P33	PSS	Process Sampling System	Leakage within capacity of sump pumps	
P51	SAS	Service Air System	Dry System	
P52	IAS	Instrument Air System	Dry System	
P54	HPNSS	High Pressure Nitrogen Supply System	Dry System	
P62	ABS	Auxiliary Boiler System	Insufficient Volume	5000

Table 13-1

Systems Not Considered as Flood Sources

SYS CODE	SYS ACRONYM	SYSTEM NAME	REASON EXCLUDED	CAPACITY OF SOURCE (gal)
P73	HWCS	Hydrogen Water Chemistry System	Subsumed by Turbine Bldg Analysis	
P74	ZNIS	Zinc Injection System	Subsumed by Turbine Bldg Analysis	
R10	EPDS	Electric Power Distribution System	Dry System	
R11	MVDS	Medium Voltage Distribution System	Dry System	
R12	LVDS	Low Voltage Distribution System	Dry System	
R13	UAC	Uninterruptible AC Power Supply	Dry System	
R14	ICP	Instrumentation and Control Power Supply	Dry System	
R15	LSP	Lighting and Servicing Power Supply	Dry System	
R16	DC	Direct Current Power Supply	Dry System	
R21	DG	Standby Onsite AC Power Supply	Dry System	
R31	RCWY	Raceway System	Dry System	
R41	GND	Plant Grounding System	Dry System	
R51		Communication System	Dry System	
S21	SWYD	Switchyard	Dry System	
T10	CONS	Containment System	Dry System	
T11	CV	Containment Vessel	Dry System	
T12	COIST	Containment Internal Structures	Dry System	
T15	PCCS	Passive Containment Cooling System	In Containment and Pool	
T31	CIS	Containment Inerting System	Dry System	
T41	DCS	Drywell Cooling System	Dry System	
T62	CMS	Containment Monitoring System	Dry System	
T64	EMS	Environmental Monitoring System	Dry System	
U31	CH&E	Cranes, Hoists, and Elevators	Dry System	
U36	EBHVS	Electrical Building HVAC	Dry System	
U37	SBHVS	Service Building HVAC	Dry System	
U38	RWBHVS	Radwaste Building HVAC	Dry System	
U39	TBHVS	Turbine Building HVAC	Dry System	
U40	RBHVS	Reactor Building HVAC	Dry System	
U41	OBHVS	Other Building HVAC	Dry System	
U42	PWSWS	Potable Water and Sanitary Waste System	Subsumed by Turbine Bldg Analysis	
U44	SWDS	Sanitary Waste Discharge System	Dry System during normal operation	
U50	EFDS	Equipment and Floor Drain System	Dry System during normal operation	
U65	OBS	Other Building Structures	Dry System	
U66	ATS	Access Tunnel Structures	Dry System	

Table 13-1

Systems Not Considered as Flood Sources

SYS CODE	SYS ACRONYM	SYSTEM NAME	REASON EXCLUDED	CAPACITY OF SOURCE (gal)
U67	RT	Radwaste Tunnel	Dry System	
U71	RB	Reactor Building Structure	Dry System	
U72	TB	Turbine Building Structure	Dry System	
U73	CB	Control Building Structure	Dry System	
U74	RW	Radwaste Building Structure	Dry System	
U75	SB	Service Building Structure	Dry System	
U77	CBHVS	Control Building HVAC	Dry System	
U78	CMCH	Cold Machine Shop	Dry System	
U80	EB	Electrical Building	Dry System	
U81	SMS	Seismic Monitoring System	Dry System	
U84	SWB	Service Water Building Structure	Dry System	
U85	SWBHVS	Service Water Building HVAC	Dry System	
U91	ADM	Administration Building Structure	Dry System	
U93	TC	Training Center	Dry System	
U95	MCH	Hot Machine Shop	Dry System	
U97	FB	Fuel Building Structure	Dry System	
U98	FBHVS	Fuel Building HVAC System	Dry System	
U99	STACK	Stack	Dry System	
W12	I&DS	Intake and Discharge Structures	Dry System	
W24	CT	Cooling Tower	Outside	
W32	SCF	Screen Cleaning Facility	Dry System	
W33	SRR	Screens, Racks, & Rakes	Dry System	
W41	ISPS	Intake Structure Power Supply	Dry System	
Y12	ROAD	Roads and Walkways	Dry System	
Y21	PADS	Tank and Equipment Pads	Dry System	
Y46	CATH	Cathodic Protection System	Dry System	
Y47	MET	Meteorological Observation System	Dry System	
Y51	YDRN	Yard Miscellaneous Drain System	Outside	
Y53	CHEM	Chemical Storage and Transfer System	Subsumed by Turbine Bldg Analysis	
Y71	YPT	Yard Pipe Trench	Dry System	
Y72	DB	Ductbank	Dry System	
Y86	SSEC	Site Security	Dry System	

Table 13-2
Rupture Group Failure Frequencies

RuptureGrp	SprayRate	MajRate	CompType	Reference
SW	5.85E-06	1.17E-06	PIPE	NUREG/CR-6928 Table 5-1
FP	2.15E-06	2.15E-07	PIPE	NUREG/CR-6928 Table 5-1
SIR	2.15E-06	2.15E-07	PIPE	NUREG/CR-6928 Table 5-1
CCW and CST	2.15E-06	2.15E-07	PIPE	NUREG/CR-6928 Table 5-1
BWR FWC - CS Piping	2.15E-06	2.15E-07	PIPE	NUREG/CR-6928 Table 5-1
BWR FCW - FAC Suscept Comp	2.15E-06	2.15E-07	PIPE	NUREG/CR-6928 Table 5-1
BWR FW - SS Piping	2.15E-06	2.15E-07	PIPE	NUREG/CR-6928 Table 5-1
Circ Water Piping	2.15E-06	2.15E-07	PIPE	NUREG/CR-6928 Table 5-1
High Pressure Steam Piping	2.15E-06	2.15E-07	PIPE	NUREG/CR-6928 Table 5-1
ACV	1.09E-04	7.65E-06	VALVE	NUREG/CR-6928 Table 5-1 AOV
MOV	1.20E-04	8.35E-06	VALVE	NUREG/CR-6928 Table 5-1 MOV
SOV	7.92E-05	5.54E-06	VALVE	NUREG/CR-6928 Table 5-1 SOV
SRV	4.99E-05	3.75E-06	VALVE	NUREG/CR-4639 (L=S*0.07 per 6928)
UV_	2.50E-04	1.75E-05	VALVE	NUREG/CR-6928 Table 5-1 CKV
NMO	1.20E-04	8.35E-06	VALVE	NUREG/CR-6928 Table 5-1 MOV
NPO	1.09E-04	7.65E-06	VALVE	NUREG/CR-6928 Table 5-1 AOV
HOV	1.26E-04	8.74E-06	VALVE	NUREG/CR-6928 Table 5-1 HOV
TNK	3.34E-04	2.33E-05	TANK	NUREG/CR-6928 Table 5-1 TNK Press
HX_	4.24E-04	2.97E-05	HX	NUREG/CR-6928 Table 5-1 HTX Shell
MP_	9.76E-04	6.83E-05	PUMP	NUREG/CR-6928 Table 5-1 MDP
MPF	9.76E-04	6.83E-05	PUMP	NUREG/CR-6928 Table 5-1 MDP
MPC	9.76E-04	6.83E-05	PUMP	NUREG/CR-6928 Table 5-1 MDP
MPW	9.76E-04	6.83E-05	PUMP	NUREG/CR-6928 Table 5-1 MDP
EDP	2.09E-03	1.46E-04	PUMP	NUREG/CR-6928 Table 5-1 DDP
EJ	4.57E-04	3.04E-04	EXP JOINT	NSAC-60 (S=0.6, L=0.4)
SQV	7.92E-05	5.54E-06	VALVE	NUREG/CR-6928 Table 5-1 SOV

Table 13-3

At Power Flooding Frequencies, # Failed Components and CDF

Flood Scenario	# Components Failed/Initiating Event Frequency	CDF
CB-7400-U43_L	27 failed events. %T-GEN set to 3.44E-5	0(1)
CTA-U43_L	27 failed events. %T-GEN set to 4.73E-5	0(1)
CTA-U43_S	27 failed events. %T-GEN set to 4.73E-4	4.74E-13
CTB-U43_L	27 failed events. %T-GEN set to 4.73E-5	0(1)
CTB-U43_S	27 failed events. %T-GEN set to 4.73E-4	4.74E-13
DGA+4650-P25A_L	23 failed events. %T-GEN set to 1.29E-5	0(1)
DGA+4650-P25A_S	23 failed events. %T-GEN set to 1.29E-4	1.03E-13
DGA+4650-Y52A_L	23 failed events. %T-GEN set to 1.075E-5	0(1)
DGA+4650-Y52A_S	23 failed events. %T-GEN set to 1.075E-4	8.59E-14
DGB+4650-P25B_L	18 failed events. %T-GEN set to 1.29E-5	0(1)
DGB+4650-P25B_S	18 failed events. %T-GEN set to 1.29E-4	1.03E-13
DGB+4650-Y52B_L	18 failed events. %T-GEN set to 1.075E-5	0(1)
DGB+4650-Y52B_S	18 failed events. %T-GEN set to 1.075E-4	8.59E-14
EB+4650-U43_L	29 failed events. %T-GEN set to 3.268E-4	7.79E-12
EB+9800-U43_L	29 failed events. %T-GEN set to 1.075E-5	1.46E-13
EBA+9800-U43_L	36 failed events. %T-GEN set to 6.45E-5	5.15E-14
EBA+9800-U43_S	36 failed events. %T-GEN set to 6.45E-4	6.46E-13
EBB+9800-U43_L	35 failed events. %T-GEN set to 6.45E-5	5.15E-14
EBB+9800-U43_S	35 failed events. %T-GEN set to 6.45E-4	6.46E-13
FB+4650-U43_L	49 failed events. %T-GEN set to 1.72E-5	0(1)
FB-11500-G21_L	77 failed events. %T-GEN set to 5.878E-4	7.83E-13
FB-11500-U43_L	49 failed events. %T-GEN set to 1.001E-4	8.00E-14
FBSP-11500-C41_L	13 failed events. %T-GEN set to 1.075E-5	2.69E-12
FBSP-11500-C41_S	13 failed events. %T-GEN set to 1.075E-4	2.69E-11
FBSP-11500-G21_L	55 failed events. %T-GEN set to 2.15E-5	0(1)
FBSP-11500-G21_S	55 failed events. %T-GEN set to 2.15E-4	2.04E-13
FBSP-11500-U43_L	27 failed events. %T-GEN set to 1.075E-5	0(1)
FBSP-11500-U43_S	27 failed events. %T-GEN set to 1.075E-4	8.59E-14
FPE-U43_L	35 failed events. %T-GEN set to 6.717E-4	6.73E-13
FPE-U43_S	35 failed events. %T-GEN set to 9.515E-3	1.53E-11
PH-N71_L	15 failed events. %T-GEN set to 2.947E-4	2.73E-13
PH-N71_S	15 failed events. %T-GEN set to 4.119E-3	6.24E-12
PH-U43_L	34 failed events. %T-GEN set to 2.15E-5	0(1)
PH-U43_S	34 failed events. %T-GEN set to 2.15E-4	1.72E-13
RB+13570-U43_L	49 failed events. %T-GEN set to 3.44E-5	9.29E-13
RB+17500-B21A_L	51 failed events. %T-GEN set to 1.72E-5	3.26E-11
RB+17500-B21B_L	55 failed events. %T-GEN set to 1.72E-5	2.31E-11
RB+17500-C41_L	35 failed events. %T-GEN set to 2.141E-4	5.67E-11
RB+17500-G21_L	77 failed events. %T-GEN set to 4.33E-5	1.38E-11
RB+17500-G31A_L	68 failed events. %T-GEN set to 7.938E-5	2.33E-11
RB+17500-G31B_L	67 failed events. %T-GEN set to 7.938E-5	2.10E-11
RB+17500-P10_L	22 failed events. %T-GEN set to 5.913E-5	1.57E-11

Table 13-3

At Power Flooding Frequencies, # Failed Components and CDF

Flood Scenario	# Components Failed/Initiating Event Frequency	CDF
RB+34000-G21_L	55 failed events. %T-GEN set to 3.87E-5	0(1)
RBA-11500-G21_L	94 failed events. %T-GEN set to 9.82E-5	7.85E-14
RBA-11500-G31A_L	85 failed events. %T-GEN set to 3.723E-4	2.12E-12
RBA-11500-G31B_L	84 failed events. %T-GEN set to 1.042E-4	8.33E-14
RBA-11500-U43_L	66 failed events. %T-GEN set to 9.95E-5	7.95E-14
RBB-11500-C12_L	54 failed events. %T-GEN set to 1.075E-5	7.42E-14
RBB-11500-G31A_L	68 failed events. %T-GEN set to 2.795E-5	0(1)
RBB-11500-G31B_L	67 failed events. %T-GEN set to 2.961E-4	2.74E-13
RBB-11500-P30_L	25 failed events. %T-GEN set to 3.548E-5	0(1)
RBB-11500-U43_L	49 failed events. %T-GEN set to 8.17E-5	6.53E-14
RBCRD-6400-C12_L	54 failed events. %T-GEN set to 3.857E-4	6.00E-12
RBCRD-6400-C12_S	38 failed events. %T-GEN set to 5.277E-3	8.80E-11
RBCRD-6400-P21A_L	38 failed events. %T-GEN set to 1.72E-5	0(1)
RBCRD-6400-P21A_S	22 failed events. %T-GEN set to 1.72E-4	9.55E-13
RBCRD-6400-P21B_L	42 failed events. %T-GEN set to 1.72E-5	0(1)
RBCRD-6400-P21B_S	26 failed events. %T-GEN set to 1.72E-4	9.55E-13
RBCRD-6400-P30_L	25 failed events. %T-GEN set to 2.15E-5	5.80E-13
RBCRD-6400-P30_S	9 failed events. %T-GEN set to 2.15E-4	5.98E-12
RBH-11500-C12_L	43 failed events. %T-GEN set to 1.559E-4	2.40E-12
RBH-11500-C12_S	43 failed events. %T-GEN set to 1.559E-3	2.53E-11
RBH-11500-G31A_L	57 failed events. %T-GEN set to 1.174E-4	6.51E-13
RBH-11500-G31A_S	57 failed events. %T-GEN set to 1.239E-3	7.33E-12
RBH-11500-G31B_L	56 failed events. %T-GEN set to 1.443E-4	1.15E-13
RBH-11500-G31B_S	56 failed events. %T-GEN set to 1.508E-3	1.67E-12
RBH-11500-P30_L	14 failed events. %T-GEN set to 3.225E-5	0(1)
RBH-11500-P30_S	14 failed events. %T-GEN set to 3.225E-4	7.20E-13
RWB-U43_L	27 failed events. %T-GEN set to 2.494E-4	2.22E-13
RWB-U43_S	27 failed events. %T-GEN set to 2.494E-3	2.89E-12
SF-P10_L	26 failed events. %T-GEN set to 4.3E-5	5.34E-12
SF-P10_S	26 failed events. %T-GEN set to 4.3E-4	5.97E-11
SF-P41A_L	43 failed events. %T-GEN set to 5.335E-4	7.41E-11
SF-P41A_S	43 failed events. %T-GEN set to 4.418E-3	6.40E-10
SF-P41B_L	43 failed events. %T-GEN set to 5.335E-4	7.41E-11
SF-P41B_S	43 failed events. %T-GEN set to 4.418E-3	6.40E-10
SF-Y41_L	26 failed events. %T-GEN set to 9.36E-5	1.17E-11
SF-Y41_S	26 failed events. %T-GEN set to 4.68E-4	6.50E-11
TB+12000-N11_L	50 failed events. %T-GEN set to 1.763E-4	3.44E-12
TB+12000-N21_L	107 failed events. %T-GEN set to 4.392E-4	8.93E-12
TB+12000-N22_L	50 failed events. %T-GEN set to 3.225E-5	4.99E-13
TB+12000-N35_L	50 failed events. %T-GEN set to 3.87E-5	5.99E-13
TB+12000-N36_L	50 failed events. %T-GEN set to 1.398E-4	2.72E-12
TB+12000-P10_L	50 failed events. %T-GEN set to 1.29E-5	1.75E-13
TB+12000-U43_L	77 failed events. %T-GEN set to 6.02E-5	1.05E-12
TB+20000-N11_L	50 failed events. %T-GEN set to 1.72E-5	2.58E-13

Table 13-3

At Power Flooding Frequencies, # Failed Components and CDF

Flood Scenario	# Components Failed/Initiating Event Frequency	CDF
TB+20000-N21_L	107 failed events. %T-GEN set to 1.565E-4	3.06E-12
TB+20000-N22_L	50 failed events. %T-GEN set to 1.935E-5	2.90E-13
TB+20000-N35_L	50 failed events. %T-GEN set to 2.15E-5	3.33E-13
TB+20000-N36_L	50 failed events. %T-GEN set to 1.29E-5	1.75E-13
TB+20000-P10_L	50 failed events. %T-GEN set to 4.3E-5	6.75E-13
TB+20000-U43_L	77 failed events. %T-GEN set to 6.45E-5	1.13E-12
TB+28000-N11_L	50 failed events. %T-GEN set to 1.118E-4	1.88E-12
TB+28000-N21_L	107 failed events. %T-GEN set to 1.935E-5	2.90E-13
TB+28000-N22_L	50 failed events. %T-GEN set to 1.29E-5	1.75E-13
TB+28000-N35_L	50 failed events. %T-GEN set to 4.73E-5	7.43E-13
TB+4650-N21_L	107 failed events. %T-GEN set to 6.02E-5	1.60E-11
TB+4650-P10_L	50 failed events. %T-GEN set to 2.365E-5	6.28E-12
TB+4650-P41A_L	67 failed events. %T-GEN set to 2.34E-4	6.23E-11
TB+4650-P41B_L	67 failed events. %T-GEN set to 2.34E-4	6.23E-11
TB+4650-U43_L	77 failed events. %T-GEN set to 1.914E-4	5.12E-11
TB-1400-K15_L	50 failed events. %T-GEN set to 6.45E-5	1.06E-12
TB-1400-N71_L	58 failed events. %T-GEN set to 3.687E-3	8.88E-11
TB-1400-P10_L	50 failed events. %T-GEN set to 4.3E-5	6.75E-13
TB-1400-P30_L	53 failed events. %T-GEN set to 8.6E-5	6.13E-12
TB-1400-U43_L	77 failed events. %T-GEN set to 2.258E-4	4.70E-12
TBA-1400-P41A_L	37 failed events. %T-GEN set to 5.265E-4	3.24E-12
TBA-1400-P41A_S	37 failed events. %T-GEN set to 2.633E-3	1.85E-11
TBB-1400-P41B_L	33 failed events. %T-GEN set to 5.265E-4	7.24E-13
TBB-1400-P41B_S	33 failed events. %T-GEN set to 2.633E-3	5.78E-12

Notes: (1) 0 indicates no cutsets were generated at 1.0E-14 truncation.

Table 13-4

Flooding CET Release Category Frequencies

Release Category	Frequency (per year)*
TSL	1.41E-09
FR	ε**
BYP (At-Power)	1.29E-10
BYP (Shutdown)	5.24E-09
OPVB	ε
OPW1	6.4E-11
OPW2	1E-12
CCIW	1.2E-11
CCID	0.00
EVE	0.00
DCH	0.00
BOC	0.00

*The frequency is the summed contribution to the release category from all accident classes, as shown in Table 8A-3. BYP is also augmented with frequency from shutdown operations which assume all shutdown core damage sequences are bypass sequences.

**Calculated frequencies less than 1E-12 are reported as "ε".

Table 13-5
CDF Contribution of Shutdown Flooding Scenarios

Shutdown Flood Scenario	CDF(2)
CB-7400-U43_L_SD	6.93E-14
CONTAINMENT-B21A_L_SD	4.78E-11
CONTAINMENT-B21B_L_SD	2.60E-11
CONTAINMENT-B32_L_SD	3.19E-11
CONTAINMENT-C41_L_SD	8.66E-14
CONTAINMENT-E50A_L_SD	7.47E-10
CONTAINMENT-E50B_L_SD	1.51E-11
CONTAINMENT-E50C_L_SD	1.49E-11
CONTAINMENT-E50D_L_SD	7.47E-10
CONTAINMENT-G31A_L_SD	6.79E-12
CONTAINMENT-G31B_L_SD	2.33E-13
CTA-U43_L_SD	1.61E-13
CTA-U43_S_SD	6.07E-12
CTB-U43_L_SD	1.61E-13
CTB-U43_S_SD	6.07E-12
DGA+4650-Y52A_L_SD	0(1)
DGA+4650-Y52A_S_SD	7.96E-13
DGB+4650-P25B_L_SD	0(1)
DGB+4650-Y52B_L_SD	0(1)
DGB+4650-Y52B_S_SD	7.96E-13
EB+4650-U43_L_SD	1.68E-11
EB+9800-U43_L_SD	1.28E-14
EBA+9800-U43_L_SD	2.44E-13
EBA+9800-U43_S_SD	8.43E-12
EBB+9800-U43_L_SD	2.44E-13
EBB+9800-U43_S_SD	8.43E-12
FB+4650-U43_L_SD	3.06E-12
FB-11500-G21_L_SD	1.81E-10
FB-11500-U43_L_SD	2.25E-11
FBSP-11500-C41_L_SD	0(1)
FBSP-11500-G21_L_SD	4.88E-12
FBSP-11500-U43_L_SD	0(1)
FPE-U43_L_SD	8.84E-12
FPE-U43_S_SD	1.68E-10
PH-N71_L_SD	3.15E-12
PH-N71_S_SD	6.24E-11
PH-U43_L_SD	1.32E-14
PH-U43_S_SD	1.92E-12
RB+13570-U43_L_SD	7.23E-12
RB+17500-B21A_L_SD	3.18E-12
RB+17500-B21B_L_SD	1.79E-12
RB+17500-C41_L_SD	1.91E-12

Table 13-5
CDF Contribution of Shutdown Flooding Scenarios

Shutdown Flood Scenario	CDF(2)
RB+17500-G21_L_SD	1.21E-11
RB+17500-G31A_L_SD	8.99E-12
RB+17500-G31B_L_SD	5.63E-13
RB+17500-P10_L_SD	2.24E-13
RB+34000-G21_L_SD	9.69E-12
RBA-11500-G21_L_SD	2.76E-11
RBA-11500-G31A_L_SD	4.28E-11
RBA-11500-G31B_L_SD	7.96E-13
RBA-11500-U43_L_SD	7.37E-13
RBB-11500-C12_L_SD	1.07E-12
RBB-11500-G31A_L_SD	2.90E-12
RBB-11500-G31B_L_SD	3.80E-12
RBB-11500-P30_L_SD	1.90E-13
RBB-11500-U43_L_SD	5.68E-13
RBCRD-6400-C12_L_SD	4.43E-11
RBCRD-6400-C12_S_SD	6.25E-10
RBCRD-6400-P21A_L_SD	1.78E-12
RBCRD-6400-P21A_S_SD	1.94E-11
RBCRD-6400-P21B_L_SD	1.78E-12
RBCRD-6400-P21B_S_SD	1.94E-11
RBCRD-6400-P30_L_SD	2.23E-12
RBCRD-6400-P30_S_SD	2.43E-11
RBH-11500-C12_L_SD	1.76E-11
RBH-11500-C12_S_SD	1.83E-10
RBH-11500-G31A_L_SD	1.31E-11
RBH-11500-G31A_S_SD	1.45E-10
RBH-11500-G31B_L_SD	1.20E-12
RBH-11500-G31B_S_SD	2.56E-11
RBH-11500-P30_L_SD	1.63E-13
RBH-11500-P30_S_SD	5.12E-12
RWB-U43_L_SD	2.70E-12
RWB-U43_S_SD	3.90E-11
SF-P10_L_SD	4.83E-12
SF-P10_S_SD	5.15E-11
SF-P41A_L_SD	6.42E-11
SF-P41A_S_SD	5.48E-10
SF-P41B_L_SD	6.42E-11
SF-P41B_S_SD	5.48E-10
SF-Y41_L_SD	1.07E-11
SF-Y41_S_SD	5.62E-11
TB+12000-P10_L_SD	1.20E-14
TB+12000-U43_L_SD	4.87E-13
TB+20000-P10_L_SD	2.42E-13

Table 13-5
CDF Contribution of Shutdown Flooding Scenarios

Shutdown Flood Scenario	CDF(2)
TB+20000-U43_L_SD	5.22E-13
TB+33000-P10_L_SD	1.46E-12
TB+4650-P10_L_SD	8.64E-14
TB+4650-P41A_L_SD	3.79E-12
TB+4650-P41B_L_SD	3.79E-12
TB+4650-U43_L_SD	2.62E-12
TB-1400-K15_L_SD	5.22E-13
TB-1400-P10_L_SD	2.42E-13
TB-1400-P30_L_SD	9.49E-12
TB-1400-U43_L_SD	3.15E-12
TBA-1400-P41A_L_SD	6.07E-11
TBA-1400-P41A_S_SD	3.12E-10
TBB-1400-P41B_L_SD	7.69E-12
TBB-1400-P41B_S_SD	4.66E-11

Notes: (1) "0" indicates no cutsets were generated at 1.0E-14 truncation.

(2) CDF contribution of Shutdown Flood scenarios is the combined CDF from three scenarios. The three scenarios are Mode 5, Mode 5 Open and Mode 6 Unflooded. Each has a different initiating event frequency and credits only systems available in each operating mode.

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 1.62E-09
Top 200 Cutsets

#	Cutset Prob	Event Prob	Event	Description
1	5.35E-11	2.14E-04	%RB+17500-C41_L_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
2	4.42E-11	4.42E-03	%SF-P41A_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
3	4.42E-11	4.42E-03	%SF-P41B_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
4	2.69E-11	1.07E-04	%FBSP-11500-C41_S_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
5	2.37E-11	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		4.50E-05	C71-SLU-FC-R_ALL	CCF of all components in group 'C71-SLU-FC-R'
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
6	2.14E-11	4.42E-03	%SF-P41A_S_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
7	2.14E-11	4.42E-03	%SF-P41A_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
8	2.14E-11	4.42E-03	%SF-P41B_S_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	Cutset Prob	Event Prob	Event	Description
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
9	2.14E-11	4.42E-03	%SF-P41B_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
10	1.98E-11	7.94E-05	%RB+17500-G31A_L_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
11	1.98E-11	7.94E-05	%RB+17500-G31B_L_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
12	1.78E-11	3.69E-03	%TB-1400-N71_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
13	1.50E-11	6.02E-05	%TB+4650-N21_L_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
14	1.48E-11	5.91E-05	%RB+17500-P10_L_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
15	1.27E-11	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		2.40E-05	C71-OLU-FC-R_ALL	CCF of all components in group 'C71-OLU-FC-R'
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
16	1.08E-11	4.33E-05	%RB+17500-G21_L_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
17	1.07E-11	4.42E-03	%SF-P41A_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	Cutset Prob	Event Prob	Event	Description
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
18	1.07E-11	4.42E-03	%SF-P41A_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
19	1.07E-11	4.42E-03	%SF-P41A_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
20	1.07E-11	4.42E-03	%SF-P41A_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
21	1.07E-11	4.42E-03	%SF-P41A_S_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
22	1.07E-11	4.42E-03	%SF-P41A_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
23	1.07E-11	4.42E-03	%SF-P41B_S_T-GEN	

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	Cutset Prob	Event Prob	Event	Description
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
24	1.07E-11	4.42E-03	%SF-P41B_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
25	1.07E-11	4.42E-03	%SF-P41B_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
26	1.07E-11	4.42E-03	%SF-P41B_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
27	1.07E-11	4.42E-03	%SF-P41B_S_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
28	1.07E-11	4.42E-03	%SF-P41B_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	Cutset Prob	Event Prob	Event	Description
29	8.90E-12	3.69E-03	%TB-1400-N71_L_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
30	8.90E-12	3.69E-03	%TB-1400-N71_L_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
31	8.90E-12	3.69E-03	%TB-1400-N71_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
32	7.02E-12	1.56E-03	%RBH-11500-C12_S_T-GEN	
		4.50E-05	C71-SLU-FC-R_ALL	CCF of all components in group 'C71-SLU-FC-R'
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
33	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV1	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
34	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV10	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
35	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV11	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
36	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV12	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE

Table 13-6

Internal Flooding Full-Power Cutset Report

#	Cutset Prob	Event Prob	Event	Description
Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
37	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV13	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
38	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV14	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
39	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV15	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
40	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV16	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
41	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV17	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
42	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV18	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
43	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV2	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
44	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV3	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
45	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	Cutset Prob	Event Prob	Event	Description
		6.00E-03	B21-SRV-OO-ANYSRV4	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
46	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV5	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
47	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV6	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
48	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV7	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
49	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV8	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
50	6.63E-12	4.42E-03	%SF-P41A_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV9	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
51	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV1	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
52	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV10	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
53	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV11	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	Cutset Prob	Event Prob	Event	Description
54	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV12	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
55	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV13	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
56	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV14	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
57	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV15	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
58	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV16	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
59	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV17	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
60	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV18	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
61	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV2	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
62	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV3	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 1.62E-09
Top 200 Cutsets

#	Cutset Prob	Event Prob	Event	Description
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
63	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV4	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
64	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV5	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
65	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV6	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
66	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV7	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
67	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV8	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
68	6.63E-12	4.42E-03	%SF-P41B_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV9	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
69	6.43E-12	4.42E-03	%SF-P41A_S_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
70	6.43E-12	4.42E-03	%SF-P41A_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
71	6.43E-12	4.42E-03	%SF-P41B_S_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
72	6.43E-12	4.42E-03	%SF-P41B_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
73	5.91E-12	2.37E-05	%TB+4650-P10_L_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
74	5.36E-12	3.69E-03	%TB-1400-N71_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
75	5.33E-12	5.33E-04	%SF-P41A_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
76	5.33E-12	5.33E-04	%SF-P41B_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
77	5.16E-12	1.72E-05	%RB+17500-B21A_L_T-GEN	
		3.00E-03	B21-SQV-CC-F004E	EXPLOSIVE VALVE DPV E FAILS TO OPERATE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	Cutset Prob	Event Prob	Event	Description
78	5.16E-12	1.72E-05	%RB+17500-B21A_L_T-GEN	
		3.00E-03	B21-SQV-CC-F004F	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
79	5.16E-12	1.72E-05	%RB+17500-B21A_L_T-GEN	
		3.00E-03	B21-SQV-CC-F004G	EXPLOSIVE VALVE DPV G FAILS TO OPERATE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
80	5.16E-12	1.72E-05	%RB+17500-B21A_L_T-GEN	
		3.00E-03	B21-SQV-CC-F004H	EXPLOSIVE VALVE DPV H FAILS TO OPERATE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
81	5.02E-12	4.42E-03	%SF-P41A_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.14E-05	R13-INV-FC-CCFNSR_ALL	CCF of all components in group 'R13-INV-FC-CCFNSR'
82	5.02E-12	4.42E-03	%SF-P41B_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.14E-05	R13-INV-FC-CCFNSR_ALL	CCF of all components in group 'R13-INV-FC-CCFNSR'
83	4.68E-12	4.68E-04	%SF-Y41_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
84	4.30E-12	1.72E-05	%RB+17500-B21A_L_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
85	4.30E-12	1.72E-05	%RB+17500-B21B_L_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
86	4.30E-12	4.30E-04	%SF-P10_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
87	3.74E-12	1.56E-03	%RBH-11500-C12_S_T-GEN	

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	Cutset Prob	Event Prob	Event	Description
		2.40E-05	C71-OLU-FC-R_ALL	CCF of all components in group 'C71-OLU-FC-R'
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
88	3.21E-12	4.42E-03	%SF-P41A_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
89	3.21E-12	4.42E-03	%SF-P41A_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
90	3.21E-12	4.42E-03	%SF-P41A_S_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
91	3.21E-12	4.42E-03	%SF-P41A_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
92	3.21E-12	4.42E-03	%SF-P41B_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
93	3.21E-12	4.42E-03	%SF-P41B_S_T-GEN	

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	Cutset Prob	Event Prob	Event	Description
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
94	3.21E-12	4.42E-03	%SF-P41B_S_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
95	3.21E-12	4.42E-03	%SF-P41B_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
96	2.95E-12	4.42E-03	%SF-P41A_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		6.67E-06	C72-LOG-FC-D_1_2_3	CCF of three components: C72-LOG-FC-D1DPS & C72-LOG-FC-D2DPS & C72-LOG-FC-D3DPS
97	2.95E-12	4.42E-03	%SF-P41B_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		6.67E-06	C72-LOG-FC-D_1_2_3	CCF of three components: C72-LOG-FC-D1DPS & C72-LOG-FC-D2DPS & C72-LOG-FC-D3DPS
98	2.70E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		4.50E-05	C71-SLU-FC-R_ALL	CCF of all components in group 'C71-SLU-FC-R'
		1.14E-05	R13-INV-FC-CCFNSR_ALL	CCF of all components in group 'R13-INV-FC-CCFNSR'
99	2.69E-12	1.08E-05	%FBSP-11500-C41_L_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
100	2.68E-12	3.69E-03	%TB-1400-N71_L_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
101	2.68E-12	3.69E-03	%TB-1400-N71_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
102	2.58E-12	5.33E-04	%SF-P41A_L_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
103	2.58E-12	5.33E-04	%SF-P41A_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
104	2.58E-12	5.33E-04	%SF-P41B_L_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
105	2.58E-12	5.33E-04	%SF-P41B_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
106	2.26E-12	4.68E-04	%SF-Y41_S_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	Cutset Prob	Event Prob	Event	Description
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
107	2.26E-12	4.68E-04	%SF-Y41_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
108	2.12E-12	4.39E-04	%TB+12000-N21_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
109	2.08E-12	4.30E-04	%SF-P10_S_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
110	2.08E-12	4.30E-04	%SF-P10_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
111	1.90E-12	9.51E-03	%FPE-U43_S_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F004A	CHECK VALVE F004A FAILS TO OPEN
112	1.90E-12	9.51E-03	%FPE-U43_S_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F004B	CHECK VALVE F004B FAILS TO OPEN
113	1.90E-12	9.51E-03	%FPE-U43_S_T-GEN	

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 1.62E-09
Top 200 Cutsets

#	Cutset Prob	Event Prob	Event	Description
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F005A	CHECK VALVE F005A FAILS TO OPEN
114	1.90E-12	9.51E-03	%FPE-U43_S_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F005B	CHECK VALVE F005B FAILS TO OPEN
115	1.78E-12	3.69E-03	%TB-1400-N71_L_T-GEN	
		4.84E-02	C12-BV_-RE-F065	MISPOSITION OF LOCKED OPEN VALVE F065
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
116	1.74E-12	3.86E-04	%RBCRD-6400-C12_L_T-GEN	
		4.50E-05	C71-SLU-FC-R_ALL	CCF of all components in group 'C71-SLU-FC-R'
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
117	1.58E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		4.50E-05	C71-SLU-FC-R_ALL	CCF of all components in group 'C71-SLU-FC-R'
		6.67E-06	C72-LOG-FC-D_1_2_3	CCF of three components: C72-LOG-FC-D1DPS & C72-LOG-FC-D2DPS & C72-LOG-FC-D3DPS
118	1.58E-12	3.27E-04	%EB+4650-U43_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
119	1.47E-12	4.42E-03	%SF-P41A_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.33E-06	C72-LOG-FC-D_1_2	CCF of two components: C72-LOG-FC-D1DPS & C72-LOG-FC-D2DPS
120	1.47E-12	4.42E-03	%SF-P41A_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.33E-06	C72-LOG-FC-D_1_3	CCF of two components: C72-LOG-FC-D1DPS & C72-LOG-FC-D3DPS
121	1.47E-12	4.42E-03	%SF-P41A_S_T-GEN	

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 1.62E-09
Top 200 Cutsets

#	Cutset Prob	Event Prob	Event	Description
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.33E-06	C72-LOG-FC-D_2_3	CCF of two components: C72-LOG-FC-D2DPS & C72-LOG-FC-D3DPS
122	1.47E-12	4.42E-03	%SF-P41B_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.33E-06	C72-LOG-FC-D_1_2	CCF of two components: C72-LOG-FC-D1DPS & C72-LOG-FC-D2DPS
123	1.47E-12	4.42E-03	%SF-P41B_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.33E-06	C72-LOG-FC-D_1_3	CCF of two components: C72-LOG-FC-D1DPS & C72-LOG-FC-D3DPS
124	1.47E-12	4.42E-03	%SF-P41B_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.33E-06	C72-LOG-FC-D_2_3	CCF of two components: C72-LOG-FC-D2DPS & C72-LOG-FC-D3DPS
125	1.44E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		2.40E-05	C71-OLU-FC-R_ALL	CCF of all components in group 'C71-OLU-FC-R'
		1.14E-05	R13-INV-FC-CCFNSR_ALL	CCF of all components in group 'R13-INV-FC-CCFNSR'
126	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV1	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
127	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV10	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
128	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV11	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 1.62E-09
Top 200 Cutsets

#	Cutset Prob	Event Prob	Event	Description
129	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV12	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
130	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV13	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
131	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV14	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
132	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV15	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
133	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV16	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
134	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV17	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
135	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV18	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	Cutset Prob	Event Prob	Event	Description
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
136	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV2	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
137	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV3	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
138	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV4	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
139	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV5	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
140	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV6	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
141	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV7	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	Cutset Prob	Event Prob	Event	Description
142	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV8	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
143	1.39E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		6.00E-03	B21-SRV-OO-ANYSRV9	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.76E-01	N21-XHE-FO-FWRERUN	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
144	1.30E-12	4.33E-05	%RB+17500-G21_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
145	1.29E-12	5.33E-04	%SF-P41A_L_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
146	1.29E-12	5.33E-04	%SF-P41A_L_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
147	1.29E-12	5.33E-04	%SF-P41A_L_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
148	1.29E-12	5.33E-04	%SF-P41A_L_T-GEN	

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 1.62E-09
Top 200 Cutsets

#	Cutset Prob	Event Prob	Event	Description
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
149	1.29E-12	5.33E-04	%SF-P41A_L_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
150	1.29E-12	5.33E-04	%SF-P41A_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
151	1.29E-12	5.33E-04	%SF-P41B_L_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
152	1.29E-12	5.33E-04	%SF-P41B_L_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
153	1.29E-12	5.33E-04	%SF-P41B_L_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	**Cutset Prob**	**Event Prob**	**Event**	**Description**
154	1.29E-12	5.33E-04	%SF-P41B_L_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
155	1.29E-12	5.33E-04	%SF-P41B_L_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
156	1.29E-12	5.33E-04	%SF-P41B_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
157	1.13E-12	2.34E-04	%TB+4650-P41A_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
158	1.13E-12	2.34E-04	%TB+4650-P41B_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
159	1.13E-12	4.68E-04	%SF-Y41_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 1.62E-09
Top 200 Cutsets

#	Cutset Prob	Event Prob	Event	Description
160	1.13E-12	4.68E-04	%SF-Y41_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
161	1.13E-12	4.68E-04	%SF-Y41_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
162	1.13E-12	4.68E-04	%SF-Y41_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
163	1.13E-12	4.68E-04	%SF-Y41_S_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
164	1.13E-12	4.68E-04	%SF-Y41_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
165	1.09E-12	2.26E-04	%TB-1400-U43_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	Cutset Prob	Event Prob	Event	Description
166	1.07E-12	4.42E-03	%SF-P41A_S_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.50E-05	E50-SQV-CF-4OPEN	CCF OF 4 OR MORE SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
167	1.07E-12	4.42E-03	%SF-P41A_S_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.50E-05	E50-SQV-CF-4OPEN	CCF OF 4 OR MORE SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
168	1.07E-12	4.42E-03	%SF-P41B_S_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.50E-05	E50-SQV-CF-4OPEN	CCF OF 4 OR MORE SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
169	1.07E-12	4.42E-03	%SF-P41B_S_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.50E-05	E50-SQV-CF-4OPEN	CCF OF 4 OR MORE SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
170	1.06E-12	4.39E-04	%TB+12000-N21_L_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
171	1.06E-12	4.39E-04	%TB+12000-N21_L_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	Cutset Prob	Event Prob	Event	Description
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
172	1.06E-12	4.39E-04	%TB+12000-N21_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
173	1.05E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F004A	CHECK VALVE F004A FAILS TO OPEN
174	1.05E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F004B	CHECK VALVE F004B FAILS TO OPEN
175	1.05E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F005A	CHECK VALVE F005A FAILS TO OPEN
176	1.05E-12	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F005B	CHECK VALVE F005B FAILS TO OPEN
177	1.04E-12	4.30E-04	%SF-P10_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
178	1.04E-12	4.30E-04	%SF-P10_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 1.62E-09
Top 200 Cutsets

#	Cutset Prob	Event Prob	Event	Description
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
179	1.04E-12	4.30E-04	%SF-P10_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
180	1.04E-12	4.30E-04	%SF-P10_S_T-GEN	
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
181	1.04E-12	4.30E-04	%SF-P10_S_T-GEN	
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
182	1.04E-12	4.30E-04	%SF-P10_S_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
183	1.04E-12	2.14E-04	%RB+17500-C41_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
184	9.82E-13	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		1.86E-06	C71-LDD-CF-2OF4G	CCF LOAD DRIVER (2 or more of 4 GROUPS)
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 1.62E-09 Top 200 Cutsets				
#	Cutset Prob	Event Prob	Event	Description
185	9.36E-13	9.36E-05	%SF-Y41_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
186	9.26E-13	1.91E-04	%TB+4650-U43_L_T-GEN	
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
187	9.26E-13	3.86E-04	%RBCRD-6400-C12_L_T-GEN	
		2.40E-05	C71-OLU-FC-R_ALL	CCF of all components in group 'C71-OLU-FC-R'
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
188	8.97E-13	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		1.70E-06	C12-SOV-CF-V139	CCF TO OPEN (VENT) 0F SCRAM PILOT SOLENOID VALVES SOV-139
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
189	8.83E-13	4.42E-03	%SF-P41A_S_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F004A	CHECK VALVE F004A FAILS TO OPEN
190	8.83E-13	4.42E-03	%SF-P41A_S_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F004B	CHECK VALVE F004B FAILS TO OPEN
191	8.83E-13	4.42E-03	%SF-P41A_S_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F005A	CHECK VALVE F005A FAILS TO OPEN
192	8.83E-13	4.42E-03	%SF-P41A_S_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F005B	CHECK VALVE F005B FAILS TO OPEN
193	8.83E-13	4.42E-03	%SF-P41B_S_T-GEN	

Table 13-6

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 1.62E-09
Top 200 Cutsets

#	Cutset Prob	Event Prob	Event	Description
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F004A	CHECK VALVE F004A FAILS TO OPEN
194	8.83E-13	4.42E-03	%SF-P41B_S_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F004B	CHECK VALVE F004B FAILS TO OPEN
195	8.83E-13	4.42E-03	%SF-P41B_S_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F005A	CHECK VALVE F005A FAILS TO OPEN
196	8.83E-13	4.42E-03	%SF-P41B_S_T-GEN	
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F005B	CHECK VALVE F005B FAILS TO OPEN
197	8.80E-13	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		1.67E-06	C71-SLU-FC-R_1_2_3	CCF of three components: C71-SLU-FC-RPSDIV1 & C71-SLU-FC-RPSDIV2 & C71-SLU-FC-RP
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
198	8.80E-13	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		1.67E-06	C71-SLU-FC-R_1_2_4	CCF of three components: C71-SLU-FC-RPSDIV1 & C71-SLU-FC-RPSDIV2 & C71-SLU-FC-RP
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
199	8.80E-13	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		1.67E-06	C71-SLU-FC-R_1_3_4	CCF of three components: C71-SLU-FC-RPSDIV1 & C71-SLU-FC-RPSDIV3 & C71-SLU-FC-RP
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
200	8.80E-13	5.28E-03	%RBCRD-6400-C12_S_T-GEN	
		1.67E-06	C71-SLU-FC-R_2_3_4	CCF of three components: C71-SLU-FC-RPSDIV2 & C71-SLU-FC-RPSDIV3 & C71-SLU-FC-RP
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
#	Cutset Prob	Event Prob	Event	Description
1	1.20E-10	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		3.21E-02	C12-XHE-FO-LEVEL2	Operator fails to back-up CRD actuation
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
2	1.20E-10	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		3.21E-02	C12-XHE-FO-LEVEL2	Operator fails to back-up CRD actuation
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
3	1.01E-10	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
4	8.48E-11	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
5	8.48E-11	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
6	5.80E-11	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
7	5.80E-11	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
8	5.69E-11	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
9	5.68E-11	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
10	5.05E-11	8.95E-06	%TBA-1400-P41A_S_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
11	4.85E-11	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
12	4.85E-11	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
13	4.85E-11	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
14	4.85E-11	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
15	4.76E-11	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
16	4.76E-11	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
17	4.75E-11	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
18	4.75E-11	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
19	4.52E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
		1.21E-02	C12-BV_-RE-F021A	MISPOSITION OF VALVE F021A
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
20	4.52E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		1.21E-02	C12-BV_-RE-F021B	MISPOSITION OF VALVE F021B
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
21	4.52E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		1.21E-02	P21-BV_-RE-F049A	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
22	4.52E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		1.21E-02	P21-BV_-RE-F049B	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
23	4.52E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		1.21E-02	P21-BV_-RE-F050A	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
24	4.52E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		1.21E-02	P21-BV_-RE-F050B	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
25	4.52E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		1.21E-02	C12-BV_-RE-F021A	MISPOSITION OF VALVE F021A
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
26	4.52E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
		1.21E-02	C12-BV_-RE-F021B	MISPOSITION OF VALVE F021B
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
27	4.52E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		1.21E-02	P21-BV_-RE-F049A	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
28	4.52E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		1.21E-02	P21-BV_-RE-F049B	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
29	4.52E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		1.21E-02	P21-BV_-RE-F050A	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
30	4.52E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		1.21E-02	P21-BV_-RE-F050B	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
31	3.98E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		3.21E-02	C12-XHE-FO-LEVEL2	Operator fails to back-up CRD actuation
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
32	3.98E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		3.21E-02	C12-XHE-FO-LEVEL2	Operator fails to back-up CRD actuation
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 5.24E-09
Top 200 Cutsets

				DEPRESSURIZATION
33	3.37E-11	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
34	2.99E-11	5.30E-06	%RBH-11500-C12_S_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
35	2.89E-11	8.95E-06	%TBA-1400-P41A_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
36	2.89E-11	8.95E-06	%TBA-1400-P41A_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
37	2.84E-11	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
38	2.84E-11	8.95E-06	%TBA-1400-P41A_S_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
39	2.83E-11	8.95E-06	%TBA-1400-P41A_S_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
40	2.82E-11	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
41	2.82E-11	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
42	2.38E-11	4.21E-06	%RBH-11500-G31A_S_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
43	2.38E-11	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
44	2.38E-11	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
45	1.93E-11	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 5.24E-09
Top 200 Cutsets

		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
46	1.93E-11	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
47	1.89E-11	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
48	1.89E-11	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
49	1.71E-11	5.30E-06	%RBH-11500-C12_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
50	1.71E-11	5.30E-06	%RBH-11500-C12_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 5.24E-09
Top 200 Cutsets

		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
51	1.68E-11	8.95E-06	%TBA-1400-P41A_S_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
52	1.68E-11	5.30E-06	%RBH-11500-C12_S_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
53	1.68E-11	5.30E-06	%RBH-11500-C12_S_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
54	1.61E-11	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
55	1.61E-11	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
56	1.61E-11	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
57	1.61E-11	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
58	1.58E-11	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
59	1.58E-11	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
60	1.58E-11	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
61	1.58E-11	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
62	1.50E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
		1.21E-02	C12-BV_-RE-F021A	MISPOSITION OF VALVE F021A
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
63	1.50E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		1.21E-02	C12-BV_-RE-F021B	MISPOSITION OF VALVE F021B
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
64	1.50E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		1.21E-02	P21-BV_-RE-F049A	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
65	1.50E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		1.21E-02	P21-BV_-RE-F049B	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
66	1.50E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		1.21E-02	P21-BV_-RE-F050A	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
67	1.50E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		1.21E-02	P21-BV_-RE-F050B	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
68	1.50E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
		1.21E-02	C12-BV_-RE-F021A	MISPOSITION OF VALVE F021A
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
69	1.50E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		1.21E-02	C12-BV_-RE-F021B	MISPOSITION OF VALVE F021B
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
70	1.50E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		1.21E-02	P21-BV_-RE-F049A	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
71	1.50E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		1.21E-02	P21-BV_-RE-F049B	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
72	1.50E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		1.21E-02	P21-BV_-RE-F050A	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
73	1.50E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		1.21E-02	P21-BV_-RE-F050B	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
74	1.49E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 5.24E-09
Top 200 Cutsets

		4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
75	1.49E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
76	1.49E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
77	1.49E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
78	1.42E-11	8.95E-06	%TBA-1400-P41A_S_SD_M6U_G31	
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
79	1.38E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		3.69E-03	C12-MP_-FS-C001B	MOTOR-DRIVEN PUMP C001B FAILS TO START
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
80	1.38E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		3.69E-03	C12-MP_-FS-C001B	MOTOR-DRIVEN PUMP C001B FAILS TO START
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
81	1.36E-11	4.21E-06	%RBH-11500-G31A_S_SD_M6U_G31	

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 5.24E-09
Top 200 Cutsets

		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
82	1.36E-11	4.21E-06	%RBH-11500-G31A_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
83	1.34E-11	4.21E-06	%RBH-11500-G31A_S_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
84	1.33E-11	4.21E-06	%RBH-11500-G31A_S_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
85	1.12E-11	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
86	1.12E-11	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
87	1.02E-11	1.81E-06	%SF-P41A_L_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 5.24E-09
Top 200 Cutsets

		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
88	1.02E-11	1.81E-06	%SF-P41B_L_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
89	1.01E-11	1.79E-06	%TBA-1400-P41A_L_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
90	9.95E-12	5.30E-06	%RBH-11500-C12_S_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
91	9.94E-12	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
92	9.94E-12	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
93	9.94E-12	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 5.24E-09
Top 200 Cutsets

		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
94	9.94E-12	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
95	9.62E-12	8.95E-06	%TBA-1400-P41A_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
96	9.62E-12	8.95E-06	%TBA-1400-P41A_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
97	9.44E-12	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
98	9.44E-12	8.95E-06	%TBA-1400-P41A_S_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
99	9.42E-12	8.95E-06	%TBA-1400-P41A_S_SD_M6U_G31	

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
100	8.98E-12	1.59E-06	%SF-Y41_S_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
101	8.96E-12	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		2.40E-03	C12-MP_-FS-C001BOIL	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
102	8.96E-12	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		2.40E-03	C12-MP_-FS-C001BOIL	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
103	8.74E-12	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		4.84E-02	C12-BV_-RE-F013A	MISPOSITION OF VALVE F013A
		4.84E-02	C12-BV_-RE-F013B	MISPOSITION OF VALVE F013B
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
104	8.74E-12	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		4.84E-02	C12-BV_-RE-F013A	MISPOSITION OF VALVE F013A
		4.84E-02	C12-BV_-RE-F015B	MISPOSITION OF VALVE F015B
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
105	8.74E-12	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		4.84E-02	C12-BV_-RE-F013B	MISPOSITION OF VALVE F013B

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 5.24E-09
Top 200 Cutsets

		4.84E-02	C12-BV_-RE-F015A	MISPOSITION OF VALVE F015A
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
106	8.74E-12	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		4.84E-02	C12-BV_-RE-F015A	MISPOSITION OF VALVE F015A
		4.84E-02	C12-BV_-RE-F015B	MISPOSITION OF VALVE F015B
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
107	8.74E-12	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		4.84E-02	C12-BV_-RE-F064	MISPOSITION OF VALVE F064
		4.84E-02	C12-BV_-RE-F065	MISPOSITION OF LOCKED OPEN VALVE F065
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
108	8.74E-12	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		4.84E-02	C12-BV_-RE-F013A	MISPOSITION OF VALVE F013A
		4.84E-02	C12-BV_-RE-F013B	MISPOSITION OF VALVE F013B
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
109	8.74E-12	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		4.84E-02	C12-BV_-RE-F013A	MISPOSITION OF VALVE F013A
		4.84E-02	C12-BV_-RE-F015B	MISPOSITION OF VALVE F015B
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
110	8.74E-12	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		4.84E-02	C12-BV_-RE-F013B	MISPOSITION OF VALVE F013B
		4.84E-02	C12-BV_-RE-F015A	MISPOSITION OF VALVE F015A
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
111	8.74E-12	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		4.84E-02	C12-BV_-RE-F015A	MISPOSITION OF VALVE F015A
		4.84E-02	C12-BV_-RE-F015B	MISPOSITION OF VALVE F015B
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
112	8.74E-12	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		4.84E-02	C12-BV_-RE-F064	MISPOSITION OF VALVE F064
		4.84E-02	C12-BV_-RE-F065	MISPOSITION OF LOCKED OPEN VALVE F065
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
113	8.39E-12	5.30E-06	%RBH-11500-C12_S_SD_M6U_G31	
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
114	8.32E-12	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
115	8.32E-12	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
116	8.32E-12	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 5.24E-09
Top 200 Cutsets

		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
117	8.32E-12	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
118	8.32E-12	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
119	8.32E-12	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
120	8.32E-12	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
121	8.32E-12	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
122	8.25E-12	1.46E-06	%SF-P10_S_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
123	7.91E-12	4.21E-06	%RBH-11500-G31A_S_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
124	7.91E-12	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
125	7.91E-12	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
126	7.48E-12	2.00E-06	%FB-11500-G21_L_SD_M6U_G31	
		3.21E-02	C12-XHE-FO-LEVEL2	Operator fails to back-up CRD actuation
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
127	7.40E-12	1.31E-06	%RBCRD-6400-C12_L_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
128	7.15E-12	1.27E-06	%RBA-11500-G31A_L_SD_M6U_G31	
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 5.24E-09
Top 200 Cutsets

129	6.67E-12	4.21E-06	%RBH-11500-G31A_S_SD_M6U_G31	
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
130	5.86E-12	3.23E-05	%FPE-U43_S_SD_M6U_G31	
		3.21E-02	C12-XHE-FO-LEVEL2	Operator fails to back-up CRD actuation
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
131	5.86E-12	1.81E-06	%SF-P41A_L_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
132	5.86E-12	1.81E-06	%SF-P41A_L_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
133	5.86E-12	1.81E-06	%SF-P41B_L_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
134	5.86E-12	1.81E-06	%SF-P41B_L_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 5.24E-09
Top 200 Cutsets

		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
135	5.78E-12	1.79E-06	%TBA-1400-P41A_L_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
136	5.78E-12	1.79E-06	%TBA-1400-P41A_L_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
137	5.75E-12	1.81E-06	%SF-P41A_L_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
138	5.75E-12	1.81E-06	%SF-P41B_L_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
139	5.74E-12	1.81E-06	%SF-P41A_L_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
140	5.74E-12	1.81E-06	%SF-P41B_L_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
141	5.70E-12	5.30E-06	%RBH-11500-C12_S_SD_M6U_G31	

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
142	5.70E-12	5.30E-06	%RBH-11500-C12_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
143	5.69E-12	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		3.00E-05	E50-UV_OC-EQU_ALL	CCF of all components in group 'E50-UV_OC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
144	5.68E-12	1.79E-06	%TBA-1400-P41A_L_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
145	5.67E-12	1.79E-06	%TBA-1400-P41A_L_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
146	5.59E-12	5.30E-06	%RBH-11500-C12_S_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
147	5.58E-12	5.30E-06	%RBH-11500-C12_S_SD_M6U_G31	

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 5.24E-09
Top 200 Cutsets

		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
148	5.14E-12	1.59E-06	%SF-Y41_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
149	5.14E-12	1.59E-06	%SF-Y41_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
150	5.04E-12	1.59E-06	%SF-Y41_S_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
151	5.04E-12	1.59E-06	%SF-Y41_S_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
152	4.97E-12	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
153	4.97E-12	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 5.24E-09
Top 200 Cutsets

		4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
154	4.97E-12	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
155	4.97E-12	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
156	4.96E-12	8.95E-06	%TBA-1400-P41A_S_SD_M6U_G31	
		3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
157	4.96E-12	8.95E-06	%TBA-1400-P41A_S_SD_M6U_G31	
		3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
158	4.96E-12	8.95E-06	%TBA-1400-P41A_S_SD_M6U_G31	
		3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 5.24E-09
Top 200 Cutsets

159	4.96E-12	8.95E-06	%TBA-1400-P41A_S_SD_M6U_G31	
		3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
160	4.76E-12	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		3.00E-05	E50-UV_OC-EQU_ALL	CCF of all components in group 'E50-UV_OC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
161	4.76E-12	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		3.00E-05	E50-UV_OC-EQU_ALL	CCF of all components in group 'E50-UV_OC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
162	4.72E-12	1.46E-06	%SF-P10_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
163	4.72E-12	1.46E-06	%SF-P10_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
164	4.71E-12	8.95E-06	%TBA-1400-P41A_S_SD_M6U_G31	
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
165	4.64E-12	1.46E-06	%SF-P10_S_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
166	4.63E-12	1.46E-06	%SF-P10_S_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
167	4.58E-12	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		3.69E-03	C12-MP_-FS-C001B	MOTOR-DRIVEN PUMP C001B FAILS TO START
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
168	4.58E-12	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		3.69E-03	C12-MP_-FS-C001B	MOTOR-DRIVEN PUMP C001B FAILS TO START
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
169	4.53E-12	4.21E-06	%RBH-11500-G31A_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
170	4.53E-12	4.21E-06	%RBH-11500-G31A_S_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 5.24E-09
Top 200 Cutsets

				DEPRESSURIZATION
171	4.51E-12	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		2.38E-05	E50-SQV-CC_1_5	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002E
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
172	4.51E-12	1.79E-05	%RBCRD-6400-C12_S_SD_M6U_G31	
		2.38E-05	E50-SQV-CC_4_8	CCF of two components: E50-SQV-CC-F002D & E50-SQV-CC-F002H
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
173	4.44E-12	4.21E-06	%RBH-11500-G31A_S_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
174	4.44E-12	4.21E-06	%RBH-11500-G31A_S_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
175	4.28E-12	2.00E-06	%FB-11500-G21_L_SD_M6U_G31	
		3.21E-02	C12-XHE-FO-LEVEL2	Operator fails to back-up CRD actuation
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
176	4.28E-12	2.00E-06	%FB-11500-G21_L_SD_M6U_G31	
		3.21E-02	C12-XHE-FO-LEVEL2	Operator fails to back-up CRD actuation
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
177	4.24E-12	1.31E-06	%RBCRD-6400-C12_L_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
178	4.24E-12	1.31E-06	%RBCRD-6400-C12_L_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
179	4.20E-12	2.00E-06	%FB-11500-G21_L_SD_M6U_G31	
		3.21E-02	C12-XHE-FO-LEVEL2	Operator fails to back-up CRD actuation
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
180	4.20E-12	2.00E-06	%FB-11500-G21_L_SD_M6U_G31	
		3.21E-02	C12-XHE-FO-LEVEL2	Operator fails to back-up CRD actuation
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
181	4.16E-12	1.31E-06	%RBCRD-6400-C12_L_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
182	4.15E-12	1.31E-06	%RBCRD-6400-C12_L_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
183	4.13E-12	7.31E-07	%RBCRD-6400-P30_S_SD_M6U_G31	

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
184	4.09E-12	1.27E-06	%RBA-11500-G31A_L_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
185	4.09E-12	1.27E-06	%RBA-11500-G31A_L_SD_M6U_G31	
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
186	4.01E-12	1.27E-06	%RBA-11500-G31A_L_SD_M6U_G31	
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
187	4.01E-12	1.27E-06	%RBA-11500-G31A_L_SD_M6U_G31	
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
188	3.77E-12	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		2.38E-05	E50-SQV-CC_1_5	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002E
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
189	3.77E-12	1.50E-05	%SF-P41A_S_SD_M6U_G31	
		2.38E-05	E50-SQV-CC_4_8	CCF of two components: E50-SQV-CC-F002D & E50-SQV-CC-F002H
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 5.24E-09 Top 200 Cutsets				
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
190	3.77E-12	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		2.38E-05	E50-SQV-CC_1_5	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002E
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
191	3.77E-12	1.50E-05	%SF-P41B_S_SD_M6U_G31	
		2.38E-05	E50-SQV-CC_4_8	CCF of two components: E50-SQV-CC-F002D & E50-SQV-CC-F002H
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
192	3.73E-12	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		1.00E-03	C62-UNDEVSPUR5	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
193	3.73E-12	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		1.00E-03	C62-UNDEVSPUR7	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
194	3.73E-12	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		1.00E-03	C63-UNDEVSPUR126	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
195	3.73E-12	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		1.00E-03	C63-UNDEVSPUR127	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
196	3.73E-12	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		1.00E-03	C62-UNDEVSPUR5	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334

Table 13-7

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 5.24E-09
Top 200 Cutsets

		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
197	3.73E-12	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		1.00E-03	C62-UNDEVSPUR7	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
198	3.73E-12	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		1.00E-03	C63-UNDEVSPUR126	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
199	3.73E-12	3.54E-07	%CONTAINMENT-E50D_L_SD_M6U_G31	
		1.00E-03	C63-UNDEVSPUR127	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
200	3.72E-12	3.54E-07	%CONTAINMENT-E50A_L_SD_M6U_G31	
		3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		2.18E-01	R-M6-G31	FAILURE TO RECOVER RWCU/SDC
		1.61E-02	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

Table 13-8

Internal Flooding Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Full Power
Core Damage Frequency = 1.62E-09

Event Name	Probability	Fus Ves	RAW	Description
B21-PS_COND	9.66E-02	1.06E-03	1.01	CONDITIONAL PROBABILITY OF TOPLSLOCA|TOPIORV
B21-SQV-CC_1_5	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004A & B21-SQV-CC-F004E
B21-SQV-CC_1_6	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004A & B21-SQV-CC-F004F
B21-SQV-CC_1_7	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004A & B21-SQV-CC-F004G
B21-SQV-CC_1_8	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004A & B21-SQV-CC-F004H
B21-SQV-CC_2_5	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004B & B21-SQV-CC-F004E
B21-SQV-CC_2_6	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004B & B21-SQV-CC-F004F
B21-SQV-CC_2_7	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004B & B21-SQV-CC-F004G
B21-SQV-CC_2_8	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004B & B21-SQV-CC-F004H
B21-SQV-CC_3_5	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004C & B21-SQV-CC-F004E
B21-SQV-CC_3_6	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004C & B21-SQV-CC-F004F
B21-SQV-CC_3_7	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004C & B21-SQV-CC-F004G
B21-SQV-CC_3_8	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004C & B21-SQV-CC-F004H
B21-SQV-CC_4_5	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004D & B21-SQV-CC-F004E
B21-SQV-CC_4_6	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004D & B21-SQV-CC-F004F
B21-SQV-CC_4_7	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004D & B21-SQV-CC-F004G
B21-SQV-CC_4_8	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004D & B21-SQV-CC-F004H
B21-SQV-CC_5_6	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004E & B21-SQV-CC-F004F
B21-SQV-CC_5_7	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004E & B21-SQV-CC-F004G
B21-SQV-CC_5_8	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004E & B21-SQV-CC-F004H
B21-SQV-CC_6_7	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004F & B21-SQV-CC-F004G
B21-SQV-CC_6_8	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004F & B21-SQV-CC-F004H
B21-SQV-CC_7_8	2.38E-05	2.53E-05	2.06	CCF of two components: B21-SQV-CC-F004G & B21-SQV-CC-F004H
B21-SQV-CC_ALL	1.50E-04	1.46E-01	971.31	CCF of all components in group 'B21-SQV-CC'

Table 13-8

Internal Flooding Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Full Power
Core Damage Frequency = 1.62E-09

Event Name	Probability	Fus Ves	RAW	Description
B21-SQV-CC-F004A	3.00E-03	2.58E-03	1.86	EXPLOSIVE VALVE DPV F004A FAILS TO OPERATE
B21-SQV-CC-F004B	3.00E-03	2.58E-03	1.86	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
B21-SQV-CC-F004C	3.00E-03	2.58E-03	1.86	EXPLOSIVE VALVE DPV C FAILS TO OPERATE
B21-SQV-CC-F004D	3.00E-03	2.58E-03	1.86	EXPLOSIVE VALVE DPV D FAILS TO OPERATE
B21-SQV-CC-F004E	3.00E-03	4.03E-03	2.34	EXPLOSIVE VALVE DPV E FAILS TO OPERATE
B21-SQV-CC-F004F	3.00E-03	4.03E-03	2.34	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
B21-SQV-CC-F004G	3.00E-03	4.03E-03	2.34	EXPLOSIVE VALVE DPV G FAILS TO OPERATE
B21-SQV-CC-F004H	3.00E-03	4.03E-03	2.34	EXPLOSIVE VALVE DPV H FAILS TO OPERATE
B21-SRV-CC_ALL	5.85E-04	1.53E-04	1.26	CCF of all components in group 'B21-SRV-CC'
B21-SRV-CC-F006A	7.00E-03	1.78E-04	1.03	SRV F006A FAILS TO OPEN ON DEMAND
B21-SRV-CC-F006B	7.00E-03	1.78E-04	1.03	SRV F006B FAILS TO OPEN ON DEMAND
B21-SRV-CC-F006C	7.00E-03	8.92E-05	1.01	SRV F006C FAILS TO OPEN ON DEMAND
B21-SRV-CC-F006D	7.00E-03	8.92E-05	1.01	SRV F006D FAILS TO OPEN ON DEMAND
B21-SRV-CC-F006E	7.00E-03	1.78E-04	1.03	SRV F006E FAILS TO OPEN ON DEMAND
B21-SRV-CC-F006F	7.00E-03	1.78E-04	1.03	SRV F006F FAILS TO OPEN ON DEMAND
B21-SRV-CC-F006G	7.00E-03	8.92E-05	1.01	SRV F006G FAILS TO OPEN ON DEMAND
B21-SRV-CC-F006H	7.00E-03	8.92E-05	1.01	SRV F006H FAILS TO OPEN ON DEMAND
B21-SRV-CC-F006J	7.00E-03	1.78E-04	1.03	SRV F006J FAILS TO OPEN ON DEMAND
B21-SRV-CC-F006K	7.00E-03	8.92E-05	1.01	SRV F006K FAILS TO OPEN ON DEMAND
B21-SRV-OO-ANYSRV1	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV10	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV11	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV12	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV13	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV14	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV15	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE

Table 13-8

Internal Flooding Full-Power Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) Flooding Full Power Core Damage Frequency = 1.62E-09				
Event Name	**Probability**	**Fus Ves**	**RAW**	**Description**
B21-SRV-OO-ANYSRV16	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV17	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV18	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV2	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV3	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV4	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV5	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV6	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV7	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV8	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV9	6.00E-03	1.55E-02	3.57	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-F006A	6.00E-03	1.91E-03	1.32	SAFETY/RELIEF VALVE F006A FAILS TO RE-CLOSE
B21-SRV-OO-F006B	6.00E-03	1.91E-03	1.32	SAFETY/RELIEF VALVE F006B FAILS TO RE-CLOSE
B21-SRV-OO-F006C	6.00E-03	1.91E-03	1.32	SAFETY/RELIEF VALVE F006C FAILS TO RE-CLOSE
B21-SRV-OO-F006D	6.00E-03	1.91E-03	1.32	SAFETY/RELIEF VALVE F006D FAILS TO RE-CLOSE
B21-SRV-OO-F006E	6.00E-03	1.91E-03	1.32	SAFETY/RELIEF VALVE F006E FAILS TO RE-CLOSE
B21-SRV-OO-F006F	6.00E-03	1.91E-03	1.32	SAFETY/RELIEF VALVE F006F FAILS TO RE-CLOSE
B21-SRV-OO-F006G	6.00E-03	1.91E-03	1.32	SAFETY/RELIEF VALVE F006G FAILS TO RE-CLOSE
B21-SRV-OO-F006H	6.00E-03	1.91E-03	1.32	SAFETY/RELIEF VALVE F006H FAILS TO RE-CLOSE
B21-SRV-OO-F006J	6.00E-03	1.91E-03	1.32	SAFETY/RELIEF VALVE F006J FAILS TO RE-CLOSE
B21-SRV-OO-F006K	6.00E-03	1.91E-03	1.32	SAFETY/RELIEF VALVE F006K FAILS TO RE-CLOSE
B21-UV_-CC-F102A	1.00E-04	3.97E-05	1.4	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
B21-UV_-CC-F103A	1.00E-04	3.97E-05	1.4	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
B21-XHE-FO-6OPEN	1.61E-03	5.63E-04	1.35	OPERATOR FAILS TO OPEN 6/10 SRVs
B32-HX_-PG_1_2	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001B
B32-HX_-PG_1_3	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001C

Table 13-8

Internal Flooding Full-Power Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) Flooding Full Power Core Damage Frequency = 1.62E-09				
Event Name	**Probability**	**Fus Ves**	**RAW**	**Description**
B32-HX_-PG_1_4	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001D
B32-HX_-PG_1_6	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX002B
B32-HX_-PG_1_7	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX002C
B32-HX_-PG_1_8	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX002D
B32-HX_-PG_2_3	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001B & B32-HX_-PG-HX001C
B32-HX_-PG_2_4	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001B & B32-HX_-PG-HX001D
B32-HX_-PG_2_5	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001B & B32-HX_-PG-HX002A
B32-HX_-PG_2_7	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001B & B32-HX_-PG-HX002C
B32-HX_-PG_2_8	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001B & B32-HX_-PG-HX002D
B32-HX_-PG_3_4	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001C & B32-HX_-PG-HX001D
B32-HX_-PG_3_5	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001C & B32-HX_-PG-HX002A
B32-HX_-PG_3_6	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001C & B32-HX_-PG-HX002B
B32-HX_-PG_3_8	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001C & B32-HX_-PG-HX002D
B32-HX_-PG_4_5	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001D & B32-HX_-PG-HX002A
B32-HX_-PG_4_6	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001D & B32-HX_-PG-HX002B
B32-HX_-PG_4_7	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX001D & B32-HX_-PG-HX002C
B32-HX_-PG_5_6	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX002A & B32-HX_-PG-HX002B
B32-HX_-PG_5_7	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX002A & B32-HX_-PG-HX002C
B32-HX_-PG_5_8	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX002A & B32-HX_-PG-HX002D
B32-HX_-PG_6_7	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX002B & B32-HX_-PG-HX002C
B32-HX_-PG_6_8	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX002B & B32-HX_-PG-HX002D
B32-HX_-PG_7_8	3.43E-07	2.80E-04	817.62	CCF of two components: B32-HX_-PG-HX002C & B32-HX_-PG-HX002D
B32-NMO-CC_1_2	1.11E-05	2.79E-05	3.49	CCF of two components: B32-NMO-CC-F104A & B32-NMO-CC-F104B
B32-NMO-CC-F104A	1.00E-04	2.73E-04	3.73	F104A Fails to Open
B32-NMO-CC-F104B	1.00E-04	2.73E-04	3.73	F104B fails to open
B32-NONCONDENSE	1.00E+00	1.24E-01	1	Non condensable gasses form in ICS sufficiently to require venting

Table 13-8

Internal Flooding Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Full Power
Core Damage Frequency = 1.62E-09

Event Name	Probability	Fus Ves	RAW	Description
B32-NPO-CC_ALL	1.11E-07	7.36E-05	660.06	CCF of all components in group 'B32-NPO-CC'
B32-NPO-CC-F104C	1.00E-04	2.87E-04	3.86	F104C fails to open
B32-NPO-CC-F104D	1.00E-04	2.87E-04	3.86	F104D Fails to Open
BOPCWS-SYS-FAILS	1.00E-03	2.55E-04	1.25	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
C12-AOV-CF-SCRV126	6.90E-09	6.24E-04	9.04E+04	CCF TO OPEN OF AIR OPERATED SCRAM VALVE AOV-126
C12-BV_-RE-F003A	1.21E-02	3.94E-05	1	MISPOSITION OF VALVE FOO3A
C12-BV_-RE-F003B	1.21E-02	3.94E-05	1	MISPOSITION OF VALVE F003B
C12-BV_-RE-F013A	4.84E-02	6.34E-04	1.01	MISPOSITION OF VALVE F013A
C12-BV_-RE-F013B	4.84E-02	6.34E-04	1.01	MISPOSITION OF VALVE F013B
C12-BV_-RE-F015A	4.84E-02	6.34E-04	1.01	MISPOSITION OF VALVE F015A
C12-BV_-RE-F015B	4.84E-02	6.34E-04	1.01	MISPOSITION OF VALVE F015B
C12-BV_-RE-F021A	1.21E-02	1.23E-03	1.1	MISPOSITION OF VALVE F021A
C12-BV_-RE-F021B	1.21E-02	1.23E-03	1.1	MISPOSITION OF VALVE F021B
C12-BV_-RE-F064	4.84E-02	2.91E-04	1.01	MISPOSITION OF VALVE F064
C12-BV_-RE-F065	4.84E-02	9.66E-03	1.19	MISPOSITION OF LOCKED OPEN VALVE F065
C12-MOV-CC-F020A	4.00E-03	3.60E-04	1.09	MOTOR OPER. VALVE F020A FAILS TO OPEN
C12-MOV-CC-F020B	4.00E-03	3.60E-04	1.09	MOTOR OPER. VALVE F020B FAILS TO OPEN
C12-MP_-FS-C001B	3.69E-03	2.27E-04	1.06	MOTOR-DRIVEN PUMP C001B FAILS TO START
C12-MP_-FS-C001BOIL	2.40E-03	1.48E-04	1.06	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
C12-ROD-CF-SCRAM	2.50E-07	4.26E-01	1.70E+06	CCF OF CONTROL RODS TO INSERT
C12-SOV-CF-V139	1.70E-06	9.58E-04	564.23	CCF TO OPEN (VENT) 0F SCRAM PILOT SOLENOID VALVES SOV-139
C12-SOV-FE-ARI_ALL	5.00E-05	1.40E-04	3.78	CCF of all components in group 'C12-SOV-FE-ARI'
C12-SYS-TM-TRAINB	3.00E-03	1.85E-04	1.06	TRAIN B IN MAINTENANCE
C41-ACV-OC-F002A	2.40E-05	1.45E-04	7.04	AIR OPERATED VALVE F002A FAILS TO REMAIN OPEN
C41-ACV-OC-F002B	2.40E-05	1.45E-04	7.04	AIR OPERATED VALVE F002B FAILS TO REMAIN OPEN
C41-ACV-OC-F002C	2.40E-05	1.45E-04	7.04	AIR OPERATED VALVE F002C FAILS TO REMAIN OPEN

Table 13-8

Internal Flooding Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Full Power
Core Damage Frequency = 1.62E-09

Event Name	Probability	Fus Ves	RAW	Description
C41-ACV-OC-F002D	2.40E-05	1.45E-04	7.04	AIR OPERATED VALVE FAILS TO REMAIN OPEN
C41-SQV-CC_1_2_3	5.56E-06	8.21E-06	2.47	CCF of three components: C41-SQV-CC-F003A & C41-SQV-CC-F003B & C41-SQV-CC-F003C
C41-SQV-CC_1_2_4	5.56E-06	8.21E-06	2.47	CCF of three components: C41-SQV-CC-F003A & C41-SQV-CC-F003B & C41-SQV-CC-F003D
C41-SQV-CC_1_3	5.56E-05	3.73E-04	7.7	CCF of two components: C41-SQV-CC-F003A & C41-SQV-CC-F003C
C41-SQV-CC_1_3_4	5.56E-06	8.21E-06	2.47	CCF of three components: C41-SQV-CC-F003A & C41-SQV-CC-F003C & C41-SQV-CC-F003D
C41-SQV-CC_2_3_4	5.56E-06	8.21E-06	2.47	CCF of three components: C41-SQV-CC-F003B & C41-SQV-CC-F003C & C41-SQV-CC-F003D
C41-SQV-CC_2_4	5.56E-05	3.73E-04	7.7	CCF of two components: C41-SQV-CC-F003B & C41-SQV-CC-F003D
C41-SQV-CC_ALL	1.50E-04	1.21E-03	9.08	CCF of all components in group 'C41-SQV-CC'
C41-SQV-CC-F003A	3.00E-03	2.07E-05	1.01	EXPLOSIVE VALVE F003A FAILS TO OPERATE
C41-SQV-CC-F003B	3.00E-03	2.07E-05	1.01	EXPLOSIVE VALVE F003B FAILS TO OPERATE
C41-SQV-CC-F003C	3.00E-03	2.07E-05	1.01	EXPLOSIVE VALVE F003C FAILS TO OPERATE
C41-SQV-CC-F003D	3.00E-03	2.07E-05	1.01	EXPLOSIVE VALVE F003D FAILS TO OPERATE
C41-UV_-CC_ALL	1.37E-05	6.65E-05	5.84	CCF of all components in group 'C41-UV_-CC'
C41-UV_-CC-F004A	7.99E-04	6.97E-03	9.72	CHECK VALVE F004A FAILS TO OPEN
C41-UV_-CC-F004B	7.99E-04	6.97E-03	9.72	CHECK VALVE F004B FAILS TO OPEN
C41-UV_-CC-F005A	7.99E-04	6.97E-03	9.72	CHECK VALVE F005A FAILS TO OPEN
C41-UV_-CC-F005B	7.99E-04	6.97E-03	9.72	CHECK VALVE F005B FAILS TO OPEN
C62-CCFSOFTWARE	1.00E-04	7.09E-05	1.71	Common cause failure of software
C63-CCFSOFTWARE	1.00E-04	2.25E-01	2.25E+03	Common cause failure of software
C63-CCFSOFTWARE_S	1.00E-04	2.04E-01	2.04E+03	Common cause failure of software, for spurious
C63-UNDEVSPUR58	1.00E-03	1.16E-02	12.54	Undeveloped spurious hardware failure
C63-UNDEVSPUR59	1.00E-03	1.16E-02	12.54	Undeveloped spurious hardware failure
C63-UNDEVSPUR60	1.00E-03	1.16E-02	12.54	Undeveloped spurious hardware failure
C63-UNDEVSPUR61	1.00E-03	1.16E-02	12.54	Undeveloped spurious hardware failure
C63-UNDEVSPUR62	1.00E-03	1.16E-02	12.54	Undeveloped spurious hardware failure
C63-UNDEVSPUR63	1.00E-03	1.16E-02	12.54	Undeveloped spurious hardware failure

Table 13-8

Internal Flooding Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Full Power
Core Damage Frequency = 1.62E-09

Event Name	Probability	Fus Ves	RAW	Description
C63-UNDEVSPUR64	1.00E-03	1.16E-02	12.54	Undeveloped spurious hardware failure
C63-UNDEVSPUR65	1.00E-03	1.16E-02	12.54	Undeveloped spurious hardware failure
C63-UNDEVSPUR66	1.00E-03	1.16E-02	12.54	Undeveloped spurious hardware failure
C63-UNDEVSPUR67	1.00E-03	1.16E-02	12.54	Undeveloped spurious hardware failure
C63-UNDEVSPUR68	1.00E-03	1.16E-02	12.54	Undeveloped spurious hardware failure
C63-UNDEVSPUR69	1.00E-03	1.16E-02	12.54	Undeveloped spurious hardware failure
C63-UNDEVSPUR70	1.00E-03	1.16E-02	12.54	Undeveloped spurious hardware failure
C63-UNDEVSPUR71	1.00E-03	1.16E-02	12.54	Undeveloped spurious hardware failure
C63-UNDEVSPUR72	1.00E-03	1.16E-02	12.54	Undeveloped spurious hardware failure
C63-UNDEVSPUR73	1.00E-03	1.16E-02	12.54	Undeveloped spurious hardware failure
C71-DTM-FC-R_ALL	3.00E-05	1.95E-04	7.51	CCF of all components in group 'C71-DTM-FC-R'
C71-LDD-CF-2OF4G	1.86E-06	1.05E-03	564.27	CCF LOAD DRIVER (2 or more of 4 GROUPS)
C71-OLU-FC-R_5_6_7	1.27E-07	5.35E-05	422.36	CCF of three components: C71-OLU-FC-RPSDIV1 & C71-OLU-FC-RPSDIV2 & C71-OLU-FC-RP
C71-OLU-FC-R_5_6_8	1.27E-07	5.35E-05	422.36	CCF of three components: C71-OLU-FC-RPSDIV1 & C71-OLU-FC-RPSDIV2 & C71-OLU-FC-RP
C71-OLU-FC-R_5_7_8	1.27E-07	5.35E-05	422.36	CCF of three components: C71-OLU-FC-RPSDIV1 & C71-OLU-FC-RPSDIV3 & C71-OLU-FC-RP
C71-OLU-FC-R_6_7_8	1.27E-07	5.35E-05	422.36	CCF of three components: C71-OLU-FC-RPSDIV2 & C71-OLU-FC-RPSDIV3 & C71-OLU-FC-RP
C71-OLU-FC-R_ALL	2.40E-05	1.41E-02	588.39	CCF of all components in group 'C71-OLU-FC-R'
C71-SLU-FC-N_ALL	4.50E-05	3.02E-04	7.71	CCF of all components in group 'C71-SLU-FC-N'
C71-SLU-FC-R_1_2_3	1.67E-06	9.39E-04	564.21	CCF of three components: C71-SLU-FC-RPSDIV1 & C71-SLU-FC-RPSDIV2 & C71-SLU-FC-RP
C71-SLU-FC-R_1_2_4	1.67E-06	9.39E-04	564.21	CCF of three components: C71-SLU-FC-RPSDIV1 & C71-SLU-FC-RPSDIV2 & C71-SLU-FC-RP
C71-SLU-FC-R_1_3_4	1.67E-06	9.39E-04	564.21	CCF of three components: C71-SLU-FC-RPSDIV1 & C71-SLU-FC-RPSDIV3 & C71-SLU-FC-RP
C71-SLU-FC-R_2_3_4	1.67E-06	9.39E-04	564.21	CCF of three components: C71-SLU-FC-RPSDIV2 & C71-SLU-FC-RPSDIV3 & C71-SLU-FC-RP
C71-SLU-FC-R_ALL	4.50E-05	2.66E-02	591.67	CCF of all components in group 'C71-SLU-FC-R'
C71-SLU-FC-S_ALL	4.50E-05	3.02E-04	7.71	CCF of all components in group 'C71-SLU-FC-S'
C72-ATM-FC-L1_ALL	5.00E-06	1.25E-03	251.1	CCF of all components in group 'C72-ATM-FC-L1'
C72-CCFSOFTWARE	1.00E-04	1.14E-01	1.14E+03	COMMON CAUSE FAILURE OF DPS PROCESSORS

Table 13-8

Internal Flooding Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Full Power
Core Damage Frequency = 1.62E-09

Event Name	Probability	Fus Ves	RAW	Description
C72-LDD-CF-LOADS	1.86E-06	1.29E-03	693.73	COMMON CAUSE FAILURE OF DPS LOAD DRIVERS
C72-LDD-FC-FWRB1	1.80E-04	1.47E-03	9.15	LOAD DRIVER FAILS TO ENERGIZE FWRB CIRCUIT
C72-LDD-FC-FWRB2	1.80E-04	1.47E-03	9.15	LOAD DRIVER FAILS TO ENERGIZE FWRB CIRCUIT
C72-LDD-FC-S1F004A	1.80E-04	7.09E-05	1.39	F004A FIRST SERIES LOAD DRIVER FAILS ACTUATE
C72-LDD-FC-S1F004B	1.80E-04	7.09E-05	1.39	F004B FIRST SERIES LOAD DRIVER FAILS ACTUATE
C72-LDD-FC-S1F004C	1.80E-04	7.09E-05	1.39	F004C FIRST SERIES LOAD DRIVER FAILS ACTUATE
C72-LDD-FC-S1F004D	1.80E-04	7.09E-05	1.39	F004D FIRST SERIES LOAD DRIVER FAILS ACTUATE
C72-LDD-FC-S2F004A	1.80E-04	7.09E-05	1.39	F004A SECOND SERIES LOAD DRIVER FAILS TO ACTUATE
C72-LDD-FC-S2F004B	1.80E-04	7.09E-05	1.39	F004B SECOND SERIES LOAD DRIVER FAILS TO ACTUATE
C72-LDD-FC-S2F004C	1.80E-04	7.09E-05	1.39	F004C SECOND SERIES LOAD DRIVER FAILS TO ACTUATE
C72-LDD-FC-S2F004D	1.80E-04	7.09E-05	1.39	F004D SECOND SERIES LOAD DRIVER FAILS TO ACTUATE
C72-LDD-FC-S3F004A	1.80E-04	7.09E-05	1.39	F004A THIRD SERIES LOAD DRIVER FAILS TO ACTUATE
C72-LDD-FC-S3F004B	1.80E-04	7.09E-05	1.39	F004B THIRD SERIES LOAD DRIVER FAILS TO ACTUATE
C72-LDD-FC-S3F004C	1.80E-04	7.09E-05	1.39	F004C THIRD SERIES LOAD DRIVER FAILS TO ACTUATE
C72-LDD-FC-S3F004D	1.80E-04	7.09E-05	1.39	F004D THIRD SERIES LOAD DRIVER FAILS TO ACTUATE
C72-LOG-FC-D_1_2	3.33E-06	3.48E-03	1.04E+03	CCF of two components: C72-LOG-FC-D1DPS & C72-LOG-FC-D2DPS
C72-LOG-FC-D_1_2_3	6.67E-06	7.29E-03	1.09E+03	CCF of three components: C72-LOG-FC-D1DPS & C72-LOG-FC-D2DPS & C72-LOG-FC-D3DPS
C72-LOG-FC-D_1_3	3.33E-06	3.48E-03	1.04E+03	CCF of two components: C72-LOG-FC-D1DPS & C72-LOG-FC-D3DPS
C72-LOG-FC-D_2_3	3.33E-06	3.48E-03	1.04E+03	CCF of two components: C72-LOG-FC-D2DPS & C72-LOG-FC-D3DPS
C74-ATM-FC-PR_ALL	5.00E-06	7.39E-06	2.46	CCF of all components in group 'C74-ATM-FC-PR'
C74-CCFATSOFTWARE	1.00E-04	7.79E-04	8.78	COMMON CAUSE FAILURE OF ATWS/SLC LOGIC PROCESSORS
C74-LOG-FC-AT-_ALL	6.00E-06	8.90E-06	2.47	CCF of all components in group 'C74-LOG-FC-AT-'
E50-SQV-CC_ALL	1.50E-04	8.23E-02	549.53	CCF of all components in group 'E50-SQV-CC'
E50-SQV-CF-4OPEN	1.50E-05	3.86E-03	258.52	CCF OF 4 OR MORE SQUIB VALVES TO OPEN
E50-UV_OC_ALL	3.00E-04	1.67E-01	556.98	CCF of all components in group 'E50-UV_OC'
G21-BV_-RE-F308	4.84E-02	3.89E-03	1.08	MISPOSITION OF VALVE F308

Table 13-8

Internal Flooding Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Full Power
Core Damage Frequency = 1.62E-09

Event Name	Probability	Fus Ves	RAW	Description
G21-BV_-RE-F334	4.84E-02	7.39E-02	2.45	MISPOSITION OF VALVE F334
G21-MOV-CC-F011A	2.40E-02	2.98E-04	1.01	MOTOR OPER. VALVE F011A FAILS TO OPEN
G21-MOV-CC-F013A	2.40E-02	2.98E-04	1.01	MOTOR OPER. VALVE F013A FAILS TO OPEN
G21-MOV-CC-F014A	2.40E-02	2.98E-04	1.01	MOTOR OPER. VALVE F014A FAILS TO OPEN
G21-MOV-OO-F003A	4.00E-03	4.86E-05	1.01	MOTOR OPERATED VALVE F003A FAILS TO CLOSE
G21-MOV-OO-F008A	4.00E-03	4.86E-05	1.01	MOTOR OPER. VALVE F008A FAILS TO CLOSE
G21-XHE-FO-LPCI	1.61E-03	1.64E-05	1.01	OPERATOR FAILS TO ALIGN AND ACTUATE FAPCS IN LPCI MODE
N21-ACV-CC-F0016	2.00E-03	9.16E-04	1.46	AIR OPERATED VALVE F0016 FAILS TO OPEN
N21-XHE-FO-FWRERUN	1.76E-01	4.08E-02	1.19	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
P21-BV_-RE-F049A	1.21E-02	1.23E-03	1.1	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
P21-BV_-RE-F049B	1.21E-02	1.23E-03	1.1	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
P21-BV_-RE-F050A	1.21E-02	1.23E-03	1.1	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
P21-BV_-RE-F050B	1.21E-02	1.23E-03	1.1	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
P41-FAN-FS-0001B	6.00E-04	9.72E-06	1.02	MECHANICAL DRAFT COOLING TOWER FAN 1B FAILS TO START
P41-FAN-FS-0002B	6.00E-04	9.72E-06	1.02	MECHANICAL DRAFT COOLING TOWER FAN 2B FAILS TO START
P41-MOV-CC-PMPF004A	4.00E-03	4.49E-04	1.11	MOTOR OPERATED VALVE MV-F004A FAILS TO OPEN
P41-MOV-CC-PMPF004B	4.00E-03	4.49E-04	1.11	MOTOR OPERATED VALVE F004B FAILS TO OPEN
P41-MPW-FR-C001A	6.00E-04	9.72E-06	1.02	MOTOR DRIVEN PUMP C001A FAILS TO RUN
P41-MPW-FR-C001B	6.00E-04	9.72E-06	1.02	MOTOR DRIVEN PUMP C001B FAILS TO RUN.
P41-MPW-FR-C002A	6.00E-04	9.72E-06	1.02	MOTOR DRIVEN PUMP C002A FAILS TO RUN
P41-MPW-FR-C002B	6.00E-04	9.72E-06	1.02	MOTOR-DRIVEN PUMP C002B FAILS TO RUN
P41-MPW-FS-C002A	2.00E-03	1.18E-04	1.06	MOTOR-DRIVEN PUMP C002A FAILS TO START
P41-MPW-FS-C002B	2.00E-03	1.18E-04	1.06	MOTOR-DRIVEN PUMP C002B FAILS TO START
P41-NSC-TM-C002A	1.50E-03	4.79E-05	1.03	PUMP C002A IN MAINTENANCE
P41-NSC-TM-C002B	1.50E-03	4.79E-05	1.03	PUMP C002B IN MAINTENANCE
P41-SYS-FC-HVACPSW-A	1.00E-03	3.22E-05	1.03	PSW-A ROOM COOLING FAILURE

Table 13-8

Internal Flooding Full-Power Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) Flooding Full Power Core Damage Frequency = 1.62E-09				
Event Name	**Probability**	**Fus Ves**	**RAW**	**Description**
P41-SYS-FC-HVACPSW-B	1.00E-03	3.22E-05	1.03	PSW-B ROOM COOLING FAILURE
P41-TRN-RE-PUMP2A	8.07E-03	1.00E-03	1.12	FAILURE TO RESTORE PSW PUMP 2A
P41-TRN-RE-PUMP2B	8.07E-03	1.00E-03	1.12	FAILURE TO RESTORE PSW PUMP 2B
R10-LOSP-EPRI	3.00E-03	2.14E-03	1.71	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
R13-INV-FC-CCFNSR_1_3_5	2.11E-07	1.85E-04	879.06	CCF of three components: R13-INV-FC-R13A1 & R13-INV-FC-R13B1 & R13-INV-FC-R13C
R13-INV-FC-CCFNSR_ALL	1.14E-05	1.25E-02	1.10E+03	CCF of all components in group 'R13-INV-FC-CCFNSR'
R13-INV-FC-CCFSR_ALL	1.14E-05	7.39E-05	7.48	CCF of all components in group 'R13-INV-FC-CCFSR'
R16-BDC-TM-R16A3	5.00E-04	7.60E-05	1.15	DC BUS R16-A3 IN MAINTENANCE
R16-BT_-LP-CCFNSR_ALL	4.07E-07	3.90E-04	957.55	CCF of all components in group 'R16-BT_-LP-CCFNSR'
R16-BT_-TM-R16BTA3	5.00E-04	7.60E-05	1.15	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
T10-UV_-CC-VBISVS_1_2_3	5.23E-07	1.11E-04	212.8	CCF of three components: T10-UV_-CC-ISV1 & T10-UV_-CC-ISV2 & T10-UV_-CC-ISV3
T10-VB_-CC_1_2_3	4.19E-07	8.92E-05	213.16	CCF of three components: T10-VB_-CC-VB1 & T10-VB_-CC-VB2 & T10-VB_-CC-VB3
T15-FLT-PP_ALL	5.68E-07	3.29E-04	579.36	CCF of all components in group 'T15-FLT-PP'
U43-BV_-CC-F346	4.00E-04	2.62E-04	1.65	MANUAL VALVE FAILS TO OPEN
U43-BV_-CC-FU439	4.00E-04	2.62E-04	1.65	MANUAL VALVE FAILS TO OPEN
U43-UV_-CC-F347	4.00E-04	2.62E-04	1.65	CHECK VALVE F347 FAILS TO OPEN
U43-UV_-CC-FU438	4.00E-04	2.62E-04	1.65	CHECK VALVE FAILS TO OPEN
U43-XHE-FO-LPCI	1.61E-03	1.31E-03	1.81	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE
U43-XHE-FO-MAKEUP	1.61E-02	4.65E-05	1	OPERATOR FAILS TO ACTUATE U43 IN MAKE UP MODE
U43-XHE-FO-PMPTRK	2.66E-02	4.65E-05	1	OPERATOR FAIL TO SUPPLY WATER FROM PUMP TRUCKS
XHOS72H	1.00E+00	5.73E-04	1	HOUSE EVENT: 72 HOURS (VALUE =1)
XXX-XHE-FO-DEPRESS	1.61E-01	2.63E-01	2.37	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
XXX-XHE-FO-ICPCCS	1.61E-03	1.76E-04	1.11	Operator fails to recognize the need to makeup ICS/PCCS Pool level.
XXX-XHE-FO-LPMAKEUP	1.61E-01	7.02E-02	1.37	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

Table 13-9

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Shutdown
Core Damage Frequency = 5.24E-09

Event Name	Probability	Fus Ves	RAW	Description
B21-SQV-CC_ALL	1.50E-04	2.08E-03	14.87	CCF of all components in group 'B21-SQV-CC'
B21-SQV-CC-F004A	3.00E-03	2.84E-04	1.09	EXPLOSIVE VALVE DPV F004A FAILS TO OPERATE
B21-SQV-CC-F004B	3.00E-03	2.84E-04	1.09	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
B21-SQV-CC-F004C	3.00E-03	2.84E-04	1.09	EXPLOSIVE VALVE DPV C FAILS TO OPERATE
B21-SQV-CC-F004D	3.00E-03	2.84E-04	1.09	EXPLOSIVE VALVE DPV D FAILS TO OPERATE
B21-SQV-CC-F004E	3.00E-03	2.65E-04	1.09	EXPLOSIVE VALVE DPV E FAILS TO OPERATE
B21-SQV-CC-F004F	3.00E-03	2.65E-04	1.09	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
B21-SQV-CC-F004G	3.00E-03	2.65E-04	1.09	EXPLOSIVE VALVE DPV G FAILS TO OPERATE
B21-SQV-CC-F004H	3.00E-03	2.65E-04	1.09	EXPLOSIVE VALVE DPV H FAILS TO OPERATE
B21-UV_-CC-F102A	1.00E-04	1.03E-03	11.32	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
B21-UV_-CC-F102B	1.00E-04	2.16E-04	3.16	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
B21-UV_-CC-F103A	1.00E-04	1.03E-03	11.32	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
B21-UV_-CC-F103B	1.00E-04	2.16E-04	3.16	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
B32-NONCONDENSE	1.00E+00	1.89E-03	1	Non condensable gasses form in ICS sufficiently to require venting
BOPCWS-SYS-FAILS	1.00E-03	9.42E-05	1.09	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
C12-BV_-RE-F003A	1.21E-02	3.36E-03	1.27	MISPOSITION OF VALVE FOO3A
C12-BV_-RE-F003B	1.21E-02	3.36E-03	1.27	MISPOSITION OF VALVE F003B
C12-BV_-RE-F013A	4.84E-02	1.49E-02	1.29	MISPOSITION OF VALVE F013A
C12-BV_-RE-F013B	4.84E-02	1.49E-02	1.29	MISPOSITION OF VALVE F013B
C12-BV_-RE-F015A	4.84E-02	1.49E-02	1.29	MISPOSITION OF VALVE F015A
C12-BV_-RE-F015B	4.84E-02	1.49E-02	1.29	MISPOSITION OF VALVE F015B
C12-BV_-RE-F021A	1.21E-02	3.64E-02	3.97	MISPOSITION OF VALVE F021A
C12-BV_-RE-F021B	1.21E-02	3.64E-02	3.97	MISPOSITION OF VALVE F021B
C12-BV_-RE-F064	4.84E-02	6.85E-03	1.13	MISPOSITION OF VALVE F064

Table 13-9

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Shutdown
Core Damage Frequency = 5.24E-09

Event Name	Probability	Fus Ves	RAW	Description
C12-BV_-RE-F065	4.84E-02	8.85E-03	1.17	MISPOSITION OF LOCKED OPEN VALVE F065
C12-HX_-LK-COO1AHX	2.40E-05	4.56E-05	2.9	CRD HX LEAKS OR RUPTURES
C12-HX_-LK-COO1BHX	2.40E-05	4.56E-05	2.9	HEAT EXCHANGER (LEAK OR RUPTURE)
C12-HX_-PG-C001AHX	2.40E-05	4.56E-05	2.9	CRD HEAT EXCHANGER (PLUGGED)
C12-HX_-PG-C001BHX	2.40E-05	4.56E-05	2.9	CRD HEAT EXCHANGER (PLUGGED)
C12-MOV-CC-F014A	4.00E-03	9.91E-04	1.25	MOTOR OPER. VALVE F014A FAILS TO OPEN
C12-MOV-CC-F014B	4.00E-03	9.91E-04	1.25	MOTOR OPER. VALVE F014B FAILS TO OPEN
C12-MOV-CC-F020A	4.00E-03	1.15E-02	3.87	MOTOR OPER. VALVE F020A FAILS TO OPEN
C12-MOV-CC-F020B	4.00E-03	1.15E-02	3.87	MOTOR OPER. VALVE F020B FAILS TO OPEN
C12-MP_-FR-C001A	2.88E-04	6.79E-04	3.36	MOTOR-DRIVEN PUMP C001A FAILS TO RUN, GIVEN START
C12-MP_-FR-C001B	2.88E-04	6.79E-04	3.36	MOTOR-DRIVEN PUMP C001B FAILS TO RUN, GIVEN START
C12-MP_-FS-C001A	2.00E-03	8.56E-06	1	MOTOR-DRIVEN PUMP C001A FAILS TO START
C12-MP_-FS-C001AOIL	2.40E-03	1.03E-05	1	MOTOR-DRIVEN AUX. OIL PUMP FOR C001A FAILS TO RESTART
C12-MP_-FS-C001B	3.69E-03	1.06E-02	3.86	MOTOR-DRIVEN PUMP C001B FAILS TO START
C12-MP_-FS-C001BOIL	2.40E-03	6.72E-03	3.79	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
C12-OR_-PG-D007A	1.44E-05	2.74E-05	2.9	ORIFICE D007A FAILS TO REMAIN OPEN (PLUG)
C12-OR_-PG-D007B	1.44E-05	2.74E-05	2.9	ORIFICE D007B FAILS TO REMAIN OPEN (PLUG)
C12-SYS-TM-TRAINB	3.00E-03	8.51E-03	3.83	TRAIN B IN MAINTENANCE
C12-UV_-CC-F022	1.00E-04	2.16E-04	3.16	CHECK VALVE F022 FAILS TO OPEN
C12-XHE-FO-LEVEL2	3.21E-02	9.85E-02	3.97	Operator fails to back-up CRD actuation
C62-CCFSOFTWARE	1.00E-04	6.56E-04	7.55	Common cause failure of software
C62-CCFSOFTWARE_S	1.00E-04	6.46E-04	7.45	Common cause failure of software, for spurious
C62-UNDEVSPUR5	1.00E-03	2.64E-03	3.63	Undeveloped spurious hardware failure
C62-UNDEVSPUR7	1.00E-03	2.64E-03	3.63	Undeveloped spurious hardware failure
C62-UNDEVSPUR89	1.00E-03	1.02E-04	1.1	Undeveloped spurious hardware failure
C62-UNDEVSPUR91	1.00E-03	1.02E-04	1.1	Undeveloped spurious hardware failure
C62-UNDEVSPUR93	1.00E-03	4.32E-06	1	Undeveloped spurious hardware failure

Table 13-9

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Shutdown
Core Damage Frequency = 5.24E-09

Event Name	Probability	Fus Ves	RAW	Description
C62-UNDEVSPUR95	1.00E-03	4.32E-06	1	Undeveloped spurious hardware failure
C62-UNDEVSPUR97	1.00E-03	1.74E-04	1.17	Undeveloped spurious hardware failure
C62-UNDEVSPUR99	1.00E-03	1.74E-04	1.17	Undeveloped spurious hardware failure
C63-CCFSOFTWARE	1.00E-04	2.24E-03	23.34	Common cause failure of software
C63-CCFSOFTWARE_S	1.00E-04	1.41E-03	15.08	Common cause failure of software, for spurious
C63-UNDEVSPUR126	1.00E-03	2.64E-03	3.63	Undeveloped spurious hardware failure
C63-UNDEVSPUR127	1.00E-03	2.64E-03	3.63	Undeveloped spurious hardware failure
C63-UNDEVSPUR58	1.00E-03	3.20E-03	4.19	Undeveloped spurious hardware failure
C63-UNDEVSPUR59	1.00E-03	3.20E-03	4.19	Undeveloped spurious hardware failure
C63-UNDEVSPUR62	1.00E-03	3.20E-03	4.19	Undeveloped spurious hardware failure
C63-UNDEVSPUR63	1.00E-03	3.20E-03	4.19	Undeveloped spurious hardware failure
C63-UNDEVSPUR66	1.00E-03	3.20E-03	4.19	Undeveloped spurious hardware failure
C63-UNDEVSPUR67	1.00E-03	3.20E-03	4.19	Undeveloped spurious hardware failure
C63-UNDEVSPUR70	1.00E-03	3.20E-03	4.19	Undeveloped spurious hardware failure
C63-UNDEVSPUR71	1.00E-03	3.20E-03	4.19	Undeveloped spurious hardware failure
E50-POL-RP-POOLA	3.00E-07	4.98E-05	166.84	GDCS POOL A LEAKS CATASTROPHICALLY
E50-POL-RP-POOLD	3.00E-07	4.98E-05	166.84	GDCS POOL D LEAKS CATASTROPHICALLY
E50-SQV-CC_1_2	2.38E-05	7.86E-05	4.3	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002B
E50-SQV-CC_1_2_5	7.94E-07	1.62E-04	204.33	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002B & E50-SQV-CC-F002E
E50-SQV-CC_1_3	2.38E-05	7.86E-05	4.3	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002C
E50-SQV-CC_1_3_5	7.94E-07	1.62E-04	204.33	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002C & E50-SQV-CC-F002E
E50-SQV-CC_1_4	2.38E-05	1.57E-04	7.6	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002D
E50-SQV-CC_1_4_5	7.94E-07	1.62E-04	204.33	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002D & E50-SQV-CC-F002E
E50-SQV-CC_1_4_8	7.94E-07	1.62E-04	204.33	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002D & E50-SQV-CC-F002H
E50-SQV-CC_1_5	2.38E-05	6.50E-03	273.99	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002E
E50-SQV-CC_1_5_6	7.94E-07	1.62E-04	204.33	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002E & E50-SQV-CC-F002F
E50-SQV-CC_1_5_7	7.94E-07	1.62E-04	204.33	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002E & E50-SQV-CC-F002G

Table 13-9

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Shutdown
Core Damage Frequency = 5.24E-09

Event Name	Probability	Fus Ves	RAW	Description
E50-SQV-CC_1_5_8	7.94E-07	1.62E-04	204.33	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002E & E50-SQV-CC-F002H
E50-SQV-CC_1_6	2.38E-05	7.86E-05	4.3	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002F
E50-SQV-CC_1_7	2.38E-05	7.86E-05	4.3	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002G
E50-SQV-CC_1_8	2.38E-05	1.57E-04	7.6	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002H
E50-SQV-CC_2_4	2.38E-05	7.86E-05	4.3	CCF of two components: E50-SQV-CC-F002B & E50-SQV-CC-F002D
E50-SQV-CC_2_4_8	7.94E-07	1.62E-04	204.33	CCF of three components: E50-SQV-CC-F002B & E50-SQV-CC-F002D & E50-SQV-CC-F002H
E50-SQV-CC_2_5	2.38E-05	7.86E-05	4.3	CCF of two components: E50-SQV-CC-F002B & E50-SQV-CC-F002E
E50-SQV-CC_2_8	2.38E-05	7.86E-05	4.3	CCF of two components: E50-SQV-CC-F002B & E50-SQV-CC-F002H
E50-SQV-CC_3_4	2.38E-05	7.86E-05	4.3	CCF of two components: E50-SQV-CC-F002C & E50-SQV-CC-F002D
E50-SQV-CC_3_4_8	7.94E-07	1.62E-04	204.33	CCF of three components: E50-SQV-CC-F002C & E50-SQV-CC-F002D & E50-SQV-CC-F002H
E50-SQV-CC_3_5	2.38E-05	7.86E-05	4.3	CCF of two components: E50-SQV-CC-F002C & E50-SQV-CC-F002E
E50-SQV-CC_3_8	2.38E-05	7.86E-05	4.3	CCF of two components: E50-SQV-CC-F002C & E50-SQV-CC-F002H
E50-SQV-CC_4_5	2.38E-05	1.57E-04	7.6	CCF of two components: E50-SQV-CC-F002D & E50-SQV-CC-F002E
E50-SQV-CC_4_5_8	7.94E-07	1.62E-04	204.33	CCF of three components: E50-SQV-CC-F002D & E50-SQV-CC-F002E & E50-SQV-CC-F002H
E50-SQV-CC_4_6	2.38E-05	7.86E-05	4.3	CCF of two components: E50-SQV-CC-F002D & E50-SQV-CC-F002F
E50-SQV-CC_4_6_8	7.94E-07	1.62E-04	204.33	CCF of three components: E50-SQV-CC-F002D & E50-SQV-CC-F002F & E50-SQV-CC-F002H
E50-SQV-CC_4_7	2.38E-05	7.86E-05	4.3	CCF of two components: E50-SQV-CC-F002D & E50-SQV-CC-F002G
E50-SQV-CC_4_7_8	7.94E-07	1.62E-04	204.33	CCF of three components: E50-SQV-CC-F002D & E50-SQV-CC-F002G & E50-SQV-CC-F002H
E50-SQV-CC_4_8	2.38E-05	6.50E-03	273.99	CCF of two components: E50-SQV-CC-F002D & E50-SQV-CC-F002H
E50-SQV-CC_5_6	2.38E-05	7.86E-05	4.3	CCF of two components: E50-SQV-CC-F002E & E50-SQV-CC-F002F
E50-SQV-CC_5_7	2.38E-05	7.86E-05	4.3	CCF of two components: E50-SQV-CC-F002E & E50-SQV-CC-F002G
E50-SQV-CC_5_8	2.38E-05	1.57E-04	7.6	CCF of two components: E50-SQV-CC-F002E & E50-SQV-CC-F002H
E50-SQV-CC_6_8	2.38E-05	7.86E-05	4.3	CCF of two components: E50-SQV-CC-F002F & E50-SQV-CC-F002H
E50-SQV-CC_7_8	2.38E-05	7.86E-05	4.3	CCF of two components: E50-SQV-CC-F002G & E50-SQV-CC-F002H
E50-SQV-CC_ALL	1.50E-04	4.45E-02	297.86	CCF of all components in group 'E50-SQV-CC'
E50-SQV-CC-EQU_1_2_3	1.11E-05	2.02E-05	2.81	CCF of three components: E50-SQV-CC-F006A & E50-SQV-CC-F006B & E50-SQV-CC-F006C
E50-SQV-CC-EQU_1_2_4	1.11E-05	2.02E-05	2.81	CCF of three components: E50-SQV-CC-F006A & E50-SQV-CC-F006B & E50-SQV-CC-F006D

Table 13-9

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) Flooding Shutdown Core Damage Frequency = 5.24E-09				
Event Name	**Probability**	**Fus Ves**	**RAW**	**Description**
E50-SQV-CC-EQU_1_3_4	1.11E-05	2.02E-05	2.81	CCF of three components: E50-SQV-CC-F006A & E50-SQV-CC-F006C & E50-SQV-CC-F006D
E50-SQV-CC-EQU_2_3_4	1.11E-05	2.02E-05	2.81	CCF of three components: E50-SQV-CC-F006B & E50-SQV-CC-F006C & E50-SQV-CC-F006D
E50-SQV-CC-EQU_ALL	3.00E-04	9.08E-02	303.57	CCF of all components in group 'E50-SQV-CC-EQU'
E50-SQV-CC-F002A	3.00E-03	1.77E-02	6.88	SQUIB VALVE F002A FAILS TO OPERATE
E50-SQV-CC-F002D	3.00E-03	1.73E-02	6.76	SQUIB VALVE F002D FAILS TO OPERATE
E50-SQV-CC-F002E	3.00E-03	1.73E-02	6.76	SQUIB VALVE F002E FAILS TO OPERATE
E50-SQV-CC-F002H	3.00E-03	1.77E-02	6.88	SQUIB VALVE F002H FAILS TO OPERATE
E50-SQV-CC-F006A	6.00E-03	2.02E-05	1	SQUIB VALVE F006A FAILS TO OPERATE IN EXTREME CONDITIONS
E50-SQV-CC-F006B	6.00E-03	6.76E-04	1.11	SQUIB VALVE F006B FAILS TO OPERATE IN EXTREME CONDITIONS
E50-SQV-CC-F006C	6.00E-03	2.02E-05	1	SQUIB VALVE F006C FAILS TO OPERATE IN EXTREME CONDITIONS
E50-SQV-CC-F006D	6.00E-03	2.02E-05	1	SQUIB VALVE F006D FAILS TO OPERATE IN EXTREME CONDITIONS
E50-SQV-CO-F009A	9.60E-06	2.46E-03	257.35	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
E50-SQV-CO-F009D	9.60E-06	2.46E-03	257.35	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
E50-SQV-CO-F009E	9.60E-06	2.46E-03	257.35	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
E50-SQV-CO-F009H	9.60E-06	2.46E-03	257.35	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
E50-SQV-CO-F009J	9.60E-06	2.46E-03	257.35	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
E50-SQV-CO-F009M	9.60E-06	2.46E-03	257.35	SQUIB DELUGE VALVE F009M SPUR. OPENING [#7]
E50-STR-PG_1_2	1.98E-04	6.53E-06	1.03	CCF of two components: E50-STR-PG-D002A & E50-STR-PG-D002B
E50-STR-PG_1_2_3	1.98E-05	4.72E-05	3.38	CCF of three components: E50-STR-PG-D002A & E50-STR-PG-D002B & E50-STR-PG-D002C
E50-STR-PG_1_2_4	1.98E-05	4.72E-05	3.38	CCF of three components: E50-STR-PG-D002A & E50-STR-PG-D002B & E50-STR-PG-D002D
E50-STR-PG_1_3_4	1.98E-05	4.72E-05	3.38	CCF of three components: E50-STR-PG-D002A & E50-STR-PG-D002C & E50-STR-PG-D002D
E50-STR-PG_2_3	1.98E-04	6.53E-06	1.03	CCF of two components: E50-STR-PG-D002B & E50-STR-PG-D002C
E50-STR-PG_2_3_4	1.98E-05	4.72E-05	3.38	CCF of three components: E50-STR-PG-D002B & E50-STR-PG-D002C & E50-STR-PG-D002D
E50-STR-PG_2_4	1.98E-04	6.53E-06	1.03	CCF of two components: E50-STR-PG-D002B & E50-STR-PG-D002D
E50-STR-PG_ALL	5.35E-04	1.63E-01	306.32	CCF of all components in group 'E50-STR-PG'
E50-STR-PG-D002A	1.07E-02	4.72E-05	1	STRAINER/FILTER D002A PLUGS DURING OPERATION
E50-STR-PG-D002B	1.07E-02	1.31E-03	1.12	STRAINER D002B PLUGGED

Table 13-9

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Shutdown
Core Damage Frequency = 5.24E-09

Event Name	Probability	Fus Ves	RAW	Description
E50-STR-PG-D002C	1.07E-02	4.72E-05	1	STRAINER D002C PLUGGED
E50-STR-PG-D002D	1.07E-02	4.72E-05	1	STRAINER D002D PLUGGED
E50-UV_OC_1_2_3	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003B & E50-UV_-OC-F003C
E50-UV_OC_1_2_4	7.05E-06	2.83E-05	5.01	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003B & E50-UV_-OC-F003D
E50-UV_OC_1_2_5	7.05E-06	1.75E-03	249.26	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003B & E50-UV_-OC-F003E
E50-UV_OC_1_2_6	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003B & E50-UV_-OC-F003F
E50-UV_OC_1_2_7	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003B & E50-UV_-OC-F003G
E50-UV_OC_1_2_8	7.05E-06	2.83E-05	5.01	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003B & E50-UV_-OC-F003H
E50-UV_OC_1_3_4	7.05E-06	2.83E-05	5.01	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003C & E50-UV_-OC-F003D
E50-UV_OC_1_3_5	7.05E-06	1.75E-03	249.26	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003C & E50-UV_-OC-F003E
E50-UV_OC_1_3_6	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003C & E50-UV_-OC-F003F
E50-UV_OC_1_3_7	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003C & E50-UV_-OC-F003G
E50-UV_OC_1_3_8	7.05E-06	2.83E-05	5.01	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003C & E50-UV_-OC-F003H
E50-UV_OC_1_4_5	7.05E-06	1.75E-03	249.26	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003D & E50-UV_-OC-F003E
E50-UV_OC_1_4_6	7.05E-06	2.83E-05	5.01	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003D & E50-UV_-OC-F003F
E50-UV_OC_1_4_7	7.05E-06	2.83E-05	5.01	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003D & E50-UV_-OC-F003G
E50-UV_OC_1_4_8	7.05E-06	1.75E-03	249.26	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003D & E50-UV_-OC-F003H
E50-UV_OC_1_5	2.67E-06	6.26E-04	235.2	CCF of two components: E50-UV_-OC-F003A & E50-UV_-OC-F003E
E50-UV_OC_1_5_6	7.05E-06	1.75E-03	249.26	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003E & E50-UV_-OC-F003F
E50-UV_OC_1_5_7	7.05E-06	1.75E-03	249.26	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003E & E50-UV_-OC-F003G
E50-UV_OC_1_5_8	7.05E-06	1.75E-03	249.26	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003E & E50-UV_-OC-F003H
E50-UV_OC_1_6_7	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003F & E50-UV_-OC-F003G
E50-UV_OC_1_6_8	7.05E-06	2.83E-05	5.01	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003F & E50-UV_-OC-F003H
E50-UV_OC_1_7_8	7.05E-06	2.83E-05	5.01	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003G & E50-UV_-OC-F003H
E50-UV_OC_2_3_4	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003C & E50-UV_-OC-F003D
E50-UV_OC_2_3_5	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003C & E50-UV_-OC-F003E
E50-UV_OC_2_3_8	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003C & E50-UV_-OC-F003H

Table 13-9

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Shutdown
Core Damage Frequency = 5.24E-09

Event Name	Probability	Fus Ves	RAW	Description
E50-UV_OC_2_4_5	7.05E-06	2.83E-05	5.01	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003D & E50-UV_-OC-F003E
E50-UV_OC_2_4_6	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003D & E50-UV_-OC-F003F
E50-UV_OC_2_4_7	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003D & E50-UV_-OC-F003G
E50-UV_OC_2_4_8	7.05E-06	1.75E-03	249.26	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003D & E50-UV_-OC-F003H
E50-UV_OC_2_5_6	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003E & E50-UV_-OC-F003F
E50-UV_OC_2_5_7	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003E & E50-UV_-OC-F003G
E50-UV_OC_2_5_8	7.05E-06	2.83E-05	5.01	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003E & E50-UV_-OC-F003H
E50-UV_OC_2_6_8	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003F & E50-UV_-OC-F003H
E50-UV_OC_2_7_8	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003G & E50-UV_-OC-F003H
E50-UV_OC_3_4_5	7.05E-06	2.83E-05	5.01	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003D & E50-UV_-OC-F003E
E50-UV_OC_3_4_6	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003D & E50-UV_-OC-F003F
E50-UV_OC_3_4_7	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003D & E50-UV_-OC-F003G
E50-UV_OC_3_4_8	7.05E-06	1.75E-03	249.26	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003D & E50-UV_-OC-F003H
E50-UV_OC_3_5_6	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003E & E50-UV_-OC-F003F
E50-UV_OC_3_5_7	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003E & E50-UV_-OC-F003G
E50-UV_OC_3_5_8	7.05E-06	2.83E-05	5.01	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003E & E50-UV_-OC-F003H
E50-UV_OC_3_6_8	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003F & E50-UV_-OC-F003H
E50-UV_OC_3_7_8	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003G & E50-UV_-OC-F003H
E50-UV_OC_4_5_6	7.05E-06	2.83E-05	5.01	CCF of three components: E50-UV_-OC-F003D & E50-UV_-OC-F003E & E50-UV_-OC-F003F
E50-UV_OC_4_5_7	7.05E-06	2.83E-05	5.01	CCF of three components: E50-UV_-OC-F003D & E50-UV_-OC-F003E & E50-UV_-OC-F003G
E50-UV_OC_4_5_8	7.05E-06	1.75E-03	249.26	CCF of three components: E50-UV_-OC-F003D & E50-UV_-OC-F003E & E50-UV_-OC-F003H
E50-UV_OC_4_6_7	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003D & E50-UV_-OC-F003F & E50-UV_-OC-F003G
E50-UV_OC_4_6_8	7.05E-06	1.75E-03	249.26	CCF of three components: E50-UV_-OC-F003D & E50-UV_-OC-F003F & E50-UV_-OC-F003H
E50-UV_OC_4_7_8	7.05E-06	1.75E-03	249.26	CCF of three components: E50-UV_-OC-F003D & E50-UV_-OC-F003G & E50-UV_-OC-F003H
E50-UV_OC_4_8	2.67E-06	6.26E-04	235.2	CCF of two components: E50-UV_-OC-F003D & E50-UV_-OC-F003H
E50-UV_OC_5_6_7	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003E & E50-UV_-OC-F003F & E50-UV_-OC-F003G
E50-UV_OC_5_6_8	7.05E-06	2.83E-05	5.01	CCF of three components: E50-UV_-OC-F003E & E50-UV_-OC-F003F & E50-UV_-OC-F003H

Table 13-9

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) Flooding Shutdown Core Damage Frequency = 5.24E-09				
Event Name	**Probability**	**Fus Ves**	**RAW**	**Description**
E50-UV_OC_5_7_8	7.05E-06	2.83E-05	5.01	CCF of three components: E50-UV_-OC-F003E & E50-UV_-OC-F003G & E50-UV_-OC-F003H
E50-UV_OC_6_7_8	7.05E-06	1.42E-05	3.01	CCF of three components: E50-UV_-OC-F003F & E50-UV_-OC-F003G & E50-UV_-OC-F003H
E50-UV_OC_ALL	3.00E-04	9.10E-02	303.58	CCF of all components in group 'E50-UV_OC'
E50-UV_OC-EQU_ALL	3.00E-05	8.33E-03	278.13	CCF of all components in group 'E50-UV_OC-EQU'
E50-UV_-OC-F003A	1.75E-02	1.11E-01	7.21	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003D	1.75E-02	1.08E-01	7.08	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003E	1.75E-02	1.08E-01	7.08	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003H	1.75E-02	1.11E-01	7.21	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F007B	1.75E-03	1.50E-04	1.09	CHECK VALVE F007B FAILS TO REMAIN OPEN OR PLUG
G21-BV_-RE-F334	4.84E-02	6.92E-01	14.6	MISPOSITION OF VALVE F334
G21-MOV-CC_ALL	8.68E-04	2.77E-04	1.32	CCF of all components in group 'G21-MOV-CC'
G21-MOV-CC-F011A	2.40E-02	8.40E-04	1.03	MOTOR OPER. VALVE F011A FAILS TO OPEN
G21-MOV-CC-F011B	2.40E-02	5.18E-04	1.02	MOTOR OPER. VALVE F011B FAILS TO OPEN
G21-MOV-CC-F013A	2.40E-02	8.40E-04	1.03	MOTOR OPER. VALVE F013A FAILS TO OPEN
G21-MOV-CC-F013B	2.40E-02	5.18E-04	1.02	MOTOR OPER. VALVE F013B FAILS TO OPEN
G21-MOV-CC-F014A	2.40E-02	8.40E-04	1.03	MOTOR OPER. VALVE F014A FAILS TO OPEN
G21-MOV-CC-F014B	2.40E-02	5.18E-04	1.02	MOTOR OPER. VALVE F014B FAILS TO OPEN
G21-MOV-CC-F046B	4.00E-03	6.74E-06	1	MOTOR OPERATED VALVE P21-F046B FAILS TO OPEN
G21-MOV-CC-F047B	4.00E-03	6.74E-06	1	MOTOR OPERATED VALVE P21-F047B FAILS TO OPEN
G21-MOV-OO-F003A	4.00E-03	2.56E-05	1.01	MOTOR OPERATED VALVE F003A FAILS TO CLOSE
G21-MOV-OO-F008A	4.00E-03	2.56E-05	1.01	MOTOR OPER. VALVE F008A FAILS TO CLOSE
G21-NMO_3_4	1.11E-05	7.54E-05	7.76	CCF of two components: G21-NMO-CC-F332A & G21-NMO-CC-F332B
G21-NMO_ALL	3.00E-05	2.41E-04	9	CCF of all components in group 'G21-NMO'
G21-NST-TM-TRAINB	9.00E-03	5.20E-05	1.01	TRAIN B IN MAINTENANCE
G21-STR-PG-SPPLUG	2.40E-04	3.09E-05	1.13	FILTER/STRAINER IN SP PLUG
G21-UV_-333_1_2	1.79E-05	1.34E-04	8.46	CCF of two components: G21-UV_-CC-F333A & G21-UV_-CC-F333B
G21-XHE-FO-LPCI	1.61E-03	6.37E-04	1.39	OPERATOR FAILS TO ALIGN AND ACTUATE FAPCS IN LPCI MODE

Table 13-9

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Shutdown
Core Damage Frequency = 5.24E-09

Event Name	Probability	Fus Ves	RAW	Description
G31-UV_-OO_1_2	3.01E-05	5.72E-05	2.9	CCF of two components: G31-UV_-OO-F023A & G31-UV_-OO-F024A
MS-TOP2	5.00E-02	1.47E-03	1.03	TWO DPVs FAIL TO OPEN
NICWSA-SYS-FAILS	1.00E-03	3.97E-04	1.4	NUCLEAR ISLAND CHILLED WATER SUBSYSTEM TRAIN A FAILS
NICWSB-SYS-FAILS	1.00E-03	3.57E-04	1.36	NUCLEAR ISLAND CHILLED WATER SUBSYSTEM TRAIN B FAILS
P21-ACV-CC-F0023_1_2	1.93E-04	3.05E-05	1.16	CCF of two components: P21-ACV-CC-F0023A & P21-ACV-CC-F0023B
P21-ACV-CC-F0023A	2.00E-03	5.23E-04	1.26	AIR OPERATED VALVE F0023A FAILS TO OPEN
P21-ACV-CC-F0023B	2.00E-03	5.23E-04	1.26	AIR OPERATED VALVE F0023B FAILS TO OPEN
P21-ACV-OO-F0004	2.00E-03	5.37E-04	1.27	AIR OPERATED VALVE F0004 FAILS TO CLOSE
P21-ACV-OO-F0007	2.00E-03	5.37E-04	1.27	AIR OPERATED VALVE F0007 FAILS TO CLOSE
P21-ACV-OO-F0016_1_2	1.93E-04	1.34E-03	7.93	CCF of two components: P21-ACV-OO-F016A & P21-ACV-OO-F016B
P21-ACV-OO-F0020	2.00E-03	5.37E-04	1.27	AIR OPERATED VALVE F0020 FAILS TO CLOSE
P21-ACV-OO-F0027	2.00E-03	5.37E-04	1.27	AIR OPERATED VALVE F0027 FAILS TO CLOSE
P21-ACV-OO-F0061	2.00E-03	5.37E-04	1.27	AIR OPERATED VALVE F0061 FAILS TO CLOSE
P21-ACV-OO-F016A	2.00E-03	6.33E-04	1.32	AIR OPERATED VALVE F016A FAILS TO CLOSE
P21-ACV-OO-F016B	2.00E-03	5.31E-04	1.26	AIR OPERATED VALVE F016B FAILS TO CLOSE
P21-ACV-OO-F023A	2.00E-03	8.56E-06	1	AIR OPERATED VALVE FAILS TO CLOSE
P21-ACV-OO-F023B	2.00E-03	8.56E-06	1	AIR OPERATED VALVE FAILS TO CLOSE
P21-ACV-OO-XTIE_ALL	1.21E-04	1.77E-05	1.15	CCF of all components in group 'P21-ACV-OO-XTIE'
P21-AHU-FR_1_2	1.26E-05	5.88E-05	5.65	CCF of two components: P21-AHU-FR-RCCWA & P21-AHU-FR-RCCWB
P21-AHU-FR-RCCWA	2.40E-04	5.98E-05	1.25	AIR HANDLING UNIT RCCWS ROOM A FAILS TO RUN
P21-AHU-FR-RCCWB	2.40E-04	5.74E-05	1.24	AIR HANDLING UNIT RCCWS ROOM TRAIN B FAILS TO RUN
P21-AHU-FS_1_2	6.67E-04	1.50E-04	1.22	CCF of two components: P21-AHU-FS-RCCWA & P21-AHU-FS-RCCWB
P21-AHU-FS-RCCWA	6.00E-03	2.16E-03	1.36	AIR HANDLING UNIT RCCWS ROOM A FAILS TO START
P21-AHU-FS-RCCWB	6.00E-03	1.80E-03	1.3	AIR HANDLING UNIT RCCWS ROOM B FAILS TO START
P21-BV_-RE-F049A	1.21E-02	3.64E-02	3.97	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
P21-BV_-RE-F049B	1.21E-02	3.64E-02	3.97	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
P21-BV_-RE-F050A	1.21E-02	3.64E-02	3.97	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER

Table 13-9

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) Flooding Shutdown Core Damage Frequency = 5.24E-09				
Event Name	**Probability**	**Fus Ves**	**RAW**	**Description**
P21-BV_-RE-F050B	1.21E-02	3.64E-02	3.97	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
P21-MOV-CC_ALL	1.48E-04	2.15E-05	1.15	CCF of all components in group 'P21-MOV-CC'
P21-MOV-CC-F0010A3	4.00E-03	8.37E-05	1.02	MOTOR OPERATED VALVE F0010A3 FAILS TO OPEN
P21-MOV-CC-F0010B1	4.00E-03	2.28E-05	1.01	MOTOR OPERATED VALVE F0010B1 FAILS TO OPEN
P21-MOV-CC-F0010B2	4.00E-03	2.28E-05	1.01	MOTOR OPERATED VALVE F0010B2 FAILS TO OPEN
P21-MOV-CC-F0010B3	4.00E-03	2.28E-05	1.01	MOTOR OPERATED VALVE F0010B3 FAILS TO OPEN
P21-MOV-CC-F034A	4.00E-03	2.28E-05	1.01	MOV P21-F034A FROM RCCWS TO RWCU/SDC HX-A FAILS TO OPEN
P21-MOV-CC-F034B	4.00E-03	2.28E-05	1.01	MOV P21-F034B FROM RCCWS TO RWCU/SDC HX-B FAILS TO OPEN
P21-MP_-FS_ALL	1.87E-04	2.95E-05	1.16	CCF of all components in group 'P21-MP_-FS'
P21-MPC-FR-C001A	6.00E-04	5.27E-05	1.09	MOTOR DRIVEN PUMP C001A FAILS TO RUN
P21-MPC-FR-C001B	6.00E-04	5.27E-05	1.09	MOTOR DRIVEN PUMP C001B FAILS TO RUN
P21-MPC-FS-C001A	2.00E-03	8.56E-06	1	MOTOR DRIVEN PUMP C001A FAILS TO START
P21-MPC-FS-C001B	2.00E-03	8.56E-06	1	MOTOR-DRIVEN PUMP C001B FAILS TO START
P21-MPC-FS-C002A	2.00E-03	8.56E-06	1	MOTOR-DRIVEN PUMP C002A FAILS TO START
P21-MPC-FS-C002B	2.00E-03	8.56E-06	1	MOTOR-DRIVEN PUMP C002B FAILS TO START
P21-MPC-FS-C003A	2.00E-03	8.56E-06	1	MOTOR-DRIVEN PUMP C0003A FAILS TO START
P21-MPC-FS-C003B	2.00E-03	8.56E-06	1	MOTOR-DRIVEN PUMP C003B FAILS TO START
P21-NSC-TM-B001A	1.50E-03	6.44E-06	1	HEAT EXCHANGER B001A UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-B001B	1.50E-03	6.44E-06	1	HEAT EXCHANGER B001B UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-B002A	1.50E-03	6.44E-06	1	HEAT EXCHANGER B002A UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-B002B	1.50E-03	6.44E-06	1	HEAT EXCHANGER B002B UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-B003A	1.50E-03	2.26E-05	1.01	HEAT EXCHANGER B003A UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-B003B	1.50E-03	6.44E-06	1	HEAT EXCHANGER B003B UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-C001A	1.50E-03	6.44E-06	1	PUMP C001A IN MAINTENANCE
P21-NSC-TM-C001B	1.50E-03	6.44E-06	1	PUMP C001B IN MAINTENANCE
P21-NSC-TM-C002A	1.50E-03	6.44E-06	1	PUMP C002A IN MAINTENANCE
P21-NSC-TM-C002B	1.50E-03	6.44E-06	1	PUMP C002B IN MAINTENANCE

Table 13-9

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) Flooding Shutdown Core Damage Frequency = 5.24E-09				
Event Name	**Probability**	**Fus Ves**	**RAW**	**Description**
P21-NSC-TM-C003A	1.50E-03	6.44E-06	1	PUMP C003A IN MAINTENANCE
P21-NSC-TM-C003B	1.50E-03	6.44E-06	1	PUMP C003B IN MAINTENANCE
P21-NSC-TM-TRAINAHX	7.50E-05	1.52E-04	3.03	RCCW HXS IN TEST OR MAINTENANCE TRAIN A
P21-NSC-TM-TRAINAPUMP	7.50E-05	1.52E-04	3.03	RCCW PUMPS IN TEST OR MAINTENANCE TRAIN A
P21-NSC-TM-TRAINBHX	7.50E-05	1.52E-04	3.03	RCCW HXS IN TEST OR MAINTENANCE TRAIN B
P21-NSC-TM-TRAINBPUMP	7.50E-05	1.52E-04	3.03	RCCW PUMPS IN TEST OR MAINTENANCE TRAIN B
P21-TRN-RE-HX1A	8.07E-03	4.60E-05	1.01	FAILURE TO RESTORE RCCW TRAIN 1A HX
P21-TRN-RE-HX1B	8.07E-03	4.60E-05	1.01	FAILURE TO RESTORE RCCW TRAIN 1B HX
P21-TRN-RE-HX2A	8.07E-03	4.90E-05	1.01	FAILURE TO RESTORE RCCW TRAIN 2A HX
P21-TRN-RE-HX2B	8.07E-03	4.90E-05	1.01	FAILURE TO RESTORE RCCW TRAIN 2B HX
P21-TRN-RE-HX3A	8.07E-03	1.90E-04	1.02	FAILURE TO RESTORE RCCW TRAIN 3A HX
P21-TRN-RE-HX3B	8.07E-03	4.90E-05	1.01	FAILURE TO RESTORE RCCW TRAIN 3B HX
P21-TRN-RE-PUMP1A	8.07E-03	4.60E-05	1.01	FAILURE TO RESTORE RCCW TRAIN 1A PUMP
P21-TRN-RE-PUMP1B	8.07E-03	4.60E-05	1.01	FAILURE TO RESTORE RCCW TRAIN 1B PUMP
P21-TRN-RE-PUMP2A	8.07E-03	6.43E-05	1.01	FAILURE TO RESTORE RCCW TRAIN 2A PUMP
P21-TRN-RE-PUMP2B	8.07E-03	6.43E-05	1.01	FAILURE TO RESTORE RCCW TRAIN 2B PUMP
P21-TRN-RE-PUMP3A	8.07E-03	4.90E-05	1.01	FAILURE TO RESTORE RCCW TRAIN 3A PUMP
P21-TRN-RE-PUMP3B	8.07E-03	4.90E-05	1.01	FAILURE TO RESTORE RCCW TRAIN 3B PUMP
P22-NSC-TM-HXS	7.50E-05	5.17E-06	1.07	MULTIPLE TCCW HXS OUT FOR TESTING/ MAINTENANCE
P22-NSC-TM-PUMPS	7.50E-05	5.17E-06	1.07	MULTIPLE TCCW PUMPS OUT FOR TESTING/ MAINTENANCE
P41-ACV-CC_ALL	1.21E-04	1.77E-05	1.15	CCF of all components in group 'P41-ACV-CC'
P41-ACV-CC-F004A	2.00E-03	8.56E-06	1	AIR OPERATED VALVE F004A FAILS TO OPEN
P41-ACV-CC-F004B	2.00E-03	8.56E-06	1	AIR OPERATED VALVE F004B FAILS TO OPEN
P41-ACV-CC-F006A	2.00E-03	3.22E-05	1.02	AIR OPERATED VALVE F006A FAILS TO OPEN
P41-ACV-CC-F006B	2.00E-03	8.56E-06	1	AIR OPERATED VALVE F006B FAILS TO OPEN
P41-ACV-CC-F009A	2.00E-03	8.56E-06	1	AIR OPERATED VALVE F009A FAILS TO OPEN
P41-ACV-CC-F009B	2.00E-03	8.56E-06	1	AIR OPERATED VALVE F009B FAILS TO OPEN

Table 13-9

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Shutdown
Core Damage Frequency = 5.24E-09

Event Name	Probability	Fus Ves	RAW	Description
P41-FAN-FR_1_2	4.44E-06	9.58E-06	3.14	CCF of two components: P41-FAN-FR-0001A & P41-FAN-FR-0001B
P41-FAN-FR_1_4	4.44E-06	9.58E-06	3.14	CCF of two components: P41-FAN-FR-0001A & P41-FAN-FR-0002B
P41-FAN-FR_2_3	4.44E-06	9.58E-06	3.14	CCF of two components: P41-FAN-FR-0001B & P41-FAN-FR-0002A
P41-FAN-FR_3_4	4.44E-06	9.58E-06	3.14	CCF of two components: P41-FAN-FR-0002A & P41-FAN-FR-0002B
P41-FAN-FR_ALL	1.20E-05	5.58E-05	5.64	CCF of all components in group 'P41-FAN-FR'
P41-FAN-FR-0001A	2.40E-04	2.33E-06	1.01	MECHANICAL DRAFT COOLING TOWER FAN 1A FAILS TO RUN
P41-FAN-FR-0002A	2.40E-04	2.33E-06	1.01	MECHANICAL DRAFT COOLING TOWER FAN 2A FAILS TO RUN
P41-MOV-CC-PMPF004A	4.00E-03	2.50E-04	1.06	MOTOR OPERATED VALVE MV-F004A FAILS TO OPEN
P41-MOV-CC-PMPF004B	4.00E-03	1.99E-05	1	MOTOR OPERATED VALVE F004B FAILS TO OPEN
P41-MPW-FR_ALL	3.20E-06	6.91E-06	3.15	CCF of all components in group 'P41-MPW-FR'
P41-MPW-FR-C001A	6.00E-04	2.09E-05	1.03	MOTOR DRIVEN PUMP C001A FAILS TO RUN
P41-MPW-FR-C002A	6.00E-04	2.09E-05	1.03	MOTOR DRIVEN PUMP C002A FAILS TO RUN
P41-MPW-FS-C002A	2.00E-03	1.02E-04	1.05	MOTOR-DRIVEN PUMP C002A FAILS TO START
P41-NSC-TM-C002A	1.50E-03	7.02E-05	1.05	PUMP C002A IN MAINTENANCE
P41-STR-PG_ALL	5.68E-06	2.16E-05	4.78	CCF of all components in group 'P41-STR-PG'
P41-STR-PG-D01A	2.40E-04	2.33E-06	1.01	STRAINER P41-D001A PLUGGED
P41-STR-PG-D02A	2.40E-04	2.33E-06	1.01	STRAINER P41-D002A PLUGGED
P41-SYS-FC-HVACPSW-A	1.00E-03	8.25E-05	1.08	PSW-A ROOM COOLING FAILURE
P41-SYS-FC-HVACPSW-B	1.00E-03	4.29E-05	1.04	PSW-B ROOM COOLING FAILURE
P41-TRN-RE-PUMP2A	8.07E-03	5.56E-04	1.07	FAILURE TO RESTORE PSW PUMP 2A
P41-TRN-RE-PUMP2B	8.07E-03	6.39E-05	1.01	FAILURE TO RESTORE PSW PUMP 2B
R10-LOSP-EPRI	3.00E-03	4.23E-03	2.4	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
R10-SYS-FF-500KV	1.00E-03	1.12E-04	1.11	500KV SWITCHYARD FAILS DURING OPERATION
R10-XFH-TM-UATA	1.00E-04	2.50E-06	1.02	TRANSFORMER (HIGH VOLTAGE) UAT A IN MAINTENANCE
R10-XFH-TM-UATB	1.00E-04	2.50E-06	1.02	TRANSFORMER (HIGH VOLTAGE) UAT B IN MAINTENANCE
R11-BAC-LP-100A3	4.80E-06	6.87E-06	2.42	6.9 KV AC PIP-A LOADS BUS 1000A3 FAILS DURING OPERATION
R11-BAC-LP-100B3	4.80E-06	1.82E-05	4.77	6.9 KV AC PIP-A LOADS BUS 1000B3 FAILS DURING OPERATION

Table 13-9

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Shutdown
Core Damage Frequency = 5.24E-09

Event Name	Probability	Fus Ves	RAW	Description
R11-BAC-TM-100A3	4.80E-06	6.87E-06	2.42	6.9 KV AC PIP-A LOADS BUS 1000A3 IN MAINTENANCE
R11-BAC-TM-100B3	4.80E-06	1.82E-05	4.77	6.9 KV AC PIP-A LOADS BUS 1000B3 IN MAINTENANCE
R11-MCB-CC-A3UATAY	4.00E-03	2.85E-05	1.01	MEDIUM VOLTAGE CIRCUIT BREAKER FOR UAT A Y-WINDING FAILS TO OPEN
R11-MCB-CC-B3UATBY	4.00E-03	3.14E-05	1.01	MEDIUM VOLTAGE CIRCUIT BREAKER FOR UAT B Y-WINDING FAILS TO OPEN
R11-MCB-OO-A3DGA	2.40E-03	1.03E-05	1	MEDIUM VOLTAGE CIRCUIT BREAKER FOR DG-A FAILS TO CLOSE
R11-MCB-OO-B3DGA	2.40E-03	1.03E-05	1	MEDIUM VOLTAGE CIRCUIT BREAKER FOR DG-B FAILS TO CLOSE
R12-BAC-LP-R12A31	4.80E-06	6.87E-06	2.42	480 VAC ISOLATION POWER CENTER R12-A31 FAILS DURING OPERATION
R12-BAC-LP-R12B31	4.80E-06	6.87E-06	2.42	480 VAC ISOLATION POWER CENTER R12-B31 FAILS DURING OPERATION
R12-BAC-TM-R12A31	4.80E-06	6.87E-06	2.42	480 VAC ISOLATION POWER CENTER R12-A31 IN MAINTENANCE
R12-BAC-TM-R12B31	4.80E-06	6.87E-06	2.42	480 VAC ISOLATION POWER CENTER R12-B31 IN MAINTENANCE
R13-BAC-LP-R13A1	4.80E-06	6.87E-06	2.42	NSR BUS R13-A1 FAILS DURING OPERATION
R13-BAC-LP-R13B1	4.80E-06	6.87E-06	2.42	BUS R13-B1 FAILS DURING OPERATION
R13-BAC-LP-R13RBA	4.80E-06	6.87E-06	2.42	NSR R13 REACTOR BLDG LOAD GROUP A FAILS DURING OPERATION
R13-BAC-LP-R13RBB	4.80E-06	6.87E-06	2.42	NSR R13 REACTOR BLDG LOAD GROUP B FAILS DURING OPERATION
R13-INV-FC-CCFSR_ALL	1.14E-05	1.45E-05	2.27	CCF of all components in group 'R13-INV-FC-CCFSR'
R13-LCB-CO-FR13RBA	1.20E-05	2.28E-05	2.9	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-FR13RBB	1.20E-05	2.28E-05	2.9	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-R13RBA	1.20E-05	2.28E-05	2.9	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-R13RBB	1.20E-05	2.28E-05	2.9	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-TOR13A1	1.20E-05	2.28E-05	2.9	CIRCUIT BREAKER TO R13-A1 OPENS SPURIOUSLY
R13-LCB-CO-TOR13B1	1.20E-05	2.28E-05	2.9	CIRCUIT BREAKER TO R13-B1 OPENS SPURIOUSLY
R13-MTS-CO-R13A1	2.40E-05	4.56E-05	2.9	NSR R13-A1 MANUAL TRANSFER SWITCH SPURIOUSLY OPENS
R13-MTS-CO-R13B1	2.40E-05	4.56E-05	2.9	NSR R13-B1 MANUAL TRANSFER SWITCH SPURIOUSLY OPENS
R13-SXS-CO-R13A1	2.40E-05	4.56E-05	2.9	NSR R13-A1 STATIC SWITCH SPURIOUSLY OPENS
R13-SXS-CO-R13B1	2.40E-05	4.56E-05	2.9	NSR R13-B1 STATIC SWITCH SPURIOUSLY OPENS
R13-XFL-LP-R13RBA	1.92E-05	3.65E-05	2.9	TRANSFORMER FAILS DURING OPERATION
R13-XFL-LP-R13RBB	1.92E-05	3.65E-05	2.9	TRANSFORMER FAILS DURING OPERATION

Table 13-9

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Shutdown
Core Damage Frequency = 5.24E-09

Event Name	Probability	Fus Ves	RAW	Description
R16-BDC-TM-R16A3	5.00E-04	1.65E-04	1.33	DC BUS R16-A3 IN MAINTENANCE
R16-BDC-TM-R16B3	5.00E-04	1.03E-04	1.21	DC BUS R16-B3 IN MAINTENANCE
R16-BT_-LP-R16BTA3	4.80E-05	2.16E-06	1.04	BATTERY R16-BTA3 FAILS TO PROVIDE OUTPUT
R16-BT_-LP-R16BTB3	4.80E-05	2.16E-06	1.04	BATTERY R16-BTB3 FAILS TO PROVIDE OUTPUT
R16-BT_-TM-R16BTA3	5.00E-04	1.65E-04	1.33	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
R16-BT_-TM-R16BTB3	5.00E-04	1.03E-04	1.21	BATTERY R16-BTB3 IN TEST AND MAINTENANCE
R21-AHU-FS-3A	6.00E-03	3.43E-05	1.01	AIR HANDLING UNIT FAILS TO START
R21-AHU-FS-3B	6.00E-03	3.43E-05	1.01	AIR HANDLING UNIT FAILS TO START
R21-DG_-FR-CCF_1_2	4.54E-03	6.33E-05	1.01	CCF of two components: R21-DG_-FR-DGA & R21-DG_-FR-DGB
R21-DG_-FR-DGA	5.76E-02	4.40E-04	1.01	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
R21-DG_-FR-DGB	5.76E-02	4.40E-04	1.01	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
R21-DG_-FS-DGA	1.40E-02	7.98E-05	1.01	DG-A FAILS TO START AND LOAD
R21-DG_-FS-DGB	1.40E-02	7.98E-05	1.01	DG-B FAILS TO START AND LOAD
R21-DG_-TM-DGA	4.60E-02	3.26E-04	1.01	STANDBY DIESEL GENERATOR "A" IN MAINTENANCE
R21-DG_-TM-DGB	4.60E-02	3.26E-04	1.01	STANDBY DIESEL GENERATOR "B" IN MAINTENANCE
R21-FLT-PG-DGA	3.60E-03	2.06E-05	1.01	FILTER PLUGGED
R21-FLT-PG-DGB	3.60E-03	2.06E-05	1.01	FILTER PLUGGED
R21-MOD-CC-1A	3.00E-03	1.72E-05	1.01	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-1B	3.00E-03	1.72E-05	1.01	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-2A	3.00E-03	1.72E-05	1.01	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-2B	3.00E-03	1.72E-05	1.01	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-3A	3.00E-03	1.72E-05	1.01	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-3B	3.00E-03	1.72E-05	1.01	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-4A	3.00E-03	1.72E-05	1.01	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-4B	3.00E-03	1.72E-05	1.01	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-5A	3.00E-03	1.72E-05	1.01	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-5B	3.00E-03	1.72E-05	1.01	MOTOR-OPERATED DAMPER FAILS TO OPEN

Table 13-9

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Shutdown
Core Damage Frequency = 5.24E-09

Event Name	Probability	Fus Ves	RAW	Description
R21-MOD-CC-6A	3.00E-03	1.72E-05	1.01	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-6B	3.00E-03	1.72E-05	1.01	MOTOR-OPERATED DAMPER FAILS TO OPEN
R-M5-G31	2.29E-01	3.38E-02	1.11	RWCU/SDC RECOVERY
R-M6-G31	2.18E-01	9.66E-01	4.47	FAILURE TO RECOVER RWCU/SDC
U43-BV_-CC-F346	4.00E-04	1.35E-03	4.38	MANUAL VALVE FAILS TO OPEN
U43-BV_-CC-FU439	4.00E-04	1.35E-03	4.38	MANUAL VALVE FAILS TO OPEN
U43-EDP-FR_1_2	1.36E-03	3.99E-06	1	CCF of two components: U43-EDP-FR-P1A & U43-EDP-FR-P2A
U43-EDP-FS_1_2	2.22E-03	1.10E-05	1	CCF of two components: U43-EDP-FS-P1A & U43-EDP-FS-P2A
U43-UV_-CC_ALL	3.38E-05	8.04E-05	3.37	CCF of all components in group 'U43-UV_-CC'
U43-UV_-CC-F347	4.00E-04	1.35E-03	4.38	CHECK VALVE F347 FAILS TO OPEN
U43-UV_-CC-FU438	4.00E-04	1.35E-03	4.38	CHECK VALVE FAILS TO OPEN
U43-XHE-FO-LPCI	1.61E-03	5.92E-03	4.67	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE
XXX-XHE-FO-LPMAKEUP	1.61E-02	2.25E-01	14.76	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

Table 13-10

Flood Area Screening and Volumes

Flood_Zone	Description	Flood[1] Sources	PRA[2] Components	Screened	Vol_(gal)6"	Vol_(gal)1'
CB+4650	CONTROL BUILDING (+4650)	NO	YES	YES	17662.4	35324.8
CB+9060	CONTROL BUILDING (+9060)	NO	NO	YES	17662.4	35324.8
CB-2000	CONTROL BUILDING (-2000)	NO	NO	YES	4802.9	9605.9
CB-7400	CONTROL BUILDING (-7400)	YES	YES	NO	6157.9	12315.8
CBCR-2000	MAIN CONTROL ROOM	NO	NO	YES	12859.5	25718.9
CBD1-7400	DIVISION 1 DCIS ELECTRICAL ROOM	NO	YES	YES	3011.3	6022.7
CBD2-7400	DIVISION 2 DCIS ELECTRICAL ROOM	NO	YES	YES	3295.9	6591.7
CBD3-7400	DIVISION 3 DCIS ELECTRICAL ROOM	NO	YES	YES	3011.3	6022.7
CBD4-7400	DIVISION 4 DCIS ELECTRICAL ROOM	NO	YES	YES	3281.8	6563.5
CLNT	CLEAN PERSONNEL ACCESS TUNNEL	NO	NO	YES	15811.6	31623.3
CONTAINMENT	CONTAINMENT	YES	YES	NO	2774.7	5549.4
CPAT	CONTROLLED PERSONNEL ACCESS TUNNEL	NO	NO	YES	10991.8	21983.6
CTA	SERVICE WATER COOLING TOWER A	YES	YES	NO	6586.1	13172.1
CTB	SERVICE WATER COOLING TOWER B	YES	YES	NO	5836.8	11673.5
DG+4650	AUX BOILER ROOM	YES	NO	YES	8217.1	16434.2
DGA+4650	A DIESEL GENERATOR	YES	YES	NO	11701.7	23403.4
DGB+4650	B DIESEL GENERATOR	YES	YES	NO	11546.8	23093.5
EB+18000	ELECTRICAL BUILDING (+18000)	NO	YES	YES	5467.7	10935.5
EB+27000	ELECTRICAL BUILDING (+27000)	NO	NO	YES	26479.5	52959
EB+4650	ELECTRICAL BUILDING (+4650)	YES	YES	NO	50857.5	101715.1
EB+9800	ELECTRICAL BUILDING (+9800)	YES	YES	NO	4262.1	8524.1
EBA+18000	6.9 KV SWITCHGEAR TRAIN A	NO	NO	YES	23282.2	46564.5
EBA+4650	ELECTRICAL BUILDING A BATTERY ROOMS	NO	YES	YES	9172	18344.1
EBA+9800	13.8 KV SWITCHGEAR TRAIN A	YES	YES	NO	15789.1	31578.2
EBB+18000	6.9 KV SWITCHGEAR TRAIN B	NO	NO	YES	23282.2	46564.5
EBB+4650	ELECTRICAL BUILDING B BATTERY ROOMS	NO	YES	YES	9172	18344.1
EBB+9800	13.8 KV SWITCHGEAR TRAIN B	YES	YES	NO	23282.2	46564.5
EBC+9800	ELECTRICAL BUILDING C BATTERY ROOMS	NO	YES	YES	7493.1	14986.3

Table 13-10

Flood Area Screening and Volumes

Flood_Zone	Description	Flood[1] Sources	PRA[2] Components	Screened	Vol_(gal)6"	Vol_(gal)1'
FB+22500	HVAC PENTHOUSE	NO	YES	YES	28223.2	56446.4
FB+4650	FUEL BUILDING (+4650)	YES	YES	NO	30366.9	60733.8
FB-1000	FUEL BUILDING (-1000)	NO	NO	YES	22572.4	45144.7
FB-11500	FUEL BUILDING (-11500)	YES	YES	NO	24831.6	49663.1
FB-6400	FUEL BUILDING (-6400)	NO	NO	YES	22597.7	45195.4
FBSP-11500	FUEL BUILDING STORAGE POOL (-11500)	YES	NO	NO	5383.2	10766.5
FPE	FIRE PUMPHOUSE ENCLOSURE	YES	YES	NO	4684.6	9369.2
PH	PUMPHOUSE	YES	YES	NO	16817.3	33634.6
RB+13570	RX BLDG (+13570)	YES	YES	NO	23149.8	46299.7
RB+17500	RX BLDG (+17500)	YES	YES	NO	23772.4	47544.8
RB+34000	REACTOR BUILDING (+34000)	YES	YES	NO	59607	119214.1
RB+4650	RX BLDG (+4650)	NO	YES	YES	21885	43770
RB+9060	RX BLDG (+9060)	NO	YES	YES	21885	43770
RB-1000	RX BLDG (-1000)	NO	YES	YES	51111.1	102222.1
RB5A+27000	ISOLATION CONDENSER/PASSIVE CONTAINMENT COOLING EXPANSION POOL 5A	NO	NO	YES	966.2	1932.4
RB5B+27000	ISOLATION CONDENSER/PASSIVE CONTAINMENT COOLING EXPANSION POOL 5B	NO	NO	YES	4169.1	8338.2
RB5C+27000	ISOLATION CONDENSER/PASSIVE CONTAINMENT COOLING EXPANSION POOL 5C	NO	NO	YES	5738.2	11476.3
RB-6400	RX BLDG (-6400)	NO	YES	YES	23285.1	46570.1
RB6A+27000	ISOLATION CONDENSER/PASSIVE CONTAINMENT COOLING EXPANSION POOL 6A	NO	NO	YES	966.2	1932.4
RB6B+27000	ISOLATION CONDENSER/PASSIVE CONTAINMENT COOLING EXPANSION POOL 6B	NO	NO	YES	4169.1	8338.2
RB6C+27000	ISOLATION CONDENSER/PASSIVE CONTAINMENT COOLING EXPANSION POOL 6C	NO	NO	YES	5738.2	11476.3
RBA-11500	RX BLDG TRAIN A (-11500)	YES	YES	NO	19961	39922.1
RBB-11500	RX BLDG TRAIN B (-11500)	YES	YES	NO	20597.7	41195.3
RBBP+17500	BUFFER POOL	NO	NO	YES	4515.6	9031.2
RBCRD-6400	CONTROL ROD DRIVE PUMP ROOM	YES	YES	NO	2645.1	5290.3
RBDP+27000	DRYER/SEP STG POOL (+27000)	NO	NO	YES	4673.3	9346.7

Table 13-10

Flood Area Screening and Volumes

Flood_Zone	Description	Flood(1) Sources	PRA(2) Components	Screened	Vol_(gal)6"	Vol_(gal)1'
RBH-11500	RX BLDG HCU (-11500)	YES	YES	NO	8000.2	16000.4
RBICA+27000	ISOLATION CONDENSER HEAT EXCHANGER ROOM A	NO	YES	YES	470.4	940.9
RBICB+27000	ISOLATION CONDENSER HEAT EXCHANGER ROOM B	NO	YES	YES	470.4	940.9
RBICC+27000	ISOLATION CONDENSER HEAT EXCHANGER ROOM C	NO	YES	YES	470.4	940.9
RBICD+27000	ISOLATION CONDENSER HEAT EXCHANGER ROOM D	NO	YES	YES	470.4	940.9
RBPCA+27000	PASSIVE CONTAINMENT COOLING HEAT EXCHANGER ROOM A	NO	YES	YES	712.7	1425.4
RBPCB+27000	PASSIVE CONTAINMENT COOLING HEAT EXCHANGER ROOM B	NO	YES	YES	712.7	1425.4
RBPCC+27000	PASSIVE CONTAINMENT COOLING HEAT EXCHANGER ROOM C	NO	YES	YES	712.7	1425.4
RBPCD+27000	PASSIVE CONTAINMENT COOLING HEAT EXCHANGER ROOM D	NO	YES	YES	712.7	1425.4
RBPCE+27000	PASSIVE CONTAINMENT COOLING HEAT EXCHANGER ROOM E	NO	YES	YES	712.7	1425.4
RBPCF+27000	PASSIVE CONTAINMENT COOLING HEAT EXCHANGER ROOM F	NO	YES	YES	712.7	1425.4
RBRW+27000	REACTOR WELL (+27000)	NO	NO	YES	4191.6	8383.3
RBVA+27000	IC/PCC POOL VLV ROOM A (+27000)	NO	YES	YES	383.1	766.2
RBVB+27000	IC/PCC POOL VLV ROOM B (+27000)	NO	YES	YES	383.1	766.2
RBW+4650	RX BLDG (+4650)	NO	NO	YES	22501.9	45003.9
RWB	RADWASTE BUILDING	YES	YES	NO	55899.9	111799.8
RWT	RADWASTE TUNNEL	NO	NO	YES	8245.3	16490.5
SF	SERVICE WATER BUILDING	YES	YES	NO	37113.6	74227.1
TB+12000	TURBINE BUILDING (+12000)	YES	YES	NO	181440.9	362881.8
TB+20000	TURBINE BUILDING (+20000)	YES	YES	NO	152181.1	304362.1
TB+28000	TURBINE BUILDING (+28000)	YES	YES	NO	181440.9	362881.8
TB+33000	TURBINE BUILDING (+33000)	YES	YES	NO	181440.9	362881.8
TB+4650	TURBINE BUILDING (+4650)	YES	YES	NO	141048.4	282096.8
TB-1400	TURBINE BUILDING (-1400)	YES	YES	NO	170187.1	340374.2
TBA-1400	RCCW PUMP/HX ROOM TRAIN A	YES	YES	NO	7324.1	14648.2
TBAN+20000	WATER CHILLER AND PUMP ROOM A	NO	YES	YES	9200.2	18400.4
TBB-1400	RCCW PUMP/HX ROOM TRAIN B	YES	YES	NO	7324.1	14648.2
TBBN+20000	WATER CHILLER AND PUMP ROOM B	NO	YES	YES	8290.3	16580.7
TBBP+20000	BOP WATER CHILLER AND PUMP AREA	NO	YES	YES	11766.5	23533

Table 13-10

Flood Area Screening and Volumes

Flood_Zone	Description	Flood[1] Sources	PRA[2] Components	Screened	Vol_(gal)6"	Vol_(gal)1'
TBPU+4650	RFP ADJUSTABLE SPEED DRIVER POWER UNITS ROOM	NO	YES	YES	20479.4	40958.7
TBTC+4650	TCCW HX AND PUMP ROOM	NO	YES	YES	19913.1	39826.3
YARD(3)	YARD	YES	NO	YES	0	0

Notes:

(1) Flood sources sufficient to damage equipment modeled in the PRA

(2) PRA components which can be damaged by flooding and are modeled in the PRA

(3) PRA components in the Yard are not considered susceptible to internal flooding damage because of the area of the Yard.

Figure 13-1. RWCU/SDC Pipe Break Outside Containment Event Tree (Deleted)Figure 13-2. Turbine Building Flood Progression Event Tree (Deleted)

14 HIGH WIND RISK

Contents

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14 HIGH WIND RISK

This section documents the high winds analysis of the ESBWR PRA.

14.1 INTRODUCTION

The probabilistic high winds analysis is performed to assess the impacts of high wind forces on the safe operation of the ESBWR plant.

The ESBWR high wind analysis explicitly quantifies accident sequences and containment releases initiated by tornado and hurricane winds. Straight winds are lesser velocity winds that pose minimal challenges to the plant design.

The analysis shows that the core damage frequency due to high winds is not a significant contributor to ESBWR core damage risk.

The scope of the analysis includes both at-power and shutdown high wind-induced accident scenarios.

14.2 METHODOLOGY

The high wind risk analysis involves the following major steps:

(1) Tornado hazard frequency

(2) Tornado-induced plant impacts

(3) Calculation of tornado-induced core damage frequencies and release frequencies

(4) Hurricane hazard frequency

(5) Hurricane-induced plant impacts, and

(6) Calculation of hurricane-induced core damage frequencies and release frequencies.

The tornado hazard frequency is based on NOAA data (Reference 14-1). The hurricane hazard frequency is also based on NOAA data (Reference 14-5). The high wind-induced plant impacts are based on a qualitative evaluation based on ESBWR plant civil engineering design criteria (Reference 14-2). The internal events PRA accident sequence structures, system fault trees and success criteria are used in the calculation of the at power high winds CDF and releases. The shutdown PRA accident sequence structures, system fault trees and success criteria are used in the calculation of shutdown high winds CDF and releases.

Both at-power and shutdown high wind-induced accident scenarios and releases are quantified.

14.3 IDENTIFICATION OF PLANT HIGH WIND STRIKE AREAS

The ESBWR high wind risk analysis assumes the following impacts occur with a probability of 1.0 given an F2, F3, F4, or F5 tornado or a Category 3, 4, or 5 hurricane strike:

- Switchyard component failures (i.e., loss of preferred power)
- No offsite power recovery within the analysis period following a high wind strike

14.4 CALCULATION OF THE HIGH WIND STRIKE FREQUENCY

14.4.1 Tornado Strike Frequency

This section documents the calculation of the annual exceedance frequency for the tornado hazard. The tornado hazard is a function of tornado strike frequency and intensity. A commonly used definition of tornado intensity is the Fujita, or F-scale, tornado wind speed intensity relationship developed by Dr. Theodore Fujita of the University of Chicago. The Fujita F-scale is a classification based on increasing intensity from F-0 to F-6, with each level corresponding to a range of wind speeds. Although the Fujita Scale has been in use for 33 years, the limitations of the scale, such as a lack of damage indicators and lack of a clear correlation between wind speed and damage, have led to the development of the Enhanced Fujita Scale (EF) by the Wind Science and Engineering Center at Texas Tech University in Lubbock, Texas.

The intensity levels and associated wind speeds are summarized in Table 14-1.

The first step in determining the tornado strike frequency was to download the raw tornado data covering the period 1950 through 2005 from the NOAA website (Reference 14-1). Listed values of "–9F" were deleted from the data because there was no estimate available. Blank F values were also deleted because the data could not be determined. The remaining data was sorted based on F rating.

As shown in Table 14-1, the F rating and EF rating can be used interchangeably. It is assumed that all structures, Cat I, Cat II, and the non-seismic structures, can withstand the winds associated with an F0 or F1. The only impact to the site is expected to be a loss of preferred power with no additional equipment failures associated with the tornado. These loss of preferred power events are covered by the internal events PRA and have been included under the initiating events for Loss of Preferred Power, Weather Related (See Section 2 of this document). No additional evaluation of EF0 or EF1 events is required here.

EF2 and EF3 tornados would exceed the wind speed design of non-seismic structures but would not affect RTNSS or Seismic Category I or Cat II structures. Therefore, for EF2 and EF3 tornados the equipment located in non-seismic structures or in the yard will be assumed to fail. The occurrence rate per square mile per year for EF2 and EF3 tornados is the number of occurrences of EF2 and EF3 tornados divided by the number of square miles in the United States (3,537,438 sq mi) divided by the number of years in the data (56).

Probability of EF2/EF3 = ((7,855 + 2061)/3,537,438)/56 = 5.01E-05 occurrences/sq mi/yr

The site area is approximately 0.14 square miles.

The probability of occurrence of an EF2/EF3 tornado per year to the ESBWR site is:

5.01E-5 occurrences/sq mi/yr * 0.14 sq mi = **7.01E-06 occurrences/yr**

This will be used for the at power EF2/EF3 tornado strike frequency.

If the reactor well is flooded (Mode 6-Flooded), the risk associated to loss of preferred power due to a tornado strike has been judged to be negligible because the large amount of water stored above the core assures core cooling during a long period of time. This time would be significantly longer than 24 hours. This long period could be used to establish an adequate path from an external water source to the reactor well. CRD pumps, FAPCS pumps, RWCU/SDC pumps, or firewater pumps which are all housed in Seismic Category I structures and therefore would be available, could provide the cooling function when powered from on site power. The long period of time available makes it practically certain that sufficient inventory can be supplied.

Therefore, the loss of preferred power, the assumed initiator for tornados, is not analyzed in detail for the case when the reactor well is flooded (Mode 6-Flooded).

The EF2/EF3 tornado strike frequency for Mode 5 will be the number of hours in Mode 5 per year divided by the number of hours in a year times the EF2/EF3 tornado strike frequency. From subsection 16.2.1.2 of this document, the number of hours in Mode 5 per refueling is 192. Since there is one refueling every two years, the number of hours in Mode 5 per year would be 96.

The EF2/EF3 tornado strike frequency in Mode 5 would be:

(96 hours/8760 hours) * 7.01E-06 occurrences/year = **7.68E-08 occurrences/year.**

The EF2/EF3 tornado strike frequency for Mode 5 Open will be the number of hours in Mode 5 Open per year divided by the number of hours in a year times the EF2/EF3 tornado strike frequency. From subsection 16.2.1.2 of this document, the number of hours in Mode 5 Open per refueling is 48. Since there is one refueling every two years, the number of hours in Mode 5 Open per year would be 24.

The EF2/EF3 tornado strike frequency in Mode 5O would be:

(24 hours/8760 hours) * 7.01E-06 occurrences/year = **1.93E-08 occurrences/year.**

The EF2/EF3 tornado strike frequency for Mode 6 Unflooded (6U) will be the number of hours in Mode 6 Unflooded per year divided by the number of hours in a year times the EF2/EF3 tornado strike frequency. From subsection 16.2.1.2 of this document, the number of hours in Mode 6 Unflooded per refueling is 59. Since there is one refueling every two years, the number of hours in Mode 6 Unflooded per year would be 29.5.

The EF2/EF3 tornado strike frequency in Mode 6U would be:

(29.5 hrs/8760 hrs) * 7.01E-06 occurrences/year = **2.36E-08 occurrences/year.**

EF4, and EF5 tornados would exceed the wind speed design of RTNSS structures, but not Seismic Category I or Seismic Category II buildings. Therefore, for EF4, and EF5 tornados, the equipment located in RTNSS structures and the yard will be assumed to fail. The occurrence rate per square mile per year for EF4 and EF5 tornados combined is the number of occurrences of EF4 and EF5 tornados divided by the number of square miles in the United States (3,537,438 sq mi) divided by the number of years in the data (56).

Probability of EF4/EF5=[(489+50)/3,537,438]/56=2.72E-06 occurrences/sq mi/yr

The site is approximately 0.14 square miles.

The probability of occurrence of an F4, or F5 tornado per year to the ESBWR site is:

2.72E-06 occurrences/sq mi/yr * 0.14 sq mi = **3.81E-07 occurrences/year**

This will be used for the EF4/EF5 tornado strike frequency.

The EF4/EF5 tornado strike frequency for Mode 5 will be the number of hours in Mode 5 per year divided by the number of hours in a year times the EF4/EF5 tornado strike frequency. From subsection 16.2.1.2 of this document, the number of hours in Mode 5 per refueling is 192. Since there is one refueling every two years, the number of hours in Mode 5 per year would be 96.

The EF4/EF5 tornado strike frequency in Mode 5 would be:

(96 hours/8760 hours) * 3.81E-07 occurrences/year = **4.18E-09 occurrences/year.**

The EF4/EF5 tornado strike frequency for Mode 5 Open will be the number of hours in Mode 5 Open per year divided by the number of hours in a year times the EF4/EF5 tornado strike frequency. From subsection 16.2.1.2 of this document, the number of hours in Mode 5 Open per refueling is 48. Since there is one refueling every two years, the number of hours in Mode 5 Open per year would be 24.

The EF4/EF5 tornado strike frequency in Mode 5O would be:

(24 hours/8760 hours) * 3.81E-07 occurrences/year = **1.04E-09 occurrences/year.**

The EF4/EF5 tornado strike frequency for Mode 6 Unflooded (6U) will be the number of hours in Mode 6 Unflooded per year divided by the number of hours in a year times the EF4/EF5 tornado strike frequency. From subsection 16.2.1.2 of this document, the number of hours in Mode 6 Unflooded per refueling is 59. Since there is one refueling every two years, the number of hours in Mode 6 Unflooded per year would be 29.5.

The EF4/EF5 tornado strike frequency in Mode 6U would be:

(29.5 hrs/8760 hrs) * 3.81E-07 occurrences/year = **1.28E-09 occurrences/year.**

14.4.2 Hurricane Strike Frequency

NUREG/CR-6890, Volume 1, "Reevaluation of Station Blackout Risk at Nuclear Power Plants Analysis of Loss of Offsite Power Events: 1986-2004" (Reference 14-4) provides data for Loss of Offsite Power due to hurricanes. Per Table A-2 of Reference 14-4, there were 5 hurricane related loss of offsite power events at nuclear power plants during the time covered by the study. Only coastal plants are considered vulnerable to hurricanes. Table A-3 of Reference 14-4 lists the coastal plants. Table D-1 of Reference 14-4 provides the reactor critical years (rcry) and reactor shutdown years (rsy) for all plants. The totals for coastal plants during the study is 292.65 rcry and 35.37 rsy for a total of 328.02 reactor calendar years (rcy).

The initiating event frequency for hurricane related loss of offsite power events is the number of loss of offsite power events caused by hurricanes at power divided by the rcy for coastal plants. The initiating event frequency for hurricane related losses of offsite power is 5/328.02 = 1.52E-02 events/rcy.

The only impact to the site from Category One and Category Two hurricanes is expected to be a loss of preferred power with no additional equipment failures associated with the hurricanes. These loss of preferred power events are covered by the internal events PRA and have been included under the initiating events for Loss of Preferred Power, Weather Related (See Section 2 of this document). No additional evaluation of Category One or Category Two hurricanes is required. To prevent double counting, they will be excluded from the hurricane initiating event data.

If the reactor well is flooded (Mode 6-Flooded), the risk associated to loss of preferred power due to a hurricane strike has been judged to be negligible because the large amount of water stored above the core assures core cooling during a long period of time. This time would be significantly longer than 24 hours. This long period could be used to establish an adequate path from an external water source to the reactor well. CRD pumps, FAPCS pumps, RWCU/SDC pumps, or firewater pumps which are all housed in Seismic Category I buildings and therefore would be available, could provide the cooling function when powered from on site power. The long period of time available makes it practically certain that sufficient inventory can be supplied.

Therefore, the loss of preferred power, the assumed initiator for hurricanes, is not analyzed in detail for the case when the reactor well is flooded (Mode 6-Flooded).

The hurricane strike frequency for Mode 5 will be the number of hours in Mode 5 per year divided by the number of hours in a year times the hurricane strike frequency. From subsection 16.2.1.2 of this document, the number of hours in Mode 5 per refueling is 192. Since there is one refueling every two years, the number of hours in Mode 5 per year would be 96.

The hurricane strike frequency in Mode 5 would be:

(96 hours/8760 hours) * 1.52E-02 occurrences/year = **1.67E-04 occurrences/year.**

Because of the long advanced warning for an approaching hurricane, the staff will have adequate time to at a minimum set the head in place resulting in a Mode 5 Open configuration. Shutdown Hurricane Mode 6 unflooded high wind strike frequency has been added to Shutdown Hurricane Mode 5 Open.

The hurricane strike frequency for Mode 5 Open will be the number of hours in Mode 5 Open per year plus the number of hours in Mode 6 Unflooded divided by the number of hours in a year times the hurricane strike frequency. From subsection 16.2.1.2 of this document, the number of hours in Mode 5 Open per refueling is 48 and the number of hours in Mode 6 Unflooded is 59. Since there is one refueling every two years, the number of hours in Mode 5 Open per year would be 24 and the number of hours in Mode 6 Unflooded would be 29.5.

The hurricane strike frequency in Mode 5 Open would be:

(24+29.5 hours/8760 hours) * 1.52E-02 occurrences/year = **9.31E-05 occurrences/year.**

14.5 CALCULATION OF CORE DAMAGE FREQUENCY

The internal events PRA accident sequence structures and system fault trees and success criteria are used in the calculation of the high winds CDF. The CDF and release quantifications are performed at a quantification truncation limit of 1E-15/yr.

Both at-power and shutdown high wind-induced accident sequences and releases are quantified.

14.5.1 At-Power Core Damage and Release Frequencies

To assess the ESBWR at-power high wind-induced core damage risk, the loss of offsite power event tree of Section 3 is quantified using the frequency of high wind strikes per year at-power as the initiating event frequency.

The ESBWR structures are designed for several different wind loadings. Seismic Category I and Category II buildings are designed to be tornado resistant for maximum tornado wind speeds of 330 mph. Structures which house RTNSS equipment are designed for Category 5 hurricanes with a maximum wind speed of 195 mph. Non-seismic structures are designed for extreme winds of 110 mph (Reference 14-2).

For wind speeds less than approximately 110 mph, EF0 and EF1 tornados as well as Category 1 and Category 2 hurricanes, no quantification is required because no additional equipment failures as a result of the winds are expected. These events have been addressed in the internal events loss of preferred power, weather related, failures.

For wind speeds exceeding approximately 110 mph but less than approximately 195 mph, EF2 and EF3 tornados as well as Category 3, Category 4 and Category 5 hurricanes, all equipment which is not located in RTNSS structures or Seismic Category I and Category II structures is assumed to fail. Equipment in RTNSS, Seismic Category I and Seismic Category II structures is credited.

For wind speeds exceeding approximately 195 mph, EF4 and EF5 tornados, all equipment in RTNSS structures is assumed to fail as well as all equipment located in non-seismic, non-RTNSS buildings. Only equipment in Seismic Category I and Category II structures is credited.

14.5.2 Shutdown Core Damage and Release Frequencies

The shutdown mode high wind initiating event frequencies are used in the internal events shutdown LOPP event tree, with the same modeling discussed previously.

A shutdown initiating event is defined as any event that provokes a disturbance in the desired state of the plant and that requires some kind of action to prevent damage to the core. The postulated shutdown initiating events related to internal events, fire and flooding will challenge:

- Decay Heat Removal (includes Loss of RWCU/SDC, Loss of Preferred Power, and Loss of all Service Water), or
- Reactor Coolant System Inventory Control (includes several postulated LOCAs during shutdown).

Tornado and hurricane scenarios during Mode 5, Mode 5-Open and Mode 6-Unflooded are explicitly quantified. Scenarios during Mode 6-Flooded are not explicitly quantified in the accident sequence analysis since adequate water remains above the core to prevent core damage for more than 24 hours.

14.6 RESULTS

The core damage frequency results of the ESBWR high wind risk analysis are summarized in Table 14-2. The total core damage frequency for both at-power and shutdown conditions is 2.53E-09/yr (1.34E-09/yr at-power and 1.19E-09/yr during shutdown). This frequency is not significant in comparison to the internal events result and the core damage frequency goal.

The Level 2 PRA release categories are described in Section 8.2.1.4. Technical specifications leakage (TSL) is the Level 2 success state and indicates an intact, controlled containment boundary. The high winds analysis produces a total non-TSL release frequency of 1.22E-09. The at-power non-TSL release frequency is 3.00E-11/yr. The shutdown non-TSL release frequency is 1.19E-09, the same as the shutdown CDF. This is because the containment is assumed to be open during all Mode 5 and Mode 6 operations. This leads to containment bypass for all shutdown sequences.

The dominant cutsets for the at-power high winds CDF are provided in Table 14-3, and those for shutdown high winds CDF are provided in Table 14-4.

The risk importance measures for the at-power high winds CDF are provided in Table 14-5, and those for shutdown high winds CDF are provided in Table 14-6.

The probability of each release category is summarized in Table 14-7.

The frequency of severe winds tends to be regional in nature, and thus varies. To ensure that this analysis bounds the potential ESBWR sites, a set of sensitivity analyses is performed. The premise of the high wind risk analysis is that these scenarios are not significant contributors to risk. Therefore, if large changes in the high wind frequencies only cause small, insignificant changes in the CDF and LRF, then the base model is considered appropriate for any specific site.

The hurricane frequencies are generated based on the plant being in a coastal (that is, hurricane susceptible) area, so a site that is not located on or near the coast would tend to have a reduced high wind impact. The sensitivity analyses confirm that the overall significance is not increased and no new insights are generated for hurricanes.

The tornado frequencies are generated based on a national average for US sites. The underlying data is not amenable to generating site-specific values. For this sensitivity, the tornado frequency (all categories) is increased by a factor of 10. This is considered bounding for any ESBWR site. The sensitivity analyses confirm that the CDF and LRF values do not increase to the level at which high wind risk becomes significant. In addition, no new insights are generated and no additional risk significant components are identified.

The conclusion of the sensitivity evaluation is that the ESBWR high wind risk evaluation is appropriate for any ESBWR nuclear power plant site.

14.7 INSIGHTS

The plant should not be in a Mode 6 Unflooded condition when a hurricane strike occurs. This is because in Mode 6 unflooded the containment is open, the reactor vessel is open and the water above the core will not keep the core cool for an extended period of time.

14.8 CONCLUSIONS

The main conclusion that can be drawn from the ESBWR high wind risk analysis is that the risk from tornado or hurricane strikes on the plant is acceptably low. The estimated core damage frequency (both at-power and shutdown conditions) from high winds is 2.53E-09 per calendar year. The core damage frequency for high winds is not additive with core damage frequencies from other sections.

The ESBWR is inherently safe with respect to high wind events and the plant can be safely shut down at low risk to plant personnel and the general public.

The conclusion of the sensitivity evaluation is that the ESBWR high wind risk evaluation is appropriate for any ESBWR nuclear power plant site.

14.9 REFERENCES

14-1 National Oceanic & Atmospheric Administration, U. S. Department of Commerce, August 22, 2007, http://www.spc.noaa.gov/wcm/ONETOR5005.txt

14-2 ESBWR Design Specification 26A6558, Rev. 3, "General Civil Design Criteria",

14-3 Summit, R.L., Estimation of Core Damage Frequency for Advanced Light Water Reactors Due to Tornado Events (Task 4.3.2.1), Advanced Reactor Severe Accident Program, U.S. Department of Energy, December 1988.

14-4 NUREG/CR-6890, Volume 1, "Reevaluation of Station Blackout Risk at Nuclear Power Plants Analysis of Loss of Offsite Power Events: 1986-2004"

14-5 National Oceanic & Atmospheric Administration, U. S. Department of Commerce, August 22, 2007, http://www.nhc.noaa.gov/pastdec.shtml

Table 14-1

Tornado F-Scale Intensities

Fujita Scale			EF Scale	
Fujita Scale	Number of Tornados	3-Second Gust Speed mph	EF Scale	3-Second Gust Speed mph
F0	20,043	45 - 78	EF0	65 - 85
F1	15,850	79 - 117	EF1	86 - 109
F2	7,855	118 - 161	EF2	110 - 137
F3	2,061	162 - 209	EF3	138 - 167
F4	489	210 - 261	EF4	168 - 199
F5	50	262 - 317	EF5	200 - 234

Table 14-2

High Wind-Induced CDF

Plant Mode	High Wind Strike Frequency (per year)	CDF (per year)	Non-TSL (per year)
At-Power Tornado F2/F3	7.01E-06	4E-13	0(1)
At-Power Tornado F4/F5	3.81E-07	4.86E-11	9.0E-12
At-Power Hurricane	1.52E-02	1.29E-09	2.10E-11
Total At Power High Winds		**1.34E-09**	**3.00E-11**
Shutdown Tornado F2/F3 Mode 5	7.68E-08	ε(3)	ε(3)
Shutdown Tornado F2/F3 Mode 5 Open	1.93E-08	ε(3)	ε(3)
Shutdown Tornado F2/F3 Mode 6 Unflooded	2.36E-08	1.20E-11	1.20E-11
Shutdown Tornado F4/F5 Mode 5	1.18E-08	4E-13	4E-13
Shutdown Tornado F4/F5 Mode 5 Open	1.04E-09	ε(3)	ε(3)
Shutdown Tornado F4/F5 Mode 6 Unflooded	1.28E-09	8E-13	8E-13
Shutdown Hurricane Mode 5	1.67E-04	7.01E-10	7.01E-10
Shutdown Hurricane Mode 5 Open	9.31E-05	4.75E-10	4.75E-10
Shutdown Hurricane Mode 6 Unflooded	NA(2)	NA(2)	NA(2)
Total Shutdown High Winds		**1.19E-09**	**1.19E-09**
Total High Winds		**2.53E-09**	**1.22E-09**

Notes:

(1) No accident sequence cutsets contributed to non-TSL.

(2) Because of the long advanced warning for an approaching hurricane, the staff will have adequate time to at a minimum set the head in place resulting in a Mode 5 Open configuration. Shutdown Hurricane Mode 6 Unflooded high wind strike frequency has been added to Shutdown Hurricane Mode 5 Open.

Calculated frequencies less than 1E-13 are reported as "ε".

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
#	**Cutset Prob**	**Event Prob**	**Event**	**Description**
1	1.52E-10	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
2	7.35E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
3	7.35E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
4	3.81E-11	3.81E-07	%T-LOPP-WRF4_F5	WEATHER RELATED LOSS OF PREFERRED POWER F4/F5 TORNADO
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
5	3.67E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
6	3.67E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
7	3.67E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
8	3.67E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
9	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV1	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
10	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV10	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
11	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV11	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
12	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV12	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
13	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV13	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
14	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV14	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
15	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV15	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
16	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV16	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
17	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV17	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
18	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV18	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
19	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV2	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
20	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV3	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
21	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV4	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
22	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV5	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
23	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV6	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
24	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV7	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
25	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV8	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
26	2.28E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-ANYSRV9	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
27	2.21E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
28	2.21E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
29	1.73E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.14E-05	R13-INV-FC-CCFNSR_ALL	CCF of all components in group 'R13-INV-FC-CCFNSR'
30	1.10E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
31	1.10E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
32	1.10E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
33	1.10E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
34	1.01E-11	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		6.67E-06	C72-LOG-FC-D_1_2_3	CCF of three components: C72-LOG-FC-D1DPS & C72-LOG-FC-D2DPS & C72-LOG-FC-D3DPS
35	5.07E-12	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.33E-06	C72-LOG-FC-D_1_2	CCF of two components: C72-LOG-FC-D1DPS & C72-LOG-FC-D2DPS
36	5.07E-12	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.33E-06	C72-LOG-FC-D_1_3	CCF of two components: C72-LOG-FC-D1DPS & C72-LOG-FC-D3DPS
37	5.07E-12	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.33E-06	C72-LOG-FC-D_2_3	CCF of two components: C72-LOG-FC-D2DPS & C72-LOG-FC-D3DPS
38	4.33E-12	3.81E-07	%T-LOPP-WRF4_F5	WEATHER RELATED LOSS OF PREFERRED POWER F4/F5 TORNADO
		1.14E-05	R13-INV-FC-CCFSR_ALL	CCF of all components in group 'R13-INV-FC-CCFSR'
39	3.67E-12	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.50E-05	E50-SQV-CF-4OPEN	CCF OF 4 OR MORE SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
40	3.04E-12	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F004A	CHECK VALVE F004A FAILS TO OPEN
41	3.04E-12	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F004B	CHECK VALVE F004B FAILS TO OPEN
42	3.04E-12	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F005A	CHECK VALVE F005A FAILS TO OPEN
43	3.04E-12	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		7.99E-04	C41-UV_-CC-F005B	CHECK VALVE F005B FAILS TO OPEN
44	2.83E-12	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.86E-06	C72-LDD-CF-LOADS	COMMON CAUSE FAILURE OF DPS LOAD DRIVERS
45	1.22E-12	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		5.00E-06	C72-ATM-FC-L1_ALL	CCF of all components in group 'C72-ATM-FC-L1'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
46	1.10E-12	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.50E-05	E50-SQV-CF-4OPEN	CCF OF 4 OR MORE SQUIB VALVES TO OPEN
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
47	9.12E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006A	SAFETY/RELIEF VALVE F006A FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.00E+00	FL_T-IORV065	
48	9.12E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006B	SAFETY/RELIEF VALVE F006B FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
49	9.12E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006C	SAFETY/RELIEF VALVE F006C FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
50	9.12E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006D	SAFETY/RELIEF VALVE F006D FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
51	9.12E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006E	SAFETY/RELIEF VALVE F006E FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
52	9.12E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006F	SAFETY/RELIEF VALVE F006F FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
53	9.12E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006G	SAFETY/RELIEF VALVE F006G FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report
High Winds Full Power
Core Damage Frequency = 1.34E-09
Top 200 Cutsets

		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
54	9.12E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006H	SAFETY/RELIEF VALVE F006H FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
55	9.12E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006J	SAFETY/RELIEF VALVE F006J FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
56	9.12E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006K	SAFETY/RELIEF VALVE F006K FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
57	7.96E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		5.23E-07	T10-UV_-CC-VBISVS_1_2_3	CCF of three components: T10-UV_-CC-ISV1 & T10-UV_-CC-ISV2 & T10-UV_-CC-ISV3
58	7.96E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		5.23E-07	T10-UV_-CC-VBISVS_1_2_3	CCF of three components: T10-UV_-CC-ISV1 & T10-UV_-CC-ISV2 & T10-UV_-CC-ISV3
59	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
60	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR60	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
61	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR61	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
62	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
63	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR64	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
64	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR65	Undeveloped spurious hardware failure

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
65	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
66	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR68	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
67	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR69	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
68	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
69	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.00E-03	C63-UNDEVSPUR72	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
70	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR73	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
71	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR60	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
72	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR61	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
73	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
74	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR64	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
75	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR65	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
76	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
77	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR68	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
78	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR69	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.00E+00	FL_T-LOPP050	

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
79	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
80	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR72	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
81	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR73	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
82	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR60	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR61	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
83	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR60	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
84	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR60	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
85	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR60	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR65	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
86	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR60	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
87	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR60	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
88	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR60	Undeveloped spurious hardware failure

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.00E-03	C63-UNDEVSPUR69	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
89	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR60	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
90	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR60	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
91	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR60	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR73	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
92	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR61	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
93	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.00E-03	C63-UNDEVSPUR61	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
94	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR61	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR64	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
95	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR61	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
96	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR61	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
97	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR61	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR68	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
98	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR61	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
99	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR61	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
100	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR61	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR72	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
101	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
102	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR64	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
103	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR65	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
104	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
105	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR68	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
106	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR69	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
107	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
108	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR72	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
109	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR73	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
110	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR64	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
111	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR65	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
112	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
113	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR68	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
114	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR69	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
115	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
116	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR72	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
117	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR73	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
118	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR64	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR65	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
119	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR64	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
120	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR64	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
121	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR64	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR69	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
122	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR64	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
123	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR64	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
124	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR64	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR73	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
125	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR65	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
126	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR65	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
127	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR65	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR68	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
128	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR65	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
129	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR65	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
130	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR65	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR72	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
131	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
132	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR68	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
133	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR69	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
134	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
135	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR72	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
136	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.00E-03	C63-UNDEVSPUR73	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
137	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR68	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
138	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR69	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
139	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
140	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR72	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
141	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR73	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
142	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR68	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR69	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
143	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR68	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
144	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR68	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
145	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR68	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR73	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
146	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR69	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
147	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR69	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
148	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR69	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR72	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
149	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
150	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR72	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
151	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR73	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
152	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR72	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
153	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR73	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
154	7.35E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-03	C63-UNDEVSPUR72	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR73	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
155	6.37E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		4.19E-07	T10-VB_-CC_1_2_3	CCF of three components: T10-VB_-CC-VB1 & T10-VB_-CC-VB2 & T10-VB_-CC-VB3
156	6.37E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		4.19E-07	T10-VB_-CC_1_2_3	CCF of three components: T10-VB_-CC-VB1 & T10-VB_-CC-VB2 & T10-VB_-CC-VB3
157	6.19E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		4.07E-07	R16-BT_-LP-CCFNSR_ALL	CCF of all components in group 'R16-BT_-LP-CCFNSR'
158	5.70E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.50E-04	C41-SQV-CC_ALL	CCF of all components in group 'C41-SQV-CC'
159	4.82E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.14E-05	R13-INV-FC-CCFSR_ALL	CCF of all components in group 'R13-INV-FC-CCFSR'
		5.76E-02	R21-DG_-FR-DGA	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
160	4.82E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.14E-05	R13-INV-FC-CCFSR_ALL	CCF of all components in group 'R13-INV-FC-CCFSR'
		5.76E-02	R21-DG_-FR-DGB	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
161	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006A	SAFETY/RELIEF VALVE F006A FAILS TO RE-CLOSE

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report
High Winds Full Power
Core Damage Frequency = 1.34E-09
Top 200 Cutsets

		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
162	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006A	SAFETY/RELIEF VALVE F006A FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
163	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006B	SAFETY/RELIEF VALVE F006B FAILS TO RE-CLOSE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
164	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006B	SAFETY/RELIEF VALVE F006B FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
165	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006C	SAFETY/RELIEF VALVE F006C FAILS TO RE-CLOSE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
166	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006C	SAFETY/RELIEF VALVE F006C FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
167	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006D	SAFETY/RELIEF VALVE F006D FAILS TO RE-CLOSE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
168	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006D	SAFETY/RELIEF VALVE F006D FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
169	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006E	SAFETY/RELIEF VALVE F006E FAILS TO RE-CLOSE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
170	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006E	SAFETY/RELIEF VALVE F006E FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software. for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
171	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006F	SAFETY/RELIEF VALVE F006F FAILS TO RE-CLOSE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
172	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006F	SAFETY/RELIEF VALVE F006F FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software. for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
173	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006G	SAFETY/RELIEF VALVE F006G FAILS TO RE-CLOSE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
174	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006G	SAFETY/RELIEF VALVE F006G FAILS TO RE-CLOSE

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
175	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006H	SAFETY/RELIEF VALVE F006H FAILS TO RE-CLOSE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
176	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006H	SAFETY/RELIEF VALVE F006H FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
177	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006J	SAFETY/RELIEF VALVE F006J FAILS TO RE-CLOSE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
178	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006J	SAFETY/RELIEF VALVE F006J FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
179	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006K	SAFETY/RELIEF VALVE F006K FAILS TO RE-CLOSE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
180	4.41E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		6.00E-03	B21-SRV-OO-F006K	SAFETY/RELIEF VALVE F006K FAILS TO RE-CLOSE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
181	3.85E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.14E-05	R13-INV-FC-CCFSR_ALL	CCF of all components in group 'R13-INV-FC-CCFSR'
		4.60E-02	R21-DG_-TM-DGA	STANDBY DIESEL GENERATOR "A" IN MAINTENANCE
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
182	3.85E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.14E-05	R13-INV-FC-CCFSR_ALL	CCF of all components in group 'R13-INV-FC-CCFSR'
		4.60E-02	R21-DG_-TM-DGB	STANDBY DIESEL GENERATOR "B" IN MAINTENANCE
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
183	3.80E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
184	3.80E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		2.50E-07	C12-ROD-CF-SCRAM	CCF OF CONTROL RODS TO INSERT
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
185	3.68E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		5.00E-06	C72-ATM-FC-L1_ALL	CCF of all components in group 'C72-ATM-FC-L1'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
186	3.67E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
187	3.67E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR60	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
188	3.67E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR61	Undeveloped spurious hardware failure

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
189	3.67E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
190	3.67E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR64	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
191	3.67E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR65	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
192	3.67E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
193	3.67E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.00E-03	C63-UNDEVSPUR68	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
194	3.67E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR69	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
195	3.67E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
196	3.67E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR72	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
197	3.67E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR73	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
198	3.67E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'

Table 14-3

High Winds Full-Power Cutset Report

Cutsets with Descriptions Report High Winds Full Power Core Damage Frequency = 1.34E-09 Top 200 Cutsets				
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR60	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
199	3.67E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR61	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
200	3.67E-13	1.52E-02	%T-LOPP-WRH	WEATHER RELATED LOSS OF PREFERRED POWER HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
#	**Cutset Prob**	**Event Prob**	**Event**	**Description**
1	5.10E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
2	5.10E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
3	5.10E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
4	5.10E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
5	5.10E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
6	5.10E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report
High Winds Shutdown
Core Damage Frequency = 1.19E-09
Top 200 Cutsets

		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
7	5.10E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
8	5.10E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
9	1.60E-11	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.07E-02	E50-STR-PG-D002B	STRAINER D002B PLUGGED
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
10	1.58E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
11	1.58E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN

Table 14-4
High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
12	1.58E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
13	1.58E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
14	1.58E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
15	1.58E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
16	1.58E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
17	1.58E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN

Table 14-4
High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
18	1.53E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
19	1.53E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
20	1.53E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
21	1.53E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
22	1.53E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
23	1.53E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
24	1.53E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
25	1.53E-11	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
26	8.99E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		6.00E-03	E50-SQV-CC-F006B	SQUIB VALVE F006B FAILS TO OPERATE IN EXTREME CONDITIONS
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
27	8.02E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
28	8.02E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
29	8.02E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
30	8.02E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
31	8.02E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
32	8.02E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
33	8.02E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
34	8.02E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
35	5.10E-12	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
36	5.10E-12	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
37	4.82E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.07E-02	E50-STR-PG-D002B	STRAINER D002B PLUGGED
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
38	4.59E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
39	4.59E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
40	4.59E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report
High Winds Shutdown
Core Damage Frequency = 1.19E-09
Top 200 Cutsets

		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
41	4.59E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
42	4.59E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
43	4.59E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
44	4.59E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
45	4.59E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report
High Winds Shutdown
Core Damage Frequency = 1.19E-09
Top 200 Cutsets

		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
46	4.59E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
47	4.59E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
48	4.59E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
49	4.59E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
50	4.59E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report **High Winds Shutdown** **Core Damage Frequency = 1.19E-09** **Top 200 Cutsets**				
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
51	4.59E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
52	4.59E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
53	4.59E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
54	4.50E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
55	4.50E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE

Table 14-4
High Winds Shutdown Cutset Report

Cutsets with Descriptions Report
High Winds Shutdown
Core Damage Frequency = 1.19E-09
Top 200 Cutsets

		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
56	4.50E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
57	4.50E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
58	4.50E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
59	4.50E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
60	4.50E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
61	4.50E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
62	4.50E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
63	4.50E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
64	4.50E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
65	4.50E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
66	4.50E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
67	4.50E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report
High Winds Shutdown
Core Damage Frequency = 1.19E-09
Top 200 Cutsets

		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
68	4.50E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
69	4.50E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
70	3.40E-12	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
71	2.70E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		6.00E-03	E50-SQV-CC-F006B	SQUIB VALVE F006B FAILS TO OPERATE IN EXTREME CONDITIONS
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
72	2.62E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.75E-03	E50-UV_-OC-F007B	CHECK VALVE F007B FAILS TO REMAIN OPEN OR PLUG

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
73	2.41E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
74	2.41E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
75	2.41E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
76	2.41E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
77	2.41E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
78	2.41E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report
High Winds Shutdown
Core Damage Frequency = 1.19E-09
Top 200 Cutsets

		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
79	2.41E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
80	2.41E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
81	2.25E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
82	2.25E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
83	2.25E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
84	2.25E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
85	2.25E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
86	2.25E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
87	2.25E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
88	2.25E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
89	2.25E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
90	2.25E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
91	2.25E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
92	2.25E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
93	2.25E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
94	2.25E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
95	2.25E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
96	2.25E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
97	2.03E-12	2.36E-08	%M6U_LOPPF2_F3	LOSS OF PREF POWER - MODE 6 UNFLOODED F2/F3 TORNADO
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
98	1.58E-12	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
99	1.58E-12	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
100	1.53E-12	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
101	1.53E-12	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
102	1.38E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
103	1.38E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
104	1.38E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
105	1.38E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
106	1.38E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
107	1.38E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
108	1.38E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
109	1.38E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
110	1.38E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
111	1.38E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
112	1.38E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
113	1.38E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
114	1.38E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
115	1.38E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
116	1.38E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report
High Winds Shutdown
Core Damage Frequency = 1.19E-09
Top 200 Cutsets

		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
117	1.38E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
118	1.35E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
119	1.35E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
120	1.35E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
121	1.35E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
122	1.35E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report
High Winds Shutdown
Core Damage Frequency = 1.19E-09
Top 200 Cutsets

		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
123	1.35E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
124	1.35E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
125	1.35E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
126	1.35E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
127	1.35E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
128	1.35E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
129	1.35E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
130	1.35E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
131	1.35E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
132	1.35E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
133	1.35E-12	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
134	1.22E-12	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report
High Winds Shutdown
Core Damage Frequency = 1.19E-09
Top 200 Cutsets

		2.40E-05	B32-HX_-PG-HX001A	Heat Exchanger HX001A Plugs
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
135	1.22E-12	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		2.40E-05	B32-HX_-PG-HX001B	Heat Exchanger HX001B Plugs
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
136	1.22E-12	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		2.40E-05	B32-HX_-PG-HX002A	Heat Exchanger HX002A Plugs
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
137	1.22E-12	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		2.40E-05	B32-HX_-PG-HX002B	Heat Exchanger HX002B Plugs
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
138	1.16E-12	2.36E-08	%M6U_LOPPF2_F3	LOSS OF PREF POWER - MODE 6 UNFLOODED F2/F3 TORNADO
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
139	1.16E-12	2.36E-08	%M6U_LOPPF2_F3	LOSS OF PREF POWER - MODE 6 UNFLOODED F2/F3 TORNADO
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
140	1.14E-12	2.36E-08	%M6U_LOPPF2_F3	LOSS OF PREF POWER - MODE 6 UNFLOODED F2/F3 TORNADO
		3.00E-04	E50-UV_OC_ALL	CCF of all components in group 'E50-UV_OC'

Table 14-4
High Winds Shutdown Cutset Report

Cutsets with Descriptions Report
High Winds Shutdown
Core Damage Frequency = 1.19E-09
Top 200 Cutsets

		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
141	1.14E-12	2.36E-08	%M6U_LOPPF2_F3	LOSS OF PREF POWER - MODE 6 UNFLOODED F2/F3 TORNADO
		3.00E-04	E50-SQV-CC-EQU_ALL	CCF of all components in group 'E50-SQV-CC-EQU'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
142	1.05E-12	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
143	1.02E-12	2.11E-03	%M5-LOPP	LOSS OF PREF POWER - MODE 5
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		1.00E-04	C72-CCFSOFTWARE	COMMON CAUSE FAILURE OF DPS PROCESSORS
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
144	8.02E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
145	8.02E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-04	C63-CCFSOFTWARE_S	Common cause failure of software, for spurious
		5.35E-04	E50-STR-PG_ALL	CCF of all components in group 'E50-STR-PG'
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
146	7.89E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.00E-04	C63-CCFSOFTWARE	Common cause failure of software

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report
High Winds Shutdown
Core Damage Frequency = 1.19E-09
Top 200 Cutsets

		1.75E-03	E50-UV_-OC-F007B	CHECK VALVE F007B FAILS TO REMAIN OPEN OR PLUG
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
147	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
148	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
149	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
150	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
151	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report
High Winds Shutdown
Core Damage Frequency = 1.19E-09
Top 200 Cutsets

		3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
152	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
153	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
154	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
155	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
156	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
157	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
158	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
159	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
160	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
161	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
162	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
163	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
164	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
165	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report
High Winds Shutdown
Core Damage Frequency = 1.19E-09
Top 200 Cutsets

		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
166	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
167	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
168	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
169	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
170	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
171	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
172	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
173	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
174	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
175	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
		3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
176	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
177	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
178	7.87E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		1.75E-02	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
179	7.73E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E+00	B32-NONCONDENSE	Non condensable gasses form in ICS sufficiently to require venting
		1.14E-05	R13-INV-FC-CCFSR_ALL	CCF of all components in group 'R13-INV-FC-CCFSR'
		4.54E-03	R21-DG_-FR-CCF_1_2	CCF of two components: R21-DG_-FR-DGA & R21-DG_-FR-DGB
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
180	6.98E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report
High Winds Shutdown
Core Damage Frequency = 1.19E-09
Top 200 Cutsets

		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
181	6.98E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
182	6.98E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
183	6.98E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
184	6.98E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
185	6.98E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
186	6.98E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report High Winds Shutdown Core Damage Frequency = 1.19E-09 Top 200 Cutsets				
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
187	6.98E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		5.00E-02	MS-TOP2	TWO DPVs FAIL TO OPEN
188	6.76E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
189	6.76E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
190	6.76E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
191	6.76E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
192	6.76E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report
High Winds Shutdown
Core Damage Frequency = 1.19E-09
Top 200 Cutsets

		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
193	6.76E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR67	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
194	6.76E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR70	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
195	6.76E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.50E-04	B21-SQV-CC_ALL	CCF of all components in group 'B21-SQV-CC'
		1.00E-03	C63-UNDEVSPUR71	Undeveloped spurious hardware failure
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
196	6.76E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR58	Undeveloped spurious hardware failure
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
197	6.76E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR59	Undeveloped spurious hardware failure
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
198	6.76E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE

Table 14-4

High Winds Shutdown Cutset Report

Cutsets with Descriptions Report
High Winds Shutdown
Core Damage Frequency = 1.19E-09
Top 200 Cutsets

		1.00E-03	C63-UNDEVSPUR62	Undeveloped spurious hardware failure
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
199	6.76E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR63	Undeveloped spurious hardware failure
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334
200	6.76E-13	9.31E-05	%M5O_LOPPH	LOSS OF PREF POWER - MODE 5 OPEN HURRICANE
		1.00E-03	C63-UNDEVSPUR66	Undeveloped spurious hardware failure
		1.50E-04	E50-SQV-CC_ALL	CCF of all components in group 'E50-SQV-CC'
		4.84E-02	G21-BV_-RE-F334	MISPOSITION OF VALVE F334

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Full Power Core Damage Frequency = 1.34E-09				
Event Name	**Probability**	**Fus Ves**	**RAW**	**Description**
B21-SQV-CC_ALL	1.50E-04	1.24E-01	827.05	CCF of all components in group 'B21-SQV-CC'
B21-SRV-CC_ALL	5.85E-04	2.98E-04	1.51	CCF of all components in group 'B21-SRV-CC'
B21-SRV-OO-ANYSRV1	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV10	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV11	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV12	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV13	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV14	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV15	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV16	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV17	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV18	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV2	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV3	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV4	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV5	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV6	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Full Power Core Damage Frequency = 1.34E-09				
B21-SRV-OO-ANYSRV7	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV8	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-ANYSRV9	6.00E-03	1.72E-02	3.84	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
B21-SRV-OO-F006A	6.00E-03	4.11E-03	1.68	SAFETY/RELIEF VALVE F006A FAILS TO RE-CLOSE
B21-SRV-OO-F006B	6.00E-03	4.11E-03	1.68	SAFETY/RELIEF VALVE F006B FAILS TO RE-CLOSE
B21-SRV-OO-F006C	6.00E-03	4.11E-03	1.68	SAFETY/RELIEF VALVE F006C FAILS TO RE-CLOSE
B21-SRV-OO-F006D	6.00E-03	4.11E-03	1.68	SAFETY/RELIEF VALVE F006D FAILS TO RE-CLOSE
B21-SRV-OO-F006E	6.00E-03	4.11E-03	1.68	SAFETY/RELIEF VALVE F006E FAILS TO RE-CLOSE
B21-SRV-OO-F006F	6.00E-03	4.11E-03	1.68	SAFETY/RELIEF VALVE F006F FAILS TO RE-CLOSE
B21-SRV-OO-F006G	6.00E-03	4.11E-03	1.68	SAFETY/RELIEF VALVE F006G FAILS TO RE-CLOSE
B21-SRV-OO-F006H	6.00E-03	4.11E-03	1.68	SAFETY/RELIEF VALVE F006H FAILS TO RE-CLOSE
B21-SRV-OO-F006J	6.00E-03	4.11E-03	1.68	SAFETY/RELIEF VALVE F006J FAILS TO RE-CLOSE
B21-SRV-OO-F006K	6.00E-03	4.11E-03	1.68	SAFETY/RELIEF VALVE F006K FAILS TO RE-CLOSE
B21-SRV-RO-F006_ALL	4.74E-07	1.32E-06	3.8	CCF of all components in group 'B21-SRV-RO-F006'
B21-UV_-CC-F102A	1.00E-04	1.38E-04	2.38	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
B21-UV_-CC-F103A	1.00E-04	1.38E-04	2.38	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
B21-UV_-OO_ALL	1.72E-05	5.96E-06	1.34	CCF of all components in group 'B21-UV_-OO'
B21-XHE-FO-6OPEN	1.61E-03	8.90E-04	1.55	OPERATOR FAILS TO OPEN 6/10 SRVs
B32-HX_-PG_1_2	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001B
B32-HX_-PG_1_2_3	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001B & B32-HX_-PG-HX00
B32-HX_-PG_1_2_4	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001B & B32-HX_-PG-HX00
B32-HX_-PG_1_2_5	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001B & B32-HX_-PG-HX00
B32-HX_-PG_1_2_6	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001B & B32-HX_-PG-HX00

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Full Power
Core Damage Frequency = 1.34E-09

B32-HX_-PG_1_2_7	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001B & B32-HX_-PG-HX00
B32-HX_-PG_1_2_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001B & B32-HX_-PG-HX00
B32-HX_-PG_1_3	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001C
B32-HX_-PG_1_3_4	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001C & B32-HX_-PG-HX00
B32-HX_-PG_1_3_5	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001C & B32-HX_-PG-HX00
B32-HX_-PG_1_3_6	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001C & B32-HX_-PG-HX00
B32-HX_-PG_1_3_7	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001C & B32-HX_-PG-HX00
B32-HX_-PG_1_3_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001C & B32-HX_-PG-HX00
B32-HX_-PG_1_4	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001D
B32-HX_-PG_1_4_5	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001D & B32-HX_-PG-HX00
B32-HX_-PG_1_4_6	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001D & B32-HX_-PG-HX00
B32-HX_-PG_1_4_7	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001D & B32-HX_-PG-HX00
B32-HX_-PG_1_4_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001D & B32-HX_-PG-HX00
B32-HX_-PG_1_5_6	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX002A & B32-HX_-PG-HX00
B32-HX_-PG_1_5_7	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX002A & B32-HX_-PG-HX00
B32-HX_-PG_1_5_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX002A & B32-HX_-PG-HX00
B32-HX_-PG_1_6	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX002B
B32-HX_-PG_1_6_7	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX002B & B32-HX_-PG-HX00
B32-HX_-PG_1_6_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX002B & B32-HX_-PG-HX00
B32-HX_-PG_1_7	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX002C
B32-HX_-PG_1_7_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001A & B32-HX_-PG-HX002C & B32-HX_-PG-HX00
B32-HX_-PG_1_8	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX002D
B32-HX_-PG_2_3	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001B & B32-HX_-PG-HX001C

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Full Power Core Damage Frequency = 1.34E-09				
B32-HX_-PG_2_3_4	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001B & B32-HX_-PG-HX001C & B32-HX_-PG-HX00
B32-HX_-PG_2_3_5	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001B & B32-HX_-PG-HX001C & B32-HX_-PG-HX00
B32-HX_-PG_2_3_6	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001B & B32-HX_-PG-HX001C & B32-HX_-PG-HX00
B32-HX_-PG_2_3_7	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001B & B32-HX_-PG-HX001C & B32-HX_-PG-HX00
B32-HX_-PG_2_3_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001B & B32-HX_-PG-HX001C & B32-HX_-PG-HX00
B32-HX_-PG_2_4	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001B & B32-HX_-PG-HX001D
B32-HX_-PG_2_4_5	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001B & B32-HX_-PG-HX001D & B32-HX_-PG-HX00
B32-HX_-PG_2_4_6	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001B & B32-HX_-PG-HX001D & B32-HX_-PG-HX00
B32-HX_-PG_2_4_7	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001B & B32-HX_-PG-HX001D & B32-HX_-PG-HX00
B32-HX_-PG_2_4_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001B & B32-HX_-PG-HX001D & B32-HX_-PG-HX00
B32-HX_-PG_2_5	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001B & B32-HX_-PG-HX002A
B32-HX_-PG_2_5_6	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001B & B32-HX_-PG-HX002A & B32-HX_-PG-HX00
B32-HX_-PG_2_5_7	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001B & B32-HX_-PG-HX002A & B32-HX_-PG-HX00
B32-HX_-PG_2_5_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001B & B32-HX_-PG-HX002A & B32-HX_-PG-HX00
B32-HX_-PG_2_6_7	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001B & B32-HX_-PG-HX002B & B32-HX_-PG-HX00
B32-HX_-PG_2_6_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001B & B32-HX_-PG-HX002B & B32-HX_-PG-HX00
B32-HX_-PG_2_7	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001B & B32-HX_-PG-HX002C
B32-HX_-PG_2_7_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001B & B32-HX_-PG-HX002C & B32-HX_-PG-HX00
B32-HX_-PG_2_8	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001B & B32-HX_-PG-HX002D
B32-HX_-PG_3_4	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001C & B32-HX_-PG-HX001D
B32-HX_-PG_3_4_5	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001C & B32-HX_-PG-HX001D & B32-HX_-PG-HX00
B32-HX_-PG_3_4_6	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001C & B32-HX_-PG-HX001D & B32-HX_-PG-HX00
B32-HX_-PG_3_4_7	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001C & B32-HX_-PG-HX001D & B32-HX_-PG-HX00

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Full Power
Core Damage Frequency = 1.34E-09

B32-HX_-PG_3_4_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001C & B32-HX_-PG-HX001D & B32-HX_-PG-HX00
B32-HX_-PG_3_5	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001C & B32-HX_-PG-HX002A
B32-HX_-PG_3_5_6	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001C & B32-HX_-PG-HX002A & B32-HX_-PG-HX00
B32-HX_-PG_3_5_7	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001C & B32-HX_-PG-HX002A & B32-HX_-PG-HX00
B32-HX_-PG_3_5_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001C & B32-HX_-PG-HX002A & B32-HX_-PG-HX00
B32-HX_-PG_3_6	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001C & B32-HX_-PG-HX002B
B32-HX_-PG_3_6_7	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001C & B32-HX_-PG-HX002B & B32-HX_-PG-HX00
B32-HX_-PG_3_6_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001C & B32-HX_-PG-HX002B & B32-HX_-PG-HX00
B32-HX_-PG_3_7_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001C & B32-HX_-PG-HX002C & B32-HX_-PG-HX00
B32-HX_-PG_3_8	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001C & B32-HX_-PG-HX002D
B32-HX_-PG_4_5	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001D & B32-HX_-PG-HX002A
B32-HX_-PG_4_5_6	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001D & B32-HX_-PG-HX002A & B32-HX_-PG-HX00
B32-HX_-PG_4_5_7	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001D & B32-HX_-PG-HX002A & B32-HX_-PG-HX00
B32-HX_-PG_4_5_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001D & B32-HX_-PG-HX002A & B32-HX_-PG-HX00
B32-HX_-PG_4_6	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001D & B32-HX_-PG-HX002B
B32-HX_-PG_4_6_7	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001D & B32-HX_-PG-HX002B & B32-HX_-PG-HX00
B32-HX_-PG_4_6_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001D & B32-HX_-PG-HX002B & B32-HX_-PG-HX00
B32-HX_-PG_4_7	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX001D & B32-HX_-PG-HX002C
B32-HX_-PG_4_7_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX001D & B32-HX_-PG-HX002C & B32-HX_-PG-HX00
B32-HX_-PG_5_6	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX002A & B32-HX_-PG-HX002B
B32-HX_-PG_5_6_7	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX002A & B32-HX_-PG-HX002B & B32-HX_-PG-HX00
B32-HX_-PG_5_6_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX002A & B32-HX_-PG-HX002B & B32-HX_-PG-HX00
B32-HX_-PG_5_7	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX002A & B32-HX_-PG-HX002C

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Full Power Core Damage Frequency = 1.34E-09				
B32-HX_-PG_5_7_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX002A & B32-HX_-PG-HX002C & B32-HX_-PG-HX00
B32-HX_-PG_5_8	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX002A & B32-HX_-PG-HX002D
B32-HX_-PG_6_7	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX002B & B32-HX_-PG-HX002C
B32-HX_-PG_6_7_8	1.14E-08	1.66E-05	1.43E+03	CCF of three components: B32-HX_-PG-HX002B & B32-HX_-PG-HX002C & B32-HX_-PG-HX00
B32-HX_-PG_6_8	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX002B & B32-HX_-PG-HX002D
B32-HX_-PG_7_8	3.43E-07	5.06E-04	1.48E+03	CCF of two components: B32-HX_-PG-HX002C & B32-HX_-PG-HX002D
B32-HX_-PG_ALL	2.67E-08	3.84E-05	1.43E+03	CCF of all components in group 'B32-HX_-PG'
B32-HX_-PG-HX001A	2.40E-05	4.13E-04	18.09	Heat Exchanger HX001A Plugs
B32-HX_-PG-HX001B	2.40E-05	4.13E-04	18.09	Heat Exchanger HX001B Plugs
B32-HX_-PG-HX001C	2.40E-05	4.13E-04	18.09	Heat Exchanger HX001C Plugs
B32-HX_-PG-HX001D	2.40E-05	4.13E-04	18.09	Heat Exchanger HX001D Plugs
B32-HX_-PG-HX002A	2.40E-05	4.13E-04	18.09	Heat Exchanger HX002A Plugs
B32-HX_-PG-HX002B	2.40E-05	4.13E-04	18.09	Heat Exchanger HX002B Plugs
B32-HX_-PG-HX002C	2.40E-05	4.13E-04	18.09	Heat Exchanger HX002A Plugs
B32-HX_-PG-HX002D	2.40E-05	4.13E-04	18.09	Heat Exchanger HX002D Plugs
B32-NMO-OC-F001A	2.40E-06	1.59E-05	7.62	F001A Spuriously closes
B32-NMO-OC-F001B	2.40E-06	1.59E-05	7.62	Nitrogen Motor Operated Valve Transfers Closed
B32-NMO-OC-F001C	2.40E-06	1.59E-05	7.62	Nitrogen Motor Operated Valve Transfers Closed
B32-NMO-OC-F001D	2.40E-06	1.59E-05	7.62	Nitrogen Motor Operated Valve Transfers Closed
B32-NMO-OC-F004A	2.40E-06	1.59E-05	7.62	F004A Spuriously closes
B32-NMO-OC-F004B	2.40E-06	1.59E-05	7.62	Nitrogen Motor Operated Valve Transfers Closed
B32-NMO-OC-F004C	2.40E-06	1.59E-05	7.62	Nitrogen Motor Operated Valve Transfers Closed
B32-NMO-OC-F004D	2.40E-06	1.59E-05	7.62	Nitrogen Motor Operated Valve Transfers Closed

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Full Power
Core Damage Frequency = 1.34E-09

B32-NONCONDENSE	1.00E+00	1.69E-01	1	Non condensable gasses form in ICS sufficiently to require venting
B32-NPO-CC_ALL	1.11E-07	1.58E-04	1.42E+03	CCF of all components in group 'B32-NPO-CC'
B32-NPO-OC-F002A	2.40E-06	1.59E-05	7.62	F002A Spuriously closes
B32-NPO-OC-F002B	2.40E-06	1.59E-05	7.62	F002B Spuriously closes
B32-NPO-OC-F002C	2.40E-06	1.59E-05	7.62	F002C Spuriously closes
B32-NPO-OC-F002D	2.40E-06	1.59E-05	7.62	F002D Spuriously closes
B32-NPO-OC-F003A	2.40E-06	1.59E-05	7.62	F003A Spuriously closes
B32-NPO-OC-F003B	2.40E-06	1.59E-05	7.62	F003B Spuriously closes
B32-NPO-OC-F003C	2.40E-06	1.59E-05	7.62	F003C Spuriously closes
B32-NPO-OC-F003D	2.40E-06	1.59E-05	7.62	F003D Spuriously closes
B32-SOV-FE_10_18	4.35E-06	5.76E-05	14.02	CCF of two components: B32-SOV-FE-F009B & B32-SOV-FE-F011B
B32-SOV-FE_10_22	4.35E-06	5.76E-05	14.02	CCF of two components: B32-SOV-FE-F009B & B32-SOV-FE-F012B
B32-SOV-FE_11_19	4.35E-06	5.76E-05	14.02	CCF of two components: B32-SOV-FE-F009C & B32-SOV-FE-F011C
B32-SOV-FE_11_23	4.35E-06	5.76E-05	14.02	CCF of two components: B32-SOV-FE-F009C & B32-SOV-FE-F012C
B32-SOV-FE_12_20	4.35E-06	5.76E-05	14.02	CCF of two components: B32-SOV-FE-F009D & B32-SOV-FE-F011D
B32-SOV-FE_12_24	4.35E-06	5.76E-05	14.02	CCF of two components: B32-SOV-FE-F009D & B32-SOV-FE-F012D
B32-SOV-FE_13_17	4.35E-06	5.76E-05	14.02	CCF of two components: B32-SOV-FE-F010A & B32-SOV-FE-F011A
B32-SOV-FE_13_21	4.35E-06	5.76E-05	14.02	CCF of two components: B32-SOV-FE-F010A & B32-SOV-FE-F012A
B32-SOV-FE_14_18	4.35E-06	5.76E-05	14.02	CCF of two components: B32-SOV-FE-F010B & B32-SOV-FE-F011B
B32-SOV-FE_14_22	4.35E-06	5.76E-05	14.02	CCF of two components: B32-SOV-FE-F010B & B32-SOV-FE-F012B
B32-SOV-FE_15_19	4.35E-06	5.76E-05	14.02	CCF of two components: B32-SOV-FE-F010C & B32-SOV-FE-F011C
B32-SOV-FE_15_23	4.35E-06	5.76E-05	14.02	CCF of two components: B32-SOV-FE-F010C & B32-SOV-FE-F012C
B32-SOV-FE_16_20	4.35E-06	5.76E-05	14.02	CCF of two components: B32-SOV-FE-F010D & B32-SOV-FE-F011D

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Full Power Core Damage Frequency = 1.34E-09				
B32-SOV-FE_16_24	4.35E-06	5.76E-05	14.02	CCF of two components: B32-SOV-FE-F010D & B32-SOV-FE-F012D
B32-SOV-FE_9_17	4.35E-06	5.76E-05	14.02	CCF of two components: B32-SOV-FE-F009A & B32-SOV-FE-F011A
B32-SOV-FE_9_21	4.35E-06	5.76E-05	14.02	CCF of two components: B32-SOV-FE-F009A & B32-SOV-FE-F012A
C12-AOV-CF-SCRV126	6.90E-09	2.06E-04	2.81E+04	CCF TO OPEN OF AIR OPERATED SCRAM VALVE AOV-126
C12-ROD-CF-SCRAM	2.50E-07	3.18E-01	1.27E+06	CCF OF CONTROL RODS TO INSERT
C41-ACV-OC-F002A	2.40E-05	6.80E-05	3.83	AIR OPERATED VALVE F002A FAILS TO REMAIN OPEN
C41-ACV-OC-F002B	2.40E-05	6.80E-05	3.83	AIR OPERATED VALVE F002B FAILS TO REMAIN OPEN
C41-ACV-OC-F002C	2.40E-05	6.80E-05	3.83	AIR OPERATED VALVE F002C FAILS TO REMAIN OPEN
C41-ACV-OC-F002D	2.40E-05	6.80E-05	3.83	AIR OPERATED VALVE FAILS TO REMAIN OPEN
C41-SQV-CC_1_2_3	5.56E-06	1.57E-05	3.83	CCF of three components: C41-SQV-CC-F003A & C41-SQV-CC-F003B & C41-SQV-CC-F003C
C41-SQV-CC_1_2_4	5.56E-06	1.57E-05	3.83	CCF of three components: C41-SQV-CC-F003A & C41-SQV-CC-F003B & C41-SQV-CC-F003D
C41-SQV-CC_1_3	5.56E-05	1.57E-04	3.83	CCF of two components: C41-SQV-CC-F003A & C41-SQV-CC-F003C
C41-SQV-CC_1_3_4	5.56E-06	1.57E-05	3.83	CCF of three components: C41-SQV-CC-F003A & C41-SQV-CC-F003C & C41-SQV-CC-F003D
C41-SQV-CC_2_3_4	5.56E-06	1.57E-05	3.83	CCF of three components: C41-SQV-CC-F003B & C41-SQV-CC-F003C & C41-SQV-CC-F003D
C41-SQV-CC_2_4	5.56E-05	1.57E-04	3.83	CCF of two components: C41-SQV-CC-F003B & C41-SQV-CC-F003D
C41-SQV-CC_ALL	1.50E-04	4.28E-04	3.85	CCF of all components in group 'C41-SQV-CC'
C41-SQV-CC-F003A	3.00E-03	2.55E-05	1.01	EXPLOSIVE VALVE F003A FAILS TO OPERATE
C41-SQV-CC-F003B	3.00E-03	2.55E-05	1.01	EXPLOSIVE VALVE F003B FAILS TO OPERATE
C41-SQV-CC-F003C	3.00E-03	2.55E-05	1.01	EXPLOSIVE VALVE F003C FAILS TO OPERATE
C41-SQV-CC-F003D	3.00E-03	2.55E-05	1.01	EXPLOSIVE VALVE F003D FAILS TO OPERATE
C41-TNK-RP-A001A	2.40E-06	6.79E-06	3.83	ACCUMULATOR A001A FAILS CATASTROPHICALLY
C41-TNK-RP-A001B	2.40E-06	6.79E-06	3.83	ACCUMULATOR A001B FAILS CATASTROPHICALLY
C41-UV_-CC_1_2	2.85E-07	8.28E-07	3.91	CCF of two components: C41-UV_-CC-F004A & C41-UV_-CC-F004B

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Full Power
Core Damage Frequency = 1.34E-09

C41-UV_-CC_1_2_3	2.25E-06	6.46E-06	3.83	CCF of three components: C41-UV_-CC-F004A & C41-UV_-CC-F004B & C41-UV_-CC-F005A
C41-UV_-CC_1_2_4	2.25E-06	6.46E-06	3.83	CCF of three components: C41-UV_-CC-F004A & C41-UV_-CC-F004B & C41-UV_-CC-F005B
C41-UV_-CC_1_3	2.85E-07	8.28E-07	3.91	CCF of two components: C41-UV_-CC-F004A & C41-UV_-CC-F005A
C41-UV_-CC_1_3_4	2.25E-06	6.46E-06	3.83	CCF of three components: C41-UV_-CC-F004A & C41-UV_-CC-F005A & C41-UV_-CC-F005B
C41-UV_-CC_1_4	2.85E-07	8.28E-07	3.91	CCF of two components: C41-UV_-CC-F004A & C41-UV_-CC-F005B
C41-UV_-CC_2_3	2.85E-07	8.28E-07	3.91	CCF of two components: C41-UV_-CC-F004B & C41-UV_-CC-F005A
C41-UV_-CC_2_3_4	2.25E-06	6.46E-06	3.83	CCF of three components: C41-UV_-CC-F004B & C41-UV_-CC-F005A & C41-UV_-CC-F005B
C41-UV_-CC_2_4	2.85E-07	8.28E-07	3.91	CCF of two components: C41-UV_-CC-F004B & C41-UV_-CC-F005B
C41-UV_-CC_3_4	2.85E-07	8.28E-07	3.91	CCF of two components: C41-UV_-CC-F005A & C41-UV_-CC-F005B
C41-UV_-CC_ALL	1.37E-05	3.89E-05	3.84	CCF of all components in group 'C41-UV_-CC'
C41-UV_-CC-F004A	7.99E-04	2.28E-03	3.85	CHECK VALVE F004A FAILS TO OPEN
C41-UV_-CC-F004B	7.99E-04	2.28E-03	3.85	CHECK VALVE F004B FAILS TO OPEN
C41-UV_-CC-F005A	7.99E-04	2.28E-03	3.85	CHECK VALVE F005A FAILS TO OPEN
C41-UV_-CC-F005B	7.99E-04	2.28E-03	3.85	CHECK VALVE F005B FAILS TO OPEN
C63-CCFSOFTWARE	1.00E-04	3.47E-01	3.47E+03	Common cause failure of software
C63-CCFSOFTWARE_S	1.00E-04	1.55E-01	1.55E+03	Common cause failure of software, for spurious
C63-UNDEVSPUR58	1.00E-03	1.87E-02	19.68	Undeveloped spurious hardware failure
C63-UNDEVSPUR59	1.00E-03	1.87E-02	19.68	Undeveloped spurious hardware failure
C63-UNDEVSPUR60	1.00E-03	1.87E-02	19.68	Undeveloped spurious hardware failure
C63-UNDEVSPUR61	1.00E-03	1.87E-02	19.68	Undeveloped spurious hardware failure
C63-UNDEVSPUR62	1.00E-03	1.87E-02	19.68	Undeveloped spurious hardware failure
C63-UNDEVSPUR63	1.00E-03	1.87E-02	19.68	Undeveloped spurious hardware failure
C63-UNDEVSPUR64	1.00E-03	1.87E-02	19.68	Undeveloped spurious hardware failure

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Full Power Core Damage Frequency = 1.34E-09				
C63-UNDEVSPUR65	1.00E-03	1.87E-02	19.68	Undeveloped spurious hardware failure
C63-UNDEVSPUR66	1.00E-03	1.87E-02	19.68	Undeveloped spurious hardware failure
C63-UNDEVSPUR67	1.00E-03	1.87E-02	19.68	Undeveloped spurious hardware failure
C63-UNDEVSPUR68	1.00E-03	1.87E-02	19.68	Undeveloped spurious hardware failure
C63-UNDEVSPUR69	1.00E-03	1.87E-02	19.68	Undeveloped spurious hardware failure
C63-UNDEVSPUR70	1.00E-03	1.87E-02	19.68	Undeveloped spurious hardware failure
C63-UNDEVSPUR71	1.00E-03	1.87E-02	19.68	Undeveloped spurious hardware failure
C63-UNDEVSPUR72	1.00E-03	1.87E-02	19.68	Undeveloped spurious hardware failure
C63-UNDEVSPUR73	1.00E-03	1.87E-02	19.68	Undeveloped spurious hardware failure
C71-DTM-FC-R_1_2_3	1.11E-06	3.15E-06	3.83	CCF of three components: C71-DTM-FC-RPSDIV1 & C71-DTM-FC-RPSDIV2 & C71-DTM-FC-RP
C71-DTM-FC-R_1_2_4	1.11E-06	3.15E-06	3.83	CCF of three components: C71-DTM-FC-RPSDIV1 & C71-DTM-FC-RPSDIV2 & C71-DTM-FC-RP
C71-DTM-FC-R_1_3_4	1.11E-06	3.15E-06	3.83	CCF of three components: C71-DTM-FC-RPSDIV1 & C71-DTM-FC-RPSDIV3 & C71-DTM-FC-RP
C71-DTM-FC-R_2_3_4	1.11E-06	3.15E-06	3.83	CCF of three components: C71-DTM-FC-RPSDIV2 & C71-DTM-FC-RPSDIV3 & C71-DTM-FC-RP
C71-DTM-FC-R_ALL	3.00E-05	8.66E-05	3.88	CCF of all components in group 'C71-DTM-FC-R'
C71-OLU-FC-R_ALL	2.40E-05	7.60E-04	32.67	CCF of all components in group 'C71-OLU-FC-R'
C71-SLU-FC-N_1_2_3	1.67E-06	4.80E-06	3.83	CCF of three components: C71-SLU-FC-NMSDIV1 & C71-SLU-FC-NMSDIV2 & C71-SLU-FC-NM
C71-SLU-FC-N_1_2_4	1.67E-06	4.80E-06	3.83	CCF of three components: C71-SLU-FC-NMSDIV1 & C71-SLU-FC-NMSDIV2 & C71-SLU-FC-NM
C71-SLU-FC-N_1_3_4	1.67E-06	4.80E-06	3.83	CCF of three components: C71-SLU-FC-NMSDIV1 & C71-SLU-FC-NMSDIV3 & C71-SLU-FC-NM
C71-SLU-FC-N_2_3_4	1.67E-06	4.80E-06	3.83	CCF of three components: C71-SLU-FC-NMSDIV2 & C71-SLU-FC-NMSDIV3 & C71-SLU-FC-NM
C71-SLU-FC-N_ALL	4.50E-05	1.33E-04	3.94	CCF of all components in group 'C71-SLU-FC-N'
C71-SLU-FC-R_1_2_3	1.67E-06	5.07E-05	31.39	CCF of three components: C71-SLU-FC-RPSDIV1 & C71-SLU-FC-RPSDIV2 & C71-SLU-FC-RP
C71-SLU-FC-R_1_2_4	1.67E-06	5.07E-05	31.39	CCF of three components: C71-SLU-FC-RPSDIV1 & C71-SLU-FC-RPSDIV2 & C71-SLU-FC-RP
C71-SLU-FC-R_1_3_4	1.67E-06	5.07E-05	31.39	CCF of three components: C71-SLU-FC-RPSDIV1 & C71-SLU-FC-RPSDIV3 & C71-SLU-FC-RP

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Full Power Core Damage Frequency = 1.34E-09				
C71-SLU-FC-R_2_3_4	1.67E-06	5.07E-05	31.39	CCF of three components: C71-SLU-FC-RPSDIV2 & C71-SLU-FC-RPSDIV3 & C71-SLU-FC-RP
C71-SLU-FC-R_ALL	4.50E-05	1.51E-03	34.37	CCF of all components in group 'C71-SLU-FC-R'
C72-ATM-FC-L1_1_2_3	2.65E-08	6.29E-06	238.76	CCF of three components: C72-ATM-FC-DPSL1LLA & C72-ATM-FC-DPSL1LLB & C72-ATM-FC-
C72-ATM-FC-L1_1_2_4	2.65E-08	6.29E-06	238.76	CCF of three components: C72-ATM-FC-DPSL1LLA & C72-ATM-FC-DPSL1LLB & C72-ATM-FC-
C72-ATM-FC-L1_1_3_4	2.65E-08	6.29E-06	238.76	CCF of three components: C72-ATM-FC-DPSL1LLA & C72-ATM-FC-DPSL1LLC & C72-ATM-FC-
C72-ATM-FC-L1_2_3_4	2.65E-08	6.29E-06	238.76	CCF of three components: C72-ATM-FC-DPSL1LLB & C72-ATM-FC-DPSL1LLC & C72-ATM-FC-
C72-ATM-FC-L1_ALL	5.00E-06	1.32E-03	265.95	CCF of all components in group 'C72-ATM-FC-L1'
C72-CCFSOFTWARE	1.00E-04	1.21E-01	1.21E+03	COMMON CAUSE FAILURE OF DPS PROCESSORS
C72-LDD-CF-LOADS	1.86E-06	2.24E-03	1.20E+03	COMMON CAUSE FAILURE OF DPS LOAD DRIVERS
C72-LOG-FC-D_1_2	3.33E-06	4.02E-03	1.21E+03	CCF of two components: C72-LOG-FC-D1DPS & C72-LOG-FC-D2DPS
C72-LOG-FC-D_1_2_3	6.67E-06	8.03E-03	1.21E+03	CCF of three components: C72-LOG-FC-D1DPS & C72-LOG-FC-D2DPS & C72-LOG-FC-D3DPS
C72-LOG-FC-D_1_3	3.33E-06	4.02E-03	1.21E+03	CCF of two components: C72-LOG-FC-D1DPS & C72-LOG-FC-D3DPS
C72-LOG-FC-D_2_3	3.33E-06	4.02E-03	1.21E+03	CCF of two components: C72-LOG-FC-D2DPS & C72-LOG-FC-D3DPS
C72-LOG-FC-D1DPS	1.20E-04	3.28E-05	1.27	LOGIC UNIT FAILS TO FUNCTION
C72-LOG-FC-D2DPS	1.20E-04	3.28E-05	1.27	LOGIC UNIT FAILS TO FUNCTION
C72-LOG-FC-D3DPS	1.20E-04	3.28E-05	1.27	LOGIC UNIT FAILS TO FUNCTION
E50-SQV-CC_1_4	2.38E-05	1.32E-06	1.06	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002D
E50-SQV-CC_1_4_5	7.94E-07	3.48E-06	5.17	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002D & E50-SQV-CC-F002E
E50-SQV-CC_1_4_8	7.94E-07	3.48E-06	5.17	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002D & E50-SQV-CC-F002H
E50-SQV-CC_1_5	2.38E-05	1.32E-06	1.06	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002E
E50-SQV-CC_1_5_8	7.94E-07	3.48E-06	5.17	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002E & E50-SQV-CC-F002H
E50-SQV-CC_1_8	2.38E-05	1.32E-06	1.06	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002H
E50-SQV-CC_4_5	2.38E-05	1.32E-06	1.06	CCF of two components: E50-SQV-CC-F002D & E50-SQV-CC-F002E

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Full Power Core Damage Frequency = 1.34E-09				
E50-SQV-CC_4_5_8	7.94E-07	3.48E-06	5.17	CCF of three components: E50-SQV-CC-F002D & E50-SQV-CC-F002E & E50-SQV-CC-F002H
E50-SQV-CC_4_8	2.38E-05	1.32E-06	1.06	CCF of two components: E50-SQV-CC-F002D & E50-SQV-CC-F002H
E50-SQV-CC_5_8	2.38E-05	1.32E-06	1.06	CCF of two components: E50-SQV-CC-F002E & E50-SQV-CC-F002H
E50-SQV-CC_ALL	1.50E-04	1.18E-01	786.5	CCF of all components in group 'E50-SQV-CC'
E50-SQV-CC-EQU_ALL	3.00E-04	8.28E-07	1	CCF of all components in group 'E50-SQV-CC-EQU'
E50-SQV-CC-F002A	3.00E-03	9.11E-06	1	SQUIB VALVE F002A FAILS TO OPERATE
E50-SQV-CC-F002D	3.00E-03	9.11E-06	1	SQUIB VALVE F002D FAILS TO OPERATE
E50-SQV-CC-F002E	3.00E-03	9.11E-06	1	SQUIB VALVE F002E FAILS TO OPERATE
E50-SQV-CC-F002H	3.00E-03	9.11E-06	1	SQUIB VALVE F002H FAILS TO OPERATE
E50-SQV-CF-4OPEN	1.50E-05	3.95E-03	264.22	CCF OF 4 OR MORE SQUIB VALVES TO OPEN
E50-STR-PG_ALL	5.35E-04	1.49E-06	1	CCF of all components in group 'E50-STR-PG'
E50-UV_OC_1_4_5	7.05E-06	3.44E-05	5.87	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003D & E50-UV_-OC-F003E
E50-UV_OC_1_4_8	7.05E-06	3.44E-05	5.87	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003D & E50-UV_-OC-F003H
E50-UV_OC_1_5_8	7.05E-06	3.44E-05	5.87	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003E & E50-UV_-OC-F003H
E50-UV_OC_4_5_8	7.05E-06	3.44E-05	5.87	CCF of three components: E50-UV_-OC-F003D & E50-UV_-OC-F003E & E50-UV_-OC-F003H
E50-UV_OC_ALL	3.00E-04	2.38E-01	791.85	CCF of all components in group 'E50-UV_OC'
E50-UV_-OC-F003A	1.75E-02	7.10E-05	1	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003D	1.75E-02	7.10E-05	1	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003E	1.75E-02	7.10E-05	1	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003H	1.75E-02	7.10E-05	1	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
G21-BV_-RE-F308	4.84E-02	1.92E-05	1	MISPOSITION OF VALVE F308
G21-BV_-RE-F334	4.84E-02	1.09E-01	3.15	MISPOSITION OF VALVE F334
G21-MOV-CC-F011A	2.40E-02	5.63E-06	1	MOTOR OPER. VALVE F011A FAILS TO OPEN

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Full Power Core Damage Frequency = 1.34E-09				
G21-MOV-CC-F011B	2.40E-02	1.66E-06	1	MOTOR OPER. VALVE F011B FAILS TO OPEN
G21-MOV-CC-F013A	2.40E-02	5.63E-06	1	MOTOR OPER. VALVE F013A FAILS TO OPEN
G21-MOV-CC-F013B	2.40E-02	1.66E-06	1	MOTOR OPER. VALVE F013B FAILS TO OPEN
G21-MOV-CC-F014A	2.40E-02	5.63E-06	1	MOTOR OPER. VALVE F014A FAILS TO OPEN
G21-MOV-CC-F014B	2.40E-02	1.66E-06	1	MOTOR OPER. VALVE F014B FAILS TO OPEN
G21-NMO_3_4	1.11E-05	1.56E-05	2.37	CCF of two components: G21-NMO-CC-F332A & G21-NMO-CC-F332B
G21-NMO_ALL	3.00E-05	4.11E-05	2.36	CCF of all components in group 'G21-NMO'
G21-NSC-TM-F332A	1.50E-03	1.66E-06	1	MAINTENANCE FOR VALVE F332A
G21-NSC-TM-F332B	1.50E-03	1.66E-06	1	MAINTENANCE FOR VALVE F332B
G21-UV_-333_1_2	1.79E-05	2.48E-05	2.37	CCF of two components: G21-UV_-CC-F333A & G21-UV_-CC-F333B
G21-XHE-FO-LPCI	1.61E-03	1.99E-06	1	OPERATOR FAILS TO ALIGN AND ACTUATE FAPCS IN LPCI MODE
NICWSA-SYS-FAILS	1.00E-03	1.66E-05	1.02	NUCLEAR ISLAND CHILLED WATER SUBSYSTEM TRAIN A FAILS
NICWSB-SYS-FAILS	1.00E-03	1.66E-05	1.02	NUCLEAR ISLAND CHILLED WATER SUBSYSTEM TRAIN B FAILS
P21-ACV-CC-F0023_1_2	1.93E-04	3.81E-06	1.02	CCF of two components: P21-ACV-CC-F0023A & P21-ACV-CC-F0023B
P21-ACV-CC-F0023A	2.00E-03	3.56E-05	1.02	AIR OPERATED VALVE F0023A FAILS TO OPEN
P21-ACV-CC-F0023B	2.00E-03	3.56E-05	1.02	AIR OPERATED VALVE F0023B FAILS TO OPEN
P21-ACV-OO-CCF23_1_2	2.22E-04	4.47E-06	1.02	CCF of two components: P21-ACV-OO-F023A & P21-ACV-OO-F023B
P21-ACV-OO-F0004	2.00E-03	9.93E-05	1.05	AIR OPERATED VALVE F0004 FAILS TO CLOSE
P21-ACV-OO-F0007	2.00E-03	9.93E-05	1.05	AIR OPERATED VALVE F0007 FAILS TO CLOSE
P21-ACV-OO-F0016_1_2	1.93E-04	3.81E-06	1.02	CCF of two components: P21-ACV-OO-F016A & P21-ACV-OO-F016B
P21-ACV-OO-F0020	2.00E-03	9.93E-05	1.05	AIR OPERATED VALVE F0020 FAILS TO CLOSE
P21-ACV-OO-F0027	2.00E-03	9.93E-05	1.05	AIR OPERATED VALVE F0027 FAILS TO CLOSE
P21-ACV-OO-F0061	2.00E-03	9.93E-05	1.05	AIR OPERATED VALVE F0061 FAILS TO CLOSE

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report

(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)

High Winds Full Power

Core Damage Frequency = 1.34E-09

P21-ACV-OO-F016A	2.00E-03	3.56E-05	1.02	AIR OPERATED VALVE F016A FAILS TO CLOSE
P21-ACV-OO-F016B	2.00E-03	3.56E-05	1.02	AIR OPERATED VALVE F016B FAILS TO CLOSE
P21-ACV-OO-F023A	2.00E-03	3.56E-05	1.02	AIR OPERATED VALVE FAILS TO CLOSE
P21-ACV-OO-F023B	2.00E-03	3.56E-05	1.02	AIR OPERATED VALVE FAILS TO CLOSE
P21-ACV-OO-XTIE_ALL	1.21E-04	2.48E-06	1.02	CCF of all components in group 'P21-ACV-OO-XTIE'
P21-AHU-FR-RCCWA	2.40E-04	3.15E-06	1.01	AIR HANDLING UNIT RCCWS ROOM A FAILS TO RUN
P21-AHU-FR-RCCWB	2.40E-04	3.15E-06	1.01	AIR HANDLING UNIT RCCWS ROOM TRAIN B FAILS TO RUN
P21-AHU-FS_1_2	6.67E-04	1.94E-05	1.03	CCF of two components: P21-AHU-FS-RCCWA & P21-AHU-FS-RCCWB
P21-AHU-FS-RCCWA	6.00E-03	1.08E-04	1.02	AIR HANDLING UNIT RCCWS ROOM A FAILS TO START
P21-AHU-FS-RCCWB	6.00E-03	1.08E-04	1.02	AIR HANDLING UNIT RCCWS ROOM B FAILS TO START
P21-MOV-CC_1_2	2.06E-04	1.32E-06	1.01	CCF of two components: P21-MOV-CC-F034A & P21-MOV-CC-F034B
P21-MOV-CC_ALL	1.48E-04	2.98E-06	1.02	CCF of all components in group 'P21-MOV-CC'
P21-MOV-CC-F0010A3	4.00E-03	7.15E-05	1.02	MOTOR OPERATED VALVE F0010A3 FAILS TO OPEN
P21-MOV-CC-F0010B1	4.00E-03	7.15E-05	1.02	MOTOR OPERATED VALVE F0010B1 FAILS TO OPEN
P21-MOV-CC-F0010B2	4.00E-03	7.15E-05	1.02	MOTOR OPERATED VALVE F0010B2 FAILS TO OPEN
P21-MOV-CC-F0010B3	4.00E-03	7.15E-05	1.02	MOTOR OPERATED VALVE F0010B3 FAILS TO OPEN
P21-MOV-CC-F034A	4.00E-03	7.15E-05	1.02	MOV P21-F034A FROM RCCWS TO RWCU/SDC HX-A FAILS TO OPEN
P21-MOV-CC-F034B	4.00E-03	7.15E-05	1.02	MOV P21-F034B FROM RCCWS TO RWCU/SDC HX-B FAILS TO OPEN
P21-MP_-FS_ALL	1.87E-04	3.64E-06	1.02	CCF of all components in group 'P21-MP_-FS'
P21-MPC-FR-C001A	6.00E-04	8.94E-06	1.01	MOTOR DRIVEN PUMP C001A FAILS TO RUN
P21-MPC-FR-C001B	6.00E-04	8.94E-06	1.01	MOTOR DRIVEN PUMP C001B FAILS TO RUN
P21-MPC-FR-C002A	6.00E-04	8.94E-06	1.01	MOTOR-DRIVEN PUMP C002A FAILS TO RUN
P21-MPC-FR-C002B	6.00E-04	8.94E-06	1.01	MOTOR-DRIVEN PUMP C002B FAILS TO RUN

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Full Power Core Damage Frequency = 1.34E-09				
P21-MPC-FR-C003A	6.00E-04	8.94E-06	1.01	MOTOR-DRIVEN PUMP C0003A FAILS TO RUN
P21-MPC-FR-C003B	6.00E-04	8.94E-06	1.01	MOTOR-DRIVEN PUMP C003B FAILS TO RUN
P21-MPC-FS-C001A	2.00E-03	3.56E-05	1.02	MOTOR DRIVEN PUMP C001A FAILS TO START
P21-MPC-FS-C001B	2.00E-03	3.56E-05	1.02	MOTOR-DRIVEN PUMP C001B FAILS TO START
P21-MPC-FS-C002A	2.00E-03	3.56E-05	1.02	MOTOR-DRIVEN PUMP C002A FAILS TO START
P21-MPC-FS-C002B	2.00E-03	3.56E-05	1.02	MOTOR-DRIVEN PUMP C002B FAILS TO START
P21-MPC-FS-C003A	2.00E-03	3.56E-05	1.02	MOTOR-DRIVEN PUMP C0003A FAILS TO START
P21-MPC-FS-C003B	2.00E-03	3.56E-05	1.02	MOTOR-DRIVEN PUMP C003B FAILS TO START
P21-NSC-TM-B001A	1.50E-03	2.67E-05	1.02	HEAT EXCHANGER B001A UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-B001B	1.50E-03	2.67E-05	1.02	HEAT EXCHANGER B001B UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-B002A	1.50E-03	2.67E-05	1.02	HEAT EXCHANGER B002A UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-B002B	1.50E-03	2.67E-05	1.02	HEAT EXCHANGER B002B UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-B003A	1.50E-03	2.67E-05	1.02	HEAT EXCHANGER B003A UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-B003B	1.50E-03	2.67E-05	1.02	HEAT EXCHANGER B003B UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-C001A	1.50E-03	2.67E-05	1.02	PUMP C001A IN MAINTENANCE
P21-NSC-TM-C001B	1.50E-03	2.67E-05	1.02	PUMP C001B IN MAINTENANCE
P21-NSC-TM-C002A	1.50E-03	2.67E-05	1.02	PUMP C002A IN MAINTENANCE
P21-NSC-TM-C002B	1.50E-03	2.67E-05	1.02	PUMP C002B IN MAINTENANCE
P21-NSC-TM-C003A	1.50E-03	2.67E-05	1.02	PUMP C003A IN MAINTENANCE
P21-NSC-TM-C003B	1.50E-03	2.67E-05	1.02	PUMP C003B IN MAINTENANCE
P21-TRN-RE-HX1A	8.07E-03	1.52E-04	1.02	FAILURE TO RESTORE RCCW TRAIN 1A HX
P21-TRN-RE-HX1B	8.07E-03	1.52E-04	1.02	FAILURE TO RESTORE RCCW TRAIN 1B HX
P21-TRN-RE-HX2A	8.07E-03	1.52E-04	1.02	FAILURE TO RESTORE RCCW TRAIN 2A HX

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Full Power
Core Damage Frequency = 1.34E-09

P21-TRN-RE-HX2B	8.07E-03	1.52E-04	1.02	FAILURE TO RESTORE RCCW TRAIN 2B HX
P21-TRN-RE-HX3A	8.07E-03	1.52E-04	1.02	FAILURE TO RESTORE RCCW TRAIN 3A HX
P21-TRN-RE-HX3B	8.07E-03	1.52E-04	1.02	FAILURE TO RESTORE RCCW TRAIN 3B HX
P21-TRN-RE-PUMP1A	8.07E-03	1.52E-04	1.02	FAILURE TO RESTORE RCCW TRAIN 1A PUMP
P21-TRN-RE-PUMP1B	8.07E-03	1.52E-04	1.02	FAILURE TO RESTORE RCCW TRAIN 1B PUMP
P21-TRN-RE-PUMP2A	8.07E-03	1.52E-04	1.02	FAILURE TO RESTORE RCCW TRAIN 2A PUMP
P21-TRN-RE-PUMP2B	8.07E-03	1.52E-04	1.02	FAILURE TO RESTORE RCCW TRAIN 2B PUMP
P21-TRN-RE-PUMP3A	8.07E-03	1.52E-04	1.02	FAILURE TO RESTORE RCCW TRAIN 3A PUMP
P21-TRN-RE-PUMP3B	8.07E-03	1.52E-04	1.02	FAILURE TO RESTORE RCCW TRAIN 3B PUMP
P41-ACV-CC_ALL	1.21E-04	2.48E-06	1.02	CCF of all components in group 'P41-ACV-CC'
P41-ACV-CC-F004A	2.00E-03	3.56E-05	1.02	AIR OPERATED VALVE F004A FAILS TO OPEN
P41-ACV-CC-F004B	2.00E-03	3.56E-05	1.02	AIR OPERATED VALVE F004B FAILS TO OPEN
P41-ACV-CC-F006A	2.00E-03	3.56E-05	1.02	AIR OPERATED VALVE F006A FAILS TO OPEN
P41-ACV-CC-F006B	2.00E-03	3.56E-05	1.02	AIR OPERATED VALVE F006B FAILS TO OPEN
P41-ACV-CC-F009A	2.00E-03	3.56E-05	1.02	AIR OPERATED VALVE F009A FAILS TO OPEN
P41-ACV-CC-F009B	2.00E-03	3.56E-05	1.02	AIR OPERATED VALVE F009B FAILS TO OPEN
P41-MOV-CC-PMP_ALL	1.45E-04	2.98E-06	1.02	CCF of all components in group 'P41-MOV-CC-PMP'
P41-MPW-FS_ALL	1.15E-04	1.49E-06	1.01	CCF of all components in group 'P41-MPW-FS'
R11-MCB-CC-A3RATAY	5.00E-04	7.45E-06	1.01	MEDIUM CIRCUIT BREAKER FOR RAT A Y-WINDING FAILS TO OPEN
R11-MCB-CC-A3UATAY	4.00E-03	7.15E-05	1.02	MEDIUM VOLTAGE CIRCUIT BREAKER FOR UAT A Y-WINDING FAILS TO OPEN
R11-MCB-CC-B3RATBY	5.00E-04	7.45E-06	1.01	MEDIUM CIRCUIT BREAKER FOR RAT B Y-WINDING FAILS TO OPEN
R11-MCB-CC-B3UATBY	4.00E-03	7.15E-05	1.02	MEDIUM VOLTAGE CIRCUIT BREAKER FOR UAT B Y-WINDING FAILS TO OPEN
R11-MCB-CC-CCFNORM_ALL	2.00E-04	3.97E-06	1.02	CCF of all components in group 'R11-MCB-CC-CCFNORM'

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Full Power
Core Damage Frequency = 1.34E-09

R11-MCB-OO-A3DGA	2.40E-03	4.24E-05	1.02	MEDIUM VOLTAGE CIRCUIT BREAKER FOR DG-A FAILS TO CLOSE
R11-MCB-OO-B3DGA	2.40E-03	4.24E-05	1.02	MEDIUM VOLTAGE CIRCUIT BREAKER FOR DG-B FAILS TO CLOSE
R11-MCB-OO-CCFALT_ALL	1.20E-04	2.48E-06	1.02	CCF of all components in group 'R11-MCB-OO-CCFALT'
R11-RE_-FO-SYNC00A3	8.76E-04	1.44E-05	1.02	SYNC RELAY FOR 1000A3 FAILS TO OPERATE
R11-RE_-FO-SYNC00B3	8.76E-04	1.44E-05	1.02	SYNC RELAY FOR 1000B3 FAILS TO OPERATE
R11-RE_-FO-UV00A3	8.76E-04	1.44E-05	1.02	1000A3 UV RELAY FAILS TO OPERATE ON UV COND
R11-RE_-FO-UV00B3	8.76E-04	1.44E-05	1.02	1000B3 UV RELAY FAILS TO OPERATE ON UV COND
R13-INV-FC-CCFNSR_1_3	3.16E-06	1.97E-05	7.16	CCF of two components: R13-INV-FC-R13A1 & R13-INV-FC-R13B1
R13-INV-FC-CCFNSR_1_3_5	2.11E-07	2.53E-04	1.20E+03	CCF of three components: R13-INV-FC-R13A1 & R13-INV-FC-R13B1 & R13-INV-FC-R13C
R13-INV-FC-CCFNSR_1_5	3.16E-06	5.46E-06	2.7	CCF of two components: R13-INV-FC-R13A1 & R13-INV-FC-R13C
R13-INV-FC-CCFNSR_3_5	3.16E-06	5.46E-06	2.7	CCF of two components: R13-INV-FC-R13B1 & R13-INV-FC-R13C
R13-INV-FC-CCFNSR_ALL	1.14E-05	1.37E-02	1.21E+03	CCF of all components in group 'R13-INV-FC-CCFNSR'
R13-INV-FC-CCFSR_ALL	1.14E-05	1.33E-02	1.16E+03	CCF of all components in group 'R13-INV-FC-CCFSR'
R13-INV-FC-R13A1	4.80E-04	1.82E-06	1	INVERTER TO R13-A1 FAILS
R13-INV-FC-R13B1	4.80E-04	1.82E-06	1	INVERTER TO R13-B1 FAILS
R13-INV-FC-R13C	4.80E-04	1.82E-06	1	INVERTER TO R13-C FAILS
R16-BDC-TM-R16A1	5.00E-04	1.82E-06	1	DC BUS R16-A1 IN MAINTENANCE
R16-BDC-TM-R16A3	5.00E-04	7.45E-06	1.01	DC BUS R16-A3 IN MAINTENANCE
R16-BDC-TM-R16B1	5.00E-04	1.82E-06	1	DC BUS R16-B1 IN MAINTENANCE
R16-BDC-TM-R16B3	5.00E-04	7.45E-06	1.01	DC BUS R16-B3 IN MAINTENANCE
R16-BDC-TM-R16C	5.00E-04	1.82E-06	1	DC BUS R16-C IN MAINTENANCE
R16-BT_-LP-CCFNSR_1_3_5	7.54E-09	8.61E-06	1.13E+03	CCF of three components: R16-BT_-LP-R16BTA1 & R16-BT_-LP-R16BTB1 & R16-BT_-LP-R1
R16-BT_-LP-CCFNSR_ALL	4.07E-07	4.90E-04	1.20E+03	CCF of all components in group 'R16-BT_-LP-CCFNSR'

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Full Power Core Damage Frequency = 1.34E-09				
R16-BT_-LP-CCFSR_ALL	4.07E-07	3.26E-04	789.54	CCF of all components in group 'R16-BT_-LP-CCFSR'
R16-BT_-TM-R16BTA1	5.00E-04	1.82E-06	1	BATTERY R16-BTA1 IN TEST AND MAINTENANCE
R16-BT_-TM-R16BTA3	5.00E-04	7.45E-06	1.01	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
R16-BT_-TM-R16BTB1	5.00E-04	1.82E-06	1	BATTERY R16-BTB1 IN TEST AND MAINTENANCE
R16-BT_-TM-R16BTB3	5.00E-04	7.45E-06	1.01	BATTERY R16-BTB3 IN TEST AND MAINTENANCE
R16-BT_-TM-R16BTC	5.00E-04	1.82E-06	1	BATTERY R16-BTC IN TEST AND MAINTENANCE
R21-AHU-FR-3A	2.40E-04	3.15E-06	1.01	AIR HANDLING UNIT FAILS TO RUN
R21-AHU-FR-3B	2.40E-04	3.15E-06	1.01	AIR HANDLING UNIT FAILS TO RUN
R21-AHU-FS-3A	6.00E-03	1.08E-04	1.02	AIR HANDLING UNIT FAILS TO START
R21-AHU-FS-3B	6.00E-03	1.08E-04	1.02	AIR HANDLING UNIT FAILS TO START
R21-AHU-FS-AHU3_1_2	6.67E-04	1.94E-05	1.03	CCF of two components: R21-AHU-FS-3A & R21-AHU-FS-3B
R21-DG_-FR-CCF_1_2	4.54E-03	2.65E-04	1.06	CCF of two components: R21-DG_-FR-DGA & R21-DG_-FR-DGB
R21-DG_-FR-DGA	5.76E-02	1.42E-03	1.02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
R21-DG_-FR-DGB	5.76E-02	1.39E-03	1.02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
R21-DG_-FS-CCF_1_2	2.86E-04	7.45E-06	1.03	CCF of two components: R21-DG_-FS-DGA & R21-DG_-FS-DGB
R21-DG_-FS-DGA	1.40E-02	2.74E-04	1.02	DG-A FAILS TO START AND LOAD
R21-DG_-FS-DGB	1.40E-02	2.71E-04	1.02	DG-B FAILS TO START AND LOAD
R21-DG_-TM-DGA	4.60E-02	1.04E-03	1.02	STANDBY DIESEL GENERATOR "A" IN MAINTENANCE
R21-DG_-TM-DGB	4.60E-02	1.02E-03	1.02	STANDBY DIESEL GENERATOR "B" IN MAINTENANCE
R21-FAN-FR-10A	2.40E-04	3.15E-06	1.01	BLOWER/VENTILATION FAN FAILS TO RUN
R21-FAN-FR-10B	2.40E-04	3.15E-06	1.01	BLOWER/VENTILATION FAN FAILS TO RUN
R21-FAN-FR-11A	2.40E-04	3.15E-06	1.01	BLOWER/VENTILATION FAN FAILS TO RUN
R21-FAN-FR-11B	2.40E-04	3.15E-06	1.01	BLOWER/VENTILATION FAN FAILS TO RUN

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Full Power Core Damage Frequency = 1.34E-09				
R21-FAN-FR-12A	2.40E-04	3.15E-06	1.01	BLOWER/VENTILATION FAN FAILS TO RUN
R21-FAN-FR-12B	2.40E-04	3.15E-06	1.01	BLOWER/VENTILATION FAN FAILS TO RUN
R21-FAN-FR-AHU2A	2.40E-04	3.15E-06	1.01	DG-A NORMAL VENTILATION FAN FAILS TO RUN
R21-FAN-FR-AHU2B	2.40E-04	3.15E-06	1.01	BLOWER/VENTILATION FAN FAILS TO RUN
R21-FAN-FS-10A	6.00E-04	8.94E-06	1.01	BLOWER/VENTILATION FAN FAILS TO START
R21-FAN-FS-10B	6.00E-04	8.94E-06	1.01	BLOWER/VENTILATION FAN FAILS TO START
R21-FAN-FS-11A	6.00E-04	8.94E-06	1.01	BLOWER/VENTILATION FAN FAILS TO START
R21-FAN-FS-11B	6.00E-04	8.94E-06	1.01	BLOWER/VENTILATION FAN FAILS TO START
R21-FAN-FS-12A	6.00E-04	8.94E-06	1.01	BLOWER/VENTILATION FAN FAILS TO START
R21-FAN-FS-12B	6.00E-04	8.94E-06	1.01	BLOWER/VENTILATION FAN FAILS TO START
R21-FLT-PG-DGA	3.60E-03	6.44E-05	1.02	FILTER PLUGGED
R21-FLT-PG-DGB	3.60E-03	6.44E-05	1.02	FILTER PLUGGED
R21-MCB-CC-1LOAD1	5.00E-04	7.45E-06	1.01	CIRCUIT BREAKER TO LOAD 1 FAILS TO OPEN
R21-MCB-CC-1LOAD2	5.00E-04	7.45E-06	1.01	CIRCUIT BREAKER TO LOAD 2 FAILS TO OPEN
R21-MCB-CC-1LOAD3	5.00E-04	7.45E-06	1.01	CIRCUIT BREAKER TO LOAD 3 FAILS TO OPEN
R21-MCB-CC-1LOAD4	5.00E-04	7.45E-06	1.01	CIRCUIT BREAKER TO LOAD 4 FAILS TO OPEN
R21-MCB-CC-1LOAD5	5.00E-04	7.45E-06	1.01	CIRCUIT BREAKER TO LOAD 5 FAILS TO OPEN
R21-MCB-CC-2LOAD1	5.00E-04	7.45E-06	1.01	CIRCUIT BREAKER TO LOAD 1 FAILS TO OPEN
R21-MCB-CC-2LOAD2	5.00E-04	7.45E-06	1.01	CIRCUIT BREAKER TO LOAD 2 FAILS TO OPEN
R21-MCB-CC-2LOAD3	5.00E-04	7.45E-06	1.01	CIRCUIT BREAKER TO LOAD 3 FAILS TO OPEN
R21-MCB-CC-2LOAD4	5.00E-04	7.45E-06	1.01	CIRCUIT BREAKER TO LOAD 4 FAILS TO OPEN
R21-MCB-CC-2LOAD5	5.00E-04	7.45E-06	1.01	CIRCUIT BREAKER TO LOAD 5 FAILS TO OPEN
R21-MOD-CC-1_1_2	3.33E-04	8.77E-06	1.03	CCF of two components: R21-MOD-CC-1A & R21-MOD-CC-1B

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Full Power
Core Damage Frequency = 1.34E-09

R21-MOD-CC-1A	3.00E-03	5.30E-05	1.02	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-1B	3.00E-03	5.30E-05	1.02	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-2A	3.00E-03	5.30E-05	1.02	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-2B	3.00E-03	5.30E-05	1.02	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-3A	3.00E-03	5.30E-05	1.02	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-3B	3.00E-03	5.30E-05	1.02	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-4A	3.00E-03	5.30E-05	1.02	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-4B	3.00E-03	5.30E-05	1.02	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-5A	3.00E-03	5.30E-05	1.02	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-5B	3.00E-03	5.30E-05	1.02	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-6A	3.00E-03	5.30E-05	1.02	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-6B	3.00E-03	5.30E-05	1.02	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MP_-FS-FOPUMP_ALL	1.00E-04	1.32E-06	1.01	CCF of all components in group 'R21-MP_-FS-FOPUMP'
R21-TRN-RE-FODG1A	2.42E-02	8.44E-06	1	FAILURE TO RESTORE FUEL OIL TRANSFER TRAIN 1 FOR DG-A
R21-TRN-RE-FODG1B	2.42E-02	8.44E-06	1	FAILURE TO RESTORE FUEL OIL TRANSFER TRAIN 1 FOR DG-B
R21-TRN-RE-FODG2A	2.42E-02	8.44E-06	1	FAILURE TO RESTORE FUEL OIL TRANSFER TRAIN 2 FOR DG-A
R21-TRN-RE-FODG2B	2.42E-02	8.44E-06	1	FAILURE TO RESTORE FUEL OIL TRANSFER TRAIN 2 FOR DG-B
T10-UV_-CC-VBISVS_1_2_3	5.23E-07	1.83E-03	3.49E+03	CCF of three components: T10-UV_-CC-ISV1 & T10-UV_-CC-ISV2 & T10-UV_-CC-ISV3
T10-UV_-OO-ISV1	1.00E-03	1.99E-06	1	BACKUP VALVE 1 FAILS TO CLOSE
T10-UV_-OO-ISV2	1.00E-03	1.99E-06	1	BACKUP VALVE 2 FAILS TO CLOSE
T10-UV_-OO-ISV3	1.00E-03	1.99E-06	1	BACKUP VALVE 3 FAILS TO CLOSE
T10-VB_-CC_1_2_3	4.19E-07	1.46E-03	3.47E+03	CCF of three components: T10-VB_-CC-VB1 & T10-VB_-CC-VB2 & T10-VB_-CC-VB3
T10-VB_-LK-VB1	1.00E-04	1.99E-06	1.02	PROBABILITY OF LEAK IN VACUUM BREAKER 1

Table 14-5

High Winds Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Full Power
Core Damage Frequency = 1.34E-09

T10-VB_-LK-VB2	1.00E-04	1.99E-06	1.02	PROBABILITY OF LEAK IN VACUUM BREAKER 2
T10-VB_-LK-VB3	1.00E-04	1.99E-06	1.02	PROBABILITY OF LEAK IN VACUUM BREAKER 3
T15-FLT-PP_ALL	5.68E-07	5.28E-05	92.46	CCF of all components in group 'T15-FLT-PP'
U43-BV_-CC-F346	4.00E-04	9.93E-07	1	MANUAL VALVE FAILS TO OPEN
U43-BV_-CC-FU439	4.00E-04	9.93E-07	1	MANUAL VALVE FAILS TO OPEN
U43-EDP-FR_1_2	1.36E-03	4.21E-05	1.03	CCF of two components: U43-EDP-FR-P1A & U43-EDP-FR-P2A
U43-EDP-FR-P1A	2.40E-02	7.12E-06	1	DIESEL-DRIVEN PUMP FAILS TO RUN
U43-EDP-FR-P2A	2.40E-02	6.29E-06	1	DIESEL-DRIVEN PUMP FAILS TO RUN
U43-EDP-FS_1_2	2.22E-03	1.03E-04	1.04	CCF of two components: U43-EDP-FS-P1A & U43-EDP-FS-P2A
U43-EDP-FS-P1A	2.00E-02	2.98E-06	1	DIESEL-DRIVEN PUMP FAILS TO START
U43-EDP-FS-P2A	2.00E-02	2.98E-06	1	DIESEL-DRIVEN PUMP 2A FAILS TO START
U43-UV_-CC-F347	4.00E-04	9.93E-07	1	CHECK VALVE F347 FAILS TO OPEN
U43-UV_-CC-FU438	4.00E-04	9.93E-07	1	CHECK VALVE FAILS TO OPEN
U43-XHE-FO-2ND	1.61E-02	8.28E-07	1	OPERATOR FAILS TO ALIGN FPS CROSSTIE
U43-XHE-FO-LPCI	1.61E-03	6.16E-05	1.04	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE
XXX-XHE-FO-DEPRESS	1.61E-01	1.07E-01	1.56	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
XXX-XHE-FO-LPMAKEUP	1.61E-01	2.67E-01	2.39	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Shutdown
Core Damage Frequency = 1.19E-09

Event Name	Probability	Fus Ves	RAW	Description
B21-SQV-CC_ALL	1.50E-04	6.08E-01	4.06E+03	CCF of all components in group 'B21-SQV-CC'
B21-UV_-CC-F102A	1.00E-04	3.69E-04	4.64	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
B21-UV_-CC-F103A	1.00E-04	3.69E-04	4.64	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
B32-HX_-PG_1_2	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001B
B32-HX_-PG_1_3	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001C
B32-HX_-PG_1_4	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX001D
B32-HX_-PG_1_5	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX002A
B32-HX_-PG_1_6	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX002B
B32-HX_-PG_1_7	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX002C
B32-HX_-PG_1_8	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001A & B32-HX_-PG-HX002D
B32-HX_-PG_2_3	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001B & B32-HX_-PG-HX001C
B32-HX_-PG_2_4	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001B & B32-HX_-PG-HX001D
B32-HX_-PG_2_5	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001B & B32-HX_-PG-HX002A
B32-HX_-PG_2_6	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001B & B32-HX_-PG-HX002B
B32-HX_-PG_2_7	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001B & B32-HX_-PG-HX002C
B32-HX_-PG_2_8	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001B & B32-HX_-PG-HX002D
B32-HX_-PG_3_5	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001C & B32-HX_-PG-HX002A
B32-HX_-PG_3_6	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001C & B32-HX_-PG-HX002B

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Shutdown Core Damage Frequency = 1.19E-09				
B32-HX_-PG_4_5	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001D & B32-HX_-PG-HX002A
B32-HX_-PG_4_6	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX001D & B32-HX_-PG-HX002B
B32-HX_-PG_5_6	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX002A & B32-HX_-PG-HX002B
B32-HX_-PG_5_7	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX002A & B32-HX_-PG-HX002C
B32-HX_-PG_5_8	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX002A & B32-HX_-PG-HX002D
B32-HX_-PG_6_7	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX002B & B32-HX_-PG-HX002C
B32-HX_-PG_6_8	3.43E-07	3.15E-05	91.88	CCF of two components: B32-HX_-PG-HX002B & B32-HX_-PG-HX002D
B32-HX_-PG_ALL	2.67E-08	1.12E-06	42.98	CCF of all components in group 'B32-HX_-PG'
B32-HX_-PG-HX001A	2.40E-05	2.65E-03	111.06	Heat Exchanger HX001A Plugs
B32-HX_-PG-HX001B	2.40E-05	2.65E-03	111.06	Heat Exchanger HX001B Plugs
B32-HX_-PG-HX002A	2.40E-05	2.65E-03	111.06	Heat Exchanger HX002A Plugs
B32-HX_-PG-HX002B	2.40E-05	2.65E-03	111.06	Heat Exchanger HX002B Plugs
B32-NMO-OC-F001A	2.40E-06	2.56E-04	107.17	F001A Spuriously closes
B32-NMO-OC-F001B	2.40E-06	2.56E-04	107.17	Nitrogen Motor Operated Valve Transfers Closed
B32-NMO-OC-F004A	2.40E-06	2.56E-04	107.17	F004A Spuriously closes
B32-NMO-OC-F004B	2.40E-06	2.56E-04	107.17	Nitrogen Motor Operated Valve Transfers Closed
B32-NONCONDENSE	1.00E+00	6.35E-02	1	Non condensable gasses form in ICS sufficiently to require venting
B32-NPO-CC_1_2_5	2.78E-08	1.31E-06	44.66	CCF of three components: B32-NPO-CC-F005A & B32-NPO-CC-F005B & B32-NPO-CC-F006A
B32-NPO-CC_1_2_6	2.78E-08	1.31E-06	44.66	CCF of three components: B32-NPO-CC-F005A & B32-NPO-CC-F005B & B32-NPO-CC-F006B
B32-NPO-CC_1_3_5	2.78E-08	1.31E-06	44.66	CCF of three components: B32-NPO-CC-F005A & B32-NPO-CC-F005C & B32-NPO-CC-F006A
B32-NPO-CC_1_4_5	2.78E-08	1.31E-06	44.66	CCF of three components: B32-NPO-CC-F005A & B32-NPO-CC-F005D & B32-NPO-CC-F006A
B32-NPO-CC_1_5	1.11E-06	1.13E-04	102.37	CCF of two components: B32-NPO-CC-F005A & B32-NPO-CC-F006A
B32-NPO-CC_1_5_10	2.78E-08	1.31E-06	44.66	CCF of three components: B32-NPO-CC-F005A & B32-NPO-CC-F006A & B32-NPO-CC-F104D

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Shutdown
Core Damage Frequency = 1.19E-09

B32-NPO-CC_1_5_6	2.78E-08	1.31E-06	44.66	CCF of three components: B32-NPO-CC-F005A & B32-NPO-CC-F006A & B32-NPO-CC-F006B
B32-NPO-CC_1_5_7	2.78E-08	1.31E-06	44.66	CCF of three components: B32-NPO-CC-F005A & B32-NPO-CC-F006A & B32-NPO-CC-F006C
B32-NPO-CC_1_5_8	2.78E-08	1.31E-06	44.66	CCF of three components: B32-NPO-CC-F005A & B32-NPO-CC-F006A & B32-NPO-CC-F006D
B32-NPO-CC_1_5_9	2.78E-08	1.31E-06	44.66	CCF of three components: B32-NPO-CC-F005A & B32-NPO-CC-F006A & B32-NPO-CC-F104C
B32-NPO-CC_2_3_6	2.78E-08	1.31E-06	44.66	CCF of three components: B32-NPO-CC-F005B & B32-NPO-CC-F005C & B32-NPO-CC-F006B
B32-NPO-CC_2_4_6	2.78E-08	1.31E-06	44.66	CCF of three components: B32-NPO-CC-F005B & B32-NPO-CC-F005D & B32-NPO-CC-F006B
B32-NPO-CC_2_5_6	2.78E-08	1.31E-06	44.66	CCF of three components: B32-NPO-CC-F005B & B32-NPO-CC-F006A & B32-NPO-CC-F006B
B32-NPO-CC_2_6	1.11E-06	1.13E-04	102.37	CCF of two components: B32-NPO-CC-F005B & B32-NPO-CC-F006B
B32-NPO-CC_2_6_10	2.78E-08	1.31E-06	44.66	CCF of three components: B32-NPO-CC-F005B & B32-NPO-CC-F006B & B32-NPO-CC-F104D
B32-NPO-CC_2_6_7	2.78E-08	1.31E-06	44.66	CCF of three components: B32-NPO-CC-F005B & B32-NPO-CC-F006B & B32-NPO-CC-F006C
B32-NPO-CC_2_6_8	2.78E-08	1.31E-06	44.66	CCF of three components: B32-NPO-CC-F005B & B32-NPO-CC-F006B & B32-NPO-CC-F006D
B32-NPO-CC_2_6_9	2.78E-08	1.31E-06	44.66	CCF of three components: B32-NPO-CC-F005B & B32-NPO-CC-F006B & B32-NPO-CC-F104C
B32-NPO-CC_ALL	1.11E-07	7.84E-06	69.86	CCF of all components in group 'B32-NPO-CC'
B32-NPO-OC-F002A	2.40E-06	2.56E-04	107.17	F002A Spuriously closes
B32-NPO-OC-F002B	2.40E-06	2.56E-04	107.17	F002B Spuriously closes
B32-NPO-OC-F003A	2.40E-06	2.56E-04	107.17	F003A Spuriously closes
B32-NPO-OC-F003B	2.40E-06	2.56E-04	107.17	F003B Spuriously closes
B32-SOV-FE_1_10_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007A & B32-SOV-FE-F009B & B32-SOV-FE-F011B
B32-SOV-FE_1_10_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007A & B32-SOV-FE-F009B & B32-SOV-FE-F012B
B32-SOV-FE_1_13_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007A & B32-SOV-FE-F010A & B32-SOV-FE-F011A
B32-SOV-FE_1_13_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007A & B32-SOV-FE-F010A & B32-SOV-FE-F012A
B32-SOV-FE_1_14_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007A & B32-SOV-FE-F010B & B32-SOV-FE-F011B
B32-SOV-FE_1_14_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007A & B32-SOV-FE-F010B & B32-SOV-FE-F012B

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Shutdown
Core Damage Frequency = 1.19E-09

B32-SOV-FE_1_9_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007A & B32-SOV-FE-F009A & B32-SOV-FE-F011A
B32-SOV-FE_1_9_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007A & B32-SOV-FE-F009A & B32-SOV-FE-F012A
B32-SOV-FE_10_11_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F009C & B32-SOV-FE-F011B
B32-SOV-FE_10_11_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F009C & B32-SOV-FE-F012B
B32-SOV-FE_10_12_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F009D & B32-SOV-FE-F011B
B32-SOV-FE_10_12_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F009D & B32-SOV-FE-F012B
B32-SOV-FE_10_13_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F010A & B32-SOV-FE-F011A
B32-SOV-FE_10_13_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F010A & B32-SOV-FE-F011B
B32-SOV-FE_10_13_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F010A & B32-SOV-FE-F012A
B32-SOV-FE_10_13_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F010A & B32-SOV-FE-F012B
B32-SOV-FE_10_14_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F010B & B32-SOV-FE-F011B
B32-SOV-FE_10_14_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F010B & B32-SOV-FE-F012B
B32-SOV-FE_10_15_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F010C & B32-SOV-FE-F011B
B32-SOV-FE_10_15_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F010C & B32-SOV-FE-F012B
B32-SOV-FE_10_16_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F010D & B32-SOV-FE-F011B
B32-SOV-FE_10_16_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F010D & B32-SOV-FE-F012B
B32-SOV-FE_10_17_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F011A & B32-SOV-FE-F011B
B32-SOV-FE_10_17_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F011A & B32-SOV-FE-F012B
B32-SOV-FE_10_18	4.35E-06	4.69E-04	108.53	CCF of two components: B32-SOV-FE-F009B & B32-SOV-FE-F011B
B32-SOV-FE_10_18_19	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F011B & B32-SOV-FE-F011C
B32-SOV-FE_10_18_20	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F011B & B32-SOV-FE-F011D
B32-SOV-FE_10_18_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F011B & B32-SOV-FE-F012A
B32-SOV-FE_10_18_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F011B & B32-SOV-FE-F012B

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Shutdown Core Damage Frequency = 1.19E-09				
B32-SOV-FE_10_18_23	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F011B & B32-SOV-FE-F012C
B32-SOV-FE_10_18_24	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F011B & B32-SOV-FE-F012D
B32-SOV-FE_10_19_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F011C & B32-SOV-FE-F012B
B32-SOV-FE_10_20_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F011D & B32-SOV-FE-F012B
B32-SOV-FE_10_21_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F012A & B32-SOV-FE-F012B
B32-SOV-FE_10_22	4.35E-06	4.69E-04	108.53	CCF of two components: B32-SOV-FE-F009B & B32-SOV-FE-F012B
B32-SOV-FE_10_22_23	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F012B & B32-SOV-FE-F012C
B32-SOV-FE_10_22_24	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009B & B32-SOV-FE-F012B & B32-SOV-FE-F012D
B32-SOV-FE_11_13_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009C & B32-SOV-FE-F010A & B32-SOV-FE-F011A
B32-SOV-FE_11_13_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009C & B32-SOV-FE-F010A & B32-SOV-FE-F012A
B32-SOV-FE_11_14_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009C & B32-SOV-FE-F010B & B32-SOV-FE-F011B
B32-SOV-FE_11_14_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009C & B32-SOV-FE-F010B & B32-SOV-FE-F012B
B32-SOV-FE_12_13_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009D & B32-SOV-FE-F010A & B32-SOV-FE-F011A
B32-SOV-FE_12_13_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009D & B32-SOV-FE-F010A & B32-SOV-FE-F012A
B32-SOV-FE_12_14_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009D & B32-SOV-FE-F010B & B32-SOV-FE-F011B
B32-SOV-FE_12_14_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009D & B32-SOV-FE-F010B & B32-SOV-FE-F012B
B32-SOV-FE_13_14_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F010B & B32-SOV-FE-F011A
B32-SOV-FE_13_14_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F010B & B32-SOV-FE-F011B
B32-SOV-FE_13_14_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F010B & B32-SOV-FE-F012A
B32-SOV-FE_13_14_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F010B & B32-SOV-FE-F012B
B32-SOV-FE_13_15_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F010C & B32-SOV-FE-F011A
B32-SOV-FE_13_15_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F010C & B32-SOV-FE-F012A
B32-SOV-FE_13_16_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F010D & B32-SOV-FE-F011A

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Shutdown Core Damage Frequency = 1.19E-09				
B32-SOV-FE_13_16_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F010D & B32-SOV-FE-F012A
B32-SOV-FE_13_17	4.35E-06	4.69E-04	108.53	CCF of two components: B32-SOV-FE-F010A & B32-SOV-FE-F011A
B32-SOV-FE_13_17_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F011A & B32-SOV-FE-F011B
B32-SOV-FE_13_17_19	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F011A & B32-SOV-FE-F011C
B32-SOV-FE_13_17_20	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F011A & B32-SOV-FE-F011D
B32-SOV-FE_13_17_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F011A & B32-SOV-FE-F012A
B32-SOV-FE_13_17_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F011A & B32-SOV-FE-F012B
B32-SOV-FE_13_17_23	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F011A & B32-SOV-FE-F012C
B32-SOV-FE_13_17_24	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F011A & B32-SOV-FE-F012D
B32-SOV-FE_13_18_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F011B & B32-SOV-FE-F012A
B32-SOV-FE_13_19_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F011C & B32-SOV-FE-F012A
B32-SOV-FE_13_20_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F011D & B32-SOV-FE-F012A
B32-SOV-FE_13_21	4.35E-06	4.69E-04	108.53	CCF of two components: B32-SOV-FE-F010A & B32-SOV-FE-F012A
B32-SOV-FE_13_21_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F012A & B32-SOV-FE-F012B
B32-SOV-FE_13_21_23	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F012A & B32-SOV-FE-F012C
B32-SOV-FE_13_21_24	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010A & B32-SOV-FE-F012A & B32-SOV-FE-F012D
B32-SOV-FE_14_15_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F010C & B32-SOV-FE-F011B
B32-SOV-FE_14_15_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F010C & B32-SOV-FE-F012B
B32-SOV-FE_14_16_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F010D & B32-SOV-FE-F011B
B32-SOV-FE_14_16_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F010D & B32-SOV-FE-F012B
B32-SOV-FE_14_17_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F011A & B32-SOV-FE-F011B
B32-SOV-FE_14_17_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F011A & B32-SOV-FE-F012B
B32-SOV-FE_14_18	4.35E-06	4.69E-04	108.53	CCF of two components: B32-SOV-FE-F010B & B32-SOV-FE-F011B

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Shutdown
Core Damage Frequency = 1.19E-09

B32-SOV-FE_14_18_19	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F011B & B32-SOV-FE-F011C
B32-SOV-FE_14_18_20	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F011B & B32-SOV-FE-F011D
B32-SOV-FE_14_18_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F011B & B32-SOV-FE-F012A
B32-SOV-FE_14_18_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F011B & B32-SOV-FE-F012B
B32-SOV-FE_14_18_23	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F011B & B32-SOV-FE-F012C
B32-SOV-FE_14_18_24	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F011B & B32-SOV-FE-F012D
B32-SOV-FE_14_19_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F011C & B32-SOV-FE-F012B
B32-SOV-FE_14_20_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F011D & B32-SOV-FE-F012B
B32-SOV-FE_14_21_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F012A & B32-SOV-FE-F012B
B32-SOV-FE_14_22	4.35E-06	4.69E-04	108.53	CCF of two components: B32-SOV-FE-F010B & B32-SOV-FE-F012B
B32-SOV-FE_14_22_23	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F012B & B32-SOV-FE-F012C
B32-SOV-FE_14_22_24	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F010B & B32-SOV-FE-F012B & B32-SOV-FE-F012D
B32-SOV-FE_2_10_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007B & B32-SOV-FE-F009B & B32-SOV-FE-F011B
B32-SOV-FE_2_10_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007B & B32-SOV-FE-F009B & B32-SOV-FE-F012B
B32-SOV-FE_2_13_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007B & B32-SOV-FE-F010A & B32-SOV-FE-F011A
B32-SOV-FE_2_13_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007B & B32-SOV-FE-F010A & B32-SOV-FE-F012A
B32-SOV-FE_2_14_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007B & B32-SOV-FE-F010B & B32-SOV-FE-F011B
B32-SOV-FE_2_14_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007B & B32-SOV-FE-F010B & B32-SOV-FE-F012B
B32-SOV-FE_2_9_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007B & B32-SOV-FE-F009A & B32-SOV-FE-F011A
B32-SOV-FE_2_9_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007B & B32-SOV-FE-F009A & B32-SOV-FE-F012A
B32-SOV-FE_3_10_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007C & B32-SOV-FE-F009B & B32-SOV-FE-F011B
B32-SOV-FE_3_10_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007C & B32-SOV-FE-F009B & B32-SOV-FE-F012B
B32-SOV-FE_3_13_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007C & B32-SOV-FE-F010A & B32-SOV-FE-F011A

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Shutdown Core Damage Frequency = 1.19E-09				
B32-SOV-FE_3_13_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007C & B32-SOV-FE-F010A & B32-SOV-FE-F012A
B32-SOV-FE_3_14_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007C & B32-SOV-FE-F010B & B32-SOV-FE-F011B
B32-SOV-FE_3_14_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007C & B32-SOV-FE-F010B & B32-SOV-FE-F012B
B32-SOV-FE_3_9_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007C & B32-SOV-FE-F009A & B32-SOV-FE-F011A
B32-SOV-FE_3_9_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007C & B32-SOV-FE-F009A & B32-SOV-FE-F012A
B32-SOV-FE_4_10_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007D & B32-SOV-FE-F009B & B32-SOV-FE-F011B
B32-SOV-FE_4_10_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007D & B32-SOV-FE-F009B & B32-SOV-FE-F012B
B32-SOV-FE_4_13_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007D & B32-SOV-FE-F010A & B32-SOV-FE-F011A
B32-SOV-FE_4_13_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007D & B32-SOV-FE-F010A & B32-SOV-FE-F012A
B32-SOV-FE_4_14_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007D & B32-SOV-FE-F010B & B32-SOV-FE-F011B
B32-SOV-FE_4_14_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007D & B32-SOV-FE-F010B & B32-SOV-FE-F012B
B32-SOV-FE_4_9_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007D & B32-SOV-FE-F009A & B32-SOV-FE-F011A
B32-SOV-FE_4_9_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F007D & B32-SOV-FE-F009A & B32-SOV-FE-F012A
B32-SOV-FE_5_10_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008A & B32-SOV-FE-F009B & B32-SOV-FE-F011B
B32-SOV-FE_5_10_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008A & B32-SOV-FE-F009B & B32-SOV-FE-F012B
B32-SOV-FE_5_13_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008A & B32-SOV-FE-F010A & B32-SOV-FE-F011A
B32-SOV-FE_5_13_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008A & B32-SOV-FE-F010A & B32-SOV-FE-F012A
B32-SOV-FE_5_14_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008A & B32-SOV-FE-F010B & B32-SOV-FE-F011B
B32-SOV-FE_5_14_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008A & B32-SOV-FE-F010B & B32-SOV-FE-F012B
B32-SOV-FE_5_9_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008A & B32-SOV-FE-F009A & B32-SOV-FE-F011A
B32-SOV-FE_5_9_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008A & B32-SOV-FE-F009A & B32-SOV-FE-F012A
B32-SOV-FE_6_10_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008B & B32-SOV-FE-F009B & B32-SOV-FE-F011B
B32-SOV-FE_6_10_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008B & B32-SOV-FE-F009B & B32-SOV-FE-F012B

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Shutdown Core Damage Frequency = 1.19E-09				
B32-SOV-FE_6_13_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008B & B32-SOV-FE-F010A & B32-SOV-FE-F011A
B32-SOV-FE_6_13_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008B & B32-SOV-FE-F010A & B32-SOV-FE-F012A
B32-SOV-FE_6_14_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008B & B32-SOV-FE-F010B & B32-SOV-FE-F011B
B32-SOV-FE_6_14_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008B & B32-SOV-FE-F010B & B32-SOV-FE-F012B
B32-SOV-FE_6_9_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008B & B32-SOV-FE-F009A & B32-SOV-FE-F011A
B32-SOV-FE_6_9_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008B & B32-SOV-FE-F009A & B32-SOV-FE-F012A
B32-SOV-FE_7_10_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008C & B32-SOV-FE-F009B & B32-SOV-FE-F011B
B32-SOV-FE_7_10_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008C & B32-SOV-FE-F009B & B32-SOV-FE-F012B
B32-SOV-FE_7_13_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008C & B32-SOV-FE-F010A & B32-SOV-FE-F011A
B32-SOV-FE_7_13_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008C & B32-SOV-FE-F010A & B32-SOV-FE-F012A
B32-SOV-FE_7_14_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008C & B32-SOV-FE-F010B & B32-SOV-FE-F011B
B32-SOV-FE_7_14_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008C & B32-SOV-FE-F010B & B32-SOV-FE-F012B
B32-SOV-FE_7_9_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008C & B32-SOV-FE-F009A & B32-SOV-FE-F011A
B32-SOV-FE_7_9_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008C & B32-SOV-FE-F009A & B32-SOV-FE-F012A
B32-SOV-FE_8_10_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008D & B32-SOV-FE-F009B & B32-SOV-FE-F011B
B32-SOV-FE_8_10_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008D & B32-SOV-FE-F009B & B32-SOV-FE-F012B
B32-SOV-FE_8_13_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008D & B32-SOV-FE-F010A & B32-SOV-FE-F011A
B32-SOV-FE_8_13_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008D & B32-SOV-FE-F010A & B32-SOV-FE-F012A
B32-SOV-FE_8_14_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008D & B32-SOV-FE-F010B & B32-SOV-FE-F011B
B32-SOV-FE_8_14_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008D & B32-SOV-FE-F010B & B32-SOV-FE-F012B
B32-SOV-FE_8_9_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008D & B32-SOV-FE-F009A & B32-SOV-FE-F011A
B32-SOV-FE_8_9_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F008D & B32-SOV-FE-F009A & B32-SOV-FE-F012A
B32-SOV-FE_9_10_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F009B & B32-SOV-FE-F011A

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Shutdown Core Damage Frequency = 1.19E-09				
B32-SOV-FE_9_10_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F009B & B32-SOV-FE-F011B
B32-SOV-FE_9_10_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F009B & B32-SOV-FE-F012A
B32-SOV-FE_9_10_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F009B & B32-SOV-FE-F012B
B32-SOV-FE_9_11_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F009C & B32-SOV-FE-F011A
B32-SOV-FE_9_11_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F009C & B32-SOV-FE-F012A
B32-SOV-FE_9_12_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F009D & B32-SOV-FE-F011A
B32-SOV-FE_9_12_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F009D & B32-SOV-FE-F012A
B32-SOV-FE_9_13_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F010A & B32-SOV-FE-F011A
B32-SOV-FE_9_13_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F010A & B32-SOV-FE-F012A
B32-SOV-FE_9_14_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F010B & B32-SOV-FE-F011A
B32-SOV-FE_9_14_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F010B & B32-SOV-FE-F011B
B32-SOV-FE_9_14_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F010B & B32-SOV-FE-F012A
B32-SOV-FE_9_14_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F010B & B32-SOV-FE-F012B
B32-SOV-FE_9_15_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F010C & B32-SOV-FE-F011A
B32-SOV-FE_9_15_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F010C & B32-SOV-FE-F012A
B32-SOV-FE_9_16_17	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F010D & B32-SOV-FE-F011A
B32-SOV-FE_9_16_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F010D & B32-SOV-FE-F012A
B32-SOV-FE_9_17	4.35E-06	4.69E-04	108.53	CCF of two components: B32-SOV-FE-F009A & B32-SOV-FE-F011A
B32-SOV-FE_9_17_18	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F011A & B32-SOV-FE-F011B
B32-SOV-FE_9_17_19	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F011A & B32-SOV-FE-F011C
B32-SOV-FE_9_17_20	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F011A & B32-SOV-FE-F011D
B32-SOV-FE_9_17_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F011A & B32-SOV-FE-F012A
B32-SOV-FE_9_17_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F011A & B32-SOV-FE-F012B

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Shutdown
Core Damage Frequency = 1.19E-09

B32-SOV-FE_9_17_23	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F011A & B32-SOV-FE-F012C
B32-SOV-FE_9_17_24	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F011A & B32-SOV-FE-F012D
B32-SOV-FE_9_18_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F011B & B32-SOV-FE-F012A
B32-SOV-FE_9_19_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F011C & B32-SOV-FE-F012A
B32-SOV-FE_9_20_21	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F011D & B32-SOV-FE-F012A
B32-SOV-FE_9_21	4.35E-06	4.69E-04	108.53	CCF of two components: B32-SOV-FE-F009A & B32-SOV-FE-F012A
B32-SOV-FE_9_21_22	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F012A & B32-SOV-FE-F012B
B32-SOV-FE_9_21_23	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F012A & B32-SOV-FE-F012C
B32-SOV-FE_9_21_24	3.95E-08	1.68E-06	43.49	CCF of three components: B32-SOV-FE-F009A & B32-SOV-FE-F012A & B32-SOV-FE-F012D
B32-SOV-FE-F009A	1.00E-03	2.04E-04	1.2	F009A fails to open on demand
B32-SOV-FE-F009B	1.00E-03	2.04E-04	1.2	SOLENOID VALVE (FAILURE TO ENERGIZE)
B32-SOV-FE-F010A	1.00E-03	2.04E-04	1.2	F010A fails to open on demand
B32-SOV-FE-F010B	1.00E-03	2.04E-04	1.2	SOLENOID VALVE (FAILURE TO ENERGIZE)
B32-SOV-FE-F011A	1.00E-03	2.04E-04	1.2	F011A fails to open on demand
B32-SOV-FE-F011B	1.00E-03	2.04E-04	1.2	SOLENOID VALVE (FAILURE TO ENERGIZE)
B32-SOV-FE-F012A	1.00E-03	2.04E-04	1.2	F012A fails to open on demand
B32-SOV-FE-F012B	1.00E-03	2.04E-04	1.2	SOLENOID VALVE (FAILURE TO ENERGIZE)
C63-CCFSOFTWARE	1.00E-04	5.05E-02	505.7	Common cause failure of software
C63-CCFSOFTWARE_S	1.00E-04	1.11E-02	111.9	Common cause failure of software, for spurious
C63-LT_-NO_1_2_3	8.00E-08	2.24E-06	28.99	CCF of three components: C63-LT_-NO-LTA & C63-LT_-NO-LTB & C63-LT_-NO-LTC
C63-LT_-NO_1_2_4	8.00E-08	2.24E-06	28.99	CCF of three components: C63-LT_-NO-LTA & C63-LT_-NO-LTB & C63-LT_-NO-LTD
C63-LT_-NO_1_3_4	8.00E-08	2.24E-06	28.99	CCF of three components: C63-LT_-NO-LTA & C63-LT_-NO-LTC & C63-LT_-NO-LTD
C63-LT_-NO_2_3_4	8.00E-08	2.24E-06	28.99	CCF of three components: C63-LT_-NO-LTB & C63-LT_-NO-LTC & C63-LT_-NO-LTD

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Shutdown
Core Damage Frequency = 1.19E-09

C63-UNDEVSPUR58	1.00E-03	1.12E-01	112.65	Undeveloped spurious hardware failure
C63-UNDEVSPUR59	1.00E-03	1.12E-01	112.65	Undeveloped spurious hardware failure
C63-UNDEVSPUR62	1.00E-03	1.12E-01	112.65	Undeveloped spurious hardware failure
C63-UNDEVSPUR63	1.00E-03	1.12E-01	112.65	Undeveloped spurious hardware failure
C63-UNDEVSPUR66	1.00E-03	1.12E-01	112.65	Undeveloped spurious hardware failure
C63-UNDEVSPUR67	1.00E-03	1.12E-01	112.65	Undeveloped spurious hardware failure
C63-UNDEVSPUR70	1.00E-03	1.12E-01	112.65	Undeveloped spurious hardware failure
C63-UNDEVSPUR71	1.00E-03	1.12E-01	112.65	Undeveloped spurious hardware failure
C72-ATM-FC-L1_ALL	5.00E-06	2.40E-04	49.03	CCF of all components in group 'C72-ATM-FC-L1'
C72-CCFSOFTWARE	1.00E-04	4.89E-03	49.91	COMMON CAUSE FAILURE OF DPS PROCESSORS
C72-LDD-CF-LOADS	1.86E-06	8.83E-05	48.25	COMMON CAUSE FAILURE OF DPS LOAD DRIVERS
C72-LDD-FC-S1F002A	1.80E-04	5.41E-06	1.03	F002A FIRST SERIES LOAD DRIVER FAILS ACTUATE
C72-LDD-FC-S1F002D	1.80E-04	5.41E-06	1.03	F002D FIRST SERIES LOAD DRIVER FAILS ACTUATE
C72-LDD-FC-S1F002E	1.80E-04	5.41E-06	1.03	F002E FIRST SERIES LOAD DRIVER FAILS ACTUATE
C72-LDD-FC-S1F002H	1.80E-04	5.41E-06	1.03	F002H FIRST SERIES LOAD DRIVER FAILS ACTUATE
C72-LDD-FC-S2F002A	1.80E-04	5.41E-06	1.03	F002A SECOND SERIES LOAD DRIVER FAILS TO ACTUATE
C72-LDD-FC-S2F002D	1.80E-04	5.41E-06	1.03	F002D SECOND SERIES LOAD DRIVER FAILS TO ACTUATE
C72-LDD-FC-S2F002E	1.80E-04	5.41E-06	1.03	F002E SECOND SERIES LOAD DRIVER FAILS TO ACTUATE
C72-LDD-FC-S2F002H	1.80E-04	5.41E-06	1.03	F002H SECOND SERIES LOAD DRIVER FAILS TO ACTUATE
C72-LOG-FC-D_1_2	3.33E-06	1.60E-04	49.07	CCF of two components: C72-LOG-FC-D1DPS & C72-LOG-FC-D2DPS
C72-LOG-FC-D_1_2_3	6.67E-06	3.22E-04	49.32	CCF of three components: C72-LOG-FC-D1DPS & C72-LOG-FC-D2DPS & C72-LOG-FC-D3DPS
C72-LOG-FC-D_1_3	3.33E-06	1.60E-04	49.07	CCF of two components: C72-LOG-FC-D1DPS & C72-LOG-FC-D3DPS
C72-LOG-FC-D_2_3	3.33E-06	1.60E-04	49.07	CCF of two components: C72-LOG-FC-D2DPS & C72-LOG-FC-D3DPS

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Shutdown
Core Damage Frequency = 1.19E-09

E50-POL-RP-POOLA	3.00E-07	4.12E-05	135.98	GDCS POOL A LEAKS CATASTROPHICALLY
E50-POL-RP-POOLD	3.00E-07	4.12E-05	135.98	GDCS POOL D LEAKS CATASTROPHICALLY
E50-SQV-CC_1_2	2.38E-05	6.40E-05	3.66	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002B
E50-SQV-CC_1_2_5	7.94E-07	1.09E-04	137.48	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002B & E50-SQV-CC-F002E
E50-SQV-CC_1_3	2.38E-05	6.40E-05	3.66	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002C
E50-SQV-CC_1_3_5	7.94E-07	1.09E-04	137.48	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002C & E50-SQV-CC-F002E
E50-SQV-CC_1_4	2.38E-05	1.28E-04	6.31	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002D
E50-SQV-CC_1_4_5	7.94E-07	1.09E-04	137.48	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002D & E50-SQV-CC-F002E
E50-SQV-CC_1_4_8	7.94E-07	1.09E-04	137.48	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002D & E50-SQV-CC-F002H
E50-SQV-CC_1_5	2.38E-05	3.35E-03	141.73	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002E
E50-SQV-CC_1_5_6	7.94E-07	1.09E-04	137.48	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002E & E50-SQV-CC-F002F
E50-SQV-CC_1_5_7	7.94E-07	1.09E-04	137.48	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002E & E50-SQV-CC-F002G
E50-SQV-CC_1_5_8	7.94E-07	1.09E-04	137.48	CCF of three components: E50-SQV-CC-F002A & E50-SQV-CC-F002E & E50-SQV-CC-F002H
E50-SQV-CC_1_6	2.38E-05	6.40E-05	3.66	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002F
E50-SQV-CC_1_7	2.38E-05	6.40E-05	3.66	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002G
E50-SQV-CC_1_8	2.38E-05	1.28E-04	6.31	CCF of two components: E50-SQV-CC-F002A & E50-SQV-CC-F002H
E50-SQV-CC_2_4	2.38E-05	6.40E-05	3.66	CCF of two components: E50-SQV-CC-F002B & E50-SQV-CC-F002D
E50-SQV-CC_2_4_8	7.94E-07	1.09E-04	137.48	CCF of three components: E50-SQV-CC-F002B & E50-SQV-CC-F002D & E50-SQV-CC-F002H
E50-SQV-CC_2_5	2.38E-05	6.40E-05	3.66	CCF of two components: E50-SQV-CC-F002B & E50-SQV-CC-F002E
E50-SQV-CC_2_8	2.38E-05	6.40E-05	3.66	CCF of two components: E50-SQV-CC-F002B & E50-SQV-CC-F002H
E50-SQV-CC_3_4	2.38E-05	6.40E-05	3.66	CCF of two components: E50-SQV-CC-F002C & E50-SQV-CC-F002D
E50-SQV-CC_3_4_8	7.94E-07	1.09E-04	137.48	CCF of three components: E50-SQV-CC-F002C & E50-SQV-CC-F002D & E50-SQV-CC-F002H
E50-SQV-CC_3_5	2.38E-05	6.40E-05	3.66	CCF of two components: E50-SQV-CC-F002C & E50-SQV-CC-F002E

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report

(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)

High Winds Shutdown

Core Damage Frequency = 1.19E-09

E50-SQV-CC_3_8	2.38E-05	6.40E-05	3.66	CCF of two components: E50-SQV-CC-F002C & E50-SQV-CC-F002H
E50-SQV-CC_4_5	2.38E-05	1.28E-04	6.31	CCF of two components: E50-SQV-CC-F002D & E50-SQV-CC-F002E
E50-SQV-CC_4_5_8	7.94E-07	1.09E-04	137.48	CCF of three components: E50-SQV-CC-F002D & E50-SQV-CC-F002E & E50-SQV-CC-F002H
E50-SQV-CC_4_6	2.38E-05	6.40E-05	3.66	CCF of two components: E50-SQV-CC-F002D & E50-SQV-CC-F002F
E50-SQV-CC_4_6_8	7.94E-07	1.09E-04	137.48	CCF of three components: E50-SQV-CC-F002D & E50-SQV-CC-F002F & E50-SQV-CC-F002H
E50-SQV-CC_4_7	2.38E-05	6.40E-05	3.66	CCF of two components: E50-SQV-CC-F002D & E50-SQV-CC-F002G
E50-SQV-CC_4_7_8	7.94E-07	1.09E-04	137.48	CCF of three components: E50-SQV-CC-F002D & E50-SQV-CC-F002G & E50-SQV-CC-F002H
E50-SQV-CC_4_8	2.38E-05	3.35E-03	141.73	CCF of two components: E50-SQV-CC-F002D & E50-SQV-CC-F002H
E50-SQV-CC_5_6	2.38E-05	6.40E-05	3.66	CCF of two components: E50-SQV-CC-F002E & E50-SQV-CC-F002F
E50-SQV-CC_5_7	2.38E-05	6.40E-05	3.66	CCF of two components: E50-SQV-CC-F002E & E50-SQV-CC-F002G
E50-SQV-CC_5_8	2.38E-05	1.28E-04	6.31	CCF of two components: E50-SQV-CC-F002E & E50-SQV-CC-F002H
E50-SQV-CC_6_8	2.38E-05	6.40E-05	3.66	CCF of two components: E50-SQV-CC-F002F & E50-SQV-CC-F002H
E50-SQV-CC_7_8	2.38E-05	6.40E-05	3.66	CCF of two components: E50-SQV-CC-F002G & E50-SQV-CC-F002H
E50-SQV-CC_ALL	1.50E-04	2.13E-02	142.84	CCF of all components in group 'E50-SQV-CC'
E50-SQV-CC-EQU_1_2	1.11E-04	1.82E-04	2.64	CCF of two components: E50-SQV-CC-F006A & E50-SQV-CC-F006B
E50-SQV-CC-EQU_1_2_3	1.11E-05	3.02E-05	3.71	CCF of three components: E50-SQV-CC-F006A & E50-SQV-CC-F006B & E50-SQV-CC-F006C
E50-SQV-CC-EQU_1_2_4	1.11E-05	3.02E-05	3.71	CCF of three components: E50-SQV-CC-F006A & E50-SQV-CC-F006B & E50-SQV-CC-F006D
E50-SQV-CC-EQU_1_3_4	1.11E-05	1.19E-05	2.07	CCF of three components: E50-SQV-CC-F006A & E50-SQV-CC-F006C & E50-SQV-CC-F006D
E50-SQV-CC-EQU_2_3	1.11E-04	1.82E-04	2.64	CCF of two components: E50-SQV-CC-F006B & E50-SQV-CC-F006C
E50-SQV-CC-EQU_2_3_4	1.11E-05	3.02E-05	3.71	CCF of three components: E50-SQV-CC-F006B & E50-SQV-CC-F006C & E50-SQV-CC-F006D
E50-SQV-CC-EQU_2_4	1.11E-04	1.82E-04	2.64	CCF of two components: E50-SQV-CC-F006B & E50-SQV-CC-F006D
E50-SQV-CC-EQU_ALL	3.00E-04	4.26E-02	143.09	CCF of all components in group 'E50-SQV-CC-EQU'
E50-SQV-CC-F002A	3.00E-03	8.73E-03	3.9	SQUIB VALVE F002A FAILS TO OPERATE

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Shutdown Core Damage Frequency = 1.19E-09				
E50-SQV-CC-F002D	3.00E-03	8.73E-03	3.9	SQUIB VALVE F002D FAILS TO OPERATE
E50-SQV-CC-F002E	3.00E-03	8.73E-03	3.9	SQUIB VALVE F002E FAILS TO OPERATE
E50-SQV-CC-F002H	3.00E-03	8.73E-03	3.9	SQUIB VALVE F002H FAILS TO OPERATE
E50-SQV-CC-F006A	6.00E-03	1.19E-05	1	SQUIB VALVE F006A FAILS TO OPERATE IN EXTREME CONDITIONS
E50-SQV-CC-F006B	6.00E-03	9.99E-03	2.65	SQUIB VALVE F006B FAILS TO OPERATE IN EXTREME CONDITIONS
E50-SQV-CC-F006C	6.00E-03	1.19E-05	1	SQUIB VALVE F006C FAILS TO OPERATE IN EXTREME CONDITIONS
E50-SQV-CC-F006D	6.00E-03	1.19E-05	1	SQUIB VALVE F006D FAILS TO OPERATE IN EXTREME CONDITIONS
E50-SQV-CO-F009A	9.60E-06	1.35E-03	141.26	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
E50-SQV-CO-F009D	9.60E-06	1.35E-03	141.26	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
E50-SQV-CO-F009E	9.60E-06	1.35E-03	141.26	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
E50-SQV-CO-F009H	9.60E-06	1.35E-03	141.26	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
E50-SQV-CO-F009J	9.60E-06	1.35E-03	141.26	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
E50-SQV-CO-F009M	9.60E-06	1.35E-03	141.26	SQUIB DELUGE VALVE F009M SPUR. OPENING [#7]
E50-STR-PG_1_2	1.98E-04	3.25E-04	2.64	CCF of two components: E50-STR-PG-D002A & E50-STR-PG-D002B
E50-STR-PG_1_2_3	1.98E-05	6.68E-05	4.33	CCF of three components: E50-STR-PG-D002A & E50-STR-PG-D002B & E50-STR-PG-D002C
E50-STR-PG_1_2_4	1.98E-05	6.68E-05	4.33	CCF of three components: E50-STR-PG-D002A & E50-STR-PG-D002B & E50-STR-PG-D002D
E50-STR-PG_1_3_4	1.98E-05	3.43E-05	2.7	CCF of three components: E50-STR-PG-D002A & E50-STR-PG-D002C & E50-STR-PG-D002D
E50-STR-PG_2_3	1.98E-04	3.25E-04	2.64	CCF of two components: E50-STR-PG-D002B & E50-STR-PG-D002C
E50-STR-PG_2_3_4	1.98E-05	6.68E-05	4.33	CCF of three components: E50-STR-PG-D002B & E50-STR-PG-D002C & E50-STR-PG-D002D
E50-STR-PG_2_4	1.98E-04	3.25E-04	2.64	CCF of two components: E50-STR-PG-D002B & E50-STR-PG-D002D
E50-STR-PG_ALL	5.35E-04	7.62E-02	143.38	CCF of all components in group 'E50-STR-PG'
E50-STR-PG-D002A	1.07E-02	3.43E-05	1	STRAINER/FILTER D002A PLUGS DURING OPERATION
E50-STR-PG-D002B	1.07E-02	1.78E-02	2.65	STRAINER D002B PLUGGED

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Shutdown
Core Damage Frequency = 1.19E-09

E50-STR-PG-D002C	1.07E-02	3.43E-05	1	STRAINER D002C PLUGGED
E50-STR-PG-D002D	1.07E-02	3.43E-05	1	STRAINER D002D PLUGGED
E50-UV_OC_1_2_3	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003B & E50-UV_-OC-F003C
E50-UV_OC_1_2_4	7.05E-06	2.69E-05	4.6	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003B & E50-UV_-OC-F003D
E50-UV_OC_1_2_5	7.05E-06	9.87E-04	140.85	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003B & E50-UV_-OC-F003E
E50-UV_OC_1_2_6	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003B & E50-UV_-OC-F003F
E50-UV_OC_1_2_7	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003B & E50-UV_-OC-F003G
E50-UV_OC_1_2_8	7.05E-06	2.69E-05	4.6	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003B & E50-UV_-OC-F003H
E50-UV_OC_1_3_4	7.05E-06	2.69E-05	4.6	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003C & E50-UV_-OC-F003D
E50-UV_OC_1_3_5	7.05E-06	9.87E-04	140.85	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003C & E50-UV_-OC-F003E
E50-UV_OC_1_3_6	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003C & E50-UV_-OC-F003F
E50-UV_OC_1_3_7	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003C & E50-UV_-OC-F003G
E50-UV_OC_1_3_8	7.05E-06	2.69E-05	4.6	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003C & E50-UV_-OC-F003H
E50-UV_OC_1_4_5	7.05E-06	9.87E-04	140.85	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003D & E50-UV_-OC-F003E
E50-UV_OC_1_4_6	7.05E-06	2.69E-05	4.6	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003D & E50-UV_-OC-F003F
E50-UV_OC_1_4_7	7.05E-06	2.69E-05	4.6	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003D & E50-UV_-OC-F003G
E50-UV_OC_1_4_8	7.05E-06	9.87E-04	140.85	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003D & E50-UV_-OC-F003H
E50-UV_OC_1_5	2.67E-06	3.69E-04	139.29	CCF of two components: E50-UV_-OC-F003A & E50-UV_-OC-F003E
E50-UV_OC_1_5_6	7.05E-06	9.87E-04	140.85	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003E & E50-UV_-OC-F003F
E50-UV_OC_1_5_7	7.05E-06	9.87E-04	140.85	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003E & E50-UV_-OC-F003G
E50-UV_OC_1_5_8	7.05E-06	9.87E-04	140.85	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003E & E50-UV_-OC-F003H
E50-UV_OC_1_6_7	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003F & E50-UV_-OC-F003G
E50-UV_OC_1_6_8	7.05E-06	2.69E-05	4.6	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003F & E50-UV_-OC-F003H

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Shutdown Core Damage Frequency = 1.19E-09				
E50-UV_OC_1_7_8	7.05E-06	2.69E-05	4.6	CCF of three components: E50-UV_-OC-F003A & E50-UV_-OC-F003G & E50-UV_-OC-F003H
E50-UV_OC_2_3_4	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003C & E50-UV_-OC-F003D
E50-UV_OC_2_3_5	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003C & E50-UV_-OC-F003E
E50-UV_OC_2_3_8	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003C & E50-UV_-OC-F003H
E50-UV_OC_2_4_5	7.05E-06	2.69E-05	4.6	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003D & E50-UV_-OC-F003E
E50-UV_OC_2_4_6	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003D & E50-UV_-OC-F003F
E50-UV_OC_2_4_7	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003D & E50-UV_-OC-F003G
E50-UV_OC_2_4_8	7.05E-06	9.87E-04	140.85	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003D & E50-UV_-OC-F003H
E50-UV_OC_2_5_6	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003E & E50-UV_-OC-F003F
E50-UV_OC_2_5_7	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003E & E50-UV_-OC-F003G
E50-UV_OC_2_5_8	7.05E-06	2.69E-05	4.6	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003E & E50-UV_-OC-F003H
E50-UV_OC_2_6_8	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003F & E50-UV_-OC-F003H
E50-UV_OC_2_7_8	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003B & E50-UV_-OC-F003G & E50-UV_-OC-F003H
E50-UV_OC_3_4_5	7.05E-06	2.69E-05	4.6	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003D & E50-UV_-OC-F003E
E50-UV_OC_3_4_6	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003D & E50-UV_-OC-F003F
E50-UV_OC_3_4_7	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003D & E50-UV_-OC-F003G
E50-UV_OC_3_4_8	7.05E-06	9.87E-04	140.85	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003D & E50-UV_-OC-F003H
E50-UV_OC_3_5_6	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003E & E50-UV_-OC-F003F
E50-UV_OC_3_5_7	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003E & E50-UV_-OC-F003G
E50-UV_OC_3_5_8	7.05E-06	2.69E-05	4.6	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003E & E50-UV_-OC-F003H
E50-UV_OC_3_6_8	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003F & E50-UV_-OC-F003H
E50-UV_OC_3_7_8	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003C & E50-UV_-OC-F003G & E50-UV_-OC-F003H
E50-UV_OC_4_5_6	7.05E-06	2.69E-05	4.6	CCF of three components: E50-UV_-OC-F003D & E50-UV_-OC-F003E & E50-UV_-OC-F003F

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Shutdown
Core Damage Frequency = 1.19E-09

E50-UV_OC_4_5_7	7.05E-06	2.69E-05	4.6	CCF of three components: E50-UV_-OC-F003D & E50-UV_-OC-F003E & E50-UV_-OC-F003G
E50-UV_OC_4_5_8	7.05E-06	9.87E-04	140.85	CCF of three components: E50-UV_-OC-F003D & E50-UV_-OC-F003E & E50-UV_-OC-F003H
E50-UV_OC_4_6_7	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003D & E50-UV_-OC-F003F & E50-UV_-OC-F003G
E50-UV_OC_4_6_8	7.05E-06	9.87E-04	140.85	CCF of three components: E50-UV_-OC-F003D & E50-UV_-OC-F003F & E50-UV_-OC-F003H
E50-UV_OC_4_7_8	7.05E-06	9.87E-04	140.85	CCF of three components: E50-UV_-OC-F003D & E50-UV_-OC-F003G & E50-UV_-OC-F003H
E50-UV_OC_4_8	2.67E-06	3.69E-04	139.29	CCF of two components: E50-UV_-OC-F003D & E50-UV_-OC-F003H
E50-UV_OC_5_6_7	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003E & E50-UV_-OC-F003F & E50-UV_-OC-F003G
E50-UV_OC_5_6_8	7.05E-06	2.69E-05	4.6	CCF of three components: E50-UV_-OC-F003E & E50-UV_-OC-F003F & E50-UV_-OC-F003H
E50-UV_OC_5_7_8	7.05E-06	2.69E-05	4.6	CCF of three components: E50-UV_-OC-F003E & E50-UV_-OC-F003G & E50-UV_-OC-F003H
E50-UV_OC_6_7_8	7.05E-06	1.34E-05	2.8	CCF of three components: E50-UV_-OC-F003F & E50-UV_-OC-F003G & E50-UV_-OC-F003H
E50-UV_OC_ALL	3.00E-04	4.27E-02	143.09	CCF of all components in group 'E50-UV_OC'
E50-UV_OC-EQU_1_2_3	4.93E-06	8.21E-06	2.65	CCF of three components: E50-UV_-OC-F007A & E50-UV_-OC-F007B & E50-UV_-OC-F007C
E50-UV_OC-EQU_1_2_4	4.93E-06	8.21E-06	2.65	CCF of three components: E50-UV_-OC-F007A & E50-UV_-OC-F007B & E50-UV_-OC-F007D
E50-UV_OC-EQU_2_3_4	4.93E-06	8.21E-06	2.65	CCF of three components: E50-UV_-OC-F007B & E50-UV_-OC-F007C & E50-UV_-OC-F007D
E50-UV_OC-EQU_ALL	3.00E-05	4.24E-03	141.99	CCF of all components in group 'E50-UV_OC-EQU'
E50-UV_-OC-F003A	1.75E-02	5.15E-02	3.89	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003D	1.75E-02	5.15E-02	3.89	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003E	1.75E-02	5.15E-02	3.89	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003H	1.75E-02	5.15E-02	3.89	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F007B	1.75E-03	2.89E-03	2.65	CHECK VALVE F007B FAILS TO REMAIN OPEN OR PLUG
G21-BV_-RE-F334	4.84E-02	2.02E-01	4.96	MISPOSITION OF VALVE F334
G21-NMO_3_4	1.11E-05	2.48E-05	3.23	CCF of two components: G21-NMO-CC-F332A & G21-NMO-CC-F332B
G21-NMO_ALL	3.00E-05	7.87E-05	3.59	CCF of all components in group 'G21-NMO'

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Shutdown Core Damage Frequency = 1.19E-09				
G21-UV_-333_1_2	1.79E-05	4.12E-05	3.25	CCF of two components: G21-UV_-CC-F333A & G21-UV_-CC-F333B
G21-XHE-FO-LPCIADS	1.61E-02	1.12E-06	1	OPERATOR FAILS TO ALIGN AND ACTUATE FAPCS IN LPCI MODE AFTER DEPRESSURIZATION
MS-TOP2	5.00E-02	1.18E-01	3.24	TWO DPVs FAIL TO OPEN
NICWSA-SYS-FAILS	1.00E-03	3.02E-05	1.03	NUCLEAR ISLAND CHILLED WATER SUBSYSTEM TRAIN A FAILS
NICWSB-SYS-FAILS	1.00E-03	3.02E-05	1.03	NUCLEAR ISLAND CHILLED WATER SUBSYSTEM TRAIN B FAILS
P21-ACV-CC-F0023_1_2	1.93E-04	3.71E-05	1.19	CCF of two components: P21-ACV-CC-F0023A & P21-ACV-CC-F0023B
P21-ACV-CC-F0023A	2.00E-03	7.43E-05	1.04	AIR OPERATED VALVE F0023A FAILS TO OPEN
P21-ACV-CC-F0023B	2.00E-03	9.22E-05	1.04	AIR OPERATED VALVE F0023B FAILS TO OPEN
P21-ACV-OO-CCF23_1_2	2.22E-04	4.27E-05	1.19	CCF of two components: P21-ACV-OO-F023A & P21-ACV-OO-F023B
P21-ACV-OO-F0004	2.00E-03	4.16E-04	1.21	AIR OPERATED VALVE F0004 FAILS TO CLOSE
P21-ACV-OO-F0007	2.00E-03	4.16E-04	1.21	AIR OPERATED VALVE F0007 FAILS TO CLOSE
P21-ACV-OO-F0016_1_2	1.93E-04	3.71E-05	1.19	CCF of two components: P21-ACV-OO-F016A & P21-ACV-OO-F016B
P21-ACV-OO-F0020	2.00E-03	4.16E-04	1.21	AIR OPERATED VALVE F0020 FAILS TO CLOSE
P21-ACV-OO-F0027	2.00E-03	4.16E-04	1.21	AIR OPERATED VALVE F0027 FAILS TO CLOSE
P21-ACV-OO-F0061	2.00E-03	4.16E-04	1.21	AIR OPERATED VALVE F0061 FAILS TO CLOSE
P21-ACV-OO-F016A	2.00E-03	7.43E-05	1.04	AIR OPERATED VALVE F016A FAILS TO CLOSE
P21-ACV-OO-F016B	2.00E-03	9.22E-05	1.04	AIR OPERATED VALVE F016B FAILS TO CLOSE
P21-ACV-OO-F023A	2.00E-03	7.43E-05	1.04	AIR OPERATED VALVE FAILS TO CLOSE
P21-ACV-OO-F023B	2.00E-03	9.22E-05	1.04	AIR OPERATED VALVE FAILS TO CLOSE
P21-ACV-OO-XTIE_1_2_3	6.03E-06	9.33E-07	1.14	CCF of three components: P21-ACV-OO-F0004 & P21-ACV-OO-F0007 & P21-ACV-OO-F0020
P21-ACV-OO-XTIE_1_2_4	6.03E-06	9.33E-07	1.14	CCF of three components: P21-ACV-OO-F0004 & P21-ACV-OO-F0007 & P21-ACV-OO-F0027
P21-ACV-OO-XTIE_1_2_5	6.03E-06	9.33E-07	1.14	CCF of three components: P21-ACV-OO-F0004 & P21-ACV-OO-F0007 & P21-ACV-OO-F0061
P21-ACV-OO-XTIE_1_3_4	6.03E-06	9.33E-07	1.14	CCF of three components: P21-ACV-OO-F0004 & P21-ACV-OO-F0020 & P21-ACV-OO-F0027

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report

(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)

High Winds Shutdown

Core Damage Frequency = 1.19E-09

P21-ACV-OO-XTIE_1_3_5	6.03E-06	9.33E-07	1.14	CCF of three components: P21-ACV-OO-F0004 & P21-ACV-OO-F0020 & P21-ACV-OO-F0061
P21-ACV-OO-XTIE_1_4_5	6.03E-06	9.33E-07	1.14	CCF of three components: P21-ACV-OO-F0004 & P21-ACV-OO-F0027 & P21-ACV-OO-F0061
P21-ACV-OO-XTIE_2_3_4	6.03E-06	9.33E-07	1.14	CCF of three components: P21-ACV-OO-F0007 & P21-ACV-OO-F0020 & P21-ACV-OO-F0027
P21-ACV-OO-XTIE_2_3_5	6.03E-06	9.33E-07	1.14	CCF of three components: P21-ACV-OO-F0007 & P21-ACV-OO-F0020 & P21-ACV-OO-F0061
P21-ACV-OO-XTIE_2_4_5	6.03E-06	9.33E-07	1.14	CCF of three components: P21-ACV-OO-F0007 & P21-ACV-OO-F0027 & P21-ACV-OO-F0061
P21-ACV-OO-XTIE_3_4_5	6.03E-06	9.33E-07	1.14	CCF of three components: P21-ACV-OO-F0020 & P21-ACV-OO-F0027 & P21-ACV-OO-F0061
P21-ACV-OO-XTIE_ALL	1.21E-04	2.26E-05	1.19	CCF of all components in group 'P21-ACV-OO-XTIE'
P21-AHU-FR_1_2	1.26E-05	1.87E-06	1.14	CCF of two components: P21-AHU-FR-RCCWA & P21-AHU-FR-RCCWB
P21-AHU-FR-RCCWA	2.40E-04	3.73E-06	1.01	AIR HANDLING UNIT RCCWS ROOM A FAILS TO RUN
P21-AHU-FR-RCCWB	2.40E-04	3.73E-06	1.01	AIR HANDLING UNIT RCCWS ROOM TRAIN B FAILS TO RUN
P21-AHU-FS_1_2	6.67E-04	1.30E-04	1.19	CCF of two components: P21-AHU-FS-RCCWA & P21-AHU-FS-RCCWB
P21-AHU-FS-RCCWA	6.00E-03	2.72E-04	1.04	AIR HANDLING UNIT RCCWS ROOM A FAILS TO START
P21-AHU-FS-RCCWB	6.00E-03	3.57E-04	1.06	AIR HANDLING UNIT RCCWS ROOM B FAILS TO START
P21-MOV-CC_1_2	2.06E-04	3.17E-06	1.01	CCF of two components: P21-MOV-CC-F034A & P21-MOV-CC-F034B
P21-MOV-CC_ALL	1.48E-04	2.76E-05	1.19	CCF of all components in group 'P21-MOV-CC'
P21-MOV-CC-F0010A3	4.00E-03	1.77E-04	1.04	MOTOR OPERATED VALVE F0010A3 FAILS TO OPEN
P21-MOV-CC-F0010B1	4.00E-03	2.25E-04	1.06	MOTOR OPERATED VALVE F0010B1 FAILS TO OPEN
P21-MOV-CC-F0010B2	4.00E-03	2.25E-04	1.06	MOTOR OPERATED VALVE F0010B2 FAILS TO OPEN
P21-MOV-CC-F0010B3	4.00E-03	2.25E-04	1.06	MOTOR OPERATED VALVE F0010B3 FAILS TO OPEN
P21-MOV-CC-F034A	4.00E-03	1.77E-04	1.04	MOV P21-F034A FROM RCCWS TO RWCU/SDC HX-A FAILS TO OPEN
P21-MOV-CC-F034B	4.00E-03	1.77E-04	1.04	MOV P21-F034B FROM RCCWS TO RWCU/SDC HX-B FAILS TO OPEN
P21-MP_-FS_ALL	1.87E-04	3.58E-05	1.19	CCF of all components in group 'P21-MP_-FS'
P21-MPC-FR-C001A	6.00E-04	1.31E-05	1.02	MOTOR DRIVEN PUMP C001A FAILS TO RUN

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Shutdown Core Damage Frequency = 1.19E-09				
P21-MPC-FR-C001B	6.00E-04	1.31E-05	1.02	MOTOR DRIVEN PUMP C001B FAILS TO RUN
P21-MPC-FR-C002A	6.00E-04	1.31E-05	1.02	MOTOR-DRIVEN PUMP C002A FAILS TO RUN
P21-MPC-FR-C002B	6.00E-04	1.31E-05	1.02	MOTOR-DRIVEN PUMP C002B FAILS TO RUN
P21-MPC-FR-C003A	6.00E-04	1.31E-05	1.02	MOTOR-DRIVEN PUMP C0003A FAILS TO RUN
P21-MPC-FR-C003B	6.00E-04	1.31E-05	1.02	MOTOR-DRIVEN PUMP C003B FAILS TO RUN
P21-MPC-FS-C001A	2.00E-03	7.43E-05	1.04	MOTOR DRIVEN PUMP C001A FAILS TO START
P21-MPC-FS-C001B	2.00E-03	9.22E-05	1.04	MOTOR-DRIVEN PUMP C001B FAILS TO START
P21-MPC-FS-C002A	2.00E-03	7.43E-05	1.04	MOTOR-DRIVEN PUMP C002A FAILS TO START
P21-MPC-FS-C002B	2.00E-03	9.22E-05	1.04	MOTOR-DRIVEN PUMP C002B FAILS TO START
P21-MPC-FS-C003A	2.00E-03	7.43E-05	1.04	MOTOR-DRIVEN PUMP C0003A FAILS TO START
P21-MPC-FS-C003B	2.00E-03	9.22E-05	1.04	MOTOR-DRIVEN PUMP C003B FAILS TO START
P21-NSC-TM-B001A	1.50E-03	5.06E-05	1.03	HEAT EXCHANGER B001A UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-B001B	1.50E-03	5.80E-05	1.04	HEAT EXCHANGER B001B UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-B002A	1.50E-03	5.06E-05	1.03	HEAT EXCHANGER B002A UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-B002B	1.50E-03	5.80E-05	1.04	HEAT EXCHANGER B002B UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-B003A	1.50E-03	5.06E-05	1.03	HEAT EXCHANGER B003A UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-B003B	1.50E-03	5.80E-05	1.04	HEAT EXCHANGER B003B UNAVAILABLE DUE TO MAINTENANCE
P21-NSC-TM-C001A	1.50E-03	5.06E-05	1.03	PUMP C001A IN MAINTENANCE
P21-NSC-TM-C001B	1.50E-03	5.80E-05	1.04	PUMP C001B IN MAINTENANCE
P21-NSC-TM-C002A	1.50E-03	5.06E-05	1.03	PUMP C002A IN MAINTENANCE
P21-NSC-TM-C002B	1.50E-03	5.80E-05	1.04	PUMP C002B IN MAINTENANCE
P21-NSC-TM-C003A	1.50E-03	5.06E-05	1.03	PUMP C003A IN MAINTENANCE
P21-NSC-TM-C003B	1.50E-03	5.80E-05	1.04	PUMP C003B IN MAINTENANCE

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Shutdown Core Damage Frequency = 1.19E-09				
P21-TRN-RE-HX1A	8.07E-03	3.77E-04	1.05	FAILURE TO RESTORE RCCW TRAIN 1A HX
P21-TRN-RE-HX1B	8.07E-03	5.54E-04	1.07	FAILURE TO RESTORE RCCW TRAIN 1B HX
P21-TRN-RE-HX2A	8.07E-03	3.77E-04	1.05	FAILURE TO RESTORE RCCW TRAIN 2A HX
P21-TRN-RE-HX2B	8.07E-03	5.54E-04	1.07	FAILURE TO RESTORE RCCW TRAIN 2B HX
P21-TRN-RE-HX3A	8.07E-03	3.77E-04	1.05	FAILURE TO RESTORE RCCW TRAIN 3A HX
P21-TRN-RE-HX3B	8.07E-03	5.54E-04	1.07	FAILURE TO RESTORE RCCW TRAIN 3B HX
P21-TRN-RE-PUMP1A	8.07E-03	3.77E-04	1.05	FAILURE TO RESTORE RCCW TRAIN 1A PUMP
P21-TRN-RE-PUMP1B	8.07E-03	5.54E-04	1.07	FAILURE TO RESTORE RCCW TRAIN 1B PUMP
P21-TRN-RE-PUMP2A	8.07E-03	3.77E-04	1.05	FAILURE TO RESTORE RCCW TRAIN 2A PUMP
P21-TRN-RE-PUMP2B	8.07E-03	5.54E-04	1.07	FAILURE TO RESTORE RCCW TRAIN 2B PUMP
P21-TRN-RE-PUMP3A	8.07E-03	3.77E-04	1.05	FAILURE TO RESTORE RCCW TRAIN 3A PUMP
P21-TRN-RE-PUMP3B	8.07E-03	5.54E-04	1.07	FAILURE TO RESTORE RCCW TRAIN 3B PUMP
P41-ACV-CC_ALL	1.21E-04	2.26E-05	1.19	CCF of all components in group 'P41-ACV-CC'
P41-ACV-CC-F004A	2.00E-03	7.43E-05	1.04	AIR OPERATED VALVE F004A FAILS TO OPEN
P41-ACV-CC-F004B	2.00E-03	9.22E-05	1.04	AIR OPERATED VALVE F004B FAILS TO OPEN
P41-ACV-CC-F006A	2.00E-03	7.43E-05	1.04	AIR OPERATED VALVE F006A FAILS TO OPEN
P41-ACV-CC-F006B	2.00E-03	9.22E-05	1.04	AIR OPERATED VALVE F006B FAILS TO OPEN
P41-ACV-CC-F009A	2.00E-03	7.43E-05	1.04	AIR OPERATED VALVE F009A FAILS TO OPEN
P41-ACV-CC-F009B	2.00E-03	9.22E-05	1.04	AIR OPERATED VALVE F009B FAILS TO OPEN
P41-FAN-FR_ALL	1.20E-05	1.68E-06	1.14	CCF of all components in group 'P41-FAN-FR'
P41-FAN-FS_ALL	1.42E-05	2.05E-06	1.14	CCF of all components in group 'P41-FAN-FS'
P41-MOV-CC-PMP_1_2_3	1.36E-05	2.05E-06	1.14	CCF of three components: P41-MOV-CC-PMPF002A & P41-MOV-CC-PMPF002B & P41-MOV-CC-
P41-MOV-CC-PMP_1_2_4	1.36E-05	2.05E-06	1.14	CCF of three components: P41-MOV-CC-PMPF002A & P41-MOV-CC-PMPF002B & P41-MOV-CC-

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report

(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)

High Winds Shutdown

Core Damage Frequency = 1.19E-09

P41-MOV-CC-PMP_1_3_4	1.36E-05	2.05E-06	1.14	CCF of three components: P41-MOV-CC-PMPF002A & P41-MOV-CC-PMPF004A & P41-MOV-CC-
P41-MOV-CC-PMP_2_3_4	1.36E-05	2.05E-06	1.14	CCF of three components: P41-MOV-CC-PMPF002B & P41-MOV-CC-PMPF004A & P41-MOV-CC-
P41-MOV-CC-PMP_ALL	1.45E-04	2.71E-05	1.19	CCF of all components in group 'P41-MOV-CC-PMP'
P41-MPW-FS_1_2_3	1.89E-05	2.80E-06	1.14	CCF of three components: P41-MPW-FS-C001A & P41-MPW-FS-C001B & P41-MPW-FS-C002A
P41-MPW-FS_1_2_4	1.89E-05	2.80E-06	1.14	CCF of three components: P41-MPW-FS-C001A & P41-MPW-FS-C001B & P41-MPW-FS-C002B
P41-MPW-FS_1_3_4	1.89E-05	2.80E-06	1.14	CCF of three components: P41-MPW-FS-C001A & P41-MPW-FS-C002A & P41-MPW-FS-C002B
P41-MPW-FS_2_3_4	1.89E-05	2.80E-06	1.14	CCF of three components: P41-MPW-FS-C001B & P41-MPW-FS-C002A & P41-MPW-FS-C002B
P41-MPW-FS_ALL	1.15E-04	2.15E-05	1.19	CCF of all components in group 'P41-MPW-FS'
P41-SYS-FC-HVACPSW-A	1.00E-03	2.24E-06	1	PSW-A ROOM COOLING FAILURE
P41-SYS-FC-HVACPSW-B	1.00E-03	2.24E-06	1	PSW-B ROOM COOLING FAILURE
P41-TRN-RE-PUMP1A	8.07E-03	1.12E-06	1	FAILURE TO RESTORE PSW PUMP 1A
P41-TRN-RE-PUMP1B	8.07E-03	1.12E-06	1	FAILURE TO RESTORE PSW PUMP 1B
P41-TRN-RE-PUMP2A	8.07E-03	1.12E-06	1	FAILURE TO RESTORE PSW PUMP 2A
P41-TRN-RE-PUMP2B	8.07E-03	1.12E-06	1	FAILURE TO RESTORE PSW PUMP 2B
R11-MCB-CC-A3RATAY	5.00E-04	1.10E-05	1.02	MEDIUM CIRCUIT BREAKER FOR RAT A Y-WINDING FAILS TO OPEN
R11-MCB-CC-A3UATAY	4.00E-03	1.77E-04	1.04	MEDIUM VOLTAGE CIRCUIT BREAKER FOR UAT A Y-WINDING FAILS TO OPEN
R11-MCB-CC-B3RATBY	5.00E-04	1.10E-05	1.02	MEDIUM CIRCUIT BREAKER FOR RAT B Y-WINDING FAILS TO OPEN
R11-MCB-CC-B3UATBY	4.00E-03	2.25E-04	1.06	MEDIUM VOLTAGE CIRCUIT BREAKER FOR UAT B Y-WINDING FAILS TO OPEN
R11-MCB-CC-CCFNORM_3_7	3.18E-05	6.16E-06	1.19	CCF of two components: R11-MCB-CC-A3RATAY & R11-MCB-CC-B3RATBY
R11-MCB-CC-CCFNORM_3_8	3.18E-05	6.16E-06	1.19	CCF of two components: R11-MCB-CC-A3RATAY & R11-MCB-CC-B3UATBY
R11-MCB-CC-CCFNORM_4_7	3.18E-05	6.16E-06	1.19	CCF of two components: R11-MCB-CC-A3UATAY & R11-MCB-CC-B3RATBY
R11-MCB-CC-CCFNORM_4_8	3.18E-05	6.16E-06	1.19	CCF of two components: R11-MCB-CC-A3UATAY & R11-MCB-CC-B3UATBY
R11-MCB-CC-CCFNORM_ALL	2.00E-04	3.84E-05	1.19	CCF of all components in group 'R11-MCB-CC-CCFNORM'

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Shutdown
Core Damage Frequency = 1.19E-09

R11-MCB-OO-A3DGA	2.40E-03	8.90E-05	1.04	MEDIUM VOLTAGE CIRCUIT BREAKER FOR DG-A FAILS TO CLOSE
R11-MCB-OO-B3DGA	2.40E-03	1.17E-04	1.05	MEDIUM VOLTAGE CIRCUIT BREAKER FOR DG-B FAILS TO CLOSE
R11-MCB-OO-CCFALT_3_7	1.90E-05	2.80E-06	1.14	CCF of two components: R11-MCB-OO-A3DGA & R11-MCB-OO-B3DGA
R11-MCB-OO-CCFALT_ALL	1.20E-04	2.24E-05	1.19	CCF of all components in group 'R11-MCB-OO-CCFALT'
R11-RE_-FO-CCFSYNC_3_6	9.73E-06	1.49E-06	1.14	CCF of two components: R11-RE_-FO-SYNC00A3 & R11-RE_-FO-SYNC00B3
R11-RE_-FO-CCFSYNC_ALL	4.38E-05	8.21E-06	1.19	CCF of all components in group 'R11-RE_-FO-CCFSYNC'
R11-RE_-FO-CCFUV_3_6	9.73E-06	1.49E-06	1.14	CCF of two components: R11-RE_-FO-UV00A3 & R11-RE_-FO-UV00B3
R11-RE_-FO-CCFUV_ALL	4.38E-05	8.21E-06	1.19	CCF of all components in group 'R11-RE_-FO-CCFUV'
R11-RE_-FO-SYNC00A3	8.76E-04	2.58E-05	1.03	SYNC RELAY FOR 1000A3 FAILS TO OPERATE
R11-RE_-FO-SYNC00B3	8.76E-04	2.58E-05	1.03	SYNC RELAY FOR 1000B3 FAILS TO OPERATE
R11-RE_-FO-UV00A3	8.76E-04	2.58E-05	1.03	1000A3 UV RELAY FAILS TO OPERATE ON UV COND
R11-RE_-FO-UV00B3	8.76E-04	2.58E-05	1.03	1000B3 UV RELAY FAILS TO OPERATE ON UV COND
R13-INV-FC-CCFNSR_1_3_5	2.11E-07	9.70E-06	46.65	CCF of three components: R13-INV-FC-R13A1 & R13-INV-FC-R13B1 & R13-INV-FC-R13C
R13-INV-FC-CCFNSR_ALL	1.14E-05	5.50E-04	49.32	CCF of all components in group 'R13-INV-FC-CCFNSR'
R13-INV-FC-CCFSR_1_2	1.81E-06	1.42E-05	8.75	CCF of two components: R13-INV-FC-R1311 & R13-INV-FC-R1312
R13-INV-FC-CCFSR_3_4	1.81E-06	1.42E-05	8.75	CCF of two components: R13-INV-FC-R1321 & R13-INV-FC-R1322
R13-INV-FC-CCFSR_ALL	1.14E-05	1.51E-02	1.32E+03	CCF of all components in group 'R13-INV-FC-CCFSR'
R16-BDC-TM-R16A3	5.00E-04	1.10E-05	1.02	DC BUS R16-A3 IN MAINTENANCE
R16-BDC-TM-R16B3	5.00E-04	1.10E-05	1.02	DC BUS R16-B3 IN MAINTENANCE
R16-BT_-LP-CCFNSR_ALL	4.07E-07	1.90E-05	47.06	CCF of all components in group 'R16-BT_-LP-CCFNSR'
R16-BT_-LP-CCFSR_ALL	4.07E-07	2.94E-04	711.31	CCF of all components in group 'R16-BT_-LP-CCFSR'
R16-BT_-TM-R16BTA3	5.00E-04	1.10E-05	1.02	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
R16-BT_-TM-R16BTB3	5.00E-04	1.10E-05	1.02	BATTERY R16-BTB3 IN TEST AND MAINTENANCE

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Shutdown Core Damage Frequency = 1.19E-09				
R21-AHU-FR-3A	2.40E-04	3.73E-06	1.01	AIR HANDLING UNIT FAILS TO RUN
R21-AHU-FR-3B	2.40E-04	3.73E-06	1.01	AIR HANDLING UNIT FAILS TO RUN
R21-AHU-FR-AHU3_1_2	1.26E-05	1.87E-06	1.14	CCF of two components: R21-AHU-FR-3A & R21-AHU-FR-3B
R21-AHU-FS-3A	6.00E-03	2.72E-04	1.04	AIR HANDLING UNIT FAILS TO START
R21-AHU-FS-3B	6.00E-03	3.57E-04	1.06	AIR HANDLING UNIT FAILS TO START
R21-AHU-FS-AHU3_1_2	6.67E-04	1.30E-04	1.19	CCF of two components: R21-AHU-FS-3A & R21-AHU-FS-3B
R21-DG_-FR-CCF_1_2	4.54E-03	9.72E-04	1.21	CCF of two components: R21-DG_-FR-DGA & R21-DG_-FR-DGB
R21-DG_-FR-DGA	5.76E-02	2.97E-03	1.05	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
R21-DG_-FR-DGB	5.76E-02	4.80E-03	1.08	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
R21-DG_-FS-CCF_1_2	2.86E-04	5.49E-05	1.19	CCF of two components: R21-DG_-FS-DGA & R21-DG_-FS-DGB
R21-DG_-FS-DGA	1.40E-02	6.94E-04	1.05	DG-A FAILS TO START AND LOAD
R21-DG_-FS-DGB	1.40E-02	1.03E-03	1.07	DG-B FAILS TO START AND LOAD
R21-DG_-TM-DGA	4.60E-02	1.93E-03	1.04	STANDBY DIESEL GENERATOR "A" IN MAINTENANCE
R21-DG_-TM-DGB	4.60E-02	3.34E-03	1.07	STANDBY DIESEL GENERATOR "B" IN MAINTENANCE
R21-FAN-FR-10A	2.40E-04	3.73E-06	1.01	BLOWER/VENTILATION FAN FAILS TO RUN
R21-FAN-FR-10B	2.40E-04	3.73E-06	1.01	BLOWER/VENTILATION FAN FAILS TO RUN
R21-FAN-FR-11A	2.40E-04	3.73E-06	1.01	BLOWER/VENTILATION FAN FAILS TO RUN
R21-FAN-FR-11B	2.40E-04	3.73E-06	1.01	BLOWER/VENTILATION FAN FAILS TO RUN
R21-FAN-FR-12A	2.40E-04	3.73E-06	1.01	BLOWER/VENTILATION FAN FAILS TO RUN
R21-FAN-FR-12B	2.40E-04	3.73E-06	1.01	BLOWER/VENTILATION FAN FAILS TO RUN
R21-FAN-FR-AHU2_1_2	1.26E-05	1.87E-06	1.14	CCF of two components: R21-FAN-FR-AHU2A & R21-FAN-FR-AHU2B
R21-FAN-FR-AHU2A	2.40E-04	3.73E-06	1.01	DG-A NORMAL VENTILATION FAN FAILS TO RUN
R21-FAN-FR-AHU2B	2.40E-04	3.73E-06	1.01	BLOWER/VENTILATION FAN FAILS TO RUN

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Shutdown Core Damage Frequency = 1.19E-09				
R21-FAN-FS-10A	6.00E-04	1.31E-05	1.02	BLOWER/VENTILATION FAN FAILS TO START
R21-FAN-FS-10B	6.00E-04	1.31E-05	1.02	BLOWER/VENTILATION FAN FAILS TO START
R21-FAN-FS-11A	6.00E-04	1.31E-05	1.02	BLOWER/VENTILATION FAN FAILS TO START
R21-FAN-FS-11B	6.00E-04	1.31E-05	1.02	BLOWER/VENTILATION FAN FAILS TO START
R21-FAN-FS-12A	6.00E-04	1.31E-05	1.02	BLOWER/VENTILATION FAN FAILS TO START
R21-FAN-FS-12B	6.00E-04	1.31E-05	1.02	BLOWER/VENTILATION FAN FAILS TO START
R21-FAN-FS-ROOF_1_2	6.67E-06	9.33E-07	1.14	CCF of two components: R21-FAN-FS-10A & R21-FAN-FS-10B
R21-FAN-FS-ROOF_1_4	6.67E-06	9.33E-07	1.14	CCF of two components: R21-FAN-FS-10A & R21-FAN-FS-11B
R21-FAN-FS-ROOF_1_6	6.67E-06	9.33E-07	1.14	CCF of two components: R21-FAN-FS-10A & R21-FAN-FS-12B
R21-FAN-FS-ROOF_2_3	6.67E-06	9.33E-07	1.14	CCF of two components: R21-FAN-FS-10B & R21-FAN-FS-11A
R21-FAN-FS-ROOF_2_5	6.67E-06	9.33E-07	1.14	CCF of two components: R21-FAN-FS-10B & R21-FAN-FS-12A
R21-FAN-FS-ROOF_3_4	6.67E-06	9.33E-07	1.14	CCF of two components: R21-FAN-FS-11A & R21-FAN-FS-11B
R21-FAN-FS-ROOF_3_6	6.67E-06	9.33E-07	1.14	CCF of two components: R21-FAN-FS-11A & R21-FAN-FS-12B
R21-FAN-FS-ROOF_4_5	6.67E-06	9.33E-07	1.14	CCF of two components: R21-FAN-FS-11B & R21-FAN-FS-12A
R21-FAN-FS-ROOF_5_6	6.67E-06	9.33E-07	1.14	CCF of two components: R21-FAN-FS-12A & R21-FAN-FS-12B
R21-FAN-FS-ROOF_ALL	3.00E-05	5.60E-06	1.19	CCF of all components in group 'R21-FAN-FS-ROOF'
R21-FLT-PG-DGA	3.60E-03	1.56E-04	1.04	FILTER PLUGGED
R21-FLT-PG-DGB	3.60E-03	2.00E-04	1.05	FILTER PLUGGED
R21-MCB-CC-1LOAD1	5.00E-04	1.10E-05	1.02	CIRCUIT BREAKER TO LOAD 1 FAILS TO OPEN
R21-MCB-CC-1LOAD2	5.00E-04	1.10E-05	1.02	CIRCUIT BREAKER TO LOAD 2 FAILS TO OPEN
R21-MCB-CC-1LOAD3	5.00E-04	1.10E-05	1.02	CIRCUIT BREAKER TO LOAD 3 FAILS TO OPEN
R21-MCB-CC-1LOAD4	5.00E-04	1.10E-05	1.02	CIRCUIT BREAKER TO LOAD 4 FAILS TO OPEN
R21-MCB-CC-1LOAD5	5.00E-04	1.10E-05	1.02	CIRCUIT BREAKER TO LOAD 5 FAILS TO OPEN

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
High Winds Shutdown
Core Damage Frequency = 1.19E-09

R21-MCB-CC-2LOAD1	5.00E-04	1.10E-05	1.02	CIRCUIT BREAKER TO LOAD 1 FAILS TO OPEN
R21-MCB-CC-2LOAD2	5.00E-04	1.10E-05	1.02	CIRCUIT BREAKER TO LOAD 2 FAILS TO OPEN
R21-MCB-CC-2LOAD3	5.00E-04	1.10E-05	1.02	CIRCUIT BREAKER TO LOAD 3 FAILS TO OPEN
R21-MCB-CC-2LOAD4	5.00E-04	1.10E-05	1.02	CIRCUIT BREAKER TO LOAD 4 FAILS TO OPEN
R21-MCB-CC-2LOAD5	5.00E-04	1.10E-05	1.02	CIRCUIT BREAKER TO LOAD 5 FAILS TO OPEN
R21-MCB-CC-CCFLS_1_2	5.56E-05	1.04E-05	1.19	CCF of two components: R21-MCB-CC-1LOAD1 & R21-MCB-CC-2LOAD1
R21-MOD-CC-1_1_2	3.33E-04	6.38E-05	1.19	CCF of two components: R21-MOD-CC-1A & R21-MOD-CC-1B
R21-MOD-CC-1A	3.00E-03	1.27E-04	1.04	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-1B	3.00E-03	1.63E-04	1.05	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-2A	3.00E-03	1.27E-04	1.04	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-2B	3.00E-03	1.63E-04	1.05	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-3A	3.00E-03	1.27E-04	1.04	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-3B	3.00E-03	1.63E-04	1.05	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-4A	3.00E-03	1.27E-04	1.04	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-4B	3.00E-03	1.63E-04	1.05	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-5A	3.00E-03	1.27E-04	1.04	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-5B	3.00E-03	1.63E-04	1.05	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-6A	3.00E-03	1.27E-04	1.04	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MOD-CC-6B	3.00E-03	1.63E-04	1.05	MOTOR-OPERATED DAMPER FAILS TO OPEN
R21-MP_-FR-FOPUMP_ALL	1.42E-05	2.05E-06	1.14	CCF of all components in group 'R21-MP_-FR-FOPUMP'
R21-MP_-FS-FOPUMP_ALL	1.00E-04	1.87E-05	1.19	CCF of all components in group 'R21-MP_-FS-FOPUMP'
R21-TRN-RE-FODG1A	2.42E-02	1.27E-05	1	FAILURE TO RESTORE FUEL OIL TRANSFER TRAIN 1 FOR DG-A
R21-TRN-RE-FODG1B	2.42E-02	1.27E-05	1	FAILURE TO RESTORE FUEL OIL TRANSFER TRAIN 1 FOR DG-B

Table 14-6

High Winds Shutdown Importance Measure Report

F-V and RAW Importance Measures Report (F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure) High Winds Shutdown Core Damage Frequency = 1.19E-09				
R21-TRN-RE-FODG2A	2.42E-02	1.27E-05	1	FAILURE TO RESTORE FUEL OIL TRANSFER TRAIN 2 FOR DG-A
R21-TRN-RE-FODG2B	2.42E-02	1.27E-05	1	FAILURE TO RESTORE FUEL OIL TRANSFER TRAIN 2 FOR DG-B
U43-BV_-CC-F346	4.00E-04	1.63E-04	1.39	MANUAL VALVE FAILS TO OPEN
U43-BV_-CC-FU439	4.00E-04	1.63E-04	1.39	MANUAL VALVE FAILS TO OPEN
U43-EDP-FR_1_2	1.36E-03	8.93E-04	1.65	CCF of two components: U43-EDP-FR-P1A & U43-EDP-FR-P2A
U43-EDP-FR-P1A	2.40E-02	5.92E-04	1.02	DIESEL-DRIVEN PUMP FAILS TO RUN
U43-EDP-FR-P2A	2.40E-02	7.40E-04	1.03	DIESEL-DRIVEN PUMP FAILS TO RUN
U43-EDP-FS_1_2	2.22E-03	1.71E-03	1.75	CCF of two components: U43-EDP-FS-P1A & U43-EDP-FS-P2A
U43-EDP-FS-P1A	2.00E-02	4.61E-04	1.02	DIESEL-DRIVEN PUMP FAILS TO START
U43-EDP-FS-P2A	2.00E-02	5.84E-04	1.03	DIESEL-DRIVEN PUMP 2A FAILS TO START
U43-NSC-TM-P2A	1.50E-03	3.36E-06	1	FPS PUMP P2A IN MAINTENANCE
U43-UV_-CC-F347	4.00E-04	1.63E-04	1.39	CHECK VALVE F347 FAILS TO OPEN
U43-UV_-CC-FU438	4.00E-04	1.63E-04	1.39	CHECK VALVE FAILS TO OPEN
U43-XHE-FO-2ND	1.61E-02	3.48E-04	1.02	OPERATOR FAILS TO ALIGN FPS CROSSTIE
U43-XHE-FO-LPCI	1.61E-03	9.07E-04	1.55	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE
U43-XHE-FO-LPCIADS	1.61E-02	2.13E-04	1.01	OPER FAILS TO ACTUATE U43 IN LPCI MODE AFTER DEPRESSURIZATION
XXX-XHE-FO-LPMAKEUP	1.61E-01	6.74E-01	4.51	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

Table 14-7

High Winds CET Release Category Frequencies

Release Category	Frequency (per year)*
TSL	1.33E-09
FR	ε**
BYP	1.20E-09
OPVB	ε
OPW1	ε
OPW2	ε
CCIW	1.3E-11
CCID	ε
EVE	0.00
DCH	0.00
BOC	4.00E-12

*The frequency is the summed contribution to the release category from all accident classes, as shown in Table 8A-3. BYP is also augmented with frequency from shutdown operations which assume all shutdown core damage sequences are bypass sequences.

**Calculated frequencies less than 1E-12 are reported as "ε".

15 SEISMIC MARGINS ANALYSIS

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15 SEISMIC MARGINS ANALYSIS

This section documents the PRA-based seismic margin analysis of the ESBWR.

15.1 INTRODUCTION

The seismic risk analysis is performed to assess the impacts of seismic events on the safe operation of the ESBWR plant.

A PRA-based seismic margins analysis (SMA) is performed for the ESBWR using the systems models and the fragility analysis method of Reference 15-1 to calculate high confidence low probability of failure (HCLPF) accelerations for important accident sequences and accident classes.

The analysis shows that the ESBWR plant is capable of withstanding an earthquake of at least 1.67 times the safe shutdown earthquake (SSE) with a high confidence of low probability of failure.

The scope of the analysis includes both at-power and shutdown seismic-induced accident scenarios.

15.2 METHODOLOGY

The seismic risk assessment uses a seismic margins analysis (SMA) method based on that of References 15-1 and 15-2 to calculate high confidence low probability of failure (HCLPF) seismic capacities for important accident sequences and accident classes.

The PRA-based seismic margins approach used in this analysis evaluates the capability of the plant to withstand an earthquake of 1.67 times the safe shutdown earthquake (1.67*SSE).

The analysis involves the following two major steps:

(1) Seismic fragilities

(2) Accident sequence HCLPF analysis

The seismic fragilities of the ESBWR systems, structures, and components are based on generic industry information and ESBWR specific seismic capacity calculations for certain structures.

The MIN-MAX method is used in the determination of functional and accident sequence fragilities. Per the MIN-MAX method, the overall fragility of a group of inputs combined using OR logic (i.e., seismic event tree nodal fault tree) is determined by the lowest (minimum) HCLPF input. Conversely, per the MIN-MAX method, the overall fragility of a group of inputs combined using AND logic (i.e., seismic event tree sequence) is determined by the highest (maximum) HCLPF input.

Both at-power and shutdown seismic-induced accident scenarios are analyzed.

15.3 SEISMIC FRAGILITIES

15.3.1 Overview

This subsection presents seismic capacities for selected structures and components that have been identified as potentially important to the seismic risk analysis of the ESBWR standard plant. The seismic capabilities in terms of seismic fragilities are first estimated, from which the high confidence of low probability of failure (HCLPF) capacities are then derived. The HCLPF capacities serve as input to the system analysis following the seismic margins approach.

The peak ground acceleration of the design earthquakes is 0.5g for the Safe Shutdown Earthquake (SSE). Extensive seismic soil-structure interaction analyses of the reactor/fuel building complex and control building were performed for a wide range of generic site conditions under a 0.5g single envelope design spectra. This single envelope design spectra is a composite of Reg. Guide 1.60 spectra anchored to 0.3g and the North Anna ESP design spectra anchored to 0.5g. The analysis results in terms of site-envelope SSE loads are presented in Appendix 3A of the ESBWR DCD Tier 2 Rev. 3 (Reference 15-3). The standard plant designed to these site-envelope seismic loads may result in significant design margins when it is situated at a specific site, particularly a soft soil site. Thus, the seismic capacities estimated from the site-envelope design requirements may be very conservative for certain sites; however, confirmation of margins must be done for as-built conditions.

For the seismic category I structures for which seismic design information is available, the seismic fragilities are evaluated using the Separation-of-Variable method in Reference 15-1. This approach identifies various conservatisms and associated uncertainties introduced in the seismic design process (both capacity and demand sides) and provides a probabilistic estimate of the earthquake level required to fail a structure or component in a postulated failure mode by extrapolating from the design information supplemented by limited nonlinear analysis to account for building response beyond yielding.

For safety-related components such as pumps, valves, and electrical equipment whose design details are not currently available, a generic HCLPF capacity of 1.67*SSE is assigned. This generic HCLPF is considered to be "reasonably achievable" for the ESBWRs designed to the single envelope design spectra for a wide range of sites.

15.3.2 Fragility Formulation

Seismic fragility of a structure or component is defined herein to be the cumulative conditional probability of its failure as a function of the mean peak ground acceleration (i.e., the average of the peak of the two horizontal components).

The probability model adopted for fragility description is the lognormal distribution. Using the lognormal distribution assumption, an entire family of fragility curves can be fully described in terms of the median ground acceleration and two random variables as:

$$A = A_m \varepsilon_\gamma \varepsilon_\mu \qquad (15.3\text{-}1)$$

Where:

A_m = median peak ground acceleration corresponding to 50% failure probability.

ε_γ = a lognormally distributed random variable accounting for inherent randomness about the median. It is characterized by unit median and logarithmic standard deviation β_γ.

ε_μ = a lognormally distributed random variable accounting for uncertainty in the median value. It is characterized by unit median and logarithmic standard deviation β_μ.

With known values of A_m, β_γ, and β_μ, the failure probability P_f at acceleration less than or equal to a given acceleration a can be computed using the following equation for any non-exceedance probability (NEP) level Q.

$$P_f(A \le a|Q) = \phi\left[\frac{1}{\beta_\gamma} In\left(\frac{a}{A_m}\right) + \frac{\beta_\mu}{\beta_\gamma}\phi^{-1}(Q)\right] \quad (15.3\text{-}2)$$

Where Φ is the standard Gaussian cumulative distribution function. Figure 15-1 shows a typical family of fragility curves for various NEP levels. The center solid curve represents the median fragility curve at 50% NEP level. The logarithmic standard deviation of the randomness component β_γ determines the curve slope. The logarithmic standard deviation of the uncertainty component β_μ is a measure of the spread from the median curve. The 95th percentile and 5th percentile curves in Figure 15-1 are the upper and lower bounds of the failure probability for a given acceleration, corresponding to 95% and 5% NEP levels, respectively.

When only the point estimate is of interest, which is the case for this analysis, the total variability about the median value is taken to be the square root of the sum of the squares (SRSS) of the inherent randomness and uncertainty components.

$$\beta_c = \sqrt{\beta_\gamma^2 + \beta_\mu^2} \quad (15.3\text{-}3)$$

The fragility curve corresponding to the median value A_m with associated composite logarithmic standard deviation can be computed by the following equation:

$$P_f(A \le a) = \phi\left[\frac{1}{\beta_c}\ln\left(\frac{a}{A_m}\right)\right] \quad (15.3\text{-}4)$$

This composite fragility curve is also called the mean fragility curve and is shown as the dashed curve in Figure 15-1 for illustration. It represents the best estimate fragility description.

In estimating the median ground acceleration capacity and the associated variability, an intermediate variable defined as safety factor F is utilized. The safety factor is related to the median ground acceleration capacity by the following relationship.

$$A_m = FA_d \quad (15.3\text{-}5)$$

Where A_d is the ground acceleration of the reference design earthquake to which the structure or component is designed. A key step in the seismic fragility estimate thus involves the evaluation of the factor of safety associated with the design for each important potential failure mode. The design margins inherent in the component capacity and the dynamic response to the specific acceleration are the two basic considerations. Each of the capacity and response margins involves several variables, and each variable has a median factor of safety and variability associated with it. The overall factor of safety F is the product of the factor of safety for each variable F_i.

$$F = \prod_i F_i \quad (15.3\text{-}6)$$

The overall composite logarithmic standard deviation is SRSS of the composite logarithmic standard deviations in the individual factors of safety.

$$\beta_c = \sqrt{\sum_i \beta_{ci}^2} \quad (15.3\text{-}7)$$

Knowing the median peak ground acceleration (A_m) and associated logarithmic standard deviation (β_c); the HCLPF capacity is obtained using the equation below.

$$\text{HCLPF} = A_m \exp(-2.326\beta_c) \quad (15.3\text{-}7a)$$

15.3.3 Structural Fragility

The plant structures are divided into two categories according to their function and the degree of integrity required to protect the public during a seismic event. These categories are seismic category I and non-category I. Seismic category I includes those structures whose failure might cause or increase the severity of an accident, which would endanger the public health and safety. The reactor building and control building structures are in this category. The non-category I structures are those structures which are important to reactor operation, but are not essential for preventing an accident which would endanger the public health and safety, and are not essential for the mitigation of the consequences of these accidents. One example is the turbine building structure.

For the purpose of this study, structures are considered to fail functionally when inelastic deformations of the structure under seismic load increase to the extent that the operability of the safety-related components attached to the structure cannot be assured. The drift limits chosen for structures are estimated as corresponding to the onset of significant structural damage. For many potential modes of failure, this is believed to represent a conservative bound on the level of inelastic structural deformation that might interfere with the function of the system housed within the structure.

The potential of seismic-induced soil failure such as liquefaction, differential settlement, or slope instability is highly site dependent and cannot be assessed for generic site conditions. It is assumed in this analysis that there is no soil failure potential in the range of ground motions considered.

Building-to-building impact due to differential building displacements under strong earthquakes is deemed not credible since a sufficient distance to avoid impact separates adjacent buildings. Differential building displacements of sufficient magnitude could, however, potentially result in damage to interconnecting piping, depending on system configuration and sliding resistance of building foundation. Detailed evaluation of seismic capacities of interconnecting systems against differential building displacement cannot be made due to lack of design details and specific site conditions. It is assumed that the mode of failure due to differential building displacement has a capacity no less than the required margin of 1.67*SSE.

15.3.3.1 Reactor Building Complex Structures

Detailed fragility evaluations were made for the following structures in the reactor building (RB) and fuel building (FB) complex. The RB and FB share the same basement and are fully integrated. The term "reactor building" when mentioned hereafter also includes the structures of the fuel building. As for the containment structure, it is enclosed by and integrated into the RB.

- Building shear walls
- Containment wall (upper drywell and wetwell)
- RPV pedestal (same as lower drywell wall)
- RPV support brackets

Those structures were evaluated according to the approach outlined previously and using various safety factors as presented below.

The factor of safety for a structure against a specific failure mode is the product of the capacity factor F_c and structural response factor F_{rs};

$$F = F_c\, F_{rs} \qquad (15.3\text{-}8)$$

The individual factors, the capacity factor and the response factor, are discussed in the following subsections.

15.3.3.1.1 Capacity Factor (F_c)

The capacity factor represents the capability of a structure to withstand seismic excitation in excess of the design earthquake. This factor is composed of two parts:

$$F_c = F_s\, F_u \qquad (15.3\text{-}9)$$

Where:

F_s = the ultimate structural strength margin above the design SSE load, and

F_u = the inelastic energy absorption factor accounting for additional capacity of the structure to undergo inelastic deformations beyond yield.

The capacity estimated by this approach is the elastic capacity equivalent to the actual nonlinear behavior under strong motion earthquakes.

<u>Strength Factor (Fs)</u>

The strength factor associated with seismic load can be calculated using the following equation.

$$F_s = \frac{P_u - P_n}{P_s} \qquad (15.3\text{-}10)$$

Where:

P_u = the actual ultimate strength,

P_n = the normal operating loads, and

P_s = the design SSE load.

The earthquake-resistant structural elements of the reactor building are reinforced concrete shear walls that are integrated with the reinforced concrete cylindrical containment through concrete floor slabs. The specified compressive strength of concrete is 34.5 MPa for the building and 27.5 MPa for the mat. The specified yield strength of ASTM A615, Grade 60 reinforcing steel is 414 MPa. These are design values; the actual material strengths are higher.

Concrete compressive strength used for design is normally specified as a value at a specific time after mixing (28 or 90 days). This value is verified by laboratory testing of mix samples. The strength must meet specified values, allowing a finite number of failures per number of trials. There are two major factors that affect the actual strength:

a. To meet the design specifications, the contractor attempts to create a mix that has an "average" strength somewhat above the design strength, and

b. As concrete ages, it increases in strength.

Taking those two elements into consideration, the actual compressive strength of aged concrete is commonly 1.3 times the design strength (Reference 15-8). The total logarithmic standard deviation about the median strength is about 0.13.

According to the same reference, the ratio of the median yield strength to the specified strength of reinforcing steel is taken to be 1.2 with logarithmic standard deviation of 0.12.

The median yield strength of steel plates is typically 1.25 times the code specified strength with logarithmic standard deviation of 0.14 (References 15-8 and 15-9).

The reactor building shear wall is chosen as an example for the discussion of the strength factor evaluation. For reinforced concrete shear walls the ultimate shear strength can be computed using the following equation (Reference 15-1).

$$\begin{aligned} v_u &= v_c + v_s \\ &= 8.3\sqrt{f_c} - 3.4\sqrt{f'_c}\left(\frac{h}{w} - \frac{1}{2}\right) + \frac{N}{4wt} + \rho_{se} f_y \end{aligned} \qquad (15.3\text{-}11)$$

Where:

v_c	=	shear strength provided by concrete
v_s	=	shear strength provided by reinforcing steel
f'_c	=	concrete compressive strength
h	=	wall height
w	=	wall length
N	=	bearing load
f_y	=	yield strength of reinforcing steel
t	=	wall thickness
ρ_{se}	=	$A\rho_v + B\rho_h$

ρ_h = horizontal steel reinforcement ratio

ρ_v = vertical steel reinforcement ratio

A & B = constants depending on h/w:

	A	B
$h/w < 0.5$	1	0
$0.5 \le h/w < 1.5$	1.5-h/w	h/w-0.5
$1.5 < h/w$	0	1

In computing ultimate shear strength with this equation, the median material strengths of the concrete and reinforcing steel defined above are used and the wall bearing load is conservatively neglected.

The strength factor F_s is then calculated using Equation 15.3-10 for each of the levels of the reactor building shear walls. The normal operating loads do not result in lateral force and horizontal loads induced by SRV actuations are found to be negligible compared to the SSE-induced horizontal loads. Therefore, the strength factor is the ratio of the median shear strength to the design SSE shear. The lowest strength factor is found to be 1.82. This is calculated for the generic medium soil stiffness site condition that has the highest calculated seismic response. The associated logarithmic standard deviation is calculated to be 0.01 using the second moment approximation (Reference 15-10) accounting for both concrete and reinforcing steel material strength variability. There is also an uncertainty associated with Equation 15.3-11 since it is an approximate model fit to data. The modeling uncertainty is 0.20 expressed in terms of logarithmic standard deviation (Reference 15-1). The total composite logarithmic standard deviation in the median strength factor is 0.20, which is the SRSS value of 0.01 for the material strength uncertainty and 0.20 for the equation uncertainty. Flexural failure of the wall is found to have higher strength factor, therefore, shear failure is the governing mode of failure.

Inelastic Energy Absorption Factor (F_μ)

The inelastic energy absorption factor (F_μ) accounts for the fact that an earthquake represents a limited energy source and many structures are capable of absorbing substantial amounts of energy beyond yield without loss of function. The parameter commonly used to measure the energy absorption capacity in the inelastic range is the system ductility, μ_{sys}. It is defined as the ratio of the summation of product of each story weight and median displacement at ultimate capacity to the summation of product of each story weight and story displacement at yielding of the critical story as shown below (Reference 15-1):

$$\mu_{sys} = \frac{\sum W_i \cdot \delta_{Ti}}{\sum W_i \cdot \delta_{ei}} \qquad (15.3\text{-}12)$$

Where:

W_i = weight of each story

δ_{Ti} = median maximum deflection of each story at ultimate capacity

δ_{ei} = median elastic deflection of each story scaled to reach yield in the critical story

A story drift of 0.5% is used to estimate the deflection profile at failure of the governing shear wall. Once the median system ductility is calculated, the median inelastic energy absorption factor is calculated using two different procedures, i.e., the Effective Frequency/Effective Damping Method and the Effective Riddell-Newmark Method (Reference 15-1) and the average value is the median inelastic energy absorption factor of the structure.

A median damping value of 7% of critical is conservatively assumed in the inelastic energy absorption factor calculation. This is to avoid double-counting of energy dissipation due to hysteresis damping and inelastic response of the building.

The inelastic energy absorption factor of the Reactor Building shear wall is calculated to be 1.8.. The associated randomness and uncertainty logarithmic standard deviations are 0.05 and 0.09, respectively determined from using the lower bound story drift of 0.36% (Table 3-5 of Reference 15-1).

15.3.3.1.2 Structural Response Factor (F_{rs})

The structural response factor (F_{rs}) consists of a number of factors or parameters introduced in the calculation of structural response in the seismic dynamic analysis. Response calculations performed in the design analysis utilized conservative deterministic parameters. The actual response may differ significantly from the calculated response for a given peak ground acceleration level since many of these parameters are random. The structural response factor is evaluated as the product of the following factors that are considered to have the most influence on the structural response.

$$F_{rs} = F_{gm} F_d F_{ssi} F_m F_{mc} F_{ecc} \qquad (15.3\text{-}13)$$

Where:

F_{gm} = ground motion factor accounting for the margin of the single envelope design ground response spectra with respect to the performance based seismic design spectra (Reference 15-11) and conservative or unconservative bias in the treatment of horizontal direction peak response and vertical component response.

F_d = damping factor accounting for the variability in response due to difference in expected damping at failure and damping used in the analysis,

F_{ssi} = soil-structure interaction factor accounting for the variability associated with SSI effects on structural response,

F_m = structural modeling factor accounting for the variability in response due to modeling assumptions,

F_{mc} = modal response combination factor accounting for the variability in response due to the method used in combining modal responses,

F_{ecc} = earthquake component combination factor accounting for the variability in response due to the method used in combining the earthquake components.

Ground Motion Factor (F_{gm})

Three factors are considered under the ground motion factor, i.e., spectral shape factor (F_{sa}), horizontal direction peak response (F_{HD}), and vertical component response (F_V) as presented in this section.

The ground response spectrum considered in the seismic design is the envelope of the 0.3g Regulatory Guide (RG) 1.60 site-independent ground spectra and the 0.5g North Anna ESP site-specific performance-based design ground spectra. The resulting single envelope design spectra are anchored to 0.5g peak ground acceleration as shown in Figure 15-2. The ground response spectrum used for the seismic margin assessment is also shown in Figure 15-2. In the frequency range lower than 9 Hz, a performance-based seismic design horizontal spectrum that bounds all the soil sites except Vogtle in the recent EPRI study (Reference 15-15) is developed. This is due to the fact that the Reg. Guide 1.60 spectra which dominate in the frequency range below 9 Hz are more like 84th percentile spectra or higher. The envelope of this spectrum and the North Anna ESP performance-based design spectrum, hereafter called as performance-based seismic design spectrum, is used for the seismic fragility calculation.

In accordance with the soil-structure interaction analysis performed and described in DCD Tier 2 Appendix 3A, generic medium soil stiffness site yields the highest seismic responses.. Therefore, the spectral shape factor is derived by comparing the single envelope design spectra with the performance-based seismic design spectra (see Figure 15-2) at the dominant frequency of the soil-structure system of medium site. The differences between these two spectra are the margins in the ground motion input. At the dominant frequency of 2.6 Hz of the reactor building in medium soil stiffness site, the 5% damped spectral accelerations of the two spectra are 0.93g and 0.59g, respectively. Thus the spectral shape factor is:

$$F_{sa} = 0.93g / 0.59g = 1.58 \qquad (15.3\text{-}14)$$

Similarly a spectral shape factor of 1.37 is calculated for soft soil stiffness site. In consideration that soil stiffness is likely to degrade at the acceleration level which building failure is expected, an average value of 1.47 is used for the spectral shape factor.

The logarithmic standard deviation of randomness in the spectral shape factor is the peak to valley variability of the performance-based seismic design spectra, which is 0.2 according to Reference 15-1. Since the Uniform Hazard Spectra (UHS) is derived from the probabilistic seismic hazard assessment, no uncertainty is assigned to the spectral shape factor to avoid double counting the uncertainty in the seismic hazard analysis.

Horizontal Direction Peak Response (F_{HD})

The ground motion parameter (e.g., peak ground acceleration) is the average of the two horizontal directions. Thus, the ground motion in one direction may be higher than that in the perpendicular direction. For a box-type structure such as the Reactor Building, seismic demand of a major shear wall is affected primarily by one directional horizontal response. The effect of earthquake in the perpendicular direction is insignificant. Since an average parameter is used, the real response could be either higher or lower, hence no bias either way. Thus,

$$F_{HD} = 1.0 \qquad (15.3\text{-}15)$$

The associated randomness and uncertainty are 0.13 and 0, respectively per Reference 15-1.

Vertical Component Response (F_V)

The vertical component of the ESBWR single envelope design spectra follows the Reg. Guide 1.60 vertical spectrum from 0.1 Hz up to 10 Hz and follows the North Anna performance-based design spectra above 10 Hz. This is conservative in comparison to the case where vertical component ground motion is assumed to be 2/3 of the horizontal component. Though relatively large randomness and uncertainty variability are associated with the vertical component (Table 3-2 of Reference 15-1), because of the small effect the vertical component has on the governing failure mode of the building (i.e., shear wall failure), they are significantly diminished in the final fragility parameters. Therefore,

$$F_V = 1 \qquad (15.3\text{-}16)$$

The associated randomness logarithmic standard deviation is 0.10. Therefore, the overall ground motion factor of safety is 1.47 (= 1.47*1.0*1.0) and the overall randomness is 0.26 by combining the randomness of spectral shape, horizontal direction peak response, and vertical component response per Equation 15.3-7.

Damping Factor (F_d)

For reinforced concrete structures the damping ratio considered in the SSE analysis is 7%. The realistic values when the stress is at or near yield range from 7 to 10% (Reference 15-14). The upper bound value is considered to be the median and the lower bound corresponds to the 84th percentile level.

Soil springs and dashpots are used in the soil-structure interaction modeling of the reactor building on generic sites. In such a soil-structure interaction system, the damping value of the building structure has less significant effect on the overall response of the building since soil modes are dominant. Thus, a factor of safety of unity is assigned to the damping factor.

$$F_d = 1 \qquad 15.3\text{-}17)$$

The associated logarithmic standard deviation can be estimated using the ratio of the amplification factor at 84th percentile damping (AF_{bd}) to the amplification factor at median damping (AF_{md})

$$\beta c = \ln (AF_{bd} / AF_{md}) \qquad (15.3\text{-}18)$$

Since conservatism in the structure hysteretic damping of the design seismic response analysis is neglected above, no value is assigned to the uncertainty logarithmic standard deviation.

Soil-Structure Interaction Factor (F_{ssi})

The factor of safety of soil-structure interaction between the reactor building and the supporting media includes the following considerations

- Ground motion incoherence (F_{GMI})
- Vertical spatial variation of ground motion (F_{VSV})
- SSI analysis (F_{SSI})

The dominant frequency of the SSI system of reactor building founded on uniform half space of medium soil stiffness site is 2.6 Hz. At this frequency the ground motion incoherence effects is insignificant, therefore, $F_{GMI} = 1.0$ and there is no variability associated with it.

The vertical spatial variation factor is to account for conservative bias in the SSI analysis that arises from choice of location of the control motion. The ground motion at the surface level in the free field decreases with depth of embedment. The ESBWR single envelope design ground spectra are defined as the outcrop motion at the foundation level of the reactor building for all site conditions. This conservative bias may be quantified if the surface ground motion is deconvoluted from the finished grade to the foundation level. Due to lack of this information, the embedment effect is estimated by using the design floor response spectra at the reactor building basemat for the medium soil site condition and the layered site condition. For the layered site cases, the surface motion calculated from SHAKE is used as input for the SASSI calculation. The factor of safety due to embedment effect is determined to be 1.22. No reduction due to embedment is estimated at three standard deviations from the median case. Based on this the associated uncertainty variability is calculated to be 0.07. The randomness variability is estimated to be 0.08 per Reference 15-1.

Furthermore, the median strength factor calculated in Section 15.3.3.1.1 is based on seismic demand of the medium soil site conditions. It is expected that soil degradation will occur at the ground acceleration level where the reactor building failure is calculated. It is observed from Appendix 3A of DCD Tier 2 that seismic responses of the soft soil site are lower than that of medium soil site. Therefore, the third factor of safety under the soil-structure interaction factor is to account for this effect and a factor of safety of 1.31 is calculated using the average responses of medium soil and soft soil site conditions.

The final SSI factor of safety is 1.6 (= 1.22*1.0*1.31) and the associated randomness and uncertainty variability are 0.08 and 0.28, respectively.

Modeling Factor (F_m)

The reactor building structural model considered in the seismic design analysis is a multi-degree-of-freedom system constructed according to common modeling techniques and the Standard Review Plan (SRP) requirements in terms of number of degrees of freedom and subsystem decoupling. The model is thus considered to be best estimate and the resulting dynamic characteristics to be median-centered. The modeling factor is thus unity. Uncertainty in the modeling has effects on the mode shapes and modal frequencies of the structure. For soil sites, frequency uncertainty of the soil-structure system is primarily due to uncertainty in soil properties and soil degradation at higher strain levels. Such uncertainty is estimated in the soil-structure interaction factor of safety. Thus, no uncertainty in response due to frequency uncertainty is included. A logarithmic standard deviation of 0.15 is estimated to account for uncertainty in the mode shape per Reference 15-1.

Modal Response Combination Factor (F_{mc})

The method used in the seismic response analysis is the time history method solved by direct integrations. The phasing between individual modal responses is known and the total response is the algebraic sum of all modes of interest. The maximum response is thus precise and the modal response combination factor (F_{mc}) is unity. The associated uncertainties are less than the uncertainties associated with the response spectrum method, in which the maximum modal responses are combined by the SRSS method. Therefore, a nominal value of 0.05 is assigned to the logarithmic standard deviation of randomness.

Earthquake Component Combination Factor (F_{ecc})

The effects of multi-directional earthquake excitation on structural response depend on the geometry, dynamic response characteristics, and relative magnitudes of the two horizontal and the vertical earthquake components. The design method to combine the contributions from different earthquake components is SRSS or 100-40-40. Either method is considered to result in a median-centered response. The earthquake component combination factor is 1.0.

The reactor building walls are designed to resist in-plane loads. The walls mainly respond to the horizontal motion parallel to the walls. The vertical loads on the walls due to the vertical excitation are typically less significant in contributing to the total stresses and there is an equal probability of acting upward or downward. The earthquake component combination effect on the wall design is thus not significant and a small logarithmic standard deviation of 0.05 is estimated.

15.3.3.1.3 Fragility Results for Reactor Building Complex

The result of the fragility analysis for the identified reactor building failure mode is summarized in Table 15-2. The overall safety factor is the product of the individual factors. The total logarithmic standard deviation is the SRSS value of the individual logarithmic standard deviations. The seismic fragility, in terms of median ground acceleration, is the product of the overall factor and the SSE design ground acceleration of 0.5g. The HCLPF calculated in accordance with Equation 15.3-7a is presented at the bottom of the table.

15.3.3.2 RCCV and RPV Pedestal

Other major structures inside the reactor building are the reinforced concrete containment vessel (RCCV) and the Reactor Pressure Vessel (RPV) pedestal. The pedestal is part of the RCCV pressure boundary. Both the RCCV and the pedestal are reinforced concrete cylindrical structures interconnected to the reactor building via walls and slabs as such they respond to the seismic input motion as an integral unit.

The governing failure mode of the RCCV is shear failure of the cylindrical wall below the RCCV. The critical location is determined by calculating the ratio of capacity to demand at different locations of the containment wall. This cylindrical wall is not part of the RCCV pressure boundary, but it is on the seismic load path of the RCCV. The median shear capacity of the cylindrical wall is based on the equations in Appendix N of Reference 15-2 that are developed from a considerable amount of testing conducted in Japan on scale models of reinforced and prestressed concrete containment structures. The equation is as shown below:

$$v_u = 0.8\sqrt{f_{c\_m}} + \rho\sigma_y \le 21.1\sqrt{f_{c\_m}} \qquad (15.3\text{-}19)$$

Where f_{c_m} is the median compressive strength of concrete of the containment wall (psi)
σ_y is the median yield strength of containment wall reinforcing steel (psi)
ρ is the effective reinforcing steel ratio of the containment wall

The median shear capacity of the cylindrical wall is

$$V_u = \frac{v_u \cdot \pi \cdot D \cdot t_w}{\alpha} \tag{15.3-20}$$

Where D is mean diameter of the cylindrical wall
t_w is thickness of the containment wall
α is a factor to convert the cross section area into effective shear area

$$\begin{aligned} \alpha &= 2.0 \text{ if } \frac{M}{V \cdot D_0} \leq 0.5 \\ &= 0.667 \cdot \left(\frac{M}{V \cdot D_0} \right) + 1.67 \text{ if } 0.5 \leq \frac{M}{V \cdot D_0} \leq 1.25 \\ &= 2.5 \text{ otherwise} \end{aligned} \tag{15.3-21}$$

Where M and V are overturning moment and story shear at the section where median capacity is calculated.

The flexural strength of the cylindrical wall is found to have higher factor of safety than that of shear. The other factors of safety are calculated similar to that of reactor building. The median seismic capacity of the RCCV is 5.41g peak ground acceleration (pga) with an associated combined logarithmic standard deviation of 0.48. The HCLPF capacity is 1.75g pga. The summary table of the RCCV fragility is presented in Table 15-3.

The RPV pedestal is a thick-walled cylinder based on its geometry. The governing failure mode is tangential shear near the base. Flexural failure does not govern. The formula used for calculating the median shear strength of the pedestal is developed based on test data as discussed in Reference 15-16. The median seismic capacity of the RPV pedestal is 5.1g peak ground acceleration (pga) with an associated combined logarithmic standard deviation of 0.5. The HCLPF capacity is 1.59g pga. The summary table of RPV pedestal fragility is presented in Table 15-4.

15.3.3.3 RPV Support Brackets

The eight RPV support brackets are located at the junction of the RPV pedestal and the vent wall structure. The brackets are made of structural steel and they provide structural support to the RPV as well as the Reactor Shield Wall (RSW).

The structural integrity analysis of the RPV support bracket is documented in DCD Tier 2 Appendix 3G. The calculated stresses of normal, severe, extreme, abnormal, and abnormal extreme conditions of the RPV support brackets are presented in the appendix. The most severe case of stresses in the RPV brackets is identified in Table 3G.1-41 of Appendix 3G to be the vertical plate size 150 mm in compression. Anchorage of the brackets to the pedestal wall is found to have higher strength factor than the vertical plate of the bracket. It is noted that the vertical plates of the brackets are dimensioned such that plate buckling will not occur prior to yielding of the plate material. Therefore, median yield strength of the vertical plate material (i.e., A516 Grade 70) is used to calculate a median strength factor of 7.39. The inelastic energy absorption factor is unity since failure of the bracket is considered to be localized.

The maximum enveloping seismic forces acting on the support brackets are from seismic response of the fixed base model with in-fill concrete stiffness of vent wall (VW) and diaphragm floor (DF). The fundamental frequency of the RPV of the fixed base model is estimated at 12 Hz. At this frequency, there is no margin between the single envelope design spectra and the performance-based seismic design spectra (see Figure 15-2). Thus, the spectral shape factor of safety is unity. A ground motion incoherence factor of safety of 1.15 is calculated using the approach in Reference 15-1. The median seismic capacity of the RPV support brackets is 4.24g pga with an associated combined logarithmic standard deviation of 0.33. The HCLPF capacity is 2.0g pga. The summary table of RPV support bracket fragility is presented in Table 15-5.

15.3.3.4 Control Building Structure

The control building is a rectangular shape reinforced concrete box type structure. Its seismic fragility is evaluated using the same procedure described above for the reactor building. The controlling mode of failure is found to be shear failure of walls. Table 15-6 presents the margin in each of the capacity and response factors. The resulting median seismic capacity is 3.72 g pga with a logarithmic standard deviation of 0.51. The HCLPF capacity of the control building is 1.17g.

15.3.4 Component Fragility

The overall approach for determining HCLPF capacities of equipment and components qualified by seismic testing and analysis is described in EPRI TR-103959 (Reference 15-1). Since the detailed design information on the equipment is not available at this time, generic HCLPF capacities of 1.67*SSE are assigned. These generic HCLPF capacities assumed for equipment and components are considered achievable because of the margins or safety factors introduced at different stages of equipment design and qualification. Equipment qualified for application in GE ESBWR plants has additional seismic margins in high frequencies due to design consideration of high-frequency hydrodynamic loads in combination with seismic loads. The other sources of margin are from conservatism in the ESBWR seismic response analysis, e.g., use of single enveloping design spectra and conservative treatment of soil-structure interaction and the use of enveloping responses of all site conditions for design.

The equipment and components of the GE ESBWR plant will be qualified to the required floor response spectra arising from the single envelope ground motion input rich in both low and high frequencies and following the ASCE, ASME and IPEEE procedures, their seismic HCLPF capacities should be able to meet the required value of 1.67 times 0.5g peak ground acceleration.

Given the single enveloping design spectra of ESBWR and the performance-based seismic design spectra, it becomes obvious that the rock sites will be most challenging to meet the required HCLPF capacity if the building frequency is higher than 9 Hz. At 9 Hz and above, the single enveloping design spectra is same as the performance-based seismic design spectra such that the structural response factor will only be slightly greater than unity when other variables that would affect seismic response of the structures are considered. In such a case, the required response spectra (RRS) will be appropriately factored throughout the frequency range to assure that the HCLPF margin of 1.67 will be met.

15.3.5 Fragility Summary

The structural seismic fragilities and corresponding HCLPF values of the Reactor Building, the RCCV, the RPV pedestal, the RPV support brackets, and the Control Building are summarized in Table 15-1. All have HCLPF seismic capacities greater than 1.67 times the SSE.

15.4 ACCIDENT SEQUENCE HCLPF ANALYSIS

An event tree structure is used in the ESBWR seismic margin analyses to illustrate the accident sequences analyzed in the analysis. This event tree structure is shown in Figure 15-3a and Figure 15-3b.

The seismic event tree is used to identify those structures and components requiring seismic capacity analysis (refer to Section 15.3), and to identify the HCLPFs of individual seismic-induced accident sequences.

If a system, S, (or sequence) contains two components (A, B) combined with OR logic, the failure of any component will fail the system (S = A + B), and the cumulative fragility distribution of the system is governed by the fragility distribution of the weakest component. This principle is applied to the system fault trees, which generally are comprised of OR gates.

If two elements operate in AND logic, only the failure of both components will fail the system (S = A * B), and the cumulative fragility distribution of the system is governed by the fragility distribution of the most seismically rugged component. This principle is applied to accident sequences, which are composed of AND elements.

The scope of this analysis includes both at-power and shutdown seismic-induced accident scenarios. The seismic accident analysis for the at-power condition is discussed below in Section 15.4.1, and the analysis for the shutdown condition is discussed in Section 15.4.2.

15.4.1 Full Power Analysis

15.4.1.1 Full Power Seismic Event Tree

The seismic event tree is shown in Figure 15-3a and Figure 15-3b. The HCLPF fragility information input into each event tree node is obtained from the fragility analysis summarized in Section 15.3. The HCLPF inputs as a function of event tree node are summarized in Table 15-7.

The event tree begins with the spectrum of seismic events, considers whether or not seismic-induced structural failure (node SI) occurs, and whether or not emergency DC power is lost. For seismic induced break outside containment in RWCU line, as shown in Figure 15-3b, a node for isolation of the RWCU line is added before the DC node to account for manual valve isolation. Loss of either structural integrity or DC power results in core damage. Thus, all remaining accident sequences in Figure 15-3a and Figure 15-3b are for cases of no structural failure and DC power available.

The success or failure of emergency DC power (node DC) is evaluated in Figure 15-3a and Figure 15-3b to account for support system dependencies. Failure of all DC power results in a high-pressure core melt since all control is lost, the isolation condensers fail, and the reactor cannot be depressurized.

In event of successful emergency DC, the next node questions whether or not seismic-induced failure to scram (node SCRAM) occurs. In the event of an ATWS, sufficient safety relief valves must open to prevent RPV failure due to overpressure. Failure of a sufficient number of safety relief valves to open is assumed to lead to a core damage condition due to the severe potential impact on boron injection effectiveness.

If the SRVs function properly, the next node questions the actuation of the Standby Liquid Control (SLCS) system. Seismic-induced failure of SLCS leads to a core damage condition.

For sequences with failure to scram (SCRAM node failure) but successful SLCS initiation, once the reactor is subcritical and all SRVs are closed, heat removal is achieved through the Isolation Condensers. No credit is given to the actuation of the Passive Containment Cooling system because of the impact on boron injection effectiveness. Failure of the Isolation Condenser after SLCS leads to a core damage condition.

To extend Isolation Condensers performance well beyond 24 hours, communication between the isolation condenser pools and the PCCS pools must be established. As an alternative to this action, water from a fire protection diesel driven pump may be aligned.

The successful condition of the Scram function (SCRAM node success) leads to another group of sequences. In this group, actuation of the SRVs is also required for initial pressure control. Additional RPV depressurization using the DPVs is required to allow low pressure injection. These valves discharge to the drywell and after their actuation, the Gravity Driven Cooling system (GDCS) is required to provide water to keep the core covered and to compensate for the water losses due to steam discharge to the drywell. Failure of either function will lead to core damage.

Heat removal from the drywell will be achieved through the actuation of the Passive Containment Cooling system (PCCS), a fully passive system that condenses the steam and drives the water back to the GDCS pools. In order to ensure that non-condensable gases cannot prevent steam circulation through PCCS heat exchangers it is necessary that the non-condensables be directed to the wetwell. In order to facilitate this process, wetwell pressure must be lower than drywell pressure. All vacuum breakers that separate the drywell from the wetwell must all be closed to prevent equalizing the wetwell and drywell pressure. It is considered that the failure of one vacuum breaker would prevent the successful operation of the PCCS and consequently would lead to core damage.

Whether heat removal is initially provided by either the isolation condensers (ATWS sequences) or the Passive Containment Cooling System (non-ATWS sequences), long term heat removal success requires that the isolation condensers pool be communicated with the PCCS pools. As an alternative to this action, water from a fire protection diesel driven pump may be aligned.

15.4.1.2 System Analysis

The seismic fault trees contain only those components that might be subject to seismic failure. One of the important ground rules of the seismic margin analysis is that all like components in a system always fail together.

The passive safety systems credited in the analysis have just a few active components (valves), all with automatic actuation and none with reliance on human action that might represent a single failure dominating the overall system reliability. Human actions are required only in the long term and as such, given the low likelihood of failure for operator actions with very long allowable time windows, human action errors do not dominate system failure. As such, random failures are assumed to be non-significant contributors to seismic risk (consistent with past industry seismic studies) and are not explicitly included in the analysis.

Structure failures judged to contribute to seismic core damage are shown on Figure 15-4. In this analysis, any one or more of these structural failures are assumed to result in core damage. The structures having the lowest seismic capacity are the reactor building and control building.

Most of the systems credited in the event tree are passive systems. The passive concept means that these systems do not require AC power supply for their actuation. However, DC power supply is required for a number of functions in those systems. The PCCS system is the only fully passive system. These systems require that depressurization valves actuate as well as the Gravity Driven System, and these systems have dependency on DC power. As such, the DC power supply is considered separately in the seismic event tree. The most critical components in the DC system are the batteries and cable trays that distribute cables associated with DC distribution. Motor control centers are also included, representing the panels that distribute DC and vital AC power to different loads. The seismic fault tree for DC power is shown on Figure 15-5.

The reactor protection system, control rod drive system, and alternate rod insertion system are not modeled because the failure of control rods to insert is dominated by the relatively low seismic fragility of the fuel assemblies, control rod guide tubes, and housings. The seismic fault tree for reactivity control is shown on Figure 15-6. The fuel assemblies are the most fragile component.

The seismic fault tree for safety relief valves, Figure 15-7, models the possible failures of the SRVs themselves. The same is true for the depressurization valves and vacuum breakers (Figures 15-10 and 15-12).

The seismic fault tree for the standby liquid control system is shown on Figure 15-8.

The seismic fault tree for the isolation condensers is shown in Figure 15-9. Heat exchanger failure is the most significant seismic-induced component failure, failures of nitrogen operated and motor operated valves and the piping are also included.

The gravity driven cooling system is a passive system and the seismic fault tree for this system, Figure 15-11, includes the failure of the squib and check valves, as well as the piping.

The passive containment cooling system is a fully passive system with no active components. The seismic fault tree for PCCS is shown in Figure 15-13; it includes failure of heat exchangers and failure of piping.

Communication between the upper pools requires only the opening of valves. The seismic fault tree for this function is shown in Figure 15-14.

The firewater diesel-driven pump is designed to supply water to the upper pools. The seismic fault tree for this function is shown in Figure 15-15.

For a LOCA event, a seismically induced break outside containment (BOC) in the RWCU line is shown in Figure 15-3b. Though seismically qualified, the inclusion of the RWCU system break outside containment presents a seismic margin capacity insight, especially given the significant CDF contribution of the BOC in RWCU line among the LOCA events. The seismic fault tree for this function is shown in Figure 15-20.

The insight of a loss of preferred power events is included in the shutdown seismically induced event, as shown in Figure 15-17a.

15.4.2 Shutdown Analysis

The seismic shutdown analysis uses the same seismic margins approach, as well as many of the risk model elements used in the full power seismic analysis.

The HCLPF nodal fault trees used for the shutdown seismic analysis are the same as those used in the full power seismic analysis, with the exception of the structural failure node.

The earthquake-induced initiating event assumed in the accident sequence analysis is Loss of Preferred Power (LOPP). Scenarios with structural failures are modeled as leading directly to core damage.

Three shutdown seismic event trees are developed to differentiate the major plant operation modes during shutdown conditions. The following three shutdown modes are addressed (consistent with the other external events shutdown analyses): Mode 5, Mode 6-Unflooded, and Mode 6-Flooded.

15.4.2.1 Shutdown Seismic Event Tree

The shutdown seismic event trees are provided in Figures 15-17 through 15-19.

<u>Mode 5 and Mode 5 Open</u>

There are two modes were modeled in Mode 5 in the shutdown risk analysis (Section 16), Mode 5 (cold shutdown) and Mode 5 Open (cold shutdown with containment open).

To address the specific time of concern in the shutdown risk analysis (Section 16), Mode 5 was divided into two, one being the Tech Spec defined Mode 5 and the other being called Mode 5 Open (Mode 5 with open containment).

The Mode 5 Open is not a Tech Spec defined Mode, and actually includes a period of time from two separate Tech Spec defined Modes. Mode 5 Open is essentially the same as Mode 5 with the exception being that there is no intact containment. The reactor vessel head is still on, but the containment is open.

Part of the Mode 5 Open period is actually part of the Tech Spec defined Mode 6. According to the Tech Spec mode definitions, Mode 6 begins when one or more reactor vessel head closure bolts is less than fully tensioned. Mode 5 Open sequences consider pressure relief in the model. Mode 6 sequences do not since the RPV head is removed for the majority of the mode. Due to the Tech Spec definition, there is a small period of time that is technically Mode 6, but where the vessel head may still provide a pressure seal. The period of Mode 6 with the vessel head still on is included in the Mode 5 Open shutdown risk analysis.

It is assumed in the shutdown risk analysis that the reactor vessel head on period in Mode 6 is bounded by the Mode 5 Open shutdown risk analysis.

The first node of the tree, SIS, models seismic-induced failures of the containment building, reactor building, control building, RPV pedestal or supports, fuel assemblies or shroud support. Failure of this node is modeled as leading directly to core damage.

The second node of the tree, DC, models seismic-induced failure of emergency DC power. As shown in Figure 15-3a, this node models failure of the batteries, motor control centers or cable trays.

Success of the Isolation Condenser, represented by the IC node, guarantees short-term and long-term residual heat removal, even in the event of DC power failure. Failure of both IC and DC leads directly to core damage.

If the isolation condenser function fails but DC power is available, RPV pressure will increase and lead to the actuation of the safety valves, modeled by the SRV node. Sequences with success at the SRV node continue to the node representing fire protection system water injection into the RPV (FPW).

If the SRV function fails, RPV depressurization can be completed using the DPVs. Failure of both SRV and DPV leads directly to core damage.

Following successful RPV depressurization at the DPV node, actuation of the Gravity Driven Cooling System (GDCS node) is next questioned to supply water inventory to maintain the core covered and to compensate for water inventory losses due to steam discharge to the drywell.

For sequences in which the SRVs have failed but successful DPVs, the fire protection system (FPW) can be used as an alternative RPV injection method if GDCS fails.

There is no Tech Spec requirement of PCCS during shutdown condition, though the PCCS may be available for Mode 5 while containment is still intact. As shown in Table 15-10a, Table 15-10b, Figure 15-17a, and Figure 15-17b, for Seismic Margin Analysis, the seismic margin capacity insights would be the same for sequences whether PCCS was included. (Table 15-10b and Figure 15-17b are for sensitivity to show insight).

Finally, the PI node models failure of the valve allowing communication between the upper pools.

Mode 6 (Unflooded)

The Mode 6-Unflooded shutdown seismic event tree is shown in Figure 15-18. As discussed previously, the event tree assumes a LOPP condition.

The two first nodes of the tree, SIS and DC, are the same as in the Mode 5 tree. Failure of either leads directly to core damage.

Long term cooling in this operation mode would be guaranteed by the actuation of the Fire Protection Water System modeled in the FPW node, or as an alternative, the Gravity Driven Cooling System (GDCS node).

Mode 6 (Flooded)

In this mode of operation, the cavity is flooded and the reactor vessel is open. If an earthquake occurred during this mode, no system would have to be actuated to guarantee long term cooling; only structural integrity would have to be maintained.

The Mode 6-Flooded shutdown seismic event tree, shown in Figure 15-19, includes only one node (SIS) that models the maintenance of structural integrity.

15.4.2.2 System Analysis

The HCLPF nodal fault trees used for the shutdown seismic analysis are the same as those used in the full power seismic analysis, with the exception of the structural failure node. The structural failure nodal fault tree (SIS), refer to Figure 15-16, for the shutdown seismic event tree is developed to include the structural failures included in the full power SI nodal fault tree, as well as the structural elements related to reactivity control.

15.5 RESULTS

The results of the SMA HCLPF accident sequence analysis are shown on Figures 15-3, 15-17, 15-18 and 15-19, and in Tables 15-13 and 15-14. As can be seen, no accident sequence has a HCLPF lower than 0.84 g (i.e., 1.67 x SSE). As such, the ESBWR plant and equipment are shown to be capable of withstanding an earthquake with a magnitude at least 1.67 times the safe shutdown earthquake (SSE).

15.6 INSIGHTS

The ESBWR seismic margins HCLPF accident sequence analysis highlights the following key insights regarding the seismic capability of the ESBWR:

(1) The ESBWR is inherently capable of safe shutdown in response to strong magnitude earthquakes.

(2) The most significant HCLPF sequences (both 0.84g HCLPF) are seismic-induced loss of DC power and seismic-induced ATWS due to seismic-induced failure of the fuel channels and seismic-induced failure of the SLC tank.

15.7 CONCLUSIONS

The ESBWR is inherently capable of safe shutdown in response to strong magnitude earthquakes beyond the design basis earthquake. The analysis shows that the ESBWR has a plant level HCLPF value of at least 1.67 times the safe shutdown earthquake (SSE).

15.8 REFERENCES

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15-16 Bader, M and H. Krawinkler, "Shear Transfer in Thick-Walled Reinforced Concrete Cylinders", 6th SMiRT, Paris, France, August 1981.

Table 15-1

Seismic Capacity Summary [3]

Structure/Component	Failure Mode	Capacity[1] A_m (g)	Fragility Combined[2] Uncertainty	HCLPF (g)
Reactor Building	Shear failure of wall	3.57	0.47	1.2
Containment	Shear	5.41	0.48	1.75
RPV Pedestal	Shear	5.1	0.5	1.59
RPV support brackets	Yielding of bracket	4.24	0.33	2.0
Control building	Shear	3.72	0.5	1.17

Notes to Table 15-1:

(1) Capacities are in terms of median peak ground acceleration.

(2) Combined uncertainties are composite logarithmic standard deviations of uncertainty and randomness.

(3) HCLPF capacity for components that are significant contributors to overall plant level seismic margin is assumed to be 0.84g minimum which is 1.67 times SSE.

Table 15-2

Seismic Fragility for Reactor Building Shear Walls

Failure Mode:		Shear Failure of Wall Along Column Line R1			
Factor of Safety			**Median Value**	β_R	β_U
F_C	F_S	Strength	1.82	0.00	0.20
	F	Inelastic Energy Absorption	1.66	0.04	0.04
F_{RS}	F_{SA}	Spectral Shape			
		Response Spectrum Shape	1.47	0.20	0.00
		Horizontal Direction Peak Response	1.00	0.13	0.00
		Vertical Component Response	1.00	0.10	0.00
	F_D	Damping	1.00	0.00	0.00
	F_M	Modeling	1.00	0.00	0.15
	F_{MC}	Modal Response Combination	1.00	0.05	0.00
	F_{ECC}	Earthquake Component Combination	1.00	0.05	0.00
	F_{SSI}	Soil Structure Interaction			
		Ground Motion Incoherence	1.00	0.00	0.00
		Vertical Spatial Variation	1.22	0.08	0.07
		SSI Analysis	1.37	0.00	0.27
Overall Factor of Safety			**7.13**	**0.28**	**0.38**
A_d = Peak Ground Acceleration of the Single Evelope Design Spectra = 0.5g					
A_m = Median Peak Ground Acceleration = F*A_d = 3.57g					
β_C = Combined Logarithmic Standard Deviation = 0.47					
HCLPF = 1.2g					

Table 15-3

Seismic Fragility for Containment Wall

<table>
<tr><td colspan="2">Component:</td><td colspan="4">Cylindrical Wall Below Reinforced Concrete Containment Vessel (RCCV)</td></tr>
<tr><td colspan="2">Failure Mode:</td><td colspan="4">Shear</td></tr>
<tr><td colspan="3">Factor of Safety</td><td>Median Value</td><td>β_R</td><td>β_U</td></tr>
<tr><td rowspan="2">F_C</td><td>F_S</td><td>Strength</td><td>3.16</td><td>0.00</td><td>0.21</td></tr>
<tr><td>F</td><td>Inelastic Energy Absorption</td><td>1.49</td><td>0.06</td><td>0.11</td></tr>
<tr><td rowspan="12">F_{RS}</td><td>F_{SA}</td><td>Spectral Shape</td><td></td><td></td><td></td></tr>
<tr><td></td><td>Response Spectrum Shape</td><td>1.47</td><td>0.20</td><td>0.00</td></tr>
<tr><td></td><td>Horizontal Direction Peak Response</td><td>1.00</td><td>0.13</td><td>0.00</td></tr>
<tr><td></td><td>Vertical Component Response</td><td>1.00</td><td>0.10</td><td>0.00</td></tr>
<tr><td>F_D</td><td>Damping</td><td>1.00</td><td>0.00</td><td>0.00</td></tr>
<tr><td>F_M</td><td>Modeling</td><td>1.00</td><td>0.00</td><td>0.15</td></tr>
<tr><td>F_{MC}</td><td>Modal Response Combination</td><td>1.00</td><td>0.05</td><td>0.00</td></tr>
<tr><td>F_{ECC}</td><td>Earthquake Component Combination</td><td>1.00</td><td>0.12</td><td>0.00</td></tr>
<tr><td>F_{SSI}</td><td>Soil Structure Interaction</td><td></td><td></td><td></td></tr>
<tr><td></td><td>Ground Motion Incoherence</td><td>1.00</td><td>0.00</td><td>0.00</td></tr>
<tr><td></td><td>Vertical Spatial Variation</td><td>1.22</td><td>0.08</td><td>0.07</td></tr>
<tr><td></td><td>SSI Analysis</td><td>1.28</td><td>0.00</td><td>0.24</td></tr>
<tr><td colspan="3">Overall Factor of Safety</td><td>10.82</td><td>0.30</td><td>0.38</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="6">A_d = Peak Ground Acceleration of Single Envelope Design Spectra = 0.5g</td></tr>
<tr><td colspan="6">A_m = Median Peak Ground Acceleration = F*A_d = 5.41g</td></tr>
<tr><td colspan="6">β_C = Combined Logarithmic Standard Deviation = 0.48</td></tr>
<tr><td colspan="6">HCLPF = 1.75g</td></tr>
</table>

Table 15-4

Seismic Fragility for RPV Pedestal

Component:		Reactor Pressure Vessel Pedestal			
Failure Mode:		Shear			
Factor of Safety			Median Value	β_R	β_U
F_C	F_S	Strength	3.29	0.00	0.25
	F	Inelastic Energy Absorption	1.34	0.06	0.10
F_{RS}	F_{SA}	Spectral Shape			
		Response Spectrum Shape	1.48	0.20	0.00
		Horizontal Direction Peak Response	1.00	0.13	0.00
		Vertical Component Response	1.00	0.10	0.00
	F_D	Damping	1.00	0.00	0.00
	F_M	Modeling	1.00	0.00	0.15
	F_{MC}	Modal Response Combination	1.00	0.05	0.00
	F_{ECC}	Earthquake Component Combination	1.00	0.12	0.00
	F_{SSI}	Soil Structure Interaction			
		Ground Motion Incoherence	1.00	0.00	0.00
		Vertical Spatial Variation	1.22	0.08	0.07
		SSI Analysis	1.28	0.00	0.24
Overall Factor of Safety			**10.19**	**0.30**	**0.40**
A_d = Peak Ground Acceleration of Single Envelope Design Spectra = 0.5g					
A_m = Median Peak Ground Acceleration = F*A_d = 5.1g					
β_C = Combined Logarithmic Standard Deviation = 0.5					
HCLPF = 1.59g					

Table 15-5

Seismic Fragility for RPV Support Brackets

Component:		RPV Support Brackets			
Failure Mode:		Yielding of Vertical Plate of the Bracket			
Factor of Safety			Median Value	β_R	β_U
F_C	F_S	Strength	7.39	0.00	0.12
	F	Inelastic Energy Absorption	1.00	0.00	0.00
F_{RS}	F_{SA}	Spectral Shape			
		Response Spectrum Shape	1.00	0.20	0.00
		Horizontal Direction Peak Response	1.00	0.13	0.00
		Vertical Component Response	1.00	0.10	0.00
	F_D	Damping	1.00	0.00	0.00
	F_M	Modeling	1.00	0.00	0.13
	F_{MC}	Modal Response Combination	1.00	0.05	0.00
	F_{ECC}	Earthquake Component Combination	1.00	0.05	0.00
	F_{SSI}	Soil Structure Interaction			
		Ground Motion Incoherence	1.15	0.00	0.07
		Vertical Spatial Variation	1.00	0.00	0.00
		SSI Analysis	1.00	0.00	0.00
Overall Factor of Safety			**8.47**	**0.27**	**0.19**
A_d = Peak Ground Acceleration of Single Envelope Design Spectra = 0.5g					
A_m = Median Peak Ground Acceleration = F*A_d = 4.24g					
β_C = Combined Logarithmic Standard Deviation = 0.33					
HCLPF = 2.0g					

Table 15-6

Seismic Fragility for Control Building

Component:		Control Building			
Failure Mode:		Shear Failure of Wall Along Column Line CA			
Factor of Safety			Median Value	β_R	β_U
F_C	F_S	Strength	2.36	0.00	0.20
	F	Inelastic Energy Absorption	1.63	0.06	0.10
F_{RS}	F_{SA}	Spectral Shape			
		Response Spectrum Shape	1.42	0.20	0.00
		Horizontal Direction Peak Response	1.00	0.13	0.00
		Vertical Component Response	1.00	0.10	0.00
	F_D	Damping	1.00	0.00	0.00
	F_M	Modeling	1.00	0.00	0.15
	F_{MC}	Modal Response Combination	1.00	0.05	0.00
	F_{ECC}	Earthquake Component Combination	1.00	0.05	0.00
	F_{SSI}	Soil Structure Interaction			
		Ground Motion Incoherence	1.00	0.00	0.00
		Vertical Spatial Variation	1.00	0.00	0.00
		SSI Analysis	1.36	0.00	0.31
Overall Factor of Safety			**7.44**	**0.29**	**0.42**
A_d = Peak Ground Acceleration of Single Design Spectra = 0.5g					
A_m = Median Peak Ground Acceleration = F*A_d = 3.72g					
β_C = Combined Logarithmic Standard Deviation = 0.5					
HCLPF = 1.17g					

Table 15-7

ESBWR Systems and Components/Structures Fragilities

System/Component as a function of Event Tree Node	A_m(g)	β_c	HCLPF(g)
PLANT ESS STRUCTURES (SI)			
- Reactor Building (FRBLDG)	3.57	0.47	1.2
- Containment (FCONT)	5.41	0.48	1.75
- RPV Pedestal (FPEDST)	5.1	0.5	1.59
- Control Building (FCTRBLDG)	3.72	0.5	1.17
- Reactor Pressure Vessel Support (FRPV)	4.24	0.33	2.0
DC POWER (DC)			
- Batteries (FBTR)			0.84
- Cable trays (FCTRAY)			0.84
- Motor control centers (FMCC)			0.84
REACTIVITY CONTROL SYSTEM (SCRAM)			
- Fuel assembly (FFASSY)			0.84
- CRD Guide tubes (FCRDGTB)			0.84
- Shroud support (FSHRSPT)			0.84
- CRD Housing (FCRDHS)			0.84
- Hydraulic control unit (FHYLTUT)			0.84
SRV (SRV)			
- SRV (FSRV)			0.84

Table 15-7

ESBWR Systems and Components/Structures Fragilities

System/Component as a function of Event Tree Node	A_m(g)	β_c	HCLPF(g)
STANDBY LIQUID CONTROL (SLCS)			
- Accumulator Tank (FACCT)			0.84
- Check valve (FCHV)			0.84
- Squib valve (FSQUV)			0.84
- Piping (FPIP)			0.84
- Valve (motor operated) (FMOV)			0.84
ISOLATION CONDENSER (IC)			
- Piping (FPIP)			0.84
- Heat exchanger (FICHEX)			0.84
- Valve (motor operated) (FMOV)			0.84
- Valve (nitrogen operated) (FNOV)			0.84
DPV (DPV)			
- DPV (FDPV)			0.84
GRAVITY-DRIVEN COOLING (GDCS)			
- Check valve (FCHV)			0.84
- Squib valve (FSQUV)			0.84
- Piping (FPIP)			0.84
VACUUM BREAKERS (VB)			
- Vacuum breaker valve (FVB)			0.84

Table 15-7

ESBWR Systems and Components/Structures Fragilities

System/Component as a function of Event Tree Node	$A_m(g)$	β_c	HCLPF(g)
PASSIVE CONTAINMENT COOLING (PCCS)			
- Heat Exchanger (FPCCSHEX)			0.84
- Piping (FPIP)			0.84
IC/PCC POOL INTERCONNECTION (PI)			
- Valve (motor operated) (FIC/PCCI)			0.84
FIRE PROTECTION WATER SYSTEM (FPW)			
- Pump (diesel driven) (FPUMPDD)			0.84

Table 15-8

Seismic Event Tree Nodal HCLPF Equations

Top Event	Nodal HCLPP Equations[1] [2]
Structural Integrity (SI)	FSTRUC = FRBLDG + FCONT + FPEDST + FCTRBLDG + FRPV (1.2g + 1.75g + 1.59g + 1.17g + 2.0g = 1.2g)
DC Power (DC)	FDCP = FBTR + FCTRAY + FMCC (0.84g + 0.84g + 0.84g = 0.84g)
Scram (SCRAM)	FRC = FFASSY + FCRDGTB + FSHRSPT + FCRDHS + FHYCTUT (0.84g + 0.84g + 0.84g + 0.84g + 0.84g = 0.84g)
SRVs (SRV)	FSRV = FSRV'S = 0.84g
Standby Liquid Control (SLCS)	FSLCS = FACCT + FCHV + FSQUV + FPIP + FMOV (0.84g + 0.84g + 0.84g + 0.84g + 0.84g = 0.84g)
Isolation Condensers (IC)	FIC = FPIP + FICHEX + FMOV + FNOV (0.84g + 0.84g + 0.84g + 0.84g = 0.84g)
DPVs (DPV)	FDPV = FDPV'S = 0.84g
Gravity Driven Cooling System (GDCS)	FGDCS = FCHV + FSQUV + FPIP (0.84g + 0.84g + 0.84g = 0.84g)
Vacuum Breakers (VB)	FVB = FVB'S = 0.84g
Passive Containment Cooling (PCCS)	FPCCS = FPCCSHEX + FPIP (0.84g + 0.84g = 0.84g)
IC/PCC Pool Interconnection (PI)	FIC/PCCINT = PIC/PCCI = 0.84g
Fire Protection Water (FPW)	FFPW = FPUMPDD = 0.84g
Structural Integrity Shutdown (SIS)	FSTRUCSH = FRBLDG + FCTRBLDG + FRPV + FFASSY + FPEDST + FSHRSPT + FCONT + FCRDHS (1.2g + 1.17g + 2.0g + 0.84g + 1.59g + 0.84g + 1.75g + 0.84g = 0.84g)

Notes to Table 15-8:

(1) Refer to nodal fault trees (Figures 15-4 through 15-5) for descriptions of the individual fragility basic events.

(2) Per the MIN-MAX convention used, the overall fragility of a group of inputs combined using OR logic is determined by the lowest fragility input.

Table 15-9

HCLPF Derivation for Figure 15-3a and Figure 15-3b

(MIN-MAX Method)

SET Sequence	Sequence HCLPF[1]
Figure 15-3a	
Sequence 3	PI*FPW = 0.84g*0.84g = 0.84g
Sequence 4	PCCS = 0.84g
Sequence 5	VB = 0.84g
Sequence 6	GDCS = 0.84g
Sequence 7	DPV = 0.84g
Sequence 8	SRV = 0.84g
Sequence 11	SCRAM*PI*FPW = 0.84g*0.84g*0.84g = 0.84g
Sequence 12	SCRAM*IC = 0.84g*0.84g = 0.84g
Sequence 13	SCRAM*SLCS = 0.84g*0.84g = 0.84g
Sequence 14	SCRAM*SRV = 0.84g*0.84g = 0.84g
Sequence 15	DC = 0.84g
Sequence 16	SI = 1.2g
Figure 15-3b	
Sequence 16	IRWCU = 0.84g
Sequence 17	SI = 1.2g

Notes to Table 15-9:

(1) Per the MIN-MAX convention used, the overall fragility of a group of inputs combined using AND logic is determined by the highest fragility input.

Table 15-10a

HCLPF Derivation for Figure 15-17a, Figure 15-18 and Figure 15-19 (MIN-MAX Method)

MODE 5

SET Sequence	Sequence HCLPF[1]
Sequence 4	IC *FPW*GDCS= 0.84g*0.84g*0.84g = 0.84g
Sequence 5	IC *FPW*DPV = 0.84g*0.84g*0.84g = 0.84g
Sequence 8	IC *FPW*GDCS*FPW = 0.84g *0.84g*0.84g*0.84g = 0.84g
Sequence 9	IC*SRV*DPV = 0.84g*0.84g*0.84g = 0.84g
Sequence 11	DC*IC = 0.84g *0.84g= 0.84g
Sequence 12	SIS = 0.84g

MODE 6 UNFLOODED

SET Sequence	Sequence HCLPF[1]
Sequence 3	FPW*GDCS = 0.84g*0.84g = 0.84g
Sequence 5	DC*FPW = 0.84g*0.84g = 0.84g
Sequence 6	SIS = 0.84g

MODE 6 FLOODED

SET Sequence	Sequence HCLPF
Sequence 2	SIS = 0.84g

Notes to Table 15-10:

(1) Per the MIN-MAX convention used, the overall fragility of a group of inputs combined using AND logic is determined by the highest fragility input.

Table 15-10b

HCLPF Derivation for the ESBWR Shutdown Seismic Event Tree Sequences

Figure 15-17b (Sensitivity)

(MIN-MAX Method)

MODE 5

SET Sequence	Sequence HCLPF(1)
Sequence 4	IC *FPW*PI = 0.84g *0.84g *0.84g = 0.84g
Sequence 5	IC *FPW*PCCS = 0.84g *0.84g *0.84g = 0.84g
Sequence 6	IC *FPW*VB = 0.84g *0.84g *0.84g = 0.84g
Sequence 7	IC *FPW*GDCS = 0.84g*0.84g*0.84g = 0.84g
Sequence 8	IC *FPW*DPV = 0.84g*0.84g *0.84g = 0.84g
Sequence 10	IC *SRV*PIT = 0.84g *0.84g*0.84g = 0.84g
Sequence 11	IC *SRV* PCCS = 0.84g*0.84g*0.84g = 0.84g
Sequence 12	IC *SRV* VB = 0.84g*0.84g*0.84g = 0.84g
Sequence 14	IC *SRV* GDCS*PIT = 0.84g*0.84g*0.84g*0.84g = 0.84g
Sequence 15	IC* SRV* GDCS* PCCS = 0.84g*0.84g*0.84g*0.84g = 0.84g
Sequence 16	IC *SRV* GDCS* VB = 0.84g*0.84g*0.84g*0.84g = 0.84g
Sequence 17	IC *SRV* GDCS* FPW = 0.84g*0.84g*0.84g*0.84g = 0.84g
Sequence 18	IC *SRV* DPV = 0.84g*0.84g*0.84g = 0.84g
Sequence 20	IC *DC = 0.84g*0.84g = 0.84g
Sequence 21	SIS = 0.84g

Notes to Table 15-10:

(1) Per the MIN-MAX convention used, the overall fragility of a group of inputs combined using AND logic is determined by the highest fragility input.

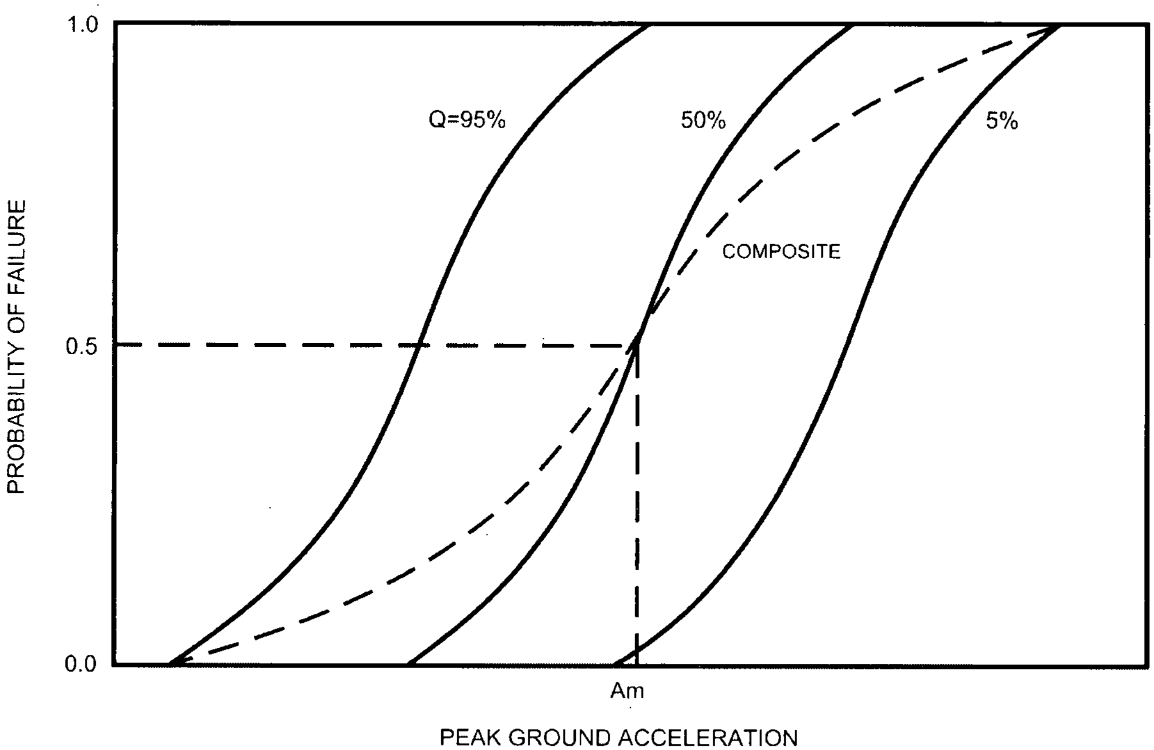

Figure 15-1. Typical Fragility Curves

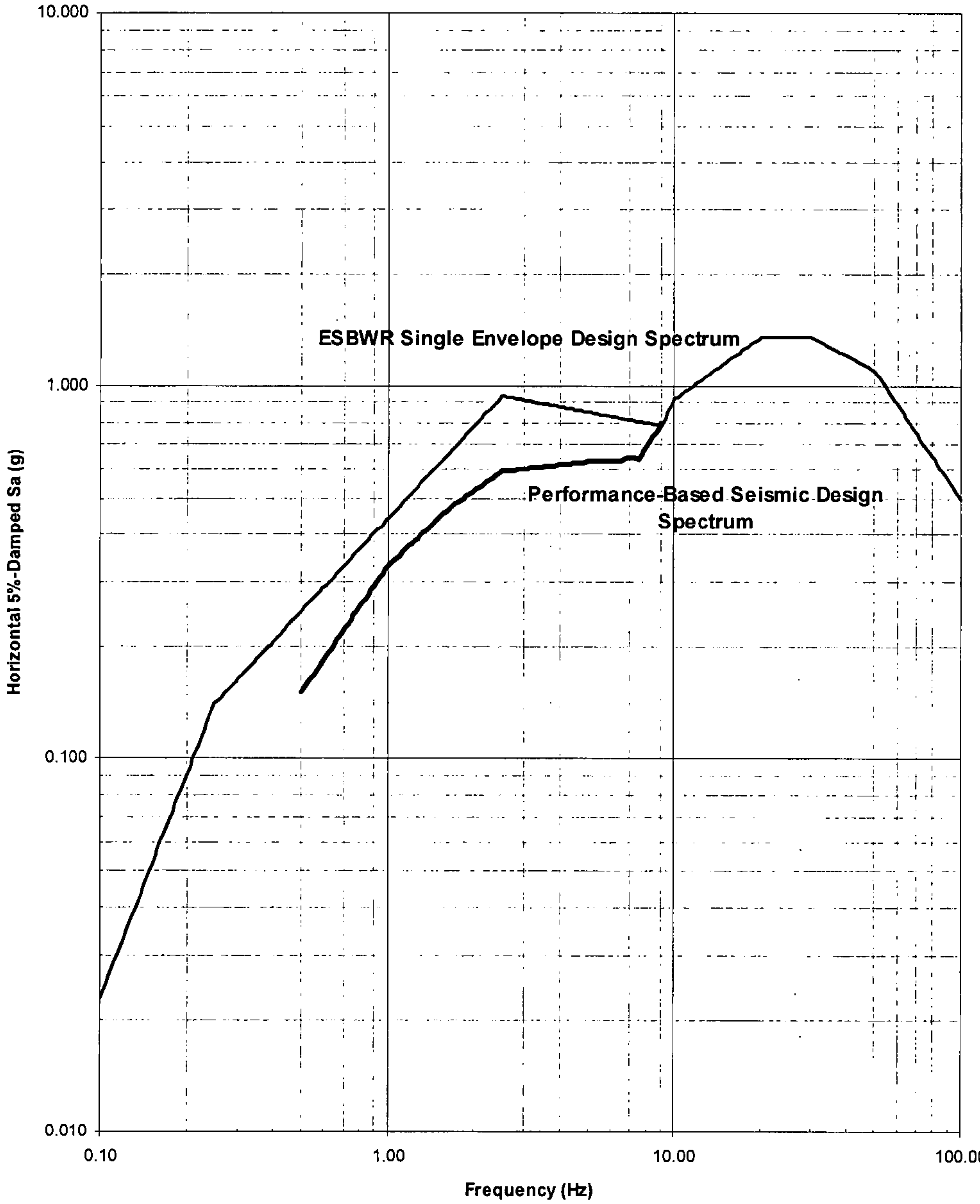

Figure 15-2. Horizontal Single Envelope Design and Performance-Based Seismic Design Spectra of ESBWR

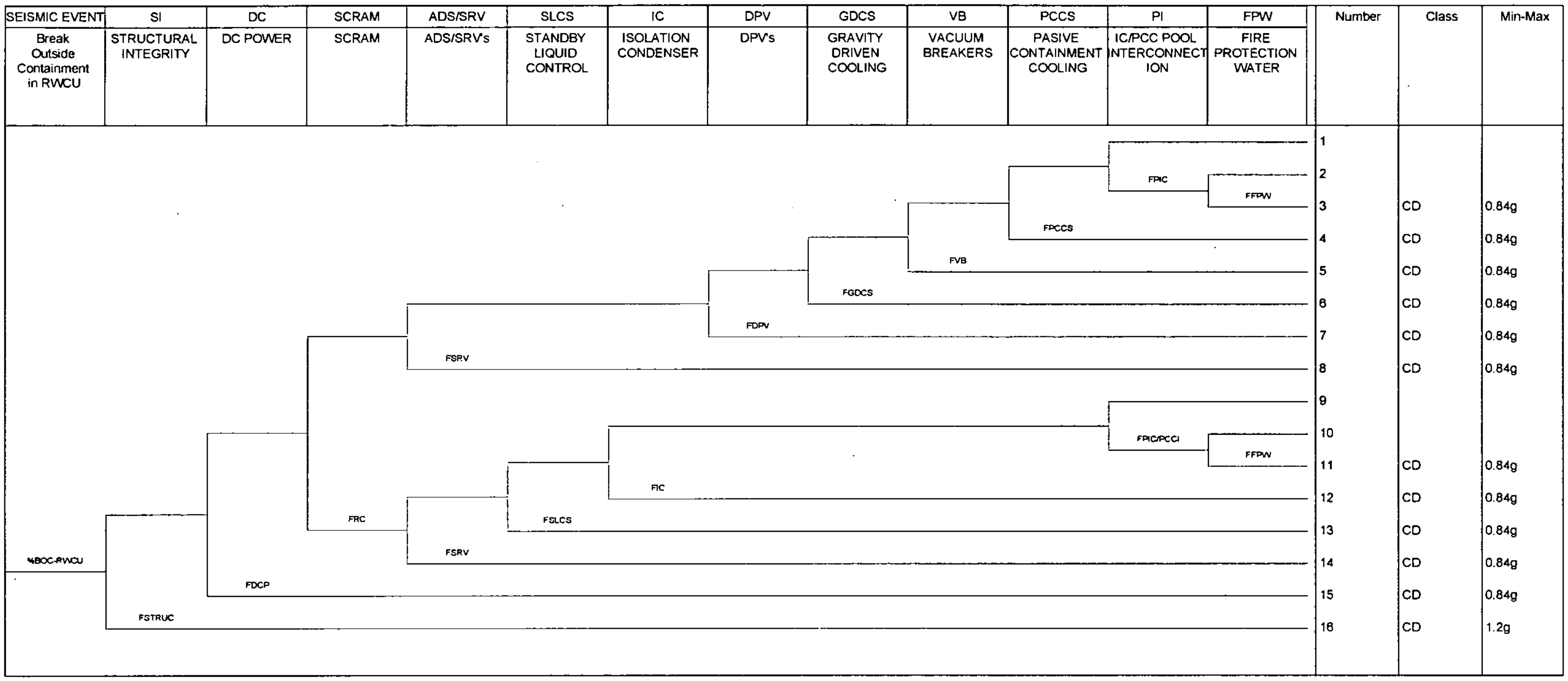

Figure 15-3a. Seismic Event Tree (Full Power)

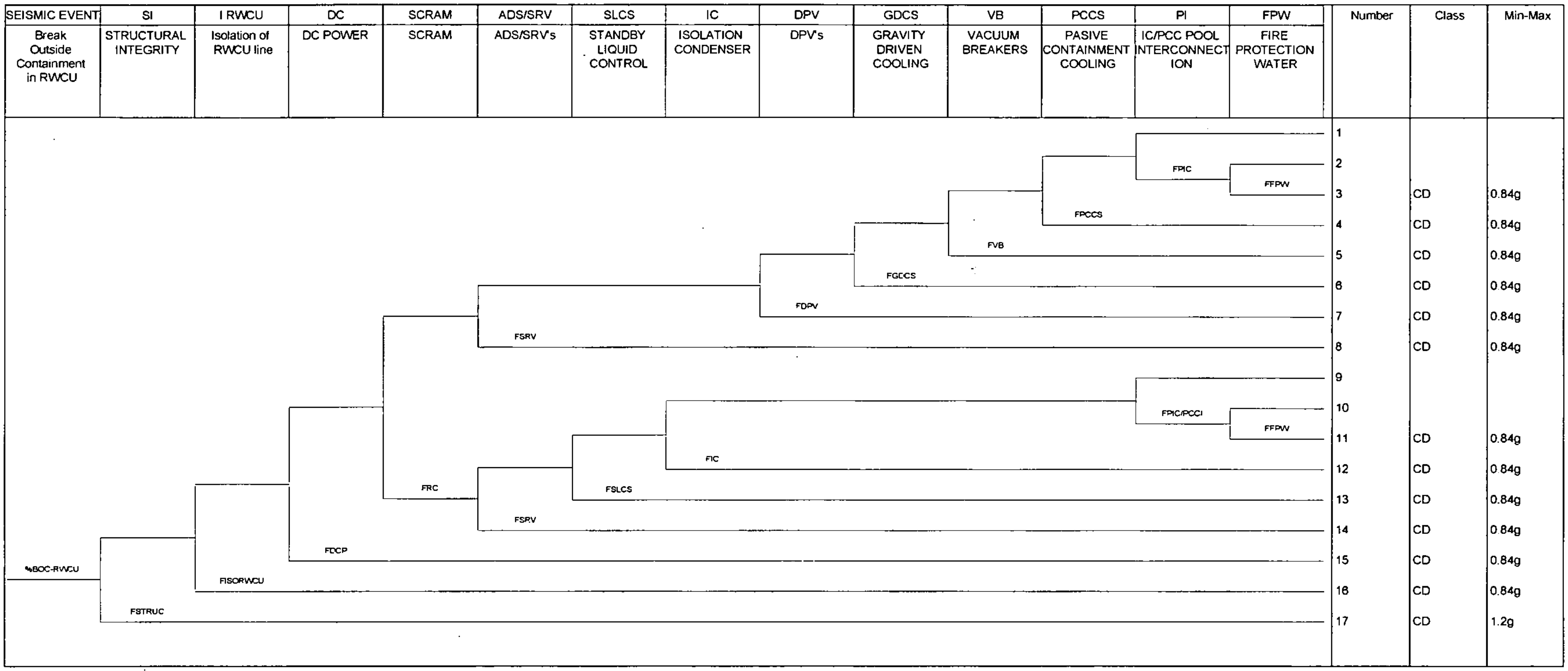

Figure 15-3b. Seismic Induced Break Outside Containment in RWCU Line (Full Power)

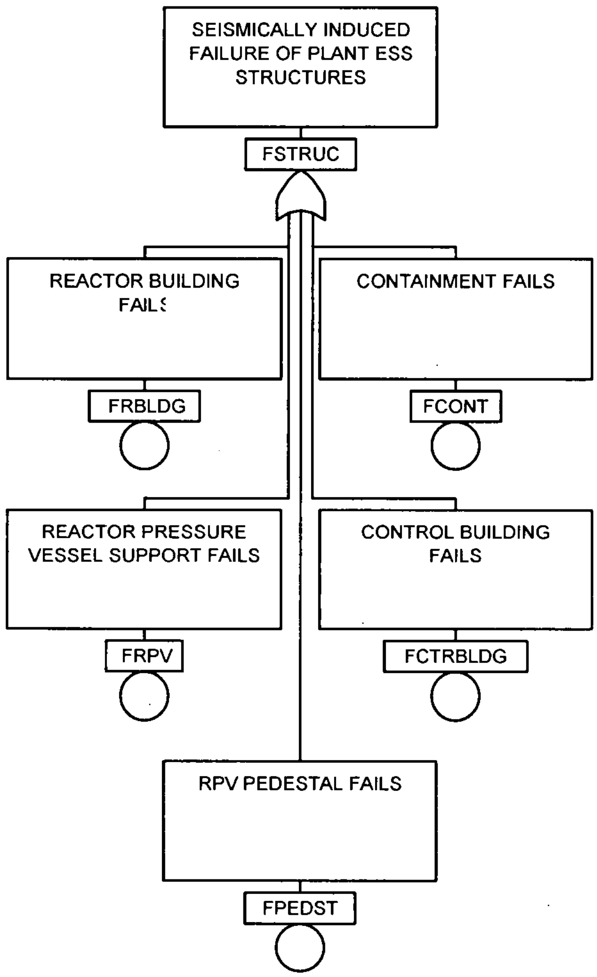

Figure 15-4. Structural Seismic Fault Tree (Full Power)

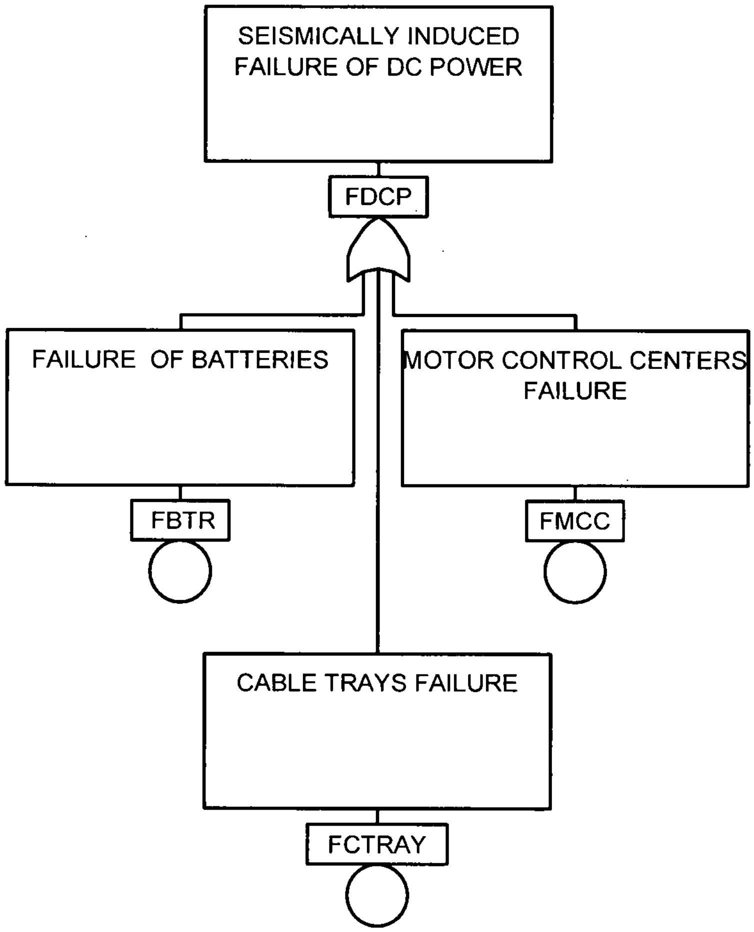

Figure 15-5. DC Power Seismic Fault Tree

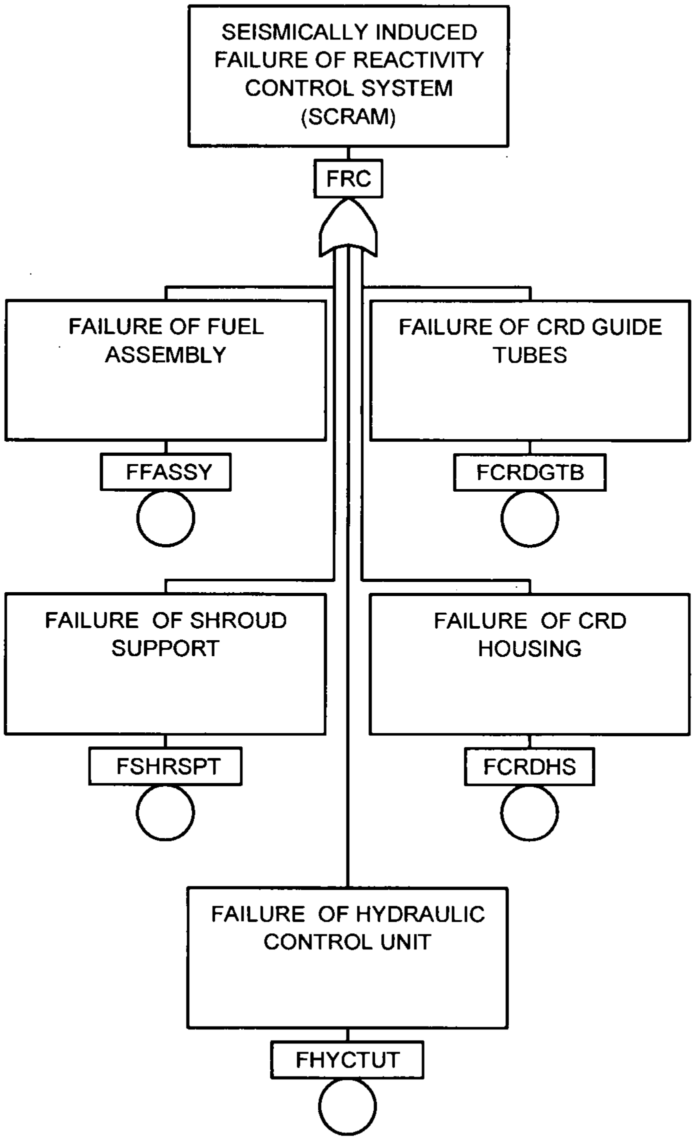

Figure 15-6. SCRAM Seismic Fault Tree

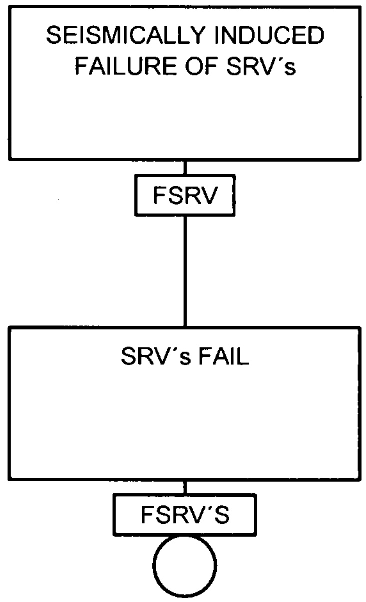

Figure 15-7. SRV Seismic Fault Tree

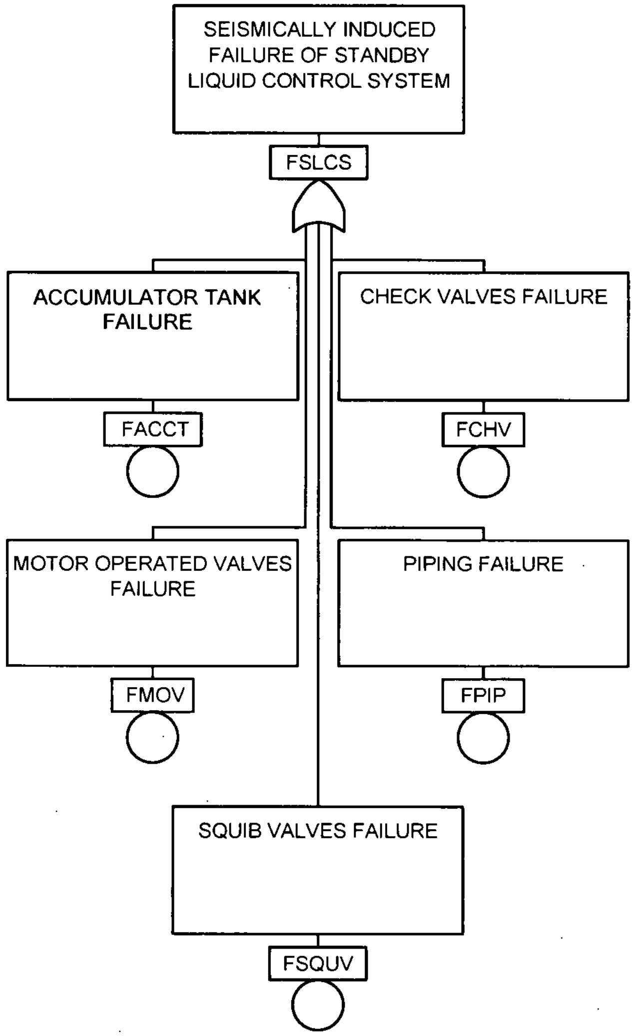

Figure 15-8. SLCS Seismic Fault Tree

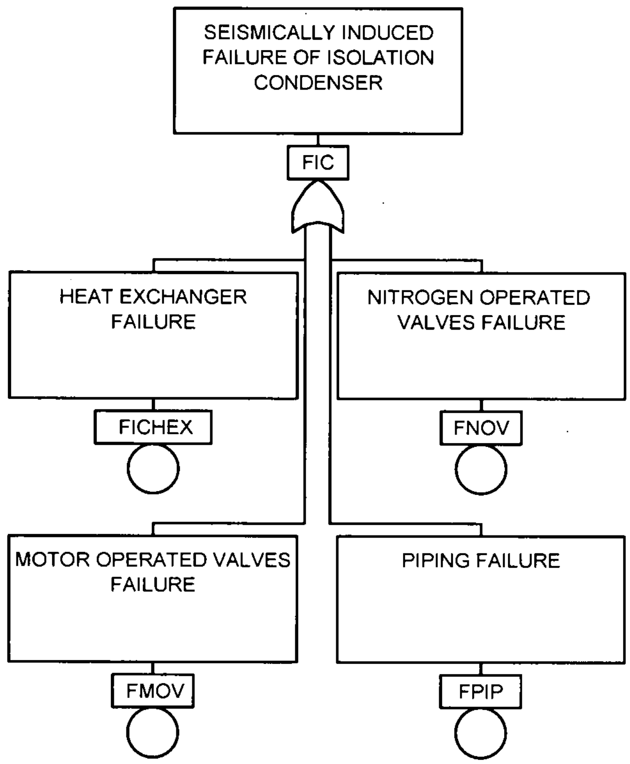

Figure 15-9. IC Seismic Fault Tree

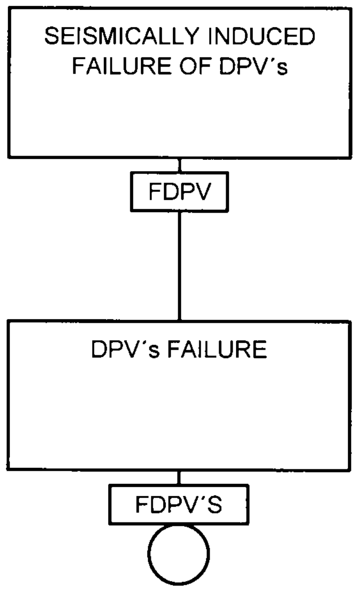

Figure 15-10. DPV Seismic Fault Tree

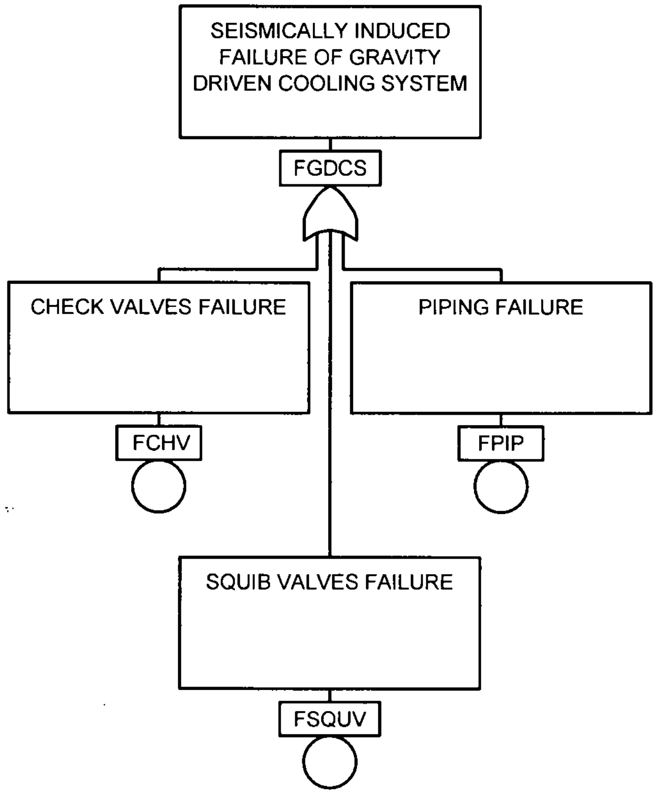

Figure 15-11. GDCS Seismic Fault Tree

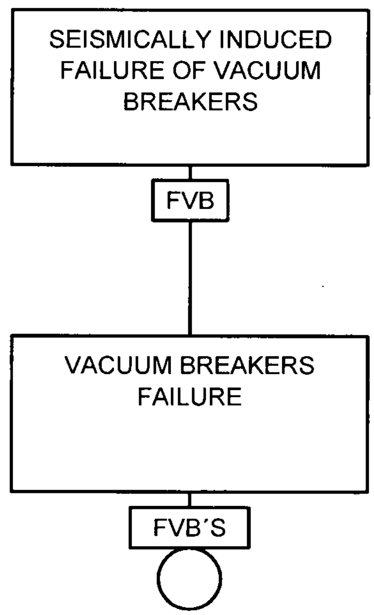

Figure 15-12. VC Seismic Fault Tree

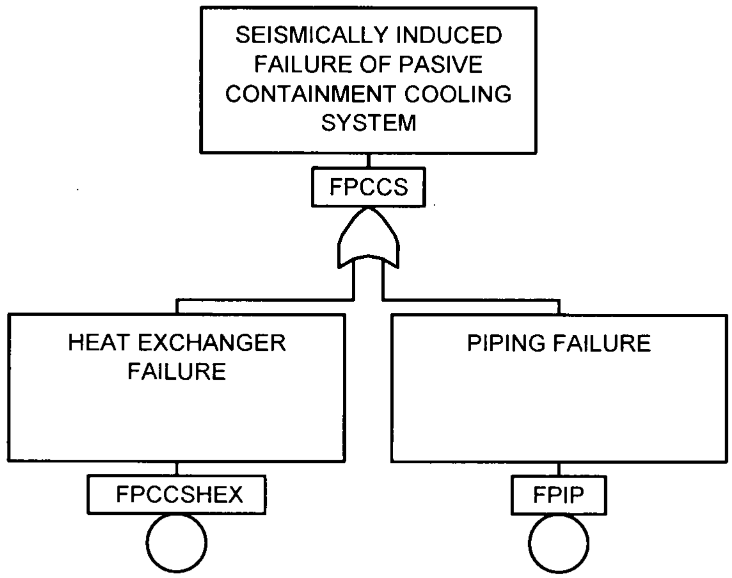

Figure 15-13. PCCS Seismic Fault Tree

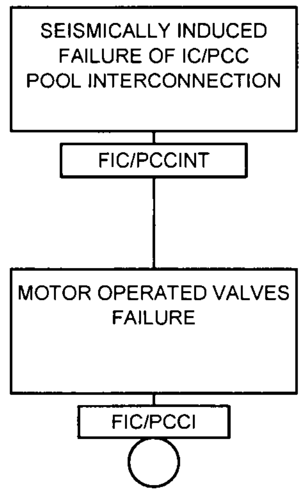

Figure 15-14. PI Seismic Fault Tree

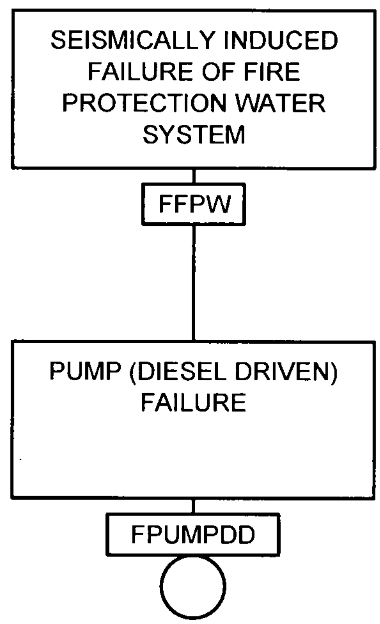

Figure 15-15. FPW Seismic Fault Tree

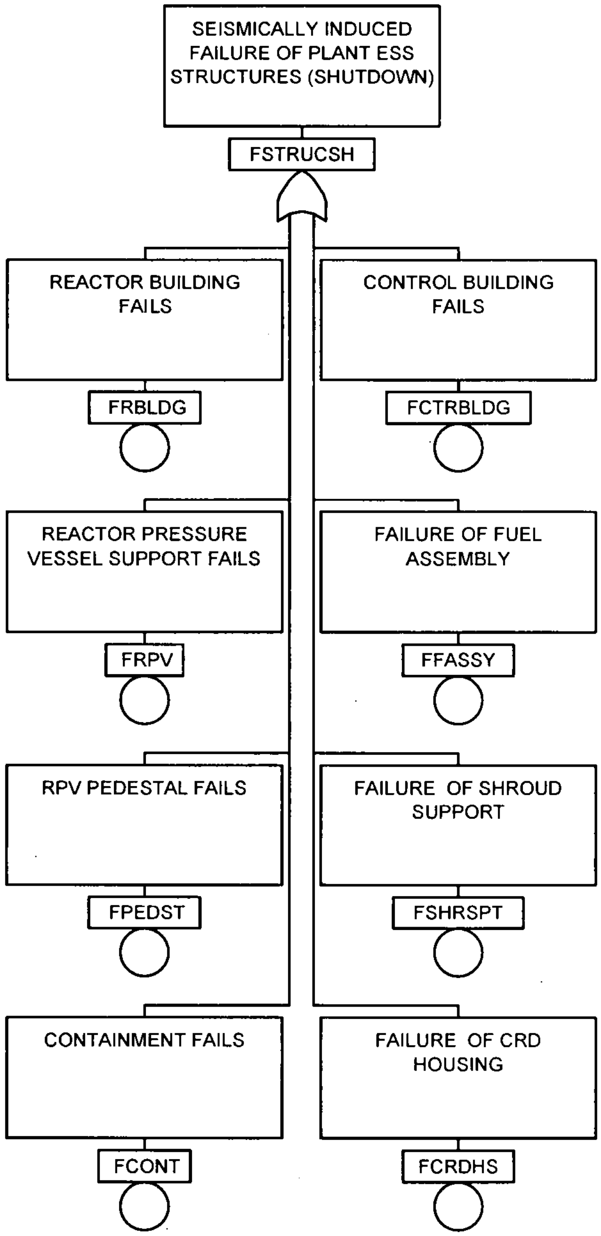

Figure 15-16. Structural Seismic Fault Tree (Shutdown Conditions)

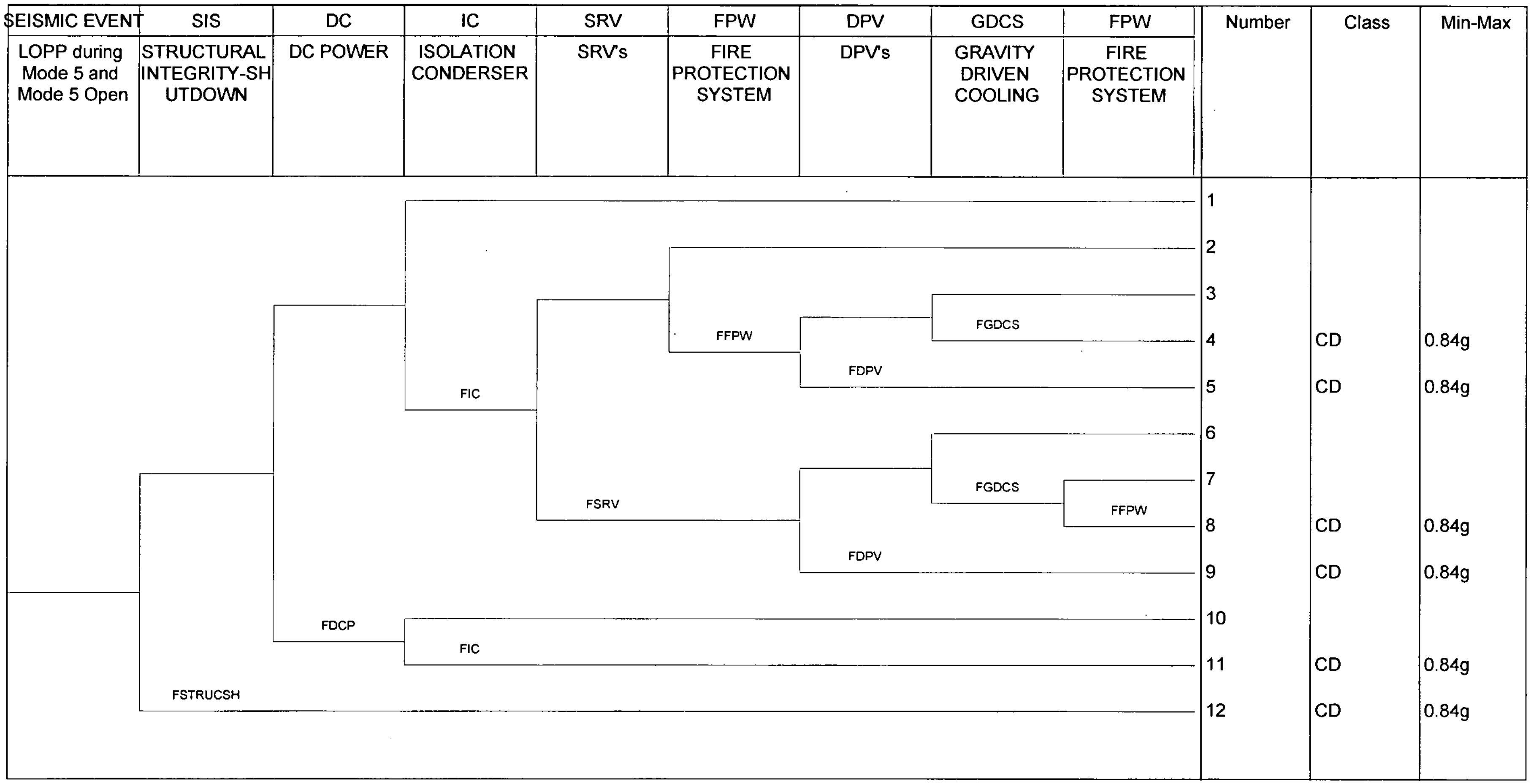

Figure 15-17a. Seismic Event Tree – Shutdown Mode 5 and Mode 5 Open

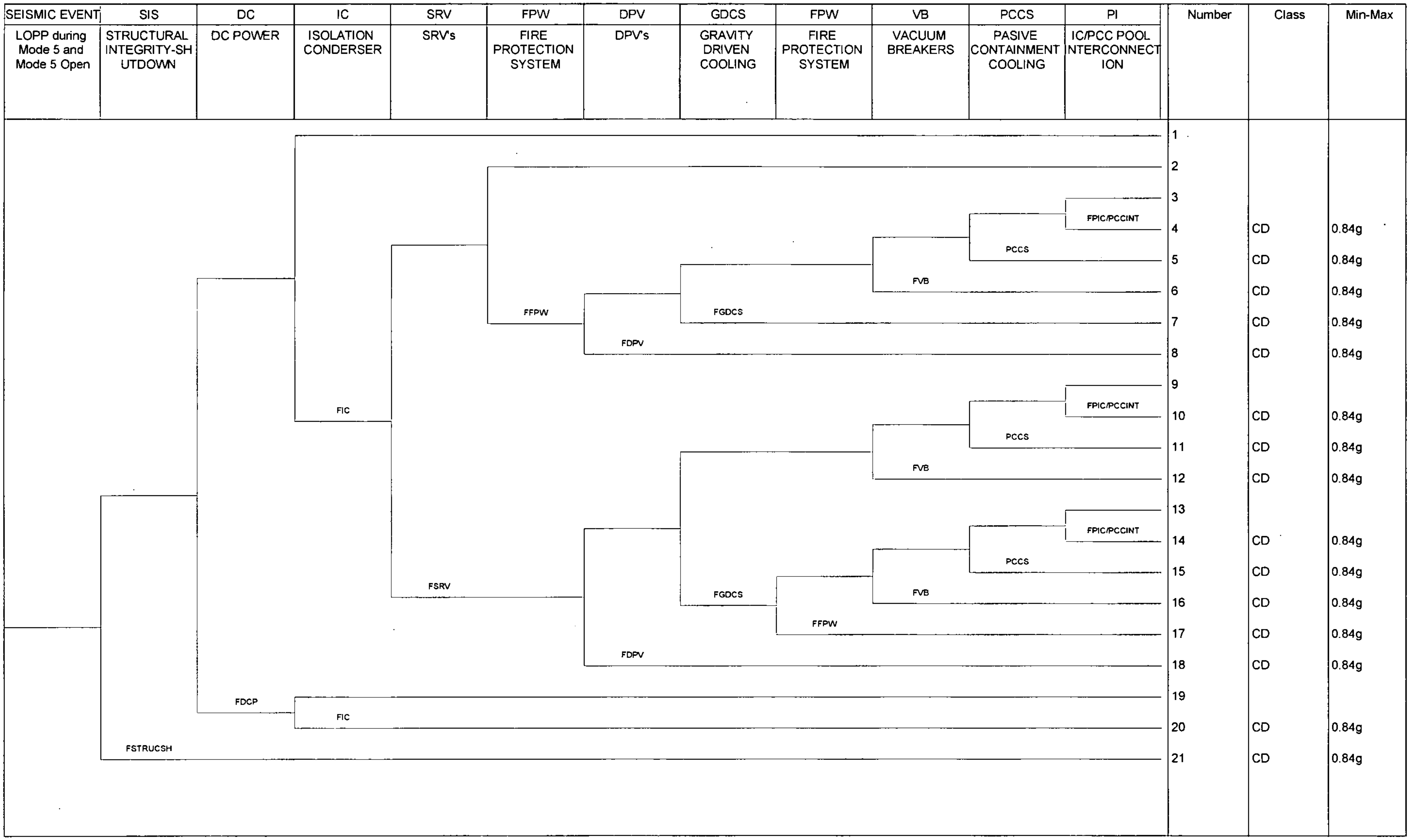

Figure 15-17b. Seismic Event Tree – Shutdown Mode 5 and Mode 5 Open (Sensitivity)

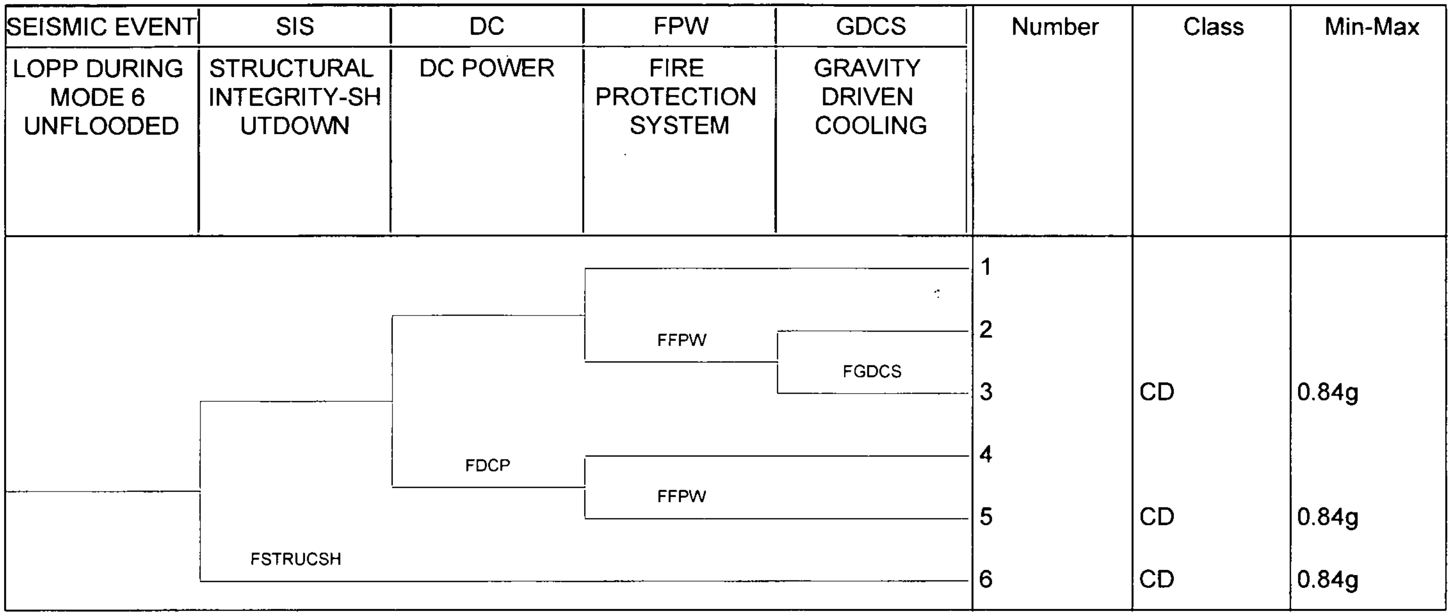

Figure 15-18. Seismic Event Tree – Shutdown Mode 6 Unflooded

SEISMIC EVENT	SIS	Number	Class	Min-Max
LOPP DURING MODE 6 FLOODED	STRUCTURAL INTEGRITY-SHUTDOWN			
		1		
	FSTRUCSH	2	CD	0.84g

Figure 15-19. Seismic Event Tree – Shutdown Mode 6 Flooded

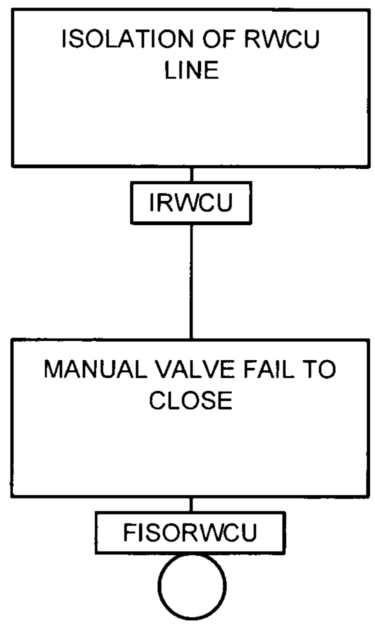

Figure 15-20. BOC In RWCU Line Fault Tree

Attachment 2 to Enclosure 1 of MFN 07-237, Supplement 2

NEDO-33201, Revision 2

Change List:

Section	**– 13**	**Probabilistic Flood Analysis**
Section	**– 14**	**High wind Risk**
Section	**– 15**	**Seismic Margins Analysis**

NEDO 33201 Revision 2 Section 13 Change List

Item	Location	Description of Change
1.	S13.1	Updated introduction section to include containment releases and reason for excluding spray
2.	S13.2 1st para.	Revised to incorporate change in methodology
3.	S13.2 2nd para.	Revised to incorporate additional structures considered
4.	S13.2 4th, 5th, 6th para.	Added to incorporate change in methodology.
5.	S13.2 7th para.	Revised to incorporate additional equipment included in the analysis
6.	S13.2 9th para.	Revised to make the assumptions consistent with the analysis. RAI 19.1-108 deleted assumption that floods caused by breaks in several support systems are not included. These systems have been considered in Revision 2. RAI 19.1-137 Deleted assumption 32 which excluded interaction of fire protection system with RCCW system in shutdown flooding PRA.
7.	S13.2 10th, 11th para.	Revised to incorporate change in methodology. RAI 19.1-136 discusses exception to all equipment in flood zone being failed. This is the containment where the equipment remaining is typically 60 feet above the bottom of containment.
8.	S13.3	Revised to incorporate change in methodology, additional systems considered in at power and shutdown flooding. RAI 19.1-104 Section 13.3 includes list of flooding sources for at-power and shutdown.
9.	S13.4	Revised to incorporate change in methodology
10.	S13.4.1	Revised to incorporate change in methodology
11.	S13.4.2	Revised to incorporate change in methodology
12.	S13.5 1st para.	Changed “outage” to “shutdown” throughout document
13.	S13.5 2nd, 3rd, 4th, 5th para.	Revised to incorporate change in methodology. RAI 19.1-111 discusses a recovery factor of 0.01 applied to circulating water failures in the turbine building to account for automatic closure of isolation valves and automatic circulating water pump trip.
14.	S13.5.1	Revised to incorporate change in methodology
15.	S13.5.2	Revised to incorporate change in methodology
16.	S13.5.3	Deleted text as it is no longer pertinent with change in methodology
17.	S13.5.4	Deleted text as it is no longer pertinent with change in methodology
18.	S13.5.5	Deleted text as it is no longer pertinent with change in methodology

NEDO 33201 Revision 2 Section 13 Change List

Item	Location	Description of Change
19.	S13.5.6	Deleted text as it is no longer pertinent with change in methodology
20.	S13.5.7	Deleted text as it is no longer pertinent with change in methodology
21.	S13.6	Updated results section with new results and several sensitivity analyses.
22.	S13.7	Updated insights based on revised results. RAI 19.1-112 provided insights available at this time.
23.	S13.8	Updated conclusions section including comparison of results to NRC goals for PRA.
24.	S13.9	Revised references section to incorporate change in references. RAI 19.1-102 NEDE-33386 provides plant layout drawings, list of equipment credited in the PRA and specifies whether or not equipment is safety related
25.	Tables (all)	All Tables updated based on extensive revision to model. RAI 19.1-103 Table 13-1 lists flooding sources which were screened and basis for screening. RAI 19.1-104 Table 13-2 provides list of frequencies used and reference. RAI 19.1-103 Table 13-10 provides screening for the flooding zones.
26.	Figures (all)	All Figures were deleted as they are no longer applicable for the revised methodology.

NEDO 33201 Revision 2 Section 14 Change List

Item	Location	Description of Change
1.	S14.1	Updated introduction section to include hurricanes and release frequencies.
2.	S14.2	Updated to address new methodology.
3.	S14.4.1	Updated calculation to new methodology.
4.	S14.4.2	Added calculation for hurricane initiating event frequencies.
5.	S14.5.1	Updated section to include wind fragility of structures.
6.	S14.5.2	Updated to include Mode 5 Open, hurricanes and an explanation of treatment of Mode 6 flooded.
7.	S14.6	Updated results section with new results and included results of release categories.
8.	S14.7	Updated insights section based on revised results.
9.	S14.8	Updated conclusions section with new CDF number.
10.	S14.9	Updated references section to remove unused references and add new references.
11.	Tables (all)	All Tables updated based on extensive revision to model. Table 14-7 (release category frequencies) was added.

ESBWR Certification

Probabilistic Risk Assessment

Section 15 Changes From Revision 1 to Revision 2

	Location	Description of Change
1.	S15.1	Editorial changes. Changed two times SSE to 1.67 times SSE for seismic margin.
2.	S15.2	Editorial changes.
3.	S15.3.1	Editorial changes. Changed to single design envelope spectra and SSE to 0.5g instead of 0.3g.
4.	S15.3.2	Editorial changes.
5.	S15.3.3	Editorial changes.
6.	S15.3.4	Editorial changes. Proposed minimum component fragility 1.67*SSE.
7.	S15.3.5	Editorial changes.
8.	S15.4	Editorial changes.
9.	S15.4, 1st para	Added reference to new Figures 15.3a and Figure 15-3b
10.	S15.4.1.1, 1st and 3rd para	Added reference to new Figures 15.3a and Figure 15-3b
11.	S15.4.1.2, 4th para	Editorial changes.
12.	S15.4.1.2, 7th para	Editorial changes.
13.	S15.4.1.2, 13th and 14th para	Added discussion on LOCA events in Figure 15-3b and Figure 15-17a
14.	S15.4.2	Editorial changes.
15.	S15.4.2.1, Mode 5	Updated discussion on Mode 5 to include Mode 5 Open
16.	S15.5	Added reference to new Figures 15.3a, Figure 15-3b, and Figure 15-17a
17.	S15.8	Updated references
18.	T15-1	Updated HCLPF values
19.	T15-2	Updated HCLPF values
20.	T15-3	Updated HCLPF values

	Location	Description of Change
21.	T15-4	Updated HCLPF values
22.	T15-5	Updated HCLPF values
23.	T15-6	Updated HCLPF values
24.	T15-7	Added I RWCU to table, updated HCLPF values
25.	T15-8	Updated Nodal HCLPF values
26.	T15-9	Updated HCLPF values
27.	T15-10a	Added new table to show HCLPF Derivation
28.	T15-10b	Changed title and content of table to link to Figure 15-17b. Updated HCLPF values
29.	F15-2	New figure. Incorporating single envelop design spectrum.
30.	F15-3a	Edited figure for Seismic Event Tree at full power
31.	F15-3b	Added new figure for Seismic Induced Break Outside Containment in RWCU Line at full power
32.	F15-17a	Edited event tree for Shutdown Mode 5 and Mode 5 Open
33.	F15-17b	Added new event tree for Shutdown Mode 5 and Mode 5 Open (Sensitivity)
34.	F15-18	Edited event tree for Shutdown Mode 6 Unflooded
35.	F15-19	Edited event tree for Shutdown Mode 6 Flooded
36.	F15-20	New figure. BOC in RWCU line fault tree (isolation failure)