



# **U.S. NRC Level 3 Probabilistic Risk Assessment (PRA) Project**

**Volume 3a: Reactor, At-Power, Level 1  
PRA for Internal Events**

**Part 2 – Appendices**

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## Appendix A: Basic Event Data

Appendix A provides three tables with basic event data used in the NRC's Level 3 Probabilistic Risk Assessment (L3PRA) project. [Table A-1](#) provides the data for the template events discussed in Section 7.2. [Table A-2](#) provides the data for the alpha factors discussed in Section 7.3. The basic event probability data is in [Table A-3](#) and is either stored or calculated. The stored probabilities are from multiple sources. For stored probabilities, [Table A-3](#) provides the basic event name, description, probability, and uncertainty distribution type and parameter. The calculated probabilities are calculated from input data using built in SAPHIRE reliability equations (e.g., a pump fail to run probability automatically calculated from a failure rate and a mission time), or a complex calculation using a plug-in software module (e.g., a CCF probability calculated using the alpha factor method). For calculated probabilities, [Table A-3](#) provides the basic event name, description, calculation input data, and calculated probability result. Note, in Tables A-1, A-2, and A-3, the correlation class enforces the state-of-knowledge correlation. Typically, the calculated rates, probabilities, and frequencies provided in these tables are mean values. When propagating uncertainty information through the model, SAPHIRE requires each Monte Carlo or Latin Hypercube sample to use the same value for all basic events with the same correlation code, thus enforcing the state-of-knowledge correlation.

The main data sources for the basic event probabilities used in the L3PRA project Level 1 model for internal events are:

- **The 2010 Update to the Parameter Estimation Component Reliability Data Sheets.** The 2010 update is the latest published update to the industry-average component performance data first published in [NUREG/CR-6928](#), "Industry-Average performance for Components and Initiating Events at U.S. Commercial Nuclear Power Plants." The latest update is publicly available on the NRC's [NRC Operational Experience Website](#). This is the preferred source of industry-average data, and template events are provided for all estimates published on the web site that are used in the L3PRA project Level 1 model. The 2010 update parameter estimates were computed with the [Reliability and Availability Data System \(RADS\)](#), which in turn relies heavily on data contained in the Institute of Nuclear Power Operations (INPO) Consolidated Events System (ICES).
- **Reference Plant Templates.** Reliability data for some components reported to the INPO ICES system by the Reference Plant were used to produce plant-specific parameter estimates for these components. RADS was used to make the plant-specific computations using a Bayesian update of appropriate 2010 parameter estimates. RADS rules for these computations are provided on the RADS web site and allow individuals with authorization to view INPO proprietary data to review the calculation inputs and results. The Bayesian update procedure used to produce the plant-specific estimates relies on the fact that the published 2010 estimates are given in terms of beta and gamma distributions. These prior distributions are conjugate to beta and gamma posterior distributions and the update procedure can therefore be documented by referencing the 2010 Update parameter used as a prior, and providing the plant specific failure counts and exposure (either demands or operating hours) used in the update. The date range for the update was 1998 through 2012.
- **Reference Plant CAFTA Type Code (TC) Data.** For components failure probabilities based directly on information from the Reference Plant CAFTA model, an attempt was made to duplicate the calculations performed by CAFTA. CAFTA manages basic event probabilities in a manner similar to SAPHIRE. Probabilities used for more than one event in

the model are typically computed using CAFTA input Type Codes. The CAFTA Type Code system is analogous to the SAPHIRE template system, but the syntax and conventions are very different. To reproduce the CAFTA basic event probabilities complete with uncertainty distribution information, and to enable referencing the SAPHIRE event data back to the CAFTA model, basic events were created to represent specific Type Code table entries, and SAPHIRE compound event equations were used to combine the Type Code parameters into equations as done by CAFTA.

## Basic Event Codes and Naming Scheme

The basic event identifier format used in the L3PRA project Level 1 model consists of a character string as follows:

U-SYS-CMP-FM-NAME

- U            Unit Number
- SYS        System Identification Code
- CMP        Equipment/Component Type
- FM         Failure Mode
- NAME      Equipment/Component Number or Name

### System Identification Codes

Code	Description
ACP	AC Power
AFW	Auxiliary Feedwater System
ACC	Accumulators
CCW	Component Cooling Water System
CDS	Condensate System
CSS	Containment Spray System
ECW/NCW	Essential Chilled Water/Normal Chilled Water Systems
DCP	DC Power
EPS	Emergency Power System
CCS	Containment Cooling System (Fans)
MFW	Main Feedwater System
HPI	High-Pressure Injection
IAS	Instrument Air System
RHR/LPI	Residual Heat Removal System/Low-Pressure Injection
MSS	Main Steam System
RCS	Reactor Coolant System
RHR	Residual Heat Removal System (Normal Operation)
RPS	Reactor Protection System
ESF	Engineered Safety Features Actuation System (ESFAS)
SIS	Safety Injection System
SWS/NSW	Nuclear Service Cooling Water System



### System Identification Codes

Code	Description
CVC	Chemical and Volume Control System

### Mechanical Component Identification Codes

Code	Description
TNK	Accumulator
BLR	Blower
CRD	Control Drive Rod Unit
MDC	Compressor
CPE	Cover Plate
PND	Damper
DGN	Diesel Generator
EXJ	Expansion Joint
FLE	Flow Element
FLT	Filter or Strainer
FAN	Fan
GBT	Glass Bottle
GSK	Gasket
GVN	Governor
HTX	Heat Exchanger
NZL	Nozzle
ORC	Orifice
PSF	Pipe
PPC	Pipe Cap
EDP	Diesel Driven Pump
PVL	Pressure Vessel
MDP	Motor Driven Pump
TDP	Turbine Driven Pump
RCR	Reactor Control Rod
ACU	Refrigeration Unit / Air Cooler
RDK	Rupture Disk
SEL	Seal
SLG	Sluice Gate
SMP	Sump
TNK	Tank
TUB	Tubing
TUR	Turbine
VBR	Vacuum Breaker
CKV	Valve, Check
EPV	Valve, Explosive Operated

### Mechanical Component Identification Codes

Code	Description
HDV	Valve, Hydraulic Operated
AOV	Valve, Air (Pneumatic) Operated
XVM	Valve, Manual
MOV	Valve, Motor Operated
RHV	Valve, Relief (Pneumatic or Hydraulic Operated)
RSV	Valve, Relief (Solenoid Operated)
RMV	Valve, Relief (Mechanical Operated)
SOV	Valve, Solenoid Operated
SCV	Valve, Stop Check
VRV	Valve, Vacuum Relief
VNT	Vent
WEL	Well

### Electrical Component Identification Codes

Code	Description
AMP	Amplifier
ANN	Annunciator
AXS	Auxiliary Switch
BAT	Battery
BCH	Battery Charger
BAC/BDC	Bus (AC/DC)
CBL	Cable
CAP	Capacitor
CRB	Circuit Breaker
CLH	Clutch
CNT	Contacts
CSW	Control Switch
COI	Coil
DET	Detector
DCP	DC Power Supply
DER	Diode or Rectifier
DPL	Distribution Panel
FSW	Flow Switch
FUS	Fuse
GEN	Generator
GSW	Ground Switch
HTR	Heating Element
THE	Heat Tracing Heating Element
IMD	Input Module

### Electrical Component Identification Codes

Code	Description
INV	Inverter
ASL/LSW	Level Switch
LTB	Light Bulb
LAR	Lighting Arrester
LMS	Limit Switch
LOR	Lockout Relay or Switch
XSW	Manual Switch (Pushbutton)
XSR	Manual Switch (Rotary)
MOT	Motor
MOS	Motor Starter
NDT	Neutron Detector
PTR	Potentiometer
PIM	Power Interface Module
REC	Recorder
RLY	Relay
RLL	Relay (Latching Type)
RLC	Relay or Switch Contact
RES	Reset Switch
RTD	Resistor, Temperature Device
SGC	signal Comparator
SWP	Switch, Pressure
SWQ	Switch, Torque
SWT	Switch, Temperature
TMB	Terminal Board
SWB	Test Pushbutton Switch
TOE	Thermal Overload Element
TIM	Timer
TFC	Transformer, Current
TFP	Transformer, Potential
TFW	Transformer, Power
TFF	Transmitter, Flow
TFL	Transmitter, Level
TFP	Transmitter, Pressure
TFD	Transmitter, Differential Pressure
TFT	Transmitter, Temperature
WIR	Wire
PRU	Protective Relay, Under-voltage
PRO	Protective Relay, Overcurrent
PRF	Protective Relay, Under-frequency
RTE	RTD Temperature Element

### Electrical Component Identification Codes

Code	Description
RMR	Radiation Monitor
SSD	Solid State Device

### Failure Mode Identification Code

Code	Failure Mode
FS	Does Not Start
OP	Open Circuit
CD	Closed
CC	Does not Open
XT	Mis-positioned after Test
FC	Loss of Function (Does not Operate/Start/Run)
XR	Mis-positioned after Maintenance
XE	Erroneous Human Actions
IF	Interference
DD	Degraded
OO	Does not Close
LK	Leakage
MA	Maintenance
NI	No Input
OP	Open
PG	Plugged
SC	Short Circuit
RP	Rupture
SG	Short to Ground
TE	Test
CO	Spurious Opening
OC	Spurious Closing
MC	Calibration
FR	Does not Run
FL	Does not Load

**Table A-1 L3PRA Project Level 1 Model Template Basic Events**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Probability
				Type	Parameter		
ZT-1-ESFAL	Switch - level fails to operate	9.7E-8	24				2.3E-6
ZT-ACX-TM	Air handling unit test or maintenance			Beta	2.0E+2	ACX-TM	2.5E-3
ZT-AOV-CC	Air operated valve fails to open			Beta	3.4E+3	AOV-CC	6.3E-4
ZT-AOV-ELL	Air-operated valve external leakage (rupture)	3.9E-9	24	Gamma	3.0E-1	AOV-ELL	9.3E-8
ZT-AOV-OC	Air operated valve transfers positions	4.3E-8	24	Gamma	6.8E-1	AOV-OC	1.0E-6
ZT-AOV-OO	Air operated valve fails to close			Beta	3.4E+3	AOV-OO	6.3E-4
ZT-AOV-PG	Air operated valve plugs	3.0E-8	24	Log Normal	1.0E+1	AOV-PG	7.2E-7
ZT-BAC-LP	AC bus fails to operate	2.0E-6	24	Gamma	3.7E+0	BAC-LP	4.8E-5
ZT-BAC-TM	AC bus test or maintenance			Beta	2.3E+3	BAC-TM	2.1E-4
ZT-BAT-LP	Battery fails to operate	5.9E-7	24	Gamma	2.9E+0	BAT-LP	1.4E-5
ZT-BAT-TM	Battery test or maintenance			Log Normal	5.3E+1	BAT-TM	2.7E-3
ZT-BCH-FC	Battery charger fails to operate	2.7E-6	24	Gamma	1.3E+0	BCH-FC	6.5E-5
ZT-BCH-TM	Battery charger test or maintenance			Beta	2.5E+2	BCH-TM	2.0E-3
ZT-BDC-LP	DC bus fails to operate	2.4E-7	24	Gamma	1.5E+0	BDC-LP	5.6E-6
ZT-BIS-FC	Bistable/Comparator fails on demand			Beta	1.7E+6	BIS-FC	5.4E-4
ZT-CCW-MDP-FR	CCW motor-driven pump FTR (hr-1)	3.2E-6	24	Gamma	3.3E+0	CCW-MDP-FTR	7.6E-5
ZT-CCW-MDP-FS	CCW motor-driven pump FTS			Beta	4.7E+3	CCW-MDP-FTS	4.8E-4
ZT-CKV-CC	Check valve fails to open fails to open			Beta	4.7E+4	CKV-CC	1.1E-5
ZT-CKV-ILL	Check valve internal leakage (large)	6.2E-9	24	Gamma	3.0E-1	CKV-ILL	1.5E-7
ZT-CKV-ILL-COMB(HPI)	Combined CKV internal leakage	3.6E-9	8760	Gamma	9.6E-1	CKV-ILL-COMB(HPI)	3.2E-5
ZT-CKV-ILL-COMB(RHR)	Combined CKV internal leakage	3.3E-9	8760	Gamma	8.1E-1	CKV-ILL-COMB(RHR)	2.9E-5
ZT-CKV-ILL-COMB-CON(HPI)	Combined CKV internal leakage - conditional probability			Beta	7.0E+2	CKV-ILL-COMB-CON(HPI)	4.9E-4
ZT-CKV-ILL-COMB-CON(RHR)	Combined CKV internal leakage - conditional probability			Beta	1.1E+2	CKV-ILL-COMB-CON(RHR)	8.9E-3
ZT-CKV-OC	Check valve fails to remain open	5.3E-9	24	Gamma	5.5E+0	CKV-OC	1.3E-7
ZT-CKV-OO	Check valve fails to close			Beta	3.4E+3	CKV-OO	2.4E-4
ZT-CNT-CC	Contacts fail to open on demand			Beta	8.1E+8	CNT-OO	2.5E-5
ZT-CNT-CO	Contacts spuriously open	8.1E-8	24	Log Normal	1.0E+1	CNT-CO	1.9E-6
ZT-CNT-OO	Contacts fail to close on demand			Beta	8.1E+8	CNT-OO	2.5E-5

**Table A-1 L3PRA Project Level 1 Model Template Basic Events**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Probability
				Type	Parameter		
ZT-CRB-CC	Circuit breaker fails to open			Beta	9.2E+2	CRB-CC	5.3E-3
ZT-CRB-CO	Circuit breaker transfers open	2.2E-7	24	Gamma	2.2E+0	CRB-CO	5.4E-6
ZT-CRB-OO	Circuit breaker fails to close			Beta	9.2E+2	CRB-OO	5.3E-3
ZT-CTF-FR	Cooling tower fan FTR	2.3E-6	24	Gamma	2.5E+0	CTF-FR	5.5E-5
ZT-CTF-FS	Cooling tower fan FTS			Beta	1.9E+3	CTF-FS	7.7E-4
ZT-DCP-PWR-FC	LOOP power supply fails	6.6E-6	24	Log Normal	1.1E+1	DCP-PWR-FC	1.6E-4
ZT-DER-FC	Diode fails	7.4E-9	24	Log Normal	9.9E+0	DER-FC	1.8E-7
ZT-DGN-FR-E	Diesel generator fails to load and run	2.6E-3	1	Beta	1.4E+3	DGN-FR-E	2.6E-3
ZT-DGN-FR-L	Diesel generator FTR	1.3E-3	23	Gamma	6.6E+0	DGN-FR-L	3.0E-2
ZT-DGN-FS	Diesel generator FTS			Beta	3.8E+3	DGN-FS	2.9E-3
ZT-DGN-TM	Diesel generator test and maintenance			Normal	5.4E-3	DGN-TM	1.3E-2
ZT-DPL-FC(ACP)	AC power distribution panel fails to function	7.5E-7	24	Beta	3.8E+3	DPL-FC(ACP)	1.8E-5
ZT-DPL-MA(ACP)	AC power distribution panel is in maintenance			Log Normal	1.0E+1	DPL-MA(ACP)	2.1E-7
ZT-FAN-FR-NR	HVAC fan FTR	5.9E-6	24	Gamma	5.3E-1	FAN-FR-NR	1.4E-4
ZT-FAN-FS	HVAC fan FTS			Beta	4.1E+4	FAN-FS	8.4E-4
ZT-FAN-FS-NR	HVAC fan FTS			Beta	6.0E+4	FAN-NR-FTS	7.1E-4
ZT-FAN-TM	Fan test or maintenance			Beta	2.5E+2	FAN-TM	2.0E-3
ZT-FLT-PG	Filter plugging	3.1E-7	24	Gamma	3.5E+0	FLT-PG	7.4E-6
ZT-FOT-MDP-FR	Fuel oil transfer pump FTR	5.4E-6	24	Gamma	5.0E-1	FOT-MDP-FR	1.3E-4
ZT-FUS-OP	Fuse opens prematurely	3.1E-6	24	Log Normal	1.1E+1	FUS-OP	7.5E-5
ZT-HOV-CC	Hydraulic operated valve fails to open			Beta	2.1E+4	HOV-FTO	1.2E-3
ZT-HOV-OO	Hydraulic operated valve fails to close			Beta	2.1E+4	HOV-FTC	1.2E-3
ZT-HTX-CCW-PG	Heat exchanger plugging non standby	5.1E-7	24	Gamma	1.6E+1	HTX-CCW-PG	1.2E-5
ZT-HTX-PG	Heat exchanger plugging (pooled)	1.1E-7	24	Gamma	5.3E-1	HTX-PG	2.6E-6
ZT-IE-LLOCA-P	Large LOCA (PWRs)			Gamma	3.0E-1	LLOCA-P	2.5E-6
ZT-IE-MLOCA-P	Medium LOCA (PWRs)			Gamma	3.0E-1	MLOCA-P	1.5E-4
ZT-INV-FO	Inverter fails to operate	8.9E-6	24	Gamma	5.2E+0	INV-FTOP	2.1E-4
ZT-INV-MA	Inverter in maintenance			Log Normal	1.0E+1	INV-MA	8.8E-4
ZT-MDC-FR-NR	Motor driven compressor FTR	8.5E-5	24	Gamma	2.0E+0	MDC-FR-NR	2.0E-3

**Table A-1 L3PRA Project Level 1 Model Template Basic Events**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Probability
				Type	Parameter		
ZT-MDC-FS	Motor driven compressor FTS			Beta	3.4E+1	MDC-FS	1.7E-2
ZT-MDC-TM	Motor-driven compressor test or maintenance			Beta	4.1E+1	MDC-TM	1.2E-2
ZT-MDP-FR-E	Motor driven pump FTR			Beta	2.0E+4	MDP-FR-E	1.4E-4
ZT-MDP-FR-L	Standby motor driven pump FTR	2.5E-6	23	Gamma	1.8E+0	MDP-FR-L	5.8E-5
ZT-MDP-FR-NR	Motor driven pump FTR	3.7E-6	24	Gamma	5.3E+0	MDP-FR-NR	8.9E-5
ZT-MDP-FS-NS	Motor driven pump FTS			Beta	1.3E+4	MDP-FS-NS	1.0E-3
ZT-MDP-SWS-FR	Service water MDP FTR	1.6E-6	24	Gamma	1.3E+0	MDP-SWS-FTR	3.8E-5
ZT-MDP-SWS-FS	Service water MDP FTS			Beta	4.6E+3	MDP-SWS-FTS	1.5E-3
ZT-MDP-TM(ALL)	Motor driven pump test and maintenance (all)			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
ZT-MDP-TM(CCW)	Motor driven pump test and maintenance (CCW)			Normal	5.2E-3	MDP-TM(CCW)	6.9E-3
ZT-MDP-TM(CSR)	Motor driven pump test and maintenance (CSR)			Beta	1.6E+2	MDP-TM(CSR)	7.1E-3
ZT-MOV-CC	MOV fails to open			Beta	5.4E+4	MOV-CC	3.5E-4
ZT-MOV-CO	MOV fails open	2.9E-8	24	Gamma	1.6E+0	MOV-CO	7.0E-7
ZT-MOV-ILL	MOV internal leakage (large)	2.3E-9	24	Gamma	8.3E-1	MOV-ILL	5.6E-8
ZT-MOV-ILL-COMB	Combined MOV internal leakage	2.4E-9	8760	Gamma	8.3E-1	MOV-ILL-COMB	2.1E-5
ZT-MOV-ILL-COMB-CON	Combined MOV internal leakage - conditional probability			Beta	6.1E+2	MOV-ILL-COMB-COND	1.7E-3
ZT-MOV-OC	MOV fails to remain open	2.9E-8	24	Gamma	1.6E+0	MOV-OC	7.0E-7
ZT-MOV-OO	MOV fails to close			Beta	5.4E+4	MOV-OO	3.5E-4
ZT-MOV-PG	MOV plugging	5.0E-9	24	Log Normal	1.0E+1	MOV-PG	1.2E-7
ZT-MSS-PRV-CC	Main steam power operated relief/Dump valve fails to open			Beta	3.8E+2	MSS-PRV-CC	5.6E-3
ZT-MSS-PRV-OO	Main steam power operated relief/Dump valve fails to close			Beta	8.3E+3	MSS-PRV-OO	1.7E-3
ZT-MSV-OC	Main steam isolation fails to remain open	3.9E-7	24	Gamma	2.2E+1	MSV-OC	9.3E-6
ZT-MSV-OO	Main steam isolation fails to close			Beta	3.1E+4	MSV-FTC	7.6E-4
ZT-NZL-PG	Nozzle plugging	1.0E-6	24	Gamma	3.0E-1	NZL-PG	2.4E-5
ZT-PDP-FR-NR	Positive displacement pump FTR	2.3E-5	24	Gamma	1.1E+0	PDP-FR-NR	5.5E-4
ZT-PDP-FS-NR	Positive displacement pump FTS			Beta	8.4E+2	PDP-FS-NR	2.4E-3
ZT-PDP-FS-NS	Positive displacement pump FTS			Beta	8.1E+3	PDP-FS-NS	1.8E-3

**Table A-1 L3PRA Project Level 1 Model Template Basic Events**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Probability
				Type	Parameter		
ZT-PMP-FR	Pump volute FTR (driver independent centrifugal pumps)	1.3E-4	24	Gamma	1.4E+0	PMP-FR	3.2E-3
ZT-PND-CC	Pneumatic damper fails to open			Beta	2.9E+4	PND-CC	3.7E-4
ZT-PND-PG	Pneumatic damper plugs	3.4E-7	24	Gamma	5.0E-1	PND-PG	8.2E-6
ZT-PORV-ILL	Power operated relief internal leakage (large)	9.8E-9	24	Gamma	4.7E-1	PORV-ILL	2.4E-7
ZT-PPR-PRV-CC	PZR power operated relief/Dump valve fails to open			Beta	4.7E+3	PPR-PRV-CC	3.5E-3
ZT-PWR-MSS-SVV-CC	Main steam code safety relief (SVV) fails to open			Beta	1.3E+3	SVV-FTO-PWR-MSS	4.0E-4
ZT-PWR-SRV-OO-P1	PWR one PORV/SRV sticks open			Beta	2.0E+0	PWR-SRV-OO-P1	1.5E-3
ZT-PWR-SVV-OO	PZR code safety relief (SVV) fails to close			Beta	2.0E+3	PWR-SVV-OO	7.3E-4
ZT-PWR-SVV-OO(LIQUID)	PZR code safety relief (SVV) fails to close after passing liquid			Beta	4.0E-1	PWR-SVV-OO(LIQUID)	1.0E-1
ZT-RCS-MDP-LK-BP1	RCP seal stage 1 integrity fails (binding/popping open)			Log Normal	3.0E+0	RCS-MDP-LK-BP1	1.3E-2
ZT-RCS-MDP-LK-BP2	RCP seal stage 2 integrity fails (binding/popping open)			Beta	8.0E+0	RCS-MDP-LK-BP2	2.0E-1
ZT-RLY-FC	Relay fails during operation			Beta	2.0E+4	RLY-FC	2.5E-5
ZT-SCV-CC	Stop check valve fails to open			Beta	4.0E+4	SCV-CC	1.3E-5
ZT-SEQ-FO	Sequencer fails to operate			Beta	1.5E+2	SEQ-FO	3.3E-3
ZT-SMP-PG	Containment sump plugging (pooled PWR and BWR)			Gamma	5.5E+0	SMP-PG	5.1E-7
ZT-SOV-CC	Solenoid operated valve fails to open			Beta	2.6E+4	SOV-CC	1.2E-3
ZT-SSD-ESF-FC	Sequencer fails			Beta	1.5E+2	SSD-ESF-FC	3.3E-3
ZT-SSD-FC	Failure of solid state controller	3.0E-6	24	Log Normal	1.0E+1	SSD-FC	7.2E-5
ZT-SWP-FC	Switch - pressure fails to operate	6.3E-7	24	Gamma	5.0E-1	SWP-FC	1.5E-5
ZT-SWS-LMS-FC	Switch - limit fails to operate	2.5E-6	24	Log Normal	7.1E+0	SWS-LMS-FC	6.0E-5
ZT-SWT-FC	Switch - temperature fails during operation	4.1E-7	24	Gamma	5.0E-1	SWT-FC	9.9E-6
ZT-TDP-FR-E	Turbine driven pump FTR			Beta	4.3E+2	TDP-FR-E	4.6E-3
ZT-TDP-FR-L	Turbine driven pump FTR	1.5E-3	23	Gamma	1.2E+1	TDP-FR-L	3.3E-2
ZT-TDP-FR-NR	Turbine driven pump FTR	9.3E-6	24	Gamma	1.8E+0	TDP-FR-NR	2.2E-4
ZT-TDP-FS-NS	Turbine driven pump FTS			Beta	6.6E+2	TDP-FS-NS	5.9E-3
ZT-TDP-TM(AFW)	Turbine driven pump test or maintenance (AFW)			Normal	1.9E-3	TDP-TM(AFW)	3.8E-3
ZT-TFF-FC	Transmitter - flow fails during operation	9.7E-8	24	Gamma	5.0E-1	TFF-FC	2.3E-6



**Table A-1 L3PRA Project Level 1 Model Template Basic Events**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Probability
				Type	Parameter		
ZT-TFL-FC	Transmitter - level fails during operation	9.7E-8	24	Gamma	5.0E-1	TFL-FC	2.3E-6
ZT-TFM-FC	Transformer fail to operate	6.4E-7	24	Gamma	9.6E-1	TFM-FC	1.5E-5
ZT-TFP-FC	Transmitter - pressure fails during operation	9.4E-7	24	Gamma	2.5E+0	TFP-FC	2.3E-5
ZT-TFW-MA	Transformer - AC 1E maintenance			Log Normal	1.0E+1	TFW-MA	1.0E-3
ZT-TIM-FC	Mechanical cam timer fails	4.8E-5	24	Log Normal	1.1E+1	TIM-FC	1.1E-3
ZT-TNK-RP	Tank rupture	1.8E-8	24	Gamma	6.5E+0	TNK-RP	4.3E-7
ZT-XSW-FC	Manual switch (general type) fails to operate			Log Normal	9.9E+0	XSW-FC	1.7E-7
ZT-XVM-CC	Manual valve fails to open			Beta	2.6E+3	XVM-CC	1.9E-4
ZT-XVM-CO	Manual valve spurious transfer	8.4E-8	24	Gamma	8.5E+0	XVM-OC	2.0E-6
ZT-XVM-OC	Manual valve spurious transfer	8.4E-8	24	Gamma	8.5E+0	XVM-OC	2.0E-6
ZT-XVM-OO	Manual valve fails to close			Beta	2.6E+3	XVM-OO	1.9E-4
ZT-XVM-PG	Manual valve plugging	3.0E-9	24	Log Normal	1.0E+1	XVM-PG	7.2E-8
ZV-1	Value event representing the number 1					ZV-1	1.0E+0
ZV-8760	Value event representing the number 8760					ZV-8760	8.8E+3
ZV-LOOP-GR-LAMBDA	Grid related LOOP frequency (per yr)			Gamma	4.0E-1	LOOP-GR-LAMBDA	6.6E-3
ZV-LOOP-PC-LAMBDA	Plant centered LOOP frequency (per yr)			Gamma	2.5E+0	LOOP-PC-LAMBDA	1.9E-3
ZV-LOOP-SC-LAMBDA	Switchyard centered LOOP frequency (per yr)			Gamma	1.4E+1	LOOP-SC-LAMBDA	1.0E-2
ZV-LOOP-WR-LAMBDA	Weather related LOOP frequency (per yr)			Gamma	8.5E+0	LOOP-WR-LAMBDA	3.9E-3
ZV-SBO-REC-GR-EF	Grid-related LOOP recovery curve parameter EF; SBO sequences			Log Normal	1.6E+0	SBO-REC-GR-EF	5.3E+0
ZV-SBO-REC-GR-MEDIAN	Grid-related LOOP recovery curve parameter median; SBO sequences			Log Normal	1.5E+0	SBO-REC-GR-MEDIAN	1.5E+0
ZV-SBO-REC-PC-EF	Plant-centered LOOP recovery curve parameter EF; SBO sequences			Log Normal	1.6E+0	SBO-REC-PC-EF	1.0E+1
ZV-SBO-REC-PC-MEDIAN	Plant-centered LOOP recovery curve parameter median; SBO sequences			Log Normal	1.5E+0	SBO-REC-PC-MEDIAN	5.4E-1
ZV-SBO-REC-SC-EF	Switchyard-centered LOOP recovery curve parameter EF; SBO sequences			Log Normal	1.4E+0	SBO-REC-SC-EF	9.4E+0
ZV-SBO-REC-SC-MEDIAN	Switchyard-centered LOOP recovery curve parameter median; SBO sequences			Log Normal	1.3E+0	SBO-REC-SC-MEDIAN	7.1E-1
ZV-SBO-REC-WR-EF	Weather related LOOP recovery curve parameter EF; SBO sequences			Log Normal	2.5E+0	SBO-REC-WR-EF	2.9E+1

**Table A-1 L3PRA Project Level 1 Model Template Basic Events**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Probability
				Type	Parameter		
ZV-SBO-REC-WR-MEDIAN	Weather related LOOP recovery curve parameter median; SBO sequences			Log Normal	2.2E+0	SBO-REC-WR-MEDIAN	2.7E+0

**Table A-2 L3PRA Project Level 1 Model CCF Parameters**

Event Name	Event Description	Distribution		Correlation Class	Probability
		Type	Parameter		
ZA-AFW-CKV-CC-03A01	Alpha factor 1 in group size 3 for component CKV with failure mode CC	Beta	1.1E+0	AFW-CKV-CC-03A01	9.7E-1
ZA-AFW-CKV-CC-03A02	Alpha factor 2 in group size 3 for component CKV with failure mode CC	Beta	3.2E+1	AFW-CKV-CC-03A02	2.5E-2
ZA-AFW-CKV-CC-03A03	Alpha factor 3 in group size 3 for component CKV with failure mode CC	Beta	3.2E+1	AFW-CKV-CC-03A03	8.2E-3
ZA-AFW-CKV-CC-04A01	Alpha factor 1 in group size 4 for component CKV with failure mode CC	Beta	1.9E+0	AFW-CKV-CC-04A01	9.6E-1
ZA-AFW-CKV-CC-04A02	Alpha factor 2 in group size 4 for component CKV with failure mode CC	Beta	4.9E+1	AFW-CKV-CC-04A02	2.5E-2
ZA-AFW-CKV-CC-04A03	Alpha factor 3 in group size 4 for component CKV with failure mode CC	Beta	5.0E+1	AFW-CKV-CC-04A03	8.1E-3
ZA-AFW-CKV-CC-04A04	Alpha factor 4 in group size 4 for component CKV with failure mode CC	Beta	5.0E+1	AFW-CKV-CC-04A04	4.5E-3
ZA-AFW-MDP-FHRH-02A01	Alpha factor 1 in group size 2 for component MDP with failure mode FHFR	Beta	7.0E-1	AFW-MDP-FHRH-02A01	9.7E-1
ZA-AFW-MDP-FHRH-02A02	Alpha factor 2 in group size 2 for component MDP with failure mode FHFR	Beta	2.2E+1	AFW-MDP-FHRH-02A02	3.1E-2
ZA-AFW-MDP-FS-02A01	Alpha factor 1 in group size 2 for component MDP with failure mode FS	Beta	1.9E+0	AFW-MDP-FS-02A01	9.5E-1
ZA-AFW-MDP-FS-02A02	Alpha factor 2 in group size 2 for component MDP with failure mode FS	Beta	3.7E+1	AFW-MDP-FS-02A02	5.0E-2
ZA-AFW-MOV-CC-02A01	Alpha factor 1 in group size 2 for component MOV with failure mode CC	Beta	6.3E-1	AFW-MOV-CC-02A01	9.7E-1
ZA-AFW-MOV-CC-02A02	Alpha factor 2 in group size 2 for component MOV with failure mode CC	Beta	2.1E+1	AFW-MOV-CC-02A02	3.0E-2
ZA-AFW-PMP-FR-03A01	Alpha factor 1 in group size 3 for component PMP with failure mode FR	Beta	1.4E+0	AFW-PMP-FR-03A01	9.8E-1
ZA-AFW-PMP-FR-03A02	Alpha factor 2 in group size 3 for component PMP with failure mode FR	Beta	5.8E+1	AFW-PMP-FR-03A02	1.9E-2
ZA-AFW-PMP-FR-03A03	Alpha factor 3 in group size 3 for component PMP with failure mode FR	Beta	5.9E+1	AFW-PMP-FR-03A03	4.7E-3
ZA-ALL-CKV-LK-02A01	Alpha factor 1 in group size 2 for component CKV with failure mode LK	Beta	4.2E+0	ALL-CKV-LK-02A01	8.9E-1
ZA-ALL-CKV-LK-02A02	Alpha factor 2 in group size 2 for component CKV with failure mode LK	Beta	3.2E+1	ALL-CKV-LK-02A02	1.2E-1
ZA-AOV-CC-02A01	Alpha factor 1 in group size 2 for component AOV with failure mode CC	Beta	9.1E-1	AOV-CC-02A01	9.8E-1
ZA-AOV-CC-02A02	Alpha factor 2 in group size 2 for component AOV with failure mode CC	Beta	5.3E+1	AOV-CC-02A02	1.7E-2
ZA-BAT-LP-04A01	Alpha factor 1 in group size 4 for component BAT with failure mode NO	Beta	1.9E+0	BAT-LP-04A01	9.8E-1
ZA-BAT-LP-04A02	Alpha factor 2 in group size 4 for component BAT with failure mode NO	Beta	9.7E+1	BAT-LP-04A02	1.3E-2
ZA-BAT-LP-04A03	Alpha factor 3 in group size 4 for component BAT with failure mode NO	Beta	9.8E+1	BAT-LP-04A03	4.1E-3
ZA-BAT-LP-04A04	Alpha factor 4 in group size 4 for component BAT with failure mode NO	Beta	9.8E+1	BAT-LP-04A04	2.3E-3
ZA-CCF-ALL-02A01	Alpha factor 1 in group size 2 for component CCF with failure mode F ALL	Beta	1.4E+2	CCF-ALL-02A01	9.4E-1
ZA-CCF-ALL-02A02	Alpha factor 2 in group size 2 for component CCF with failure mode F ALL	Beta	2.0E+3	CCF-ALL-02A02	6.5E-2
ZA-CCF-DEM-04A01	Alpha factor 1 in group size 4 for component DEM with failure mode ALL	Beta	5.5E+1	CCF-DEM-04A01	9.7E-1
ZA-CCF-DEM-04A02	Alpha factor 2 in group size 4 for component DEM with failure mode ALL	Beta	2.1E+3	CCF-DEM-04A02	1.6E-2
ZA-CCF-DEM-04A03	Alpha factor 3 in group size 4 for component DEM with failure mode ALL	Beta	2.1E+3	CCF-DEM-04A03	6.4E-3

**Table A-2 L3PRA Project Level 1 Model CCF Parameters**

Event Name	Event Description	Distribution		Correlation Class	Probability
		Type	Parameter		
ZA-CCF-DEM-04A04	Alpha factor 4 in group size 4 for component DEM with failure mode ALL	Beta	2.1E+3	CCF-DEM-04A04	3.3E-3
ZA-CCF-RATE-02A01	Alpha factor 1 in group size 2 for component RATE with failure mode ALL	Beta	4.2E+1	CCF-RATE-02A01	9.6E-1
ZA-CCF-RATE-02A02	Alpha factor 2 in group size 2 for component RATE with failure mode ALL	Beta	1.1E+3	CCF-RATE-02A02	3.8E-2
ZA-CCW-HTX-HT-02A01	Alpha factor 1 in group size 2 for component HTX with failure mode HT	Beta	4.4E-1	CCW-HTX-HT-02A01	9.7E-1
ZA-CCW-HTX-HT-02A02	Alpha factor 2 in group size 2 for component HTX with failure mode HT	Beta	1.4E+1	CCW-HTX-HT-02A02	3.0E-2
ZA-CCW-MDP-FR-02A01	Alpha factor 1 in group size 2 for component MDP with failure mode FR	Beta	5.2E-1	CCW-MDP-FR-02A01	9.9E-1
ZA-CCW-MDP-FR-02A02	Alpha factor 2 in group size 2 for component MDP with failure mode FR	Beta	3.8E+1	CCW-MDP-FR-02A02	1.3E-2
ZA-CCW-MDP-FS-02A01	Alpha factor 1 in group size 2 for component MDP with failure mode FS	Beta	4.3E-1	CCW-MDP-FS-02A01	1.0E+0
ZA-CCW-MDP-FS-02A02	Alpha factor 2 in group size 2 for component MDP with failure mode FS	Beta	8.9E+1	CCW-MDP-FS-02A02	4.8E-3
ZA-CKV-CC-02A01	Alpha factor 1 in group size 2 for component CKV with failure mode CC	Beta	4.3E-1	CKV-CC-02A01	9.8E-1
ZA-CKV-CC-02A02	Alpha factor 2 in group size 2 for component CKV with failure mode CC	Beta	1.8E+1	CKV-CC-02A02	2.3E-2
ZA-CKV-CC-04A01	Alpha factor 1 in group size 4 for component CKV with failure mode CC	Beta	1.9E+0	CKV-CC-04A01	9.7E-1
ZA-CKV-CC-04A02	Alpha factor 2 in group size 4 for component CKV with failure mode CC	Beta	5.5E+1	CKV-CC-04A02	2.2E-2
ZA-CKV-CC-04A03	Alpha factor 3 in group size 4 for component CKV with failure mode CC	Beta	5.6E+1	CKV-CC-04A03	7.2E-3
ZA-CKV-CC-04A04	Alpha factor 4 in group size 4 for component CKV with failure mode CC	Beta	5.6E+1	CKV-CC-04A04	4.0E-3
ZA-CRB-CC-02A01	Alpha factor 1 in group size 2 for component CRB with failure mode CC	Beta	4.8E-1	CRB-CC-02A01	9.7E-1
ZA-CRB-CC-02A02	Alpha factor 2 in group size 2 for component CRB with failure mode CC	Beta	1.4E+1	CRB-CC-02A02	3.4E-2
ZA-CRB-CC-03A01	Alpha factor 1 in group size 3 for component CRB with failure mode CC	Beta	1.2E+0	CRB-CC-03A01	9.7E-1
ZA-CRB-CC-03A02	Alpha factor 2 in group size 3 for component CRB with failure mode CC	Beta	3.5E+1	CRB-CC-03A02	2.7E-2
ZA-CRB-CC-03A03	Alpha factor 3 in group size 3 for component CRB with failure mode CC	Beta	3.5E+1	CRB-CC-03A03	7.5E-3
ZA-CTF-FR-08A01	Alpha factor 1 in group size 8 for component CTF with failure mode FR	Beta	9.7E+1	FAN-FR-08A01	9.8E-1
ZA-CTF-FR-08A02	Alpha factor 2 in group size 8 for component CTF with failure mode FR	Beta	4.4E+3	FAN-FR-08A02	5.1E-3
ZA-CTF-FR-08A03	Alpha factor 3 in group size 8 for component CTF with failure mode FR	Beta	4.4E+3	FAN-FR-08A03	4.2E-3
ZA-CTF-FR-08A04	Alpha factor 4 in group size 8 for component CTF with failure mode FR	Beta	4.4E+3	FAN-FR-08A04	4.3E-3
ZA-CTF-FR-08A05	Alpha factor 5 in group size 8 for component CTF with failure mode FR	Beta	4.4E+3	FAN-FR-08A05	3.5E-3
ZA-CTF-FR-08A06	Alpha factor 6 in group size 8 for component CTF with failure mode FR	Beta	4.4E+3	FAN-FR-08A06	2.7E-3
ZA-CTF-FR-08A07	Alpha factor 7 in group size 8 for component CTF with failure mode FR	Beta	4.4E+3	FAN-FR-08A07	1.5E-3
ZA-CTF-FR-08A08	Alpha factor 8 in group size 8 for component CTF with failure mode FR	Beta	4.4E+3	FAN-FR-08A08	6.6E-4
ZA-CTF-FS-08A01	Alpha factor 1 in group size 8 for component CTF with failure mode FS	Beta	8.3E+1	FAN-FS-08A01	9.8E-1

**Table A-2 L3PRA Project Level 1 Model CCF Parameters**

Event Name	Event Description	Distribution		Correlation Class	Probability
		Type	Parameter		
ZA-CTF-FS-08A02	Alpha factor 2 in group size 8 for component CTF with failure mode FS	Beta	4.3E+3	FAN-FS-08A02	6.8E-3
ZA-CTF-FS-08A03	Alpha factor 3 in group size 8 for component CTF with failure mode FS	Beta	4.3E+3	FAN-FS-08A03	4.2E-3
ZA-CTF-FS-08A04	Alpha factor 4 in group size 8 for component CTF with failure mode FS	Beta	4.3E+3	FAN-FS-08A04	3.2E-3
ZA-CTF-FS-08A05	Alpha factor 5 in group size 8 for component CTF with failure mode FS	Beta	4.3E+3	FAN-FS-08A05	2.5E-3
ZA-CTF-FS-08A06	Alpha factor 6 in group size 8 for component CTF with failure mode FS	Beta	4.3E+3	FAN-FS-08A06	1.6E-3
ZA-CTF-FS-08A07	Alpha factor 7 in group size 8 for component CTF with failure mode FS	Beta	4.3E+3	FAN-FS-08A07	7.0E-4
ZA-CTF-FS-08A08	Alpha factor 8 in group size 8 for component CTF with failure mode FS	Beta	4.3E+3	FAN-FS-08A08	1.4E-4
ZA-DGN-FR-02A01	Alpha factor 1 in group size 2 for component EDG with failure mode FR	Beta	1.7E+0	DGN-FR-02A01	9.9E-1
ZA-DGN-FR-02A02	Alpha factor 2 in group size 2 for component EDG with failure mode FR	Beta	1.7E+2	DGN-FR-02A02	9.8E-3
ZA-DGN-FR-04A01	Alpha factor 1 in group size 4 for component EDG with failure mode FR	Beta	4.4E+0	DGN-FR-04A01	9.9E-1
ZA-DGN-FR-04A02	Alpha factor 2 in group size 4 for component EDG with failure mode FR	Beta	3.7E+2	DGN-FR-04A02	7.9E-3
ZA-DGN-FR-04A03	Alpha factor 3 in group size 4 for component EDG with failure mode FR	Beta	3.7E+2	DGN-FR-04A03	2.6E-3
ZA-DGN-FR-04A04	Alpha factor 4 in group size 4 for component EDG with failure mode FR	Beta	3.7E+2	DGN-FR-04A04	1.3E-3
ZA-DGN-FS-02A01	Alpha factor 1 in group size 2 for component EDG with failure mode FS	Beta	2.6E+0	DGN-FS-02A01	9.9E-1
ZA-DGN-FS-02A02	Alpha factor 2 in group size 2 for component EDG with failure mode FS	Beta	2.1E+2	DGN-FS-02A02	1.3E-2
ZA-DGN-FS-04A01	Alpha factor 1 in group size 4 for component EDG with failure mode FS	Beta	4.9E+0	DGN-FS-04A01	9.9E-1
ZA-DGN-FS-04A02	Alpha factor 2 in group size 4 for component EDG with failure mode FS	Beta	4.4E+2	DGN-FS-04A02	6.1E-3
ZA-DGN-FS-04A03	Alpha factor 3 in group size 4 for component EDG with failure mode FS	Beta	4.4E+2	DGN-FS-04A03	3.3E-3
ZA-DGN-FS-04A04	Alpha factor 4 in group size 4 for component EDG with failure mode FS	Beta	4.4E+2	DGN-FS-04A04	1.6E-3
ZA-FAN-FR-04A01	Alpha factor 1 in group size 4 for component FAN with failure mode FR	Beta	7.3E+1	FAN-FR-04A01	9.7E-1
ZA-FAN-FR-04A02	Alpha factor 2 in group size 4 for component FAN with failure mode FR	Beta	2.1E+3	FAN-FR-04A02	1.6E-2
ZA-FAN-FR-04A03	Alpha factor 3 in group size 4 for component FAN with failure mode FR	Beta	2.2E+3	FAN-FR-04A03	1.1E-2
ZA-FAN-FR-04A04	Alpha factor 4 in group size 4 for component FAN with failure mode FR	Beta	2.2E+3	FAN-FR-04A04	7.2E-3
ZA-FAN-FS-04A01	Alpha factor 1 in group size 4 for component FAN with failure mode FS	Beta	5.5E+1	FAN-FS-04A01	9.7E-1
ZA-FAN-FS-04A02	Alpha factor 2 in group size 4 for component FAN with failure mode FS	Beta	2.1E+3	FAN-FS-04A02	1.6E-2
ZA-FAN-FS-04A03	Alpha factor 3 in group size 4 for component FAN with failure mode FS	Beta	2.1E+3	FAN-FS-04A03	6.4E-3
ZA-FAN-FS-04A04	Alpha factor 4 in group size 4 for component FAN with failure mode FS	Beta	2.1E+3	FAN-FS-04A04	3.3E-3
ZA-HTX-PG-02A01	Alpha factor 1 in group size 2 for component HTX with failure mode HT	Beta	4.4E-1	HTX-PG-02A01	9.7E-1
ZA-HTX-PG-02A02	Alpha factor 2 in group size 2 for component HTX with failure mode HT	Beta	1.6E+1	HTX-PG-02A02	2.7E-2

**Table A-2 L3PRA Project Level 1 Model CCF Parameters**

Event Name	Event Description	Distribution		Correlation Class	Probability
		Type	Parameter		
ZA-MDC-FR-04A01	Alpha factor 1 in group size 4 for component MDC with failure mode FR	Beta	4.9E+0	MDC-FR-04A01	9.9E-1
ZA-MDC-FR-04A02	Alpha factor 2 in group size 4 for component MDC with failure mode FR	Beta	9.5E+2	MDC-FR-04A02	2.3E-3
ZA-MDC-FR-04A03	Alpha factor 3 in group size 4 for component MDC with failure mode FR	Beta	9.5E+2	MDC-FR-04A03	2.0E-3
ZA-MDC-FR-04A04	Alpha factor 4 in group size 4 for component MDC with failure mode FR	Beta	9.5E+2	MDC-FR-04A04	7.6E-4
ZA-MDC-FS-04A01	Alpha factor 1 in group size 4 for component MDC with failure mode FS	Beta	3.9E+0	MDC-FS-04A01	9.9E-1
ZA-MDC-FS-04A02	Alpha factor 2 in group size 4 for component MDC with failure mode FS	Beta	2.6E+2	MDC-FS-04A02	1.3E-2
ZA-MDC-FS-04A03	Alpha factor 3 in group size 4 for component MDC with failure mode FS	Beta	2.6E+2	MDC-FS-04A03	1.6E-3
ZA-MDC-FS-04A04	Alpha factor 4 in group size 4 for component MDC with failure mode FS	Beta	2.6E+2	MDC-FS-04A04	8.6E-4
ZA-MDP-FR-02A01	Alpha factor 1 in group size 2 for component MDP with failure mode FHRH	Beta	4.2E+0	MDP-FR-02A01	9.7E-1
ZA-MDP-FR-02A02	Alpha factor 2 in group size 2 for component MDP with failure mode FHRH	Beta	1.2E+2	MDP-FR-02A02	3.5E-2
ZA-MDP-FS-02A01	Alpha factor 1 in group size 2 for component MDP with failure mode FS	Beta	9.7E+0	MDP-FS-02A01	9.7E-1
ZA-MDP-FS-02A02	Alpha factor 2 in group size 2 for component MDP with failure mode FS	Beta	3.8E+2	MDP-FS-02A02	2.5E-2
ZA-MOV-CC-02A01	Alpha factor 1 in group size 2 for component MOV with failure mode CC	Beta	1.6E+0	MOV-CC-02A01	9.8E-1
ZA-MOV-CC-06A01	Alpha factor 1 in group size 6 for component MOV with failure mode CC	Beta	6.4E+0	MOV-CC-06A01	9.8E-1
ZA-MOV-CC-06A02	Alpha factor 2 in group size 6 for component MOV with failure mode CC	Beta	3.4E+2	MOV-CC-06A02	7.2E-3
ZA-MOV-CC-06A03	Alpha factor 3 in group size 6 for component MOV with failure mode CC	Beta	3.4E+2	MOV-CC-06A03	7.0E-3
ZA-MOV-CC-06A04	Alpha factor 4 in group size 6 for component MOV with failure mode CC	Beta	3.4E+2	MOV-CC-06A04	2.8E-3
ZA-MOV-CC-06A05	Alpha factor 5 in group size 6 for component MOV with failure mode CC	Beta	3.4E+2	MOV-CC-06A05	1.4E-3
ZA-MOV-CC-06A06	Alpha factor 6 in group size 6 for component MOV with failure mode CC	Beta	3.4E+2	MOV-CC-06A06	4.3E-4
ZA-MOV-OO-02A01	Alpha factor 1 in group size 2 for component MOV with failure mode OO	Beta	8.1E-1	MOV-OO-02A01	9.9E-1
ZA-MOV-OO-02A02	Alpha factor 2 in group size 2 for component MOV with failure mode OO	Beta	9.9E+1	MOV-OO-02A02	8.1E-3
ZA-PWR-RCS-PORV-CC-02A01	Alpha factor 1 in group size 2 for component PORV with failure mode CC	Beta	4.5E-1	PWR-RCS-PORV-CC-02A01	9.8E-1
ZA-PWR-RCS-PORV-CC-02A02	Alpha factor 2 in group size 2 for component PORV with failure mode CC	Beta	3.0E+1	PWR-RCS-PORV-CC-02A02	1.5E-2
ZA-SMP-PG-02A01	Alpha factor 1 in group size 2 for component SMP with failure mode PG	Beta	4.3E-1	SMP-PG-02A01	9.6E-1
ZA-SMP-PG-02A02	Alpha factor 2 in group size 2 for component SMP with failure mode PG	Beta	1.2E+1	SMP-PG-02A02	3.6E-2
ZA-SWN-MDP-NE-FR-06A01	Alpha factor 1 in group size 6 for component MDP with failure mode NE-FR	Beta	4.4E+0	SWN-MDP-NE-FR-06A01	9.8E-1
ZA-SWN-MDP-NE-FR-06A02	Alpha factor 2 in group size 6 for component MDP with failure mode NE-FR	Beta	2.2E+2	SWN-MDP-NE-FR-06A02	1.1E-2
ZA-SWN-MDP-NE-FR-06A03	Alpha factor 3 in group size 6 for component MDP with failure mode NE-FR	Beta	2.2E+2	SWN-MDP-NE-FR-06A03	5.2E-3
ZA-SWN-MDP-NE-FR-06A04	Alpha factor 4 in group size 6 for component MDP with failure mode NE-FR	Beta	2.2E+2	SWN-MDP-NE-FR-06A04	2.7E-3

**Table A-2 L3PRA Project Level 1 Model CCF Parameters**

Event Name	Event Description	Distribution		Correlation Class	Probability
		Type	Parameter		
ZA-SWN-MDP-NE-FR-06A05	Alpha factor 5 in group size 6 for component MDP with failure mode NE-FR	Beta	2.2E+2	SWN-MDP-NE-FR-06A05	1.0E-3
ZA-SWN-MDP-NE-FR-06A06	Alpha factor 6 in group size 6 for component MDP with failure mode NE-FR	Beta	2.2E+2	SWN-MDP-NE-FR-06A06	3.8E-4
ZA-SWN-MDP-NE-FS-06A01	Alpha factor 1 in group size 6 for component MDP with failure mode NE-FS	Beta	4.5E+0	SWN-MDP-NE-FS-06A01	9.7E-1
ZA-SWN-MDP-NE-FS-06A02	Alpha factor 2 in group size 6 for component MDP with failure mode NE-FS	Beta	1.7E+2	SWN-MDP-NE-FS-06A02	1.4E-2
ZA-SWN-MDP-NE-FS-06A03	Alpha factor 3 in group size 6 for component MDP with failure mode NE-FS	Beta	1.7E+2	SWN-MDP-NE-FS-06A03	6.5E-3
ZA-SWN-MDP-NE-FS-06A04	Alpha factor 4 in group size 6 for component MDP with failure mode NE-FS	Beta	1.8E+2	SWN-MDP-NE-FS-06A04	3.4E-3
ZA-SWN-MDP-NE-FS-06A05	Alpha factor 5 in group size 6 for component MDP with failure mode NE-FS	Beta	1.8E+2	SWN-MDP-NE-FS-06A05	1.3E-3
ZA-SWN-MDP-NE-FS-06A06	Alpha factor 6 in group size 6 for component MDP with failure mode NE-FS	Beta	1.8E+2	SWN-MDP-NE-FS-06A06	4.7E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-2-5--PC-PG-T_ON_LOO-1	25% chance that MLOCA or LLOCA occurs on Loop 1						2.5E-1
1-2-5--PC-PG-T_ON_LOO-2	25% chance that MLOCA or LLOCA occurs on Loop 2						2.5E-1
1-2-5--PC-PG-T_ON_LOO-3	25% chance that MLOCA or LLOCA occurs on Loop 3						2.5E-1
1-2-5--PC-PG-T_ON_LOO-4	25% chance that MLOCA or LLOCA occurs on Loop 4						2.5E-1
1-ACC-CKV-CC-079	Accumulator 1 CV 079 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-ACC-CKV-CC-079080_-CC	Accumulator CVs 079 and 080 fail by CCF						4.4E-7
1-ACC-CKV-CC-079081_-CC	Accumulator CVs 079 and 081 fail by CCF						4.4E-7
1-ACC-CKV-CC-079082_-CC	Accumulator CVs 079 and 082 fail by CCF						4.4E-7
1-ACC-CKV-CC-080	Accumulator 2 CV 080 fails to open by random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-ACC-CKV-CC-080081_-CC	Accumulator CVs 080 and 081 fail by CCF						4.4E-7
1-ACC-CKV-CC-080082_-CC	Accumulator CVs 080 and 082 fail by CCF						4.4E-7
1-ACC-CKV-CC-081	Accumulator 3 CV081 fails to open by random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-ACC-CKV-CC-081082_-CC	Accumulator CVs 081 and 082 fail by CCF						4.4E-7
1-ACC-CKV-CC-082	Accumulator 4 CV 082 fails to open by random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-ACC-CKV-CC-798081_-CC	Accumulator CVs 079, 080, & 081 fail by CCF						2.4E-7
1-ACC-CKV-CC-79808182-CC	Accumulator CVs 079, 080, 081 & 082 fail by CCF						2.2E-7
1-ACC-CKV-CC-798082_-CC	Accumulator CVs 079, 080, & 082 fail by CCF						2.4E-7
1-ACC-CKV-CC-798182_-CC	Accumulator CVs 079, 081, & 082 fail by CCF						2.4E-7
1-ACC-CKV-CC-808182_-CC	Accumulator CVs 080, 081, & 082 fail by CCF						2.4E-7
1-ACC-MOV-PG-HV8808A	MOV HV8808A transfers closed/plugs	5.0E-9	24			MOV-PG	1.2E-7
1-ACC-MOV-PG-HV8808B	MOV HV8808B transfers closed/plugs	5.0E-9	24			MOV-PG	1.2E-7
1-ACC-MOV-PG-HV8808C	MOV HV8808C transfers closed/plugs	5.0E-9	24			MOV-PG	1.2E-7
1-ACC-MOV-PG-HV8808D	MOV HV8808D transfers closed/plugs	5.0E-9	24			MOV-PG	1.2E-7
1-ACC-TNK-RP-V6002	Accumulator tank 1 fails	1.8E-8	24			TNK-RP	4.3E-7
1-ACC-TNK-RP-V6003	Accumulator tank 2 fails	1.8E-8	24			TNK-RP	4.3E-7
1-ACC-TNK-RP-V6004	Accumulator tank 3 fails	1.8E-8	24			TNK-RP	4.3E-7
1-ACC-TNK-RP-V6005	Accumulator tank 4 fails	1.8E-8	24			TNK-RP	4.3E-7
1-ACCWPP1-DIVERT-THR-2	Cutset identifier: ACCW PP1 flow diverted back to suction thru PP 2 train						1.0E+00
1-ACCWPP2-DIVERT-THR-1	Cutset identifier: ACCW PP2 flow diverted back to suction thru PP 1 train						1.0E+00
1-ACP-BAC-FC-AA02	Bus 1AA02 fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-AB04	480v switchgear 1AB04 random failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-AB05	480v switchgear 1AB05 random failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-AB15	480v switchgear 1AB15 random failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-ANA02	AC switchgear ANA02 failure	2.0E-6	24			BAC-LP	4.8E-5



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-BAC-FC-ANB02	AC bus ANB02 failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-AYB1	120/240v panel 1AYB1 fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-BA03	4160v bus 1BA03 fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-BB06	480v switchgear 1BB06 random failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-BB07	480v switchgear 1BB07 random failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-BB16	480v switchgear 1BB16 random failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-BYB1	120/240v panel 1BYB1 fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCC1NBR	480v MCC 1NBR fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCC1NBS	480v MCC 1NBS bus failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCABA	480v MCC 1ABA random failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCABB	480v MCC 1ABB random failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCABC	480v MCC 1ABC fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCABD	480v MCC 1ABD random failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCABE	480v MCC 1ABE random failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCABF	480v MCC 1ABF fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCANBK	480v MCC ANBK fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCBBA	480v MCC 1BBA random failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCBBB	480v MCC 1BBB random failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCBBD	480v MCC 1BBD random failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCBBE	480v MCC 1BBE random failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCBBF	480v MCC 1BBF fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCNBC	480v MCC 1NBC fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCNBE	480v MCC NBE fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCNBF	480v MCC NBF fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCNBH	480v MCC 1NBH random failure	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCNBP	480v MCC 1NBP fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCNBR	480v MCC NBR fails to operate	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-MCCNBT	480v MCC 1NBT fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NA01	4160v AC switchgear 1NA01 fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NA04	4160v AC switchgear 1NA04 fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NA05	4160v AC switchgear 1NA05 fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NAA	13800v AC switchgear 1NAA fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NAB	13800v AC switchgear 1NAB fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NB01	480v switchgear NB01 fails to operate	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NB02	480v AC switchgear 1NB02 fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NB03	480v AC switchgear 1NB03 fails	2.0E-6	24			BAC-LP	4.8E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-BAC-FC-NB08	480v AC switchgear NB08 fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NB09	480v switchgear NB09 fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NB10	480v switchgear NB10 fails to operate	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NB11	480v AC non-ESF switchgear 1NB11 fails to operate	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NB12	480v AC switchgear 1NB12 fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NB17	480v AC switchgear 1NB17 fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NB19	480v AC switchgear 1NB19 fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NB21	480v AC switchgear NB21 fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NB25	480v AC switchgear 1NB25 fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NBA	480v MCC 1NBA fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-FC-NYA1	120v AC panel 1NYA1 fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-BAC-MA-AA02	Bus 1AA02 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-AB04	480v switchgear 1AB04 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-AB05	480v switchgear 1AB05 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-AB15	480v switchgear 1AB15 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-ANA02	480v AC switchgear ANA02 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-ANB02	480v AC switchgear ANB02 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-AYB1	120/240v panel 1AYB1 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-BA03	4160v bus 1BA03 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-BB06	480v switchgear 1BB06 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-BB07	480v switchgear 1BB07 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-BB16	480v switchgear 1BB16 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-BYB1	120/240v panel 1BYB1 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCC1NBR	480v MCC 1NBR in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCC1NBS	480v MCC 1NBS in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCABA	480v MCC 1ABA in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCABB	480v MCC 1ABB in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCABC	480v MCC 1ABC in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCABD	480v MCC 1ABD in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCABE	480v MCC 1ABE in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCABF	480v MCC 1ABF in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCANBK	480v MCC ANBK in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCBBA	480v MCC 1BBA in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCBBB	480v MCC 1BBB in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCBBD	480v MCC 1BBD in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCBBE	480v MCC 1BBE in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-BAC-MA-MCCBBF	480v MCC 1BBF in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCNBC	480v MCC 1NBC in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCNBE	480v MCC NBE in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCNBF	480v MCC NBF in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCNBH	480v MCC 1NBH in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCNBP	480v MCC 1NBP in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCNBR	480v MCC NBR in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-MCCNBT	480v MCC 1NBT in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NA01	4160v AC switchgear 1NA01in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NA04	4160v AC switchgear 1NA04in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NA05	4160v AC switchgear 1NA05 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NB01	480v switchgear NB01 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NB02	480v AC switchgear 1NB02 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NB03	480v AC switchgear 1NB03 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NB08	480v AC switchgear NB08 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NB09	480v switchgear NB09 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NB10	480v switchgear NB10 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NB11	480v AC non-ESF switchgear 1NB11in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NB12	480v AC switchgear 1NB12 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NB17	480v AC switchgear 1NB17 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NB19	480v AC switchgear 1NB19 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NB21	480v AC switchgear NB21 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NB25	480v AC switchgear 1NB25 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NBA	480v MCC 1NBA in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-BAC-MA-NYA1	120v AC panel 1NYA1 in maintenance			Beta	2.30E+3	BAC-TM	2.1E-4
1-ACP-CNT-CO-___K101A	Relay K101A contacts spuriously open	8.1E-8	24	Lognormal	1.03E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-___K101B	Relay K101B contacts spuriously open	8.1E-8	24	Lognormal	1.13E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-___K128A	BAS relay K128A contacts spuriously Open or fail to close to start CCW pump P4- 001	8.1E-8	24	Lognormal	1.23E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-___K128B	BAS relay K128B contacts spuriously Open or fail to close to start CCW pump P4- 002	8.1E-8	24	Lognormal	1.33E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-___K152A	BAS relay K152A spuriously Opens or fail to close to actuate CCW pump P4- 005	8.1E-8	24	Lognormal	1.43E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-___K152B	BAS relay K152B spuriously Opens or fail to close to actuate CCW pump P4- 006	8.1E-8	24	Lognormal	1.53E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-___K252A	SI block relay K252A contacts spuriously open	8.1E-8	24	Lognormal	1.63E+1	CNT-CO	1.9E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-CNT-CO-___K252B	SI block relay K252B contacts spuriously open	8.1E-8	24	Lognormal	1.73E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-___K258A	SI block relay K258A contacts spuriously open	8.1E-8	24	Lognormal	1.83E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-___K258B	SI block relay K258B contacts spuriously open	8.1E-8	24	Lognormal	1.93E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-___K340A	Relay K340A contacts spuriously open	8.1E-8	24	Lognormal	2.03E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-___K340B	Relay K340B contacts spuriously open	8.1E-8	24	Lognormal	2.13E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-___K346A	Relay K346A contacts spuriously open	8.1E-8	24	Lognormal	2.23E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-___K346B	Relay K346B contacts spuriously open	8.1E-8	24	Lognormal	2.33E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-___K601A	SI block relay A contacts spuriously Open inhibits start ACCW pump P4- 001	8.1E-8	24	Lognormal	2.43E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-___K601B	SI block relay B contacts spuriously Open inhibits start ACCW pump P4- 002	8.1E-8	24	Lognormal	2.53E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-K152A___	Sequencer A block relay K152A contacts spuriously open (AFW motor driven pump- A)	8.1E-8	24	Lognormal	2.63E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-K152B___	Sequencer B block relay K152B contacts spuriously open (AFW motor driven pump- B)	8.1E-8	24	Lognormal	2.73E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-K176A___	Sequencer A block relay K176A contacts spuriously open	8.1E-8	24	Lognormal	2.83E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-K176B___	Sequencer B block relay K176B contacts spuriously open	8.1E-8	24	Lognormal	2.93E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-K204A___	Sequencer A block relay K204A contacts spuriously open	8.1E-8	24	Lognormal	3.03E+1	CNT-CO	1.9E-6
1-ACP-CNT-CO-K204B___	Sequencer B block relay K204B contacts spuriously open	8.1E-8	24	Lognormal	3.13E+1	CNT-CO	1.9E-6
1-ACP-CNT-OO-___AK101___	SFSS relay K101A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-___AK105___	SFSS relay K105A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-___AK107___	SFSS relay K107A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-___AK114___	SFSS relay K114A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-___AK117___	SFSS relay K117A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-___AK153___	SFSS relay K153A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-___AK162___	SFSS relay K162A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-___AK166___	SFSS relay K166A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-___AK177___	SFSS relay K177A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-___AK178___	SFSS relay K178A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-___AK179___	SFSS relay K179A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-___AK180___	SFSS relay K180A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-___AK181___	SFSS relay K181A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-___AK186___	SFSS relay K186A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-___AK190___	SFSS relay K190A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-___AK194___	SFSS relay K194A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-___AK205___	SFSS relay K205A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-CNT-OO- AK217	SFSS relay K217 contacts fails to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- AK221	SFSS relay K221A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- AK259	SFSS relay K259A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- AK266	SFSS relay K266A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- AK293	SFSS relay K293A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- AK294	SFSS relay K294A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- AK340	SFSS relay K340A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- AK346	SFSS relay K346A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- AK352	SFSS relay K352A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- AK353	SFSS relay K353A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- AK740	SFSS relay K740A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK101	SFSS relay K101B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK105	SFSS relay K105B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK107	SFSS relay K107B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK114	SFSS relay K114B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK117	SFSS relay K117B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK153	SFSS relay K153B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK154	SFSS relay K154B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK166	SFSS relay K166B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK177	SFSS relay K177B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK178	SFSS relay K178B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK179	SFSS relay K179B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK180	SFSS relay K180B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK181	SFSS relay K181B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK186	SFSS relay K186B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK190	SFSS relay K190B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK194	SFSS relay K194B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK205	SFSS relay K205B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK217	SFSS relay K217B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK221	SFSS relay K221B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK253	SFSS relay K253B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK266	SFSS relay K266B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK293	SFSS relay K293B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK294	SFSS relay K294B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK340	SFSS relay K340B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK346	SFSS relay K346B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-CNT-OO- BK352	SFSS relay K352B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK353	SFSS relay K353B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- BK740	SFSS relay K740B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- NA01127	Failure of NA0101 incoming supply check 127-1 contacts to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- NA04127	Failure of NA0401 incoming supply check 127-1 contacts to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- NA05127	Failure of NA0501 incoming supply check 127-1 contacts to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- NAA227	Failure of NAA01 incoming supply check 227-1 contacts to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO- NAB227	Failure of naB01 incoming supply check 227-1 contacts to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-1386GX2	Failure of unit trip contacts 386GX2 to close (NA01)			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-4386GX2	Failure of unit trip contacts 386GX2 to close (NA04)			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-5386GX2	Failure of unit trip contacts 386GX2 to close (NA05)			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-A386GX2	Failure of unit trip contacts 386GX2 to close (NAA)			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-AA020557	Relay 152 - B contacts (57 - 58) fail to close upon opening of RAT circuit breaker AA0205			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-B386GX2	Failure of unit trip contacts 386GX2 to close (NAB)			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-BA030157	Relay 152 - B contacts (57 - 58) fail to close upon opening of RAT circuit breaker BA0301			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-FT386NAA	Failure of unit trip contacts 386GX2 to close (NAA fast transfer)			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-FT386NAB	Failure of unit trip contacts 386GX2 to close (NAB fast transfer)			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K104A	Sequencer block relay K104A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K104B	Sequencer block relay K104B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K152A	Sequencer A block relay K152A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K152B	Sequencer B block relay K152B contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K153A	LOSP signal A relay K153A contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K153B	LOSP signal B relay K153B contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K154B	Sequencer B step relay K154B contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K158A02	Contacts 02-03 fail to close on under voltage signal to relay K158A			Beta	8.10E+8	CNT-OO	2.5E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-CNT-OO-K158A10_	Contacts 10-11 fail to close on under voltage signal to relay K158A			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K158B02_	Contacts 02-03 fail to close on under voltage signal to relay K158B			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K158B10_	Contacts 10-11 fail to close on under voltage signal to relay K158B			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K162A__	Sequencer A step relay K162A contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K166A__	Sequencer A step relay K166A contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K166B__	Sequencer B step relay K166B contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K176A__	Sequencer A block relay K176A contacts fail to reclose			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K176B__	Sequencer B block relay K176B contacts fail to reclose			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K177A__	LOSP signal A relay K177A contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K177B__	LOSP signal B relay K177B contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K194A__	Sequencer A step relay K194A contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K194B__	Sequencer B step relay K194B contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K204A__	Sequencer A block relay K204A contacts fail to reclose			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K204B__	Sequencer B block relay K204B contacts fail to reclose			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K205A__	LOSP signal A relay K205A contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K205B__	LOSP signal B relay K205B contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K208A2__	Sequencer under voltage relay K208A contacts (02-03) fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K208B2__	Sequencer under voltage relay K208B contacts (02-03) fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K241A02_	Relay K241A contacts 02-03 fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K241B02_	Relay K241B contacts 02-03 fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K266A__	Sequencer A relay K266A contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K266B__	Sequencer B relay K266B contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K609A__	SI signal A relay K609A contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K609B__	SI signal B relay K609B contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-CNT-OO-K610A__	SI signal A relay K610A contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K610B__	SI signal B relay K610B contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K615A__	SI signal A relay K615A contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K615B__	SI signal B relay K615B contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K618A__	SI signal A relay K618A contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K618B__	SI signal B relay K618B contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K640A__	LO-LO SG level signal A relay K640A contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K640B__	LO-LO SG level signal B relay K640B contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K641A__	Sequencer A relay K641A contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-K641B__	Sequencer B relay K641B contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NA01127X	NA01 127X relay contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NA0127_2	NA01 bus voltage monitoring relay 127-2 contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NA0127_3	NA01 bus voltage monitoring relay 127-3 contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NA04127X	NA04 127X relay contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NA0427_2	NA04 bus voltage monitoring relay 127-2 contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NA0427_3	NA04 bus voltage monitoring relay 127-3 contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NA05127X	NA05 127X relay contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NA0527_2	NA05 bus voltage monitoring relay 127-2 contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NA0527_3	NA05 bus voltage monitoring relay 127-3 contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NAA01262	NAA01 time delay relay contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NAA01LSR	NAA01 LSR relay contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NAA227X__	NAA 227 relay contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NAA27_2__	NAA bus voltage monitoring relay 227-2 contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NAA27_3__	NAA bus voltage monitoring relay 227-3 contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NAB01262	NAB01 time delay relay contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NAB01LSR	NAB01 LSR relay contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NAB227X__	NAB 227 relay contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-CNT-OO-NAB27_2_	NAB bus voltage monitoring relay 227-2 contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CNT-OO-NAB27_3_	NAB bus voltage monitoring relay 227-3 contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACP-CRB-CC-AA0205__	RAT A supply circuit breaker fails to open by random cause			Beta	9.20E+2	CRB-CC	5.3E-3
1-ACP-CRB-CC-AA0208P1	Circuit breaker 152-AA0208 associated with NSCW pump P4-001 fails to open			Beta	9.20E+2	CRB-CC	5.3E-3
1-ACP-CRB-CC-AA0208P3	Circuit breaker 152-AA0208 associated with NSCW pump P4-003 fails to open			Beta	9.20E+2	CRB-CC	5.3E-3
1-ACP-CRB-CC-BA0301__	RAT B supply circuit breaker fails to open by random cause			Beta	9.20E+2	CRB-CC	5.3E-3
1-ACP-CRB-CC-BA0307P2	Circuit breaker 152-BA0307 associated with NSCW pump P4-002 fails to open			Beta	9.20E+2	CRB-CC	5.3E-3
1-ACP-CRB-CC-BA0311P4	Circuit breaker 152-BA0311 associated with NSCW pump P4-004 fails to open			Beta	9.20E+2	CRB-CC	5.3E-3
1-ACP-CRB-CC-NA0103__	Circuit breaker 1NA0103 from 4160v 1NA01 to UAT -A fails to open on demand			Beta	9.20E+2	CRB-CC	5.3E-3
1-ACP-CRB-CC-NA0403__	Circuit breaker 1NA0403 from 4160v 1NA04 to UAT -B fails to open on demand			Beta	9.20E+2	CRB-CC	5.3E-3
1-ACP-CRB-CC-NA0503__	UAT breaker NA0503 fails to open			Beta	9.20E+2	CRB-CC	5.3E-3
1-ACP-CRB-CC-NAA03__	Circuit breaker 1NAA03 from 13800v 1NAA to UAT -A fails to open on demand			Beta	9.20E+2	CRB-CC	5.3E-3
1-ACP-CRB-CC-NAB03__	Circuit breaker 1NAB03 from 13800v 1NAB to UAT -B fails to open on demand			Beta	9.20E+2	CRB-CC	5.3E-3
1-ACP-CRB-CF-101001	CCF of circuit breakers NB0101 and NB1001 to close						1.8E-4
1-ACP-CRB-CF-145_01__	Circuit breakers 1NA0101, 1NA0401, and 1NA0501 fail to close by CCF						4.1E-5
1-ACP-CRB-CF-145_03	Circuit breakers 1NA0103, 1NA0403, and 1NA0503 fail to close by CCF						1.2E-4
1-ACP-CRB-CF-A205301	Switchyard AC breakers AA205 and BA301 fail from CCF to open						3.5E-4
1-ACP-CRB-CF-AA020105	Circuit breakers AA0201 and AA0205 fail to close due to CCF						1.8E-4
1-ACP-CRB-CF-AB01AA01	CCF of circuit breaker 1NAB01 and 1NAA01 to close on demand						1.8E-4
1-ACP-CRB-CF-AB03AA03	CCF of circuit breaker 1NAA03 and 1NAB03 to open on demand						3.5E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-CRB-CF-BA030105	Circuit breakers BA0301 and BA0305 fail to close due to CCF						1.8E-4
1-ACP-CRB-CO-1CD115N__	480v AC circuit breaker spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-1DD116N__	480v AC circuit breaker spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-1NB0102__	480v MCC 1NBS feeder breaker 1NB0102 from switchgear 1NB01 opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-1NB1002__	480v MCC 1NBR feeder breaker 1NB10-02 from switchgear 1NB10 opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-1NBR21__	Regulated transformer1NBR21RX feeder breaker 1NBR21 from MCC 1NBR open spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-1NBS20A__	Regulated transformer1NBS39RX feeder breaker 20A from MCC 1NBS spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-1NBS21__	Regulated transformer1NBS21RX feeder breaker 1NBS21 open spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-1NBS37__	Inverter 1ND314 feeder breaker 37 from MCC 1NBS spuriously open	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-1NY4N02__	120 VAC panel 1NY4N feeder breaker 02 from inverter 1ND314 open spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-1NY4N22__	LOOP power supply LQY4415 feed breaker 1NY4N22 from panel 1NY4N open spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-1NYS02__	120vac panel 1NYS feeder breaker 1NYS02 from regulated transformer1NBR21RX open spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-1NYS06__	LOOP power supply LQY4415 feed breaker 1NYS06 from panel 1NYS open spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-AA0205__	RAT A supply breaker AA0205 to 4160v bus AA02 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-AA0210__	1AA02 feeder breaker opens spuriously - 1AA02 to 1AB15X	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-AA0220__	1AA02 feeder breaker opens spuriously - 1AA02 to 1AB04X	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-AA0221__	1AA02 feeder breaker opens spuriously - 1AA02 to 1AB05X	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-AA0222__	Circuit breaker 1AA0222 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-AB0401__	1AB04 supply breaker opens spuriously - 1AB04X to 1AB04	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-AB0402__	1AB04 feeder breaker opens spuriously - 1AB04 to 1ABE	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-AB0501__	1AB05 supply breaker opens spuriously - 1AB05X to 1AB05	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-AB0502__	1AB05 feeder breaker opens spuriously - 1AB05 to 1ABA	2.2E-7	24			CRB-CO	5.4E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-CRB-CO-AB0505__	AC circuit breaker from 480v switchgear 1AB05 to 480v MCC 1ABC spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-AB0514__	AC circuit breaker from 480v switchgear 1AB05 to 480v MCC 1ABF spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-AB1501__	1AB15 supply breaker opens spuriously - 1AB15X to 1AB15	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-AB1509__	1AB15 feeder breaker opens spuriously - 1AB15 to 1ABB	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-AB1510__	1AB15 feeder breaker opens spuriously - 1AB15 to 1ABD	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-ABA04&__	Breaker 1ABA04 between 1ABA & battery charger 1AD1CA opens spuriously	2.2E-7	8760			CRB-CO-IE	2.0E-3
1-ACP-CRB-CO-ABA04__	Breaker 1ABA04 between 1ABA & battery charger 1AD1CA opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-ABA07__	Breaker between bus 1ABA and regulated transformer opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-ABA11__	Breaker 1ABA11 between 1ABA & battery charger 1CD1CB opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-ABB02__	480v MCC AC circuit breaker 1ABB02 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-ABC09__	Breaker between bus 1ABC and regulated transformer opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-ABE37__	Breaker 1ABE37 between 1ABE & battery charger 1CD1CA opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-ABE38&__	Breaker 1ABE38 between 1ABE & battery charger 1AD1CB opens spuriously	2.2E-7	8760			CRB-CO-IE	2.0E-3
1-ACP-CRB-CO-ABE38__	Breaker 1ABE38 between 1ABE & battery charger 1AD1CB opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-ANA0201__	Circuit breaker ANA0201 from 4160v switchgear 1NA01 to 4160v switchgear ANA02 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-ANA0210__	Circuit breaker from 4160v switchgear ANA02 to 480v switchgear ANB02 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-ANA0401__	Circuit breaker ANA0401 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-ANB0204__	Circuit breaker from 480v switchgear ANB02 to 480v MCC ANBK spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-AY1A01__	Breaker between regulated transformer and 1AY1A opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-AY1A02&__	Breaker 1AY1A02 between inverter 1AD1I1 & 1AY1A opens spuriously	2.2E-7	8760			CRB-CO-IE	2.0E-3
1-ACP-CRB-CO-AY1A02__	Breaker 1AY1A02 between inverter 1AD1I1 & 1AY1A opens spuriously	2.2E-7	24			CRB-CO	5.4E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-CRB-CO-AY2A02__	Breaker 1AY2A02 between inverter1AD1111 & 1AY2A opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-AYB116__	120/240v AC circuit breaker 1AYB116 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BA0301__	RAT B supply breaker BA0301 to 4160v bus BA03 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BA0304__	1BA03 feeder breaker opens spuriously - 1BA03 to 1BB07X	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BA0306__	1BA03 feeder breaker opens spuriously - 1BA03 to 1BB06X	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BA0309__	1BA03 feeder breaker opens spuriously - 1BA03 to 1BB16X	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BA0318__	Circuit breaker 1BA0318 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BB0601__	1BB06 supply breaker opens spuriously - 1BB06X to 1BB06	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BB0602__	1BB06 feeder breaker opens spuriously - 1BB06 to 1BBE	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BB0701__	1BB07 supply breaker opens spuriously - 1BB07X to 1BB07	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BB0702__	1BB07 feeder breaker opens spuriously - 1BB07 to 1BBA	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BB0714__	AC circuit breaker from 480v switchgear 1BB07 to 480v MCC 1BBF spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BB1601__	1BB16 supply breaker opens spuriously - 1BB16X to 1BB16	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BB1609__	1BB16 feeder breaker opens spuriously - 1BB16 to 1BBB	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BB1610__	1BB16 feeder breaker opens spuriously - 1BB16 to 1BBD	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BBA04&__	Breaker 1BBA04 between 1BBA & battery charger 1BD1CA opens spuriously	2.2E-7	8760			CRB-CO-IE	2.0E-3
1-ACP-CRB-CO-BBA04__	Breaker 1BBA04 between 1BBA & battery charger 1BD1CA opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BBA07__	Breaker between bus 1BBA and regulated transformer opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BBA11__	Breaker 1BBA11 between 1BBA & battery charger 1DD1CA opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BBB45__	480v MCC AC circuit breaker 1BBB45 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BBC09__	Breaker between bus 1BBC and regulated transformer spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BBE39__	Breaker 1BBE39 between 1BBE & battery charger 1DD1CB opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BBE40&__	Breaker 1BBE40 between 1BBE & battery charger 1DD1CB opens spuriously	2.2E-7	8760			CRB-CO-IE	2.0E-3

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-CRB-CO-BBE40__	Breaker 1BBE40 between 1BBE & battery charger 1BD1CB opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BY1B01__	Breaker between regulated transformer and 1BY1B opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BY1B02&__	Breaker 1BY1B02 between inverter 1BD1I2 & 1BY1B opens spuriously	2.2E-7	8760			CRB-CO-IE	2.0E-3
1-ACP-CRB-CO-BY1B02__	Breaker 1BY1B02 between inverter 1BD1I2 & 1BY1B opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BY2B02__	Breaker 1BY2B02 between inverter 1BD1I12 & 1BY2B opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-BYB116__	120/240v AC circuit breaker 1BYB116 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-CY1A01__	Breaker between regulated transformer and 1CY1A opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-CY1A02&__	Breaker 1CY1A02 between inverter 1CD1I3 & 1CY1A opens spuriously	2.2E-7	8760			CRB-CO-IE	2.0E-3
1-ACP-CRB-CO-CY1A02__	Breaker 1CY1A02 between inverter 1CD1I3 & 1CY1A opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-DY1B01__	Breaker between regulated transformer and 1DY1B spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-DY1B02&__	Breaker 1DY1B02 between inverter 1DD1I4 & 1DY1B opens spuriously	2.2E-7	8760			CRB-CO-IE	2.0E-3
1-ACP-CRB-CO-DY1B02__	Breaker 1DY1B02 between inverter 1DD1I4 & 1DY1B opens spuriously	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NA0101__	Circuit breaker 1NA0101 from 4160v switchgear 1NA01 to RAT A spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NA0107__	Circuit breaker from 4160v switchgear 1NA01 to 480v switchgear 1NB03 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NA0108__	Circuit breaker from 4160v switchgear 1NA01 to 480v switchgear 1NB12 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NA0110__	AC circuit breaker NA0110 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NA0111__	Circuit breaker 1NA0111 from 4160v switchgear 1NA01 to 4160v switchgear ANA02 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NA0115__	Circuit breaker from 4160v switchgear 1NA01 to 480v switchgear 1NB12 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NA0401__	Circuit breaker 1NA0401 from 4160v switchgear 1NA04to RAT B spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NA0406__	Circuit breaker from 4160v switchgear 1NA04 to 480v switchgear 1NB02 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NA0407__	Circuit breaker from 4160v switchgear 1NA04 to 480v switchgear 1NB08 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-CRB-CO-NA0408__	Circuit breaker from 4160v switchgear 1NA04 to 480v switchgear 1NB19 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NA0409__	Circuit breaker 1NA0409 from 1NA04 to 1NB11 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NA0416__	Circuit breaker from 4160v switchgear 1NA04 to 480v switchgear 1NB25 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NA0501__	Circuit breaker 1NA0501 from 4160v switchgear 1NA05 to RAT A spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NA0505__	Circuit breaker from 4160v switchgear 1NA05 to 480v switchgear 1NB21 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NAA01__	Circuit breaker 1NAA01 from 13800v switchgear 1NAA to RAT A spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NAB01__	Circuit breaker 1NAB01 from 13800v switchgear 1NAB to RAT B spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB0101__	Circuit breaker 1NB0101 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB0104__	480v AC circuit breaker NB0104 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB0110__	Circuit breaker 1NB0110 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB0204__	Circuit breaker from 480v switchgear 1NB02 to 480v MCC 1NBC spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB0212__	Circuit breaker 1NB0212 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB0801__	AC circuit breaker NB0801 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB0809__	AC circuit breaker NB0809 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB0901__	AC circuit breaker NB0901 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB0909__	AC circuit breaker NB0909 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB1001__	Circuit breaker 1NB1001 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB1002__	Circuit breaker 1NB1002 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB1009__	Circuit breaker 1NB1009 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB1108__	Circuit breaker from 480v switchgear 1NB11 to 480v MCC 1NBp spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB1110__	Circuit breaker 1NB1110 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB1701__	480v AC circuit breaker NB1701 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB1710__	480v AC circuit breaker NB1710 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB1714__	480v AC circuit breaker NB1714 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB1904__	Circuit breaker 1NB1904 from 480v switchgear 1NB19 to 480v MCC 1NBA spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB2110__	AC circuit breaker NB2110 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NB2505__	Circuit breaker from 480v switchgear 1NB25 to 480v MCC 1NBT spuriously opens	2.2E-7	24			CRB-CO	5.4E-6

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Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-CRB-CO-NBA75___	Circuit breaker 1NBA75 from 480v MCC 1NBA to 120v AC panel 1NYA1 spuriously Opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NBE38___	AC circuit breaker NBE38 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NBF58___	AC circuit breaker NBF58 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NBR34___	Circuit breaker 1NBR34 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-CO-NYF223___	AC circuit breaker NYF223 spuriously opens	2.2E-7	24			CRB-CO	5.4E-6
1-ACP-CRB-MA-NA0101___	Circuit breaker 1NA0101 from 4160v switchgear 1NA01 to RAT A in maintenance						0.0E+0
1-ACP-CRB-MA-NA0401___	Circuit breaker 1NA0401 from 4160v switchgear 1NA04 to RAT B in maintenance						0.0E+0
1-ACP-CRB-MA-NA0501___	Circuit breaker 1NA0501 from 4160v switchgear 1NA05 to RAT A in maintenance						0.0E+0
1-ACP-CRB-MA-NAA01___	Circuit breaker 1NAA01 from 13800v switchgear 1NAA to RAT A in maintenance						0.0E+0
1-ACP-CRB-MA-NAB01___	Circuit breaker 1NAB01 from 13800v switchgear 1NAB to RAT B in maintenance						0.0E+0
1-ACP-CRB-OO-1NY4N01_	120vac panel 1NY4N feeder breaker 01 from regulated transformer1NBS39RX fails to close			Beta	9.20E+2	CRB-OO	5.3E-3
1-ACP-CRB-OO-1NYS01___	120vac panel 1NYS feeder breaker 1NYS01 from regulated transformer1NBS21RX fail to close			Beta	9.20E+2	CRB-OO	5.3E-3
1-ACP-CRB-OO-AA0201___	AC circuit breaker AA0201 fails to close on demand			Beta	9.20E+2	CRB-OO	5.3E-3
1-ACP-CRB-OO-AA0205___	Circuit breaker AA0205 fails to close			Beta	9.20E+2	CRB-OO	5.3E-3
1-ACP-CRB-OO-ANA0401___	SAT output circuit breaker ANA0401 to SAT fails to close			Beta	9.20E+2	CRB-OO	5.3E-3
1-ACP-CRB-OO-BA0301___	Circuit breaker BA0301 fails to close			Beta	9.20E+2	CRB-OO	5.3E-3
1-ACP-CRB-OO-BA0305___	Circuit breaker BA0305 fails to close on demand			Beta	9.20E+2	CRB-OO	5.3E-3
1-ACP-CRB-OO-NA0101___	Circuit breaker 1NA0101 from 4160v 1NA01 to RAT A fails to close on demand			Beta	9.20E+2	CRB-OO	5.3E-3
1-ACP-CRB-OO-NA0401___	Circuit breaker 1NA0401 from 4160v 1NA04 to RAT B fails to close on demand			Beta	9.20E+2	CRB-OO	5.3E-3
1-ACP-CRB-OO-NA0501___	RAT breaker NA0501 fails to close			Beta	9.20E+2	CRB-OO	5.3E-3
1-ACP-CRB-OO-NAA01___	Circuit breaker 1NAA01 from 13800v 1NAA to RAT A fails to close on demand			Beta	9.20E+2	CRB-OO	5.3E-3
1-ACP-CRB-OO-NAB01___	Circuit breaker 1NAB01 from 13800v 1NAB to RAT B fails to close on demand			Beta	9.20E+2	CRB-OO	5.3E-3
1-ACP-CRB-OO-NB0101___	Circuit breaker NB0101 fails to close			Beta	9.20E+2	CRB-OO	5.3E-3
1-ACP-CRB-OO-NB1001___	Circuit breaker NB1001 fails to close			Beta	9.20E+2	CRB-CC	5.3E-3
1-ACP-DCP-FC-1A_PS1___	Failure of 48 volt sequencer power supply PS-1	6.6E-6	24			DCP-PWR-FC	1.6E-4
1-ACP-DCP-FC-1A_PS4___	Failure of 28 volt sequencer power supply PS-4	6.6E-6	24			DCP-PWR-FC	1.6E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-DCP-FC-1B_PS1	Failure of 48 volt sequencer power supply PS-1	6.6E-6	24			DCP-PWR-FC	1.6E-4
1-ACP-DCP-FC-1B_PS4	Failure of 28 volt sequencer power supply PS-4	6.6E-6	24			DCP-PWR-FC	1.6E-4
1-ACP-DPL-FC-1NY4N	120 VAC panel 1NY4N fails	7.5E-7	24	Beta	6.60E+2	DPL-FC(ACP)	1.8E-5
1-ACP-DPL-FC-1NYS	120 v non 1E reg. instrument panel 1NYS fails	7.5E-7	24	Beta	4.8E-1	DPL-FC(ACP)	1.8E-5
1-ACP-DPL-FC-AY1A&	Panel 1AY1A fails - 1 yr mission time	7.5E-7	8760	Beta	4.8E-1	DPL-FC-IE	6.6E-3
1-ACP-DPL-FC-AY1A	Panel 1AY1A fails	2.0E-6	24			BAC-LP	4.8E-5
1-ACP-DPL-FC-AY2A	Panel 1AY2A fails	7.5E-7	24	Beta	5.4E-3	DPL-FC(ACP)	1.8E-5
1-ACP-DPL-FC-BY1B&	Panel 1BY1B fails - 1 yr mission time	7.5E-7	8760	Beta	4.8E-1	DPL-FC-IE	6.6E-3
1-ACP-DPL-FC-BY1B	Panel 1BY1B fails	7.5E-7	24	Beta	4.8E-1	DPL-FC(ACP)	1.8E-5
1-ACP-DPL-FC-BY2B	Panel 1BY2B fails	7.5E-7	24	Beta	4.8E-1	DPL-FC(ACP)	1.8E-5
1-ACP-DPL-FC-CY1A&	Panel 1CY1A fails - 1 yr mission time	7.5E-7	8760	Beta	4.8E-1	DPL-FC-IE	6.6E-3
1-ACP-DPL-FC-CY1A	Panel 1CY1A fails	7.5E-7	24	Beta	4.8E-1	DPL-FC(ACP)	1.8E-5
1-ACP-DPL-FC-DY1B&	Panel 1DY1B fails - 1 yr mission time	7.5E-7	8760	Beta	4.8E-1	DPL-FC-IE	6.6E-3
1-ACP-DPL-FC-DY1B	Panel 1DY1B fails	7.5E-7	24	Beta	4.8E-1	DPL-FC(ACP)	1.8E-5
1-ACP-DPL-FC-NYF2	Distribution panel NYF2 fails	7.5E-7	24	Beta	4.8E-1	DPL-FC(ACP)	1.8E-5
1-ACP-DPL-MA-1NY4N	120 VAC panel 1NY4N in maintenance			Log Normal	1.00E+1	DPL-MA(ACP)	2.1E-7
1-ACP-DPL-MA-1NYS	120 v non 1E reg. instrument panel 1NYS in maintenance			Log Normal	1.00E+1	DPL-MA(ACP)	2.1E-7
1-ACP-DPL-MA-AY1A	Panel 1AY1A in maintenance			Log Normal	1.00E+1	DPL-MA(ACP)	2.1E-7
1-ACP-DPL-MA-AY2A	Panel 1AY2A in maintenance			Log Normal	1.00E+1	DPL-MA(ACP)	2.1E-7
1-ACP-DPL-MA-BY1B	Panel 1BY1B in maintenance			Log Normal	1.00E+1	DPL-MA(ACP)	2.1E-7
1-ACP-DPL-MA-BY2B	Panel 1BY2B in maintenance			Log Normal	1.00E+1	DPL-MA(ACP)	2.1E-7
1-ACP-DPL-MA-CY1A	Panel 1CY1A in maintenance			Log Normal	1.00E+1	DPL-MA(ACP)	2.1E-7
1-ACP-DPL-MA-DY1B	Panel 1DY1B in maintenance			Log Normal	1.00E+1	DPL-MA(ACP)	2.1E-7
1-ACP-DPL-MA-NYF2	Distribution panel NYF2 in maintenance			Log Normal	1.00E+1	DPL-MA(ACP)	2.1E-7
1-ACP-INV-FC- B2 D4-CC	Inverters 1BD1I2/1DD1I4 fail by CCF						1.2E-6
1-ACP-INV-FC- B2C3 -CC	Inverters 1BD1I2/1CD1I3 fail by CCF						1.2E-6
1-ACP-INV-FC- B2C3D4-CC	Inverters 1BD1I2/C3/D4 fail by CCF						4.2E-7
1-ACP-INV-FC-1ND314	Inverter 1ND314 fails (a power source for 120v panel 1NY4N)	8.9E-6	24			INVFTOP	2.1E-4
1-ACP-INV-FC-A1 D4-CC	Inverters 1AD1I1/1DD1I4 fail by CCF						1.2E-6
1-ACP-INV-FC-A1 C3 -CC	Inverters 1AD1I1/1CD1I3 fail by CCF						1.2E-6
1-ACP-INV-FC-A1 C3D4-CC	Inverters 1AD1I1/C3/D4 fail by CCF						4.2E-7
1-ACP-INV-FC-A1B2 -CC	Inverters 1AD1I1/1BD1I2 fail by CCF						1.2E-6
1-ACP-INV-FC-A1B2 D4-CC	Inverters 1AD1I1/B2/D4 fail by CCF						4.2E-7
1-ACP-INV-FC-A1B2C3 -CC	Inverters 1AD1I1/B2/C3 fail by CCF						4.2E-7
1-ACP-INV-FC-A1B2C3D4-CC	Inverters 1AD1I1/B2/C3/D4 fail by CCF						4.6E-7



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-INV-FC-AD11BD12-CC	Inverters 1AD111/1BD112 fail by CCF						1.2E-6
1-ACP-INV-FC-AD11I&__	Inverter 1AD111 fails by random cause - 1 yr mission time	8.9E-6	8760			INV-FC-IE	7.5E-2
1-ACP-INV-FC-AD11I__	Inverter 1AD111 fails by random cause	8.9E-6	24			INVFTOP	2.1E-4
1-ACP-INV-FC-AD11I1__	Inverter 1AD111 fails by random cause	8.9E-6	24			INVFTOP	2.1E-4
1-ACP-INV-FC-AD11I2__	Inverter 1BD112 fails by random cause	8.9E-6	24			INVFTOP	2.1E-4
1-ACP-INV-FC-BD11I2&__	Inverter 1BD112 fails by random cause - 1 yr mission time	8.9E-6	8760			INV-FC-IE	7.5E-2
1-ACP-INV-FC-BD11I2__	Inverter 1BD112 fails by random cause	8.9E-6	24			INVFTOP	2.1E-4
1-ACP-INV-FC-CD1I3&__	Inverter 1CD113 fails by random cause - 1 yr mission time	8.9E-6	8760			INV-FC-IE	7.5E-2
1-ACP-INV-FC-CD1I3__	Inverter 1CD113 fails by random cause	8.9E-6	24			INVFTOP	2.1E-4
1-ACP-INV-FC-CD1I5__	Inverter 1CD115 fails randomly	8.9E-6	24			INVFTOP	2.1E-4
1-ACP-INV-FC-CDI5DDI6-CC	Inverters 1CD115 & 1DD116 fail by CCF						3.3E-6
1-ACP-INV-FC-DD1I4&__	Inverter 1DD114 fails by random cause - 1 yr mission time	8.9E-6	8760			INV-FC-IE	7.5E-2
1-ACP-INV-FC-DD1I4__	Inverter 1DD114 fails by random cause	8.9E-6	24			INVFTOP	2.1E-4
1-ACP-INV-FC-DD1I6__	Inverter 1DD116 fails randomly	8.9E-6	24			INVFTOP	2.1E-4
1-ACP-INV-MA-1ND314__	Inverter 1ND314 in maintenance (a power source for 120v panel 1NY4N)			Log Normal	1.00E+1	INV-MA	8.8E-4
1-ACP-INV-MA-AD11I__	Inverter 1AD111 in maintenance			Log Normal	1.00E+1	INV-MA	8.8E-4
1-ACP-INV-MA-AD11I1__	Inverter 1AD111 in maintenance			Log Normal	1.00E+1	INV-MA	8.8E-4
1-ACP-INV-MA-BD11I2__	Inverter 1BD112 in maintenance			Log Normal	1.00E+1		2.1E-4
1-ACP-INV-MA-BD11I2__	Inverter 1BD112 in maintenance			Log Normal	1.00E+1	INV-MA	8.8E-4
1-ACP-INV-MA-CD1I3__	Inverter 1CD113 in maintenance			Log Normal	1.00E+1	INV-MA	8.8E-4
1-ACP-INV-MA-CD1I5__	Inverter 1CD115 in maintenance			Log Normal	1.00E+1	INV-MA	8.8E-4
1-ACP-INV-MA-DD1I4__	Inverter 1DD114 in maintenance			Log Normal	1.00E+1	INV-MA	8.8E-4
1-ACP-INV-MA-DD1I6__	Inverter 1DD116 in maintenance			Log Normal	1.00E+1	INV-MA	8.8E-4
1-ACP-LMS-FC-APRUN_LS-CC	CCF of Is relays on lightly loaded train			Beta	2.80E+2		1.8E-3
1-ACP-LMS-FC-ARUN_LS-CC	CCF of Is relays on heavily loaded train			Beta	2.70E+1		1.8E-2
1-ACP-LMS-FC-BPRUN_LS-CC	CCF of Is relays on lightly loaded train			Beta	2.80E+2		1.8E-3
1-ACP-LMS-FC-BRUN_LS-CC	CCF of Is relays on heavily loaded train			Beta	2.70E+1		1.8E-2
1-ACP-NA-NI-0103_TC__	No signal to NA0103 breaker trip coil						0.0E+0
1-ACP-NA-NI-0403_TC__	No signal to NA0403 breaker trip coil						0.0E+0
1-ACP-NA-NI-0503_TC__	No signal to NA0503 breaker trip coil						0.0E+0
1-ACP-NA-NI-A03_TC__	No signal to NAA03 breaker trip coil						0.0E+0
1-ACP-NA-NI-B03_TC__	No signal to NAB03 breaker trip coil						0.0E+0

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-RLY-FC- K105A	Relay K105A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K105B	Relay K105B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K107A	Relay K107A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K107B	Relay K107B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K114A	Relay K114A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K114B	Relay K114B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K117A	Relay K117A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K117B	Relay K117B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K153A	Relay K153A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K153B	Relay K153B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K154B	Relay K154B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K162A	Relay K162A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K166A	Relay K166A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K166B	Relay K166B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K177A	Relay K177A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K177B	Relay K177B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K178A	Relay K178A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K178B	Relay K178B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K179A	Relay K179A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K179B	Relay K179B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K180A	Relay K180A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K180B	Relay K180B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K181A	Relay K181A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K181B	Relay K181B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K186A	Relay K186A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K186B	Relay K186B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K190A	Relay K190A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K190B	Relay K190B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K194A	Relay K194A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K194B	Relay K194B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K205A	Relay K205A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K205B	Relay K205B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K217A	Relay K217A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K217B	Relay K217B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K221A	Relay K221A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K221B	Relay K221B fails			Beta	2.00E+4	RLY-FC	2.5E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-RLY-FC- K253B	Relay K253B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K259A	Relay K259A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K266A	Relay K266A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K266B	Relay K266B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K293A	Relay K293A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K293B	Relay K293B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K294A	Relay K294A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K294B	Relay K294B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K352A	Relay K352A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K352B	Relay K352B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K353A	Relay K353A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K353B	Relay K353B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K740A	Relay K740A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- K740B	Relay K740B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- 386GX2	Failure of unit trip relay 386GX2 to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- NA01127	Failure of NA0101 incoming supply check 127-1 relay to remain energized			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- NA04127	Failure of NA0401 incoming supply check 127-1 relay to remain energized			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- NA05127	Failure of NA0501 incoming supply check 127-1 relay to remain energized			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- NAA227	Failure of NAA01 incoming supply check 227-1 relay to remain energized			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC- NAB227	Failure of NAB01 incoming supply check 227-1 relay to remain energized			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-8109_42O	HV8109 opening relay 42-o fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-K158A_9	LOSP relay K158A fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-K158B_9	LOSP relay K158B fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-K208A_9	Under voltage slave relay K208A fails to provide a signal to close			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-K208B_9	Under voltage slave relay K208B fails to provide a signal to close			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-K241A_9	Sequencer relay K241A fails to provide a signal			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-K241B_9	Sequencer relay K241B fails to provide a signal			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NA01127X	NA01 127X relay fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NA0127_2	NA01 bus voltage monitoring relay 127-2 fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NA0127_3	NA01 bus voltage monitoring relay 127-3 fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-RLY-FC-NA04127X	NA04 127X relay fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NA0427_2	NA04 bus voltage monitoring relay 127-2 fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NA0427_3	NA04 bus voltage monitoring relay 127-3 fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NA05127X	NA05 127X relay fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NA0527_2	NA05 bus voltage monitoring relay 127-2 fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NA0527_3	NA05 bus voltage monitoring relay 127-3 fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NAA01262	NAA01 time delay relay 262-1 fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NAA01LSR	NAA01 LSR relay fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NAA227X	NAA 227X relay fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NAA27_2	NAA bus voltage monitoring relay 227-2 fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NAA27_3	NAA bus voltage monitoring relay 227-3 fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NAB01262	NAB01 time delay relay 262-1 fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NAB01LSR	NAB01 LSR relay fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NAB227X	NAB 227X relay fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NAB27_2	NAB bus voltage monitoring relay 227-2 fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-RLY-FC-NAB27_3	NAB bus voltage monitoring relay 227-3 fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-ACP-SEL-FC-QCMM____-CC	CCF of sequencer relays and cards (PSA)			CNI	0.00E+0		2.0E-5
1-ACP-SSD-CO-_ALOPM__	Spurious third LOSP			CNI	0.00E+0		3.0E-7
1-ACP-SSD-CO-_BLOPM__	Spurious third LOSP			CNI	0.00E+0		3.0E-7
1-ACP-SSD-FC-_AA41__	Actuation module A41 random circuit failure			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-_AA410__	Random failure of step driver A4-10			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-_AA43__	Sequencer controller A (A4-3) random failure			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-_AA45__	Sequencer controller B (A4-5) random failure			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-_AA49__	Random failure of step driver A4-9			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-_ATA__	Failure of transducer T-A to provide signal			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-_ATB__	Failure of transducer T-B to provide signal			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-_ATC__	Failure of transducer T-C to provide signal			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-_ATD__	Failure of transducer T-D to provide signal			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-_BA41__	Actuation module A41 random circuit failure			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-_BA410__	Random failure of step driver A4-10			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-_BA43__	Sequencer controller A (A4-3) random failure			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-_BA45__	Sequencer controller B (A4-5) random failure			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-_BA49__	Random failure of step driver A4-9			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-_BTA__	Failure of transducer T-A to provide signal			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-_BTB__	Failure of transducer T-B to provide signal			Beta	1.50E+2	SSD-ESF-FC	3.3E-3

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-SSD-FC-_BTC__	Failure of transducer T-C to provide signal			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-_BTD__	Failure of transducer T-D to provide signal			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ACP-SSD-FC-CMM_AA51-CC	CCF of relay driver A5-1 card			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_AA52-CC	CCF of relay driver A5-2 card			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_AA53-CC	CCF of relay driver A5-3 card			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_AA54-CC	CCF of relay driver A5-4 card			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_AA55-CC	CCF of relay driver A5-5 card (PSA)			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_AA56-CC	CCF of relay driver A5-6 card (PSA)			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_AA57-CC	CCF of relay driver A5-7 card (PSA)			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_AA58-CC	CCF of relay driver A5-8 card (PSA)			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_AA59-CC	CCF of relay driver A5-9 card			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_BA51-CC	CCF of relay driver A5-1 card			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_BA52-CC	CCF of relay driver A5-2 card			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_BA53-CC	CCF of relay driver A5-3 card			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_BA54-CC	CCF of relay driver A5-4 card			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_BA55-CC	CCF of relay driver A5-5 card (PSA)			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_BA56-CC	CCF of relay driver A5-6 card (PSA)			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_BA57-CC	CCF of relay driver A5-7 card (PSA)			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_BA58-CC	CCF of relay driver A5-8 card (PSA)			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMM_BA59-CC	CCF of relay driver A5-9 card			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-CMMAA510-CC	CCF of relay driver A5-10 card			CNI	0.00E+0		3.0E-8

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-SSD-FC-CMMBA510-CC	CCF of relay driver A5-10 card			CNI	0.00E+0		3.0E-8
1-ACP-SSD-FC-U301302_-CC	CCF of load sequencer						8.5E-5
1-ACP-SSD-MA-1821U301	Sequencer A unavailable due to maintenance			Log Normal	1.00E+1		2.1E-4
1-ACP-SSD-MA-1821U302	Sequencer B unavailable due to maintenance			Log Normal	1.00E+1		1.9E-4
1-ACP-SWC-FC-_AA3_2_	Bistable A3-2 fails to flip-flop given undervoltage signal			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-_AA3_3_	Bistable A3-3 fails to flip-flop given undervoltage signal			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-_AA3_6_	Bistable A3-6 fails to flip-flop given undervoltage signal			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-_AA3_7_	Bistable A3-7 fails to flip-flop given undervoltage signal			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-_AA3_10_	Bistable A3-10 fails to flip-flop given undervoltage signal			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-_AA3_11_	Bistable A3-11 fails to flip-flop given undervoltage signal			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-_AA3_14_	Bistable A3-14 fails to flip-flop given undervoltage signal			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-_AA3_15_	Bistable A3-15 fails to flip-flop given undervoltage signal			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-_BA3_2_	Bistable A3-2 fails to flip-flop given undervoltage signal			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-_BA3_3_	Bistable A3-3 fails to flip-flop given undervoltage signal			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-_BA3_6_	Bistable A3-6 fails to flip-flop given undervoltage signal			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-_BA3_7_	Bistable A3-7 fails to flip-flop given undervoltage signal			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-_BA3_10_	Bistable A3-10 fails to flip-flop given undervoltage signal			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-_BA3_11_	Bistable A3-11 fails to flip-flop given undervoltage signal			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-_BA3_14_	Bistable A3-14 fails to flip-flop given undervoltage signal			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-_BA3_15_	Bistable A3-15 fails to flip-flop given undervoltage signal			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-NAA01_	NAA01 225 synch comparator fails to operate			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWC-FC-NAB01_	NAB01 225 synch comparator fails to operate			Beta	1.70E+6	BIS-FC	5.4E-4
1-ACP-SWP-FC-NBEEHC_	Static switch fails to transfer power supply from NYF2 to NBE	6.3E-7	24			SWP-FC	1.5E-5
1-ACP-TFP-FC-_A1_	Failure of bus 1AA02 undervoltage potential transformer 1	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFP-FC-_A2_	Failure of bus 1AA02 undervoltage potential transformer 2	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFP-FC-_A3_	Failure of bus 1AA02 undervoltage potential transformer 3	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFP-FC-_A4_	Failure of bus 1AA02 undervoltage potential transformer 4	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFP-FC-_B1_	Failure of bus 1BA03 undervoltage potential transformer 1	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFP-FC-_B2_	Failure of bus 1BA03 undervoltage potential transformer 2	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFP-FC-_B3_	Failure of bus 1BA03 undervoltage potential transformer 3	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFP-FC-_B4_	Failure of bus 1BA03 undervoltage potential transformer 4	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFP-FC-_NA0101_	Failure of NA0101 incoming supply check potential transformer	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFP-FC-_NA0401_	Failure of NA0401 incoming supply check potential transformer	6.4E-7	24			TFM-FC	1.5E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-TFP-FC-_NA0501_	Failure of NA0501 incoming supply check potential transformer	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFP-FC-_NAA01__	Failure of NAA01 incoming supply check potential transformer	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFP-FC-_NAB01__	Failure of naB01 incoming supply check potential transformer	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-_1ASEQT1	Failure of sequencer transformer T1	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-_1ASEQT2	Failure of sequencer transformer T3	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-_1BSEQT1	Failure of sequencer transformer T1	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-_1BSEQT2	Failure of sequencer transformer T3	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-1NBR21RX	Regulated transformer 1NBR21RX fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-1NBS21RX	Regulated transformer 1NBS21RX fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-1NBS39RX	Regulated transformer 1NBS39RX fails (a power source for 120v panel 1NY4N)	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-AB04X	Transformer 1AB04X fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-AB05X	Transformer 1AB05X fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-AB15X	Transformer 1AB15X fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-ABA07X	Regulated transformer 1ABA07X fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-ABB03X	480v MCC transformer 1ABB03X fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-ABC09X	Regulated transformer 1ABC09X fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-ANB02X	Transformer ANB02X fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-BB06X	Transformer 1BB06X fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-BB07X	Transformer 1BB07X fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-BB16X	Transformer 1BB16X fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-BBA07X	Regulated transformer 1BBA07X fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-BBB03X	480v MCC transformer 1BBB03X fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-BBC09X	Regulated transformer 1BBC09X fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-NB01X	Transformer 1NB01X fails to operate	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-NB02X	Transformer 1NB02X from 4160v switchgear 1NA04 to 480v switchgear 1NB02 fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-NB03X	Transformer 1NB03X from 4160v switchgear 1NA01to 480v switchgear 1NB03 fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-NB08X	AC transformer between NA04 and NB08 fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-NB09X	AC transformer between NA01 and NB09 fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-NB10X	Transformer 1NB10X fails to operate	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-NB11X	Transformer 1NB11X from 1NA04 to 1NB11 fails	6.4E-7	24			TFM-FC	1.5E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACP-TFW-FC-NB12X___	Transformer 1NB12X from 4160v switchgear 1NA01 to 480v switchgear 1NB12 fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-NB17X___	Transformer 1NB17X from 4160v switchgear 1NA01 to 480v switchgear 1NB17 fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-NB19X___	Transformer 1NB19X from 4160v switchgear 1NA04 to 480v switchgear 1NB19 fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-NB21X___	AC transformer between NA05 and NB21 fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-NB25X___	Transformer 1NB25X from 4160v switchgear 1NA04 to 480v switchgear 1NB25 fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-NBA03X___	120/240 transformer NBA03X fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-NXRA___	Reserve auxiliary transformer 1NXRA fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-NXRB___	Reserve auxiliary transformer 1NXRB fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-NYF2NBF___	AC transformer between NYF2 and NBF fails	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-FC-SAT___	SAT fails during operation	6.4E-7	24			TFM-FC	1.5E-5
1-ACP-TFW-MA-1NBR21RX___	Regulated transformer 1NBS21RX in maintenance			Log Normal	1.00E+1	TFW-MA	1.0E-3
1-ACP-TFW-MA-1NBS21RX___	Regulated transformer 1NBS21RX in maintenance			Log Normal	1.00E+1	TFW-MA	1.0E-3
1-ACP-TFW-MA-1NBS39RX___	Regulated transformer 1NBS39RX (a power source for 120v panel 1NY4N) in maintenance			Log Normal	1.00E+1	TFW-MA	1.0E-3
1-ACP-TFW-MA-NXRA___	Reserve auxiliary transformer 1NXRA in maintenance (see 1ACTRNXRA---MN)						0.0E+0
1-ACP-TFW-MA-NXRB___	Reserve auxiliary transformer 1NXRB in maintenance (see 1ACTRNXRB---MN)						0.0E+0
1-ACP-TFW-MA-SAT___	SAT in maintenance			Log Normal	1.00E+1	TFW-MA	1.0E-3
1-ACP-TIM-FC-__AA47___	Sequencer timer A4-7 fails to send step sequence signals	4.8E-5	24			TIM-FC	1.1E-3
1-ACP-TIM-FC-__BA47___	Sequencer timer A4-7 fails to send step sequence signals	4.8E-5	24			TIM-FC	1.1E-3
1-ACP-XSW-CO-A4213___	AC switch A4213 spuriously opens			Log Normal	9.90E+0	XSW-FC	1.7E-7
1-ACP-XSW-CO-A4223___	AC switch A4223 spuriously opens			Log Normal	9.90E+0	XSW-FC	1.7E-7
1-ACP-XSW-OO-A4213___	AC switch A4213 randomly fails to close			Log Normal	9.90E+0	XSW-FC	1.7E-7
1-ACP-XSW-OO-A4213223-CC	AC switches A4213 and A4223 fail to close due to CCF			CNI	0.00E+0		2.2E-4
1-ACP-XSW-OO-A4223___	AC switch A4223 randomly fails to close			Log Normal	9.90E+0	XSW-FC	1.7E-7
1-ACW-AOV-OC-TV0130___	Spurious closure of letdown HX ACCW LV0130						0.0E+0
1-ACW-CKV-CC-026___	ACCW check valve 026 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-ACW-CKV-CC-028___	ACCW check valve 028 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-ACW-CKV-CF-CC2628___	ACCW check valves 026 and 028 fail to open due to CCF						4.9E-7
1-ACW-CKV-OC-026__DA__	Check valve 026 transfers closed/plugged (24 hrs)	5.3E-9	24			CKV-OC	1.3E-7
1-ACW-CKV-OC-026__MO__	ACCW pump 1 discharge check valve plugs (31*24/2 + 24 hrs)	5.3E-9	24			CKV-OC	1.3E-7
1-ACW-CKV-OC-028__DA__	Check valve 028 transfers closed/plugged (24 hrs)	5.3E-9	24			CKV-OC	1.3E-7



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACW-CKV-OC-028__MO_	ACCW pump 2 discharge check valve plugs (31*24/2 + 24 hrs)	5.3E-9	24			CKV-OC	1.3E-7
1-ACW-CKV-OC-114_____	ACCW return from RCP TB CL check valve 114 transfers closed/plugged	5.3E-9	24			CKV-OC	1.3E-7
1-ACW-CKV-OO-026_____	ACCW pump 1 discharge CV 026 fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-ACW-CKV-OO-028_____	ACCW pump B 2 discharge CV 028 fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-ACW-CKV-OO-084_____	RCP 1 thermal barrier upstream ACCW CV084 fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-ACW-CKV-OO-085_____	RCP 2 thermal barrier upstream ACCW CV085 fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-ACW-CKV-OO-086_____	RCP 3 thermal barrier upstream ACCW CV086 fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-ACW-CKV-OO-087_____	RCP 4 thermal barrier upstream ACCW CV087 fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-ACW-CNT-OO-1956AX__	Contact for relay 1956AX fails to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACW-CNT-OO-1957AX__	Contact for relay 1957AX fails to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-ACW-HTX-PG-E4_001__	ACCW HX E4-001 plugs	1.1E-7	24			HTX-PG	2.6E-6
1-ACW-HTX-PG-E4_001_LCO	ACCW HX E4-001 plugs - LCO (72 hr)	1.1E-7	72				7.9E-6
1-ACW-HTX-PG-E4_002__	ACCW HX E4-002 plugs	1.1E-7	24			HTX-PG	2.6E-6
1-ACW-HTX-PG-E4_002_LCO	ACCW HX E4-002 plugs - LCO (72 hr)	1.1E-7	72				7.9E-6
1-ACW-LSW-FC-LS_M1956	Surge tank level switch 1956 fails by reading low (31*24/2 + 24 hrs)	9.7E-8	396				3.8E-5
1-ACW-LSW-FC-LS_M1957	Surge tank level switch 1957 fails by reading low (31*24/2 + 24 hrs)	9.7E-8	396				3.8E-5
1-ACW-LSW-FC-LSLL1956	LSLL-1956 fails signaling low low level which trips the pump	9.7E-8	24				2.3E-6
1-ACW-LSW-FC-LSLL1957	LSLL-1957 fails signaling low low level which trips pump 002	9.7E-8	24				2.3E-6
1-ACW-MDP-CF-FR0012	CCF to run of ACCW pumps 1-1217-P4-001 and 002 (24 hr)						2.0E-6
1-ACW-MDP-CF-FS0012	CCF of ACCW pumps 1-1217-P4-001 & 002 to start						4.7E-6
1-ACW-MDP-FR-P4_001__	ACCW pump 1-1217-P4-001 randomly FTR (24 hr)	3.2E-6	24	Beta	4.80E+1	CCW-MDP-FTR	7.6E-5
1-ACW-MDP-FR-P4_001_LCO	ACCW pump 1-1217-P4-001 randomly FTR - LCO (72 hr)	3.2E-6	72				2.3E-4
1-ACW-MDP-FR-P4_002__	ACCW pump 1-1217-P4-002 randomly FTR (24hr)	3.2E-6	24	Beta	4.80E+1	CCW-MDP-FTR	7.6E-5
1-ACW-MDP-FR-P4_002_LCO	ACCW pump 1-1217-P4-002 randomly FTR - LCO (72hr)	3.2E-6	72				2.3E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACW-MDP-FR-P4001&2_PND	CCF to run of ACCW pumps 1-1217-P4-001 -LCO (72hr)			Beta	2.80E+5		1.8E-6
1-ACW-MDP-FS-P4_001__	ACCW pump 1-1217-P4-001 randomly FTS			Beta	4.70E+3	CCW-MDP-FTS	4.8E-4
1-ACW-MDP-FS-P4_002__	ACCW pump 1-1217-P4-002 randomly FTS			Beta	4.70E+3	CCW-MDP-FTS	4.8E-4
1-ACW-MDP-MA-P4_001__	ACCW pump 1-1217-P4-001 unavailable due to maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-ACW-MDP-MA-P4_002__	ACCW pump 1-1217-P4-002 unavailable due to maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-ACW-MOV-CF-DSISO	TBHX ACCW downstream isolation valves HV1905, HV2041 fail from CCF to close						5.7E-6
1-ACW-MOV-OC-HV_1974_	ACCW return line from RCPs MOV HV-1974 transfers closed	2.9E-8	24			MOV-CO	7.0E-7
1-ACW-MOV-OC-HV_1975_	ACCW return line from RCPs MOV HV-1975 transfers closed	2.9E-8	24			MOV-OC	7.0E-7
1-ACW-MOV-OC-HV_1978_	ACCW supply to RCP MOV HV-1978 transfers closed	2.9E-8	24			MOV-OC	7.0E-7
1-ACW-MOV-OC-HV_1979_	ACCW supply to RCP MOV HV-1979 transfers closed	2.9E-8	24			MOV-OC	7.0E-7
1-ACW-MOV-OC-HV_2041_	ACCW return from RCP TB cooling isolation MOV HV-2041 transfers closed	2.9E-8	24			MOV-OC	7.0E-7
1-ACW-MOV-OO-HV19051_	RCP 1 TB HX downstream ACCW isolation MOV HV19051 fails to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-ACW-MOV-OO-HV19053_	RCP 2 TB HX downstream ACCW isolation MOV HV19053 fails to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-ACW-MOV-OO-HV19055_	RCP 3 TB HX downstream ACCW isolation MOV HV19055 fails to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-ACW-MOV-OO-HV19057_	RCP 4 TB HX downstream ACCW isolation MOV HV19057 fails to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-ACW-MOV-OO-HV1974__	RCPs thermal barrier HXs to ACCW return line MOV HV1974 fail to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-ACW-MOV-OO-HV1978__	RCPs thermal barrier HXs to ACCW supply line MOV HV1978 fail to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-ACW-MOV-OO-HV2041__	RCPs TB HX downstream ACCW isolation valve HV2041 fails to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-ACW-PRV-CC-PSV8121	PSV 8121 fails to open			Beta	4.70E+3	PPR-PRV-CC	3.5E-3
1-ACW-PRV-CC-RV19056	RV 19056 in RCP motor cooling ACCW line fail to open			Beta	4.70E+3	PPR-PRV-CC	3.5E-3
1-ACW-PRV-CC-RV19057	RV 19057 in RCP motor cooling ACCW line fail to open			Beta	4.70E+3	PPR-PRV-CC	3.5E-3
1-ACW-PRV-CC-RV19058	RV 19058 in RCP motor cooling ACCW line fail to open			Beta	4.70E+3	PPR-PRV-CC	3.5E-3
1-ACW-PRV-CC-RV19059	RV 19059 in RCP motor cooling ACCW line fail to open			Beta	4.70E+3	PPR-PRV-CC	3.5E-3
1-ACW-PRV-CC-RV19087	RV 19087 in RCP motor cooling ACCW line fail to open			Beta	4.70E+3	PPR-PRV-CC	3.5E-3
1-ACW-PRV-CC-RV19088	RV 19088 in RCP motor cooling ACCW line fail to open			Beta	4.70E+3	PPR-PRV-CC	3.5E-3

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ACW-PRV-CC-RV19089	RV 19089 in RCP motor cooling ACCW line fail to open			Beta	4.70E+3	PPR-PRV-CC	3.5E-3
1-ACW-SWP-FC-PT_1956_	Pt-1956 FTS pump 1 on low discharge header pressure	6.3E-7	24			SWP-FC	1.5E-5
1-ACW-SWP-FC-PT_1957_	Pt-1957 FTS pump 2 on low discharge header pressure	6.3E-7	24			SWP-FC	1.5E-5
1-ACW-TFF-FC-FT19052_	RCP 1 TB HX downstream ACCW flow transmitter 19052 fail to generate close signal	9.7E-8	24			TFF-FC	2.3E-6
1-ACW-TFF-FC-FT19054_	RCP 2 TB HX downstream ACCW flow transmitter 19054 fail to generate close signal	9.7E-8	24			TFF-FC	2.3E-6
1-ACW-TFF-FC-FT19056_	RCP 3 TB HX downstream ACCW flow transmitter 19056 fail to generate close signal	9.7E-8	24			TFF-FC	2.3E-6
1-ACW-TFF-FC-FT19058_	RCP 4 TB HX downstream ACCW flow transmitter 19058 fail to generate close signal	9.7E-8	24			TFF-FC	2.3E-6
1-ACW-TNK-RP-T4_001__	ACCW surge tank 1-1217-T4-001 ruptures causing low low level	1.8E-8	24			TNK-RP	4.3E-7
1-ACW-XVM-OC-125__	Locked open valve fails closed (ACCW manual valve 125)	8.4E-8	24			XVM-OC	2.0E-6
1-ACW-XVM-OC-130__	Locked open valve fails closed (ACCW manual valve 130)	8.4E-8	24			XVM-OC	2.0E-6
1-ACW-XVM-OC-2059_MO_	ACCW pump 1 suction locked open valve fails closed (31*24/2 + 24 hrs)	8.4E-8	24			XVM-OC	2.0E-6
1-ACW-XVM-OC-2060_MO_	ACCW pump 1 discharge locked open valve fails closed (31*24/2 + 24 hrs)	8.4E-8	24			XVM-OC	2.0E-6
1-ACW-XVM-OC-2061_MO_	ACCW pump 2 suction locked open valve fails closed (31*24/2 + 24 hrs)	8.4E-8	24			XVM-OC	2.0E-6
1-ACW-XVM-OC-2062_MO_	ACCW pump 2 discharge locked open valve fails closed (31*24/2 + 24 hrs)	8.4E-8	24			XVM-OC	2.0E-6
1-ACW-XVM-OC-HV_2059_	Locked open valve HV-2059 fails closed (24 hrs) ACCW pump 1 suction	8.4E-8	24			XVM-OC	2.0E-6
1-ACW-XVM-OC-HV_2060_	Locked open valve HV-2060 fails closed (24 hrs) ACCW pump 1 discharge	8.4E-8	24			XVM-OC	2.0E-6
1-ACW-XVM-OC-HV_2061_	Locked open valve HV-2061 fails closed (24 hrs) ACCW pump 2 suction	8.4E-8	24			XVM-OC	2.0E-6
1-ACW-XVM-OC-HV_2062_	Locked open valve HV-2062 fails closed (24 hrs) ACCW pump 2 discharge	8.4E-8	24			XVM-OC	2.0E-6
1-ACW-XVM-PG-19082__	ACCW supply to RCPs manual valve 19082 plugs	8.4E-8	24			XVM-OC	2.0E-6
1-AFW-ASL-FC-LT5101F	CST1 level transmitter LT5101 fails	9.7E-8	24			TFL-FC	2.3E-6
1-AFW-ASL-FC-LT5111F	CST1 level transmitter LT5111 fails	9.7E-8	24	Beta	4.30E+2	TFL-FC	2.3E-6
1-AFW-CKV-CC-001__	MDAFWP A discharge line CV e 001 randomly fails			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-001002_-CC	AFW pumps discharge line CVs 001, 002 fail to open - CCFs						4.5E-7
1-AFW-CKV-CC-001014_-CC	AFW pump discharge line CVs 001, 014 fail to open -CCF						4.5E-7

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-AFW-CKV-CC-002_____	MDAFWP discharge check valve 002 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-002014__-CC	AFW pumps discharge CVs 002, 014 fail due - CCF						4.5E-7
1-AFW-CKV-CC-010214__-CC	AFW pumps discharge line CVs 001, 002, 014 fail to open - CCF						1.2E-7
1-AFW-CKV-CC-013_____	TDAFWP suction check valve 013 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-014_____	TDAFWP discharge check valve 014 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-033_____	MDAFWP A suction CV 033 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-033013__-CC	AFW pumps suction CVs 033, 013 fail to open -CCF						4.5E-7
1-AFW-CKV-CC-033058__-CC	AFW pumps suction CVs 033, 058 fail to open -CCF						4.5E-7
1-AFW-CKV-CC-051_____	AFW CST 2 CV 051 fails to open - random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-051052__-CC	AFW CST 2 CV 051 & 052 fails to open - CCF						4.5E-7
1-AFW-CKV-CC-051061__-CC	AFW CST 2 CV 051 & 061 fails to open - CCF						4.5E-7
1-AFW-CKV-CC-0516152__-CC	AFW CST 2 CVs 051, 061, & 052 fails to open						1.2E-7
1-AFW-CKV-CC-052_____	AFW CST 2 CV 052 fails to open - random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-058_____	MDAFWP B suction check valve 058 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-058013__-CC	AFW pumps suction CVs 058, 013 fail to open - CCF						4.5E-7
1-AFW-CKV-CC-061_____	AFW CST 2 CV 061 fails to open - random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-061052__-CC	AFW CST 2 CV 061 & 052 fails to open - CCF						4.5E-7
1-AFW-CKV-CC-117_____	AFW check valve 117 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-118_____	AFW check valve 118 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-119_____	AFW check valve 119 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-120_____	AFW check valve 120 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-125_____	SG1 AFW feed line CV 125 randomly fails			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-125126__-CC	SG AFW feed line CVs 125 & 126 fail to open - CCF						2.3E-7
1-AFW-CKV-CC-125127__-CC	SG AFW feed line CVs 125 & 127 fail to open - CCF						2.3E-7
1-AFW-CKV-CC-125128__-CC	SG AFW feed line CVs 125 & 128 fail to open- CCF						2.3E-7
1-AFW-CKV-CC-12567__-CC	SG AFW feed line CVs 125,126, & 127 fail to open - CCFs						8.8E-8
1-AFW-CKV-CC-125678__-CC	SG AFW feed line CVs 125,126,127,128 fail to open - CCF						5.8E-8
1-AFW-CKV-CC-12568__-CC	SG AFW feed line CVs 125,126, & 128 fail to open - CCF						8.8E-8
1-AFW-CKV-CC-12578__-CC	SG AFW feed line CVs 125,127, & 128 fail to open -CCF						8.8E-8
1-AFW-CKV-CC-126_____	SG 2 AFW feed line check valve 126 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-126127__-CC	SG AFW feed line CVs 126 & 127 fail to open - CCF						2.3E-7
1-AFW-CKV-CC-126128__-CC	SG AFW feed line CVs 126 & 128 fail to open -CCF						2.3E-7

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-AFW-CKV-CC-12678__CC	SG AFW feed line CVs 126,127, & 128 fail to open -CCF						8.8E-8
1-AFW-CKV-CC-127__	SG4 AFW feed line check valve 127 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-127128__CC	SG AFW feed line CVs 127 & 128 fail to open -CCF						2.3E-7
1-AFW-CKV-CC-128__	SG3 AFW feed line check valve 128 randomly fail to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-AFW-CKV-CC-331358__CC	AFW pumps suction CVs 033, 013, 058 fail to open - CCF						1.2E-7
1-AFW-CKV-CF-PDCV	Pump discharge check valves 001, 002, and 014 fail from CCF						8.8E-8
1-AFW-CKV-CF-PSCV	Pump suction check valves 033, 058, and 013 fail from CCF						8.8E-8
1-AFW-CKV-CF-SGCV	SG check valves 125, 126, 127, and 128 fail from CCF						4.8E-8
1-AFW-CNT-OO-AX_1__	Relay AX-1 contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-AFW-CNT-OO-AX_2__	Relay AX-2 contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-AFW-MDP-CF-RUN	AFW motor-driven pumps fail from CCF to run						6.1E-6
1-AFW-MDP-CF-START	AFW motor-driven pumps fail from CCF to start						5.0E-5
1-AFW-MDP-FR-P4002__	MDAFWP B (P4-002) FTR due to random failure						2.0E-4
1-AFW-MDP-FR-P4003__	MDAFWP A (P4-003) FTR due to random failure						2.0E-4
1-AFW-MDP-FS-P4002__	MDAFWP B (P4-002) FTS due to random failure			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-AFW-MDP-FS-P4003__	MDAFWP A FTS due to random failure			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-AFW-MDP-MA-P4002__	MDAFWP B (P4-002) unavailable due to test or maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-AFW-MDP-MA-P4003__	MDAFWP A (P4-003) unavailable due to test or maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-AFW-MOV-CC-51131819-CC	AFW CST 2 MOVs HV 5113, 5118,& 5119 fail to open - CCF						1.8E-5
1-AFW-MOV-CC-HV5106__	TDAFWP steam admission valve HV-5106 fails to open			Beta	5.40E+4	MOV-CC	3.5E-4
1-AFW-MOV-CC-HV5113__	AFW MOV HV5113 (CST 2 isolation MOV) fails to open - random faults			Beta	5.40E+4	MOV-CC	3.5E-4
1-AFW-MOV-CC-HV511318-CC	AFW MOV HV 5113 & HV5118(CST 2 isolation MOV) fails to open - CCF						1.1E-5
1-AFW-MOV-CC-HV511319-CC	AFW MOV HV 5113 & HV5119 (CST 2 isolation MOV) fails to open - CCF						1.1E-5
1-AFW-MOV-CC-HV5118__	AFW MOV HV5118 (CST 2 isolation MOV) fails to open - random faults			Beta	5.40E+4	MOV-CC	3.5E-4
1-AFW-MOV-CC-HV511819-CC	AFW MOV HV 5118 & HV5119 (CST 2 isolation MOV) fails to open - CCF						1.1E-5
1-AFW-MOV-CC-HV5119__	AFW MOV HV5119 (CST 2 isolation MOV) fails to open - random faults			Beta	5.40E+4	MOV-CC	3.5E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-AFW-MOV-CF-MINFL	AFW motor driven pump min flow valves 5155 and 5154 fail from CCF						1.1E-5
1-AFW-MOV-CO-FV5154__	MDAFWP B flow MOV FV-5154 fails to remain closed	2.9E-8	24	Gamma	1.57E+0	MOV-CO	7.0E-7
1-AFW-MOV-MA-HV3009__	TDAFW steam supply valve HV3009 in maintenance (see 1AFMVHV3009-MN)			Log Normal	1.00E+1		1.7E-4
1-AFW-MOV-MA-HV3019__	TDAFW steam supply valve HV3019 in maintenance (see 1AFMVHV3019-MN)			Log Normal	1.00E+1		1.9E-4
1-AFW-MOV-NI-HV3009_M	TDAFW steam supply HV3009 *not* in maintenance [1-maint unavailability (i.e.1-0.0E+)]						1.0E+0
1-AFW-MOV-NI-HV3019_M	TDAFW steam supply HV3019 *not* in maintenance [1-maint unavailability (i.e.1-0.0E+)]						1.0E+0
1-AFW-MOV-OC-HV3009__	MOV HV3009 in TDAFWP steam supply line from SG1 spuriously closes	2.9E-8	24			MOV-OC	7.0E-7
1-AFW-MOV-OC-HV3019__	MOV HV3019in TDAFWP steam supply line from SG2 spuriously closes	2.9E-8	24			MOV-OC	7.0E-7
1-AFW-MOV-OC-TANDT__	AFW trip and throttle valve PV15129 spuriously closes	2.9E-8	24			MOV-CO	7.0E-7
1-AFW-MOV-OO-30093019-CC	AFW MOVs fails to close on demand - CCF						3.8E-5
1-AFW-MOV-OO-FV5154__	MDAFWP B mini flow MOV FV-5154 fails to close due to random failure			Beta	5.40E+4	MOV-OO	3.5E-4
1-AFW-MOV-OO-FV5155__	MDAFWP A mini flow MOV FV-5155 fails to close due to random failure			Beta	5.40E+4	MOV-OO	3.5E-4
1-AFW-MOV-OO-HV3009__	AFW MOV HV3009 fails to close on demand			Beta	5.40E+4	MOV-OO	3.5E-4
1-AFW-MOV-OO-HV3019__	AFW MOV HV3019 fails to close on demand			Beta	5.40E+4	MOV-OO	3.5E-4
1-AFW-MOV-OO-HV5120__	TDAFWP MOV HV5120 fails to close on demand			Beta	5.40E+4	MOV-OO	3.5E-4
1-AFW-MOV-OO-HV5122__	Turbine driven pump discharge valve HV5122 fails to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-AFW-MOV-OO-HV5125__	Turbine driven pump discharge valve HV5125 fails to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-AFW-MOV-OO-HV5127__	Turbine driven pump AFW MOV HV5127 fails to close on demand			Beta	5.40E+4	MOV-OO	3.5E-4
1-AFW-MOV-OO-HV5132__	Motor driven pump B discharge valve HV5132 fails to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-AFW-MOV-OO-HV5134__	MDAFWP B MOV HV5134 fails to close on demand			Beta	5.40E+4	MOV-OO	3.5E-4
1-AFW-MOV-OO-HV5137__	MDAFWP A MOV HV5137 fails to close on demand			Beta	5.40E+4	MOV-OO	3.5E-4
1-AFW-MOV-OO-HV5139__	Motor driven pump A discharge valve HV5139 fails to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-AFW-MOV-PG-HV5120__	TDAFWP flow distribution line to SG 4 MOV HV5120 transfer closed/plugged	5.0E-9	24			MOV-PG	1.2E-7
1-AFW-MOV-PG-HV5122__	TDAFWP flow distribution to SG1 MOV HV5122 transfer closed/plugged			Beta	5.40E+4	MOV-OO	3.5E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-AFW-MOV-PG-HV5125__	TDAFWP flow distribution line to SG2 MOV HV5125 transfer closed/plugged	5.0E-9	24			MOV-PG	1.2E-7
1-AFW-MOV-PG-HV5127__	TDAFWP flow distribution to SG3 MOV HV5127 transfer closed/plugged	5.0E-9	24			MOV-PG	1.2E-7
1-AFW-MOV-PG-HV5132__	MDAFWP B flow distribution to SG2 MOV HV5132 transfer closed/plugged	5.0E-9	24			MOV-PG	1.2E-7
1-AFW-MOV-PG-HV5134__	MDAFWP B flow distribution line to SG3 MOV HV5134 transfer closed/plugged	5.0E-9	24			MOV-PG	1.2E-7
1-AFW-MOV-PG-HV5137__	MDAFWP A flow distribution line to SG4 MOV HV5137 transfer closed/plugged	5.0E-9	24			MOV-PG	1.2E-7
1-AFW-MOV-PG-HV5139__	MOV HV5139 in MDAFWP A flow distribution line to SG1 transfer closed/plugged	5.0E-9	24			MOV-PG	1.2E-7
1-AFW-PMP-CF-RUN	AFW pumps fail from CCF to run (excluding driver)						1.5E-5
1-AFW-PMP-FR-P4001__	TDAFWP (P4-001) FTR	1.3E-4	24	Beta	3.10E+2	PMP-FR	3.2E-3
1-AFW-PMP-FR-P4002__	MDAFWP B (P4-002) FTR due to random failure	1.3E-4	24	Beta	3.10E+2	PMP-FR	3.2E-3
1-AFW-PMP-FR-P4003__	MDAFWP A (P4-003) FTR due to random failure	1.3E-4	24	Beta	3.10E+2	PMP-FR	3.2E-3
1-AFW-RLY-FC-AX_1__	Relay AX-1 fails (TDAFW pump start logic)			Beta	2.00E+4	RLY-FC	2.5E-5
1-AFW-RLY-FC-AX_2__	Relay AX-2 fails (TDAFW pump start logic)			Beta	2.00E+4	RLY-FC	2.5E-5
1-AFW-SCV-CC-017_____	TDAFWP flow distribution line to SG4 stop CV 017 randomly fails to open			Beta	4.00E+4	SCV-CC	1.3E-5
1-AFW-SCV-CC-017020__-CC	AFW flow distribution line stop CVs 017 & 020 fail to open - CCF						2.7E-8
1-AFW-SCV-CC-017023__-CC	AFW flow distribution line stop CVs 017 & 023 fail to open -CCF						2.7E-8
1-AFW-SCV-CC-017026__-CC	AFW flow distribution line stop CVs 017 & 026 fail to open - CCF						2.7E-8
1-AFW-SCV-CC-017037__-CC	AFW flow distribution line stop CVs 017 & 037 fail to open -CCF						2.7E-8
1-AFW-SCV-CC-017040__-CC	AFW flow distribution line stop CVs 017 & 040 fail to open -CCF						2.7E-8
1-AFW-SCV-CC-017043__-CC	AFW flow distribution line stop CVs 017 & 043 fail to open -CCF						2.7E-8
1-AFW-SCV-CC-017046__-CC	AFW flow distribution line stop CVs 017 & 046 fail to open - CCF						2.7E-8
1-AFW-SCV-CC-020_____	TDAFWP flow distribution line to SG1 stop CV 020 fails to open randomly			Beta	4.00E+4	SCV-CC	1.3E-5
1-AFW-SCV-CC-020023__-CC	AFW flow distribution line stop CVs 020 & 023 fail to open-CCF						2.7E-8

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-AFW-SCV-CC-020026__-CC	AFW flow distribution line stop CVs 020 & 026 fail to open - CCF						2.7E-8
1-AFW-SCV-CC-020037__-CC	AFW flow distribution line stop CVs 020 & 037 fail to open - CCF						2.7E-8
1-AFW-SCV-CC-020040__-CC	AFW flow distribution line stop CVs 020 & 040 fail to open -CCF						2.7E-8
1-AFW-SCV-CC-023_____	TDAFWP flow distribution line to SG2 stop CV 023 randomly fails to open			Beta	4.00E+4	SCV-CC	1.3E-5
1-AFW-SCV-CC-023026__-CC	AFW flow distribution line stop CVs 023 & 026 fail to open - CCF						2.7E-8
1-AFW-SCV-CC-023040__-CC	AFW flow distribution line stop CVs 023 & 040 fail to open -CCF						2.7E-8
1-AFW-SCV-CC-026_____	TDAFWP flow distribution line to SG3 stop CV 026 randomly fails to open			Beta	4.00E+4	SCV-CC	1.3E-5
1-AFW-SCV-CC-037_____	MDAFWP B flow distribution to SG2 stop CV037 randomly fails to open			Beta	4.00E+4	SCV-CC	1.3E-5
1-AFW-SCV-CC-037023__-CC	AFW flow distribution line stop CVs 037 & 023 fail to open -CCF						2.7E-8
1-AFW-SCV-CC-037026__-CC	AFW flow distribution line stop CVs 037 & 026 fail to open - CCF						2.7E-8
1-AFW-SCV-CC-037040__-CC	AFW flow distribution line stop CVs 037 & 040 fail to open -CCF						2.7E-8
1-AFW-SCV-CC-040_____	MDAFWP B flow distribution line to SG3 stop CV040 randomly fail to open			Beta	4.00E+4	SCV-CC	1.3E-5
1-AFW-SCV-CC-040026__-CC	AFW flow distribution line stop CVs 040 & 026 fail to open - CCF						2.7E-8
1-AFW-SCV-CC-043_____	MDAFWP A flow distribution line to SG4 stop CV 043 randomly fail to open			Beta	4.00E+4	SCV-CC	1.3E-5
1-AFW-SCV-CC-043020__-CC	Stop check valves 043 & 020 fail due to CCF						2.7E-8
1-AFW-SCV-CC-043023__-CC	AFW flow distribution line stop CVs 043 & 023 fail to open -CCF						2.7E-8
1-AFW-SCV-CC-043026__-CC	AFW flow distribution line stop CVs 043 & 026 fail to open - CCF						2.7E-8
1-AFW-SCV-CC-043037__-CC	AFW flow distribution line stop CVs 043 & 037 fail to open -CCF						2.7E-8
1-AFW-SCV-CC-043040__-CC	AFW flow distribution line stop CVs 043 & 040 fail to open - CCF						2.7E-8
1-AFW-SCV-CC-043046__-CC	AFW flow distribution line stop CVs 043 & 046 fail to open - CCF						2.7E-8



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-AFW-SCV-CC-046_____	Stop CV 046 in MDAFW pump A flow distribution line to SG1 randomly fails to open			Beta	4.00E+4	SCV-CC	1.3E-5
1-AFW-SCV-CC-046020__-CC	AFW flow distribution line stop CVs 046 & 020 fail to open - CCF						2.7E-8
1-AFW-SCV-CC-046023__-CC	AFW flow distribution line stop CVs 046 & 023 fail to open - CCF						2.7E-8
1-AFW-SCV-CC-046026__-CC	AFW flow distribution line stop CVs 046 & 026 fail due to CCF						2.7E-8
1-AFW-SCV-CC-046037__-CC	AFW flow distribution line stop CVs 046 & 037 fail to open - CCF						2.7E-8
1-AFW-SCV-CC-046040__-CC	AFW flow distribution line stop CVs 046 & 040 fail to open - CCF						2.7E-8
1-AFW-SCV-CC-113_____	SG1 AFW feed line stop CV 113 randomly fails to open			Beta	4.00E+4	SCV-CC	1.3E-5
1-AFW-SCV-CC-113114__-CC	SG AFW feed line stop CVs 113 & 114 fail to open - CCF						1.1E-7
1-AFW-SCV-CC-113115__-CC	SG AFW feed line stop CVs 113 & 115 fail to open - CCF						1.1E-7
1-AFW-SCV-CC-1131415__-CC	SG AFW feed line stop CVs 113, 114, & 115 CCF						4.2E-8
1-AFW-SCV-CC-114_____	SG 2 AFW feed line stop CV 114 randomly fails to open			Beta	4.00E+4	SCV-CC	1.3E-5
1-AFW-SCV-CC-114115__-CC	SG AFW feed line stop CVs 114 & 115 fail to open - CCF						1.1E-7
1-AFW-SCV-CC-115_____	SG3 AFW feed line stop CV 115 randomly fails to open			Beta	4.00E+4	SCV-CC	1.3E-5
1-AFW-SCV-CC-116_____	SG 4 AFW feed line stop check valve116 randomly fails to open			Beta	4.00E+4	SCV-CC	1.3E-5
1-AFW-SCV-CC-116113__-CC	SG AFW feed line stop CVs 116 & 113 fail to open - CCF						1.1E-7
1-AFW-SCV-CC-116114__-CC	SG feed line stop CVs 116 & 114 fail to open - CCF						1.1E-7
1-AFW-SCV-CC-116115__-CC	SG AFW feed line stop CVs 116 & 115 fail to open - CCF						1.1E-7
1-AFW-SCV-CC-1161314__-CC	SG AFW feed line stop CVs 116, 113, & 114 fail to open - CCF						4.2E-8
1-AFW-SCV-CC-1161315__-CC	SG AFW feed line stop CVs 116, 113, & 115 fail to open - CCF						4.2E-8
1-AFW-SCV-CC-1161415__-CC	SG AFW feed line stop CVs 116, 114, & 115 fail to open - CCF						4.2E-8
1-AFW-SCV-CC-16131415-CC	SG AFW feed line stop CVs 116, 113, 114, & 115 fail to open - CCF						2.8E-8
1-AFW-SCV-CC-172023__-CC	AFW flow distribution line stop CVs 17, 20 & 23 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-172026__-CC	AFW flow distribution lines stop CVs 17, 20 & 26 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-172037__-CC	AFW flow distribution line stop CVs 17, 20 & 37 fail to open - CCF						5.2E-9

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-AFW-SCV-CC-172040__-CC	AFW flow distribution lines stop CVs 17, 20 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-172043__-CC	AFW flow distribution line stop CVs 17, 20 & 43 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-172046__-CC	AFW flow distribution lines stop CVs 17, 20 & 46 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-172326__-CC	AFW flow distribution lines stop CVs 17, 23 & 26 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-172337__-CC	AFW flow distribution line stop CVs 17, 23 & 37 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-172340__-CC	AFW flow distribution lines stop CVs 17, 23 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-172343__-CC	AFW flow distribution line stop CVs 17, 23 & 43 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-172346__-CC	AFW flow distribution line stop CVs 17, 23 & 46 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-172637__-CC	AFW flow distribution lines stop CVs 17, 26 & 37 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-172640__-CC	AFW flow distribution lines stop CVs 17, 26 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-172643__-CC	AFW flow distribution lines stop CVs 17, 26 & 43 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-172646__-CC	AFW flow distribution line stop CVs 17, 26 & 46 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-173740__-CC	AFW flow distribution lines stop CVs 17, 37 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-173743__-CC	AFW flow distribution line stop CVs 17, 37 & 43 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-173746__-CC	AFW flow distribution line stop CVs 17, 37 & 46 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-174043__-CC	AFW flow distribution lines stop CVs 17, 40 & 43 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-174046__-CC	AFW flow distribution lines stop CVs 17, 40 & 46 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-174346__-CC	AFW flow distribution lines stop CVs 17, 43 & 46 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-202326__-CC	AFW flow distribution lines stop CVs 20, 23 & 26 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-202337__-CC	AFW flow distribution lines stop CVs 20, 23 & 37 fail to open - CCF						5.2E-9

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-AFW-SCV-CC-202340__-CC	AFW flow distribution lines stop CVs 20, 23 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-202637__-CC	AFW flow distribution lines stop CVs 20, 26 & 37 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-202640__-CC	AFW flow distribution lines stop CVs 20, 26 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-203740__-CC	AFW flow distribution lines stop CVs 20, 37 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-232640__-CC	AFW flow distribution lines stop CVs 23, 26 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-372326__-CC	AFW flow distribution lines stop CVs 37, 23 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-372340__-CC	AFW flow distribution lines stop CVs 37, 23 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-372640__-CC	AFW flow distribution lines stop CVs 37, 26 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-432023__-CC	AFW flow distribution line stop CVs 43, 20 & 23 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-432026__-CC	AFW flow distribution lines stop CVs 43, 20 & 26 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-432037__-CC	AFW flow distribution lines stop CVs 43, 20 & 37 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-432040__-CC	AFW flow distribution lines stop CVs 43, 20 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-432046__-CC	AFW flow distribution lines stop CVs 43, 20 & 46 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-432326__-CC	AFW flow distribution lines stop CVs 43, 23 & 26 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-432337__-CC	AFW flow distribution lines stop CVs 43, 23 & 37 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-432340__-CC	AFW flow distribution lines stop CVs 43, 23 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-432346__-CC	AFW flow distribution lines stop CVs 43, 23 & 46 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-432637__-CC	AFW flow distribution lines stop CVs 43, 26 & 37 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-432640__-CC	AFW flow distribution lines stop CVs 43, 26 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-432646__-CC	AFW flow distribution lines stop CVs 43, 26 & 46 fail to open - CCF						5.2E-9

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-AFW-SCV-CC-433740__-CC	AFW flow distribution lines stop CVs 43, 37 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-433746__-CC	AFW flow distribution lines stop CVs 43, 37 & 46 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-434046__-CC	AFW flow distribution lines stop CVs 43, 40 & 46 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-462023__-CC	AFW flow distribution lines stop CVs 46, 20 & 23 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-462026__-CC	AFW flow distribution lines stop CVs 46, 20 & 26 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-462037__-CC	AFW flow distribution lines stop CVs 46, 20 & 37 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-462040__-CC	AFW flow distribution lines stop CVs 46, 20 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-462326__-CC	AFW flow distribution lines stop CVs 46, 23 & 26 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-462337__-CC	AFW flow distribution lines stop CVs 46, 23 & 37 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-462340__-CC	AFW flow distribution lines stop CVs 46, 23 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-462637__-CC	AFW flow distribution lines stop CVs 46, 26 & 37 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-462640__-CC	AFW flow distribution lines stop CVs 46, 26 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-463740__-CC	AFW flow distribution lines stop CVs 46, 37 & 40 fail to open - CCF						5.2E-9
1-AFW-SCV-CC-HICCF__-CC	High order CCF comb. caused AFWs fail-stop CV fails to open- AFW flow distribution lines						2.6E-8
1-AFW-TDP-FR-P4001__	TDAFWP (P4-001) FTR						3.8E-2
1-AFW-TDP-FS-P4001__	TDAFWP (P4-001) FTS			Beta	6.60E+2	TDP-FS-NS	5.9E-3
1-AFW-TDP-LR-P4001__	TDAFWP (P4-001) fails to load/run			Beta	4.30E+2	TDP-FR-E	4.6E-3
1-AFW-TDP-MA-P4001__	TDAFWP (P4-001) unavailable due to test or maintenance			Normal	1.9E-3	TDP-TM(AFW)	3.8E-3
1-AFW-TFF-CF-MINFL	AFW mini flow line flow transmitters ft-5155 and ft-5154 fail from CCF						1.5E-7
1-AFW-TFF-FC-FT5154__	MDAFWP B mini flow line flow transmitter FT-5154 fails randomly	9.7E-8	24			TFF-FC	2.3E-6
1-AFW-TFF-FC-FT5155__	MDAFWP a mini flow line flow transmitter FT-5155 fails randomly	9.7E-8	24			TFF-FC	2.3E-6
1-AFW-TNK-MA-V4002__	CST2 unavailable due to maintenance						0.0E+0

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-AFW-TNK-RP-V4001	CST1 failure	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-AFW-TNK-RP-V4002	CST2 ruptures	1.8E-8	24	Gamma	7.50E+0	TNK-RP	4.3E-7
1-AFW-XVM-PG-015	TDAFWP discharge manual valve 015 transfer closed/plugged	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-016	TDAFWP flow distribution line to SG4 manual valve 016 transfer closed/plugged	3.0E-9	24	Log Normal	1.10E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-019	TDAFWP flow distribution line to SG1 manual valve 019 transfer closed/plugged	3.0E-9	24	Log Normal	1.20E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-022	TDAFWP flow distribution line to SG2 manual valve 022 transfer closed/plugged	3.0E-9	24	Log Normal	1.30E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-025	TDAFWP flow distribution line to SG3 manual valve 025 transfer closed/plugged	3.0E-9	24	Log Normal	1.40E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-035	MDAFWP A discharge line manual valve 035 transfer closed/plugs	3.0E-9	24	Log Normal	1.50E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-036	MDAFWP B flow dist. To SG 2 manual valve 036 transfer closed/plugged	3.0E-9	24	Log Normal	1.60E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-039	MDAFWP B flow distribution line to SG3 manual valve 039 transfer closed/plugged	3.0E-9	24	Log Normal	1.70E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-042	MDAFWP A flow distribution line to SG4 manual valve 042 transfer closed/plugged	3.0E-9	24	Log Normal	1.80E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-045	Manual valve 045 in MDAFWP A flow distribution line to SG1 transfer closed/plugged	3.0E-9	24	Log Normal	1.90E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-060	MDAFWP B discharge manual valve 060 transfer closed/plugged	3.0E-9	24	Log Normal	2.00E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-HV5090	TDAFWP suction (CST isolation) manual valve HV5090 transfer closed/plugged	3.0E-9	24	Log Normal	2.10E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-HV5091	MDAFWP B suction manual valve HV5091 transfer closed/plugged	3.0E-9	24	Log Normal	2.20E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-HV5092	MDAFWP A suction manual valve HV5092 transfer closed/plugged	3.0E-9	24	Log Normal	2.30E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-HV5093	TDAFWP suction manual valve HV5093 transfer closed/plugged	3.0E-9	24	Log Normal	2.40E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-HV5094	MDAFWP B suction manual valve HV5094 transfer closed/plugged	3.0E-9	24	Log Normal	2.50E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-HV5095	MDAFWP A suction manual valve HV5095 transfer closed/plugged	3.0E-9	24	Log Normal	2.60E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-HV5097	CST2 manual valve HV5097 (to TDAFWP) plugs	3.0E-9	24	Log Normal	2.70E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-HV5098	CST2 manual valve HV5098 (to MDAFWP B) plugs	3.0E-9	24	Log Normal	2.80E+1	XVM-PG	7.2E-8
1-AFW-XVM-PG-HV5099	CST2 manual valve HV5099 (to MDAFWP A) plugs	3.0E-9	24	Log Normal	2.90E+1	XVM-PG	7.2E-8

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-AMSAC	Failure of AMSAC system			Beta	5.00E+1		1.0E-2
1-ARDMS	SG ARV fails to open on demand			Beta	6.70E+2	1-ARDMS	1.9E-3
1-AVFAL	AOV fails to operate on demand			Beta	2.10E+4	1-AVFAL	6.6E-4
1-AVFIA	Instrument air AOV fails to operate on demand			Beta	1.70E+7	1-AVFIA	6.1E-8
1-BAM-MDP-FR-BAA&B ____ - CC	Boric acid transfer pumps A & B FTR due to CCF						8.2E-6
1-BAM-MDP-FR-BAA ____	BA pump A FTR due to random faults	3.7E-6	24			MDP-FR-NR	8.9E-5
1-BAM-MDP-FR-BAB ____	BA pump B FTR due to random faults	3.7E-6	24			MDP-FR-NR	8.9E-5
1-BAM-MDP-FS-BAA&B ____ - CC	Boric acid transfer pumps A & B FTS due to CCF						1.4E-5
1-BAM-MDP-FS-BAA ____	BA pump A FTS due to random faults			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-BAM-MDP-FS-BAB ____	BA pump B FTS due to random faults			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-BAM-MDP-MA-BAA ____	BA pump A in maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-BAM-MDP-MA-BAB ____	BA pump B in maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-BCFDC	Battery charger fails			Gamma	2.60E+1	1-BCFDC	1.1E-5
1-BVFRC	PORV block valve fails to open/Close			Beta	1.50E+3	1-BVFRC	2.1E-3
1-BYFDC	Battery fails during operation			Gamma	4.3E-1	1-BYFDC	3.6E-7
1-CAD-XHE-SAFESTBLE	Operator fails to depressurize secondary (72hr safe/stable)			Log Normal	1.00E+1		7.5E-4
1-CAD-XHE-SGTR-LT	Failure to initiate normal cooldown with HPI - SGTR, late			Log Normal	5.00E+0		1.9E-3
1-CAD-XHE-SGTR-LT-LD	Failure to initiate normal cooldown with HPI - SGTR, late (LD)			Log Normal	5.00E+0		5.2E-2
1-CCPA-DIVT-THRB	Cutset identifier: CCP A flow diverted back to suction thru CCP B tube rupture						1.0E+0
1-CCPB-DIVT-THRA	Cutset identifier: CCP B flow diverted back to suction thru CCP A tube rupture						1.0E+0
1-CCP-DIVT-THRNCP	Cutset identifier: one CCP train flow diverted thru NCP train when NCP stop						1.0E+0
1-CCU-ACU-MA-003 ____	CCU 003 unavailable due to maintenance.			Beta	2.00E+2	ACX-TM	2.5E-3
1-CCU-ACU-MA-003004 ____	CCU 003 & 004 unavailable due to maintenance			Log Normal	1.00E+1		3.9E-6
1-CCU-ACU-MA-003007 ____	CCU 003 & 007 unavailable due to maintenance			Log Normal	1.00E+1		3.9E-6
1-CCU-ACU-MA-003008 ____	CCU 003 & 008 unavailable due to maintenance			Log Normal	1.00E+1		3.9E-6
1-CCU-ACU-MA-0030407 ____	CCU 003, 004, & 007 unavailable due to maintenance						0.0E+0
1-CCU-ACU-MA-0030408 ____	CCU 003, 004, & 008 unavailable due to maintenance						0.0E+0
1-CCU-ACU-MA-0030708 ____	CCU 003, 007, & 008 unavailable due to maintenance						0.0E+0
1-CCU-ACU-MA-003478 ____	All four Train B Containment Coolers unavailable due to maintenance						0.0E+0
1-CCU-ACU-MA-004 ____	CCU 004 unavailable due to maintenance.			Beta	2.00E+2	ACX-TM	2.5E-3

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-CCU-ACU-MA-004007	CCU 004 & 007 unavailable due to maintenance			Log Normal	1.00E+1		3.9E-6
1-CCU-ACU-MA-004008	CCU 004 & 008 unavailable due to maintenance			Log Normal	1.00E+1		3.9E-6
1-CCU-ACU-MA-0040708	CCU 004, 007, & 008 unavailable due to maintenance						0.0E+0
1-CCU-ACU-MA-007	CCU 007 unavailable due to maintenance.			Beta	2.00E+2	ACX-TM	2.5E-3
1-CCU-ACU-MA-007008	CCU 007 & 008 unavailable due to maintenance			Log Normal	1.00E+1		3.9E-6
1-CCU-ACU-MA-008	CCU 008 unavailable due to maintenance.			Beta	2.00E+2	ACX-TM	2.5E-3
1-CCU-CKV-CC-471	CV 471 fails to open due to random failure			Beta	4.70E+4	CKV-CC	1.1E-5
1-CCU-CKV-CC-472	CV 472 fails to open due to random failure			Beta	4.70E+4	CKV-CC	1.1E-5
1-CCU-CKV-CF-471472	CV 471 & 472 fail to open due to CCF						2.5E-7
1-CCU-MOT-FR-001002 -CC	CCU fan motors 001 & 002 FTR due to CCF						8.7E-9
1-CCU-MOT-FR-001005 -CC	CCU fan motors 001 & 005 FTR due to CCF						8.7E-9
1-CCU-MOT-FR-001006 -CC	CCU fan motors 001 & 006 FTR due to CCF						8.7E-9
1-CCU-MOT-FR-0010205 -CC	CCU fan motors 001, 002 & 005 FTR due to CCF						2.1E-9
1-CCU-MOT-FR-0010206 -CC	CCU fan motors 001, 002 & 006 FTR due to CCF						2.1E-9
1-CCU-MOT-FR-0010506 -CC	CCU fan motors 001, 005 & 006 FTR due to CCF						2.1E-9
1-CCU-MOT-FR-002005 -CC	CCU fan motors 002 & 005 FTR due to CCF						8.7E-9
1-CCU-MOT-FR-002006 -CC	CCU fan motors 002 & 006 FTR due to CCF						8.7E-9
1-CCU-MOT-FR-0020506 -CC	CCU fan motors 002, 005 & 006 FTR due to CCF						2.1E-9
1-CCU-MOT-FR-003004 -CC	CCU fan motors 003 & 004 FTR due to CCF						8.7E-9
1-CCU-MOT-FR-003007 -CC	CCU fan motors 003 & 007 FTR due to CCF						8.7E-9
1-CCU-MOT-FR-003008 -CC	CCU fan motors 003 & 008 FTR due to CCF						8.7E-9
1-CCU-MOT-FR-0030407 -CC	CCU fan motors 003, 004 & 007 FTR due to CCF						2.1E-9
1-CCU-MOT-FR-0030408 -CC	CCU fan motors 003, 004 & 008 FTR due to CCF						2.1E-9
1-CCU-MOT-FR-0030708 -CC	CCU fan motors 003, 007 & 008 FTR due to CCF						2.1E-9
1-CCU-MOT-FR-004007 -CC	CCU fan motors 004 & 007 FTR due to CCF						8.7E-9
1-CCU-MOT-FR-004008 -CC	CCU fan motors 004 & 008 FTR due to CCF						8.7E-9
1-CCU-MOT-FR-0040708 -CC	CCU fan motors 004, 007 & 008 FTR due to CCF						2.1E-9
1-CCU-MOT-FR-005006 -CC	CCU motors 005 & 006 FTR due to CCF						8.7E-9
1-CCU-MOT-FR-007008 -CC	CCU fan motors 007 & 008 FTR due to CCF						8.7E-9
1-CCU-MOT-FR-01020506-CC	CCU fan motors 001, 002, 005 & 006 FTR due to CCF						1.2E-9
1-CCU-MOT-FR-03040708-CC	CCU fan motors 003, 004, 007 & 008 FTR due to CCF						1.2E-9
1-CCU-MOT-FR-501A7001	CCU fan motor 001 FTR due to random faults	5.9E-6	24	Gamma	5.30E-01	FAN-FR-NR	1.4E-4
1-CCU-MOT-FR-501A7002	CCU fan motor 002 FTR due to random faults	5.9E-6	24	Gamma	5.30E-01	FAN-FR-NR	1.4E-4
1-CCU-MOT-FR-501A7003	CCU fan motor 003 FTR due to random faults	5.9E-6	24	Gamma	5.30E-01	FAN-FR-NR	1.4E-4
1-CCU-MOT-FR-501A7004	CCU fan motor 004 FTR due to random faults	5.9E-6	24	Gamma	5.30E-01	FAN-FR-NR	1.4E-4
1-CCU-MOT-FR-501A7005	CCU fan motor 005 FTR due to random faults	5.9E-6	24	Gamma	5.30E-01	FAN-FR-NR	1.4E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-CCU-MOT-FR-501A7006	CCU fan motor 006 FTR due to random faults	5.9E-6	24	Gamma	5.30E-01	FAN-FR-NR	1.4E-4
1-CCU-MOT-FR-501A7007	CCU fan motor 007 FTR due to random faults	5.9E-6	24	Gamma	5.30E-01	FAN-FR-NR	1.4E-4
1-CCU-MOT-FR-501A7008	CCU fan motor 008 FTR due to random faults	5.9E-6	24	Gamma	5.30E-01	FAN-FR-NR	1.4E-4
1-CCU-MOT-FR-CCUALL__-CC	High order CCF comb. Causing CCU system FTR						3.5E-7
1-CCU-MOT-FS-001002__-CC	CCU fan motors 001 & 002 FTS due to CCF						5.2E-6
1-CCU-MOT-FS-001005__-CC	CCU fan motors 001 & 005 FTS due to CCF						5.2E-6
1-CCU-MOT-FS-001006__-CC	CCU fan motors 001 & 006 FTS due to CCF						5.2E-6
1-CCU-MOT-FS-002005__-CC	CCU motors 002 & 005 FTS due to CCF						5.2E-6
1-CCU-MOT-FS-002006__-CC	CCU motors 002 & 006 FTS due to CCF						5.2E-6
1-CCU-MOT-FS-003004__-CC	CCU fan motors 003 & 004 FTS due to CCF						5.2E-6
1-CCU-MOT-FS-003007__-CC	CCU fan motors 003 & 007 FTS due to CCF						5.2E-6
1-CCU-MOT-FS-003008__-CC	CCU fan motors 003 & 008 FTS due to CCF						5.2E-6
1-CCU-MOT-FS-004007__-CC	CCU fan motors 004 & 007 FTS due to CCF						5.2E-6
1-CCU-MOT-FS-004008__-CC	CCU fan motors 004 & 008 FTS due to CCF						5.2E-6
1-CCU-MOT-FS-0040708__-CC	CCU fan motors 004, 007 & 008 FTS due to CCF						9.9E-7
1-CCU-MOT-FS-005006__-CC	CCU motors 005 & 006 FTS due to CCF						5.2E-6
1-CCU-MOT-FS-007008__-CC	CCU fan motors 007 & 008 FTS due to CCF						5.2E-6
1-CCU-MOT-FS-010205__-CC	CCU fan motors 001, 002, & 005 FTS due to CCF						1.7E-6
1-CCU-MOT-FS-01020506-CC	CCU fan motors 001, 002, 005 & 006 FTS due to CCF						9.9E-7
1-CCU-MOT-FS-010206__-CC	CCU fan motors 001, 002, & 006 FTS due to CCF						1.7E-6
1-CCU-MOT-FS-010506__-CC	CCU fan motors 001, 005, & 006 FTS due to CCF						1.7E-6
1-CCU-MOT-FS-020506__-CC	CCU fan motors 002, 005, & 006 FTS due to CCF						1.7E-6
1-CCU-MOT-FS-030407__-CC	CCU fan motors 003, 004 & 007 FTS due to CCF						1.7E-6
1-CCU-MOT-FS-03040708-CC	CCU fan motors 003, 004, 007 & 008 FTS due to CCF						9.9E-7
1-CCU-MOT-FS-030408__-CC	CCU fan motors 003, 004 & 008 FTS due to CCF						1.7E-6
1-CCU-MOT-FS-030708__-CC	CCU fan motors 003, 007 & 008 FTS due to CCF						1.7E-6
1-CCU-MOT-FS-501A7001	CCU fan motor 001 FTS due to random faults			Beta	6.00E+4	FANNRFTS	7.1E-4
1-CCU-MOT-FS-501A7002	CCU motor 002 FTS due to random faults			Beta	6.00E+4	FANNRFTS	7.1E-4
1-CCU-MOT-FS-501A7003	CCU fan motor 003 FTS due to random faults			Beta	6.00E+4	FANNRFTS	7.1E-4
1-CCU-MOT-FS-501A7004	CCU fan motor 004 FTS due to random faults			Beta	6.00E+4	FANNRFTS	7.1E-4
1-CCU-MOT-FS-501A7005	CCU fan motor 005 FTS in low speed due to random faults			Beta	6.00E+4	FANNRFTS	7.1E-4
1-CCU-MOT-FS-501A7006	CCU fan motor 006 FTS due to random faults			Beta	6.00E+4	FANNRFTS	7.1E-4
1-CCU-MOT-FS-501A7007	CCU fan motor 007 FTS due to random faults			Beta	6.00E+4	FANNRFTS	7.1E-4
1-CCU-MOT-FS-501A7008	CCU fan motor 008 FTS due to random faults			Beta	6.00E+4	FANNRFTS	7.1E-4



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-CCU-MOT-FS-CCUALL__ -CC	High order CCF comb. Causing CCU system failure to start						2.1E-4
1-CCU-MOV-PG-HV1807__	Normally open MOV HV1807 fails due to plugging	5.0E-9	24	Beta	5.40E+4	MOV-PG	1.2E-7
1-CCU-MOV-PG-HV1809__	Normally open MOV HV1809 fails due to plugging	5.0E-9	24	Beta	5.40E+4	MOV-PG	1.2E-7
1-CCU-MOV-PG-HV1823__	Normally open MOV HV1823 fails due to plugging	5.0E-9	24	Beta	5.40E+4	MOV-PG	1.2E-7
1-CCU-MOV-PG-HV1831__	Normally open MOV HV1831 fails due to plugging	5.0E-9	24	Beta	5.40E+4	MOV-PG	1.2E-7
1-CCU-PND-CC-001__	Backdraft damper 001 fails to open due to random faults			Beta	2.90E+4	PND-CC	3.7E-4
1-CCU-PND-CC-001003__ -CC	Backdraft damper 001 and 003 fails to open due to CCF						4.1E-7
1-CCU-PND-CC-002__	Backdraft damper 002 fails to open due to random faults			Beta	2.90E+4	PND-CC	3.7E-4
1-CCU-PND-CC-002004__ -CC	Backdraft damper 002 and 004 fails to open due to CCF						4.1E-7
1-CCU-PND-CC-003__	Backdraft damper 003 fails to open due to random faults			Beta	2.90E+4	PND-CC	3.7E-4
1-CCU-PND-CC-004__	Backdraft damper 004 fails to open due to random faults			Beta	2.90E+4	PND-CC	3.7E-4
1-CCU-PND-PG-HV2583A_	Locked open motor operated damper HV2583A fails due to plugging	3.4E-7	24	Gamma	2.90E+4	PND-PG	8.2E-6
1-CCU-PND-PG-HV2583B_	Locked open motor operated damper HV2583B fails due to plugging	3.4E-7	24	Gamma	2.90E+4	PND-PG	8.2E-6
1-CCU-PND-PG-HV2585A_	Locked open motor operated damper HV2585A fails due to plugging	3.4E-7	24	Gamma	2.90E+4	PND-PG	8.2E-6
1-CCU-PND-PG-HV2585B_	Locked open motor operated damper HV2585B fails due to plugging	3.4E-7	24	Gamma	2.90E+4	PND-PG	8.2E-6
1-CCU-XVM-PG-240__	Locked open valve 240 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-CCU-XVM-PG-241__	Locked open valve 241 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-CCU-XVM-PG-244__	Locked open valve 244 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-CCU-XVM-PG-245__	Locked open valve 245 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-CCU-XVM-PG-246__	Locked open valve 246 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-CCU-XVM-PG-247__	Locked open valve 247 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-CCU-XVM-PG-248__	Locked open valve 248 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-CCU-XVM-PG-249__	Locked open valve 249 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-CCU-XVM-PG-HV11687__	Locked open valve HV11687 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-CCU-XVM-PG-HV11688__	Locked open valve HV11688 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-CCU-XVM-PG-HV11689__	Locked open valve HV11689 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-CCU-XVM-PG-HV11690__	Locked open valve HV11690 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-CCW-CKV-CC-_030__	Check valve 030 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-CCW-CKV-CC-_030_032-CC	Check valves 030 & 032 fail to open due to CCF						2.5E-7
1-CCW-CKV-CC-_032__	Check valve 032 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-CCW-CKV-CC-034__	Check valve 034 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-CCW-CKV-CC-034_055_-CC	Check valves 034 & 055 fail to open due to CCF						3.8E-7

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-CCW-CKV-CC-034_057_-CC	Check valves 034 & 057 fail to open due to CCF						3.8E-7
1-CCW-CKV-CC-034_059_-CC	Check valves 034 & 059 fail to open due to CCF						3.8E-7
1-CCW-CKV-CC-055_____	Check valve 055 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-CCW-CKV-CC-055_057_-CC	Check valves 055 & 057 fail to open due to CCF						3.8E-7
1-CCW-CKV-CC-055_059_-CC	Check valves 055 & 059 fail to open due to CCF						3.8E-7
1-CCW-CKV-CC-057_____	Check valve 057 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-CCW-CKV-CC-057_059_-CC	Check valves 057 & 059 fail to open due to CCF						3.8E-7
1-CCW-CKV-CC-059_____	Check valve 059 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-CCW-CKV-CC-34_55_57-CC	Check valves 034055 & 057 fail to open due to CCF						1.3E-7
1-CCW-CKV-CC-34_55_59-CC	Check valves 034055 & 059 fail to open due to CCF						1.3E-7
1-CCW-CKV-CC-34_57_59-CC	Check valves 034057 & 059 fail to open due to CCF						1.3E-7
1-CCW-CKV-CC-34555759-CC	Check valves 034, 055, 057, & 059 fail to open due to CCF						6.4E-7
1-CCW-CKV-CC-55_57_59-CC	Check valves 055057 & 059 fail to open due to CCF						1.3E-7
1-CCW-HTX-CF-TRNAB	CCW heat exchangers E4-001, 002 fail from CCF						7.2E-7
1-CCW-HTX-PG-TRNA	CCW heat exchanger E4-001 is unavailable	5.1E-7	24	Beta	3.10E+2	HTX-CCW-PG	1.2E-5
1-CCW-HTX-PG-TRNB	CCW heat exchanger E4-002 is unavailable	5.1E-7	24	Beta	3.10E+2	HTX-CCW-PG	1.2E-5
1-CCW-MDP-FR-02_04_06-CC	CCW pumps P4-002, 004 & 006 FTR due to CCF						9.7E-8
1-CCW-MDP-FR-05_02_04-CC	CCW pumps P4-005, 002 & 004 FTR due to CCF						9.7E-8
1-CCW-MDP-FR-05_02_06-CC	CCW pumps P4-005, 002 & 006 FTR due to CCF						9.7E-8
1-CCW-MDP-FR-05_04_06-CC	CCW pumps P4-005, 004 & 006 FTR due to CCF						9.7E-8
1-CCW-MDP-FR-05020406-CC	CCW pumps P4-005, 002, 004, & 006 FTR due to CCF						5.6E-8
1-CCW-MDP-FR-P4_001__	CCW pump P4-001 randomly FTR	3.2E-6	24	Gamma	3.27E+0	CCW-MDP-FTR	7.6E-5
1-CCW-MDP-FR-P4_002__	CCW pump P4-002 randomly FTR	3.2E-6	24	Gamma	3.27E+0	CCW-MDP-FTR	7.6E-5
1-CCW-MDP-FR-P4_003__	CCW pump P4-003 randomly FTR	3.2E-6	24	Gamma	3.27E+0	CCW-MDP-FTR	7.6E-5
1-CCW-MDP-FR-P4_004__	CCW pump P4-004 randomly FTR	3.2E-6	24	Gamma	3.27E+0	CCW-MDP-FTR	7.6E-5
1-CCW-MDP-FR-P4_005__	CCW pump P4-005 randomly FTR	3.2E-6	24	Gamma	3.27E+0	CCW-MDP-FTR	7.6E-5
1-CCW-MDP-FR-P4_006__	CCW pump P4-006 randomly FTR	3.2E-6	24	Gamma	3.27E+0	CCW-MDP-FTR	7.6E-5
1-CCW-MDP-FR-P4001003-CC	CCW pumps P4-001 & P4-003 FTR due to CCF						4.3E-7
1-CCW-MDP-FR-P4002004-CC	CCW pumps P4-002 & P4-004 FTR due to CCF						4.3E-7
1-CCW-MDP-FR-P4002006-CC	CCW pumps P4-002 & P4-006 FTR due to CCF						4.3E-7
1-CCW-MDP-FR-P4004006-CC	CCW pumps P4-004 & P4-006 FTR due to CCF						4.3E-7
1-CCW-MDP-FR-P4005002-CC	CCW pumps P4-005 & P4-002 FTR due to CCF						4.3E-7
1-CCW-MDP-FR-P4005004-CC	CCW pumps P4-005 & P4-004 FTR due to CCF						4.3E-7
1-CCW-MDP-FR-P4005006-CC	CCW pumps P4-005 & P4-006 FTR due to CCF						4.3E-7
1-CCW-MDP-FS-02_04_06-CC	CCW pumps P4-002, 004 & 006 FTS due to CCF						2.7E-6
1-CCW-MDP-FS-05_02_04-CC	CCW pumps P4-005, 002 & 004 FTS due to CCF						2.7E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-CCW-MDP-FS-05_02_06-CC	CCW pumps P4-005, 002 & 006 FTS due to CCF						2.7E-6
1-CCW-MDP-FS-05_04_06-CC	CCW pumps P4-005, 004 & 006 FTS due to CCF						2.7E-6
1-CCW-MDP-FS-05020406-CC	CCW pumps P4-005, 002, 004, & 006 FTS due to CCF						1.7E-6
1-CCW-MDP-FS-P4_001__	CCW pump P4-001 randomly FTS			Beta	4.70E+3	CCW-MDP-FTS	4.8E-4
1-CCW-MDP-FS-P4_002__	CCW pump P4-002 randomly FTS			Beta	4.70E+3	CCW-MDP-FTS	4.8E-4
1-CCW-MDP-FS-P4_003__	CCW pump P4-003 randomly FTS			Beta	4.70E+3	CCW-MDP-FTS	4.8E-4
1-CCW-MDP-FS-P4_004__	CCW pump P4-004 randomly FTS			Beta	4.70E+3	CCW-MDP-FTS	4.8E-4
1-CCW-MDP-FS-P4_005__	CCW pump P4-005 randomly FTS			Beta	4.70E+3	CCW-MDP-FTS	4.8E-4
1-CCW-MDP-FS-P4_006__	CCW pump P4-006 randomly FTS			Beta	4.70E+3	CCW-MDP-FTS	4.8E-4
1-CCW-MDP-FS-P4001003-CC	CCW pumps P4-001 & P4-003 FTS due to CCF						1.7E-6
1-CCW-MDP-FS-P4002004-CC	CCW pumps P4-002 & P4-004 FTS due to CCF						1.7E-6
1-CCW-MDP-FS-P4002006-CC	CCW pumps P4-002 & P4-006 FTS due to CCF						1.7E-6
1-CCW-MDP-FS-P4004006-CC	CCW pumps P4-004 & P4-006 FTS due to CCF						1.7E-6
1-CCW-MDP-FS-P4005002-CC	CCW pumps P4-005 & P4-002 FTS due to CCF						1.7E-6
1-CCW-MDP-FS-P4005004-CC	CCW pumps P4-005 & P4-004 FTS due to CCF						1.7E-6
1-CCW-MDP-FS-P4005006-CC	CCW pumps P4-005 & P4-006 FTS due to CCF						1.7E-6
1-CCW-MDP-MA-P4_001__	CCW pump P4-001 unavailable due to maintenance			Normal	5.2E-3	MDP-TM(CCW)	6.9E-3
1-CCW-MDP-MA-P4_0013_-2	P4-001 & P4-003 unavailable due to maintenance			Log Normal	1.00E+1		8.3E-6
1-CCW-MDP-MA-P4_00135-3	All three pumps unavailable due to maintenance			Log Normal	1.00E+1		1.7E-3
1-CCW-MDP-MA-P4_0015_-2	P4-005 & P4-001 unavailable due to maintenance			Log Normal	1.00E+1		2.3E-6
1-CCW-MDP-MA-P4_002__	CCW pump P4-002 unavailable due to maintenance			Normal	5.2E-3	MDP-TM(CCW)	6.9E-3
1-CCW-MDP-MA-P4_0024_-2	P4-002 & P4-004 unavailable due to maintenance			Log Normal	1.00E+1		2.3E-6
1-CCW-MDP-MA-P4_00246-3	All three pumps unavailable due to maintenance			Log Normal	1.00E+1		1.7E-3
1-CCW-MDP-MA-P4_0026_-2	P4-006 & P4-002 unavailable due to maintenance			Log Normal	1.00E+1		2.3E-6
1-CCW-MDP-MA-P4_003__	CCW pump P4-003 unavailable due to maintenance			Normal	5.2E-3	MDP-TM(CCW)	6.9E-3
1-CCW-MDP-MA-P4_0035_-2	P4-005 & P4-003 unavailable due to maintenance			Log Normal	1.00E+1		2.3E-6
1-CCW-MDP-MA-P4_004__	CCW pump P4-004 unavailable due to maintenance			Normal	5.2E-3	MDP-TM(CCW)	6.9E-3
1-CCW-MDP-MA-P4_0046_-2	P4-006 & P4-004 unavailable due to maintenance			Log Normal	1.00E+1		2.3E-6
1-CCW-MDP-MA-P4_005__	CCW pump P4-005 unavailable due to maintenance			Normal	5.2E-3	MDP-TM(CCW)	6.9E-3
1-CCW-MDP-MA-P4_006__	Pump P4-006 unavailable due to maintenance			Normal	5.2E-3	MDP-TM(CCW)	6.9E-3
1-CCW-RLY-FC-___K152A	Circuit breaker interlock relay fails to actuate CCW pumpP4-001			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-RLY-FC-___K152B	Circuit breaker interlock relay fails to actuate CCW pumpP4-002			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-RLY-FC-___K152C	Circuit breaker interlock relay fails to actuate CCW pump P4-003			Beta	2.00E+4	RLY-FC	2.5E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-CCW-RLY-FC-___K152D	Circuit breaker interlock relay fails to actuate CCW pumpP4-004			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-RLY-FC-___K152E	Circuit breaker interlock relay fails to actuate CCW pump P4-005			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-RLY-FC-___K152F	Circuit breaker interlock relay fails to actuate CCW pumpP4-006			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-RLY-FC-__1852AX	Pressure switch relay fails to actuate CCW pump P4-001			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-RLY-FC-__1853AX	Pressure switch relay fails to actuate CCW pump P4-002			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-RLY-FC-__1854AX	Pressure switch relay fails to actuate CCW pump P4-003			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-RLY-FC-__1855AX	Pressure switch relay fails to actuate CCW pump P4-004			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-RLY-FC-__1856AX	Pressure switch relay fails to actuate CCW pump P4-005			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-RLY-FC-__1857AX	Pressure switch relay fails to actuate CCW pump P4-006			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-RLY-FC-_1AX_3AX-CC	1AX and 3AX stop interlock relays fail due to CCF						1.5E-6
1-CCW-RLY-FC-_2AX_4AX-CC	2AX and 4AX stop interlock relays fail due to CCF						1.5E-6
1-CCW-RLY-FC-_5AX_6AX-CC	5AX and 6AX stop interlock relays fail due to CCF						1.5E-6
1-CCW-RLY-FC-152A152C-CC	K152A and K152c circuit breaker interlock relays fail due to CCF						1.5E-6
1-CCW-RLY-FC-152B152D-CC	K152B & K152d circuit breaker interlock relays fail due to CCF						1.5E-6
1-CCW-RLY-FC-152E152F-CC	K152E and K152f circuit breaker interlock relays fail due to CCF						1.5E-6
1-CCW-RLY-FC-18521854-CC	1852AX & 1854AX pressure switch relays fail due to CCF						1.5E-6
1-CCW-RLY-FC-18531855-CC	1853AX & 1855AX pressure switch relays fail due to CCF						1.5E-6
1-CCW-RLY-FC-18561857-CC	1856AX & 1857AX pressure switch relays fail due to CCF						1.5E-6
1-CCW-RLY-FC-P4_001AX	Stop interlock relay fails to actuate CCW pump P4-001			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-RLY-FC-P4_002AX	Stop interlock relay fails to actuate CCW pump P4-002			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-RLY-FC-P4_003AX	Stop interlock relay fails to actuate CCW pump P4-003			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-RLY-FC-P4_004AX	Stop interlock relay fails to actuate CCW pump P4-004			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-RLY-FC-P4_005AX	Stop interlock relay fails to actuate CCW pump P4-005			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-RLY-FC-P4_006AX	Stop interlock relay fails to actuate CCW pump P4-006			Beta	2.00E+4	RLY-FC	2.5E-5
1-CCW-TFP-FC-_PY1852A	Low discharge header pressure transmitter on P4-001 fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-CCW-TFP-FC-_PY1853A	Low discharge header pressure transmitter on P4-002 fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-CCW-TFP-FC-_PY1854A	Low discharge header pressure transmitter on P4-003 fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-CCW-TFP-FC-_PY1855A	Low discharge header pressure transmitter on P4-004 fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-CCW-TFP-FC-_PY1856A	Low discharge header pressure transmitter on P4-005 fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-CCW-TFP-FC-_PY1857A	Low discharge header pressure transmitter on P4-006 fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-CCW-TFP-FC-18521854-CC	Low discharge header pressure transmitter on P4-001 fails due to CCF						1.3E-5
1-CCW-TFP-FC-18531855-CC	Low discharge header pressure transmitter on P4-002 fails due to CCF						1.3E-5
1-CCW-TFP-FC-18561857-CC	Low discharge header pressure transmitter on P4-005 fails due to CCF						1.3E-5
1-CCW-TIM-FC-P4001__	Circuit breaker interlock timer fails to actuate CCW pump P4-001	4.8E-5	24	Gamma	1.07E+1	TIM-FC	1.1E-3
1-CCW-TIM-FC-P4002__	Circuit breaker interlock timer fails to actuate CCW pump P4-002	4.8E-5	24	Gamma	1.07E+1	TIM-FC	1.1E-3
1-CCW-TIM-FC-P4003__	Circuit breaker interlock timer fails to actuate CCW pump P4-003	4.8E-5	24	Gamma	1.07E+1	TIM-FC	1.1E-3
1-CCW-TIM-FC-P4004__	Circuit breaker interlock timer fails to actuate CCW pump P4-004	4.8E-5	24	Gamma	1.07E+1	TIM-FC	1.1E-3
1-CCW-TIM-FC-P4005__	Circuit breaker interlock timer fails to actuate CCW pump P4-005	4.8E-5	24	Gamma	1.07E+1	TIM-FC	1.1E-3
1-CCW-TIM-FC-P4006__	Circuit breaker interlock timer fails to actuate CCW pump P4-006	4.8E-5	24	Gamma	1.07E+1	TIM-FC	1.1E-3
1-CCW-TNK-RP-T4_001__	CCW surge tank T4-001 fails (ruptures)	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-CCW-TNK-RP-T4_002__	CCW surge tank T4-002 fails (ruptures)	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-CCW-XVM-OC-HV_11802	Locked open manual valve HV-11802 fails closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6
1-CCW-XVM-OC-HV_11805	Locked open manual valve HV-11805 fails closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6
1-CCW-XVM-OC-HV_11806	Locked open manual valve HV-11806 spuriously fails closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6
1-CCW-XVM-OC-HV_11807	Locked open manual valve HV-11807 spuriously fails closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6
1-CCW-XVM-OC-HV_11808	Locked open manual valve HV-11808 fails closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6
1-CCW-XVM-OC-HV_11809	Locked open manual valve HV-11809 fails closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6
1-CCW-XVM-OC-HV_11810	Locked open manual valve HV-11810 fails closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6
1-CCW-XVM-OC-HV_11811	Locked open manual valve HV-11811 fails closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6
1-CCW-XVM-OC-HV_11812	Locked open manual valve HV-11812 fails closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6
1-CCW-XVM-OC-HV_11813	Locked open manual valve HV-11813 fails closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6
1-CCW-XVM-OC-HV_11814	Locked open manual valve HV-11814 fails closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6
1-CCW-XVM-OC-HV_11815	Locked open manual valve HV-11815 fails closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6
1-CDS-AOV-CC-LV4415B_	Condensate makeup to hotwell valve LV-4415B fails to open			Beta	3.40E+3	AOV-CC	6.3E-4
1-CDS-DCP-FC-LQY4415_	Condensate hotwell level control LOOP power supply LQY4415 fail	6.6E-6	24	Log Normal	1.06E+1	DCP-PWR-FC	1.6E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-CDS-LC-FC-LC4415	Condensate Hot well level controller LC4415 fail			Beta	5.20E+3		9.6E-5
1-CDS-MDP-FR-001	Condensate pump A mechanically FTR	3.7E-6	24	Gamma	5.29E+0	MDP-FR-NR	8.9E-5
1-CDS-MDP-FR-002	Condensate pump B mechanically FTR	3.7E-6	24	Gamma	5.29E+0	MDP-FR-NR	8.9E-5
1-CDS-MDP-FR-003	Condensate pump C FTR	3.7E-6	24	Gamma	5.29E+0	MDP-FR-NR	8.9E-5
1-CDS-MDP-FS-001	Condensate pump A mechanically FTS			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-CDS-MDP-FS-002	Condensate pump B mechanically FTS			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-CDS-MDP-FS-003	Condensate pump C mechanically FTS			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-CDS-MDP-MA-001	Condensate pump A in maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-CDS-MDP-MA-002	Condensate pump B in maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-CDS-MDP-MA-003	Condensate pump C in maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-CDS-MOV-CC-XCV14423	Marc valve XCV- 14423 fails to open			Beta	5.40E+4	MOV-CC	3.5E-4
1-CDS-MOV-CC-XCV14424	Marc valve XCV- 14424 fails to open			Beta	5.40E+4	MOV-CC	3.5E-4
1-CDS-MOV-CC-XCV14425	Marc valve XCV- 14425 fails to open			Beta	5.40E+4	MOV-CC	3.5E-4
1-CDS-TFL-FC-LT4415	Condenser hotwell level transmitter LT4415 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-CDS-XVM-PG-044	Manual valve 044 in hotwell makeup line from the CST plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-CDS-XVM-PG-045	Manual valve 045 in hotwell makeup line from the CST plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-CHG-XHE-NORMAL	Operator fails to establish charging given a loss of RCP seal injection			Log Normal	1.00E+1		2.3E-4
1-CVC-MDP-FR-CCPA	CCP-A FTR due to random faults	2.3E-5	24	Gamma	1.15E+0	PDP-FR-NR	5.5E-4
1-CVC-MDP-FR-CCPACCPB-CC	CCP-A and CCF p-b FTR due to CCF						4.9E-6
1-CVC-MDP-FR-CCPB	CCP-B FTR due to random faults	2.3E-5	24	Gamma	1.15E+0	PDP-FR-NR	5.5E-4
1-CVC-MDP-FR-NCP4001&	Normal charging pump 1208P4001 FTR (1 yr)	2.3E-5	8760	Gamma	1.15E+0	CVC-MDP-FR-IE	1.8E-1
1-CVC-MDP-FR-NCP4001	Normal charging pump 1208P4001 FTR	2.3E-5	24	Gamma	1.15E+0	PDP-FR-NR	5.5E-4
1-CVC-MDP-FS-CCPA	CCP-A FTS due to random faults			Beta	8.10E+3	PDP-FS-NS	1.8E-3
1-CVC-MDP-FS-CCPACCPB-CC	CCP-A & CCF pump B FTS due to CCF						4.2E-5
1-CVC-MDP-FS-CCPB	CCP-B FTS due to random faults			Beta	8.10E+3	PDP-FS-NS	1.8E-3
1-CVC-MDP-FS-NCHP4001	Normal charging pump 1208P4001 FTS			Beta	8.40E+2	PDP-FS-NR	2.4E-3
1-CVC-MDP-MA-CCPA	CCP-A unavailable due to maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-CVC-MDP-MA-CCPB	CCP-B unavailable due to maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-CVC-MDP-MA-NCHP4001	Normal charging pump in maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-CVC-MDP-TE-CCPA	CCP-A unavailable due to test			Log Normal	1.00E+1		2.5E-3
1-CVC-MDP-TE-CCPB	CCP-B unavailable due to test			Log Normal	1.00E+1		2.5E-3

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-CVDAL	Check valve fails to open			Beta	5.70E+4	1-CVDAL	2.6E-5
1-CVDIA	Check valve - instrument air fails to open			Beta	8.30E+6	1-CVDIA	6.0E-8
1-CVKAL	Check valve fails to close			Beta	8.90E+3	1-CVKAL	5.1E-4
1-DCP-BAT-CF-ALL	125 vdc batteries fail from CCF						1.2E-7
1-DCP-BAT-FC-AD1B&__	Battery 1AD1B fails due to random cause (125v) (1yr)	5.9E-7	8760	Gamma	2.88E+0	BAT-LP-IE	5.1E-3
1-DCP-BAT-FC-AD1B__	Battery 1AD1B fails due to random cause (125v)	5.9E-7	24	Gamma	2.88E+0	BAT-LP	1.4E-5
1-DCP-BAT-FC-BD1B&__	Battery 1BD1B fails due to random cause (125v) (1yr)	5.9E-7	8760	Gamma	2.88E+0	BAT-LP-IE	5.1E-3
1-DCP-BAT-FC-BD1B__	Battery 1BD1B fails due to random cause (125v)	5.9E-7	24	Gamma	2.88E+0	BAT-LP	1.4E-5
1-DCP-BAT-FC-CD1B__	Battery 1CD1B fails due to random cause (125v)	5.9E-7	24	Gamma	2.88E+0	BAT-LP	1.4E-5
1-DCP-BAT-FC-DD1B__	Battery 1DD1B fails due to random cause (125v)	5.9E-7	24	Gamma	2.88E+0	BAT-LP	1.4E-5
1-DCP-BAT-FC-ND1B__	125v DC battery 1ND1B fails	5.9E-7	24	Gamma	2.88E+0	BAT-LP	1.4E-5
1-DCP-BAT-FC-ND2B__	125v DC battery 1ND2B fails	5.9E-7	24	Gamma	2.88E+0	BAT-LP	1.4E-5
1-DCP-BAT-FC-ND2BND1B-CC	CCF of 125v DC batteries 1ND2B and 1ND1B						3.3E-7
1-DCP-BAT-FC-ND3AB__	125v DC battery ND3AB fails	5.9E-7	24	Gamma	2.88E+0	BAT-LP	1.4E-5
1-DCP-BAT-FC-ND3AND3B-CC	CCF of batteries ND3AB & ND3BB						3.3E-7
1-DCP-BAT-FC-ND3BB__	125v DC battery ND3BB fails	5.9E-7	24	Gamma	2.88E+0	BAT-LP	1.4E-5
1-DCP-BAT-MA-AD1B__	Battery 1AD1B in maintenance			Log Normal	5.30E+1	BAT-TM	2.7E-3
1-DCP-BAT-MA-BD1B__	Battery 1BD1B in maintenance			Log Normal	5.30E+1	BAT-TM	2.7E-3
1-DCP-BAT-MA-CD1B__	Battery 1CD1B in maintenance			Log Normal	5.30E+1	BAT-TM	2.7E-3
1-DCP-BAT-MA-DD1B__	Battery 1DD1B in maintenance			Log Normal	5.30E+1	BAT-TM	2.7E-3
1-DCP-BAT-MA-ND1B__	125v DC battery 1ND1B in maintenance			Log Normal	5.30E+1	BAT-TM	2.7E-3
1-DCP-BAT-MA-ND2B__	125v DC battery 1ND2B in maintenance			Log Normal	5.30E+1	BAT-TM	2.7E-3
1-DCP-BAT-MA-ND3AB__	125v DC battery ND3AB in maintenance			Log Normal	5.30E+1	BAT-TM	2.7E-3
1-DCP-BAT-MA-ND3BB__	125v DC battery ND3BB in maintenance			Log Normal	5.30E+1	BAT-TM	2.7E-3
1-DCP-BCH-FC-__BABB-CC	Battery chargers 1BD1CA and 1BD1CB fail - double CCF						2.0E-6
1-DCP-BCH-FC-__DADB-CC	Battery chargers 1DD1CA and 1DD1CB fail - double CCF						2.0E-6
1-DCP-BCH-FC-__34&-CC	Battery chargersBD1CA and BD1CB fail by CCF (1yr, IE)						2.1E-3
1-DCP-BCH-FC-__34__-CC	Battery chargersBD1CA and BD1CB fail by CCF (24hr, IE)						5.6E-6
1-DCP-BCH-FC-__AB__BB-CC	Battery chargers 1AD1CB and 1BD1CB fail - double CCF						2.0E-6
1-DCP-BCH-FC-__ABBA__-CC	Battery chargers 1AD1CB and 1BD1CA fail - double CCF						2.0E-6
1-DCP-BCH-FC-__ABBABB-CC	Battery chargers 1AD1CB, 1BD1CA, and 1BD1CB fail - triple CCF						1.1E-6
1-DCP-BCH-FC-__CB__DB-CC	Battery chargers 1CD1CB and 1DD1CB fail - double CCF						2.0E-6
1-DCP-BCH-FC-__CBDA__-CC	Battery chargers 1CD1CB and 1DD1CA fail - double CCF						2.0E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-DCP-BCH-FC-__CBDADB-CC	Battery chargers 1CD1CB, 1DD1CA, and 1DD1CB fail - triple CCF						1.1E-6
1-DCP-BCH-FC-12&____-CC	Battery chargers AD1CA and AD1CB fail by CCF (1yr, IE)						2.1E-3
1-DCP-BCH-FC-12____-CC	Battery chargers AD1CA and AD1CB fail by CCF (24hr, IE)						5.6E-6
1-DCP-BCH-FC-AA__BB-CC	Battery chargers 1AD1CA and 1BD1CB fail - double CCF						2.0E-6
1-DCP-BCH-FC-AA__BA__-CC	Battery chargers 1AD1CA and 1BD1CA fail - double CCF						2.0E-6
1-DCP-BCH-FC-AA__BABB-CC	Battery chargers 1AD1CA, 1BD1CA, and 1BD1CB fail - triple CCF						1.1E-6
1-DCP-BCH-FC-AAAB____-CC	Battery chargers 1AD1CA and 1AD1CB fail - double CCF						2.0E-6
1-DCP-BCH-FC-AAAB__BB-CC	Battery chargers 1AD1CA, 1AD1CB, and 1BD1CB fail - triple CCF						1.1E-6
1-DCP-BCH-FC-AAABBA__-CC	Battery chargers 1AD1CA, 1AD1CB, and 1BD1CA fail - triple CCF						1.1E-6
1-DCP-BCH-FC-AAABBABB-CC	Battery charger 1AD1CA, 1AD1CB, 1BD1CA and 1BD1CB fail by CCF - quadruple CCF						1.5E-6
1-DCP-BCH-FC-AD1CA&__	Battery charger 1AD1CA fails by random cause (1yr)	2.7E-6	8760	Gamma	1.28E+0	BCH-FC-IE	2.3E-2
1-DCP-BCH-FC-AD1CA__	Battery charger 1AD1CA fails by random cause	2.7E-6	24	Gamma	1.28E+0	BCH-FC	6.5E-5
1-DCP-BCH-FC-AD1CB&__	Battery charger 1AD1CB fails by random cause (1yr)	2.7E-6	8760	Gamma	1.28E+0	BCH-FC-IE	2.3E-2
1-DCP-BCH-FC-AD1CB__	Battery charger 1AD1CB fails by random cause	2.7E-6	24	Gamma	1.28E+0	BCH-FC	6.5E-5
1-DCP-BCH-FC-BD1CA&__	Battery charger 1BD1CA fails by random cause (1yr)	2.7E-6	8760	Gamma	1.28E+0	BCH-FC-IE	2.3E-2
1-DCP-BCH-FC-BD1CA__	Battery charger 1BD1CA fails by random cause (24hr)	2.7E-6	24	Gamma	1.28E+0	BCH-FC	6.5E-5
1-DCP-BCH-FC-BD1CB&__	Battery charger 1BD1CB fails by random cause (1yr)	2.7E-6	8760	Gamma	1.28E+0	BCH-FC-IE	2.3E-2
1-DCP-BCH-FC-BD1CB__	Battery charger 1BD1CB fails by random cause (24hr)	2.7E-6	24	Gamma	1.28E+0	BCH-FC	6.5E-5
1-DCP-BCH-FC-CA__DB-CC	Battery chargers 1CD1CA and 1DD1CB fail- double CCF						2.0E-6
1-DCP-BCH-FC-CA__DA__-CC	Battery chargers 1CD1CA and 1DD1CA fail - double CCF						2.0E-6
1-DCP-BCH-FC-CA__DADB-CC	Battery chargers 1 CD1CA, 1DD1CA, and 1DD1CB fail - triple CCF						1.1E-6
1-DCP-BCH-FC-CACB____-CC	Battery chargers 1CD1CA and 1CD1CB fail - double CCF						2.0E-6
1-DCP-BCH-FC-CACB__DB-CC	Battery chargers 1CD1CA, 1CD1CB, and 1DD1CB fail - triple CCF						1.1E-6
1-DCP-BCH-FC-CACBDA__-CC	Battery chargers 1CD1CA, 1CD1CB and 1DD1CA fail - triple CCFs						1.1E-6
1-DCP-BCH-FC-CACBDADB-CC	Battery chargers 1CD1CA, 1CD1CB, 1DD1CA, and 1DD1CB fails - quadruple CCF						1.5E-6
1-DCP-BCH-FC-CD1CA__	Battery charger 1CD1CA fails by random cause	2.7E-6	24	Gamma	1.28E+0	BCH-FC	6.5E-5
1-DCP-BCH-FC-CD1CB__	Battery charger 1CD1CB fails by random cause	2.7E-6	24	Gamma	1.28E+0	BCH-FC	6.5E-5
1-DCP-BCH-FC-DD1CA__	Battery charger 1DD1CA fails by random cause	2.7E-6	24	Gamma	1.28E+0	BCH-FC	6.5E-5



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-DCP-BCH-FC-DD1CB___	Battery charger 1DD1CB fails by random cause	2.7E-6	24	Gamma	1.28E+0	BCH-FC	6.5E-5
1-DCP-BCH-FC-ND12___CD-CC	Battery chargers 1ND2CA & 1ND2CB fail by CCF						2.0E-6
1-DCP-BCH-FC-ND12_B_D-CC	Battery chargers 1ND1CB & 1ND2CB fail by CCF						2.0E-6
1-DCP-BCH-FC-ND12_BC_-CC	Battery chargers 1ND2CA & 1ND1CB fail by CCF						2.0E-6
1-DCP-BCH-FC-ND12_BCD-CC	Battery chargers 1ND2CA, 1ND1CB, 1ND2CB fail by CCF						1.1E-6
1-DCP-BCH-FC-ND12A___D-CC	Battery chargers 1ND1CA & 1ND2CB fail by CCF						2.0E-6
1-DCP-BCH-FC-ND12A_C_-CC	Battery chargers 1ND1CA & 1ND2CA fail by CCF						2.0E-6
1-DCP-BCH-FC-ND12A_CD-CC	Battery chargers 1ND1CA, 1ND2CA, 1ND2CB fail by CCF						1.1E-6
1-DCP-BCH-FC-ND12AB___CC	Battery chargers 1ND1CA & 1ND1CB fail by CCF						2.0E-6
1-DCP-BCH-FC-ND12AB_D-CC	Battery chargers 1ND1CA, 1ND1CB, 1ND2CB fail by CCF						1.1E-6
1-DCP-BCH-FC-ND12ABC_-CC	Battery chargers 1ND1CA, 1ND1CB, 1ND2CA fail by CCF						1.1E-6
1-DCP-BCH-FC-ND12ABCD-CC	Battery chargers 1ND1CA, 1ND1CB, 1ND2CA, 1ND2CB fail CCF						1.5E-6
1-DCP-BCH-FC-ND1CA___	Battery charger 1ND1CA fails randomly	2.7E-6	24	Gamma	1.28E+0	BCH-FC	6.5E-5
1-DCP-BCH-FC-ND1CB___	Battery charger 1ND1CB fails randomly	2.7E-6	24	Gamma	1.28E+0	BCH-FC	6.5E-5
1-DCP-BCH-FC-ND2CA___	Battery charger 1ND2CA fails randomly	2.7E-6	24	Gamma	1.28E+0	BCH-FC	6.5E-5
1-DCP-BCH-FC-ND2CB___	Battery charger 1ND2CB fails randomly	2.7E-6	24	Gamma	1.28E+0	BCH-FC	6.5E-5
1-DCP-BCH-FC-ND3___CD-CC	Battery chargers ND3BCA & ND3BCB fail to operate by CCF						2.0E-6
1-DCP-BCH-FC-ND3_B_D-CC	Battery chargers ND3ACB & ND3BCB fail to operate by CCF						2.0E-6
1-DCP-BCH-FC-ND3_BC_-CC	Battery chargers ND3ACB & ND3BCA fail to operate by CCF						2.0E-6
1-DCP-BCH-FC-ND3_BCD-CC	Battery chargers ND3ACB, ND3BCA, ND3BCB fail to operate CCF						1.1E-6
1-DCP-BCH-FC-ND3_A_D-CC	Battery chargers ND3ACA & ND3BCB fail to operate by CCF						2.0E-6
1-DCP-BCH-FC-ND3_A_C_-CC	Battery chargers ND3ACA & ND3BCA fail to operate by CCF						2.0E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-DCP-BCH-FC-ND3_A_CD-CC	Battery chargers ND3ACA, ND3BCA, ND3BCB fail to operate CCF						1.1E-6
1-DCP-BCH-FC-ND3_AB__-CC	Battery chargers ND3ACA & ND3ACB fail to operate by CCF						2.0E-6
1-DCP-BCH-FC-ND3_AB_D-CC	Battery chargers ND3ACA, ND3ACB, ND3BCB fail to operate CCF						1.1E-6
1-DCP-BCH-FC-ND3_ABC_-CC	Battery chargers ND3ACA, ND3ACB, ND3BCA fail to operate CCF						1.1E-6
1-DCP-BCH-FC-ND3_ABCD-CC	Bat chargers ND3ACA, ND3ACB, ND3BCA, ND3BCB fail to operate CCF						1.5E-6
1-DCP-BCH-FC-ND3ACA__	Battery charger ND3ACA fails to operate	2.7E-6	24	Gamma	1.28E+0	BCH-FC	6.5E-5
1-DCP-BCH-FC-ND3ACB__	Battery charger ND3ACB fails to operate	2.7E-6	24	Gamma	1.28E+0	BCH-FC	6.5E-5
1-DCP-BCH-FC-ND3BCA__	Battery charger ND3BCA fails to operate	2.7E-6	24	Gamma	1.28E+0	BCH-FC	6.5E-5
1-DCP-BCH-FC-ND3BCB__	Battery charger ND3BCB fails to operate	2.7E-6	24	Gamma	1.28E+0	BCH-FC	6.5E-5
1-DCP-BCH-MA-AD1CA__	Battery charger 1AD1CA in maintenance			Beta	2.50E+2	BCH-TM	2.0E-3
1-DCP-BCH-MA-AD1CB__	Battery charger 1AD1CB in maintenance			Beta	2.50E+2	BCH-TM	2.0E-3
1-DCP-BCH-MA-BD1CA__	Battery charger 1BD1CA in maintenance			Beta	2.50E+2	BCH-TM	2.0E-3
1-DCP-BCH-MA-BD1CB__	Battery charger 1BD1CB in maintenance			Beta	2.50E+2	BCH-TM	2.0E-3
1-DCP-BCH-MA-CD1CA__	Battery charger 1CD1CA in maintenance			Beta	2.50E+2	BCH-TM	2.0E-3
1-DCP-BCH-MA-CD1CB__	Battery charger 1CD1CB in maintenance			Beta	2.50E+2	BCH-TM	2.0E-3
1-DCP-BCH-MA-DD1CA__	Battery charger 1DD1CA in maintenance			Beta	2.50E+2	BCH-TM	2.0E-3
1-DCP-BCH-MA-DD1CB__	Battery charger 1DD1CB in maintenance			Beta	2.50E+2	BCH-TM	2.0E-3
1-DCP-BCH-MA-ND3ACA__	Battery charger NDCACA in maintenance			Beta	2.50E+2	BCH-TM	2.0E-3
1-DCP-BCH-MA-ND3ACB__	Battery charger ND3ACB in maintenance			Beta	2.50E+2	BCH-TM	2.0E-3
1-DCP-BCH-MA-ND3BCA__	Battery charger ND3BCA in maintenance			Beta	2.50E+2	BCH-TM	2.0E-3
1-DCP-BCH-MA-ND3BCB__	Battery charger ND3BCB in maintenance			Beta	2.50E+2	BCH-TM	2.0E-3
1-DCP-BDC-FC-AD1&__	125v DC bus 1AD1 fails - 1yr	2.4E-7	8760	Gamma	1.50E+0	BDC-LP-IE	2.1E-3
1-DCP-BDC-FC-AD1__	125v DC bus 1AD1 fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-BDC-FC-AD1M__	Bus 1AD1M fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-BDC-FC-BD1&__	125v DC bus 1BD1 fails - 1 yr	2.4E-7	8760	Gamma	1.50E+0	BDC-LP-IE	2.1E-3
1-DCP-BDC-FC-BD1__	125v DC bus 1BD1 fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-BDC-FC-BD1M__	Bus 1BD1M fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-BDC-FC-CD1__	125v DC bus 1CD1 fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-BDC-FC-CD1M__	Bus 1CD1M fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-BDC-FC-DD1__	125v DC bus 1DD1 fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-BDC-FC-ND1__	125v DC switchgear 1ND1 fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-BDC-FC-ND11__	125v DC panel 1ND11 fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-DCP-BDC-FC-ND2	125v DC switchgear 1ND2 fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-BDC-FC-ND21	125v DC panel 1ND21 fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-BDC-FC-ND31	125v DC panel 1ND31 fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-BDC-FC-ND32	125v DC panel 1ND32 fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-BDC-FC-ND33	125v DC bus 1ND33 failure	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-BDC-FC-ND3A	125v DC bus ND3A fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-BDC-FC-ND3B	125v DC bus ND3B fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-BDC-MA-AD1	125v DC bus 1AD1 in maintenance						0.0E+0
1-DCP-BDC-MA-AD1M	Bus 1AD1M in maintenance						0.0E+0
1-DCP-BDC-MA-BD1	125v DC bus 1BD1 in maintenance						0.0E+0
1-DCP-BDC-MA-BD1M	Bus 1BD1M in maintenance						0.0E+0
1-DCP-BDC-MA-CD1	125v DC bus 1CD1 in maintenance						0.0E+0
1-DCP-BDC-MA-CD1M	Bus 1CD1M in maintenance						0.0E+0
1-DCP-BDC-MA-DD1	125v DC bus 1DD1 in maintenance						0.0E+0
1-DCP-BDC-MA-ND1	125v DC switchgear 1ND1 in maintenance						0.0E+0
1-DCP-BDC-MA-ND11	125v DC panel 1ND11 in maintenance						0.0E+0
1-DCP-BDC-MA-ND2	125v DC switchgear 1ND2 in maintenance						0.0E+0
1-DCP-BDC-MA-ND21	125v DC panel 1ND21 in maintenance						0.0E+0
1-DCP-BDC-MA-ND31	125v DC panel 1ND31 in maintenance						0.0E+0
1-DCP-BDC-MA-ND32	125v DC panel 1ND32 in maintenance						0.0E+0
1-DCP-BDC-MA-ND33	125v DC bus 1ND33 in maintenance						0.0E+0
1-DCP-BDC-MA-ND3A	125v DC bus ND3A in maintenance						0.0E+0
1-DCP-BDC-MA-ND3B	125v DC bus ND3B in maintenance						0.0E+0
1-DCP-CRB-CO-1ND3A10	Inverter 1ND314 feeder breaker 1ND3A10 from DC switchgear 1ND3A spuriously open	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-AD101&__	Breaker from battery 1AD1B to bus 1AD1 opens spuriously (1yr)	2.2E-7	8760	Gamma	2.16E+0	CRB-CO-IE	2.0E-3
1-DCP-CRB-CO-AD101	Breaker from battery 1AD1B to bus 1AD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-AD104	Breaker 1AD104 between inverter 1AD1I11 & 1AD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-AD105	Supply breaker 1AD105 from bus 1AD1 to 1AD11 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-AD106&__	Breaker 1AD106 between battery charger 1AD1CA and 1AD1 opens spuriously	2.2E-7	8760	Gamma	2.16E+0	CRB-CO-IE	2.0E-3
1-DCP-CRB-CO-AD106	Breaker 1AD106 between battery charger 1AD1CA and 1AD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-DCP-CRB-CO-AD107&__	Breaker 1AD107 between battery charger 1AD1CB and 1AD1 opens spuriously	2.2E-7	8760	Gamma	2.16E+0	CRB-CO-IE	2.0E-3
1-DCP-CRB-CO-AD107__	Breaker 1AD107 between battery charger 1AD1CB and 1AD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-AD109__	Supply breaker 1AD109 from bus 1AD1 to 1AD12 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-AD110&__	Breaker 1AD110 between inverter 1AD1I1 & 1AD1 opens spuriously	2.2E-7	8760	Gamma	2.16E+0	CRB-CO-IE	2.0E-3
1-DCP-CRB-CO-AD110__	Breaker 1AD110 between inverter 1AD1I1 & 1AD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-AD1101__	DC circuit breaker AD1101 spuriously opens on load shed logic circuits	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-AD1102__	DC circuit breaker AD1102 spuriously opens on load shed logic circuits	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-AD1104__	DC circuit breaker AD1104 spuriously opens on load shed logic circuits	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-AD111__	Circuit breaker 1AD1-11 from switchgear 1AD1 to MCC 1AD1M spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-AD111024	DC circuit breaker AD1110 to fan control logic spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-AD111124	DC circuit breaker AD1111 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-AD1203__	DC circuit breaker AD1203 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-AD121124	DC circuit breaker AD1211 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-AY2A08__	DC circuit breaker spuriously opens (ay2A08 to sequencer A)	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-BD101&__	Breaker from battery 1BD1B to bus 1BD1 opens spuriously (1yr)	2.2E-7	8760	Gamma	2.16E+0	CRB-CO-IE	2.0E-3
1-DCP-CRB-CO-BD101__	Breaker from battery 1BD1B to bus 1BD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-BD104__	Breaker 1BD104 between inverter 1BD1I12 & 1BD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-BD105__	Supply breaker 1BD105 from bus 1BD1 to 1BD11 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-BD106&__	Breaker 1BD106 between battery charger 1BD1CB and 1BD1 opens spuriously	2.2E-7	8760	Gamma	2.16E+0	CRB-CO-IE	2.0E-3
1-DCP-CRB-CO-BD106__	Breaker 1BD106 between battery charger 1BD1CB and 1BD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-BD107&__	Breaker 1BD107 between battery charger 1BD1CA and 1BD1 opens spuriously	2.2E-7	8760	Gamma	2.16E+0	CRB-CO-IE	2.0E-3

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-DCP-CRB-CO-BD107___	Breaker 1BD107 between battery charger 1BD1CA and 1BD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-BD109___	Supply breaker 1BD109 from bus 1BD1 to 1BD12 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-BD110&___	Breaker 1BD110 between inverter1BD1I2 & 1BD1 opens spuriously	2.2E-7	8760	Gamma	2.16E+0	CRB-CO-IE	2.0E-3
1-DCP-CRB-CO-BD110___	Breaker 1BD110 between inverter1BD1I2 & 1BD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-BD1101___	DC circuit breaker BD1101 spuriously opens on load shed logic circuits	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-BD1102___	DC circuit breaker BD1102 spuriously opens on load shed logic circuits	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-BD1104___	DC circuit breaker BD1104 spuriously opens on load shed logic circuits	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-BD111___	Circuit breaker 1BD1-11from switchgear 1BD1 to MCC 1BD1M spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-BD111024	DC circuit breaker BD1110 to fan control logic spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-BD111124	DC circuit breaker BD1111 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-BD1203___	DC circuit breaker BD1203 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-BD121124	DC circuit breaker BD1211 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-BY2B08___	DC circuit breaker spuriously opens (BY2B08 to sequencer B)	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-CD101___	Breaker from battery 1CD1B to bus 1CD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-CD104___	Supply breaker 1CD104 from bus 1CD1 to 1CD11 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-CD106___	Breaker 1CD106 between battery charger 1CD1CA and 1CD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-CD107___	Breaker 1CD107 between battery charger 1CD1CB and 1CD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-CD108___	125v DC circuit breaker 1CD108 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-CD109&___	Breaker 1CD109 between inverter 1CD1I3 & 1CD1 opens spuriously	2.2E-7	8760	Gamma	2.16E+0	CRB-CO-IE	2.0E-3
1-DCP-CRB-CO-CD109___	Breaker 1CD109 between inverter 1CD1I3 & 1CD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-CD111___	Circuit breaker 1CD1-11 from switchgear 1CD1 to MCC 1CD1M spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-DD101___	Breaker from battery 1DD1B to bus 1DD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-DCP-CRB-CO-DD104___	Supply breaker 1DD104 from bus 1DD1 to 1DD11 opens spuriously						0.0E+0
1-DCP-CRB-CO-DD106___	Breaker 1DD106 between battery charger 1DD1CA and 1DD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-DD107___	Breaker 1DD107 between battery charger 1DD1CB and 1DD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-DD108___	125v DC circuit breaker 1DD108 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-DD109&___	Breaker 1DD109 between inverter 1DD1I4 & 1DD1 opens spuriously	2.2E-7	8760	Gamma	2.16E+0	CRB-CO-IE	2.0E-3
1-DCP-CRB-CO-DD109___	Breaker 1DD109 between inverter 1DD1I4 & 1DD1 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND101___	Circuit breaker 1ND101 from 125v DC battery to 125v DC bus 1ND1 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND105___	Circuit breaker 1ND105 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND106___	Circuit breaker 1ND106 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND107___	Circuit breaker 1ND107 from 125v DC switchgear 1ND1to panel 1ND11 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND1101___	DC power supply breaker 1ND1101 spuriously opens fast bus transfer 1NAA	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND1102___	DC power supply breaker 1ND1102 spuriously opens reserve bus transfer 1NA01	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND1108___	DC circuit breaker ND1108 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND201___	Circuit breaker 1ND201 from 125v DC battery to 125v DC bus 1ND2 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND205___	Circuit breaker 1ND205 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND206___	Circuit breaker 1ND206 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND209___	Circuit breaker 1ND209 from 125v DC switchgear 1ND2 to panel 1ND21 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND2104___	DC power supply breaker 1ND2104 spuriously opens reserve bus transfer 1NA04	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND2107___	DC power supply breaker 1ND2107 spuriously opens fast bus transfer 1NAB	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND3101___	Circuit breaker 1ND3101 in 125v panel ND31 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND3202___	Circuit breaker 1ND3202 in 125v panel ND32 opens spuriously	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND3301___	DC circuit breaker ND3301 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND3A01___	125v DC circuit breaker ND3A01 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND3A03___	125v DC circuit breaker ND3A03 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-DCP-CRB-CO-ND3A04__	125v DC circuit breaker ND3A04 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND3A08__	125v DC circuit breaker ND3A08 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND3A09__	DC circuit breaker ND3A09 spuriously opens (between ND3A and ND33)	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND3B01__	125v DC circuit breaker ND3B01 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND3B04__	125v DC circuit breaker ND3B04 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND3B05__	125v DC circuit breaker ND3B05 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-CO-ND3B09__	125v DC circuit breaker ND3B09 spuriously opens	2.2E-7	24	Gamma	2.16E+0	CRB-CO	5.4E-6
1-DCP-CRB-OO-ND105__	Circuit breaker 1ND105 fail to close			Beta	9.20E+2	CRB-OO	5.3E-3
1-DCP-CRB-OO-ND106__	Circuit breaker 1ND106 fail to close			Beta	9.20E+2	CRB-OO	5.3E-3
1-DCP-CRB-OO-ND205__	Circuit breaker 1ND205 fail to close			Beta	9.20E+2	CRB-OO	5.3E-3
1-DCP-CRB-OO-ND206__	Circuit breaker 1ND206 fail to close			Beta	9.20E+2	CRB-OO	5.3E-3
1-DCP-CRB-OO-ND3A03__	125v DC circuit breaker ND3A03 fail to close			Beta	9.20E+2	CRB-OO	5.3E-3
1-DCP-CRB-OO-ND3A04__	125v DC circuit breaker ND3A04 fail to close			Beta	9.20E+2	CRB-OO	5.3E-3
1-DCP-CRB-OO-ND3B04__	125v DC circuit breaker ND3B04 fail to close			Beta	9.20E+2	CRB-OO	5.3E-3
1-DCP-CRB-OO-ND3B05__	125v DC circuit breaker ND3B05 fail to close			Beta	9.20E+2	CRB-OO	5.3E-3
1-DCP-DPL-FC-AD11__	Distribution panel 1AD11 fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-DPL-FC-AD12__	Distribution panel 1AD12 fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-DPL-FC-BD11__	Distribution panel 1BD11 fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-DPL-FC-BD12__	Distribution panel 1BD12 fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-DPL-FC-CD11__	Distribution panel 1CD11 fails	2.4E-7	24	Gamma	1.50E+0	BDC-LP	5.6E-6
1-DCP-FUS-OP-AD104__	Supply current fuse between breaker 1AD104 & inverter fails	3.1E-6	24	Log Normal	1.14E+1	FUS-OP	7.5E-5
1-DCP-FUS-OP-AD110&__	Supply current fuse between breaker 1AD110 & inverter fails	3.1E-6	8760	Log Normal	1.14E+1	FUS-OP-IE	2.7E-2
1-DCP-FUS-OP-AD110__	Supply current fuse between breaker 1AD110 & inverter fails	3.1E-6	24	Log Normal	1.14E+1	FUS-OP	7.5E-5
1-DCP-FUS-OP-BD104__	Supply current fuse between breaker 1BD104 & inverter fails	3.1E-6	24	Log Normal	1.14E+1	FUS-OP	7.5E-5
1-DCP-FUS-OP-BD110&__	Supply current fuse between breaker 1BD110 & inverter fails	3.1E-6	8760	Log Normal	1.14E+1	FUS-OP-IE	2.7E-2
1-DCP-FUS-OP-BD110__	Supply current fuse between breaker 1BD110 & inverter fails	3.1E-6	24	Log Normal	1.14E+1	FUS-OP	7.5E-5
1-DCP-FUS-OP-CD109&__	Supply current fuse between breaker 1CD109 & inverter fails	3.1E-6	8760	Log Normal	1.14E+1	FUS-OP-IE	2.7E-2
1-DCP-FUS-OP-CD109__	Supply current fuse between breaker 1CD109 & inverter fails	3.1E-6	24	Log Normal	1.14E+1	FUS-OP	7.5E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-DCP-FUS-OP-DD109&__	Supply current fuse between breaker 1DD109 & inverter fails	3.1E-6	8760	Log Normal	1.14E+1	FUS-OP-IE	2.7E-2
1-DCP-FUS-OP-DD109__	Supply current fuse between breaker 1DD109 & inverter fails	3.1E-6	24	Log Normal	1.14E+1	FUS-OP	7.5E-5
1-DGXDG	Diesel generator FTR			Gamma	1.80E+1	1-DGXDG	2.1E-3
1-DMFAL	Damper fails to operate on demand			Beta	1.10E+4	1-DMFAL	4.4E-5
1-ECW-ACU-MA-001__	ECW chiller 001 unavailable due to maintenance			Beta	2.00E+2	ACX-TM	2.5E-3
1-ECW-ACU-MA-002__	ECW chiller 002 unavailable due to maintenance			Beta	2.00E+2	ACX-TM	2.5E-3
1-ECW-MDP-MA-001__	ECW pump 001 unavailable due to maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-ECW-MDP-MA-002__	ECW pump 002 unavailable due to maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-EPS-CKV-CC-CV044XF_	DGA fuel transfer pump 2 train CV 044 fail to open - random faults			Beta	4.70E+4	CKV-CC	1.1E-5
1-EPS-CKV-CC-CV047XF_	DGA fuel transfer pump 1 train CV 047 fail to open - random faults			Beta	4.70E+4	CKV-CC	1.1E-5
1-EPS-CKV-CC-CV050XF_	DGB fuel transfer pump 4 train CV 050 fail to open - random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-EPS-CKV-CC-CV053XF_	DGB fuel transfer pump 3 train CV 053 fail to open - random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-EPS-CKV-CC-FXFERP__ -CC	CCF of CVs in DG fuel transfer pumps trains to open (047, 044, 053,050)						5.8E-8
1-EPS-CNT-OO-APS34A__	Ready to load relay PS34A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-EPS-CNT-OO-BPS34A__	Ready to load relay PS34A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-EPS-CNT-OO-RTLAAX11	RTL auxiliary contacts (1-7) fail to close to allow AA0219 to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-EPS-CNT-OO-RTLBAX11	RTL auxiliary contacts (1-7) fail to close to allow BA0319 to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-EPS-CNT-OO-STARTA1A	Contacts of air start relay DG-A 1A fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-EPS-CNT-OO-STARTA1B	Contacts of air start relay DG-A 1B fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-EPS-CNT-OO-STARTA2A	Contacts of air start relay DG-A 2A fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-EPS-CNT-OO-STARTA2B	Contacts of air start relay DG-A 2B fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-EPS-CNT-OO-STARTB1A	Contacts of air start relay DG-B 1A fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-EPS-CNT-OO-STARTB1B	Contacts of air start relay DG-B 1B fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-EPS-CNT-OO-STARTB2A	Contacts of air start relay DG-B 2A fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-EPS-CNT-OO-STARTB2B	Contacts of air start relay DG-B 2B fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-EPS-DGN-CF-FRUN1	CCF of unit 1 DGNS G4001/G4002 to run						3.2E-4
1-EPS-DGN-CF-FSUN1	CCF of unit 1 DGNS G4001/G4002 to start						3.7E-5
1-EPS-DGN-FR-G4001__	DG1A FTR by random cause (24 hr mission time)						3.3E-2



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-EPS-DGN-FR-G4002	DG1B FTR by random cause (24 hr mission time)						3.3E-2
1-EPS-DGN-FS-G4001	DG1A FTS by random cause			Beta	3.80E+3	DGN-FS	2.9E-3
1-EPS-DGN-FS-G4002	DG1B FTS by random cause			Beta	3.80E+3	DGN-FS	2.9E-3
1-EPS-DGN-MA-G4001	DG1A in maintenance			Normal	5.4E-3	DGN-TM	1.3E-2
1-EPS-DGN-MA-G4002	DG1B in maintenance			Normal	5.4E-3	DGN-TM	1.3E-2
1-EPS-FLT-PG-F4002	DGA fuel transfer pump 1 train strainer F-002 plugs	3.1E-7	24	Gamma	3.50E+0	FLT-PG	7.4E-6
1-EPS-FLT-PG-F4003	DGB fuel transfer pump 4 train strainer F-003 plugs	3.1E-7	24	Gamma	3.50E+0	FLT-PG	7.4E-6
1-EPS-FLT-PG-F4009	DGB fuel transfer pump 3 train strainer F-009plugs	3.1E-7	24	Gamma	3.50E+0	FLT-PG	7.4E-6
1-EPS-FLT-PG-F4010	DGA fuel transfer pump 1 train strainer F-010 plugs	3.1E-7	24	Gamma	3.50E+0	FLT-PG	7.4E-6
1-EPS-MDP-FR-XFERP1	DGA fuel transfer pump 1 FTR	5.4E-6	24	Gamma	5.00E-01	FOT-MDP-FR	1.3E-4
1-EPS-MDP-FR-XFERP2	DGA fuel transfer pump 2 FTR	5.4E-6	24	Gamma	5.00E-01	FOT-MDP-FR	1.3E-4
1-EPS-MDP-FR-XFERP3	DGB fuel transfer pump 3 FTR	5.4E-6	24	Gamma	5.00E-01	FOT-MDP-FR	1.3E-4
1-EPS-MDP-FR-XFERP4	DGB fuel transfer pump 4 FTR	5.4E-6	24	Gamma	5.00E-01	FOT-MDP-FR	1.3E-4
1-EPS-MDP-FR-XFERPPS_-CC	CCF of DG fuel transfer pumps to run						7.3E-6
1-EPS-MDP-FS-XFERP1	DGA fuel transfer pump 1 FTS			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-EPS-MDP-FS-XFERP2	DGA fuel transfer pump 1 FTS			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-EPS-MDP-FS-XFERP3	DGB fuel transfer pump 3 FTS			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-EPS-MDP-FS-XFERP4	DGB fuel transfer pump 4 FTS			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-EPS-MDP-FS-XFERPPS_-CC	CCF of DG fuel transfer pumps to start						3.5E-5
1-EPS-MDP-MA-XFERP1	DGA fuel transfer pump 1 in maintenance						0.0E+0
1-EPS-MDP-MA-XFERP2	DGA fuel transfer pump 2 in maintenance						0.0E+0
1-EPS-MDP-MA-XFERP3	DGB fuel transfer pump 3 in maintenance						0.0E+0
1-EPS-MDP-MA-XFERP4	DGB fuel transfer pump 4 in maintenance						0.0E+0
1-EPS-MOT-CF-RUN	DG room vent fans fail from CCF to run						1.0E-6
1-EPS-MOT-CF-START	DG room vent fans fail from CCF to start						2.8E-6
1-EPS-MOT-FR-B7001	DG-A vent fan 001 FTR by random cause	5.9E-6	24	Gamma	5.30E-01	FAN-FR-NR	1.4E-4
1-EPS-MOT-FR-B7002	DG-B vent fan 002 FTR by random cause	5.9E-6	24	Gamma	5.30E-01	FAN-FR-NR	1.4E-4
1-EPS-MOT-FR-B7003	DG-A vent fan 003 FTR by random cause	5.9E-6	24	Gamma	5.30E-01	FAN-FR-NR	1.4E-4
1-EPS-MOT-FR-B7004	DG-B vent fan 004 FTR by random cause	5.9E-6	24	Gamma	5.30E-01	FAN-FR-NR	1.4E-4
1-EPS-MOT-FS-B7001	DG-A vent fan 001 FTS by random cause			Beta	4.10E+4	FAN-FS	8.4E-4
1-EPS-MOT-FS-B7002	DG vent fan 002 FTS by random cause			Beta	4.10E+4	FAN-FS	8.4E-4
1-EPS-MOT-FS-B7003	DG-A vent fan 003 FTS by random cause			Beta	4.10E+4	FAN-FS	8.4E-4
1-EPS-MOT-FS-B7004	DG-B vent fan 004 FTS by random cause			Beta	4.10E+4	FAN-FS	8.4E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-EPS-MOT-MA-B7001__	DG-A vent fan 001 in maintenance			Log Normal	1.00E+1		1.3E-3
1-EPS-MOT-MA-B7002__	DG-B vent fan 002 in maintenance			Log Normal	1.00E+1		1.3E-4
1-EPS-MOT-MA-B7003__	DG-A vent fan 003 in maintenance			Log Normal	1.00E+1		1.3E-3
1-EPS-MOT-MA-B7004__	DG-B vent fan 004 in maintenance			Log Normal	1.00E+1		1.3E-4
1-EPS-PND-CC-HV12050_	DG-A vent damper 1HV12050 fails to open by random cause			Beta	2.90E+4	PND-CC	3.7E-4
1-EPS-PND-CC-HV12051_	DG-A vent damper 1HV12051 fails to open by random cause			Beta	2.90E+4	PND-CC	3.7E-4
1-EPS-PND-CC-HV12053_	DG-B vent damper 1HV12053 fails to open by random cause			Beta	2.90E+4	PND-CC	3.7E-4
1-EPS-PND-CC-HV12054_	DG-B vent damper 1HV12054 fails to open by random cause			Beta	2.90E+4	PND-CC	3.7E-4
1-EPS-PND-CF-1205X	DG vent dampers fail from CCF						1.2E-6
1-EPS-RLY-FC-APS34A_9	Ready to load relay PS34A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-EPS-RLY-FC-BPS34A_9	DG-B ready to load relay PS34A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-EPS-RLY-FC-R11A2DGA	DG1A running relay FTS fan 001 by random cause			Beta	2.00E+4	RLY-FC	2.5E-5
1-EPS-RLY-FC-R11A2DGB	DG1B running relay FTS fan 002 by random cause			Beta	2.00E+4	RLY-FC	2.5E-5
1-EPS-RLY-FC-R11B2DGA	DG1A running relay FTS fan 003 by random cause			Beta	2.00E+4	RLY-FC	2.5E-5
1-EPS-RLY-FC-R11B2DGB	DG1B running relay FTS fan 004 by random cause			Beta	2.00E+4	RLY-FC	2.5E-5
1-EPS-RLY-FC-RTLAAX19	RTL auxiliary relay fails to provide signal to close DG circuit breaker AA0219			Beta	2.00E+4	RLY-FC	2.5E-5
1-EPS-RLY-FC-RTLBAX19	RTL auxiliary relay fails to provide signal to close DG circuit breaker BA0319			Beta	2.00E+4	RLY-FC	2.5E-5
1-EPS-RLY-FC-RUN12__-CC	DG running relays 1,2 fail by CCF						3.6E-7
1-EPS-RLY-FC-RUN123__-CC	DG running relays 1,2,3 fail by CCF						8.1E-8
1-EPS-RLY-FC-RUN1234__-CC	DG running relays 1,2,3,4 fail by CCF						6.9E-8
1-EPS-RLY-FC-RUN124__-CC	DG running relays 1,2,4 fail by CCF						8.1E-8
1-EPS-RLY-FC-RUN13__-CC	DG running relays 1,3 fail by CCF						3.6E-7
1-EPS-RLY-FC-RUN134__-CC	DG running relays 1,3,4 fail by CCF						8.1E-8
1-EPS-RLY-FC-RUN14__-CC	DG running relays 1,4 fail by CCF						3.6E-7
1-EPS-RLY-FC-RUN23__-CC	DG running relays 2,3 fail by CCF						3.6E-7
1-EPS-RLY-FC-RUN234__-CC	DG running relays 2,3,4 fail by CCF						8.1E-8
1-EPS-RLY-FC-RUN24__-CC	DG running relays 2,4 fail by CCF						3.6E-7
1-EPS-RLY-FC-RUN34__-CC	DG running relays 3,4 fail by CCF						3.6E-7
1-EPS-RLY-FC-STR1A15	Air start relay DG-A 1A fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-EPS-RLY-FC-STR1B15	Air start relay DG-A 1B fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-EPS-RLY-FC-STRA2A15	Air start relay DG-A 2A fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-EPS-RLY-FC-STRA2B15	Air start relay DG-A 2B fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-EPS-RLY-FC-STRB1A15	Air start relay DG-B 1A fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-EPS-RLY-FC-STRB1B15	Air start relay DG-B 1B fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-EPS-RLY-FC-STRB2A15	Air start relay DG-B 2A fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-EPS-RLY-FC-STRB2B15	Air start relay DG-B 2B fails to operate			Beta	2.00E+4	RLY-FC	2.5E-5
1-EPS-SEQ-CF-FOAB	Sequencers fail from CCF to operate						2.1E-4
1-EPS-SEQ-FO-1821U301	Sequencer A fails to operate			Beta	1.50E+2	SEQ-FO	3.3E-3
1-EPS-SEQ-FO-1821U302	Sequencer B fails to operate			Beta	1.50E+2	SEQ-FO	3.3E-3
1-EPS-SOV-CC-A202_4A_	Solenoid valve 202-4A fails to open			Beta	2.60E+4	SOV-CC	1.2E-3
1-EPS-SOV-CC-A202_4B_	Solenoid valve 202-4B fails to open			Beta	2.60E+4	SOV-CC	1.2E-3
1-EPS-SOV-CC-B202_4A_	Solenoid valve 202-4A fails to open			Beta	2.60E+4	SOV-CC	1.2E-3
1-EPS-SOV-CC-B202_4B_	Solenoid valve 202-4B fails to open			Beta	2.60E+4	SOV-CC	1.2E-3
1-EPS-SWT-CF-5154_	Temperature switches 12051 &12054 fail by CCF (DG-A)						3.7E-7
1-EPS-SWT-FC-TIS12051	DG-A fan 3 temperature switch tish-12051 fails by random cause	4.1E-7	24	Gamma	5.00E-01	SWT-FC	9.9E-6
1-EPS-SWT-FC-TIS12054	DG-B fan 4 temperature switch tish-12054 fails by random cause	4.1E-7	24	Gamma	5.00E-01	SWT-FC	9.9E-6
1-EPS-TFL-FC-XFERPSIG-CC	DG fuel transfer pump signal LT CCF						3.2E-8
1-EPS-TNK-MA-DFOSTKA_	TR A. Diesel fuel oil storage tank 1-2403-T4-001 in maintenance			Log Normal	1.00E+1		6.3E-4
1-EPS-TNK-MA-DFOSTKB_	TR A. Diesel fuel oil storage tank 1-2403-T4-002in maintenance			Log Normal	1.00E+1		4.0E-4
1-EPS-TNK-RP-DFOSTKA_	TR A. Diesel fuel oil storage tank 1-2403-T4-001 ruptures	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-EPS-TNK-RP-DFOSTKB_	TR B. Diesel fuel oil storage tank 1-2403-T4-002 ruptures	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-EPS-TNK-RP-DGADAY_	DGA fuel oil day tank ruptures	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-EPS-TNK-RP-DGBDAY_	DGB fuel oil day tank ruptures	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-EPS-XVM-PG-038FXFR_	DGA fuel transfer line manual valve 038 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-EPS-XVM-PG-041FXFR_	DGB fuel transfer line manual valve 041 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-EPS-XVM-PG-045FXFR_	DGA fuel transfer pump 2 train manual valve 045 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-EPS-XVM-PG-048FXFR_	DGA fuel transfer pump 1 train manual valve 048 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-EPS-XVM-PG-051FXFR_	DGB fuel transfer pump 4 train manual valve 051 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-EPS-XVM-PG-054FXFR_	DGB fuel transfer pump 3 train manual valve 054 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-ESF-ACT-CF- _SAFACT-CC	CCF of ESFAS Train A and Train B						6.8E-5
1-ESF-DER-FC- _A513_1A	Diode circuit on safeguards driver A513 fails Train A	7.4E-9	24	Log Normal	9.91E+0	DER-FC	1.8E-7
1-ESF-DER-FC- _A513_1B	Diode circuit on safeguards driver A513 fails Train B	7.4E-9	24	Log Normal	9.91E+0	DER-FC	1.8E-7

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ESF-DER-FC- A516_1A	Diode circuit on safeguards driver card A516 fails	7.4E-9	24	Log Normal	9.91E+0	DER-FC	1.8E-7
1-ESF-DER-FC- A516_1B	Diode circuit on safeguards driver card A516 fails	7.4E-9	24	Log Normal	9.91E+0	DER-FC	1.8E-7
1-ESF-DER-FC- A517_1A	Diode circuit on safeguards driver A517 fails Train A	7.4E-9	24	Log Normal	9.91E+0	DER-FC	1.8E-7
1-ESF-DER-FC- A517_1B	Diode circuit on safeguards driver A517 fails Train B	7.4E-9	24	Log Normal	9.91E+0	DER-FC	1.8E-7
1-ESF-DER-FC- A518_1A	Diode circuit on safeguards driver card A518 fails	7.4E-9	24	Log Normal	9.91E+0	DER-FC	1.8E-7
1-ESF-DER-FC- A518_1B	Diode circuit on safeguards driver card A518 fails	7.4E-9	24	Log Normal	9.91E+0	DER-FC	1.8E-7
1-ESF-RLY-FC- K131A	Input relay K131 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K131B	Input relay K131 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K201A	Input relay K201 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K201B	Input relay K201 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K344A	Input relay K344 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K344B	Input relay K344 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K444A	Input relay K444 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K444B	Input relay K444 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K501A	Master relay K501 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K501B	Master relay K501 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K504A	Master relay K504 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K504B	Master relay K504 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K505A	Master relay K505A fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K505B	Master relay K505B fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K514A	Master relay K514A fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K514B	Master relay K514B fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K515A	Master relay K515A fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K515B	Master relay K515B fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K516A	Master relay K516A fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K516B	Master relay K516B fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K519A	Master relay K519A fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K519B	Master relay K519B fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K521A	Master relay K521 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K521B	Master relay K521 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K525A	Master relay K525 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K525B	Master relay K525 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K526A	Master relay K526 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K526B	Master relay K526 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K601A	Slave relay K601 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K601B	Slave relay K601 fails			Beta	2.00E+4	RLY-FC	2.5E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ESF-RLY-FC- K602A	Slave relay K602 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K602B	Slave relay K602 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K603A	Slave relay K603 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K603B	Slave relay K603 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K604A	Slave relay K604 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K604B	Slave relay K604 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K609A	Slave relay K609 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K609B	Slave relay K609 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K610A	Slave relay K610 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K610B	Slave relay K610 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K611A	Slave relay K611 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K611B	Slave relay K611 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K615A	Slave relay K615 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K615B	Slave relay K615 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K618A	Slave relay K618 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K618B	Slave relay K618 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K623B	Slave relay K623B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K627A	Slave relay K627 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K627B	Slave relay K627 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K634A	Slave relay K611 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K634B	Slave relay K634 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K640A	Slave relay K640A fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K640B	Slave relay K640B fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K641A	Slave relay K641A fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K641B	Slave relay K641B fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K643A	Slave relay K643A fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K643B	Slave relay K643B fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K736A	Slave relay K736A fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K736B	Slave relay K736B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K741A	Slave relay K741A fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-FC- K741B	Slave relay K741B fails to energize			Beta	2.00E+4	RLY-FC	2.5E-5
1-ESF-RLY-MA- K601A	Slave relay K601 unavailable due to maintenance			Log Normal	1.00E+1	RLY-MA-1	6.5E-4
1-ESF-RLY-MA- K601B	Slave relay K601 unavailable due to maintenance			Log Normal	1.00E+1	RLY-MA-2	5.9E-4
1-ESF-RLY-MA- K603A	Slave relay K603 unavailable due to maintenance			Log Normal	1.00E+1	RLY-MA-1	6.5E-4
1-ESF-RLY-MA- K603B	Slave relay K603 unavailable due to maintenance			Log Normal	1.00E+1	RLY-MA-2	5.9E-4
1-ESF-RLY-MA- K609A	Slave relay K609 unavailable due to maintenance			Log Normal	1.00E+1	RLY-MA-1	6.5E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-ESF-RLY-MA- K609B	Slave relay K609 unavailable due to maintenance			Log Normal	1.00E+1	RLY-MA-2	5.9E-4
1-ESF-RLY-MA- K610A	Slave relay K610 unavailable due to maintenance			Log Normal	1.00E+1	RLY-MA-1	6.5E-4
1-ESF-RLY-MA- K610B	Slave relay K610 unavailable due to maintenance			Log Normal	1.00E+1	RLY-MA-2	5.9E-4
1-ESF-RLY-MA- K615A	Slave relay K615 unavailable due to maintenance			Log Normal	1.00E+1	RLY-MA-1	6.5E-4
1-ESF-RLY-MA- K615B	Slave relay K615 unavailable due to maintenance			Log Normal	1.00E+1	RLY-MA-2	5.9E-4
1-ESF-RLY-MA- K618A	Slave relay K618 unavailable due to maintenance			Log Normal	1.00E+1	RLY-MA-1	6.5E-4
1-ESF-RLY-MA- K618B	Slave relay K618 unavailable due to maintenance			Log Normal	1.00E+1	RLY-MA-2	5.9E-4
1-ESF-RLY-MA- K623B	Slave relay K623 unavailable due to maintenance			Log Normal	1.00E+1	RLY-MA-2	5.9E-4
1-ESF-RLY-TE- K610A	Slave relay K610 unavailable during GO test -SFSS lead pulled			Log Normal	1.00E+1	RLY-TE-1	2.3E-4
1-ESF-RLY-TE- K610B	Slave relay K610 unavailable during GO test -SFSS lead pulled			Log Normal	1.00E+1	RLY-TE-1	2.3E-4
1-ESF-SSD-FC- 4A315A	4-input circuit on universal logic card A315 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ESF-SSD-FC- 4A315B	4-input circuit on universal logic card A315 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ESF-SSD-FC- 3A3131A	3-input circuit on universal logic card A313 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ESF-SSD-FC- 3A3131B	3-input circuit on universal logic card A313 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ESF-SSD-FC- 3A4161A	3-input circuit on universal logic card A416 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ESF-SSD-FC- 3A4161B	3-input circuit on universal logic card A416 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ESF-SSD-FC- A513 1A	Driver circuit on safeguards driver card A513 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ESF-SSD-FC- A513 1B	Driver circuit on safeguards driver card A513 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ESF-SSD-FC- A517 1A	Driver circuit on safeguards driver card A517 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ESF-SSD-FC- A517 1B	Driver circuit on safeguards driver card A517 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ESF-SSD-FC- A518AMD	Driver circuit on safeguards driver card A518 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ESF-SSD-FC- A518ARW	Driver circuit on safeguards driver card A518 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ESF-SSD-FC- A518ATD	Driver circuit on safeguards driver card A518 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ESF-SSD-FC- A518BMD	Driver circuit on safeguards driver card A518 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ESF-SSD-FC- A518BRW	Driver circuit on safeguards driver card A518 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ESF-SSD-FC- A518BTD	Driver circuit on safeguards driver card A518 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-ESF-SWC-FC- PB455D	Comparator PB-455D fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-ESF-SWC-FC- PB456D	Comparator PB-456D fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-ESF-SWC-FC- PB457D	Comparator PB-457D fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-ESF-SWC-FC- PB458D	Comparator PB-458D fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-ESF-XSR-FC- CS1R	Main control board manual SI switch CS1 -R fails			Log Normal	9.90E+0	XSW-FC	1.7E-7
1-ESF-XSR-FC- CS2R	Main control board manual SI switch CS2 -R fails			Log Normal	9.90E+0	XSW-FC	1.7E-7
1-FL-1ND1CA-RUN	Flag - battery charger 1ND1CA is in service						1.0E+0
1-FL-1ND1CA-STBY	Flag - battery charger 1ND1CA is in standby						0.0E+0

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-FL-1ND1CB-RUN	Flag - battery charger 1ND1CB is in service						0.0E+0
1-FL-1ND1CB-STBY	Flag - battery charger 1ND1CB is in standby						1.0E+0
1-FL-1ND2CA-RUN	Flag - battery charger 1ND2CA is in service						1.0E+0
1-FL-1ND2CA-STBY	Flag - battery charger 1ND2CA is in standby						0.0E+0
1-FL-1ND2CB-RUN	Flag - battery charger 1ND2CB is in service						0.0E+0
1-FL-1ND2CB-STBY	Flag - battery charger 1ND2CB is in standby						1.0E+0
1-FL-1ND3ACA-RUN	Flag - battery charger 1ND3Aca is in service						1.0E+0
1-FL-1ND3ACA-STBY	Flag - battery charger 1ND3Aca is in standby						0.0E+0
1-FL-1ND3ACB-RUN	Flag - battery charger ND3ACB is in service						0.0E+0
1-FL-1ND3ACB-STBY	Flag - battery charger ND3ACB is in standby						1.0E+0
1-FL-1ND3BCA-RUN	Flag - battery charger 1ND3BCA is in service						1.0E+0
1-FL-1ND3BCA-STBY	Flag - battery charger 1ND3BCA is in standby						0.0E+0
1-FL-1ND3BCB-RUN	Flag - bat charger 1ND3BCB is in service						0.0E+0
1-FL-1ND3BCB-STBY	Flag - bat charger 1ND3BCB is in standby						1.0E+0
1-FL-ACCW-HX1-R	ACCW HX 1 is operating						1.0E+0
1-FL-ACCW-HX2-R	ACCW HX 2 is operating						1.0E+0
1-FL-ACCW-PMP1-NR	Flag - ACCW pump P4-001 not running						0.0E+0
1-FL-ACCW-PMP1-R	Flag - ACCW pump P4-001 running						1.0E+0
1-FL-ACCW-PMP2-NR	Flag - ACCW pump P4-002 not running						1.0E+0
1-FL-ACCW-PMP2-R	Flag - ACCW pump P4-002 running						0.0E+0
1-FL-CCP-PMPA-NR	CCP A not running - alignment flag						1.0E+0
1-FL-CCP-PMPB-NR	CCP B not running - alignment flag						1.0E+0
1-FL-CCW-PMP1-NR	CCW pump 1 not running - alignment flag						0.0E+0
1-FL-CCW-PMP2-NR	CCW pump 2 not running - alignment flag						1.0E+0
1-FL-CCW-PMP3-NR	CCW pump 3 not running - alignment flag						0.0E+0
1-FL-CCW-PMP4-NR	CCW pump 4 not running - alignment flag						1.0E+0
1-FL-CCW-PMP5-NR	CCW pump 5 not running - alignment flag						1.0E+0
1-FL-CCW-PMP6-NR	CCW pump 6 not running - alignment flag						1.0E+0
1-FL-CON-PMPA-NR	Condensate pump A not running - alignment flag						0.0E+0
1-FL-CON-PMPA-R	Condensate pump A is running - alignment flag						1.0E+0
1-FL-CON-PMPB-NR	Condensate pump B not running - alignment flag						0.0E+0
1-FL-CON-PMPB-R	Condensate pump B is running - alignment flag						1.0E+0
1-FL-CON-PMPC-NR	Condensate pump C not running - alignment flag						1.0E+0
1-FL-CON-PMPC-R	Condensate pump C is running - alignment flag						0.0E+0
1-FL-FL004-IN	Flag - RCP seal injection back flow filter 004 in use						1.0E+0
1-FL-FL005-IN	Flag - RCP seal injection back flow filter 005 in use						0.0E+0

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-FL-IAS-CA-501-NR	Flag - air compressor 501 not running						0.0E+0
1-FL-IAS-CA-501-R	Flag - air compressor 501 running						1.0E+0
1-FL-IAS-CA-502-NR	Flag - air compressor 502 not running in standby						1.0E+0
1-FL-IAS-CA-502-R	Flag - air compressor 502 running						0.0E+0
1-FL-IAS-CA-503-NR	Flag - air compressor 503 not running						1.0E+0
1-FL-IAS-CA-503-R	Flag - air compressor 503 running						0.0E+0
1-FL-IAS-CA-504-NR	Flag - air compressor 504 not running						1.0E+0
1-FL-IAS-CA-504-R	Flag - air compressor 504 running						0.0E+0
1-FL-NCH-PUMP-NR	Alignment flag - normal charging pump 1208P4001 not running						0.0E+0
1-FL-NCHTOHV8146	Flag NCH flow path aligned to HV8146 path						1.0E+0
1-FL-NCHTOHV8147	Flag NCH flow path aligned to HV8147 path						0.0E+0
1-FL-NSCW-PMP1-NR	Flag NSCW pump P4-001 not running						0.0E+0
1-FL-NSCW-PMP1-R	Flag NSCW pump P4-001 is running						1.0E+0
1-FL-NSCW-PMP2-NR	Flag NSCW pump P4-002 not running						0.0E+0
1-FL-NSCW-PMP2-R	Flag NSCW pump P4-002 is running						1.0E+0
1-FL-NSCW-PMP3-NR	Flag NSCW pump P4-003 not running						0.0E+0
1-FL-NSCW-PMP3-R	Flag NSCW pump P4-003 is running						1.0E+0
1-FL-NSCW-PMP4-NR	Flag NSCW pump P4-004 not running						0.0E+0
1-FL-NSCW-PMP4-R	Flag NSCW pump P4-004 is running						1.0E+0
1-FL-NSCW-PMP5-NR	Flag NSCW pump P4-005 not running						1.0E+0
1-FL-NSCW-PMP5-R	Flag NSCW pump P4-005 is running						0.0E+0
1-FL-NSCW-PMP6-NR	Flag NSCW pump P4-006 not running						1.0E+0
1-FL-NSCW-PMP6-R	Flag NSCW pump P4-006 is running						0.0E+0
1-FL-TPCCW-PMP1-NR	TPCCW pump 1 not running - alignment flag						0.0E+0
1-FL-TPCCW-PMP2-NR	TPCCW pump 2 not running - alignment flag						1.0E+0
1-FL-TPCW-PMP1-NR	TPCW pump 1 is no running alignment flag						0.0E+0
1-FL-TPCW-PMP2-NR	TPCW pump 2 is no running alignment flag						1.0E+0
1-FL-TRNAEQP-P-RUN	Train A has fewer running loads than Train B						0.0E+0
1-FL-TRNAEQP-RUN	Train A has more running equipment than Train B						1.0E+0
1-FL-TRNBEQP-P-RUN	Train B has fewer running loads than Train A						1.0E+0
1-FL-TRNBEQP-RUN	Train B has more running equipment than Train A						0.0E+0
1-FNAHV	Fan - HVAC FTS			Beta	1.70E+5	1-FNAHV	1.8E-6
1-FNXHV	Fan - HVAC FTR			Gamma	2.70E+0	1-FNXHV	9.4E-6
1-HE-ATWS	Anticipated transient without scram has occurred						0.0E+0
1-HE-CSGTR	Consequential SGTR has occurred						0.0E+0



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-HE-CSLOCA	Consequential small LOCA has occurred						0.0E+0
1-HE-CSSB	Consequential steam break has occurred						0.0E+0
1-HE-CSTR-72HR	CSGTR needed for 72 hr safe/stable endstate						0.0E+0
1-HE-ISINJ	Inadvertent safety injection has occurred						0.0E+0
1-HE-ISL-RCP-TBHX	RCP thermal barrier HX ISLOCA has occurred						0.0E+0
1-HE-LLOCA	Large LOCA has occurred						0.0E+0
1-HE-LO120VAB	Loss of 120 panels A & B has occurred						0.0E+0
1-HE-LO120VAC	Loss of 120 panels A & C has occurred						0.0E+0
1-HE-LO120VAD	Loss of 120 panels A & D has occurred						0.0E+0
1-HE-LO120VBC	Loss of 120 panels B & C has occurred						0.0E+0
1-HE-LO120VBD	Loss of 120 panels B & D has occurred						0.0E+0
1-HE-LO120VCD	Loss of 120 panels C & D has occurred						0.0E+0
1-HE-LO125AD1	Loss of DC bus 1AD1 has occurred						0.0E+0
1-HE-LO125BD1	Loss of DC bus 1DB1 has occurred						0.0E+0
1-HE-LO4160A	Loss of 4160v bus A has occurred						0.0E+0
1-HE-LO4160B	Loss of 4160v bus B has occurred						0.0E+0
1-HE-LOACCW	Loss of ACCW						0.0E+0
1-HE-LOCA	LOCA has occurred						0.0E+0
1-HE-LOCHS	Loss of condenser heat sink has occurred						0.0E+0
1-HE-LOIAS	Loss of instrument air has occurred						0.0E+0
1-HE-LOMFW	Loss of main feedwater has occurred						0.0E+0
1-HE-LONSCW	Loss of NSCW has occurred						0.0E+0
1-HE-LOOP	Loss of offsite power has occurred						0.0E+0
1-HE-LOOPGR	House event - LOOP IE has occurred (grid related)						0.0E+0
1-HE-LOOPPC	House event - LOOP IE has occurred (plant centered)						0.0E+0
1-HE-LOOPSC	House event - LOOP IE has occurred (switchyard centered)						0.0E+0
1-HE-LOOPWR	House event - LOOP IE has occurred (weather related)						0.0E+0
1-HE-LOSINJ	Loss of seal injection has occurred						0.0E+0
1-HE-MLOCA	Medium LOCA has occurred						0.0E+0
1-HE-OTRANS	Other transient has occurred						0.0E+0
1-HE-RPS-ANL-EG21	Analog series 7300 in use						1.0E+0
1-HE-RTRIP	Reactor trip has occurred						0.0E+0
1-HE-SGTR	Steam generator tube rupture has occurred						0.0E+0
1-HE-SLOCA	Small LOCA has occurred						0.0E+0
1-HE-SSBI	Secondary side break upstream of MSIVs has occurred						0.0E+0
1-HE-SSBO	Secondary side break downstream of MSIVs has occurred						0.0E+0

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-HE-TRANS	General transient has occurred						0.0E+0
1-HE-TTRIP	Turbine trip has occurred						0.0E+0
1-HE-XLOCA	Excessive LOCA (vessel rupture) has occurred						0.0E+0
1-HPI-AOV-CC-FV0111A_	VCT makeup valve FV0111A fails to open			Beta	3.40E+3	AOV-CC	6.3E-4
1-HPI-AOV-CC-FV0111B_	VCT makeup valve FV0111B fails to open			Beta	3.40E+3	AOV-CC	6.3E-4
1-HPI-AOV-PG-FV121&_	Charging flow control AV FV121 plug - (1yr)	3.0E-8	8760	Log Normal	1.00E+1	AOV-PG-IE	2.6E-4
1-HPI-AOV-PG-FV121_	Normal charging path flow control valve FV 121 plugs	3.0E-8	24	Log Normal	1.00E+1	AOV-PG	7.2E-7
1-HPI-AOV-RP-HV0123A&	RCS vent & excess let down line AOV HV0123 ruptures (ISLOCA path)	3.9E-9	8760	Log Normal	1.00E+1	AOV-PG-IE	3.4E-5
1-HPI-CKV-CC-__8586-CC	ECCS coolant injection CVs 085 and 086 fail to open by CCF						4.4E-7
1-HPI-CKV-CC-__84__86-CC	ECCS coolant injection CVs 084 and 086 fail to open by CCF						4.4E-7
1-HPI-CKV-CC-__8485__-CC	ECCS coolant injection CVs 084 and 085 fail to open by CCF						4.4E-7
1-HPI-CKV-CC-__848586-CC	ECCS coolant injection CVs 084, 085, & 086 fail to open by CCF						2.4E-7
1-HPI-CKV-CC-013_____	CCP BIT injection CV 013 (downstream BIT before Cold Legs) fail to open - random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-026_____	CCP BIT injection Cold Leg 1 CV 026 fails to open - random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-027_____	CCP BIT injection Cold Leg 2 CV 027 fails to open - random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-028_____	CCP BIT injection Cold leg 3 CV 028 fails to open - random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-029_____	CCP BIT injection Cold leg 4 CV 029 fails to open by random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-032_____	NCH line check valve 032 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-034_____	Check valve 034 fails to open randomly (NCH)			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-035_____	Charging line (normal) CV 035 fails to open -			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-036_____	Charging line(normal) CV 036 fails to open -			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-037_____	Charging line (alternate) CV 037 fail to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-038_____	Charging line (alternate) CV 038 fail to open - random			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-083_____	ECCS Cold Leg 1 injection CV 083 fails to open by random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-084_____	ECCS Cold Leg 2 injection CV 084 fails to open by random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-085_____	ECCS Cold Leg 3 injection CV 085 fails to open by random fault			Beta	4.70E+4	CKV-CC	1.1E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-HPI-CKV-CC-086_____	ECCS Cold Leg 4 injection CV 086 fails to open by random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-090_____	SI pumps suction from R 090 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-093_____	SI pump A mini flow CV 093 fails to open- random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-093094__-CC	SI pumps mini flow CVs 093 & 094fail to open- CCF						6.8E-7
1-HPI-CKV-CC-094_____	SI pump B mini flow CV 094 fails to open - random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-098_____	SI pump A discharge CV 098 fails to open - random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-098099__-CC	SI pumps discharge CVs 098& 099 fail to open- CCF						6.8E-7
1-HPI-CKV-CC-099_____	SI pump B CV 099 fails to open- random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-125_____	SIS & RHR Hot Leg 4 injection CV 125 fails to open randomly			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-125126__-CC	SIS & RHR Hot Leg injection CVs 125 and 126 fails to open CCF						1.2E-6
1-HPI-CKV-CC-126_____	SIS & RHR Hot Leg 1 injection CV 126 fails to open randomly			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-129_____	NCP discharge check valve 129 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-140_____	CCP A mini flow CV 140 fails to open due to random faults			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-140147__-CC	CCPs mini flow CVs 140 and 147 fail to open - CCF						6.8E-7
1-HPI-CKV-CC-142_____	CCP A discharge CV 142 fails to open - random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-142149__-CC	Charging pumps discharge CVs 142 & 149 fail to open due to CCF						6.8E-7
1-HPI-CKV-CC-143_____	SIS Cold Leg 1 injection CV 143 fails to open by random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-144_____	SIS Cold Leg 2 injection CV 144 fails to open - random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-145_____	SIS Cold Leg 3 injection CV 145 fails to open -random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-146_____	SIS Cold Leg 4 injection CV 146 fails to open -random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-147_____	CCP B mini flow CV fails to open randomly			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-163_____	HP recirculation suction from RHR HX B CV 163 fails to open -random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-174_____	RWST to VCT makeup line CV 174 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-185_____	CCP suction CV 185 fails to open - random			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-185483__-CC	CVCS EBR suction CV 185 & 483 fails to open - CCF						1.2E-6
1-HPI-CKV-CC-189_____	CCP RWST suction CV 189 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-2627__-CC	CCP BIT injection Cold Leg CVs 026 and 027 fail to open - CCF						4.4E-7

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-HPI-CKV-CC-262728__-CC	CCP BIT injection Cold Leg CVs 026, 027, & 028 fail to open - CCF						2.4E-7
1-HPI-CKV-CC-26272829-CC	CCP BIT injection Cold Leg CVs 026,027,028,&029 fail to open -CCF						2.2E-7
1-HPI-CKV-CC-262729__-CC	CCP BIT injection Cold Leg CVs 026, 027 & 029 fail to open - CCF						2.4E-7
1-HPI-CKV-CC-2628__-CC	CCP BIT injection Cold Leg CVs 026 and 028 fail to open - CCF						4.4E-7
1-HPI-CKV-CC-262829__-CC	CCP BIT injection Cold Leg CVs 026, 028, & 029 fail to open -CCF						2.4E-7
1-HPI-CKV-CC-2629__-CC	CCP BIT injection Cold Leg CVs 026 and 029 fail to open - CCF						4.4E-7
1-HPI-CKV-CC-2728__-CC	CCP BIT injection Cold Leg CVs 028 and 027 fail to open - CCF						4.4E-7
1-HPI-CKV-CC-272829__-CC	CCP BIT injection Cold Leg CVs 027, 028, & 029 fail to open - CCF						2.4E-7
1-HPI-CKV-CC-2729__-CC	CCP BIT injection Cold Leg CVs 027 and 029 fail to open - CCF						4.4E-7
1-HPI-CKV-CC-2829__-CC	CCP BIT injection Cold Leg CVs 028 and 029 fail to open - CCF						4.4E-7
1-HPI-CKV-CC-284__	CVCS boric acid transfer pump A discharge CV284 fails to open by random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-284299__-CC	CVCS boric acid transfer pump discharge CVs 284 & 299 fail to open - CCF						1.2E-6
1-HPI-CKV-CC-299__	CVCS boric acid transfer pump B discharge CV 299 fails to open - random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CC-4344__-CC	SIS Cold Leg injection CVs 143 and 144 fail to open - CCF						4.4E-7
1-HPI-CKV-CC-434445__-CC	SIS Cold Leg injection CVs 143, 144, & 145 fail - CCFs						2.4E-7
1-HPI-CKV-CC-43444546-CC	SIS Cold Leg injection CVs 143,144,145, & 146 fail to open - CCF						2.2E-7
1-HPI-CKV-CC-434446__-CC	SIS Cold Leg injection CVs143, 144, & 146 fail to open - CCF						2.4E-7
1-HPI-CKV-CC-4345__-CC	SIS Cold Leg injection CVs 143 and 145 fail to open - CCF						4.4E-7
1-HPI-CKV-CC-434546__-CC	SIS Cold Leg injection CVs 143, 145, & 146 fail to open -CCF						2.4E-7
1-HPI-CKV-CC-4346__-CC	SIS Cold Leg injection CVs 143 & 146 fail to open - CCF						4.4E-7
1-HPI-CKV-CC-436__	HP recirculation suction from RHR HX A CV 436 fails to open- random fault			Beta	4.70E+4	CKV-CC	1.1E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-HPI-CKV-CC-436_163_-CC	HP recirculation suction from RHR HXs CVs 436 & 163 fail to open-CCF						1.2E-6
1-HPI-CKV-CC-4445_-CC	SIS Cold Leg injection CVs 144 and 145 fail to open - CCF						4.4E-7
1-HPI-CKV-CC-444546_-CC	SIS Cold Leg injection CVs 144, 145, & 146 fail to open -CCF						2.4E-7
1-HPI-CKV-CC-4446_-CC	SIS Cold Leg injection CVs 144 and 146 fail to open -CCF						4.4E-7
1-HPI-CKV-CC-4546_-CC	SIS Cold Leg injection CVs 145 and 146 fail to open - CCF						4.4E-7
1-HPI-CKV-CC-83_86-CC	ECCS coolant injection CVs 083 and 086 fail to open by CCF						4.4E-7
1-HPI-CKV-CC-83_85_-CC	ECCS coolant injection CV 083 and 085 fail to open by CCF						4.4E-7
1-HPI-CKV-CC-83_8586-CC	ECCS coolant injection CVs 083, 085, & 086 fail to open by CCF						2.4E-7
1-HPI-CKV-CC-8384_-CC	ECCS coolant injection CVs 083 and 084 fail to open by CCF						4.4E-7
1-HPI-CKV-CC-8384_86-CC	ECCS coolant injection CVs 083, 084, & 086 fail to open by CCF						2.4E-7
1-HPI-CKV-CC-838485_-CC	ECCS coolant injection CVs 083, 084, & 085 fail to open by CCF						2.4E-7
1-HPI-CKV-CC-83848586-CC	ECCS coolant injection CVs 083,084,085,&086 fail to open by CCF						2.2E-7
1-HPI-CKV-CC-CCPB149_	Charging pump B discharge CV 149 fails to open - random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-HPI-CKV-CF-436_163	HP recirculation suction from RHR HXs CVs 436 & 163 fail from CCF to open						4.9E-7
1-HPI-CKV-CF-CLALL	Cold leg CVs 083, 084, 085, 086 fail from CCF to open						1.6E-7
1-HPI-CKV-OO-090_	SI pumps RWST suction CV 090 fails to close on demand			Beta	3.40E+3	CKV-OO	2.4E-4
1-HPI-CKV-OO-098&_	SIP A discharge CV 098 fail to close after test (4 tests) (ISLOCA path)			Beta	3.40E+3	CKV-OO	2.4E-4
1-HPI-CKV-OO-098_	SIP A discharge CV 098 fail to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-HPI-CKV-OO-099&_	SIP B discharge CV 098 fail to close after test (4 tests) (ISLOCA path)			Beta	3.40E+3	CKV-OO	2.4E-4
1-HPI-CKV-OO-099_	SIP B discharge check valve 098 fail to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-HPI-CKV-OO-129_	NCP discharge check valve 129 fail to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-HPI-CKV-OO-142_	CCP A discharge check valve 142 fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-HPI-CKV-OO-149_	CV 1208-149 (CCP B discharge) fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-HPI-CKV-OO-189_	CCP RWST suction CV 189 fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-HPI-CKV-RP-083_	ECCS Cold Leg 1 injection CV083 rupture (ISLOCA ini>)	3.6E-9	4380	Gamma	9.60E-01	CKV-ILL-COMB(HPI)	1.6E-5

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Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-HPI-CKV-RP-084	ECCS Cold Leg 1 injection CV083 rupture (ISLOCA ini>)	3.6E-9	4380	Gamma	9.60E-01	CKV-ILL-COMB(HPI)	1.6E-5
1-HPI-CKV-RP-085	ECCS Cold Leg 1 injection CV083 rupture (ISLOCA ini>)	3.6E-9	4380	Gamma	9.60E-01	CKV-ILL-COMB(HPI)	1.6E-5
1-HPI-CKV-RP-086	ECCS Cold Leg 1 injection CV083 rupture (ISLOCA ini>)	3.6E-9	4380	Gamma	9.60E-01	CKV-ILL-COMB(HPI)	1.6E-5
1-HPI-CKV-RP-098&	SIP A discharge check valve 098 ruptures (ISLOCA path)	6.2E-9	8760	Gamma	3.00E-01	CKV-RP-IE	5.4E-5
1-HPI-CKV-RP-099&	SIP B discharge check valve 099 ruptures (ISLOCA path)	6.2E-9	8760	Gamma	3.00E-01	CKV-RP-IE	5.4E-5
1-HPI-CKV-RP-120&	SIS Hot Leg 1 injection CV120 ruptures (ISLOCA path)	6.2E-9	8760	Gamma	3.00E-01	CKV-RP-IE	5.4E-5
1-HPI-CKV-RP-121&	SIS Hot Leg 4 injection CV121 ruptures (ISLOCA path)	6.2E-9	8760	Gamma	3.00E-01	CKV-RP-IE	5.4E-5
1-HPI-CKV-RP-122&	SIS Hot Leg 3 injection CV 122 ruptures (ISLOCA path)	6.2E-9	8760	Gamma	3.00E-01	CKV-RP-IE	5.4E-5
1-HPI-CKV-RP-123&	SIS Hot Leg 2 injection CV123 ruptures (ISLOCA path)	6.2E-9	8760	Gamma	3.00E-01	CKV-RP-IE	5.4E-5
1-HPI-CKV-RP-124&	SIS Hot Leg 2 injection CV 124 ruptures (ISLOCA ini)	6.2E-9	8760	Gamma	3.00E-01	CKV-RP-IE	5.4E-5
1-HPI-CKV-RP-125&	SIS & RHR Hot Leg 4 injection CV 125 ruptures (ISLOCA ini)	6.2E-9	8760	Gamma	3.00E-01	CKV-RP-IE	5.4E-5
1-HPI-CKV-RP-126&	SIS & RHR Hot Leg 1 injection CV 126 ruptures (ISLOCA ini)	6.2E-9	8760	Gamma	3.00E-01	CKV-RP-IE	5.4E-5
1-HPI-CKV-RP-127&	SIS Hot Leg 3 injection CV 127 ruptures (ISLOCA ini)	6.2E-9	8760	Gamma	3.00E-01	CKV-RP-IE	5.4E-5
1-HPI-CKV-RP-143&	SIS Cold Leg 1 injection CV 143 ruptures (ISLOCA path)	6.2E-9	8760	Gamma	3.00E-01	CKV-RP-IE	5.4E-5
1-HPI-CKV-RP-144&	SIS Cold Leg 1 injection CV 144 ruptures (ISLOCA path)	6.2E-9	8760	Gamma	3.00E-01	CKV-RP-IE	5.4E-5
1-HPI-CKV-RP-145&	SIS Cold Leg 1 injection CV 145 ruptures (ISLOCA path)	6.2E-9	8760	Gamma	3.00E-01	CKV-RP-IE	5.4E-5
1-HPI-CKV-RP-146&	SIS Cold Leg 1 injection CV 146 ruptures (ISLOCA path)	6.2E-9	8760	Gamma	3.00E-01	CKV-RP-IE	5.4E-5
1-HPI-CNT-OO-HV8109	Mini flow MOV HV8109 contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-HPI-FLT-PG-004&	RCP seal injection backflushable filter 004 plugs (1year)	3.1E-7	8760	Gamma	3.50E+0	FLT-PG-IE	2.7E-3
1-HPI-FLT-PG-004	Seal injection backflushable filter 004 plugs	3.1E-7	24	Gamma	3.50E+0	FLT-PG	7.4E-6
1-HPI-FLT-PG-005&	RCP seal injection backflushable filter 005 plugs (1year)	3.1E-7	8760	Gamma	3.50E+0	FLT-PG-IE	2.7E-3
1-HPI-FLT-PG-005	Seal injection backflushable filter 005 plugs	3.1E-7	24	Gamma	3.50E+0	FLT-PG	7.4E-6
1-HPI-FLT-PG-F6003	Boric acid filter 6-003 fails	3.1E-7	24	Gamma	3.50E+0	FLT-PG	7.4E-6
1-HPI-MOV-CC-HV8104	EBR suction motor operated valve HV8104 fails to open			Beta	5.40E+4	MOV-CC	3.5E-4
1-HPI-MOV-CC-HV8109	Mini flow MOV HV8109 fails to open			Beta	5.40E+4	MOV-CC	3.5E-4
1-HPI-MOV-CC-HV8110	CCPs/NCP mini flow line MOV HV8110 fails to open on demand			Beta	5.40E+4	MOV-CC	3.5E-4
1-HPI-MOV-CC-HV8111A	CCP A mini flow line MOV HV8111A fails to open - random fault			Beta	5.40E+4	MOV-CC	3.5E-4
1-HPI-MOV-CC-HV8111AB-CC	CCPs mini flow line MOVs HV8111A & B fail to open - CCF						3.2E-5
1-HPI-MOV-CC-HV8111B	CCP B mini flow line MOV HV8111B fails to open - by random fault			Beta	5.40E+4	MOV-CC	3.5E-4
1-HPI-MOV-CC-HV8116	CCP A safety grade charging line MOV HV8116 fails to open on demand			Beta	5.40E+4	MOV-CC	3.5E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-HPI-MOV-CC-HV8801A_	Charging pump BIT injection HV8801A fails to open - random fault			Beta	5.40E+4	MOV-CC	3.5E-4
1-HPI-MOV-CC-HV8801AB-CC	Charging pump BIT injection MOVs HV8801A & B fail to open due to CCF						1.6E-5
1-HPI-MOV-CC-HV8801B_	Charging pump BIT injection MOV HV8801B fails to open -random fault			Beta	5.40E+4	MOV-CC	3.5E-4
1-HPI-MOV-CC-HV8804A_	HV8804A in HP recirculation suction line from RHR HX A fail to open - random fault			Beta	5.40E+4	MOV-CC	3.5E-4
1-HPI-MOV-CC-HV8804B_	HV8804B in HP recirculation suction line from RHR HX A fail to open - random fault			Beta	5.40E+4	MOV-CC	3.5E-4
1-HPI-MOV-CC-HV8807A_	MOV HV8807A in CCP and SIP suction cross-connection fail to open-random fault			Beta	5.40E+4	MOV-CC	3.5E-4
1-HPI-MOV-CC-HV8807AB-CC	MOVs HV8807A & B in CCP and SIP suction cross-connection fail to open-CCF						3.2E-5
1-HPI-MOV-CC-HV8807B_	MOV HV8807B in CCP and SIP suction cross-connection fail to open-random fault			Beta	5.40E+4	MOV-CC	3.5E-4
1-HPI-MOV-CC-LV0112D_	CCP RWST suction isolation MOV LV0112d fails to open - random fault			Beta	5.40E+4	MOV-CC	3.5E-4
1-HPI-MOV-CC-LV0112DE-CC	CCP RWST suction isolation MOV LV0112 D & E fail to open - CCF						1.6E-5
1-HPI-MOV-CC-LV0112E_	CCP RWST suction isolation MOV LV0112E fails to open - random fault			Beta	5.40E+4	MOV-CC	3.5E-4
1-HPI-MOV-CF-0112DE	CCP RWST suction isolation MOVs LV0112 D & E fail from CCF to open						1.2E-5
1-HPI-MOV-CF-8801AB	Charging pump BIT injection MOVs HV8801A & B fail from CCF to open						1.2E-5
1-HPI-MOV-CF-8804AB	HV8804A, HV8804B fail from CCF to open						1.2E-5
1-HPI-MOV-CF-88148920	SI pump mini flow isolation MOVs 8814, 8920 fail from CCF to close						5.7E-6
1-HPI-MOV-CF-RCPSRL	RCP seal return line containment isolation MOV HV 8100 and HV8112 fail to close - CCF						5.7E-6
1-HPI-MOV-OC-LV0112C_	VCT isolation MOV LV0112C spuriously closes	2.9E-8	24	Gamma	1.57E+0	MOV-OC	7.0E-7
1-HPI-MOV-OO-13148920-CC	SI pumps mini flow isolation MOVs HV8813, 8814 & 8920 fails to close - CCF						7.9E-6
1-HPI-MOV-OO-88138814-CC	SI pumps mini flow isolation MOVs HV8813 & 8814 fails to close - CCF						4.5E-6
1-HPI-MOV-OO-88138920-CC	SI pumps mini flow isolation MOVs HV8813 & 8920 fails to close - CCF						4.5E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-HPI-MOV-OO-88148920-CC	SI pumps mini flow isolation MOVs HV8814 & 8920 fails to close - CCF						4.5E-6
1-HPI-MOV-OO-8821AB__-CC	SI Cold Leg injection MOV HV8821A and HV8821B fail to close due to CCF						4.5E-6
1-HPI-MOV-OO-883521A_-CC	SI Cold Leg injection MOV HV8835 and HV8821A fail to close due to CCF						4.5E-6
1-HPI-MOV-OO-883521AB-CC	SI Cold Leg injection MOV HV8835, HV8821A, and HV8821B fail to close due to CCF						7.9E-6
1-HPI-MOV-OO-883521B_-CC	SI Cold Leg injection MOV HV8835 and HV8821B fail to close due to CCF						4.5E-6
1-HPI-MOV-OO-HV08A08B-CC	CCP mini flow MOV HV8508A & 08B fail to close- CCF						3.6E-6
1-HPI-MOV-OO-HV08A09A-CC	CCP mini flow MOV HV8508A & 09A fail to close- CCF						3.6E-6
1-HPI-MOV-OO-HV08A09B-CC	CCP mini flow MOV HV8508A & 09B fail to close- CCF						3.6E-6
1-HPI-MOV-OO-HV08B09A-CC	CCP mini flow MOV HV8508B & 09A fail to close- CCF						3.6E-6
1-HPI-MOV-OO-HV09B08B-CC	CCP mini flow MOV HV8509B & 08B fail to close- CCF						3.6E-6
1-HPI-MOV-OO-HV09B09A-CC	CCP mini flow MOV HV8509B & 09A fail to close- CCF						3.6E-6
1-HPI-MOV-OO-HV8100__	RCP seal return line ci MOV HV8100 fail to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8105&6-CC	Normal charging isolation MOVs HV8106 & HV8105 fail to close due to CCF						3.2E-5
1-HPI-MOV-OO-HV8105__	Normal charging isolation MOV HV8105 fails to close random fault			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8106__	Normal charging isolation MOV HV8106 fails to close - random fault			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8110__	CCPs/NCP mini flow MOV HV8110 fails to close - random cause			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8111A_	CCP A mini flow MOV HV8111A fails to close - random fault			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8111AB-CC	CCPs mini flow MOVs HV8111A & B fail to close -CCF						3.2E-5
1-HPI-MOV-OO-HV8111B_	CCP B mini flow MOV HV8111B fails to close- random fault			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8112__	RCP seal return line ci MOV HV8112 fail to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8141A_	RCP 1 seal leak off isolation valve HV8141A fails to close (ISLOCA path)			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8141B_	RCP 1 seal leak off isolation valve HV8141B fails to close (ISLOCA path)			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8141C_	RCP 1 seal leak off isolation valve HV8141C fails to close (ISLOCA path)			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8141D_	RCP 1 seal leak off isolation valve HV8141D fails to close (ISLOCA path)			Beta	5.40E+4	MOV-OO	3.5E-4



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Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-HPI-MOV-OO-HV8485A_	CCP A train MOV HV8485A fail to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8485B_	CCP B discharge isolation MOV 8485B fail to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8508A_	CCP A mini flow valve HV8508A fail to close - random			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8508B_	CCP B mini flow valve HV8508B fail to close - random			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8509A_	CCP B mini flow valve HV8509A fail to close - random			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8509B_	CCP A mini flow valve HV8509B fail to close - random			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8806_	HV8806 randomly fails to close to isolate RWST from SIP suction header			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8813_	SI pumps mini flow isolation MOV HV8813 fails to close - random fault			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8814_	SIP A mini flow isolation HV8814 fails to close - random fault			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8821A_	SI Cold Leg MOV HV8821A fail to close to isolate ISLOCA path			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8821B_	SI Cold Leg MOV HV8821A fail to close to isolate ISLOCA path			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8835_	SI Cold Leg injection MOV HV8835 fail to close to isolate ISLOCA path			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8920_	SIP B mini flow isolation MOV HV8920 fails to close - random fault			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-HV8A8B9A-CC	CCP mini flow MOV HV8508A & 08B & 09A fail to close- CCF						6.4E-7
1-HPI-MOV-OO-HV8A9B8B-CC	CCP mini flow MOV HV8508A & 09B & 08B fail to close- CCF						6.4E-7
1-HPI-MOV-OO-HV8A9B9A-CC	CCP mini flow MOV HV8508A & 09B & 09A fail to close- CCF						6.4E-7
1-HPI-MOV-OO-HV8AB9AB-CC	CCP mini flow MOV HV8508A & 08B & 08B & 09A fail to close- CCF						6.4E-7
1-HPI-MOV-OO-HV9B8B9A-CC	CCP mini flow MOV HV8509B & 08B & 09A fail to close- CCF						5.4E-6
1-HPI-MOV-OO-LV0112B_	VCT isolation MOV LV0112B fails to close -random fault			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-LV0112BC-CC	VCT isolation MOVs LV0112B & C fail to close - CCF						3.2E-5
1-HPI-MOV-OO-LV0112C_	VCT isolation LV0112C fails to close - random fault			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-LV0112D_	CCP RWST suction isolation MOV LV0112D fails to close - random fault			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-OO-LV0112DE-CC	CCP RWST suction isolation MOVs LV0112D and E fails to close - CCF						1.6E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-HPI-MOV-OO-LV0112E_	CCP RWST suction isolation MOV LV0112E fails to close - random fault			Beta	5.40E+4	MOV-OO	3.5E-4
1-HPI-MOV-PG-HV8105_	NCH isolation MOV HV8105 transfers closed/plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8106_	NCH isolation MOV HV8106 transfers closed/plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8111A_	CCP A mini flow MOV HV8111A plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8111B_	CCP B mini flow MOV HV8111B plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8146_	NCH normal charging line MOV HV8146 transfers closed/plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8147_	NCH alternate charging line MOV HV8147 transfers closed/ plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8438_	CCP A&B discharge interconnect MOV HV8438 plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8471A_	CCP A suction MOV HV8471A transfers closed/plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8471B_	CCP B suction motor operated valve HV8471B plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8485A_	CCP A discharge MOV HV8485A transfers closed/plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8485B_	CCP B discharge motor operated valve HV8485B plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8803A_	CCP BIT inlet MOV valve HV8803A plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8803B_	CCP BIT inlet MOV HV8803B plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8806_	SI pumps suction from RWST MOV HV8806 plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8813_	SI pumps mini flow line MOV HV8813 plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8814_	SI pump A mini flow line MOV HV8814 plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8821A_	SIP A to Cold Leg MOV HV8821A plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8821B_	SIP B to Cold Leg MOV HV8821B plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8835_	SIS Cold Leg injection MOV HV8835 plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8920_	SIP B min flow MOV HV8920 plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8923A_	SIP A suction line MOV 8923A plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8923B_	SIP B suction MOV HV8923B plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-HV8924_	MOV HV8924 in CCP and SIP suction cross-connection plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-LV0112B&	VCT isolation MOV LV0112B transfers closed/plugs - 1yr	5.0E-9	8760	Log Normal	1.00E+1	MOV-PG-IE	4.4E-5
1-HPI-MOV-PG-LV0112B_	VCT isolation MOV LV0112B transfers closed/plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-PG-LV0112C&	VCT isolation MOV LV0112C transfers closed/plugs - 1yr	5.0E-9	8760	Log Normal	1.00E+1	MOV-PG-IE	4.4E-5
1-HPI-MOV-PG-LV0112C_	VCT isolation MOV LV0112C transfers closed/plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-HPI-MOV-RP-HV8095A&	RCS vent isolation MOV HV8095A ruptures (ISLOCA ini)	2.3E-9	8760	Gamma	8.29E-01	MOV-RP-IE	2.1E-5
1-HPI-MOV-RP-HV8095B&	RCS vent isolation MOV HV8095B ruptures (ISLOCA ini)	2.3E-9	8760	Gamma	8.29E-01	MOV-RP-IE	2.1E-5
1-HPI-MOV-RP-HV8096A&	RCS vent isolation MOV HV8096A ruptures (ISLOCA path)	2.3E-9	8760	Gamma	8.29E-01	MOV-RP-IE	2.1E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-HPI-MOV-RP-HV8096B&	RCS vent isolation MOV HV8096B ruptures (ISLOCA path)	2.3E-9	8760	Gamma	8.29E-01	MOV-RP-IE	2.1E-5
1-HPI-MOV-RP-HV8098A&	RCS vent isolation MOV HV8098 ruptures (ISLOCA path)	2.3E-9	8760	Gamma	8.29E-01	MOV-RP-IE	2.1E-5
1-HPI-MOV-RP-HV8802A&	SIS Hot Leg 1&4 injection isolation MOV HV8802A ruptures (ISLOCA path)	2.3E-9	8760	Gamma	8.29E-01	MOV-RP-IE	2.1E-5
1-HPI-MOV-RP-HV8802B&	SIS Hot Leg 2&3 injection isolation MOV HV8802B ruptures (ISLOCA path)	2.3E-9	8760	Gamma	8.29E-01	MOV-RP-IE	2.1E-5
1-HPI-PRV-CC-PSV8121	PSV 8121 fails to open			Beta	4.70E+3	PPR-PRV-CC	3.5E-3
1-HPI-SOV-CC-HV0190A_	CCP A safety grade charging line solenoid valve HV0190A fails to open			Beta	2.60E+4	SOV-CC	1.2E-3
1-HPI-SOV-CC-HV0190B_	CCP B safety grade charging solenoid valve HV0190B fails to open (NCH)			Beta	2.60E+4	SOV-CC	1.2E-3
1-HPI-TFL-FC-LT0112__	VCT level transmitter LV0112 fails -signal for VCT makeup valve & RWST PPS	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-HPI-TNK-RP-RWST_____	Tank ruptures	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-HPI-TNK-RP-T4003_____	Boric acid storage tank T4-003 ruptures	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-HPI-TNK-RP-VCT&_____	VCT tank ruptures - 1yr	1.8E-8	8760	Gamma	6.50E+0	TNK-RP-IE	1.6E-4
1-HPI-TNK-RP-VCT_____	VCT tank T6-001 ruptures	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-HPI-XHE-XR-XVM207	Operator fails to restore RWST XVM 207 after test & maintenance			Log Normal	1.00E+1		1.0E-4
1-HPI-XVM-CC-151_____	CCP-B to seal injection filter isolation manual valve 151 fail to open (hardware failure)			Beta	2.60E+3	XVM-CC	1.9E-4
1-HPI-XVM-CC-152_____	CCP-A to seal injection filter isolation manual valve 152 fail to open (hardware failure)			Beta	2.60E+3	XVM-CC	1.9E-4
1-HPI-XVM-MA-207_____	Manual valve 207 in maintenance						0.0E+0
1-HPI-XVM-OO-153_____	Charging flow control valve FV121 out isolation manual valve 153 fail to close			Beta	2.60E+3	XVM-OO	1.9E-4
1-HPI-XVM-PG-022_____	RCS Cold Leg 1 manual valve 022 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-023_____	CCP BIT injection Cold Leg 2 locked open manual valve 023 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-024_____	CCP BIT injection Cold Leg 3 locked open manual valve 024 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-025_____	CCP BIT injection Cold leg 4 locked open manual valve 025plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-100_____	SIP A discharge line manual valve 100 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-101_____	SIP B discharge locked open manual valve 101 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-125&_____	NCP discharge line manual valve 125 plugs - 1yr	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE	2.6E-5
1-HPI-XVM-PG-125_____	NCP suction manual valve 125 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-HPI-XVM-PG-131&_____	NCP discharge manual valve 131 plugs - 1yr	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE	2.6E-5
1-HPI-XVM-PG-135_____	SIP A suction line locked open manual valve 135 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-136_____	SIP B suction locked open manual valve 136 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-139_____	SIS Cold Leg 1 injection manual locked open valve 139 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-140_____	SIS Cold Leg 2 injection manual locked open valve 140 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-141_____	SIS Cold Leg 3 injection manual valve 141 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-142_____	SIS Cold Leg 4 injection manual valve 142 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-153&_____	Manual valve 153 downstream of charging flow control valve FV121 plugs - 1yr	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE	2.6E-5
1-HPI-XVM-PG-153_____	Manual valve 153 downstream of charging flow control valve FV121 plugs -24hr	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-154_____	Manual valve 154upstream of charging flow control valve FV121 plugs - 1yr	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-175_____	RMWSR to VCT makeup line manual valve 175 transfer closed/plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-207_____	Manual valve 207 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-279_____	Manual valve 279 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-280_____	CVCS boric acid transfer pump A manual valve manual valve 280 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-282_____	CVCS boric acid transfer pump B manual valve 282 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-285_____	CVCS boric acid transfer pump A manual valve manual valve 285 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-287_____	Manual valve 287 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-292_____	Manual valve 292 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-300_____	CVCS boric acid transfer pump B manual valve 300 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-498_____	Locked open manual valve 498 plugs (NCH)	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HPI-XVM-PG-501_____	NCH line manual valve 501 plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-HVDAL	Valve - hydraulic operated fails to operate on demand			Beta	1.30E+3	1-HVDAL	1.0E-3
1-HVKTT	Turbine control valve or stop valve fails to close			Beta	2.00E+2	1-HVKTT	1.5E-3
1-IAS-AOV-CC-6162____-CC	Inlet air valves KV0746C, V1 and V2 fail to open due to CCF						3.8E-10
1-IAS-AOV-CC-616271____-CC	Inlet air valves KV 0746C, V1, V2 and KV0747C, V1 fail to open due to CCF						7.4E-11
1-IAS-AOV-CC-61627172-CC	Inlet air valves KV0746C, V1, V2 and KV0747C, V1, V2 fail to open due to CCF						3.8E-10

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-IAS-AOV-CC-616272__-CC	Inlet air valves KV0746C, V1, V2 and KV0747C, V2 fail to open due to CCF						7.4E-11
1-IAS-AOV-CC-6171____-CC	Inlet air valves KV0746C, V1 and KV0747C, V1 fail to open due to CCF						3.8E-10
1-IAS-AOV-CC-617172__-CC	Inlet air valves KV0746C, V1 and KV0747C, V1, V2 fail to open due to CCF						7.4E-11
1-IAS-AOV-CC-6172____-CC	Inlet air valves KV0746C, V1 and KV0747C, V2 fail to open due to CCF						3.8E-10
1-IAS-AOV-CC-6271____-CC	Inlet air valves 0746C, V2 and 0747C, V1 fail to open due to CCF						3.8E-10
1-IAS-AOV-CC-627172__-CC	Inlet air valves 0746C, V2 and 0747C, V1, V2 fail to open due to CCF						7.4E-11
1-IAS-AOV-CC-6272____-CC	Inlet air valves 0746C, V2 and 0747C, V2 fail to open due to CCF						3.8E-10
1-IAS-AOV-CC-7172____-CC	Inlet air valves KV0747C, V1, V2 fail to open due to CCF						3.8E-10
1-IAS-AOV-CC-746CV1__	Inlet air valve KV0746C			Beta	3.40E+3	AOV-CC	6.3E-4
1-IAS-AOV-CC-746CV2__	Inlet air valve KV0746C			Beta	3.40E+3	AOV-CC	6.3E-4
1-IAS-AOV-CC-747CV1__	Inlet air valve KV0747C			Beta	3.40E+3	AOV-CC	6.3E-4
1-IAS-AOV-CC-747CV2__	Inlet air valve KV0747C			Beta	3.40E+3	AOV-CC	6.3E-4
1-IAS-AOV-OO-6364____-CC	Purge valves KV0746B, V3 and V4 fail to close due to CCF						3.8E-10
1-IAS-AOV-OO-636473__-CC	Purge valves KV0746B, V3, V4 and KV0747B V3 fail to close due to CCF						7.4E-11
1-IAS-AOV-OO-63647374-CC	Purge valves KV0746B V3, V4, KV0747B V3, V4 fail to close due to CCF						3.8E-10
1-IAS-AOV-OO-636474__-CC	Purge valves KV0746B, V3, V4, and KV0747B, V4 fail to close due to CCF						7.4E-11
1-IAS-AOV-OO-6373____-CC	Purge valves KV0746B, V3 and KV0747B, V3 fail to close due to CCF						3.8E-10
1-IAS-AOV-OO-637374__-CC	Purge valves KV 0746B, V3, KV0747B, V3, V4 fail to close due to CCF						7.4E-11
1-IAS-AOV-OO-6374____-CC	Purge valves KV0746B, V3 and KV0747B, V4 fail to close due to CCF						3.8E-10
1-IAS-AOV-OO-6473____-CC	Purge valves KV0746B, V4 and KV0747B, V3 fail to close due to CCF						3.8E-10
1-IAS-AOV-OO-647374__-CC	Purge valves KV0746C, V4, KV0747B, V3, V4 fail to close due to CCF						7.4E-11
1-IAS-AOV-OO-6474____-CC	Purge valves KV0746B, V4 and KV0747, V4 fail to close due to CCF						3.8E-10

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-IAS-AOV-OO-7374___-CC	Purge valves KV0747B V3, V4 fail to close due to CCF						3.8E-10
1-IAS-AOV-OO-746BV3___	Purge valve KV0746B			Beta	3.40E+3	AOV-OO	6.3E-4
1-IAS-AOV-OO-746BV4___	Purge valve KV0746B			Beta	3.40E+3	AOV-OO	6.3E-4
1-IAS-AOV-OO-747BV3___	Purge valve KV0747B			Beta	3.40E+3	AOV-OO	6.3E-4
1-IAS-AOV-OO-747BV4___	Purge valve KV0747B			Beta	3.40E+3	AOV-OO	6.3E-4
1-IAS-AOV-OO-9375___	SAS isolation valve PV9375 fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-IAS-CKV-CC-0708___-CC	Check valves 1-2420-520, V7, V8 fail to open due to CCF						5.6E-10
1-IAS-CKV-CC-070817___-CC	Check valves 1-2420-520, V7, V8, and 1-2420-521, V7 fails to open due to CCF						2.0E-10
1-IAS-CKV-CC-07081718-CC	Check valves 1-2420-520, V7, V8 and 1-2420-521, V7, V8 fails to open due to CCF						2.3E-10
1-IAS-CKV-CC-070818___-CC	Check valves 1-2420-520, V7, V8 and 1-2420-521, V8 fails to open due to CCF						2.0E-10
1-IAS-CKV-CC-0717___-CC	Check valves 1-2420-520, V7 and 1-2420-521, V7 fail to open due to CCF						5.6E-10
1-IAS-CKV-CC-071718___-CC	Check valves 1-2420-520, V7 and 1-2420-521, V7, V8 fails to open due to CCF						2.0E-10
1-IAS-CKV-CC-0718___-CC	Check valves 1-2420-520, V7 and 1-2420-521, V8 fail to open due to CCF						5.6E-10
1-IAS-CKV-CC-0817___-CC	Check valves 1-2420-520, V8 and 1-2420-521, V7 fail to open due to dc						5.6E-10
1-IAS-CKV-CC-081718___-CC	Check valves 1-2420-520, V8 and 1-2420-521, V7, V8 fails to open due to CCF						2.0E-10
1-IAS-CKV-CC-0818___-CC	Check valves 1-2420-520, V8 and 1-2420-521, V8 fail to open due to CCF						5.6E-10
1-IAS-CKV-CC-1718___-CC	Check valves 1-2420-520, V7 and 1-2420-521, V8 fail to open due to CCF						5.6E-10
1-IAS-CKV-CC-19328___	Min pressure valve PCV19328 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-IAS-CKV-CC-19329___	Min pressure valve PCV19329 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-IAS-CKV-CC-19329328-CC	Min pressure valves PCV19328 & 329 fail to open due to CCF						2.7E-9
1-IAS-CKV-CC-520_V7___	Check valve 1-2420-520			Beta	4.70E+4	CKV-CC	1.1E-5
1-IAS-CKV-CC-520_V8___	Check valve 1-2420-520			Beta	4.70E+4	CKV-CC	1.1E-5
1-IAS-CKV-CC-521_V7___	Check valve 1-2420-521			Beta	4.70E+4	CKV-CC	1.1E-5
1-IAS-CKV-CC-521_V8___	Check valve 1-2420-521			Beta	4.70E+4	CKV-CC	1.1E-5
1-IAS-CKV-CC-632___	Check valve 632 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-IAS-CKV-CC-632633___-CC	Check valves 632 and 633 fail to open due to CCF						1.9E-9
1-IAS-CKV-CC-633___	Check valve 633 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-IAS-CKV-CC-636	Check valve 636 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-IAS-CKV-CC-636637__CC	Check valves 636 and 637 fail to open due to CCF						1.9E-9
1-IAS-CKV-CC-637	Check valve 637 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-IAS-CKV-CC-660	Check valve 660 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-IAS-CKV-CC-660661__CC	Check valves 660 and 661 fail to open due to CCF						1.9E-9
1-IAS-CKV-CC-661	Check valve 661 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-IAS-MDC-CF-FRALL	Air compressors 501, 502, 503, and 504 fail from CCF to run						6.2E-6
1-IAS-MDC-CF-FRALL-AB	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FRALL						3.2E-06
1-IAS-MDC-CF-FRALL-ABC	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FRALL						4.0E-06
1-IAS-MDC-CF-FRALL-ABCD	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FRALL						6.1E-06
1-IAS-MDC-CF-FRALL-ABD	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FRALL						4.0E-06
1-IAS-MDC-CF-FRALL-AC	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FRALL						3.2E-06
1-IAS-MDC-CF-FRALL-ACD	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FRALL						4.0E-06
1-IAS-MDC-CF-FRALL-AD	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FRALL						3.2E-06
1-IAS-MDC-CF-FRALL-BC	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FRALL						3.2E-06
1-IAS-MDC-CF-FRALL-BCD	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FRALL						4.0E-06
1-IAS-MDC-CF-FRALL-BD	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FRALL						3.2E-06
1-IAS-MDC-CF-FRALL-CD	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FRALL						3.2E-06
1-IAS-MDC-CF-FSALL	Air compressors 501, 502, 503, and 504 fail from CCF to start						6.0E-5
1-IAS-MDC-CF-FSALL-AB	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FSALL						1.4E-04
1-IAS-MDC-CF-FSALL-ABC	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FSALL						2.6E-05
1-IAS-MDC-CF-FSALL-ABCD	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FSALL						5.8E-05

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-IAS-MDC-CF-FSALL-ABD	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FSALL						2.6E-05
1-IAS-MDC-CF-FSALL-AC	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FSALL						1.4E-04
1-IAS-MDC-CF-FSALL-ACD	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FSALL						2.6E-05
1-IAS-MDC-CF-FSALL-AD	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FSALL						1.4E-04
1-IAS-MDC-CF-FSALL-BC	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FSALL						1.4E-04
1-IAS-MDC-CF-FSALL-BCD	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FSALL						2.6E-05
1-IAS-MDC-CF-FSALL-BD	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FSALL						1.4E-04
1-IAS-MDC-CF-FSALL-CD	System Generated Event - RASP CCF event: 1-IAS-MDC-CF-FSALL						1.4E-04
1-IAS-MDC-FR-501_____	Air compressor 501 randomly fails to continue to run	8.5E-5	24	Gamma	2.00E+0	MDC-FR-NR	2.0E-3
1-IAS-MDC-FR-501_____-LCO	Air compressor 501 randomly FTR - LCO time limit	8.5E-5	72	Gamma	2.00E+0	MDC-FR-LCO	6.1E-3
1-IAS-MDC-FR-502_____	Air compressor 502 randomly fails to continue to run	8.5E-5	24	Gamma	2.00E+0	MDC-FR-NR	2.0E-3
1-IAS-MDC-FR-502_____-LCO	Air compressor 502 randomly FTR - LCO time limit	8.5E-5	72	Gamma	2.00E+0	MDC-FR-LCO	6.1E-3
1-IAS-MDC-FR-503_____	Air compressor 503 randomly fails to continue to run	8.5E-5	24	Gamma	2.00E+0	MDC-FR-NR	2.0E-3
1-IAS-MDC-FR-503_____-LCO	Air compressor 503 randomly fails to continue to run - LCO exposure time	8.5E-5	72	Gamma	2.00E+0	MDC-FR-LCO	6.1E-3
1-IAS-MDC-FR-504_____	Air compressor 504 randomly fails to continue to run	8.5E-5	24	Gamma	2.00E+0	MDC-FR-NR	2.0E-3
1-IAS-MDC-FR-504_____-LCO	Air compressor 504 randomly fails to continue to run - LCO exposure time	8.5E-5	72	Gamma	2.00E+0	MDC-FR-LCO	6.1E-3
1-IAS-MDC-FS-501_____	Air compressor 501 FTS			Beta	3.40E+1	MDC-FS	1.7E-2
1-IAS-MDC-FS-502_____	Air compressor 502 randomly FTS			Beta	3.40E+1	MDC-FS	1.7E-2
1-IAS-MDC-FS-503_____	Air compressor 503 randomly FTS			Beta	3.40E+1	MDC-FS	1.7E-2
1-IAS-MDC-FS-504_____	Air compressor 504 randomly FTS			Beta	3.40E+1	MDC-FS	1.7E-2
1-IAS-MDC-MA-501_____	Air compressor 501 in maintenance			Beta	4.10E+1	MDC-TM	1.2E-2
1-IAS-MDC-MA-502_____	Air compressor 502 in maintenance			Beta	4.10E+1	MDC-TM	1.2E-2
1-IAS-MDC-MA-503_____	Air compressor 503 in maintenance			Beta	4.10E+1	MDC-TM	1.2E-2
1-IAS-MDC-MA-504_____	Air compressor 504 in maintenance			Beta	4.10E+1	MDC-TM	1.2E-2
1-IAS-SSD-FC-CONTRLA_	Failure of solid state controller	3.0E-6	24	Log Normal	1.00E+1	SSD-FC	7.2E-5
1-IAS-SSD-FC-CONTRLB_	Failure of solid state controller	3.0E-6	24	Log Normal	1.00E+1	SSD-FC	7.2E-5
1-IAS-TFP-FC-MSTRCONT	Start signal from master controller fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-IAS-TNK-RP-501V01__	Dryer 501-V01 fails due to rupture	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-IAS-TNK-RP-501V02	Dryer 501-V02 fails due to rupture	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-IAS-TNK-RP-502V01	Dryer 502-V01 fails due to rupture	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-IAS-TNK-RP-502V02	Dryer 502-V02 fails due to rupture	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-IAS-TNK-RP-E4501	Moisture separator E4-501 fails due to rupture	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-IAS-TNK-RP-E4502	Moisture separator E4-502 fails due to rupture	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-IAS-TNK-RP-E4503	Moisture separator E4-503 fails due to rupture	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-IAS-TNK-RP-E4504	Moisture separator E4-504 fails due to rupture	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-IAS-TNK-RP-V4501	Air receiver V4-501 fails due to rupture	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-IAS-TNK-RP-V4502	Air receiver V4-502 fails due to rupture	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-IAS-TNK-RP-V4503	Air receiver V4-503 fails due to rupture	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-IAS-TNK-RP-V4504	Air receiver V4-504 fails due to rupture	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-IAS-XSW-FC-PS9375	Isolation signal from low press switch PS9375 fails			Log Normal	9.90E+0	XSW-FC	1.7E-7
1-IAS-XVM-PG-19314	Manual valve 19314 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-19315	Instrument air valve 19315 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-505	Normally open manual valve 505 randomly plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-509	Normally open manual valve 509 randomly plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-510	Normally open manual valve 510 randomly plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-511	Normally open manual valve 511 randomly plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-512	Normally open manual valve 512 randomly plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-514	Normally open manual valve 514 randomly plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-515	Normally open manual valve 515 randomly plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-516	Normally open manual valve 516 randomly plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-520_V9	Normally open manual valve 1-2420-520	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-521	Normally open manual valve 521 randomly plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-521_V9	Normally open manual valve 1-2420-521	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-534	Manual valve 534 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-547	Instrument air valve 547 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-558	Normally open manual valve 558 randomly plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-559	Normally open manual valve 559 randomly plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-831	Normally open manual valve 831 randomly plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IAS-XVM-PG-837	Normally open manual valve 837 randomly plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-IE-ACP-BAC-LP-AA02	4.16 KV bus AA02 failure	2.0E-6	8760	Gamma	3.70E+0		1.7E-2
1-IE-ACW-CKV-OC-026	Check valve 026 transfers closed/plugged (1 yr)	5.3E-9	8760	Gamma	5.50E+0	CKV-OC-IE	4.6E-5
1-IE-ACW-CKV-OC-028	Check valve 028 transfers closed/plugged (1 yr)	5.3E-9	8760	Gamma	5.50E+0	CKV-OC-IE	4.6E-5
1-IE-ACW-HTX-CF-HT12	ACCW HX E4-001, E4-002 fail from CCF					HTX-PG-IE1	5.7E-5
1-IE-ACW-HTX-PG-E4_001	ACCW HX E4-001 plugs - 1 yr exposure	1.1E-7	8760	Gamma	5.30E-01	HTX-PG-IE1	9.6E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-IE-ACW-HTX-PG-E4_002_	ACCW HX E4-002 plugs - 1 yr exposure	1.1E-7	8760	Gamma	5.30E-01		9.6E-4
1-IE-ACW-LSW-FC-LSL1956	LSLL-1956 fails low and trips pump 001 - 1 yr exposure	9.7E-8	8760	Gamma	5.01E-01		8.5E-4
1-IE-ACW-LSW-FC-LSL1957	LSLL-1957 fails low and trips pump 002 - 1 yr exposure	9.7E-8	8760	Gamma	5.01E-01		8.5E-4
1-IE-ACW-MDP-CF-FR12	CCF to run of ACCW pumps 1-1217-P4-001 & 002 - 1 yr exposure time						7.2E-4
1-IE-ACW-MDP-FR-P4_001_	ACCW pump 1-1217-P4-001 randomly FTR - 1 yr exposure time	3.2E-6	8760	Gamma	3.27E+0	MDP-FR-IE1	2.7E-2
1-IE-ACW-MDP-FR-P4_002_	ACCW pump 1-1217-P4-002 randomly FTR - 1 yr exposure	3.2E-6	8760	Gamma	3.27E+0	MDP-FR-IE1	2.7E-2
1-IE-ACW-TNK-RP-T4_001_	ACCW surge tank 1-1217-T4-001 ruptures causing low low level - one yr exposure	1.8E-8	8760	Gamma	6.50E+0		1.6E-4
1-IE-ACW-XVM-OC-HV_2059	Locked open valve HV-2059 fails closed - 1 yr exposure time	8.4E-8	8760	Gamma	8.50E+0	XVM-OC-IE1	7.4E-4
1-IE-ACW-XVM-OC-HV_2060	Locked open valve HV-2060 fails closed - 1 yr exposure time	8.4E-8	8760	Gamma	8.50E+0	XVM-OC-IE1	7.4E-4
1-IE-ACW-XVM-OC-HV_2061	Locked open valve HV-2061 fails closed - 1 yr exposure	8.4E-8	8760	Gamma	8.50E+0	XVM-OC-IE1	7.4E-4
1-IE-ACW-XVM-OC-HV_2062	Locked open valve HV-2062 fails closed - 1 yr exposure	8.4E-8	8760	Gamma	8.50E+0	XVM-OC-IE1	7.4E-4
1-IE-HPI-CKV-RP-083_	ECCS Cold Leg 1 injection CV083 rupture (ISLOCA ini>)	3.6E-9	8760	Gamma	9.60E-01	CKV-ILL-COMB(HPI)	3.2E-5
1-IE-HPI-CKV-RP-084_	ECCS Cold Leg 2 injection CV 084 rupture (ISLOCA ini)	3.6E-9	8760	Gamma	9.60E-01	CKV-ILL-COMB(HPI)	3.2E-5
1-IE-HPI-CKV-RP-085_	ECCS Cold Leg 3 injection CV 085 rupture (ISLOCA ini)	3.6E-9	8760	Gamma	9.60E-01	CKV-ILL-COMB(HPI)	3.2E-5
1-IE-HPI-CKV-RP-086_	ECCS Cold Leg 4 injection CV 086 rupture (ISLOCA ini)	3.6E-9	8760	Gamma	9.60E-01	CKV-ILL-COMB(HPI)	3.2E-5
1-IE-IAS-AOV-CF-4647	Inlet air valves KV0746C and KV0747C fail closed from CCF						2.7E-5
1-IE-IAS-AOV-OC-746C	Inlet air valve KV0746C fails closed	4.3E-8	8760	Gamma	6.80E-01	AOV-OC-IE1	3.7E-4
1-IE-IAS-AOV-OC-747C	Inlet air valve KV0747C fails closed	4.3E-8	8760	Gamma	6.80E-01	AOV-OC-IE1	3.7E-4
1-IE-IAS-MDC-CF-FR	Air compressors 501, 502, 503, and 504 fail from CCF to run						1.1E-2
1-IE-IAS-MDC-CF-FR-AB	System Generated Event - RASP CCF event: 1-IE-IAS-MDC-CF-FR						8.1E-04
1-IE-IAS-MDC-CF-FR-ABC	System Generated Event - RASP CCF event: 1-IE-IAS-MDC-CF-FR						1.0E-03
1-IE-IAS-MDC-CF-FR-ABCD	System Generated Event - RASP CCF event: 1-IE-IAS-MDC-CF-FR						1.6E-03
1-IE-IAS-MDC-CF-FR-ABD	System Generated Event - RASP CCF event: 1-IE-IAS-MDC-CF-FR						1.0E-03
1-IE-IAS-MDC-CF-FR-AC	System Generated Event - RASP CCF event: 1-IE-IAS-MDC-CF-FR						8.1E-04
1-IE-IAS-MDC-CF-FR-ACD	System Generated Event - RASP CCF event: 1-IE-IAS-MDC-CF-FR						1.0E-03

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-IE-IAS-MDC-CF-FR-AD	System Generated Event - RASP CCF event: 1-IE-IAS-MDC-CF-FR						8.1E-04
1-IE-IAS-MDC-CF-FR-BC	System Generated Event - RASP CCF event: 1-IE-IAS-MDC-CF-FR						8.1E-04
1-IE-IAS-MDC-CF-FR-BCD	System Generated Event - RASP CCF event: 1-IE-IAS-MDC-CF-FR						1.0E-03
1-IE-IAS-MDC-CF-FR-BD	System Generated Event - RASP CCF event: 1-IE-IAS-MDC-CF-FR						8.1E-04
1-IE-IAS-MDC-CF-FR-CD	System Generated Event - RASP CCF event: 1-IE-IAS-MDC-CF-FR						8.1E-04
1-IE-IAS-MDC-FR-501____	Air compressor FTR - 1 yr exposure time	8.5E-5	8760	Gamma	2.00E+0	MDC-FR-IE1	5.3E-1
1-IE-IAS-MDC-FR-502____	Air compressor FTR - 1 yr exposure time	8.5E-5	8760	Gamma	2.00E+0	MDC-FR-IE1	5.3E-1
1-IE-IAS-MDC-FR-503____	Air compressor 503 randomly fails to continue to run - 1 yr exposure	8.5E-5	8760	Gamma	2.00E+0	MDC-FR-IE1	5.3E-1
1-IE-IAS-MDC-FR-504____	Air compressor 504 randomly fails to continue to run - 1 yr exposure	8.5E-5	8760	Gamma	2.00E+0	MDC-FR-IE1	5.3E-1
1-IE-IAS-TNK-RP-E4501____	Moisture separator E4-501 fails due to rupture - 1 yr exposure time	1.8E-8	8760	Gamma	6.50E+0	TNK-RP-IE1	1.6E-4
1-IE-IAS-TNK-RP-E4502____	Moisture separator E4-502 fails due to rupture - 1 yr exposure time	1.8E-8	8760	Gamma	6.50E+0	TNK-RP-IE1	1.6E-4
1-IE-IAS-TNK-RP-E4503____	Moisture separator E4-503 fails due to rupture - 1 yr exposure	1.8E-8	8760	Gamma	6.50E+0	TNK-RP-IE1	1.6E-4
1-IE-IAS-TNK-RP-E4504____	Moisture separator E4-504 fails due to rupture - 1 yr exposure	1.8E-8	8760	Gamma	6.50E+0	TNK-RP-IE1	1.6E-4
1-IE-IAS-TNK-RP-V4501____	Air receiver V4-501 fails due to rupture - 1 yr exposure time	1.8E-8	8760	Gamma	6.50E+0	TNK-RP-IE1	1.6E-4
1-IE-IAS-TNK-RP-V4502____	Air receiver V4-502 fails due to rupture - 1 yr exposure time	1.8E-8	8760	Gamma	6.50E+0	TNK-RP-IE1	1.6E-4
1-IE-IAS-TNK-RP-V4503____	Air receiver V4-503 fails due to rupture - 1 yr exposure time	1.8E-8	8760	Gamma	6.50E+0	TNK-RP-IE1	1.6E-4
1-IE-IAS-TNK-RP-V4504____	Air receiver V4-504 fails due to rupture - 1 yr exposure time	1.8E-8	8760	Gamma	6.50E+0	TNK-RP-IE1	1.6E-4
1-IE-IAS-XVM-CF-0511	Manual valves 505 and 511 fail from CCF						1.9E-6
1-IE-IAS-XVM-CF-5859	Manual valves 558 and 559 fail from CCF						1.9E-6
1-IE-IAS-XVM-CO-2240151	Unit 1 isolation valve 1-2401-510 opens spuriously - 1 yr exposure	8.4E-8	8760	Gamma	8.50E+0		7.4E-4
1-IE-IAS-XVM-PG-19314____	Instrument air manual valve 193145 plugs	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE2	2.6E-5
1-IE-IAS-XVM-PG-19315____	Instrument air manual valve 19315 plugs	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE2	2.6E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-IE-IAS-XVM-PG-505_____	Normally open manual valve 505 randomly plugs - 1 yr exposure	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE2	2.6E-5
1-IE-IAS-XVM-PG-509_____	Normally open manual valve 509 randomly plugs - 1 yr exposure	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE2	2.6E-5
1-IE-IAS-XVM-PG-510_____	Normally open manual valve 510 randomly plugs - 1 yr exposure	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE2	2.6E-5
1-IE-IAS-XVM-PG-511_____	Normally open manual valve 511 randomly plugs - 1 yr exposure	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE2	2.6E-5
1-IE-IAS-XVM-PG-512_____	Normally open manual valve 512 randomly plugs - 1 yr exposure	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE2	2.6E-5
1-IE-IAS-XVM-PG-514_____	Normally open manual valve 514 randomly plugs - 1 yr exposure	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE2	2.6E-5
1-IE-IAS-XVM-PG-515_____	Normally open manual valve 515 randomly plugs - 1 yr exposure	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE2	2.6E-5
1-IE-IAS-XVM-PG-516_____	Normally open manual valve 516 randomly plugs - 1 yr exposure	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE2	2.6E-5
1-IE-IAS-XVM-PG-521_____	Normally open manual valve 521 randomly plugs	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE2	2.6E-5
1-IE-IAS-XVM-PG-534_____	Instrument air manual valve 534 plugs	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE2	2.6E-5
1-IE-IAS-XVM-PG-547_____	Instrument air manual valve 547 plugs	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE2	2.6E-5
1-IE-IAS-XVM-PG-558_____	Normally open manual valve 558 randomly plugs - 1 yr exposure	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE2	2.6E-5
1-IE-IAS-XVM-PG-559_____	Normally open manual valve 559 randomly plugs- 1 yr exposure	3.0E-9	8760	Log Normal	1.00E+1	XVM-PG-IE2	2.6E-5
1-IE-ISINJ	Inadvertent safety injection			Gamma	2.50E+0		3.1E-3
1-IE-ISL-HPI	HPI isolation						1.0E+0
1-IE-ISL-RCP-S1LO	RCP stage 1 seal isolation						1.0E+0
1-IE-ISL-RCP-TBHX	RCP thermal barrier heat exchanger isolation			Gamma	5.0E-1		8.4E-4
1-IE-ISL-RHR-CLI-A	RHR Cold Leg injection Train A isolation						1.0E+0
1-IE-ISL-RHR-CLI-B	RHR Cold Leg injection Train B isolation						1.0E+0
1-IE-ISL-RHR-HLS	RHR Hot Leg suction isolation						1.0E+0
1-IE-LLOCA	Large LOCA			Gamma	4.0E-1		1.3E-6
1-IE-LO120VAB	Loss of 120vac panels A & B special IE						1.0E+0
1-IE-LO120VAC	Loss of 120vac panels A & C special IE						1.0E+0
1-IE-LO120VAD	Loss of 12vac panels A & D special IE						1.0E+0
1-IE-LO120VBC	Loss of 120vac panels B & C special IE						1.0E+0
1-IE-LO120VBD	Loss of 120vac panels B & D special IE						1.0E+0
1-IE-LO120VCD	Loss of 120vac panels C & D special IE						1.0E+0
1-IE-LO125AD1	Loss of DC bus 1AD1 special initiator identifier						1.0E+0

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-IE-LO125BD1	Loss of DC bus 1BD1 special initiator identifier						1.0E+0
1-IE-LO4160VA	Loss of 4.16kv bus A			Gamma	1.30E+0	LOAC2	1.1E-3
1-IE-LO4160VB	Loss of 4.16kv bus B			Gamma	1.30E+0	LOAC2	1.1E-3
1-IE-LOACCW	Loss of ACCW						1.0E+0
1-IE-LOCHS	Loss of condenser heat sink			Gamma	4.70E+0		6.0E-2
1-IE-LOIA	Loss of instrument air						1.0E+0
1-IE-LOMFW	Loss of main feed water			Gamma	3.20E+0		6.6E-2
1-IE-LONSCW	Loss of NSCW						1.0E+0
1-IE-LOOPGR	Loss of offsite power (grid- related )			Gamma	4.0E-1		1.2E-2
1-IE-LOOPPC	Loss of offsite power (plant- centered)			Gamma	2.50E+0		1.9E-3
1-IE-LOOPSC	Loss of offsite power (switchyard- centered)			Gamma	1.40E+1		1.0E-2
1-IE-LOOPWR	Loss of offsite power (weather- related)			Gamma	8.50E+0		3.9E-3
1-IE-LOSINJ	Loss of seal injection						1.0E+0
1-IE-MLOCA	Medium LOCA			Gamma	4.4E-1		5.1E-4
1-IE-OTRANS	Other transient			Gamma	1.20E+1		4.0E-1
1-IE-RHR-CKV-RP-147	ECCS Cold Leg 1 injection CV083 rupture (ISLOCA ini>)	3.3E-9	8760	Gamma	8.10E-01	CKV-ILL-COMB(RHR)	2.9E-5
1-IE-RHR-CKV-RP-148	ECCS Cold Leg 1 injection CV083 rupture (ISLOCA ini>)	3.3E-9	8760	Gamma	8.10E-01	CKV-ILL-COMB(RHR)	2.9E-5
1-IE-RHR-CKV-RP-149	ECCS Cold Leg 1 injection CV083 rupture (ISLOCA ini>)	3.3E-9	8760	Gamma	8.10E-01	CKV-ILL-COMB(RHR)	2.9E-5
1-IE-RHR-CKV-RP-150	ECCS Cold Leg 1 injection CV083 rupture (ISLOCA ini>)	3.3E-9	8760	Gamma	8.10E-01	CKV-ILL-COMB(RHR)	2.9E-5
1-IE-RHR-MOV-CO-HV8701A	RHR suction MOV HV8701A transfers open (ISLOCA initiator)	2.9E-8	8760	Gamma	1.57E+0	MOV-CO	2.6E-4
1-IE-RHR-MOV-CO-HV8701B	RHR suction MOV HV8701B transfers open (ISLOCA initiator)	2.9E-8	8760	Gamma	1.57E+0	MOV-CO	2.6E-4
1-IE-RHR-MOV-CO-HV8702A	RHR suction MOV HV8702A transfers open (ISLOCA initiator)	2.9E-8	8760	Gamma	1.57E+0	MOV-CO	2.6E-4
1-IE-RHR-MOV-CO-HV8702B	RHR suction MOV HV8702B transfers open (ISLOCA initiator)	2.9E-8	8760	Gamma	1.57E+0	MOV-CO	2.6E-4
1-IE-RHR-MOV-RP-HV8701A	RHR suction MOV HV8701A (ISLOCA initiator)	2.4E-9	8760	Gamma	8.30E-01	MOV-ILL-COMB	2.1E-5
1-IE-RHR-MOV-RP-HV8701B	RHR suction MOV HV8701B (ISLOCA initiator)	2.4E-9	8760	Gamma	8.30E-01	MOV-ILL-COMB	2.1E-5
1-IE-RHR-MOV-RP-HV8702A	RHR suction MOV HV8702A (ISLOCA initiator)	2.4E-9	8760	Gamma	8.30E-01	MOV-ILL-COMB	2.1E-5
1-IE-RHR-MOV-RP-HV8702B	RHR suction MOV HV8702B (ISLOCA initiator)	2.4E-9	8760	Gamma	8.30E-01	MOV-ILL-COMB	2.1E-5
1-IE-RTRIP	Reactor trip			Gamma	6.20E+0		1.6E-1
1-IE-SGTR	SGTR			Gamma	2.50E+0		1.4E-3
1-IE-SLOCA	Small LOCA			Gamma	5.0E-1		3.7E-4
1-IE-SSBI	Secondary Side break upstream of MSIVs			Gamma	5.0E-1		3.7E-4
1-IE-SSBO	Secondary Side break outside of MSIVs			Gamma	1.10E+1		7.7E-3
1-IE-SWS-MDP-CR	NSWS pumps fail from CCF to run						1.6E-3

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-IE-SWS-MDP-CR-12	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						5.7E-05
1-IE-SWS-MDP-CR-123	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-1234	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-12345	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-123456	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						3.0E-05
1-IE-SWS-MDP-CR-12346	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-1235	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-12356	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-1236	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-124	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-1245	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-12456	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-1246	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-125	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-1256	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-126	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-13	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						5.7E-05
1-IE-SWS-MDP-CR-134	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-1345	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-13456	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-IE-SWS-MDP-CR-1346	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-135	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-1356	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-136	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-14	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						5.7E-05
1-IE-SWS-MDP-CR-145	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-1456	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-146	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-15	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						5.7E-05
1-IE-SWS-MDP-CR-156	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-16	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						5.7E-05
1-IE-SWS-MDP-CR-23	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						5.7E-05
1-IE-SWS-MDP-CR-234	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-2345	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-23456	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-2346	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-235	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-2356	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-236	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-24	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						5.7E-05

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-IE-SWS-MDP-CR-245	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-2456	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-246	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-25	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						5.7E-05
1-IE-SWS-MDP-CR-256	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-26	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						5.7E-05
1-IE-SWS-MDP-CR-34	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						5.7E-05
1-IE-SWS-MDP-CR-345	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-3456	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						1.4E-05
1-IE-SWS-MDP-CR-346	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-35	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						5.7E-05
1-IE-SWS-MDP-CR-356	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-36	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						5.7E-05
1-IE-SWS-MDP-CR-45	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						5.7E-05
1-IE-SWS-MDP-CR-456	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						2.1E-05
1-IE-SWS-MDP-CR-46	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						5.7E-05
1-IE-SWS-MDP-CR-56	System Generated Event - RASP CCF event: 1-IE-SWS-MDP-CF-						5.7E-05
1-IE-SWS-MDP-FR-P4_001	NSCW pump 1 FTR (1 yr)	1.6E-6	8760	Gamma	1.27E+0	MDP-FR-IE2	1.4E-2
1-IE-SWS-MDP-FR-P4_002	NSCW pump 2 FTR (1 yr)	1.6E-6	8760	Gamma	1.27E+0	MDP-FR-IE2	1.4E-2
1-IE-SWS-MDP-FR-P4_003	NSCW pump 3 FTR (1 yr)	1.6E-6	8760	Gamma	1.27E+0	MDP-FR-IE2	1.4E-2
1-IE-SWS-MDP-FR-P4_004	NSCW pump 4 FTR (1 yr)	1.6E-6	8760	Gamma	1.27E+0	MDP-FR-IE2	1.4E-2
1-IE-SWS-MDP-FR-P4_005	NSCW pump 5 FTR (1 yr) - random fault	1.6E-6	8760	Gamma	1.27E+0	MDP-FR-IE2	1.4E-2



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-IE-SWS-MDP-FR-P4_006__	NSCW pump 006 FTR (1 yr) - random fault	1.6E-6	8760	Gamma	1.27E+0	MDP-FR-IE2	1.4E-2
1-IE-SWS-MOV-OC-11600__	NSCW MOV HV11600 transfers closed (1 yr)	2.9E-8	8760	Gamma	1.57E+0	MOV-OC-IE2	2.6E-4
1-IE-SWS-MOV-OC-11605__	NSCW MOV HV11605 transfers closed (1 yr)	2.9E-8	8760	Gamma	1.57E+0	MOV-OC-IE2	2.6E-4
1-IE-SWS-MOV-OC-11606__	NSCW MOV HV11606 transfers closed (1 yr)	2.9E-8	8760	Gamma	1.57E+0	MOV-OC-IE2	2.6E-4
1-IE-SWS-MOV-OC-11607__	NSCW MOV HV11607 transfers closed (1 yr)	2.9E-8	8760	Gamma	1.57E+0	MOV-OC-IE2	2.6E-4
1-IE-SWS-MOV-OC-11612__	NSCW MOV HV11612 transfers closed (1 yr)	2.9E-8	8760	Gamma	1.57E+0	MOV-OC-IE2	2.6E-4
1-IE-SWS-MOV-OC-11613__	NSCW MOV HV11613 transfers closed (1 yr)	2.9E-8	8760	Gamma	1.57E+0	MOV-OC-IE2	2.6E-4
1-IE-TTRIP	Turbine trip			Gamma	5.50E+0		1.7E-1
1-IE-XLOCA	Reactor pressure vessel rupture			Gamma	3.0E-1		1.0E-7
1-IVFAC	Inverter fails to operate			Gamma	2.00E+1	1-IVFAC	1.2E-5
1-KVDAF	Stop check valve fails to open			Beta	4.00E+4	1-KVDAF	1.3E-5
1-LLOCA	Large LOCA IE basic event			Gamma	3.0E-1	LLOCA-P	2.5E-6
1-LPI-AOV-PG-HV0606__	RHR HX A outlet air operated valve HV0606 transfers closed	3.0E-8	24	Log Normal	1.00E+1	AOV-PG	7.2E-7
1-LPI-AOV-PG-HV0607__	RHR HX B outlet air operated valve HV0607 transfers closed	3.0E-8	24	Log Normal	1.00E+1	AOV-PG	7.2E-7
1-LPI-CKV-CC-001____	RHR pump A suction line from RWST CV 001 fails to open randomly			Beta	4.70E+4	CKV-CC	1.1E-5
1-LPI-CKV-CC-001002__-CC	RHR pumps suction from RWST CVs valves 001 and 002 fail to open by CCF						6.8E-7
1-LPI-CKV-CC-002____	RHR pump B suction from RWST CV 002 fails to open randomly			Beta	4.70E+4	CKV-CC	1.1E-5
1-LPI-CKV-CC-009____	RHR pump A discharge CV 009 fails to open randomly			Beta	4.70E+4	CKV-CC	1.1E-5
1-LPI-CKV-CC-009010__-CC	RHR pumps discharge CVs 009 and 010 fail to open by CCF						6.8E-7
1-LPI-CKV-CC-010____	RHR pump B discharge CV 010 fails to open randomly			Beta	4.70E+4	CKV-CC	1.1E-5
1-LPI-CKV-CC-122____	Containment sump CV 122 (RHR pump A suction) fails to open by random cause			Beta	4.70E+4	CKV-CC	1.1E-5
1-LPI-CKV-CC-122123__-CC	Containment sump CVs 122 and 123 (RHR pump suction) fail to open by CCF						1.2E-6
1-LPI-CKV-CC-123____	Containment sump CV 123 (RHR pump B suction) fails to open by random cause			Beta	4.70E+4	CKV-CC	1.1E-5
1-LPI-CKV-CC-128____	RHR Hot Leg 1 injection CV128 fails to open randomly			Beta	4.70E+4	CKV-CC	1.1E-5
1-LPI-CKV-CC-128129__-CC	RHR Hot Leg injection CVs 128 & 129 fail to open due to CCF						1.2E-6
1-LPI-CKV-CC-129____	RHR Hot Leg 4 injection CV 129 fails to open randomly			Beta	4.70E+4	CKV-CC	1.1E-5
1-LPI-CKV-CC-147____	LP Cold Leg injection CV 147 fails to open randomly			Beta	4.70E+4	CKV-CC	1.1E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-LPI-CKV-CC-147148__-CC	LP Cold Leg injection CVs 147 and 148 fail to open by CCF						4.4E-7
1-LPI-CKV-CC-14714849-CC	LP Cold Leg injection CVs 147, 148 & 149 fail by CCF						2.4E-7
1-LPI-CKV-CC-14714850-CC	LP Cold Leg injection CVs 147, 148 & 150 fail to open by CCF						2.4E-7
1-LPI-CKV-CC-147149__-CC	LP Cold Leg injection CVs 147 and 149 fail to open by CCF						4.4E-7
1-LPI-CKV-CC-14714950-CC	LP Cold Leg injection CVs 147, 149 & 150 fail to open by CCF						2.4E-7
1-LPI-CKV-CC-147150__-CC	LP Cold Leg injection CVs 147 and 150 fail to open by CCF						4.4E-7
1-LPI-CKV-CC-148_____	LP Cold Leg injection CV 148 fails to open by random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-LPI-CKV-CC-148149__-CC	LP Cold Leg injection CVs 148 and 149 fail to open by CCF						4.4E-7
1-LPI-CKV-CC-14814950-CC	LP Cold Leg injection CVs 148, 149, & 150 fail to open by CCF						2.4E-7
1-LPI-CKV-CC-148150__-CC	LP Cold Leg injection CVs 148 and 150 fail to open by CCF						4.4E-7
1-LPI-CKV-CC-149_____	LP Cold Leg injection CV 149 fails to open randomly			Beta	4.70E+4	CKV-CC	1.1E-5
1-LPI-CKV-CC-149150__-CC	LP Cold Leg injection CVs 149 and 150 fail to open by CCF						4.4E-7
1-LPI-CKV-CC-150_____	LP Cold Leg injection CV 150 fails to open by random fault			Beta	4.70E+4	CKV-CC	1.1E-5
1-LPI-CKV-CC-47484950-CC	LP Cold Leg injection CVs 147, 148, 149 and 150 fail to open by CCF						2.2E-7
1-LPI-CKV-CF-009010	RHR pump discharge CVs 009, 010 fail from CCF to open						4.9E-7
1-LPI-CKV-CF-122123	Containment sump CVs 122 and 123 (RHR pump suction) fail from CCF to open						4.9E-7
1-LPI-CKV-CF-CLALL	RHR Cold Leg check valves 147, 148, 149, 150 fail from CCF to open						1.6E-7
1-LPI-CKV-OO-001_____	RHR pump A suction check valve 1205-001 fails to close - random			Beta	3.40E+3	CKV-OO	2.4E-4
1-LPI-CKV-OO-001009__-CC	Leakage due to CCF of RHR pump A suction CV 001 and discharge CV 009						2.6E-5
1-LPI-CKV-OO-002_____	RHR pump B suction check valve 1205-002 fails to close - random			Beta	3.40E+3	CKV-OO	2.4E-4
1-LPI-CKV-OO-002010__-CC	Leakage due to CCF of RHR pump B suction CV 002 and discharge CV 0010						2.6E-5
1-LPI-CKV-OO-009_____	RHR pump A discharge check valve 1205-009 fails to close - random			Beta	3.40E+3	CKV-OO	2.4E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-LPI-CKV-OO-010_____	RHR pump B discharge check valve 1205-010 fails to close -random			Beta	3.40E+3	CKV-OO	2.4E-4
1-LPI-HTX-CF-HXAB	RHR heat exchangers A, B fail from CCF						1.4E-7
1-LPI-HTX-PG-HXA	RHR heat exchanger A is unavailable	1.1E-7	24	Beta	3.10E+2	HTX-PG	2.6E-6
1-LPI-HTX-PG-HXB	RHR heat exchanger B is unavailable	1.1E-7	24	Beta	3.10E+2	HTX-PG	2.6E-6
1-LPI-MDP-CF-RUN	RHR pumps A, B fail from CCF to run						3.9E-6
1-LPI-MDP-CF-START	RHR pumps A, B fail from CCF to start						4.9E-5
1-LPI-MDP-FR-RHRA_____	RHR pump A FTR due to random fault (24 hr mission)	2.5E-6	23	Gamma	1.78E+0	MDPFR-L	5.8E-5
1-LPI-MDP-FR-RHRB_____	RHR pump B FTR due to random fault (24hr mission)	2.5E-6	23	Gamma	1.78E+0	MDPFR-L	5.8E-5
1-LPI-MDP-FS-RHRA_____	RHR pump A FTS due to random fault			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-LPI-MDP-FS-RHRB_____	RHR pump B FTS due to random fault			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-LPI-MDP-MA-RHRA_____	RHR pump A in maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-LPI-MDP-MA-RHRB_____	RHR pump B in maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-LPI-MOV-CC-8701AB__-CC	RHR Hot Leg suction isolation MOVs 8701A & B fail to open -CCF						6.0E-6
1-LPI-MOV-CC-8702AB__-CC	RHR Hot Leg suction isolation MOVs 8702A & 2B fail to open - CCF						6.0E-6
1-LPI-MOV-CC-870X_B_D-CC	RHR Hot Leg suction isolation MOVs 8701B & 2B fail to open -CCF						6.0E-6
1-LPI-MOV-CC-870X_BC_-CC	RHR Hot Leg suction isolation MOVs 8701B & 2A fail to open -CCF						6.0E-6
1-LPI-MOV-CC-870X_BCD-CC	RHR Hot Leg suction isolation MOVs 8701B,2A,2B fail to open -CCF						1.1E-6
1-LPI-MOV-CC-870XA__D-CC	RHR Hot Leg suction isolation MOVs 8701A & 2B fail to open -CCF						6.0E-6
1-LPI-MOV-CC-870XA_C_-CC	RHR Hot Leg suction isolation MOVs 8701A & 2A fail to open -CCF						6.0E-6
1-LPI-MOV-CC-870XA_CD-CC	RHR Hot Leg suction isolation MOVs 8701A,2A,2B fail to open -CCF						1.1E-6
1-LPI-MOV-CC-870XAB_D-CC	RHR Hot Leg suction isolation MOVs 8701A,1B,2B fail to open -CCF						1.1E-6
1-LPI-MOV-CC-870XABC_-CC	RHR Hot Leg suction isolation MOVs 8701A,1B,2A fail to open - CCF						1.1E-6
1-LPI-MOV-CC-870XABCD-CC	RHR Hot Leg suction isolation MOVs 8701A,1B,2A&2B fail to open - CCF						9.1E-6
1-LPI-MOV-CC-HV8701A_	RHR Hot Leg 1 suction isolation MOV HV8701A fails to open- random cause			Beta	5.40E+4	MOV-CC	3.5E-4
1-LPI-MOV-CC-HV8701B_	RHR Hot Leg 1 suction isolation MOV HV8701B fails to open- random cause			Beta	5.40E+4	MOV-CC	3.5E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-LPI-MOV-CC-HV8702A_	RHR Hot Leg 4 suction isolation MOV HV8702A fails to open - random faults			Beta	5.40E+4	MOV-CC	3.5E-4
1-LPI-MOV-CC-HV8702B_	RHR Hot Leg 4 suction isolation MOV HV8702B fails to open - random fault			Beta	5.40E+4	MOV-CC	3.5E-4
1-LPI-MOV-CC-HV8716A_	RHR train cross-connection MOV HV8716A randomly fails to open			Beta	5.40E+4	MOV-CC	3.5E-4
1-LPI-MOV-CC-HV8716AB-CC	RHR train cross-connection MOV HV8716A to open due to CCF						2.7E-5
1-LPI-MOV-CC-HV8716B_	RHR train cross-connection MOV HV8716B randomly fails to open			Beta	5.40E+4	MOV-CC	3.5E-4
1-LPI-MOV-CC-HV8811A_	RHR pump A containment sump suction MOV HV8811A fails to open by random cause			Beta	5.40E+4	MOV-CC	3.5E-4
1-LPI-MOV-CC-HV8811B_	RHR pump B containment sump suction MOV HV8811B fails to open by random cause			Beta	5.40E+4	MOV-CC	3.5E-4
1-LPI-MOV-CC-HV8840_	LP hot recirculation line MOV HV8840 fails to open			Beta	5.40E+4	MOV-CC	3.5E-4
1-LPI-MOV-CF-8701A2A	RHR Hot Leg suction isolation MOVs 8701A , 8702A fail from CCF to open						1.2E-5
1-LPI-MOV-CF-8701B2B	RHR Hot Leg suction isolation MOVs 8701B , 8702B fail from CCF to open						1.2E-5
1-LPI-MOV-CF-8811AB	RHR containment sump suction MOVs HV8811A & B fail from CCF to open						1.2E-5
1-LPI-MOV-CF-8812AB	RWST suction MOVs HV8812A & B fail from CCF to close						5.7E-6
1-LPI-MOV-OC-HV8716A_	RHR train x-conn MOV HV8716A transfers closed	2.9E-8	24	Gamma	1.57E+0	MOV-OC	7.0E-7
1-LPI-MOV-OC-HV8716B_	RHR train x-connect MOV HV8716B transfers closed	2.9E-8	24	Gamma	1.57E+0	MOV-OC	7.0E-7
1-LPI-MOV-OC-HV8812A_	MOV HV8812A transfers closed	2.9E-8	24	Gamma	1.57E+0	MOV-OC	7.0E-7
1-LPI-MOV-OC-HV8812B_	MOV HV8812B transfers closed	2.9E-8	24	Gamma	1.57E+0	MOV-OC	7.0E-7
1-LPI-MOV-OO-HV8812A_	RHR pump A RWST suction MOV HV8812A failed to close due to random fault			Beta	5.40E+4	MOV-OO	3.5E-4
1-LPI-MOV-OO-HV8812B_	RHR pump B RWST suction MOV HV8812B fails to close due to random fault			Beta	5.40E+4	MOV-OO	3.5E-4
1-LPI-MOV-PG-FV0610_	RHR Train A mini flow valve failure (plug)	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-LPI-MOV-PG-FV0611_	RHR Train B mini flow valve fails to open (plug)	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-LPI-MOV-PG-HV8809A_	LP injection MOV HV8809A plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-LPI-MOV-PG-HV8809B_	RHR LP Cold Leg injection MOV HV8809B plugs	5.0E-9	24	Log Normal	1.00E+1	MOV-PG	1.2E-7
1-LPI-SMP-CF-SUMPAB	ECCS containment sumps, A, B fail from CCF plugging						3.5E-8
1-LPI-SMP-PG-_ESUMPA	ECCS containment sump A plugged			Gamma	5.50E+0	SMP-PG	5.1E-7
1-LPI-SMP-PG-_ESUMPB	ECCS containment sump B plugged			Gamma	5.50E+0	SMP-PG	5.1E-7
1-LPI-XVM-PG-019_	RHR HX A inlet locked open manual valve 019 transfers closed	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-LPI-XVM-PG-020_____	RHR HX B inlet locked open manual valve 020 transfers closed	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-MCW-MDP-CF-CIRC12___-FR	MCW pumps 1 and 2 FTR CCF						6.0E-6
1-MCW-MDP-FR-CIRC1_____	MCW pump FTR	3.7E-6	24	Gamma	5.29E+0	MDP-FR-NR	8.9E-5
1-MCW-MDP-FR-CIRC2_____	MCW pump FTR	3.7E-6	24	Gamma	5.29E+0	MDP-FR-NR	8.9E-5
1-MFW-AOV-CC-0510234_-CC	MFRVs FV-0510,-20,-30,-40 fail to open due to CCF						1.5E-5
1-MFW-AOV-CC-15196789-CC	CCF of BFIVs HV-15196,-7,-8,-9 to open						1.5E-5
1-MFW-AOV-CC-5242345_-CC	BFRVs LV-5242,-3,-4,-5 fail to open due to CCF						1.5E-5
1-MFW-AOV-CC-FV_0510_____	MFRV FV-0510 mechanically fails to open			Beta	3.40E+3	AOV-CC	6.3E-4
1-MFW-AOV-CC-FV_0520_____	MFRV FV-0520 mechanically fails to open			Beta	3.40E+3	AOV-CC	6.3E-4
1-MFW-AOV-CC-FV_0530_____	MFRV FV-0530 mechanically fails to open			Beta	3.40E+3	AOV-CC	6.3E-4
1-MFW-AOV-CC-FV_0540_____	MFRV FV-0540 mechanically fails to open			Beta	3.40E+3	AOV-CC	6.3E-4
1-MFW-AOV-CC-HV_15196_____	BFIV HV-15196 fails to open			Beta	3.40E+3	AOV-CC	6.3E-4
1-MFW-AOV-CC-HV_15197_____	BFIV HV-15197 fails to open			Beta	3.40E+3	AOV-CC	6.3E-4
1-MFW-AOV-CC-HV_15198_____	BFIV HV-15198 fails to open			Beta	3.40E+3	AOV-CC	6.3E-4
1-MFW-AOV-CC-HV_15199_____	BFIV HV-15199 fails to open			Beta	3.40E+3	AOV-CC	6.3E-4
1-MFW-AOV-CC-LV_5242_____	BFRV LV-5242 fails due to mechanical failures			Beta	3.40E+3	AOV-CC	6.3E-4
1-MFW-AOV-CC-LV_5243_____	BFRV LV-5243 fails due to mechanical failures			Beta	3.40E+3	AOV-CC	6.3E-4
1-MFW-AOV-CC-LV_5244_____	BFRV LV-5244 fails due to mechanical failures			Beta	3.40E+3	AOV-CC	6.3E-4
1-MFW-AOV-CC-LV_5245_____	BFRV LV-5245 fails due to mechanical failures			Beta	3.40E+3	AOV-CC	6.3E-4
1-MFW-AOV-MA-FV_0510_____	MFRV FV-0510 in maintenance			Log Normal	1.00E+1		1.3E-4
1-MFW-AOV-MA-FV_0520_____	MFRV FV-0520 in maintenance			Log Normal	1.00E+1		1.3E-4
1-MFW-AOV-MA-FV_0530_____	MFRV FV-0530 in maintenance			Log Normal	1.00E+1		1.3E-4
1-MFW-AOV-MA-FV_0540_____	MFRV FV-0540 in maintenance			Log Normal	1.00E+1		1.3E-4
1-MFW-AOV-MA-HV_15196_____	BFIV HV-15196 in maintenance			Log Normal	1.00E+1		9.6E-6
1-MFW-AOV-MA-HV_15197_____	BFIV HV-15197 in maintenance			Log Normal	1.00E+1		9.6E-6
1-MFW-AOV-MA-HV_15198_____	BFIV HV-15198 in maintenance			Log Normal	1.00E+1		9.6E-6
1-MFW-AOV-MA-HV_15199_____	BFIV HV-15199 in maintenance			Log Normal	1.00E+1		9.6E-6
1-MFW-AOV-MA-LV_5242_____	BFRV LV-5242 in maintenance			Log Normal	1.00E+1		2.4E-5
1-MFW-AOV-MA-LV_5243_____	BFRV LV-5243 in maintenance			Log Normal	1.00E+1		2.4E-5
1-MFW-AOV-MA-LV_5244_____	BFRV LV-5244 in maintenance			Log Normal	1.00E+1		2.4E-5
1-MFW-AOV-MA-LV_5245_____	BFRV LV-5245 in maintenance			Log Normal	1.00E+1		2.4E-5
1-MFW-AOV-OO-FV_0510_____	MFRV FV-0510 mechanically fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MFW-AOV-OO-FV_0520_____	MFRV FV-0520 mechanically fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MFW-AOV-OO-FV_0530_____	MFRV FV-0530 mechanically fails to close			Beta	3.40E+3	AOV-OO	6.3E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-MFW-AOV-OO-FV_0540_	MFRV FV-0540 mechanically fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MFW-AOV-OO-HV_15196	BFIV HV-15196 fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MFW-AOV-OO-HV_15197	BFIV HV-15197 fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MFW-AOV-OO-HV_15198	BFIV HV-15198 fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MFW-AOV-OO-HV_15199	BFIV HV-15199 fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MFW-CKV-CC-071_	Check valve 071 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-MFW-CKV-CC-073_	Check valve 073 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-MFW-CKV-CC-075_	Check valve 075 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-MFW-CKV-CC-077_	Check valve 077 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-MFW-HDV-CC-52278930-CC	MFIVs HV-5227,-28,-29, -30 fail to open due to CCF						2.4E-5
1-MFW-HDV-CC-HV_5227_	MFIV HV-5227 fails to open			Beta	2.10E+4	HOVFTO	1.2E-3
1-MFW-HDV-CC-HV_5228_	MFIV HV-5228 fails to open			Beta	2.10E+4	HOVFTO	1.2E-3
1-MFW-HDV-CC-HV_5229_	MFIV HV-5229 fails to open			Beta	2.10E+4	HOVFTO	1.2E-3
1-MFW-HDV-CC-HV_5230_	MFIV HV-5230 fails to open			Beta	2.10E+4	HOVFTO	1.2E-3
1-MFW-HDV-MA-HV_5227_	MFIV HV-5227 in maintenance			Log Normal	1.00E+1		1.3E-4
1-MFW-HDV-MA-HV_5228_	MFIV HV-5228 in maintenance			Log Normal	1.00E+1		1.3E-4
1-MFW-HDV-MA-HV_5229_	MFIV HV-5229 in maintenance			Log Normal	1.00E+1		1.3E-4
1-MFW-HDV-MA-HV_5230_	MFIV HV-5230 in maintenance			Log Normal	1.00E+1		1.3E-4
1-MFW-HDV-OO-HV_5227_	MFIV HV-5227 fails to close			Beta	2.10E+4	HOVFTO	1.2E-3
1-MFW-HDV-OO-HV_5228_	MFIV HV-5228 fails to close			Beta	2.10E+4	HOVFTO	1.2E-3
1-MFW-HDV-OO-HV_5229_	MFIV HV-5229 fails to close			Beta	2.10E+4	HOVFTO	1.2E-3
1-MFW-HDV-OO-HV_5230_	MFIV HV-5230 fails to close			Beta	2.10E+4	HOVFTO	1.2E-3
1-MFW-MDP-FR-0102_ -CC	CCF of lube oil pumps P01 and P02 to continue to run						4.4E-6
1-MFW-MDP-FR-20102_ -CC	CCF of lube oil pumps P01 and P02 to continue to run						4.4E-6
1-MFW-MDP-FR-2P01_	Lube oil pump A fails to continue to run (P01)	3.7E-6	24	Gamma	5.29E+0	MDP-FR-NR	8.9E-5
1-MFW-MDP-FR-2P02_	Lube oil pump B fails to continue to run	3.7E-6	24	Gamma	5.29E+0	MDP-FR-NR	8.9E-5
1-MFW-MDP-FR-P01_	Lube oil pump A fails to continue to run (P01)	3.7E-6	24	Gamma	5.29E+0	MDP-FR-NR	8.9E-5
1-MFW-MDP-FR-P02_	Lube oil pump B fails to continue to run	3.7E-6	24	Gamma	5.29E+0	MDP-FR-NR	8.9E-5
1-MFW-TDP-FR-004_	Main feedwater pump A fails to continue to run	9.3E-6	24	Gamma	1.79E+0	TDP-FR-NR	2.2E-4
1-MFW-TDP-FR-004005_ -CC	CCF of the main feedwater pumps						4.4E-6
1-MFW-TDP-FR-005_	Main feedwater pump B fails to continue to run	9.3E-6	24	Gamma	1.79E+0	TDP-FR-NR	2.2E-4
1-MFW-TFF-FC-_FT0510_	Failure of SG 1 flow transmitter FT-0510	9.7E-8	24	Gamma	5.00E-01	TFF-FC	2.3E-6
1-MFW-TFF-FC-_FT0511_	Failure of SG 1 flow transmitter FT-0511	9.7E-8	24	Gamma	5.00E-01	TFF-FC	2.3E-6
1-MFW-TFF-FC-_FT0520_	Failure of SG 2 flow transmitter FT-0520	9.7E-8	24	Gamma	5.00E-01	TFF-FC	2.3E-6
1-MFW-TFF-FC-_FT0521_	Failure of SG 2 flow transmitter FT-0521	9.7E-8	24	Gamma	5.00E-01	TFF-FC	2.3E-6
1-MFW-TFF-FC-_FT0530_	Failure of SG 3 flow transmitter FT-0530	9.7E-8	24	Gamma	5.00E-01	TFF-FC	2.3E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-MFW-TFF-FC- FT0531	Failure of SG 3 flow transmitter FT-0531	9.7E-8	24	Gamma	5.00E-01	TFF-FC	2.3E-6
1-MFW-TFF-FC- FT0540	Failure of SG 4 flow transmitter FT-0540	9.7E-8	24	Gamma	5.00E-01	TFF-FC	2.3E-6
1-MFW-TFF-FC- FT0541	Failure of SG 4 flow transmitter FT-0541	9.7E-8	24	Gamma	5.00E-01	TFF-FC	2.3E-6
1-MOAFC	Containment cooling unit FTS			Beta	1.74E+3	1-MOAFC	1.9E-03
1-MOXFC	Containment cooling unit FTR	2.13E-07	24	Gamma	3.00E-01	1-MOXFC	5.1E-06
1-MSS-ADV-CC-VPV_1_2_-CC	SG ARVs PV-3010 and PV-3020 fail to open -CCF						2.3E-5
1-MSS-ADV-CC-VPV_1_3_-CC	SG ARVs PV-3010 and PV-3030 fail to open -CCF						2.3E-5
1-MSS-ADV-CC-VPV_2_3_-CC	SG ARVs PV-3020 and PV-3030 fail to open -CCF						2.3E-5
1-MSS-ADV-CC-VPV0_1_-CC	SG ARVs PV-3000 and PV-3010 fail to open -CCF						2.3E-5
1-MSS-ADV-CC-VPV0_1_2-CC	SG ARVs PV-3000, PV-3010 and PV-3020 fail to open -CCF						6.6E-6
1-MSS-ADV-CC-VPV0_1_3-CC	SG ARVs PV-3000, PV-3010 and PV-3030 fail to open -CCF						6.6E-6
1-MSS-ADV-CC-VPV0_2_-CC	SG ARVs PV-3000 and PV-3020 fail to open - CCF						2.3E-5
1-MSS-ADV-CC-VPV0_2_3-CC	SG ARVs PV-3000, PV-3020 and PV-3030 fail to open -CCF						6.6E-6
1-MSS-ADV-CC-VPV0_3_-CC	SG ARVs PV-3000 and PV-3030 fail to open - CCF						2.3E-5
1-MSS-ADV-CC-VPV0123_-CC	SG ARVs PV-3000, PV-3010 PV-3020, PV-3030 fail to open - CCF						4.5E-5
1-MSS-ADV-CC-VPV1_2_3-CC	SG ARVs PV-3010, PV-3020 and PV-3030 fail to open -CCF						6.6E-6
1-MSS-ADV-CC-VPV3000	SG 1 ARV PV-3000 fail to open- random failure			Beta	3.80E+2	MSS-PRV-CC	5.6E-3
1-MSS-ADV-CC-VPV3010	SG 2 ARV PV-3010 fail to open - random failure			Beta	3.80E+2	MSS-PRV-CC	5.6E-3
1-MSS-ADV-CC-VPV3020	SG 3 ARV PV-3020 fail to open -random failure			Beta	3.80E+2	MSS-PRV-CC	5.6E-3
1-MSS-ADV-CC-VPV3030	SG 4 ARV PV-3030 fails to open - random failure			Beta	3.80E+2	MSS-PRV-CC	5.6E-3
1-MSS-ADV-MA-VPV3000	ARV PV3000 is in maintenance			Log Normal	1.00E+1		3.4E-2
1-MSS-ADV-MA-VPV3010	ARV PV3010 is in maintenance			Log Normal	1.00E+1		1.4E-2
1-MSS-ADV-MA-VPV3020	ARV PV3020 is in maintenance			Log Normal	1.00E+1		1.8E-2
1-MSS-ADV-MA-VPV3030	ARV PV3030 is in maintenance			Log Normal	1.00E+1		3.7E-2
1-MSS-ADV-OO-VPV3000	SG 1 ARV PV-3000 fail to close - random failure			Beta	8.30E+3	MSS-PRV-OO	1.7E-3
1-MSS-ADV-OO-VPV3010	SG 2 ARV PV-3010 fail to close - random failure			Beta	8.30E+3	MSS-PRV-OO	1.7E-3
1-MSS-ADV-OO-VPV3020	SG 3 ARV PV-3020 fail to close - random failure			Beta	8.30E+3	MSS-PRV-OO	1.7E-3
1-MSS-ADV-OO-VPV3030	SG 4 ARV PV-3030 fails to close - random failure			Beta	8.30E+3	MSS-PRV-OO	1.7E-3
1-MSS-AOV-CC-TV__B_C-CC	CCF of PV-507B and PV-507C						1.0E-5
1-MSS-AOV-CC-TV_A_B_-CC	CCF of PV-507A and PV-507B						1.0E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-MSS-AOV-CC-TV_A_B_C-CC	CCF of PV-507A PV-507B and PV-507C						1.8E-5
1-MSS-AOV-CC-TV_A_C_-CC	CCF of PV-507A and PV-507C						1.0E-5
1-MSS-AOV-CC-TV507A	Random mechanical failure of SD valve PV-507A			Beta	3.40E+3	AOV-CC	6.3E-4
1-MSS-AOV-CC-TV507B	Random mechanical failure of SD valve PV-507B			Beta	3.40E+3	AOV-CC	6.3E-4
1-MSS-AOV-CC-TV507C	Random mechanical failure of SD valve PV-507C			Beta	3.40E+3	AOV-CC	6.3E-4
1-MSS-AOV-OO-HV13005A	HV-13005A fails to close due to local faults			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-HV13005B	HV-13005B fails to close due to local faults			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-HV13006A	HV-13006A fails to close due to local faults			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-HV13006B	HV-13006B fails to close due to local faults			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-HV13007A	HV-13007A fails to close due to local faults			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-HV13007B	HV-13007B fails to close due to local faults			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-HV13008A	HV-13008A fails to close due to local faults			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-HV13008B	HV-13008B fails to close due to local faults			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-HV135A5B-CC	HV-13005A and HV-13005B fail to close due to CCF						2.9E-5
1-MSS-AOV-OO-HV136A6B-CC	HV-13006A and HV-13006B fail to close due to CCF						2.9E-5
1-MSS-AOV-OO-HV137A7B-CC	HV-13007A and HV-13007B fail to close due to CCF						2.9E-5
1-MSS-AOV-OO-HV138A8B-CC	HV-13008A and HV-13008B fail to close due to CCF						2.9E-5
1-MSS-AOV-OO-PV507A	Steam dump valve PV-507A fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-PV507B	Steam dump valve PV-507B fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-PV507C	Steam dump valve PV-507C fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-TV500A	Steam dump valve TV-500A fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-TV500B	Steam dump valve TV-500B fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-TV500C	Steam dump valve TV-500C fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-TV500D	Steam dump valve TV-500D fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-TV500E	Steam dump valve TV-500E fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-TV500F	Steam dump valve TV-500F fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-TV500G	Steam dump valve TV-500G fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-TV500H	Steam dump valve TV-500H fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-AOV-OO-TV500J	Steam dump valve TV-500J fails to close			Beta	3.40E+3	AOV-OO	6.3E-4
1-MSS-CKV-CC-008	TDAFWP steam supply from SG CV 008 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-MSS-CKV-CC-404_____	TDAFWP steam supply from SG1cv 404 fails to open randomly			Beta	4.70E+4	CKV-CC	1.1E-5
1-MSS-CKV-CC-404008__-CC	TDAFWP steam supply CVs 404, 008 fail to open - CCF						8.0E-7
1-MSS-CKV-OO-____3_4-CC	Control valves CV-3 and CV-4 fail due to CCF						1.8E-5
1-MSS-CKV-OO-____2_4-CC	Control valves CV-2 and CV-4 fail due to CCF						1.8E-5
1-MSS-CKV-OO-____2_3_-CC	Control valves CV-2 and CV-3 fail due to CCF						1.8E-5
1-MSS-CKV-OO-____2_3_4-CC	Control valves CV-2, CV-3 & CV-4 fail due to CCF						5.2E-6
1-MSS-CKV-OO-____1_4-CC	Control valves CV-1 and CV-4 fail due to CCF						1.8E-5
1-MSS-CKV-OO-____1_3_-CC	Control valves CV-1 and CV-3 fail due to CCF						1.8E-5
1-MSS-CKV-OO-____1_3_4-CC	Control valves CV-1, CV-3 & CV-4 fail due to CCF						5.2E-6
1-MSS-CKV-OO-____1_2_-CC	Control valves CV-1 and CV-2 fail due to CCF						1.8E-5
1-MSS-CKV-OO-____1_2_4-CC	Control valves CV-1, CV-2 & CV-4 fail due to CCF						5.2E-6
1-MSS-CKV-OO-____1_2_3_-CC	Control valves CV-1, CV-2 & CV-3 fail due to CCF						5.2E-6
1-MSS-CKV-OO-____1_2_3_4-CC	Control valves CV-1 ,2,3,& 4 fail to close due to CCF						3.5E-5
1-MSS-CKV-OO-CV1K_____	Control valve CV-1 fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-MSS-CKV-OO-CV2K_____	Control valve CV-2 fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-MSS-CKV-OO-CV3K_____	Control valve CV-3 fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-MSS-CKV-OO-CV4K_____	Control valve CV-4 fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-MSS-MOS-MA-IV_3006A	MSIV HV-3006A system unavailable due to maintenance			Log Normal	1.00E+1		4.6E-5
1-MSS-MOS-MA-IV_3006B	MSIV HV-3006B system unavailable due to maintenance			Log Normal	1.00E+1		2.8E-3
1-MSS-MOS-MA-IV_3016A	MSIV HV-3016A system unavailable due to maintenance			Log Normal	1.00E+1		2.8E-3
1-MSS-MOS-MA-IV_3016B	MSIV HV-3016B system unavailable due to maintenance			Log Normal	1.00E+1		1.6E-5
1-MSS-MOS-MA-IV_3026A	MSIV HV-3026A system unavailable due to maintenance			Log Normal	1.00E+1		2.8E-3
1-MSS-MOS-MA-IV_3026B	MSIV HV-3026B system unavailable due to maintenance			Log Normal	1.00E+1		2.8E-3
1-MSS-MOS-MA-IV_3036A	MSIV HV-3036A system unavailable due to maintenance			Log Normal	1.00E+1		3.2E-5
1-MSS-MOS-MA-IV_3036B	MSIV HV-3036B system unavailable due to maintenance			Log Normal	1.00E+1		1.6E-5
1-MSS-MOS-OC-IV_3006A	MSIV HV-3006A spuriously fails closed due to local faults	3.9E-7	24	Gamma	2.25E+1	MSV-OC	9.3E-6
1-MSS-MOS-OC-IV_3006B	MSIV HV-3006B spuriously fails closed due to local faults	3.9E-7	24	Gamma	2.25E+1	MSV-OC	9.3E-6
1-MSS-MOS-OC-IV_3016A	MSIV HV-3016A spuriously fails closed due to local faults	3.9E-7	24	Gamma	2.25E+1	MSV-OC	9.3E-6
1-MSS-MOS-OC-IV_3016B	MSIV HV-3016B spuriously fails closed due to local faults	3.9E-7	24	Gamma	2.25E+1	MSV-OC	9.3E-6
1-MSS-MOS-OC-IV_3026A	MSIV HV-3026A spuriously fails closed due to local faults	3.9E-7	24	Gamma	2.25E+1	MSV-OC	9.3E-6
1-MSS-MOS-OC-IV_3026B	MSIV HV-3026B spuriously fails closed due to local faults	3.9E-7	24	Gamma	2.25E+1	MSV-OC	9.3E-6
1-MSS-MOS-OC-IV_3036A	MSIV HV-3036A spuriously fails closed due to local faults	3.9E-7	24	Gamma	2.25E+1	MSV-OC	9.3E-6
1-MSS-MOS-OC-IV_3036B	MSIV HV-3036B spuriously fails closed due to local faults	3.9E-7	24	Gamma	2.25E+1	MSV-OC	9.3E-6
1-MSS-MOS-OO-IV_3006A	MSIV HV-3006A fails to close due to local faults			Beta	3.10E+4	MSVFTC	7.6E-4
1-MSS-MOS-OO-IV_3006B	MSIV HV-3006B fails to close due to local faults			Beta	3.10E+4	MSVFTC	7.6E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-MSS-MOS-OO-IV_3016A	MSIV HV-3016A fails to close due to local faults			Beta	3.10E+4	MSVFTC	7.6E-4
1-MSS-MOS-OO-IV_3016B	MSIV HV-3016B fails to close due to local faults			Beta	3.10E+4	MSVFTC	7.6E-4
1-MSS-MOS-OO-IV_3026A	MSIV HV-3026A fails to close due to local faults			Beta	3.10E+4	MSVFTC	7.6E-4
1-MSS-MOS-OO-IV_3026B	MSIV HV-3026B fails to close due to local faults			Beta	3.10E+4	MSVFTC	7.6E-4
1-MSS-MOS-OO-IV_3036A	MSIV HV-3036A fails to close due to local faults			Beta	3.10E+4	MSVFTC	7.6E-4
1-MSS-MOS-OO-IV_3036B	MSIV HV-3036B fails to close due to local faults			Beta	3.10E+4	MSVFTC	7.6E-4
1-MSS-MOS-OO-IV06A06B-CC	MSIV HV-3006A & HV-3006B fail to close due to CCF						1.2E-4
1-MSS-MOS-OO-IV123AAA-CC	MSIV 3006A 3016A, 3026A and3036A fail to close due to CCF						6.4E-5
1-MSS-MOS-OO-IV123BBB-CC	MSIV 3006B 3016B, 3026B and3036B fail to close due to CCF						6.4E-5
1-MSS-MOS-OO-IV16A16B-CC	MSIV HV-3016A & HV-3016B fail to close due to CCF						1.2E-4
1-MSS-MOS-OO-IV26A26B-CC	MSIV HV-3026A & HV-3026B fail to close due to CCF						1.2E-4
1-MSS-MOS-OO-IV36A36B-CC	MSIV HV-3036A & HV-3036B fail to close due to CCF						1.2E-4
1-MSS-PMG-FC-G	Failure of power from permanent magnet generator			Beta	5.00E+2		1.0E-3
1-MSS-RMB-CC-ALL20SRV-CC	CCF of main steam safety valves to open- global CCF						2.4E-6
1-MSS-RMB-CC-PSV_3001	Random failure of MSSV PSV - 3001			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3002	Random failure of MSSV PSV-3002			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3003	Random failure of MSSV PSV-3003			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3004	Random failure of MSSV PSV-3004			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3005	Random failure of MSSV PSV-3005			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3011	Random failure of MSSV PSV-3011			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3012	Random failure of MSSV PSV-3012			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3013	Random failure of MSSV PSV-3013			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3014	Random failure of MSSV PSV-3014			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3015	Random failure of MSSV PSV-3015			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3021	Random failure of MSSV PSV-3021			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3022	Random failure of MSSV PSV-3022			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3023	Random failure of MSSV PSV-3023			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3024	Random failure of MSSV PSV-3024			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3025	Random failure of MSSV PSV-3025			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3031	Random failure of MSSV PSV-3031			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3032	Random failure of MSSV PSV-3032			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3033	Random failure of MSSV PSV-3033			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3034	Random failure of MSSV PSV-3034			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4
1-MSS-RMB-CC-PSV_3035	Random failure of MSSV PSV-3035			Beta	1.30E+3	SVVFTOPWRMSS	4.0E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-MSS-RMB-MA-PSV_3001	MSSV PSV-3001 in maintenance			Log Normal	1.00E+1		5.7E-5
1-MSS-RMB-MA-PSV_3002	MSSV PSV-3002 in maintenance			Log Normal	1.00E+1		1.9E-5
1-MSS-RMB-MA-PSV_3003	MSSV PSV-3003 in maintenance			Log Normal	1.00E+1		9.8E-6
1-MSS-RMB-MA-PSV_3004	MSSV PSV-3004 in maintenance			Log Normal	1.00E+1		1.0E-5
1-MSS-RMB-MA-PSV_3005	MSSV PSV-3005 in maintenance			Log Normal	1.00E+1		1.6E-5
1-MSS-RMB-MA-PSV_3011	MSSV PSV-3011 in maintenance			Log Normal	1.00E+1		1.5E-5
1-MSS-RMB-MA-PSV_3012	MSSV PSV-3012 in maintenance			Log Normal	1.00E+1		6.4E-6
1-MSS-RMB-MA-PSV_3013	MSSV PSV-3013 in maintenance			Log Normal	1.00E+1		1.4E-5
1-MSS-RMB-MA-PSV_3014	MSSV PSV-3014 in maintenance			Log Normal	1.00E+1		1.1E-5
1-MSS-RMB-MA-PSV_3015	MSSV PSV-3015 in maintenance			Log Normal	1.00E+1		6.6E-6
1-MSS-RMB-MA-PSV_3021	MSSV PSV-3021 in maintenance			Log Normal	1.00E+1		2.2E-5
1-MSS-RMB-MA-PSV_3022	MSSV PSV-3022 in maintenance			Log Normal	1.00E+1		1.2E-5
1-MSS-RMB-MA-PSV_3023	MSSV PSV-3023 in maintenance			Log Normal	1.00E+1		1.5E-5
1-MSS-RMB-MA-PSV_3024	MSSV PSV-3024 in maintenance			Log Normal	1.00E+1		1.2E-5
1-MSS-RMB-MA-PSV_3025	MSSV PSV-3025 in maintenance			Log Normal	1.00E+1		1.2E-5
1-MSS-RMB-MA-PSV_3031	MSSV PSV-3031 in maintenance			Log Normal	1.00E+1		5.9E-5
1-MSS-RMB-MA-PSV_3032	MSSV PSV-3032 in maintenance			Log Normal	1.00E+1		8.6E-6
1-MSS-RMB-MA-PSV_3033	MSSV PSV-3033 in maintenance			Log Normal	1.00E+1		7.1E-6
1-MSS-RMB-MA-PSV_3034	MSSV PSV-3034 in maintenance			Log Normal	1.00E+1		8.3E-6
1-MSS-RMB-MA-PSV_3035	MSSV PSV-3035 in maintenance			Log Normal	1.00E+1		1.1E-5
1-MSS-RMB-OO-PSV_3001	MSSV PSV-3001 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3002	MSSV PSV-3002 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3003	MSSV PSV-3003 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3004	MSSV PSV-3004 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3005	MSSV PSV-3005 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3011	MSSV PSV-3011 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3012	MSSV PSV-3012 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3013	MSSV PSV-3013 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3014	MSSV PSV-3014 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3015	MSSV PSV-3015 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3021	MSSV PSV-3021 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3022	MSSV PSV-3022 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3023	MSSV PSV-3023 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3024	MSSV PSV-3024 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3025	MSSV PSV-3025 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3031	MSSV PSV-3031 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-MSS-RMB-OO-PSV_3032	MSSV PSV-3032 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3033	MSSV PSV-3033 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3034	MSSV PSV-3034 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-RMB-OO-PSV_3035	MSSV PSV-3035 fail to close - random failure			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-MSS-SOV-OO-__3_4-CC	Stop valves SV-3 and SV-4 fail due to CCF						1.8E-5
1-MSS-SOV-OO-__2_4-CC	Stop valves SV-2 and SV-4 fail due to CCF						1.8E-5
1-MSS-SOV-OO-__2_3_-CC	Stop valves SV-2 and SV-3 fail due to CCF						1.8E-5
1-MSS-SOV-OO-__2_3_4-CC	Stop valves SV-2,sv-3 & SV-4 fail due to CCF						5.2E-6
1-MSS-SOV-OO-__1_4-CC	Stop valves SV-1 and SV-4 fail due to CCF						1.8E-5
1-MSS-SOV-OO-__1_3_-CC	Stop valves SV-1 and SV-3 fail due to CCF						1.8E-5
1-MSS-SOV-OO-__1_3_4-CC	Stop valves SV-1,sv-3 & SV-4 fail due to CCF						5.2E-6
1-MSS-SOV-OO-__1_2_-CC	Stop valves SV-1 and SV-2 fail due to CCF						1.8E-5
1-MSS-SOV-OO-__1_2_4-CC	Stop valves SV-1,sv-2 & SV-4 fail due to CCF						5.2E-6
1-MSS-SOV-OO-__1_2_3_-CC	Stop valves SV-1,sv-2 & SV-3 fail due to CCF						5.2E-6
1-MSS-SOV-OO-__1_2_3_4-CC	All four stop valves fail to close due to CCF						3.5E-5
1-MSS-SOV-OO-SV1K__	Stop valve SV-1 fails to close			Beta	2.10E+4	HOVFTC	1.2E-3
1-MSS-SOV-OO-SV2K__	Stop valve SV-2 fails to close			Beta	2.10E+4	HOVFTC	1.2E-3
1-MSS-SOV-OO-SV3K__	Stop valve SV-3 fails to close			Beta	2.10E+4	HOVFTC	1.2E-3
1-MSS-SOV-OO-SV4K__	Stop valve SV-4 fails to close			Beta	2.10E+4	HOVFTC	1.2E-3
1-MSS-TFL-FC-__LT0501	Loss of SG level transmitter LT0501	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0502	Loss of SG level transmitter LT0502	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0503	Loss of SG level transmitter LT0503	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0504	Loss of SG level transmitter LT0504	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0517	Loss of level transmitter LT0517	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0518	Loss of level transmitter LT0518	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0519	Loss of level transmitter LT0519	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0527	Loss of level transmitter LT0527	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0528	Loss of level transmitter LT0528	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0529	Loss of level transmitter LT0529	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0537	Loss of level transmitter LT0537	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0538	Loss of level transmitter LT0538	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0539	Loss of level transmitter LT0539	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0547	Loss of level transmitter LT0547	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0548	Loss of level transmitter LT0548	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0549	Loss of level transmitter LT0549	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0551	Loss of SG1 level transmitter LT-0551	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-MSS-TFL-FC-__LT0552	Loss of SG1 level transmitter LT-0552	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0553	Loss of SG1 level transmitter LT-0553	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFL-FC-__LT0554	Loss of SG1 level transmitter LT-0554	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-MSS-TFP-FC-__PT0514	Random failure of pressure transmitter PT0514	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-MSS-TFP-FC-__PT0515	Random failure of pressure transmitter PT0515	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-MSS-TFP-FC-__PT0516	Random failure of pressure transmitter PT0516	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-MSS-TFP-FC-__PT0524	Random failure of pressure transmitter PT0524	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-MSS-TFP-FC-__PT0525	Random failure of pressure transmitter PT0525	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-MSS-TFP-FC-__PT0526	Random failure of pressure transmitter PT0526	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-MSS-TFP-FC-__PT0534	Random failure of pressure transmitter PT0534	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-MSS-TFP-FC-__PT0535	Random failure of pressure transmitter PT0535	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-MSS-TFP-FC-__PT0536	Random failure of pressure transmitter PT0536	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-MSS-TFP-FC-__PT0544	Random failure of pressure transmitter PT0544	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-MSS-TFP-FC-__PT0545	Random failure of pressure transmitter PT0545	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-MSS-TFP-FC-__PT0546	Random failure of pressure transmitter PT0546	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-MSS-TFP-FC-__PT__23__-CC	CCF of PV-3020 (2) and PV-3030 (3)						2.9E-5
1-MSS-TFP-FC-__PT__1__3__-CC	CCF of PT-3010 (1) and PT-3030 (3)						2.9E-5
1-MSS-TFP-FC-__PT__12__-CC	CCF of PT-3010 (1) and PT-3020 (2)						2.9E-5
1-MSS-TFP-FC-__PT__123__-CC	CCF of PT-3010 (1)						2.4E-5
1-MSS-TFP-FC-__PT0__3__-CC	SG ARVs pressure sensors PT-3000 and PT-3030 fail - CCF						2.4E-5
1-MSS-TFP-FC-__PT0__2__-CC	SG ARVs pressure sensors PT-3000 and PT-3020 fail - CCF						2.4E-5
1-MSS-TFP-FC-__PT0__23__-CC	SG ARVs pressure sensors PT-3000						2.4E-5
1-MSS-TFP-FC-__PT01__-CC	SG ARVs pressure sensors PT-3000 and PT-3010 fail - CCF						2.4E-5
1-MSS-TFP-FC-__PT01__3__-CC	SG ARVs pressure sensors PT-3000						2.4E-5
1-MSS-TFP-FC-__PT012__-CC	SG ARVs pressure sensors PT-3000						2.4E-5
1-MSS-TFP-FC-__PT0123__-CC	SG ARVs pressure sensors PT-3000						9.0E-6
1-MSS-TFP-FC-__PT3000__	Pressure sensor PT-3000 for SG1 ARV fail - random failure	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-MSS-TFP-FC-__PT3010__	Random failure of PT-3010	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-MSS-TFP-FC-__PT3020__	Random failure of PT-3020	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-MSS-TFP-FC-__PT3030__	Random failure of PT-3030	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-MSS-XVM-PG-058__G	Plugging or mispositioning of manual valve 058	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-MSS-XVM-PG-059__G	Plugging or mispositioning of manual valve 059	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-MSS-XVM-PG-066__G	Plugging or mispositioning of manual valve 066	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-MSS-XVM-PG-067 G	Plugging or mispositioning of manual valve 067	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-MSS-XVM-PG-074 G	Plugging or mispositioning of manual valve 074	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-MSS-XVM-PG-075 G	Plugging or mispositioning of manual valve 075	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-MVFAF	MOV - AFW fails to open/closes			Beta	8.90E+3	1-MVFAF	1.8E-3
1-MVFLP	MOV - RHR fails to open/closes			Beta	3.30E+3	1-MVFLP	1.3E-3
1-MVFNS	MOV - NSCW fails to open/closes			Beta	5.00E+3	1-MVFNS	6.1E-3
1-MVFSI	MOV - ECCS fails to open/closes			Beta	4.20E+3	1-MVFSI	7.8E-4
1-NACR2HR	Offsite power not recovered within 2 hrs after LOSP						0.0E+0
1-NO-UET2-1PORV-BLK	Not in UET - ATWT						6.8E-1
1-NO-UET2-NOPORV-BLK	Not in UET - ATWT						8.9E-1
1-NSCWCT-BYPASS	NSCW CTs in bypass mode (fraction of time)			Beta	4.70E+0		9.6E-2
1-NSCW-CT-NEED-SWAP	NSCW CT needs to swap to spray in 24 h after IE						2.9E-1
1-NSCW-CT-NO-NEED-SWAP	NSCW CT needs not to swap to spray in 24 h after IE						7.1E-1
1-NSCWCT-SPRAY	NSCW CTs in spray mode (fraction of time)						9.0E-1
1-NSCW-F-WTRHAMMER	Probability of NSCW train damage due to water hammer			Beta	5.00E+1		1.0E-2
1-OA-ALIGNPW-01HR	Operator fail to align alternate offsite power plant to 4.16kv bus within 1 hr after SBO			Log Normal	5.00E+0		9.2E-2
1-OA-ALIGNPW-02HR	Operator fails to align alternate offsite power plant to 4.16kv bus within 2hr after SBO			Log Normal	5.00E+0		1.2E-2
1-OA-ALTAFW----H	Operator fails to provide additional water source for long term AFW			Log Normal	1.00E+1		1.0E-4
1-OAB_SI-----H	Operator fails to bleed & feed - SI available			Log Normal	5.00E+0		2.3E-2
1-OAB_TR-----H	Operator fails to feed and bleed - transient			Log Normal	5.00E+0		5.8E-2
1-OAB_TR-----H-HD	Operator fails to feed and bleed - transient (high dependence)			Log Normal	1.95E+0		5.3E-1
1-OAB_TR-----H-LT	Operator fails to feed and bleed - transient - late			Log Normal	5.00E+0		2.3E-3
1-OAB_TR-----H-LT-LD	Operator fails to feed and bleed - transient - late (low dependence)			Log Normal	5.00E+0		5.2E-2
1-OAB-SBOACR---H	Operator fail to initiate feed and bleed - SBO ACR			Log Normal	5.00E+0		8.7E-2
1-OAC_AC-----H	Operator fails to depressurize for LPI - SLOCA, HPI failed			Log Normal	5.00E+0		1.3E-3
1-OAC_NC-----H	Operator fails to initiate normal cooldown after LOCA with HPI			Log Normal	1.00E+1		9.1E-4
1-OAC_NC-----H-HD	Failure to initiate normal cooldown after LOCA with HPI (high dependency)			Log Normal	2.10E+0		5.0E-1
1-OAC_NC-----H-MD	Failure to initiate normal cooldown after LOCA with HPI (median dependence)			Log Normal	5.00E+0		1.4E-1
1-OA-CCP-ALIGN---H	Operator fails to shift from NCP to CCP after loss of ACCW for RCP seal injection			Log Normal	5.00E+0		1.2E-1

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-OA-CCP-ALIGN---H-CD	Operator fails to shift from NCP to CCP after loss of ACCW for RCP seal injection (complete dependence)						1.0E+0
1-OAD_MLA-----H	Operator fails to depressurize secondary for LPI - MLOCA with HPI failed			Log Normal	2.55E+0		4.4E-1
1-OAD_SGR-----H	Operator fails to depressurize secondary			Log Normal	5.00E+0		1.5E-3
1-OA-ESFAS-HE1-H	Operator FTS equipment on failure of ESFAS signal			Log Normal	5.00E+0		1.8E-3
1-OAF_MFW-----H	Operator fails to establish MFW to SGs			Log Normal	5.00E+0		2.7E-2
1-OAF_MFW-----H-CD	Operator fails to establish MFW flow to SGs (complete dependency)						1.0E+0
1-OAF_MFW-----H-LD	Operator fails to establish MFW to SGs (low dependence)			Log Normal	5.00E+0		7.5E-2
1-OA-HPR-ACRA--H	Operator failure to switch to HPR - SBO, AC recovery, 21/480 gpm or SORV, with CCUs			Log Normal	5.00E+0		1.2E-3
1-OA-HPR-ACRA--H-LD	Operator failure to switch to HPR - SBO, AC recovery, 21/480 gpm or SORV, with CCUs (low dependence)			Log Normal	5.00E+0		5.1E-2
1-OA-HPR-ACRB--H	Operator failure to switch to HPR - SBO, AC recovery, 21/480 gpm or SORV, without CCUs			Log Normal	5.00E+0		4.8E-3
1-OA-HPRCU-ACR-H	Operator fail to establish HPR - SBO after ACR			Log Normal	1.00E+1		7.9E-4
1-OA-HURGXFMR--H	Operator fails local change 120vac supply from inverter to regulated transformer			Log Normal	5.00E+0		3.4E-3
1-OA-HURGXFMR--H-LD	Operator fails local change 120vac supply from inverter to regulated transformer (low dependence)			Log Normal	5.00E+0		5.3E-2
1-OAI_SG-----H	Operator fails to isolate ruptured SG			Log Normal	5.00E+0		2.1E-2
1-OA-IS-ISLACC-H	Operator failure to isolate ISLOCA through ACCW RCP TB cooling line			Log Normal	1.00E+1		6.7E-4
1-OA-IS-ISLRHR-H	Operator fails to isolate ISLOCA through RHR Cold Leg injection lines			Log Normal	5.00E+0		1.6E-2
1-OA-IS-ISLSEALSBO	Operator fails to isolate RCP seal lines at local - ISLOCA w SBO			Log Normal	5.00E+0		1.0E-2
1-OA-IS-ISLSI--H	Operator fails to isolate ISLOCA path through SIs Cold Leg or Hot Leg injection lines			Log Normal	5.00E+0		1.6E-2
1-OAL_LPLL-----H	Operator fails to establish low pressure Hot Leg recirculation - LLO			Log Normal	1.00E+1		1.3E-4
1-OA-LTFB-ACRA-H	Operator fails to HPR for long term feed & bleed - SBO after AC recovery, feed & bleed initiation, CCU recovery			Log Normal	1.00E+1		6.0E-4
1-OA-LTFB-ACRB-H	Operator fails to HPR for long term feed & bleed - SBO after AC recovery, feed & bleed initiation, CCU failed			Log Normal	5.00E+0		6.3E-3
1-OA-----MANRTH	Operator fails to manually initiate a reactor trip			Log Normal	5.00E+0		1.9E-3
1-OA-MANUAL-SI-H	Operator fails to manually initiate safety injection			Log Normal	1.00E+1		4.9E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-OA-MISPAF5094H	Post-test mispositioning of MDAFWP B suction manual valve HV5094			Log Normal	5.00E+0		1.0E-3
1-OA-MISPAF5095H	Post-test mispositioning of MDAFWP A suction manual HV5095			Log Normal	5.00E+0		1.0E-3
1-OAN_SL-----H	Operator fails to establish normal RHR - SLOCA			Log Normal	5.00E+0		1.1E-3
1-OAN_SL-----H-LD	Operator fails to establish normal RHR - SLOCA (low dependency)			Log Normal	5.00E+0		5.1E-2
1-OA-NSCWCT-MV-H	Operator fails to locally open NSCW containment spray MOV no SI			Log Normal	5.00E+0		1.1E-2
1-OA-OBR-----H	Operator fails to establish emergency boration			Log Normal	1.00E+1		1.0E-4
1-OA-OLP_ML----H	Operator fails to restart RHR pump for LPI, MLOCA, HPI fail, DPI success			Log Normal	5.00E+0		1.2E-2
1-OA-OLP_SL----H	Operator fails to restart RHR pump for LPI			Log Normal	5.00E+0		1.2E-2
1-OA-OLP_STOPB-H	Operator fails to stop RHR pump when RCS pressure >300 psig (CCW not available)			Log Normal	5.00E+0		8.7E-3
1-OA-ORS-----H	Operator fails to restore systems after AC recovered in SBO			Log Normal	5.00E+0		5.7E-2
1-OA-OSW-----H	Operator fails to establish single pump NSCW pump operation			Log Normal	5.00E+0		2.0E-2
1-OA-OSW-----H-CD	Operator fails to establish single pump NSCW pump operation (complete dependence)						1.0E+0
1-OAR_HPATA----H	Operator fails to establish HPR during ATWT - w CCU success (CS not actuated)			Log Normal	5.00E+0		2.3E-3
1-OAR_HPATB----H	Operator fails to establish HPR during ATWT - with CCU failed (CS actuated)			Log Normal	5.00E+0		2.3E-3
1-OAR_HPML-----H	Operator fails to establish high pressure recirculation - MLOCA			Log Normal	5.00E+0		2.3E-3
1-OAR_HPSLA----H	Operator fails to establish HPR - SLOCA with CCUs available			Log Normal	1.00E+1		6.0E-4
1-OAR_HPSLA----H-LD	Operator fails to establish HPR - SLOCA with CCUs available (low dependency)			Log Normal	5.00E+0		5.1E-2
1-OAR_HPSLB----H	Operator fails to establish HPR - SLOCA with CCUs not available			Log Normal	5.00E+0		2.3E-3
1-OAR_LPLL-----H	Operator fails to establish low pressure recirculation - LLOCA			Log Normal	5.00E+0		7.2E-3
1-OAR_LPML-----H	Operator fails to establish LPR - MLOCA, HPI failed, depressurization and LPI success			Log Normal	1.00E+1		5.0E-4
1-OAR_LP2SL2----H	Operator fails to establish LPR after depressurization - SLOCA, CCUs failed			Log Normal	1.00E+1		6.8E-4



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-OAR_LPSL-----H	Operator fails to LPR after depressurization - SLOCA, RHR failed, CCUs available			Log Normal	5.00E+0		1.1E-3
1-OAR_LPSL-----H-LD	Operator fails to LPR after depressurization - SLOCA (low dependency)			Log Normal	5.00E+0		5.1E-2
1-OAR_LTFB_SLA-H	Operator fails to establish HPR for long term feed & bleed - SLOCA with CCUs			Log Normal	1.00E+1		5.8E-4
1-OAR_LTFB_SLB-H	Operator fails to establish HPR for long term feed & bleed - SLOCA without CCUs			Log Normal	5.00E+0		2.1E-3
1-OAR_LTFB-TRA-H	Operator fails to establish HPR for long term feed & bleed - transients			Log Normal	1.00E+1		6.0E-4
1-OAR_LTFB-TRA-H-LD	Operator fails to establish HPR for long term feed and bleed -transient (low dependency)			Log Normal	5.00E+0		5.1E-2
1-OAR_LTFB-TRB-H	Operator fails to establish HPR for long term feed & bleed - transient with CCU fail			Log Normal	5.00E+0		2.3E-3
1-OA-RWSTLOACC-H	Operator fails to align the RWST to CCPs when VCT level decreased - loss of ACCW			Log Normal	5.00E+0		1.2E-1
1-OA-RWSTLOACC-H-CD	Operator fails to align the RWST to CCPs when VCT level decreased - loss of ACCW (complete dependence)						1.0E+0
1-OA-SAGD-CHG--H	Operator fails to establish safety grade charging after loss of SI initiating event			Log Normal	5.00E+0		1.2E-1
1-OA-START-ACCWH	Operator FTS ACCW pump for special initiator			Log Normal	5.00E+0		6.4E-2
1-OA-START-AFW-H	Operator fails to manually start AFW pumps in MCR fails			Log Normal	5.00E+0		3.3E-3
1-OA-SUMPMOV---H	Operator fails to open sump MOVs for recirculation - auto signal failed			Log Normal	5.00E+0		1.8E-3
1-OA-SUMPMOV---H-LD	Operator fails to open sum MOVs for recirculation - auto signal failed (low dependency)			Log Normal	5.00E+0		5.2E-2
1-OAT-----H	Operator fails to terminate SI			Log Normal	1.00E+1		4.0E-4
1-OAT-----H-LD	Operator fails to terminate SI (low dependence)			Log Normal	5.00E+0		5.0E-2
1-OA-XFER-NON1EH	Operator fails to align non-1E buses given fast transfer fails			Log Normal	2.23E+0		4.8E-1
1-OA-XFER-NON1EH-LT	Operator fails to align non-1E buses given fast transfer fails - long-term			Log Normal	5.00E+0		2.7E-3
1-OA-XFER-NON1EH-LT-HD	Operator fails to align non-1E buses given fast transfer fails - long-term (high dependence)			Log Normal	2.10E+0		5.0E-1
1-OA-XFER-NON1EH-LT-LD	Operator fails to align non-1E buses given fast transfer fails - long-term (low dependence)			Log Normal	5.00E+0		5.3E-2
1-OA-XFER-NON1EH-LT-MD	Operator fails to align non-1E buses given fast transfer fails - long-term (medium dependence)			Log Normal	5.00E+0		1.5E-1
1-OEP-VPF-LP-CLOPL	Consequential LOOP - LOCA			CNI	0.00E+0		3.0E-2

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-OEP-VCF-LP-CLOPT	Consequential LOOP - transient			CNI	0.00E+0		5.0E-3
1-OEP-VCF-LP-RLOOP	Random LOOP during post-trip mission time (24 hrs)	7.0E-6	24	Beta	9.90E+0		1.7E-4
1-OEP-XHE-XL-NR01HGR	Operator fails to recover offsite power in 1 hr (grid-related)						6.6E-1
1-OEP-XHE-XL-NR01HPC	Operator fails to recover offsite power in 1 hr (plant-centered)						3.3E-1
1-OEP-XHE-XL-NR01HSC	Operator fails to recover offsite power in 1 hr (switchyard)						4.0E-1
1-OEP-XHE-XL-NR01HWR	Operator fails to recover offsite power in 1 hr (weather-related)						6.9E-1
1-OEP-XHE-XL-NR02HGR	Operator fails to recover offsite power in 2 hrs (grid-related)						3.9E-1
1-OEP-XHE-XL-NR02HPC	Operator fails to recover offsite power in 2 hrs (plant-centered)						1.8E-1
1-OEP-XHE-XL-NR02HSC	Operator fails to recover offsite power in 2 hrs (switchyard)						2.2E-1
1-OEP-XHE-XL-NR02HWR	Operator fails to recover offsite power in 2 hrs (weather-related)						5.6E-1
1-OEP-XHE-XX-NR01H0	Convolution factor for CCF-OPR (1hr avail)						2.3E-1
1-OEP-XHE-XX-NR01H1	Convolution factor for 1 FTR-OPR (1hr avail)						2.3E-1
1-OEP-XHE-XX-NR01H2	Convolution factor for 2 FTR-OPR (1hr avail)						1.0E-1
1-OEP-XHE-XX-NR01H3	Convolution factor for 3 FTR-OPR (1hr avail)						7.1E-2
1-OEP-XHE-XX-NR01H4	Convolution factor for 4 FTR-OPR (1hr avail)						6.1E-2
1-OEP-XHE-XX-NR01HGR0	Convolution factor for CCF-OPR (1hr-GR available)						1.7E-1
1-OEP-XHE-XX-NR01HGR1	Convolution factor for 1 FTR-OPR (1hr-GR available)						1.7E-1
1-OEP-XHE-XX-NR01HGR2	Convolution factor for 2 FTR-OPR (1hr-GR available)						4.9E-2
1-OEP-XHE-XX-NR01HGR3	Convolution factor for 3 FTR-OPR (1hr-GR available)						2.2E-2
1-OEP-XHE-XX-NR01HGR4	Convolution factor for 4 FTR-OPR (1hr-GR available)						1.4E-2
1-OEP-XHE-XX-NR01HPC0	Convolution factor for CCF-OPR (1hr-PC available)						1.6E-1
1-OEP-XHE-XX-NR01HPC1	Convolution factor for 1 FTR-OPR (1hr-PC available)						1.6E-1
1-OEP-XHE-XX-NR01HPC2	Convolution factor for 2 FTR-OPR (1hr-PC available)						5.4E-2
1-OEP-XHE-XX-NR01HPC3	Convolution factor for 3 FTR-OPR (1hr-PC available)						2.9E-2
1-OEP-XHE-XX-NR01HPC4	Convolution factor for 4 FTR-OPR (1hr-PC available)						2.1E-2
1-OEP-XHE-XX-NR01HSC0	Convolution factor for CCF-OPR (1hr-SC available)						1.7E-1
1-OEP-XHE-XX-NR01HSC1	Convolution factor for 1 FTR-OPR (1hr-SC available)						1.7E-1
1-OEP-XHE-XX-NR01HSC2	Convolution factor for 2 FTR-OPR (1hr-SC available)						5.9E-2
1-OEP-XHE-XX-NR01HSC3	Convolution factor for 3 FTR-OPR (1hr-SC available)						3.2E-2
1-OEP-XHE-XX-NR01HSC4	Convolution factor for 4 FTR-OPR (1hr-SC available)						2.4E-2
1-OEP-XHE-XX-NR01HWR0	Convolution factor for CCF-OPR (1hr-WR available)						4.4E-1
1-OEP-XHE-XX-NR01HWR1	Convolution factor for 1 FTR-OPR (1hr-WR available)						4.4E-1

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-OEP-XHE-XX-NR01HWR2	Convolution factor for 2 FTR-OPR (1hr-WR available)						3.1E-1
1-OEP-XHE-XX-NR01HWR3	Convolution factor for 3 FTR-OPR (1hr-WR available)						2.7E-1
1-OEP-XHE-XX-NR01HWR4	Convolution factor for 4 FTR-OPR (1hr-WR available)						2.5E-1
1-OEP-XHE-XX-NR02H0	Convolution factor for CCF-OPR (2 hr available)						2.7E-1
1-OEP-XHE-XX-NR02H1	Convolution factor for 1 FTR-OPR (2 hr available)						2.7E-1
1-OEP-XHE-XX-NR02H2	Convolution factor for 2 FTR-OPR (2 hr available)						1.4E-1
1-OEP-XHE-XX-NR02H3	Convolution factor for 3 FTR-OPR (2 hr available)						1.1E-1
1-OEP-XHE-XX-NR02H4	Convolution factor for 4 FTR-OPR (2 hr available)						9.2E-2
1-OEP-XHE-XX-NR02HGR0	Convolution factor for CCF-OPR (2hr-GR available)						1.9E-1
1-OEP-XHE-XX-NR02HGR1	Convolution factor for 1 FTR-OPR (2hr-GR available)						1.9E-1
1-OEP-XHE-XX-NR02HGR2	Convolution factor for 2 FTR-OPR (2hr-GR available)						6.0E-2
1-OEP-XHE-XX-NR02HGR3	Convolution factor for 3 FTR-OPR (2hr-GR available)						2.9E-2
1-OEP-XHE-XX-NR02HGR4	Convolution factor for 4 FTR-OPR (2hr-GR available)						1.9E-2
1-OEP-XHE-XX-NR02HPC0	Convolution factor for CCF-OPR (2hr-PC available)						2.0E-1
1-OEP-XHE-XX-NR02HPC1	Convolution factor for 1 FTR-OPR (2hr-PC available)						2.0E-1
1-OEP-XHE-XX-NR02HPC2	Convolution factor for 2 FTR-OPR (2hr-PC available)						7.8E-2
1-OEP-XHE-XX-NR02HPC3	Convolution factor for 3 FTR-OPR (2hr-PC available)						4.6E-2
1-OEP-XHE-XX-NR02HPC4	Convolution factor for 4 FTR-OPR (2hr-PC available)						3.5E-2
1-OEP-XHE-XX-NR02HSC0	Convolution factor for CCF-OPR (2hr-SC available)						2.1E-1
1-OEP-XHE-XX-NR02HSC1	Convolution factor for 1 FTR-OPR (2hr-SC available)						2.1E-1
1-OEP-XHE-XX-NR02HSC2	Convolution factor for 2 FTR-OPR (2hr-SC available)						8.2E-2
1-OEP-XHE-XX-NR02HSC3	Convolution factor for 3 FTR-OPR (2hr-SC available)						4.9E-2
1-OEP-XHE-XX-NR02HSC4	Convolution factor for 4 FTR-OPR (2hr-SC available)						3.7E-2
1-OEP-XHE-XX-NR02HWR0	Convolution factor for CCF-OPR (2hr-WR available)						4.9E-1
1-OEP-XHE-XX-NR02HWR1	Convolution factor for 1 FTR-OPR (2hr-WR available)						4.9E-1
1-OEP-XHE-XX-NR02HWR2	Convolution factor for 2 FTR-OPR (2hr-WR available)						3.6E-1
1-OEP-XHE-XX-NR02HWR3	Convolution factor for 3 FTR-OPR (2hr-WR available)						3.2E-1
1-OEP-XHE-XX-NR02HWR4	Convolution factor for 4 FTR-OPR (2hr-WR available)						3.0E-1
1-PI-SGTR-SCREEN	Screening value for probability of pressure induced SGTR			CNI	0.00E+0		1.0E-2
1-RCPSL-GT21GPM	RCP seal leak greater than 21 gpm/RCP after total loss of seal cooling.						2.1E-1
1-RCS-MDP-LK-BP1	RCP seal stage 1 integrity (binding/popping open) fails			Log Normal	3.00E+0	RCS-MDP-LK-BP1	1.3E-2
1-RCS-MDP-LK-BP2	RCP seal stage 2 integrity (binding/popping open) fails			Beta	8.00E+0	RCS-MDP-LK-BP2	2.0E-1
1-RCS-MOV-CC-8000A	PORV block valve HV8000A randomly fails to open			Beta	5.40E+4	MOV-CC	3.5E-4
1-RCS-MOV-CC-8000B	PORV block valve HV8000B randomly fails to open			Beta	5.40E+4	MOV-CC	3.5E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-RCS-MOV-CC-AB____-CC	PORV block valves HV8000A (A) & B (B) fail to open due to CCF						8.7E-5
1-RCS-MOV-MA-8000A__	Block valve A has power removed			Log Normal	1.00E+1		3.7E-5
1-RCS-MOV-MA-8000B__	Block valve B has power removed			Log Normal	1.00E+1		3.7E-5
1-RCS-MOV-OO-8000A__	Block valve HV8000A randomly fails to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-RCS-MOV-OO-8000B__	Block valve HV8000B randomly fails to close			Beta	5.40E+4	MOV-OO	3.5E-4
1-RCS-PRV-CC-RV0455A_	PORV PV0455A randomly fails to open			Beta	4.70E+3	PPR-PRV-CC	3.5E-3
1-RCS-PRV-CC-RV0456A_	PORV PV0456A randomly fails to open			Beta	4.70E+3	PPR-PRV-CC	3.5E-3
1-RCS-PRV-CF-RV5A6A__	PORVs PV0455A (5A) & PV0456A (6A) fail from CCF to open						1.0E-4
1-RCS-PRV-DP-LOCHS	PORV demand probability - LOCHS			CNI	0.00E+0		7.8E-2
1-RCS-PRV-DP-LODC	PORV demand probability - LODC						1.0E+0
1-RCS-PRV-DP-LOIA	PORV demand probability - LOIA			CNI	0.00E+0		5.9E-2
1-RCS-PRV-DP-LOMFV	PORV demand probability - LOMFV			CNI	0.00E+0		1.8E-2
1-RCS-PRV-DP-LOOP	PORV demand probability - LOOP			CNI	0.00E+0		1.7E-1
1-RCS-PRV-DP-TRAN	PORV demand probability - TRAN			CNI	0.00E+0		3.5E-2
1-RCS-PRV-LK-RV0455A_	PORV PV0455A leaking (PZR block valve HV800A is closed)	9.8E-9	24	Gamma	4.70E-01	PORV-ILL	2.4E-7
1-RCS-PRV-LK-RV0456A_	PORV PV0456A leaking (PZR block valve HV8000B is closed)	9.8E-9	24	Gamma	4.70E-01	PORV-ILL	2.4E-7
1-RCS-PRV-OO-RV0455A_	PORV PV0455A randomly fails to close			Beta	2.00E+0	PWR-SRV-OO-P1	1.5E-3
1-RCS-PRV-OO-RV0456A_	PORV PV0456A randomly fails to close			Beta	2.00E+0	PWR-SRV-OO-P1	1.5E-3
1-RCS-PVL-CC-0455B__	Pressurizer normal spray PV0455B fails to open			Beta	3.40E+3	AOV-CC	6.3E-4
1-RCS-PVL-CC-0455C__	Pressurizer normal spray PV0455C fails to open			Beta	3.40E+3	AOV-CC	6.3E-4
1-RCS-PVL-CF-455BC__	PZR spray valves 455B, C fail from CCF to open						2.1E-5
1-RCS-SDS-FC-ACTUATES	Shutdown seal fails to actuate						1.0E+0
1-RCS-SWP-CC-V8010A__	Safety relief valve PSV8010A randomly fails to open			Beta	4.70E+3	PPR-PRV-CC	3.5E-3
1-RCS-SWP-CC-V8010B__	Safety relief valve PSV8010B randomly fails to open			Beta	4.70E+3	PPR-PRV-CC	3.5E-3
1-RCS-SWP-CC-V8010C__	Safety relief valve PSV8010C randomly fails to open			Beta	4.70E+3	PPR-PRV-CC	3.5E-3
1-RCS-SWP-MA-V8010A__	Safety relief valve PSV8010A in maintenance						0.0E+0
1-RCS-SWP-MA-V8010B__	Safety relief valve PSV8010B in maintenance						0.0E+0
1-RCS-SWP-MA-V8010C__	Safety relief valve PSV8010C in maintenance						0.0E+0
1-RCS-SWP-OO-V8010A__	PZR safety valve PSV8010A randomly fails to close (after steam passed)			Beta	2.00E+3	PWR-SVW-OO	7.3E-4
1-RCS-SWP-OO-V8010A_W	PZR safety valve PSV8010A randomly fails to close (after water passed)			Beta	4.0E-1	PWR-SVW-OO(LIQUID)	1.0E-1

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-RCS-SWP-OO-V8010B__	PZR safety valve PSV8010B randomly fails to close (after steam passed)			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-RCS-SWP-OO-V8010B_W	PZR safety valve PSV8010A randomly fails to close (after water passed)			Beta	4.0E-1	PWR-SVV-OO(LIQUID)	1.0E-1
1-RCS-SWP-OO-V8010C__	PZR safety valve PSV8010C randomly fails to close (after steam passed)			Beta	2.00E+3	PWR-SVV-OO	7.3E-4
1-RCS-SWP-OO-V8010C_W	PZR safety valve PSV8010A randomly fails to close (after water passed)			Beta	4.0E-1	PWR-SVV-OO(LIQUID)	1.0E-1
1-RCS-TFL-FC-_LT0459__	Loss of pressurizer level transmitter LT-0459	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RCS-TFL-FC-_LT0460__	Loss of pressurizer level transmitter LT-0460	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RCS-TFL-FC-_LT0461__	Loss of pressurizer level transmitter LT-0461	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RCS-TFP-FC-_PT0408__	Loss of RCS pressure transmitter PT-0408	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-RCS-TFP-FC-_PT0418__	Loss of RCS pressure transmitter PT-0418	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-RCS-TFP-FC-_PT0428__	Loss of RCS pressure transmitter PT-0428	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-RCS-TFP-FC-_PT0438__	Loss of RCS pressure transmitter PT-0438	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-RCS-TFP-FC-_PT0937__	Pressure transmitter 937 fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-RCS-XHE-XM-TRIP	Operator fails to trip reactor coolant pumps			Log Normal	3.00E+0		3.3E-1
1-RCS-XHE-XM-TRIP-LONSCW	Operator fails to trip reactor coolant pumps (LONSCW)			Log Normal	5.00E+0		5.4E-3
1-REFAL	Relay fails during operation			Beta	2.00E+4	1-REFAL	2.5E-5
1-REFILCST-DEM	Failure of auto-makeup of CST from demi water storage tank			Log Normal	5.00E+0		1.0E-2
1-RFL-XHE-REFILL-LT	Operator fails to refill RWST long-term			Log Normal	1.00E+1		1.0E-4
1-RHR-CKV-RP-147__CON	RHR Cold Leg 1 injection CV 147 fails (conditional)			Beta	1.10E+2	CKV-ILL-COMB-CON(RHR)	8.9E-3
1-RHR-CKV-RP-147__RAN	RHR Cold Leg 1 injection CV 147 fails (random)	3.3E-9	4390	Gamma	8.10E-01	CKV-ILL-COMB(RHR)	1.4E-5
1-RHR-CKV-RP-148__CON	RHR Cold Leg 2 injection CV 148 fails (conditional)			Beta	1.10E+2	CKV-ILL-COMB-CON(RHR)	8.9E-3
1-RHR-CKV-RP-148__RAN	RHR Cold Leg 2 injection CV 148 fails (random)	3.3E-9	4380	Gamma	8.10E-01	CKV-ILL-COMB(RHR)	1.4E-5
1-RHR-CKV-RP-149__CON	RHR Cold Leg 3 injection CV 149 fails (conditional)			Beta	1.10E+2	CKV-ILL-COMB-CON(RHR)	8.9E-3
1-RHR-CKV-RP-149__RAN	RHR Cold Leg 3 injection CV 149 fails (random)	3.3E-9	4380	Gamma	8.10E-01	CKV-ILL-COMB(RHR)	1.4E-5
1-RHR-CKV-RP-150__CON	RHR Cold Leg 4 injection CV 150 fails (conditional)			Beta	1.10E+2	CKV-ILL-COMB-CON(RHR)	8.9E-3
1-RHR-CKV-RP-150__RAN	RHR Cold Leg 4 injection CV 150 fails (random)	3.3E-9	4380	Gamma	8.10E-01	CKV-ILL-COMB(RHR)	1.4E-5
1-RHR-MOV-CO-HV8701A__	RHR suction MOV HV8701A transfers open	2.9E-8	4380	Gamma	1.57E+0	MOV-CO	1.3E-4
1-RHR-MOV-CO-HV8701B__	RHR suction MOV HV8701A transfers open	2.9E-8	4380	Gamma	1.57E+0	MOV-CO	1.3E-4
1-RHR-MOV-CO-HV8702A__	RHR suction MOV HV8702A transfers open	2.9E-8	4380	Gamma	1.57E+0	MOV-CO	1.3E-4
1-RHR-MOV-CO-HV8702B__	RHR suction MOV HV8702B transfers open	2.9E-8	4380	Gamma	1.57E+0	MOV-CO	1.3E-4
1-RHR-MOV-OO-HV8701A__	RHR suction MOV HV8701A fails to close on startup			Beta	5.40E+4	MOV-OO	3.5E-4
1-RHR-MOV-OO-HV8702A__	RHR suction MOV HV8702A failed to close on last startup			Beta	5.40E+4	MOV-OO	3.5E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-RHR-MOV-OO-HV8809A_	LP Cold Leg injection MOV HV8809A fails to close randomly			Beta	5.40E+4	MOV-OO	3.5E-4
1-RHR-MOV-OO-HV8809A-HDP	LP Cold Leg injection MOV HV8809A fails to close with high differential pressure			Beta	3.60E+0	ISL-MOV-OO	5.7E-2
1-RHR-MOV-OO-HV8809B_	LP Cold Leg injection MOV HV8809B fails to close randomly			Beta	5.40E+4	MOV-OO	3.5E-4
1-RHR-MOV-OO-HV8809B-HDP	LP Cold Leg injection MOV HV8809B fails to close with high differential pressure			Beta	3.60E+0	ISL-MOV-OO	5.7E-2
1-RHR-MOV-RP-HV8701A-CON	RHR suction MOV HV8701A fails (conditional)			Beta	6.10E+2	MOV-ILL-COMB-COND	1.7E-3
1-RHR-MOV-RP-HV8701A-DEP	RHR suction MOV HV8701A fails (dependent)					MOV-ILL-COMB-COND	3.2E-4
1-RHR-MOV-RP-HV8701A-RAN	RHR suction MOV HV8701A fails (random)	2.4E-9	4380	Gamma	8.30E-01	MOV-ILL-COMB	1.1E-5
1-RHR-MOV-RP-HV8701B-RAN	RHR suction MOV HV8701B fails (random)	2.4E-9	4380	Gamma	8.30E-01	MOV-ILL-COMB	1.1E-5
1-RHR-MOV-RP-HV8702A-CON	RHR suction MOV HV8702A fails (conditional)			Beta	6.10E+2	MOV-ILL-COMB-COND	1.7E-3
1-RHR-MOV-RP-HV8702A-DEP	RHR suction MOV HV8702A fails (dependent)					MOV-ILL-COMB-COND	3.2E-4
1-RHR-MOV-RP-HV8702A-RAN	RHR suction MOV HV8702A fails (random)	2.4E-9	4380	Gamma	8.30E-01	MOV-ILL-COMB	1.1E-5
1-RHR-MOV-RP-HV8702B-RAN	RHR suction MOV HV8702B fails (random)	2.4E-9	4380	Gamma	8.30E-01	MOV-ILL-COMB	1.1E-5
1-RHRPA-DIVTTHR-B	Cutset identifier: RHR PA flow diverted back to suction thru TR B						1.0E+0
1-RHRPB-DIVTTHR-A	Cutset identifier: RHR pump b flow diverted back to suction thru TR A						1.0E+0
1-RMW-AOV-PG-HV7760A_	RMWST AOV HV7760A transfer closed/plugs	4.3E-8	24	Gamma	6.80E-01	AOV-OC	1.0E-6
1-RMW-AOV-PG-HV7760B_	RMWST AOV HV7760B transfer closed/plugs	4.3E-8	24	Gamma	6.80E-01	AOV-OC	1.0E-6
1-RMW-MDP-FR-RMWSTP1_	RMWST pump 1 FTR	2.5E-6	23	Gamma	1.78E+0	MDPFR-L	5.8E-5
1-RMW-MDP-FR-RMWSTP2_	RMWST pump 2 FTR	2.5E-6	23	Gamma	1.78E+0	MDPFR-L	5.8E-5
1-RMW-MDP-FR-RMWSTPP_ -CC	RMWST pumps CCF to run						1.8E-5
1-RMW-MDP-FS-RMWSTP1_	RMWST pump 1 FTS			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-RMW-MDP-FS-RMWSTP2_	RMWST pump 2 FTS			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-RMW-MDP-FS-RMWSTPP_ -CC	RMWST pumps CCF to start						9.1E-5
1-RMW-TNK-RP-RMWST_	RMWST tank ruptures	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-RMW-XVM-PG-032	RMWST manual valve 032 transfer close/plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-RMW-XVM-PG-033	RMWST manual valve 033 transfer close/plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-RPS-BME-CF-RANBB	CCF RTB-A and BYB-B (mechanical)			Log Normal	1.20E+1	BME3	1.6E-6
1-RPS-BME-CF-RBNBA	CCF RTB-B and BYB-A (mechanical)			Log Normal	1.20E+1	BME3	1.6E-6
1-RPS-BME-CF-RTBAB	CCF RTB-A and RTB-B (mechanical)			Log Normal	1.20E+1	BME3	1.6E-6
1-RPS-BME-FO-BYBA	BYB-A local hardware failure			Log Normal	5.60E+0	BME1	3.7E-5
1-RPS-BME-FO-BYBB	BYB-B local hardware failure			Log Normal	5.60E+0	BME1	3.7E-5
1-RPS-BME-FO-RTBA	RTB-A local hardware failure			Log Normal	5.60E+0	BME1	3.7E-5
1-RPS-BME-FO-RTBB	RTB-B local hardware failure			Log Normal	5.60E+0	BME1	3.7E-5
1-RPS-BME-TM-RTBA	RTB-A in test & maintenance			Uniform	2.8E-3	BME2	1.4E-3
1-RPS-BME-TM-RTBB	RTB-B in test & maintenance			Uniform	2.8E-3	BME2	1.4E-3
1-RPS-BSN-CF-RANBB	CCF of RTB-A and BYB-B shunt trip devices			Log Normal	8.40E+0	BSN2	2.1E-5
1-RPS-BSN-CF-RBNBA	CCF of RTB-B and BYB-A shunt trip devices			Log Normal	8.40E+0	BSN2	2.1E-5
1-RPS-BSN-CF-RTBAB	CCF of RTB-a and RTB-b shunt trip devices			Log Normal	8.40E+0	BSN2	2.1E-5
1-RPS-BSN-FF-BYBA	BYB-A shunt trip device local faults			Log Normal	3.30E+0	BSN1	5.8E-4
1-RPS-BSN-FF-BYBB	BYB-B shunt trip device local faults			Log Normal	3.30E+0	BSN1	5.8E-4
1-RPS-BSN-FF-RTBA	RTB-A shunt trip device local faults			Log Normal	3.30E+0	BSN1	5.8E-4
1-RPS-BSN-FF-RTBB	RTB-B shunt trip device local faults			Log Normal	3.30E+0	BSN1	5.8E-4
1-RPS-BUV-CF-RANBB	CCF of RTB-A and BYB-B undervoltage devices			Log Normal	7.40E+0	BUV2	9.7E-6
1-RPS-BUV-CF-RBNBA	CCF of RTB-B and BYB-A undervoltage devices			Log Normal	7.40E+0	BUV2	9.7E-6
1-RPS-BUV-CF-RTBAB	CCF of RTB-a and RTB-b undervoltage devices			Log Normal	7.40E+0	BUV2	9.7E-6
1-RPS-BUV-FF-BYBA	BYB-A undervoltage device local faults			Log Normal	2.60E+0	BUV1	2.5E-4
1-RPS-BUV-FF-BYBB	BYB-B undervoltage device local faults			Log Normal	2.60E+0	BUV1	2.5E-4
1-RPS-BUV-FF-RTBA	RTB-A undervoltage device local faults			Log Normal	2.60E+0	BUV1	2.5E-4
1-RPS-BUV-FF-RTBB	RTB-B undervoltage device local faults			Log Normal	2.60E+0	BUV1	2.5E-4
1-RPS-C21-CF-E2OF3	CCF 2 Eagle-21 process logic modules in 2 of 3 channels			Log Normal	7.80E+0		5.1E-7
1-RPS-C21-CF-E3OF4	CCF 3 Eagle-21 process logic modules in 3 of 4 channels			Log Normal	1.30E+1		1.5E-7
1-RPS-C21-FF-E21A	Channel -A Eagle-21 process logic module fails			Log Normal	5.30E+0	C211	6.5E-5
1-RPS-C21-FF-E21B	Channel -B Eagle-21 process logic module fails			Log Normal	5.30E+0	C211	6.5E-5
1-RPS-C21-FF-E21C	Channel -C Eagle-21 process logic module fails			Log Normal	5.30E+0	C211	6.5E-5
1-RPS-C21-FF-E21D	Channel -D Eagle-21 process logic module fails			Log Normal	5.30E+0	C211	6.5E-5
1-RPS-CBI-CF-4OF6	CCF 4 bistables in 2 of 3 channels			Log Normal	1.00E+1		8.2E-6
1-RPS-CBI-CF-6OF8	CCF 6 bistables in 3 of 4 channels			Log Normal	1.60E+1		2.7E-6
1-RPS-CBI-CF-P2OF3	CCF 2 pressure output bistables in 2 of 3 channels			Log Normal	9.10E+0	CBI3	4.2E-5
1-RPS-CBI-CF-P3OF4	CCF 3 pressure output bistables in 3 of 4 channels			Log Normal	1.50E+1	CBI2	1.2E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-RPS-CBI-CF-T2OF3	CCF 2 temp output bistables in 2 of 3 channels			Log Normal	9.10E+0	CBI3	4.2E-5
1-RPS-CBI-CF-T3OF4	CCF 3 temp output bistables in 3 of 4 channels			Log Normal	1.50E+1	CBI2	1.2E-5
1-RPS-CBI-FF-BSTPA	Channel-A pressure output bistable fails			Log Normal	6.50E+0	CBI1	7.5E-4
1-RPS-CBI-FF-BSTPB	Channel-B pressure output bistable fails			Log Normal	6.50E+0	CBI1	7.5E-4
1-RPS-CBI-FF-BSTPC	Channel-C pressure output bistable fails			Log Normal	6.50E+0	CBI1	7.5E-4
1-RPS-CBI-FF-BSTPD	Channel-D pressure output bistable fails			Log Normal	6.50E+0	CBI1	7.5E-4
1-RPS-CBI-FF-BSTTA	Channel-A temperature output bistable fails			Log Normal	6.50E+0	CBI1	7.5E-4
1-RPS-CBI-FF-BSTTB	Channel-B temperature output bistable fails			Log Normal	6.50E+0	CBI1	7.5E-4
1-RPS-CBI-FF-BSTTC	Channel-C temperature output bistable fails			Log Normal	6.50E+0	CBI1	7.5E-4
1-RPS-CBI-FF-BSTTD	Channel-D temperature output bistable fails			Log Normal	6.50E+0	CBI1	7.5E-4
1-RPS-CCP-CF-P2OF3	CCF 2 analog pressure process logic modules in 2 of 3 channels			Log Normal	9.30E+0		1.5E-5
1-RPS-CCP-CF-P3OF4	CCF 3 analog pressure process logic modules in 3 of 4 channels			Log Normal	1.50E+1		4.5E-6
1-RPS-CCP-FF-ANLPA	Channel-A analog pressure process logic module fails			Log Normal	6.60E+0	CCP1	1.6E-4
1-RPS-CCP-FF-ANLPB	Channel-B analog pressure process logic module fails			Log Normal	6.60E+0	CCP1	1.6E-4
1-RPS-CCP-FF-ANLPC	Channel-C analog pressure process logic module fails			Log Normal	6.60E+0	CCP1	1.6E-4
1-RPS-CCP-FF-ANLPD	Channel-D analog pressure process logic module fails			Log Normal	6.60E+0	CCP1	1.6E-4
1-RPS-CCP-TM-CHA	Channel-A in test & maintenance			Uniform	1.2E-1		5.8E-2
1-RPS-CCX-CF-4OF6	CCF 4 analog process logic modules in 2 of 3 channels			Log Normal	4.70E+0		6.3E-6
1-RPS-CCX-CF-6OF8	CCF 6 analog process logic modules in 3 of 4 channels			Log Normal	9.20E+0		1.8E-6
1-RPS-CDT-CF-T2OF3	CCF 2 analog temperature process logic modules in 2 of 3 channels			Log Normal	2.90E+0		2.5E-4
1-RPS-CDT-CF-T3OF4	CCF 3 analog temperature process logic modules in 3 of 4 channels			Log Normal	4.00E+0		5.5E-5
1-RPS-CDT-FF-ANLTA	Channel-A analog temperature process logic module fails			Log Normal	2.70E+0	CDT1	4.8E-3
1-RPS-CDT-FF-ANLTB	Channel-B analog temperature process logic module fails			Log Normal	2.70E+0	CDT1	4.8E-3
1-RPS-CDT-FF-ANLTC	Channel-C analog temperature process logic module fails			Log Normal	2.70E+0	CDT1	4.8E-3
1-RPS-CDT-FF-ANLTD	Channel-D analog temperature process logic module fails			Log Normal	2.70E+0	CDT1	4.8E-3
1-RPS-CPR-CF-P2OF3	CCF 2 pressure sensors in 2 of 3 channels			Log Normal	5.80E+0		7.7E-6
1-RPS-CPR-CF-P3OF4	CCF 3 pressure sensors in 3 of 4 channels			Log Normal	7.30E+0		2.1E-6
1-RPS-CPR-FF-PRESA	Channel-A pressure sensor fails			Log Normal	5.30E+0	CPR1	1.2E-4
1-RPS-CPR-FF-PRESB	Channel-B pressure sensor fails			Log Normal	5.30E+0	CPR1	1.2E-4
1-RPS-CPR-FF-PRESC	Channel-C pressure sensor fails			Log Normal	5.30E+0	CPR1	1.2E-4
1-RPS-CPR-FF-PRESA	Channel-D pressure sensor fails			Log Normal	5.30E+0	CPR1	1.2E-4



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-RPS-CTP-CF-T2OF6	CCF 2 temperature sensors in 2 of 3 channels			Log Normal	2.20E+0		7.5E-5
1-RPS-CTP-CF-T3OF8	CCF 3 temperature sensors in 3 of 4 channels			Log Normal	2.40E+0		3.7E-5
1-RPS-CTP-FF-CLTXA	Channel-A Cold Leg RTD fails			Log Normal	1.80E+0	CTP1	6.0E-4
1-RPS-CTP-FF-CLTXB	Channel-B Cold Leg RTD fails			Log Normal	1.80E+0	CTP1	6.0E-4
1-RPS-CTP-FF-CLTXC	Channel-C Cold Leg RTD fails			Log Normal	1.80E+0	CTP1	6.0E-4
1-RPS-CTP-FF-CLTXD	Channel-D Cold Leg RTD fails			Log Normal	1.80E+0	CTP1	6.0E-4
1-RPS-CTP-FF-HLTXA	Channel-A Hot Leg RTD fails			Log Normal	1.80E+0	CTP1	6.0E-4
1-RPS-CTP-FF-HLTXB	Channel-B Hot Leg RTD fails			Log Normal	1.80E+0	CTP1	6.0E-4
1-RPS-CTP-FF-HLTXC	Channel-C Hot Leg RTD fails			Log Normal	1.80E+0	CTP1	6.0E-4
1-RPS-CTP-FF-HLTXD	Channel-D Hot Leg RTD fails			Log Normal	1.80E+0	CTP1	6.0E-4
1-RPS-DCP-FC-__PQY455	Loop power supply PQY-455 fails	6.6E-6	24	Log Normal	1.06E+1	DCP-PWR-FC	1.6E-4
1-RPS-DCP-FC-__PQY456	Loop power supply PQY-456 fails	6.6E-6	24	Log Normal	1.06E+1	DCP-PWR-FC	1.6E-4
1-RPS-DCP-FC-__PQY457	Loop power supply PQY-457 fails	6.6E-6	24	Log Normal	1.06E+1	DCP-PWR-FC	1.6E-4
1-RPS-DCP-FC-__PQY458	Loop power supply PQY-458 fails	6.6E-6	24	Log Normal	1.06E+1	DCP-PWR-FC	1.6E-4
1-RPS-DCP-MA-__PQY455	Loop power supply PQY-455 in maintenance						0.0E+0
1-RPS-DCP-MA-__PQY456	Loop power supply PQY-456 in maintenance						0.0E+0
1-RPS-DCP-MA-__PQY457	Loop power supply PQY-457 in maintenance						0.0E+0
1-RPS-DCP-MA-__PQY458	Loop power supply PQY-458 in maintenance						0.0E+0
1-RPS-ICC-FC-GNAL	Failure of RPS low pressure block signal (to be developed)			Beta	5.00E+2		1.0E-3
1-RPS-ICC-TE-605Q5SPA	Train A unavailable for semi-automatic logic testing			Log Normal	1.00E+1		1.3E-3
1-RPS-ICC-TE-605Q5SPB	Train B unavailable for semi-automatic logic testing			Log Normal	1.00E+1		1.3E-3
1-RPS-PWR-CF-TRNAB	CCF of RTB-a and RTB-b shunt trip power supplies			Log Normal	1.80E+1		3.4E-6
1-RPS-PWR-FF-TRNA	RTB-A shunt trip power supplies			Log Normal	1.00E+1	PWR1	6.0E-5
1-RPS-PWR-FF-TRNB	RTB-B shunt trip power supplies			Log Normal	1.00E+1	PWR1	6.0E-5
1-RPS-RLY-FC-__K110A	Input relay K110 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC-__K110B	Input relay K110 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC-__K113A	Input relay K113fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC-__K113B	Input relay K113fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC-__K114A	Input relay K114fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC-__K114B	Input relay K114fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC-__K121A	Input relay K121fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC-__K121B	Input relay K121fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC-__K122A	Input relay K122fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC-__K122B	Input relay K122fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC-__K215A	Input relay K215 fails			Beta	2.00E+4	RLY-FC	2.5E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-RPS-RLY-FC- K215B	Input relay K215 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K230A	Input relay K230Fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K230B	Input relay K230Fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K231A	Input relay K231fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K231B	Input relay K231fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K257A	Input relay K257fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K257B	Input relay K257fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K258A	Input relay K258fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K258B	Input relay K258fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K331A	Input relay K331fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K331B	Input relay K331fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K332A	Input relay K332fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K332B	Input relay K332fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K333A	Input relay K333fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K333B	Input relay K333fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K334A	Input relay K334fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K334B	Input relay K334fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K341A	Input relay K341 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K341B	Input relay K341 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K407A	Input relay K407fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K407B	Input relay K407fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K408A	Input relay K408fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K408B	Input relay K408fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K409A	Input relay K409fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K409B	Input relay K409fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K410A	Input relay K410Fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K410B	Input relay K410Fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K414A	Input relay K414 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-RLY-FC- K414B	Input relay K414 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-RPS-ROD-CF-RCCAS	CCF 10 or more RCCAs fail to drop			Log Normal	4.20E+0		1.2E-6
1-RPS-SSD-FC- 4A203A	4-input circuit on universal logic card A203 fails (train A)			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-RPS-SSD-FC- 4A203B	4-input circuit on universal logic card A203 fails (train B)			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-RPS-SSD-FC- 4A309A	4-input circuit on universal logic card A309 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-RPS-SSD-FC- 4A309B	4-input circuit on universal logic card A309 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-RPS-SSD-FC- 4A310A	4-input circuit on universal logic card A310 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-RPS-SSD-FC- 4A310B	4-input circuit on universal logic card A310 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-RPS-SSD-FC- 4A316A	4-input circuit on universal logic card A316 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-RPS-SSD-FC- 4A316B	4-input circuit on universal logic card A316 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-RPS-SSD-FC- 4A317A	4-input circuit on universal logic card A316 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-RPS-SSD-FC- 4A317B	4-input circuit on universal logic card A317 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-RPS-SSD-FC- 4A409A	4-input circuit on universal logic card A409 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-RPS-SSD-FC- 4A409B	4-input circuit on universal logic card A409 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-RPS-SSD-FC- 4A410A	4-input circuit on universal logic card A410 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-RPS-SSD-FC- 4A410B	4-input circuit on universal logic card A410 fails			Beta	1.50E+2	SSD-ESF-FC	3.3E-3
1-RPS-SWC-FC- LB517B	Comparator LB-517B fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB518B	Comparator LB-518B fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB519B	Comparator LB-519B fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB527B	Comparator LB-527B fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB528B	Comparator LB-528B fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB529B	Comparator LB-529B fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB537B	Comparator LB-537B fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB538B	Comparator LB-538B fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB539B	Comparator LB-539B fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB547B	Comparator LB-547B fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB548B	Comparator LB-548B fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB549B	Comparator LB-549B fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB551B	Comparator LB-551B fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB552B	Comparator LB-552B fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB553B	Comparator LB-553B fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB554B	Comparator LB-554B fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB990E	Comparator LB-990E fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB991E	Comparator LB-991E fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB992E	Comparator LB-992E fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-SWC-FC- LB993E	Comparator LB-993E fails			Beta	1.70E+6	BIS-FC	5.4E-4
1-RPS-TFL-FC- LT517	Level transmitter LT-517 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC- LT518	Level transmitter LT-518 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC- LT519	Level transmitter LT-519 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC- LT527	Level transmitter LT-527 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC- LT528	Level transmitter LT-528 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC- LT529	Level transmitter LT-529 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC- LT537	Level transmitter LT-537 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC- LT538	Level transmitter LT-538 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-RPS-TFL-FC-___LT539	Level transmitter LT-539 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC-___LT547	Level transmitter LT-547 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC-___LT548	Level transmitter LT-548 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC-___LT549	Level transmitter LT-549 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC-___LT551	Level transmitter LT-551 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC-___LT552	Level transmitter LT-552 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC-___LT553	Level transmitter LT-553 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC-___LT554	Level transmitter LT-554 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC-___LT990	Level transmitter LT-990 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC-___LT991	Level transmitter LT-991 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC-___LT992	Level transmitter LT-992 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-FC-___LT993	Level transmitter LT-993 fails	9.7E-8	24	Gamma	5.00E-01	TFL-FC	2.3E-6
1-RPS-TFL-MA-___LT517	SG level channel 517 in bypass (LT-517 instrument loop in test						0.0E+0
1-RPS-TFL-MA-___LT518	SG level channel 518 in bypass (LT-518 instrument loop in test						0.0E+0
1-RPS-TFL-MA-___LT519	SG level channel 519 in bypass (LT-519 instrument loop in test						0.0E+0
1-RPS-TFL-MA-___LT527	SG level channel 527 in bypass (LT-527 instrument loop in test						0.0E+0
1-RPS-TFL-MA-___LT528	SG level channel 528 in bypass (LT-528 instrument loop in test						0.0E+0
1-RPS-TFL-MA-___LT529	SG level channel 529 in bypass (LT-529 instrument loop in test						0.0E+0
1-RPS-TFL-MA-___LT537	SG level channel 537 in bypass (LT-537 instrument loop in test						0.0E+0
1-RPS-TFL-MA-___LT538	SG level channel 538 in bypass (LT-538 instrument loop in test						0.0E+0
1-RPS-TFL-MA-___LT539	SG level channel 539 in bypass (LT-539 instrument loop in test						0.0E+0
1-RPS-TFL-MA-___LT547	SG level channel 547 in bypass (LT-547 instrument loop in test						0.0E+0
1-RPS-TFL-MA-___LT548	SG level channel 548 in bypass (LT-548 instrument loop in test						0.0E+0
1-RPS-TFL-MA-___LT549	SG level channel 549 in bypass (LT-549 instrument loop in test						0.0E+0
1-RPS-TFL-MA-___LT551	SG level channel 551 in bypass (LT-551 instrument loop in test						0.0E+0

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-RPS-TFL-MA-___LT552	SG level channel 552 in bypass (LT-552 instrument loop in test						0.0E+0
1-RPS-TFL-MA-___LT553	SG level channel 553 in bypass (LT-553 instrument loop in test						0.0E+0
1-RPS-TFL-MA-___LT554	SG level channel 554 in bypass (LT-554 instrument loop in test						0.0E+0
1-RPS-TFP-FC-___PT455	Pressure transmitter PT-455 fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-RPS-TFP-FC-___PT456	Pressure transmitter PT-456 fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-RPS-TFP-FC-___PT457	Pressure transmitter PT-457 fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-RPS-TFP-FC-___PT458	Pressure transmitter PT-458 fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-RPS-TFP-MA-___PT455	PZR pressure channel 455 in bypass (PT-455 instrument loop in test						0.0E+0
1-RPS-TFP-MA-___PT456	PZR pressure channel 456 in bypass (PT-456 instrument loop in test						0.0E+0
1-RPS-TFP-MA-___PT457	PZR pressure channel 457 in bypass (PT-457 instrument loop in test						0.0E+0
1-RPS-TFP-MA-___PT458	PZR pressure channel 458 in bypass (PT-458 instrument loop in test						0.0E+0
1-RPS-TLC-CF-SSLA	CCF solid state logic train A (2 of 4)			Log Normal	1.80E+1	TLC2	1.7E-5
1-RPS-TLC-CF-SSLAB	CCF solid state logic in trains A & B (4 of 4)			Log Normal	3.40E+1		2.1E-6
1-RPS-TLC-CF-SSLB	CCF solid state logic train B (2 of 4)			Log Normal	1.80E+1	TLC2	1.7E-5
1-RPS-TLC-FF-SSLAP	Train A pressure solid state logic fails			Log Normal	1.00E+1	TLC1	3.8E-4
1-RPS-TLC-FF-SSLAT	Train A temperature solid state logic fails			Log Normal	1.00E+1	TLC1	3.8E-4
1-RPS-TLC-FF-SSLBP	Train B pressure solid state logic fails			Log Normal	1.00E+1	TLC1	3.8E-4
1-RPS-TLC-FF-SSLBT	Train B temperature solid state logic fails			Log Normal	1.00E+1	TLC1	3.8E-4
1-RPS-TLR-CF-12O16	CCF 12 or more TMU relays in trains A & B no channel test & maintenance			Log Normal	1.10E+1		8.1E-8
1-RPS-TLR-CF-8OF12	CCF 8 or more TMU relays in trains A & B one channel test & maintenance			Log Normal	7.10E+0		2.1E-7
1-RPS-TLR-CF-PRA23	CCF 2 of 3 pressure TMU relays in train A one channel test & maintenance			Log Normal	5.00E+0	TLR3	5.1E-6
1-RPS-TLR-CF-PRA34	CCF 3 of 4 pressure TMU relays in train A no channels test & maintenance			Log Normal	8.90E+0	TLR2	1.5E-6
1-RPS-TLR-CF-PRB23	CCF 2 of 3 pressure TMU relays in train B one channel test & maintenance			Log Normal	5.00E+0	TLR3	5.1E-6
1-RPS-TLR-CF-PRB34	CCF 3 of 4 pressure TMU relays in train B no channel test & maintenance			Log Normal	8.90E+0	TLR2	1.5E-6
1-RPS-TLR-CF-RLA46	CCF 4 or more TMU relays in train A one channel test & maintenance			Log Normal	5.90E+0	TLR4	1.0E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-RPS-TLR-CF-RLA68	CCF 6 or more TMU relays in train A no channel test & maintenance			Log Normal	1.00E+1	TLR5	3.3E-7
1-RPS-TLR-CF-RLB46	CCF 4 or more TMU relays in train B one channel test & maintenance			Log Normal	5.90E+0	TLR4	1.0E-6
1-RPS-TLR-CF-RLB68	CCF 6 or more TMU relays in train B no channel test & maintenance			Log Normal	1.00E+1	TLR5	3.3E-7
1-RPS-TLR-CF-RTBAB	CCF of RTB - A and RTB - B shunt trip relays			Log Normal	7.80E+0		2.0E-6
1-RPS-TLR-CF-TRA23	CCF 2 of 3 temperature TMU relays in train A one channel test & maintenance			Log Normal	5.00E+0	TLR3	5.1E-6
1-RPS-TLR-CF-TRA34	CCF 3 of 4 temperature TMU relays in train A no channels test & maintenance			Log Normal	8.90E+0	TLR2	1.5E-6
1-RPS-TLR-CF-TRB23	CCF 2 of 3 temperature TMU relays in train B one channel test & maintenance			Log Normal	5.00E+0	TLR3	5.1E-6
1-RPS-TLR-CF-TRB34	CCF 3 of 4 temperature TMU relays in train B no channel test & maintenance			Log Normal	8.90E+0	TLR2	1.5E-6
1-RPS-TLR-FC-PRATA	Channel A pressure TMU relay in train A fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-PRATB	Channel A pressure TMU relay in train B fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-PRBTA	Channel B pressure TMU relay in train A fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-PRBTB	Channel B pressure TMU relay in train B fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-PRCTA	Channel C pressure TMU relay in train A fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-PRCTB	Channel C pressure TMU relay in train B fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-PRDTA	Channel D pressure TMU relay in train A fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-PRDTB	Channel D pressure TMU relay in train B fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-RLYSA	Shunt trip relay SA fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-RLYSB	Shunt trip relay SB fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-TRATA	Channel A temperature TMU relay in train A fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-TRATB	Channel A temperature TMU relay in train B fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-TRBTA	Channel B temperature TMU relay in train A fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-TRBTB	Channel B temperature TMU relay in train B fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-TRCTA	Channel C temperature TMU relay in train A fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-TRCTB	Channel C temperature TMU relay in train B fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-TRDTA	Channel D temperature TMU relay in train A fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-TLR-FC-TRDTB	Channel D temperature TMU relay in train B fails			Log Normal	3.00E+0	TLR1	3.9E-5
1-RPS-UVL-CF-UVDAB	CCF undervoltage drivers trains A & B (2 of 2)			Log Normal	7.50E+0		1.0E-5
1-RPS-UVL-FF-UVDA	Train A undervoltage driver fails			Log Normal	2.60E+0	UVL1	3.4E-4
1-RPS-UVL-FF-UVDB	Train B undervoltage driver fails			Log Normal	2.60E+0	UVL1	3.4E-4
1-RPS-XHE-TRIP-LT	Operator fails to trip reactor (late)			Log Normal	1.00E+1		1.0E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-RPS-XHE-XE-NSGNL	Operator fails to respond with no RPS signal present			Log Normal	5.00E+0		2.3E-1
1-RVDMS	SG safety relief valve fails to open			Beta	1.40E+2	1-RVDMS	2.1E-3
1-RVDRC	Pressurizer relief valve fails to open			Beta	2.10E+2	1-RVDRC	1.4E-3
1-SDFSFA	Sequencer fails			Beta	1.50E+2	1-SDFSFA	3.3E-3
1-SGTR1	SGTR is in SG 1						2.5E-1
1-SGTR2	SGTR is in SG 2						2.5E-1
1-SGTR3	SGTR is in SG 3						2.5E-1
1-SGTR4	SGTR is in SG 4						2.5E-1
1-SIPA-DIVERT-THR-B	Cutset identifier: SIP A flow diverted back through SI TR B						1.0E+0
1-SIPB-DIVERT-THR-A	Cutset identifier: SIP B flow diverted back through SI TR A						1.0E+0
1-SIS-MDP-FR-SIA	SI pump A FTR due to random faults	2.5E-6	23	Gamma	1.78E+0	MDPFR-L	5.8E-5
1-SIS-MDP-FR-SIASIB -CC	SI pumps a & b FTR due to CCF						6.4E-6
1-SIS-MDP-FR-SIB	SI pump B FTR due to random faults	2.5E-6	23	Gamma	1.78E+0	MDPFR-L	5.8E-5
1-SIS-MDP-FS-SIA	SI pump A FTS due to random faults			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-SIS-MDP-FS-SIASIB -CC	SI pumps a & b FTS due to CCF						3.9E-5
1-SIS-MDP-FS-SIB	SI pump B FTS due to random faults			Beta	1.30E+4	MDP-FS-NS	1.0E-3
1-SIS-MDP-MA-SIA	SI pump A in maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-SIS-MDP-MA-SIB	SI pump B in maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-SSBI-1	Upstream secondary side break is in SG 1						2.5E-1
1-SSBI-2	Upstream secondary side break is in SG 2						2.5E-1
1-SSBI-3	Upstream secondary side break is in SG 3						2.5E-1
1-SSBI-4	Upstream secondary side break is in SG 4						2.5E-1
1-SSB-XHE-ISOLATION	Operator fails to isolate faulted steam generator during steam line break			Log Normal	5.00E+0		9.6E-3
1-SVDAL	SOV fails to open on demand			Beta	1.30E+3	1-SVDAL	1.1E-3
1-SWS-CKV-CC- _025	NSCW pump P4-001 check valve fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-SWS-CKV-CC- _027	NSCW pump P4-002 check valve fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-SWS-CKV-CC- _031	NSCW pump P4-005 check valve fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-SWS-CKV-CC- _033	NSCW pump P4-006 check valve fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-SWS-CKV-CC- _035	NSCW pump P4-003 check valve fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-SWS-CKV-CC- _037	NSCW pump P4-004 check valve fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-SWS-CKV-OO- _025	NSCW pump P4-001 check valve fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-SWS-CKV-OO- _027	NSCW pump P4-002 check valve fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-SWS-CKV-OO- _031	NSCW pump P4-005 check valve fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-SWS-CKV-OO- _033	NSCW pump P4-006 check valve fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-SWS-CKV-OO- _035	NSCW pump P4-003 check valve fails to close			Beta	3.40E+3	CKV-OO	2.4E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CKV-OO-_037_	NSCW pump P4-004 check valve fails to close			Beta	3.40E+3	CKV-OO	2.4E-4
1-SWS-CNT-CC-152A_P1_	NSCW pump 1 circuit breaker AUX SW 152A fail to open when PP breaker trip			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-CC-152A_P2_	NSCW pump 2 circuit breaker AUX SW 152A fail to open when PP breaker trip			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-CC-152A_P3_	NSCW pump 3 circuit breaker AUX SW 152A fail to open when PP breaker trip			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-CC-152A_P4_	NSCW pump 4 circuit breaker AUX SW 152A fail to open when PP breaker trip			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-CC-152A_P5_	NSCW pump 5 circuit breaker AUX SW 152A fail to open when PP breaker trip			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-CC-152A_P6_	NSCW pump 6 circuit breaker AUX SW 152A fail to open when PP breaker trip			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-CO-1622X1P1	Relay 162-2x1 contacts associated with P4-001 spuriously open	8.1E-8	24	Log Normal	1.03E+1	CNT-CO	1.9E-6
1-SWS-CNT-CO-1622X1P2	Relay 162-2x1 contacts associated with P4-002 spuriously open	8.1E-8	24	Log Normal	1.03E+1	CNT-CO	1.9E-6
1-SWS-CNT-CO-1622X1P3	Relay 162-2x1 contacts associated with P4-003 spuriously open	8.1E-8	24	Log Normal	1.03E+1	CNT-CO	1.9E-6
1-SWS-CNT-CO-1622X1P4	Relay 162-2x1 contacts associated with P4-004 spuriously open	8.1E-8	24	Log Normal	1.03E+1	CNT-CO	1.9E-6
1-SWS-CNT-CO-1622X1P5	Relay 162-2x1 contacts associated with P4-005 spuriously open	8.1E-8	24	Log Normal	1.03E+1	CNT-CO	1.9E-6
1-SWS-CNT-CO-1622X1P6	Relay 162-2x1 contacts associated with P4-006 spuriously open	8.1E-8	24	Log Normal	1.03E+1	CNT-CO	1.9E-6
1-SWS-CNT-OO-152A_P1_	NSCW pump 1 circuit breaker AUX SW 152A fail to close when PP breaker closed			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-152A_P2_	NSCW pump 2 circuit breaker AUX SW 152A fail to close when PP breaker closed			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-152A_P3_	NSCW pump 3 circuit breaker AUX SW 152A fail to close when PP breaker closed			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-152A_P4_	NSCW pump 4 circuit breaker AUX SW 152A fail to close when PP breaker closed			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-152A_P5_	NSCW pump 5 circuit breaker AUX SW 152A fail to close when PP breaker closed			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-152A_P6_	NSCW pump 16 circuit breaker AUX SW 152A fail to close when PP breaker closed			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-152B1600	Relay 152B (associated with closure of HV-11600) contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CNT-OO-152B1605	Relay 152B (associated with closure of HV-11605) contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-152B1606	Relay 152B (associated with closure of HV-11606) contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-152B1607	Relay 152B (associated with closure of HV-11607) contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-152B1612	Relay 152B (associated with closure of HV-11612) contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-152B1613	Relay 152B (associated with closure of HV-11613) contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-152BP1__	CB 152-AA0208 contacts associated with NSCW pump P4-001 fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-152BP2__	CB 152-BA0307 contacts associated with NSCW pump P4-002 fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-152BP3__	CB 152-AA0208 contacts associated with NSCW pump P4-003 fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-152BP4__	CB 152-BA0311 contacts associated with NSCW pump P4-004 fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-1602AX__	Relay 1602AX contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-1603AX__	Relay 1603AX contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-1608AX__	Relay 1608AX contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-1609AX__	Relay 1609AX contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-16211600	Relay 162-1 associated with opening of HV-11600 contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-16211605	Relay 162-1 associated with opening of HV-11605 contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-16211606	Relay 162-1 associated with opening of HV-11606 contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-16211607	Relay 162-1 associated with opening of HV-11607 contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-16211612	Relay 162-1 associated with opening of HV-11612 contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-1622X1P1	Relay 162-2X1 contacts associated with P4-001 fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-1622X1P2	Relay 162-2X1 contacts associated with P4-002 fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-1622X1P3	Relay 162-2X1 contacts associated with P4-003 fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CNT-OO-1622X1P4	Relay 162-2X1 contacts associated with P4-004 fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-1622X1P5	Relay 162-2X1 contacts associated with P4-005 fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-1622X1P6	Relay 162-2X1 contacts associated with P4-006 fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-1636AX__	Relay 1636AX contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-1637AX__	Relay 1637AX contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-AX_P1__	Relay AX associated with tripped breaker on P4-001 contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-AX_P2__	Relay AX associated with tripped breaker on P4-002 contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-AX_P3__	Relay AX associated with tripped breaker on P4-003 contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-AX_P4__	Relay AX associated with tripped breaker on P4-004 contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-AX_P5__	Relay AX associated with tripped breaker on P4-005 contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-AX_P6__	Relay AX associated with tripped breaker on P4-006 contacts fail to close on demand			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-PY1602A__	Relay PY-1602A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-PY1603A__	Relay PY-1603a contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-PY1608A__	Relay PY-1608A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-PY1609A__	Relay PY-1609A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-PY1636A__	Relay PY-1636A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CNT-OO-PY1637A__	Relay PY-1637A contacts fail to close			Beta	8.10E+8	CNT-OO	2.5E-5
1-SWS-CTF-CF-FR-ALL	4 or more (all combinations) NSCW fans fail from CCF to run			CNI	0.00E+0		1.1E-6
1-SWS-CTF-CF-FS-ALL	4 or more (all combinations) NSCW fans fail from CCF to start			CNI	0.00E+0		1.0E-5
1-SWS-CTF-CF-R	NSCW fans fail from CCF to run						3.6E-8
1-SWS-CTF-CF-R-AB	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-ABC	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-ABCD	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ABCDE	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-R-ABCDEF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ABCDEFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.2E-08
1-SWS-CTF-CF-R-ABCDEFHG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						3.6E-08
1-SWS-CTF-CF-R-ABCDEFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.2E-08
1-SWS-CTF-CF-R-ABCDEG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ABCDEGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.2E-08
1-SWS-CTF-CF-R-ABCDEH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ABCDF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABCDFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ABCDFHG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.2E-08
1-SWS-CTF-CF-R-ABCDFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ABCDG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABCDGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ABCDH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABCE	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ABCEF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABCEFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ABCEFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.2E-08
1-SWS-CTF-CF-R-ABCEFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ABCEG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-R-ABCEGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ABCEH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABCF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ABCFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABCFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ABCFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABCG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ABCGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABCH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ABD	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-ABDE	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ABDEF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABDEFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ABDEFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.2E-08
1-SWS-CTF-CF-R-ABDEFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ABDEG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABDEGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ABDEH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABDF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ABDFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-R-ABDFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ABDFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABDG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ABDGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABDH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ABE	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-ABEF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ABEFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABEFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ABEFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABEG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ABEGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABEH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ABF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-ABFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ABFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ABFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ABG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-ABGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ABH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-R-AC	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-ACD	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-ACDE	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ACDEF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ACDEFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ACDEFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.2E-08
1-SWS-CTF-CF-R-ACDEFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ACDEG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ACDEGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ACDEH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ACDF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ACDFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ACDFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ACDFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ACDG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ACDGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ACDH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ACE	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-ACEF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ACEFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-R-ACEFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ACEFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ACEG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ACEGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ACEH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ACF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-ACFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ACFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ACFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ACG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-ACGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ACH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-AD	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-ADE	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-ADEF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ADEFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ADEFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-ADEFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ADEG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ADEGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-R-ADEH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ADF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-ADFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ADFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-ADFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ADG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-ADGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-ADH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-AE	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-AEF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-AEFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-AEFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-AEFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-AEG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-AEGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-AEH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-AF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-AFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-AFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-AFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-R-AG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-AGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-AH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-BC	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-BCD	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-BCDE	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BCDEF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-BCDEFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-BCDEFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.2E-08
1-SWS-CTF-CF-R-BCDEFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-BCDEG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-BCDEGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-BCDEH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-BCDF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BCDFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-BCDFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-BCDFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-BCDG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BCDGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-BCDH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-R-BCE	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-BCEF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BCEFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-BCEFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-BCEFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-BCEG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BCEGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-BCEH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BCF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-BCFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BCFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-BCFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BCG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-BCGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BCH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-BD	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-BDE	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-BDEF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BDEFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-BDEFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-R-BDEFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-BDEG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BDEGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-BDEH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BDF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-BDFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BDFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-BDFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BDG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-BDGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BDH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-BE	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-BEF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-BEFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BEFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-BEFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BEG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-BEGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BEH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-BF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-R-BFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-BFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-BFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-BG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-BGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-BH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-CD	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-CDE	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-CDEF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-CDEFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-CDEFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						7.2E-09
1-SWS-CTF-CF-R-CDEFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-CDEG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-CDEGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-CDEH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-CDF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-CDFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-CDFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-CDFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-CDG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-R-CDGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-CDH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-CE	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-CEF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-CEFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-CEFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-CEFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-CEG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-CEGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-CEH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-CF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-CFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-CFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-CFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-CG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-CGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-CH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-DE	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-DEF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-DEFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-R-DEFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						5.6E-09
1-SWS-CTF-CF-R-DEFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-DEG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-DEGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-DEH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-DF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-DFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-DFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-DFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-DG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-DGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-DH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-EF	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-EFG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-EFGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						6.8E-09
1-SWS-CTF-CF-R-EFH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-EG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-EGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-EH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-FG	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-R-FGH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						1.1E-08
1-SWS-CTF-CF-R-FH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-R-GH	System Generated Event - RASP CCF event: 1-SWS-CTF-CF-R						4.0E-08
1-SWS-CTF-CF-S	CCF of all NSCW fans to start						1.1E-7
1-SWS-CTF-CF-S-AB	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-ABC	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-ABCD	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ABCDE	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABCDEF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ABCDEFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.7E-08
1-SWS-CTF-CF-S-ABCDEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.1E-07
1-SWS-CTF-CF-S-ABCDEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.7E-08
1-SWS-CTF-CF-S-ABCDEG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ABCDEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.7E-08
1-SWS-CTF-CF-S-ABCDEH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ABCDF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABCDFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ABCDFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.7E-08
1-SWS-CTF-CF-S-ABCDFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ABCDG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-S-ABCDGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ABCDH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABCE	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ABCEF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABCEFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ABCEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.7E-08
1-SWS-CTF-CF-S-ABCEFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ABCEG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABCEGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ABCEH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABCF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ABCFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABCFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ABCFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABCG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ABCGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABCH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ABD	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-ABDE	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ABDEF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-S-ABDEFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ABDEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.7E-08
1-SWS-CTF-CF-S-ABDEFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ABDEG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABDEGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ABDEH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABDF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ABDFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABDFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ABDFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABDG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ABDGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABDH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ABE	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-ABEF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ABEFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ABEFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABEG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ABEGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-S-ABEH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ABF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-ABFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ABFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ABFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ABG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-ABGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ABH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-AC	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-ACD	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-ACDE	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ACDEF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ACDEFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ACDEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.7E-08
1-SWS-CTF-CF-S-ACDEFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ACDEG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ACDEGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ACDEH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ACDF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ACDFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-S-ACDFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ACDFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ACDG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ACDGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ACDH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ACE	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-ACEF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ACEFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ACEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ACEFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ACEG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ACEGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ACEH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ACF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-ACFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ACFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ACFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ACG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-ACGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ACH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-S-AD	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-ADE	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-ADEF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ADEFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ADEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-ADEFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ADEG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ADEGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ADEH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ADF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-ADFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ADFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-ADFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ADG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-ADGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-ADH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-AE	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-AEF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-AEFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-AEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-S-AEFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-AEG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-AEGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-AEH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-AF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-AFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-AFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-AFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-AG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-AGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-AH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-BC	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-BCD	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-BCDE	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BCDEF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-BCDEFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-BCDEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.7E-08
1-SWS-CTF-CF-S-BCDEFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-BCDEG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-BCDEGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-S-BCDEH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-BCDF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BCDFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-BCDFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-BCDFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-BCDG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BCDGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-BCDH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BCE	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-BCEF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BCEFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-BCEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-BCEFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-BCEG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BCEGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-BCEH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BCF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-BCFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BCFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-BCFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-S-BCG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-BCGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BCH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-BD	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-BDE	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-BDEF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BDEFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-BDEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-BDEFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-BDEG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BDEGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-BDEH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BDF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-BDFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BDFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-BDFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BDG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-BDGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BDH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-BE	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-S-BEF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-BEFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-BEFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BEG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-BEGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BEH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-BF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-BFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-BFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-BFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-BG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-BGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-BH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-CD	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-CDE	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-CDEF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-CDEFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-CDEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						6.0E-08
1-SWS-CTF-CF-S-CDEFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-S-CDEG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-CDEGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-CDEH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-CDF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-CDFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-CDFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-CDFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-CDG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-CDGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-CDH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-CE	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-CEF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-CEFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-CEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-CEFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-CEG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-CEGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-CEH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-CF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-CFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-S-CFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-CFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-CG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-CGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-CH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-DE	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-DEF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-DEFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-DEFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						5.5E-08
1-SWS-CTF-CF-S-DEFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-DEG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-DEGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-DEH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-DF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-DFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-DFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-DFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-DG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-DGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-DH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-CF-S-EF	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-EFG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-EFGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.1E-08
1-SWS-CTF-CF-S-EFH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-EG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-EGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-EH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-FG	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-FGH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						1.6E-07
1-SWS-CTF-CF-S-FH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-CF-S-GH	System Generated Event - RASP CCF event: 1-SWS-FAN-CF-S						7.5E-07
1-SWS-CTF-FR-1_F01___	NSCW CT A fan 1-F01 (A1) randomly FTR	2.3E-6	24	Gamma	2.50E+0	CTF-FR	5.5E-5
1-SWS-CTF-FR-1_F02___	NSCW CT A fan 1-F02 (A2) randomly FTR	2.3E-6	24	Gamma	2.50E+0	CTF-FR	5.5E-5
1-SWS-CTF-FR-1_F03___	NSCW CT A fan 1-F03 (A3) randomly FTR	2.3E-6	24	Gamma	2.50E+0	CTF-FR	5.5E-5
1-SWS-CTF-FR-1_F04___	NSCW CT A fan 1-F04 (A4) randomly FTR	2.3E-6	24	Gamma	2.50E+0	CTF-FR	5.5E-5
1-SWS-CTF-FR-2_F01___	NSCW CT B fan 2-F01 (B1) randomly FTR	2.3E-6	24	Gamma	2.50E+0	CTF-FR	5.5E-5
1-SWS-CTF-FR-2_F02___	NSCW CT B fan 2-F02 (B2) randomly FTR	2.3E-6	24	Gamma	2.50E+0	CTF-FR	5.5E-5
1-SWS-CTF-FR-2_F03___	NSCW CT B fan 2-F03 (B3) randomly FTR	2.3E-6	24	Gamma	2.50E+0	CTF-FR	5.5E-5
1-SWS-CTF-FR-2_F04___	NSCW CT B fan 2-F04 (B4) randomly FTR	2.3E-6	24	Gamma	2.50E+0	CTF-FR	5.5E-5
1-SWS-CTF-FS-1_F01___	NSCW CT A fan 1-F01 randomly FTS			Beta	1.90E+3	CTF-FS	7.7E-4
1-SWS-CTF-FS-1_F02___	NSCW CT A fan 1-F02 (A2) randomly FTS			Beta	1.90E+3	CTF-FS	7.7E-4
1-SWS-CTF-FS-1_F03___	NSCW fan 1-F03 randomly FTS			Beta	1.90E+3	CTF-FS	7.7E-4
1-SWS-CTF-FS-1_F04___	NSCW fan 1-F04 randomly FTS			Beta	1.90E+3	CTF-FS	7.7E-4
1-SWS-CTF-FS-2_F01___	NSCW CT B 2-F01 randomly FTS			Beta	1.90E+3	CTF-FS	7.7E-4
1-SWS-CTF-FS-2_F02___	NSCW CT B 2-F02 (B2) randomly FTS			Beta	1.90E+3	CTF-FS	7.7E-4
1-SWS-CTF-FS-2_F03___	NSCW fan 2-F03 randomly FTS			Beta	1.90E+3	CTF-FS	7.7E-4
1-SWS-CTF-FS-2_F04___	NSCW CT B fan 2-F04 (B4) randomly FTS			Beta	1.90E+3	CTF-FS	7.7E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-CTF-MA-_A_1234_	All four NSCW train A tower fans unavailable due to maintenance (PSA value)			CNI	0.00E+0		4.1E-5
1-SWS-CTF-MA-_B_1234_	All four NSCW train B tower fans unavailable due to maintenance			CNI	0.00E+0		4.1E-5
1-SWS-CTF-MA-1_F01	NSCW tower fan 1-F01 unavailable due to maintenance			Beta	2.50E+2	FAN-TM	2.0E-3
1-SWS-CTF-MA-1_F02	NSCW tower fan 1-F02 unavailable due to maintenance			Beta	2.50E+2	FAN-TM	2.0E-3
1-SWS-CTF-MA-1_F03	NSCW tower fan 1-F03 unavailable due to maintenance			Beta	2.50E+2	FAN-TM	2.0E-3
1-SWS-CTF-MA-1_F04	NSCW tower fan 1-F04 unavailable due to maintenance			Beta	2.50E+2	FAN-TM	2.0E-3
1-SWS-CTF-MA-2_F01	NSCW tower fan 2-F01 unavailable due to maintenance			Beta	2.50E+2	FAN-TM	2.0E-3
1-SWS-CTF-MA-2_F02	NSCW tower fan 2-F02 unavailable due to maintenance			Beta	2.50E+2	FAN-TM	2.0E-3
1-SWS-CTF-MA-2_F03	NSCW tower fan 2-F03 unavailable due to maintenance			Beta	2.50E+2	FAN-TM	2.0E-3
1-SWS-CTF-MA-2_F04	NSCW tower fan 2-F04 unavailable due to maintenance			Beta	2.50E+2	FAN-TM	2.0E-3
1-SWS-FI-FC-_FI1640B	NSCW CT B fan 2-F04 (B4) randomly FTS						0.0E+0
1-SWS-FI-FC-_FI1641B	NSCW CT B fan 2-F04 (B4) randomly FTS						0.0E+0
1-SWS-LMS-FC-1_F01	Failure of valve limit switch start logic for NSCW fan 1-F01 (MOV HV1668A)	2.5E-6	24	Log Normal	7.10E+0	SWS-LMS-FC	6.0E-5
1-SWS-LMS-FC-2_F01	Failure of valve limit switch start logic	2.5E-6	24	Log Normal	7.10E+0	SWS-LMS-FC	6.0E-5
1-SWS-MDP-CF-FR	NSCW pumps P4-001 thru P4-006 fail from CCF to run						8.4E-8
1-SWS-MDP-CF-FR-AB	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						1.6E-07
1-SWS-MDP-CF-FR-ABC	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08
1-SWS-MDP-CF-FR-ABCD	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						4.0E-08
1-SWS-MDP-CF-FR-ABCDE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						3.7E-08
1-SWS-MDP-CF-FR-ABCDEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						8.4E-08
1-SWS-MDP-CF-FR-ABCDF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						3.7E-08
1-SWS-MDP-CF-FR-ABCE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						4.0E-08
1-SWS-MDP-CF-FR-ABCEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						3.7E-08
1-SWS-MDP-CF-FR-ABCF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						4.0E-08
1-SWS-MDP-CF-FR-ABD	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-MDP-CF-FR-ABDE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						4.0E-08
1-SWS-MDP-CF-FR-ABDEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						3.7E-08
1-SWS-MDP-CF-FR-ABDF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						4.0E-08
1-SWS-MDP-CF-FR-ABE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08
1-SWS-MDP-CF-FR-ABEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						4.0E-08
1-SWS-MDP-CF-FR-ABF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08
1-SWS-MDP-CF-FR-AC	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						2.5E-07
1-SWS-MDP-CF-FR-ACD	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						9.3E-08
1-SWS-MDP-CF-FR-ACDE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						4.0E-08
1-SWS-MDP-CF-FR-ACDEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						3.7E-08
1-SWS-MDP-CF-FR-ACDF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						4.0E-08
1-SWS-MDP-CF-FR-ACE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08
1-SWS-MDP-CF-FR-ACEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						4.0E-08
1-SWS-MDP-CF-FR-ACF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08
1-SWS-MDP-CF-FR-AD	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						2.5E-07
1-SWS-MDP-CF-FR-ADE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08
1-SWS-MDP-CF-FR-ADEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						4.0E-08
1-SWS-MDP-CF-FR-ADF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08
1-SWS-MDP-CF-FR-AE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						1.6E-07
1-SWS-MDP-CF-FR-AEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-MDP-CF-FR-AF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						1.6E-07
1-SWS-MDP-CF-FR-BC	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						1.6E-07
1-SWS-MDP-CF-FR-BCD	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08
1-SWS-MDP-CF-FR-BCDE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						4.0E-08
1-SWS-MDP-CF-FR-BCDEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						3.7E-08
1-SWS-MDP-CF-FR-BCDF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						4.0E-08
1-SWS-MDP-CF-FR-BCE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08
1-SWS-MDP-CF-FR-BCEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						4.0E-08
1-SWS-MDP-CF-FR-BCF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08
1-SWS-MDP-CF-FR-BD	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						1.6E-07
1-SWS-MDP-CF-FR-BDE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08
1-SWS-MDP-CF-FR-BDEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						4.0E-08
1-SWS-MDP-CF-FR-BDF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08
1-SWS-MDP-CF-FR-BE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						1.6E-07
1-SWS-MDP-CF-FR-BEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08
1-SWS-MDP-CF-FR-BF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						1.6E-07
1-SWS-MDP-CF-FR-CD	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						2.5E-07
1-SWS-MDP-CF-FR-CDE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08
1-SWS-MDP-CF-FR-CDEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						4.0E-08
1-SWS-MDP-CF-FR-CDF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-MDP-CF-FR-CE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						1.6E-07
1-SWS-MDP-CF-FR-CEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08
1-SWS-MDP-CF-FR-CF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						1.6E-07
1-SWS-MDP-CF-FR-DE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						1.6E-07
1-SWS-MDP-CF-FR-DEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						5.7E-08
1-SWS-MDP-CF-FR-DF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						1.6E-07
1-SWS-MDP-CF-FR-EF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FR						1.6E-07
1-SWS-MDP-CF-FRL	NSCW pumps P4-001 thru P4-006 fail from CCF to run (72 hr LCO)						2.5E-7
1-SWS-MDP-CF-FRL-12	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						4.7E-07
1-SWS-MDP-CF-FRL-123	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-1234	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.2E-07
1-SWS-MDP-CF-FRL-12345	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.1E-07
1-SWS-MDP-CF-FRL-123456	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						2.5E-07
1-SWS-MDP-CF-FRL-12346	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.1E-07
1-SWS-MDP-CF-FRL-1235	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.2E-07
1-SWS-MDP-CF-FRL-12356	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.1E-07
1-SWS-MDP-CF-FRL-1236	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.2E-07
1-SWS-MDP-CF-FRL-124	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-1245	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.2E-07
1-SWS-MDP-CF-FRL-12456	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.1E-07

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-MDP-CF-FRL-1246	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.2E-07
1-SWS-MDP-CF-FRL-125	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-1256	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.2E-07
1-SWS-MDP-CF-FRL-126	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-13	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						4.7E-07
1-SWS-MDP-CF-FRL-134	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-1345	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.2E-07
1-SWS-MDP-CF-FRL-13456	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.1E-07
1-SWS-MDP-CF-FRL-1346	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.2E-07
1-SWS-MDP-CF-FRL-135	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-1356	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.2E-07
1-SWS-MDP-CF-FRL-136	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-14	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						4.7E-07
1-SWS-MDP-CF-FRL-145	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-1456	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.2E-07
1-SWS-MDP-CF-FRL-146	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-15	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						4.7E-07
1-SWS-MDP-CF-FRL-156	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-16	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						4.7E-07
1-SWS-MDP-CF-FRL-23	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						4.7E-07



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-MDP-CF-FRL-234	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-2345	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.2E-07
1-SWS-MDP-CF-FRL-23456	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.1E-07
1-SWS-MDP-CF-FRL-2346	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.2E-07
1-SWS-MDP-CF-FRL-235	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-2356	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.2E-07
1-SWS-MDP-CF-FRL-236	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-24	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						4.7E-07
1-SWS-MDP-CF-FRL-245	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-2456	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.2E-07
1-SWS-MDP-CF-FRL-246	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-25	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						4.7E-07
1-SWS-MDP-CF-FRL-256	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-26	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						4.7E-07
1-SWS-MDP-CF-FRL-34	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						4.7E-07
1-SWS-MDP-CF-FRL-345	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-3456	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.2E-07
1-SWS-MDP-CF-FRL-346	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-35	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						4.7E-07
1-SWS-MDP-CF-FRL-356	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-MDP-CF-FRL-36	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						4.7E-07
1-SWS-MDP-CF-FRL-45	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						4.7E-07
1-SWS-MDP-CF-FRL-456	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						1.7E-07
1-SWS-MDP-CF-FRL-46	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						4.7E-07
1-SWS-MDP-CF-FRL-56	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FRL						4.7E-07
1-SWS-MDP-CF-FS	NSCW pumps P4-001 thru P4-006 fail from CCF to start						4.2E-6
1-SWS-MDP-CF-FS-AB	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						8.3E-06
1-SWS-MDP-CF-FS-ABC	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-ABCD	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.0E-06
1-SWS-MDP-CF-FS-ABCDE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						1.9E-06
1-SWS-MDP-CF-FS-ABCDEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						4.2E-06
1-SWS-MDP-CF-FS-ABCDF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						1.9E-06
1-SWS-MDP-CF-FS-ABCE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.0E-06
1-SWS-MDP-CF-FS-ABCEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						1.9E-06
1-SWS-MDP-CF-FS-ABCF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.0E-06
1-SWS-MDP-CF-FS-ABD	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-ABDE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.0E-06
1-SWS-MDP-CF-FS-ABDEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						1.9E-06
1-SWS-MDP-CF-FS-ABDF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.0E-06
1-SWS-MDP-CF-FS-ABE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-MDP-CF-FS-ABEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.0E-06
1-SWS-MDP-CF-FS-ABF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-AC	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						8.3E-06
1-SWS-MDP-CF-FS-ACD	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-ACDE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.0E-06
1-SWS-MDP-CF-FS-ACDEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						1.9E-06
1-SWS-MDP-CF-FS-ACDF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.0E-06
1-SWS-MDP-CF-FS-ACE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-ACEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.0E-06
1-SWS-MDP-CF-FS-ACF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-AD	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						8.3E-06
1-SWS-MDP-CF-FS-ADE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-ADEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.0E-06
1-SWS-MDP-CF-FS-ADF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-AE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						8.3E-06
1-SWS-MDP-CF-FS-AEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-AF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						8.3E-06
1-SWS-MDP-CF-FS-BC	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						8.3E-06
1-SWS-MDP-CF-FS-BCD	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-BCDE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.0E-06

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-MDP-CF-FS-BCDEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						1.9E-06
1-SWS-MDP-CF-FS-BCDF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.0E-06
1-SWS-MDP-CF-FS-BCE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-BCEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.0E-06
1-SWS-MDP-CF-FS-BCF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-BD	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						8.3E-06
1-SWS-MDP-CF-FS-BDE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-BDEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.0E-06
1-SWS-MDP-CF-FS-BDF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-BE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						8.3E-06
1-SWS-MDP-CF-FS-BEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-BF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						8.3E-06
1-SWS-MDP-CF-FS-CD	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						8.3E-06
1-SWS-MDP-CF-FS-CDE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-CDEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.0E-06
1-SWS-MDP-CF-FS-CDF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-CE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						8.3E-06
1-SWS-MDP-CF-FS-CEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-CF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						8.3E-06
1-SWS-MDP-CF-FS-DE	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						8.3E-06

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-MDP-CF-FS-DEF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						2.9E-06
1-SWS-MDP-CF-FS-DF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						8.3E-06
1-SWS-MDP-CF-FS-EF	System Generated Event - RASP CCF event: 1-SWS-MDP-CF-FS						8.3E-06
1-SWS-MDP-FR-P4_001__	NSCW pump 1 FTR	1.6E-6	24	Gamma	1.27E+0	MDP-SWS-FTR	3.8E-5
1-SWS-MDP-FR-P4_001__LCO	NSCW pump 1 FTR (72 hr)	1.6E-6	72	Gamma	1.27E+0	MDP-SWS-FR-LCO	1.1E-4
1-SWS-MDP-FR-P4_002__	NSCW pump 2 FTR	1.6E-6	24	Gamma	1.27E+0	MDP-SWS-FTR	3.8E-5
1-SWS-MDP-FR-P4_002__LCO	NSCW pump P4-002 FTR (72 hr)	1.6E-6	72	Gamma	1.27E+0	MDP-SWS-FR-LCO	1.1E-4
1-SWS-MDP-FR-P4_003__	NSCW pump 3 FTR	1.6E-6	24	Gamma	1.27E+0	MDP-SWS-FTR	3.8E-5
1-SWS-MDP-FR-P4_003__LCO	NSCW pump3 FTR (72 hr)	1.6E-6	72	Gamma	1.27E+0	MDP-SWS-FR-LCO	1.1E-4
1-SWS-MDP-FR-P4_004__	NSCW pump 4 FTR	1.6E-6	24	Gamma	1.27E+0	MDP-SWS-FTR	3.8E-5
1-SWS-MDP-FR-P4_004__LCO	NSCW pump 4 FTR (72 hr)	1.6E-6	72	Gamma	1.27E+0	MDP-SWS-FR-LCO	1.1E-4
1-SWS-MDP-FR-P4_005__	NSCW pump 5 FTR	1.6E-6	24	Gamma	1.27E+0	MDP-SWS-FTR	3.8E-5
1-SWS-MDP-FR-P4_005__LCO	NSCW pump 5 FTR (72 hr) - random fault	1.6E-6	72	Gamma	1.27E+0	MDP-SWS-FR-LCO	1.1E-4
1-SWS-MDP-FR-P4_006__	NSCW pump P4-006 FTR	1.6E-6	24	Gamma	1.27E+0	MDP-SWS-FTR	3.8E-5
1-SWS-MDP-FR-P4_006__LCO	NSCW pump 6 FTR (72 hr)	1.6E-6	72	Gamma	1.27E+0	MDP-SWS-FR-LCO	1.1E-4
1-SWS-MDP-FS-P4_001__	NSCW pump P4-001 randomly FTS			Beta	4.60E+3	MDP-SWS-FTS	1.5E-3
1-SWS-MDP-FS-P4_002__	NSCW pump P4-002 randomly FTS			Beta	4.60E+3	MDP-SWS-FTS	1.5E-3
1-SWS-MDP-FS-P4_003__	NSCW pump P4-003 randomly FTS			Beta	4.60E+3	MDP-SWS-FTS	1.5E-3
1-SWS-MDP-FS-P4_004__	NSCW pump P4-004 randomly FTS			Beta	4.60E+3	MDP-SWS-FTS	1.5E-3
1-SWS-MDP-FS-P4_005__	NSCW pump P4-005 randomly FTS			Beta	4.60E+3	MDP-SWS-FTS	1.5E-3
1-SWS-MDP-FS-P4_006__	NSCW pump P4-006 randomly FTS			Beta	4.60E+3	MDP-SWS-FTS	1.5E-3
1-SWS-MDP-MA-P4_001__	NSCW pump P4-001 unavailable due to maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-SWS-MDP-MA-P4_00135-3	All 3 NSCW train A pumps unavailable due to maintenance			Log Normal	1.00E+1		3.4E-5
1-SWS-MDP-MA-P4_002__	NSCW pump P4-002 unavailable due to maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-SWS-MDP-MA-P4_00246-3	All 3 NSCW train B pumps unavailable due to maintenance			Log Normal	1.00E+1		2.8E-6
1-SWS-MDP-MA-P4_003__	NSCW pump P4-003 unavailable due to maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-SWS-MDP-MA-P4_004__	NSCW pump P4-004 unavailable due to maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-SWS-MDP-MA-P4_005__	NSCW pump P4-005 unavailable due to maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-SWS-MDP-MA-P4_006__	NSCW pump P4-006 unavailable due to maintenance			Normal	9.4E-4	MDP-TM(BCW)	3.0E-3
1-SWS-MOV-CC-11600__	NSCW MOV HV11600 randomly fails to open			Beta	5.40E+4	MOV-CC	3.5E-4
1-SWS-MOV-CC-11605__	NSCW MOV HV11605 randomly fails to open			Beta	5.40E+4	MOV-CC	3.5E-4
1-SWS-MOV-CC-11606__	NSCW MOV HV11606 randomly fails to open			Beta	5.40E+4	MOV-CC	3.5E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-MOV-CC-11607____	MOV HV11607 randomly fails to open			Beta	5.40E+4	MOV-CC	3.5E-4
1-SWS-MOV-CC-11612____	MOV HV11612 randomly fails to open			Beta	5.40E+4	MOV-CC	3.5E-4
1-SWS-MOV-CC-11613____	SW MOV fails to open on demand			Beta	5.40E+4	MOV-CC	3.5E-4
1-SWS-MOV-CC-1668A____	NSCW CT A spray valve HV1668A fails to open on demand			Beta	5.40E+4	MOV-CC	3.5E-4
1-SWS-MOV-CC-1668B____	NSCW CT A bypass valve HV1668B fails to open on demand			Beta	5.40E+4	MOV-CC	3.5E-4
1-SWS-MOV-CC-1668B69B-CC	NSCW CT bypass valves HV1668B & 69B fails to open due to CCF						2.5E-4
1-SWS-MOV-CC-1669A____	NSCW CT B spray valve HV1669A fails to open on demand			Beta	5.40E+4	MOV-CC	3.5E-4
1-SWS-MOV-CC-1669B____	NSCW CT B bypass valve HV1669B fails to open on demand			Beta	5.40E+4	MOV-CC	3.5E-4
1-SWS-MOV-CF-116	NSCW pump discharge valves fail from CCF to open						8.7E-7
1-SWS-MOV-CF-116-AB	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						9.8E-07
1-SWS-MOV-CF-116-ABC	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-ABCD	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						3.9E-07
1-SWS-MOV-CF-116-ABCDE	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						4.7E-07
1-SWS-MOV-CF-116-ABCDEF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						8.7E-07
1-SWS-MOV-CF-116-ABCDF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						4.7E-07
1-SWS-MOV-CF-116-ABCE	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						3.9E-07
1-SWS-MOV-CF-116-ABCEF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						4.7E-07
1-SWS-MOV-CF-116-ABCF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						3.9E-07
1-SWS-MOV-CF-116-ABD	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-ABDE	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						3.9E-07
1-SWS-MOV-CF-116-ABDEF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						4.7E-07
1-SWS-MOV-CF-116-ABDF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						3.9E-07

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-MOV-CF-116-ABE	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-ABEF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						3.9E-07
1-SWS-MOV-CF-116-ABF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-AC	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						9.8E-07
1-SWS-MOV-CF-116-ACD	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-ACDE	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						3.9E-07
1-SWS-MOV-CF-116-ACDEF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						4.7E-07
1-SWS-MOV-CF-116-ACDF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						3.9E-07
1-SWS-MOV-CF-116-ACE	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-ACEF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						3.9E-07
1-SWS-MOV-CF-116-ACF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-AD	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						9.8E-07
1-SWS-MOV-CF-116-ADE	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-ADEF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						3.9E-07
1-SWS-MOV-CF-116-ADF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-AE	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						9.8E-07
1-SWS-MOV-CF-116-AEF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-AF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						9.8E-07
1-SWS-MOV-CF-116-BC	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						9.8E-07
1-SWS-MOV-CF-116-BCD	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-MOV-CF-116-BCDE	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						3.9E-07
1-SWS-MOV-CF-116-BCDEF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						4.7E-07
1-SWS-MOV-CF-116-BCDF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						3.9E-07
1-SWS-MOV-CF-116-BCE	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-BCEF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						3.9E-07
1-SWS-MOV-CF-116-BCF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-BD	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						9.8E-07
1-SWS-MOV-CF-116-BDE	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-BDEF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						3.9E-07
1-SWS-MOV-CF-116-BDF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-BE	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						9.8E-07
1-SWS-MOV-CF-116-BEF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-BF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						9.8E-07
1-SWS-MOV-CF-116-CD	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						9.8E-07
1-SWS-MOV-CF-116-CDE	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-CDEF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						3.9E-07
1-SWS-MOV-CF-116-CDF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-CE	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						9.8E-07
1-SWS-MOV-CF-116-CEF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-CF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						9.8E-07



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-MOV-CF-116-DE	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						9.8E-07
1-SWS-MOV-CF-116-DEF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						7.1E-07
1-SWS-MOV-CF-116-DF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						9.8E-07
1-SWS-MOV-CF-116-EF	System Generated Event - RASP CCF event: 1-SWS-MOV-CF-116						9.8E-07
1-SWS-MOV-CF-1668A69A	NSCW CT spray valves HV1668A, 1669A fail from CCF to open						1.2E-5
1-SWS-MOV-MA-1668ACT_	NSCW train A return isolation valve HV1668A closed for containment maintenance			Log Normal	1.00E+1		8.7E-5
1-SWS-MOV-MA-1669ACT_	NSCW train B spray valve HV1669A closed for containment maintenance			Log Normal	1.00E+1		4.1E-5
1-SWS-MOV-OC-11600_PND__	NSCW MOV HV-11600 transfers closed - 72 hr mission time	2.9E-8	72	Gamma	1.57E+0		2.1E-6
1-SWS-MOV-OC-11605_PND__	NSCW MOV HV-11605 transfers closed - 72 hr mission time	2.9E-8	72	Gamma	1.57E+0		2.1E-6
1-SWS-MOV-OC-11606_PND__	NSCW MOV HV-11606 transfers closed - 72 hr mission time	2.9E-8	72	Gamma	1.57E+0		2.1E-6
1-SWS-MOV-OC-11607_PND__	NSCW MOV HV-11607 transfers closed - 72 hr mission time	2.9E-8	72	Gamma	1.57E+0		2.1E-6
1-SWS-MOV-OC-11612_PND__	NSCW MOV HV-11612 transfers closed - 72 hr mission time	2.9E-8	72	Gamma	1.57E+0		2.1E-6
1-SWS-MOV-OC-11613_PND__	NSCW MOV HV-11613 transfers closed - 72 hr mission time	2.9E-8	72	Gamma	1.57E+0		2.1E-6
1-SWS-MOV-OC-1668A__	NSCW train A return isolation valve HV1668A spuriously closes	2.9E-8	24	Gamma	1.57E+0	MOV-OC	7.0E-7
1-SWS-MOV-OC-1668B__	NSCW CT A bypass MOV HV1668B spuriously closes	2.9E-8	24	Gamma	1.57E+0	MOV-OC	7.0E-7
1-SWS-MOV-OC-1669A__	NSCW train B spray valve HV1669A spuriously closes	2.9E-8	24	Gamma	1.57E+0	MOV-OC	7.0E-7
1-SWS-MOV-OC-1669B__	NSCW train B containment byp valve HV1669B spuriously closes	2.9E-8	24	Gamma	1.57E+0	MOV-OC	7.0E-7
1-SWS-MOV-OO-1668A__	NSCW CT spray valve HV1668A fails to close - random			Beta	5.40E+4	MOV-OO	3.5E-4
1-SWS-MOV-OO-1668A69A-CC	NSCW CT spray valves HV1668A & 69A fails to close due to CCF						2.5E-4
1-SWS-MOV-OO-1668B__	NSCW CT A bypass valve HV1668B fails to close on demand			Beta	5.40E+4	MOV-OO	3.5E-4
1-SWS-MOV-OO-1668B69B-CC	NSCW CT bypass valves HV1668B & 69B fails to close due to CCF						2.5E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-MOV-OO-1669A___	NSCW CT B spray valve HV1669A fails to close on demand			Beta	5.40E+4	MOV-OO	3.5E-4
1-SWS-MOV-OO-1669B___	NSCW CT B bypass valve HV1669B fails to close on demand			Beta	5.40E+4	MOV-OO	3.5E-4
1-SWS-PIM-FC-_PI1636_	NSCW CT A bypass valve HV1668B fails to close on demand						0.0E+0
1-SWS-PIM-FC-_PI1637_	NSCW CT B bypass valve HV1669B fails to close on demand						0.0E+0
1-SWS-RLY-FC-_PYALL_A-CC	Transmitter relays PY-1602A						7.4E-7
1-SWS-RLY-FC-11641AX_	Limit switch (1hv1668A) relay fails to actuate NSCW fan 1-F01			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-11641BX_	Limit switch (1hv1669A) relay fails to actuate NSCW fan 2-F01			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-11642AX_	Temperature relay fails to actuate NSCW fan 1-F02			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-11642BX_	Temperature relay fails to actuate NSCW fan 2-F02			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-11643AX_	Temperature relay fails to actuate NSCW fan 1-F03			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-11643BX_	Temperature relay fails to actuate NSCW fan 2-F03			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-11644AX_	Temperature relay fails to actuate NSCW fan 1-F04			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-11644BX_	Temperature relay fails to actuate NSCW fan 2-F04			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-160237AX-CC	Relay 1602AX and 1637AX fail due to CCF						3.6E-7
1-SWS-RLY-FC-1602A___	Transmitter relay PY-1602A randomly fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-1602AX___	Relay 1602AX fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-1603A___	Transmitter relay PY-1603a randomly fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-1603AX___	Relay 1603AX fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-160809AX-CC	Relay 1609AX and 1608AX fail due to CCF						3.6E-7
1-SWS-RLY-FC-1608A___	Transmitter relay PY-1608A randomly fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-1608AX___	Relay 1608AX fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-1609A___	Transmitter relay PY-1609A randomly fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-1609AX___	Relay 1609AX fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-160ALLAX-CC	Relays 1602AX						7.4E-7
1-SWS-RLY-FC-162_023_-CC	162-1 relays associated with HV-11600 & relays associated with -13 & -12 fail						8.5E-8
1-SWS-RLY-FC-162_0237-CC	162-1 relays associated with HV-11600 & relays associated with -07						4.8E-8
1-SWS-RLY-FC-162_025_-CC	162-1 relays associated with HV-11600						8.5E-8
1-SWS-RLY-FC-162_0256-CC	162-1 relays associated with HV-11600						8.5E-8
1-SWS-RLY-FC-162_026_-CC	162-1 relays associated with HV-11600						8.5E-8

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-RLY-FC-162_027_-CC	162-1 relays associated with HV-11600 & relays associated with -07 & -12 fail						4.8E-8
1-SWS-RLY-FC-162_035_-CC	162-1 relays associated with HV-11600						8.5E-8
1-SWS-RLY-FC-162_0356-CC	162-1 relays associated with HV-11600						4.8E-8
1-SWS-RLY-FC-162_036_-CC	162-1 relays associated with HV-11600						8.5E-8
1-SWS-RLY-FC-162_037_-CC	162-1 relays associated with HV-11600 & relays associated with -13 & -07 fail						8.5E-8
1-SWS-RLY-FC-162_056_-CC	162-1 relays associated with HV-11600						8.5E-8
1-SWS-RLY-FC-162_0567-CC	162-1 relays associated with HV-11600						4.8E-8
1-SWS-RLY-FC-162_057_-CC	162-1 relays associated with HV-11600						8.5E-8
1-SWS-RLY-FC-162_067_-CC	162-1 relays associated with HV-11600						3.6E-7
1-SWS-RLY-FC-162_1ALL-CC	Relays 162-1 associated with opening of HV-11600						7.4E-7
1-SWS-RLY-FC-162_1P1_	NSCW PP 1			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-162_1P2_	NSCW PP 2			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-162_1P3_	NSCW PP 3			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-162_1P4_	NSCW PP 4			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-162_1P5_	NSCW PP 3			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-162_1P6_	NSCW PP 4 TDE relay 162-1 fails -random			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-162_1PPS-CC	CCF of NSCW PPs TDE relays 162-1 - overall CCF for CCFg=6						6.5E-8
1-SWS-RLY-FC-162_1X68	Relay 162-1x for opening HV1668A/B fails random			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-162_1X69	Relay 162-1x for opening HV1669A/B fails random			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-162_1X89-CC	Relays 162- 1x for opening HV1668A/B and 1669A/B after LOSP fails - CCF						1.5E-6
1-SWS-RLY-FC-162_235_-CC	162-1 relays associated with HV-11605						8.5E-8
1-SWS-RLY-FC-162_2357-CC	162-1 relays associated with HV-11605						4.8E-8
1-SWS-RLY-FC-162_236_-CC	162-1 relays associated with HV-11606						8.5E-8
1-SWS-RLY-FC-162_2367-CC	162-1 relays associated with HV-11606						4.8E-8
1-SWS-RLY-FC-162_237_-CC	162-1 relays associated with HV-11613 & relays associated with -07 & -12 fail						8.5E-8
1-SWS-RLY-FC-162_256_-CC	162-1 relays associated with HV-11605						8.5E-8
1-SWS-RLY-FC-162_257_-CC	162-1 relays associated with HV-11605						8.5E-8
1-SWS-RLY-FC-162_267_-CC	162-1 relays associated with HV-11606						8.5E-8
1-SWS-RLY-FC-162_356_-CC	162-1 relays associated with HV-11605						8.5E-8
1-SWS-RLY-FC-162_357_-CC	162-1 relays associated with HV-11605						8.5E-8
1-SWS-RLY-FC-162_367_-CC	162-1 relays associated with HV-11606						8.5E-8
1-SWS-RLY-FC-162_567_-CC	162-1 relays associated with HV-11607						8.5E-8

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-RLY-FC-16210007-CC	Relay 162-1 associated with opening HV-11600 and -07 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16210012-CC	Relay 162-1 associated with opening HV-11600 and -12 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16210013-CC	Relay 162-1 associated with opening HV-11600 and -13 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16210507-CC	Relay 162-1 associated with opening HV-11605 and -07 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16210512-CC	Relay 162-1 associated with opening HV-11605 and -12 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16210513-CC	Relay 162-1 associated with opening HV-11605 and -13 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16210607-CC	Relay 162-1 associated with opening HV-11606 and -07 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16210612-CC	Relay 162-1 associated with opening HV-11606 and -12 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16210613-CC	Relay 162-1 associated with opening HV-11606 and -13 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16211600	Relay 162-1 associated with opening of HV-11600 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-16211605	Relay 162-1 associated with opening of HV-11605 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-16211606	Relay 162-1 associated with opening of HV-11606 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-16211607	Relay 162-1 associated with opening of HV-11607 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-16211612	Relay 162-1 associated with opening of HV-11612 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-16211613	Relay 162-1 associated with opening of HV-11613 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-1622X1P1	Relay 162-2x1 associated with P4-001 randomly fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-1622X1P2	Relay 162-2x1 associated with P4-002 randomly fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-1622X1P3	Relay 162-2x1 associated with P4-003 randomly fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-1622X1P4	Relay 162-2x1 associated with P4-004 randomly fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-1622X1P5	Relay 162-2x1 associated with P4-005 randomly fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-1622X1P6	Relay 162-2x1 associated with P4-006 randomly fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-1624MORE-CC	CCF of 4 or more 162-2x1 relays						7.4E-7
1-SWS-RLY-FC-1636A__	Transmitter relay PY-1636A randomly fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-1636AX__	Relay 1636AX fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-1637A__	Transmitter relay PY-1637A randomly fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-1637AX__	Relay 1637AX fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-16P1P2__-CC	Relay 162-2x1 associated with P4-001 and P4-002 fails due to CCF						3.6E-7

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-RLY-FC-16P1P2P3-CC	Relay 162-2x1 associated with P4-001						8.5E-8
1-SWS-RLY-FC-16P1P2P4-CC	Relay 162-2x1 associated with P4-001						8.5E-8
1-SWS-RLY-FC-16P1P2P5-CC	Relay 162-2x1 associated with P4-001						8.5E-8
1-SWS-RLY-FC-16P1P2P6-CC	Relay 162-2x1 associated with P4-001						8.5E-8
1-SWS-RLY-FC-16P1P3__-CC	Relay 162-2x1 associated with P4-001 and P4-003 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16P1P3P4-CC	Relay 162-2x1 associated with P4-001						8.5E-8
1-SWS-RLY-FC-16P1P3P6-CC	Relay 162-2x1 associated with P4-001						8.5E-8
1-SWS-RLY-FC-16P1P4__-CC	Relay 162-2x1 associated with P4-001 and P4-004 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16P1P4P5-CC	Relay 162-2x1 associated with P4-001						8.5E-8
1-SWS-RLY-FC-16P1P4P6-CC	Relay 162-2x1 associated with P4-001						8.5E-8
1-SWS-RLY-FC-16P1P5__-CC	Relay 162-2x1 associated with P4-001 and P4-005 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16P1P5P6-CC	Relay 162-2x1 associated with P4-001						8.5E-8
1-SWS-RLY-FC-16P1P6__-CC	Relay 162-2x1 associated with P4-001 and P4-006 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16P2P3__-CC	Relay 162-2x1 associated with P4-002 and P4-003 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16P2P3P4-CC	Relay 162-2x1 associated with P4-002						8.5E-8
1-SWS-RLY-FC-16P2P3P5-CC	Relay 162-2x1 associated with P4-002						8.5E-8
1-SWS-RLY-FC-16P2P3P6-CC	Relay 162-2x1 associated with P4-002						8.5E-8
1-SWS-RLY-FC-16P2P4__-CC	Relay 162-2x1 associated with P4-002 and P4-004 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16P2P4P5-CC	Relay 162-2x1 associated with P4-002						8.5E-8
1-SWS-RLY-FC-16P2P5__-CC	Relay 162-2x1 associated with P4-002 and P4-005 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16P2P5P6-CC	Relay 162-2x1 associated with P4-002						8.5E-8
1-SWS-RLY-FC-16P2P6__-CC	Relay 162-2x1 associated with P4-002 and P4-006 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16P3P4__-CC	Relay 162-2x1 associated with P4-003 and P4-004 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16P3P4P5-CC	Relay 162-2x1 associated with P4-003						8.5E-8
1-SWS-RLY-FC-16P3P4P6-CC	Relay 162-2x1 associated with P4-003						8.5E-8
1-SWS-RLY-FC-16P3P5__-CC	Relay 162-2x1 associated with P4-003 and P4-005 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16P3P5P6-CC	Relay 162-2x1 associated with P4-003						8.5E-8

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-RLY-FC-16P3P6__CC	Relay 162-2x1 associated with P4-003 and P4-006 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16P4P5__CC	Relay 162-2x1 associated with P4-004 and P4-005 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16P4P5P6-CC	Relay 162-2x1 associated with P4-004						8.5E-8
1-SWS-RLY-FC-16P4P6__CC	Relay 162-2x1 associated with P4-004 and P4-006 fails due to CCF						3.6E-7
1-SWS-RLY-FC-16P5P6__CC	Relay 162-2x1 associated with P4-005 and P4-006 fails due to CCF						3.6E-7
1-SWS-RLY-FC-AX_4MORE-CC	CCF of 4 or more AX relays						7.4E-7
1-SWS-RLY-FC-AX_P1__	Relay AX associated with tripped breaker on P4-001 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-AX_P2__	Relay AX associated with tripped breaker on P4-002 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-AX_P3__	Relay AX associated with tripped breaker on P4-003 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-AX_P4__	Relay AX associated with tripped breaker on P4-004 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-AX_P5__	Relay AX associated with tripped breaker on P4-005 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-AX_P6__	Relay AX associated with tripped breaker on P4-006 fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-AX3_68AB	Relay AX3 for opening/closing NSCW 1hv1668A/B fails -random fault			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-AX3_69AB	NSCW relay AX3 for opening/closing 1hv1669A/B fails			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-AX36869__CC	CCF of AX3 relays for open/close NSCW MOVs 1hv1668A/B & 1669A/B after LOSP						1.5E-6
1-SWS-RLY-FC-AX4_68AB	Relay AX4 for opening NSCW 1hv1668A/B fails -random fault			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-AX4_69AB	Relay AX4 for opening NSCW 1hv1669A/B fails -random fault			Beta	2.00E+4	RLY-FC	2.5E-5
1-SWS-RLY-FC-AX46869__CC	Relays AX4 for opening NSCW 1hv1668A/B & 1669A/B after LOSP fails - CCF						1.5E-6
1-SWS-RLY-FC-AXP1P2__CC	Relay AX associated with tripped breaker on P4-001 and P4-002 fails due to CCF						3.6E-7
1-SWS-RLY-FC-AXP1P2P3-CC	Relay AX associated with tripped breaker on P4-001						8.5E-8
1-SWS-RLY-FC-AXP1P2P4-CC	Relay AX associated with tripped breaker on P4-001						8.5E-8
1-SWS-RLY-FC-AXP1P2P5-CC	Relay AX associated with tripped breaker on P4-001						8.5E-8
1-SWS-RLY-FC-AXP1P2P6-CC	Relay AX associated with tripped breaker on P4-001						8.5E-8
1-SWS-RLY-FC-AXP1P3__CC	Relay AX associated with tripped breaker on P4-001 and P4-003 fails due to CCF						3.6E-7
1-SWS-RLY-FC-AXP1P3P4-CC	Relay AX associated with tripped breaker on P4-001						8.5E-8
1-SWS-RLY-FC-AXP1P3P6-CC	Relay AX associated with tripped breaker on P4-001						8.5E-8

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-RLY-FC-AXP1P4__-CC	Relay AX associated with tripped breaker on P4-001 and P4-004 fails due to CCF						3.6E-7
1-SWS-RLY-FC-AXP1P4P5-CC	Relay AX associated with tripped breaker on P4-001						8.5E-8
1-SWS-RLY-FC-AXP1P4P6-CC	Relay AX associated with tripped breaker on P4-001						8.5E-8
1-SWS-RLY-FC-AXP1P5__-CC	Relay AX associated with tripped breaker on P4-001 and P4-005 fails due to CCF						3.6E-7
1-SWS-RLY-FC-AXP1P5P6-CC	Relay AX associated with tripped breaker on P4-001						8.5E-8
1-SWS-RLY-FC-AXP1P6__-CC	Relay AX associated with tripped breaker on P4-001 and P4-006 fails due to CCF						3.6E-7
1-SWS-RLY-FC-AXP2P3__-CC	Relay AX associated with tripped breaker on P4-002 and P4-003 fails due to CCF						3.6E-7
1-SWS-RLY-FC-AXP2P3P4-CC	Relay AX associated with tripped breaker on P4-002						8.5E-8
1-SWS-RLY-FC-AXP2P3P5-CC	Relay AX associated with tripped breaker on P4-002						8.5E-8
1-SWS-RLY-FC-AXP2P3P6-CC	Relay AX associated with tripped breaker on P4-002						8.5E-8
1-SWS-RLY-FC-AXP2P4__-CC	Relay AX associated with tripped breaker on P4-002 and P4-004 fails due to CCF						3.6E-7
1-SWS-RLY-FC-AXP2P4P5-CC	Relay AX associated with tripped breaker on P4-002						8.5E-8
1-SWS-RLY-FC-AXP2P5__-CC	Relay AX associated with tripped breaker on P4-002 and P4-005 fails due to CCF						3.6E-7
1-SWS-RLY-FC-AXP2P5P6-CC	Relay AX associated with tripped breaker on P4-002						8.5E-8
1-SWS-RLY-FC-AXP2P6__-CC	Relay AX associated with tripped breaker on P4-002 and P4-006 fails due to CCF						3.6E-7
1-SWS-RLY-FC-AXP3P4__-CC	Relay AX associated with tripped breaker on P4-003 and P4-004 fails due to CCF						3.6E-7
1-SWS-RLY-FC-AXP3P4P5-CC	Relay AX associated with tripped breaker on P4-003						8.5E-8
1-SWS-RLY-FC-AXP3P4P6-CC	Relay AX associated with tripped breaker on P4-003						8.5E-8
1-SWS-RLY-FC-AXP3P5__-CC	Relay AX associated with tripped breaker on P4-003 and P4-005 fails due to CCF						3.6E-7
1-SWS-RLY-FC-AXP3P5P6-CC	Relay AX associated with tripped breaker on P4-003						8.5E-8
1-SWS-RLY-FC-AXP3P6__-CC	Relay AX associated with tripped breaker on P4-003 and P4-006 fails due to CCF						3.6E-7
1-SWS-RLY-FC-AXP4P5__-CC	Relay AX associated with tripped breaker on P4-004 and P4-005 fails due to CCF						3.6E-7
1-SWS-RLY-FC-AXP4P5P6-CC	Relay AX associated with tripped breaker on P4-004						3.6E-7
1-SWS-RLY-FC-AXP4P6__-CC	Relay AX associated with tripped breaker on P4-004 and P4-006 fails due to CCF						3.6E-7
1-SWS-RLY-FC-AXP5P6__-CC	Relay AX associated with tripped breaker on P4-005 and P4-006 fails due to CCF						3.6E-7

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-RMB-CC-11759____	NSCW CT A relief valve PSV11759 fails to open - random faults			Beta	4.70E+3	PPR-PRV-CC	3.5E-3
1-SWS-RMB-CC-11759766-CC	NSCW CT relief valves PSV11759 & 11766 fail to open -CCF						1.6E-4
1-SWS-RMB-CC-11766____	NSCW CT B relief valve PSV11766 fails to open - random faults			Beta	4.70E+3	PPR-PRV-CC	3.5E-3
1-SWS-SWT-FC-1_F02____	Failure of temperature switch start logic	4.1E-7	24	Gamma	5.00E-01	SWT-FC	9.9E-6
1-SWS-SWT-FC-1_F03____	Failure of temperature switch start logic for NSCW fan 1-F03	4.1E-7	24	Gamma	5.00E-01	SWT-FC	9.9E-6
1-SWS-SWT-FC-1_F04____	Failure of temperature switch start logic	4.1E-7	24	Gamma	5.00E-01	SWT-FC	9.9E-6
1-SWS-SWT-FC-2_F02____	Failure of temperature switch start logic	4.1E-7	24	Gamma	5.00E-01	SWT-FC	9.9E-6
1-SWS-SWT-FC-2_F03____	Failure of temperature switch start logic for NSCW fan 2-F03	4.1E-7	24	Gamma	5.00E-01	SWT-FC	9.9E-6
1-SWS-SWT-FC-2_F04____	Failure of temperature switch start logic	4.1E-7	24	Gamma	5.00E-01	SWT-FC	9.9E-6
1-SWS-SWT-FC-TY16689B-CC	NSCW return water temperature switches TY1668B&1669B fail - CCF						1.2E-5
1-SWS-SWT-FC-TY1668B_	NSCW train A return water temperature switch TY1668B fails - random fault	4.1E-7	24	Gamma	5.00E-01	SWT-FC	9.9E-6
1-SWS-SWT-FC-TY1669B_	NSCW train B return water temperature switch TY1669B fails - random fault	4.1E-7	24	Gamma	5.00E-01	SWT-FC	9.9E-6
1-SWS-TFF-FC-_FT1640B	NSCW train B return water temperature switch TY1669B fails - random fault						0.0E+0
1-SWS-TFF-FC-_FT1641B	NSCW train B return water temperature switch TY1669B fails - random fault						0.0E+0
1-SWS-TFP-FC-_PT1636_	Train A pressure transmitter PT-1636 fails						0.0E+0
1-SWS-TFP-FC-_PT1637_	Train A pressure transmitter PT-1637 fails						0.0E+0
1-SWS-TFP-FC-160_ALL_-CC	Low discharge header pressure transmitters PT-1602						9.0E-6
1-SWS-TFP-FC-1602____	Low discharge header pressure transmitter PT-1602 randomly fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-SWS-TFP-FC-1603____	Low discharge header pressure transmitter PT-1603 randomly fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-SWS-TFP-FC-1608____	Low discharge header pressure transmitter PT-1608 randomly fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-SWS-TFP-FC-1609____	Low discharge header pressure transmitter PT-1609 randomly fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-SWS-TFP-FC-1636____	Low discharge header pressure transmitter PT-1636 randomly fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5
1-SWS-TFP-FC-1637____	Low discharge header pressure transmitter PT-1637 randomly fails	9.4E-7	24	Gamma	2.50E+0	TFP-FC	2.3E-5



**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-SWS-XVM-PG-092	NSCW locked open inlet valve 092 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-SWS-XVM-PG-093	NSCW locked open outlet valve 093 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-SWS-XVM-PG-123	NSCW locked open inlet valve 123 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-SWS-XVM-PG-124	NSCW locked open outlet valve 124 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-CKV-CC-513	Check valve 513 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-TBC-CKV-CC-514	Check valve 514 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-TBC-CKV-CC-641	Check valve 641 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-TBC-CKV-CC-672	Check valve 672 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-TBC-CKV-CC-673	Check valve 673 randomly fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-TBC-CRB-FC-00102	Autostart on pump 1 open circuit breaker for pump 2 fails			Beta	9.20E+2	CRB-CC	5.3E-3
1-TBC-CRB-FC-00201	Autostart on pump 2 open circuit breaker for pump 1 fails			Beta	9.20E+2	CRB-CC	5.3E-3
1-TBC-LMS-FC-H17280	Failure of tank high level switch			Beta	2.00E+5		2.4E-6
1-TBC-MDP-CF-FR0102	CCF of TPCCW pumps 001 and 002 FTR						5.1E-6
1-TBC-MDP-CF-FS0102	CCF of TPCCW pumps 001 and 002 FTS						2.4E-5
1-TBC-MDP-FR-001	TPCCW pump 1 FTR	3.2E-6	24	Gamma	3.27E+0	CCW-MDP-FTR	7.6E-5
1-TBC-MDP-FR-002	TPCCW pump 2 FTR	3.2E-6	24	Gamma	3.27E+0	CCW-MDP-FTR	7.6E-5
1-TBC-MDP-FR-500	TPCCW pump P4-500 FTR	3.2E-6	24	Gamma	3.27E+0	CCW-MDP-FTR	7.6E-5
1-TBC-MDP-FS-001	TPCCW pump 1 FTS			Beta	4.70E+3	CCW-MDP-FTS	4.8E-4
1-TBC-MDP-FS-002	TPCCW pump 2 FTS			Beta	4.70E+3	CCW-MDP-FTS	4.8E-4
1-TBC-MDP-FS-500	TPCCW pump P4-500 FTS			Beta	4.70E+3	CCW-MDP-FTS	4.8E-4
1-TBC-MDP-MA-001	TPCCW pump 1 unavailable due to maintenance			Normal	5.2E-3	MDP-TM(CCW)	6.9E-3
1-TBC-MDP-MA-002	TPCCW pump 2 unavailable due to maintenance			Normal	5.2E-3	MDP-TM(CCW)	6.9E-3
1-TBC-MOV-CC-17365	Temperature control valve TCV17365 fails to open			Beta	5.40E+4	MOV-CC	3.5E-4
1-TBC-SOV-CC-7396	Solenoid valve FV7396 fails to open			Beta	2.60E+4	SOV-CC	1.2E-3
1-TBC-SOV-CC-7397	Solenoid valve FV7397 fails to open			Beta	2.60E+4	SOV-CC	1.2E-3
1-TBC-SOV-CC-73977396-CC	Solenoid valves FV7397 & FV7396 fail to open due to CCF						5.0E-5
1-TBC-TC-CC-V17278	Temperature control valve TCV17278 fails to open			Beta	2.10E+4	HOVFTO	1.2E-3
1-TBC-TC-CC-V17279	Temperature control valve TCV17279 fails to open			Beta	2.10E+4	HOVFTO	1.2E-3
1-TBC-TC-CC-V278279_-CC	Temperature control valve TCV17278 & 17279 fail to open due to CCF						4.5E-5
1-TBC-TNK-RP-001	TPCCW surge tank ruptures	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-TBC-TNK-RP-500	TPCCW drain tank t4-500 fails due to rupture	1.8E-8	24	Gamma	6.50E+0	TNK-RP	4.3E-7
1-TBC-XVM-OC-7228	Manual valve HV7228 transfers closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6
1-TBC-XVM-OC-7229	Manual valve HV7229 transfers closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6
1-TBC-XVM-OC-7230	Manual valve HV7230 transfers closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6
1-TBC-XVM-OC-7231	Manual valve HV7231 transfers closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-TBC-XVM-PG-559 G	TPCCW ball valve 559 (to CON P bearing) plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-560 G	TPCCW ball valve 560 (to CON P bearing) plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-562 G	TPCCW globe valve 562 (to CON P bearing) plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-566 G	TPCCW globe valve 566 (to CON P bearing) plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-595	Manual valve 595 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-662	Manual valve 662 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-663	Manual valve 663 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-665	Manual valve 665 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-666	Manual valve 666 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-667	Manual valve 667 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-668	Manual valve 668 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-669	Manual valve 669 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-670	Manual valve 670 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-671	Manual valve 671 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-690 G	TPCCW gate valve 690 (from CON P bearing) plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-691 G	TPCCW gate valve 691 (from CON P bearing) plugs	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-711	Manual valve 711 fails due to plugging	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TBC-XVM-PG-FCV173AG	TPCCW valve FCV-173a (to CON P bearing) plugs.	3.0E-9	24	Log Normal	1.00E+1	XVM-PG	7.2E-8
1-TFFAL	Transmitter - flow fails during operation			Gamma	5.0E-1	1-TFFAL	9.7E-8
1-TLFAL	Transmitter - level fails during operation			Gamma	5.0E-1	1-TLFAL	9.7E-8
1-TPC-CKV-CC-501	Check valve 501 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-TPC-CKV-CC-502	Check valve 502 fails to open			Beta	4.70E+4	CKV-CC	1.1E-5
1-TPC-CRB-FC-501	Pump start signal fails to open valve			Beta	9.20E+2	CRB-CC	5.3E-3
1-TPC-CRB-FC-501502	Pump 1 circuit breaker autostart circuit fails TPCW pump 2			Beta	9.20E+2	CRB-CC	5.3E-3
1-TPC-CRB-FC-502	Pump start signal fails to open valve			Beta	9.20E+2	CRB-CC	5.3E-3
1-TPC-CRB-FC-502501	Pump 2 circuit breaker autostart circuit fails TPCW pump 1			Beta	9.20E+2	CRB-CC	5.3E-3
1-TPC-MDP-CF-FR501502	CCF of TPCW pumps 501 and 502 FTR						5.1E-6
1-TPC-MDP-CF-FS501502	CCF of TPCW pumps 501 and 502 FTS						2.4E-5
1-TPC-MDP-FR-501	TPCW pump 1 FTR	3.2E-6	24	Gamma	3.27E+0	CCW-MDP-FTR	7.6E-5
1-TPC-MDP-FR-502	TPCW pump 2 FTR	3.2E-6	24	Gamma	3.27E+0	CCW-MDP-FTR	7.6E-5
1-TPC-MDP-FS-501	TPCW pump 1 FTS			Beta	4.70E+3	CCW-MDP-FTS	4.8E-4
1-TPC-MDP-FS-502	TPCW pump 2 FTS			Beta	4.70E+3	CCW-MDP-FTS	4.8E-4
1-TPC-MDP-MA-501	TPCW pump 1 unavailable due to maintenance			Normal	5.2E-3	MDP-TM(CCW)	6.9E-3
1-TPC-MDP-MA-502	TPCW pump 2 unavailable due to maintenance			Normal	5.2E-3	MDP-TM(CCW)	6.9E-3
1-TPC-MOV-CC-HV6798	MOV HV6798 fails to open			Beta	5.40E+4	MOV-CC	3.5E-4
1-TPC-MOV-CC-HV6799	MOV HV6799 fails to open			Beta	5.40E+4	MOV-CC	3.5E-4

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
1-TPC-MOV-CF-HV679899	CCF of TPCW MOVs HV6798/6799 to open						1.2E-5
1-TPC-XVM-OC-6711	Manual valve HV6711 transfers closed	8.4E-8	24	Gamma	8.50E+0	XVM-OC	2.0E-6
1-TPFRP	Transmitter - pressure fails			Gamma	2.50E+0	1-TPFRP	9.4E-7
1-TSFAL	Switch - temperature fails during operation			Gamma	5.00E-01	1-TSFAL	4.1E-7
1-TTRIP	Turbine trip IE basic event			Gamma	8.70E+2		1.9E-1
1-TTSIGNAL	Failure of turbine trip signal			CNI	0.00E+0		2.6E-4
1-UET2-1PORV-BLK	UET - ATWT						3.2E-1
1-UET2-NOPORV-BLK	UET-ATWT						1.1E-1
1-VSKMS	MSIV fails to close			Beta	4.70E+2	1-VSKMS	2.8E-3
QAFKVFTO-GL	Global CCF multiplier AFW discharge stop CVs fail to open			Beta	7.90E+1	QAFKVFTO-GL	2.0E-3
QAOVFTOP2-2NS	CCF Multiplier, AOV FTOP, 2-2, non-staggered testing			Beta	4.90E+1	QAOVFTOP2-2NS	4.4E-2
QAOVFTOP2-3NS	CCF Multiplier, AOV FTOP, 2-3, non-Staggered			Beta	1.70E+2	QAOVFTOP2-3NS	1.5E-2
QAOVFTOP2-4NS	CCF Multiplier, AOV FTOP, 2-4, non-staggered testing			Beta	3.50E+2	QAOVFTOP2-4NS	1.2E-2
QAOVFTOP2-4S	CCF multiplier, AOV FTOP, 2-4, staggered testing			Beta	6.30E+2	QAOVFTOP2-4S	6.2E-3
QAOVFTOP3-3NS	CCF Multiplier, AOV FTOP, 3-3, non-Staggered			Beta	5.20E+1	QAOVFTOP3-3NS	2.8E-2
QAOVFTOP3-4NS	CCF Multiplier, AOV FTOP, 3-4, non-staggered testing			Beta	2.30E+2	QAOVFTOP3-4NS	3.4E-3
QAOVFTOP3-4S	CCF multiplier, AOV FTOP, 3-4, staggered testing			Beta	6.10E+2	QAOVFTOP3-4S	1.2E-3
QAOVFTOP4-4NS	CCF Multiplier, AOV FTOP, 4-4, non-staggered testing			Beta	5.60E+1	QAOVFTOP4-4NS	2.3E-2
QAOVFTOP4-4S	CCF multiplier, AOV FTOP, 4-4, staggered testing			Beta	2.10E+2	QAOVFTOP4-4S	6.2E-3
QBATNOUTP2-2NS	CCF Multiplier, battery no output, 2-2, non-staggered testing			Beta	9.60E+1	QBATNOUTP2-2NS	1.1E-2
QBATNOUTP2-4NS	CCF Multiplier, battery no output, 2-4, non-staggered testing			Beta	6.30E+2	QBATNOUTP2-4NS	4.7E-3
QBATNOUTP3-4NS	CCF Multiplier, battery no output, 3-4, non-staggered testing			Beta	3.90E+2	QBATNOUTP3-4NS	2.3E-3
QBATNOUTP4-4NS	CCF Multiplier, battery no output, 4-4, non-staggered testing			Beta	1.00E+2	QBATNOUTP4-4NS	2.7E-3
QBCNOUTP2-2NS	CCF Multiplier, battery charger no output, 2-2, non-staggered testing			Beta	2.20E+2	QBCNOUTP2-2NS	2.2E-2
QBCNOUTP2-2S	CCF multiplier, battery charger no output, 2-2, staggered testing			Beta	4.30E+2	QBCNOUTP2-2S	1.1E-2
QBCNOUTP2-4NS	CCF Multiplier, battery charger no output, 2-4, non-staggered testing			Beta	1.50E+3	QBCNOUTP2-4NS	7.9E-3
QBCNOUTP2-4S	CCF multiplier, battery charger no output, 2-4, staggered testing			Beta	2.70E+3	QBCNOUTP2-4S	4.1E-3
QBCNOUTP3-4NS	CCF Multiplier, battery charger no output, 3-4, non-staggered testing			Beta	9.50E+2	QBCNOUTP3-4NS	4.2E-3

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
QBCNOUTP3-4S	CCF multiplier, battery charger no output, 3-4, staggered testing			Beta	2.80E+3	QBCNOUTP3-4S	1.4E-3
QBCNOUTP4-4NS	CCF Multiplier, battery charger no output, 4-4, non-staggered testing			Beta	2.30E+2	QBCNOUTP4-4NS	5.9E-3
QBCNOUTP4-4S	CCF multiplier, battery charger no output, 4-4, staggered testing			Beta	8.90E+2	QBCNOUTP4-4S	1.5E-3
QCCPFTR2-2S	CCF multiplier, CCP FTR, 2-2, staggered testing			Beta	2.30E+2	QCCPFTR2-2S	1.3E-2
QCCPFTS2-2S	CCF multiplier, CCP FTS, 2-2, staggered testing			Beta	1.50E+2	QCCPFTS2-2S	3.2E-2
QEDGFTR2-3S	CCF multiplier, EDG FTR, 2-3, staggered testing			Beta	1.50E+3	QEDGFTR2-3S	8.8E-3
QEDGFTR3-3S	CCF multiplier, EDG FTR, 3-3, staggered testing			Beta	7.90E+2	QEDGFTR3-3S	1.7E-2
QGMDPFTR2-2NS	CCF Multiplier, MDP (general) FTR, 2-2, non-staggered			Beta	6.70E+2	QGMDPFTR2-2NS	6.7E-2
QGMDPFTR2-2S	CCF Multiplier, MDP (general) FTR, 2-2, staggered testing			Beta	1.20E+3	QGMDPFTR2-2S	3.5E-2
QGMDPFTR2-3NS	CCF Multiplier, MDP (general) FTR, 2-3, non-staggered			Beta	2.10E+3	QGMDPFTR2-3NS	1.1E-2
QGMDPFTR2-4S	CCF Multiplier, MDP (general) FTR, 2-4, staggered testing			Beta	7.70E+3	QGMDPFTR2-4S	3.4E-3
QGMDPFTR3-4S	CCF Multiplier, MDP (general) FTR, 3-4, staggered testing			Beta	7.70E+3	QGMDPFTR3-4S	1.3E-3
QGMDPFTR4-4S	CCF Multiplier, MDP (general) FTR, 4-4, staggered testing			Beta	2.50E+3	QGMDPFTR4-4S	1.4E-2
QGMDPFTS2-2S	CCF Multiplier, MDP (general) FTS, 2-2, staggered testing			Beta	5.50E+2	QGMDPFTS2-2S	6.2E-2
QGMDPFTS2-4S	CCF Multiplier, MDP (general) FTS, 2-4, staggered testing			Beta	3.40E+3	QGMDPFTS2-4S	9.3E-3
QGMDPFTS3-4S	CCF Multiplier, MDP (general) FTS, 3-4, staggered testing			Beta	3.30E+3	QGMDPFTS3-4S	2.2E-3
QGMDPFTS4-4S	CCF Multiplier, MDP (general) FTS, 4-4, staggered testing			Beta	1.10E+3	QGMDPFTS4-4S	2.4E-2
QLXRFTOP2-2S	CCF multiplier, LXTMR, FTOP, 2-2, staggered testing			Beta	1.20E+2	QLXRFTOP2-2S	1.4E-2
QMOVFTOP2-2NS	CCF Multiplier, MOV FTOP, 2-2, non-staggered testing			Beta	5.30E+2	QMOVFTOP2-2NS	4.1E-2
QMOVFTOP2-2S	CCF multiplier, MOV FTOP, 2-2, staggered testing			Beta	9.40E+2	QMOVFTOP2-2S	2.1E-2
QMOVFTOP2-3S	CCF multiplier, MOV FTOP, 2-3, staggered testing			Beta	3.00E+3	QMOVFTOP2-3S	5.8E-3
QMOVFTOP2-4NS	CCF Multiplier, MOV FTOP, 2-4, non-staggered testing			Beta	3.30E+3	QMOVFTOP2-4NS	8.9E-3
QMOVFTOP2-4S	CCF multiplier, MOV FTOP, 2-4, staggered testing			Beta	5.90E+3	QMOVFTOP2-4S	4.6E-3
QMOVFTOP3-3S	CCF multiplier, MOV FTOP, 3-3, staggered testing			Beta	1.50E+3	QMOVFTOP3-3S	1.0E-2
QMOVFTOP3-4S	CCF multiplier, MOV FTOP, 3-4, staggered testing			Beta	6.10E+3	QMOVFTOP3-4S	8.2E-4
QMOVFTOP4-4S	CCF multiplier, MOV FTOP, 4-4, staggered testing			Beta	2.00E+3	QMOVFTOP4-4S	7.0E-3
QMOVSWPALL	Global CCF OF NSCW PP DSCG MOVFS FTOP			Beta	5.80E+2	QMOVSWPALL	3.2E-2
QMSSVFTOALL	CCF multiplier - MSSV FTO global			Beta	1.00E+3	QMSSVFTOALL	1.2E-3
QPORVFTO2-2NS	CCF Multiplier, PORV FTO, 2-2, non-staggered testing			Beta	8.30E+1	QPORVFTO2-2NS	1.1E-1
QPXRFTOP2-2NS	CCF Multiplier, PXTMR, FTOP, 2-2, non-staggered testing			Beta	1.70E+2	QPXRFTOP2-2NS	1.3E-2
QPXRFTOP2-2S	CCF multiplier, PXTMR, FTOP, 2-2, staggered testing			Beta	3.40E+2	QPXRFTOP2-2S	6.6E-3
QPXRFTOP2-4NS	CCF Multiplier, PXTMR, FTOP, 2-4, non-staggered testing			Beta	1.10E+3	QPXRFTOP2-4NS	4.6E-3
QPXRFTOP3-4NS	CCF Multiplier, PXTMR, FTOP, 3-4, non-staggered testing			Beta	7.20E+2	QPXRFTOP3-4NS	3.8E-3
QPXRFTOP4-4NS	CCF Multiplier, PXTMR, FTOP, 4-4, non-staggered testing			Beta	1.70E+2	QPXRFTOP4-4NS	1.4E-3

**Table A 3. L3PRA Project Level 1 Basic Event Data**

Event Name	Event Description	Failure Rate (per hr)	Mission Time (hours)	Distribution		Correlation Class	Prob/ Freq
				Type	Parameters		
QRE6SC4-GL	Global CCF multiplier Relays FTOP, success criteria= 2/3 per train, two trains			Beta	5.50E+1	QRE6SC4-GL	3.0E-2
QRELYFTOP2-2NS	CCF Multiplier, Relay , FTOP, 2-2, non-staggered testing			Beta	2.80E+1	QRELYFTOP2-2NS	6.2E-2
QRELYFTOP2-4S	CCF multiplier, relay , FTOP, 2-4, staggered testing			Beta	4.00E+2	QRELYFTOP2-4S	1.4E-2
QRELYFTOP2-6NS	CCF Multiplier, Relay , FTOP, 2-6, non-staggered testing			Beta	7.50E+2	QRELYFTOP2-6NS	1.4E-2
QRELYFTOP3-4S	CCF multiplier, relay , FTOP, 3-4, staggered testing			Beta	3.90E+2	QRELYFTOP3-4S	3.3E-3
QRELYFTOP3-6NS	CCF Multiplier, Relay , FTOP, 3-6, non-staggered testing			Beta	9.50E+2	QRELYFTOP3-6NS	3.4E-3
QRELYFTOP4-4S	CCF multiplier, relay , FTOP, 4-4, staggered testing			Beta	1.40E+2	QRELYFTOP4-4S	2.8E-3
QRELYFTOP4-6NS	CCF Multiplier, Relay , FTOP, 4-6, non-staggered testing			Beta	6.90E+2	QRELYFTOP4-6NS	1.9E-3
QRELYFTOP6-6NS	CCF Multiplier, Relay , FTOP, 6-6, non-staggered testing			Beta	5.20E+1	QRELYFTOP6-6NS	2.6E-3
QSCVFTO2-2S	CCF multiplier, CV (steam) FTO, 2-2, staggered testing			Beta	3.90E+1	QSCVFTO2-2S	3.1E-2
QSCVFTO2-4S	CCF multiplier, CV (steam) FTO, 2-4, staggered testing			Beta	3.30E+2	QSCVFTO2-4S	9.2E-3
QSCVFTO3-4S	CCF multiplier, CV (steam) FTO, 3-4, staggered testing			Beta	3.20E+2	QSCVFTO3-4S	3.3E-3
QSCVFTO4-4S	CCF multiplier, CV (steam) FTO, 4-4, staggered testing			Beta	1.10E+2	QSCVFTO4-4S	3.9E-3
QSIPFTR2-2S	CCF multiplier, SIP FTR, 2-2, staggered testing			Beta	2.30E+2	QSIPFTR2-2S	1.3E-2
QSIPFTS2-2S	CCF multiplier, SIP FTS, 2-2, staggered testing			Beta	1.50E+2	QSIPFTS2-2S	3.2E-2
QULCDFTOP2-2S	CCF multiplier, UL card, FTOP, 2-2, staggered testing			Beta	2.20E+1	QULCDFTOP2-2S	2.6E-2
QWCVFTC2-2NS	CCF Multiplier, CV (water) fail to close, 2-2, non-staggered testing			Beta	5.50E+1	QWCVFTC2-2NS	5.2E-2
QWCVFTO2-2NS	CCF Multiplier, CV (water) FTO, 2-2, non-staggered testing			Beta	2.40E+1	QWCVFTO2-2NS	4.7E-2
QWCVFTO2-2S	CCF multiplier, CV (water) FTO, 2-2, staggered testing			Beta	4.00E+1	QWCVFTO2-2S	2.6E-2
QWCVFTO2-3S	CCF multiplier, CV (water) FTO, 2-3, staggered testing			Beta	1.40E+2	QWCVFTO2-3S	1.7E-2
QWCVFTO2-4NS	CCF Multiplier, CV (water) FTO, 2-4, non-staggered testing			Beta	2.00E+2	QWCVFTO2-4NS	1.7E-2
QWCVFTO2-4S	CCF multiplier, CV (water) FTO, 2-4, staggered testing			Beta	3.20E+2	QWCVFTO2-4S	8.9E-3
QWCVFTO2-8S	CCF multiplier, CV (water) FTO, 2-8, staggered testing			Beta	2.40E+3	QWCVFTO2-8S	2.2E-3
QWCVFTO3-3S	CCF multiplier, CV (water) FTO, 3-3, staggered testing			Beta	7.40E+1	QWCVFTO3-3S	4.5E-3
QWCVFTO3-4NS	CCF Multiplier, CV (water) FTO, 3-4, non-staggered testing			Beta	1.20E+2	QWCVFTO3-4NS	9.3E-3
QWCVFTO3-4S	CCF multiplier, CV (water) FTO, 3-4, staggered testing			Beta	3.10E+2	QWCVFTO3-4S	3.4E-3
QWCVFTO3-8S	CCF multiplier, CV (water) FTO, 3-8, staggered testing			Beta	7.10E+3	QWCVFTO3-8S	4.1E-4
QWCVFTO4-4NS	CCF Multiplier, CV (water) FTO, 4-4, non-staggered testing			Beta	3.10E+1	QWCVFTO4-4NS	8.3E-3
QWCVFTO4-4S	CCF multiplier, CV (water) FTO, 4-4, staggered testing			Beta	1.10E+2	QWCVFTO4-4S	2.2E-3

## Appendix B: Review of Significant Cut Sets

This appendix contains tables of the reviews performed on both significant and non-significant cut sets of the Level 3 Probabilistic Risk Assessment (PRA) Level 1 model for internal events. This model has 3,188 significant (internal event) cut sets at the  $1 \times 10^{-12}$  core damage frequency (CDF) truncation level.<sup>1</sup> Given the large number of cut sets, only a sampling of these cut sets was reviewed.<sup>2</sup> Specifically, the top 100 cut sets were reviewed along with the bottom 25 for each set of 500 below the top 100 (for a total of 250 significant cut sets sampled). Table B-1 provides a list of all significant cut sets for the Level 3 PRA model for internal events, including the results of the cut sets selected for review.

Supporting requirement QU-D5 of the ASME/ANS Level 1 PRA standard also directs to “review a sampling of non-significant accident cut sets or sequences to determine they are reasonable and have physical meaning.” There are 138,262 non-significant (internal event) cut sets at the  $1 \times 10^{-12}$  CDF truncation level. Table B-2 contains a sample of non-significant cut sets that includes 10 cut sets at the  $1 \times 10^{-10}$ ,  $1 \times 10^{-11}$ , and  $1 \times 10^{-12}$  CDF truncation levels (for a total of 30).<sup>3</sup>

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1	6.1E-06	9.49%	9.49%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-RCS-MDP-LK-BP2	A common-cause failure (CCF) of all six nuclear service cooling water (NSCW) pumps causes a loss of NSCW, which leads operators to manually trip the reactor. The loss of NSCW causes a loss of ultimate heat sink. In addition, a loss of reactor coolant pump (RCP) seal injection [via the normal charging pump (NCP)] and thermal barrier heat exchanger cooling [due to the loss of auxiliary component cooling water (ACCW)] occurs. The stage 2 RCP seals fail causing a small loss-of-coolant accident (LOCA). Loss of NSCW with subsequent LOCA leads to core damage.

<sup>1</sup> Cut sets that are part of the summed 95 percent or contribute to at least 1 percent of the total CDF (per hazard group) are considered significant per the American Society of Mechanical Engineers/American Nuclear Society (ASME/ANS) Level 1 PRA standard.

<sup>2</sup> Supporting Requirement QU-D1 directs to “review a sample of the significant accident sequences/cut sets sufficient to determine that the logic of the cut set or sequence is correct.”

<sup>3</sup> The bottom 10 cut sets were chosen for each CDF level.

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2	4.3E-06	6.74%	16.22%	1-IE-LOOPGR,1-ACP-CRB-CF-A205301	A grid-related loss of offsite power (LOOP) occurs causing a reactor trip. The emergency diesel generators (EDGs) cannot load on their respective buses due to the CCF of the switchyard breakers AA205 and BA301 [the reserve auxiliary transformer (RAT) feeder breakers) to open, resulting in a non-recoverable station blackout (SBO). Safety-related direct current (DC) bus 1CD1 is deenergized when its associated safety-related battery is depleted (in 4 hours), resulting in the eventual loss of control power for the turbine driven auxiliary feedwater (AFW) pump and, ultimately, core damage. The lack of credit for continued operation of the turbine-driven AFW pump without DC power is noted as a key modeling uncertainty.
3	3.6E-06	5.69%	21.92%	1-IE-LOOPSC,1-ACP-CRB-CF-A205301	Same as cut set #2, except a different LOOP initiating event type (switchyard-centered) occurs.
4	2.6E-06	4.14%	26.05%	1-IE-LOOPGR,1-EPS-SEQ-CF-FOAB	A grid-related LOOP occurs causing a reactor trip. The EDGs cannot load on their respective buses due to the CCF of the sequencers, resulting in a non-recoverable SBO. Safety-related DC bus 1CD1 is deenergized when its associated safety-related battery is depleted (in 4 hours), resulting in the eventual loss of control power for the turbine driven AFW pump and, ultimately, core damage. The lack of credit for recovery of sequencer-related failures is noted as a key modeling uncertainty.
5	2.2E-06	3.50%	29.55%	1-IE-LOOPSC,1-EPS-SEQ-CF-FOAB	Same as cut set #4, except a different LOOP initiating event type (switchyard-centered) occurs.
6	1.4E-06	2.14%	31.69%	1-IE-LOOPWR,1-ACP-CRB-CF-A205301	Same as cut set #2, except a different LOOP initiating event type (weather-related) occurs.
7	1.2E-06	1.84%	33.53%	1-IE-MLOCA,1-OAR_HPML-----H	A medium LOCA initiating event occurs causing a reactor trip. High-pressure injection (HPI) is successful; however, core damage occurs when operators fail to align for high-pressure recirculation (HPR) from the containment sump.
8	8.6E-07	1.35%	34.89%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR2	A weather-related LOOP occurs causing a reactor trip. Both EDGs fail-to-run. Operators fail to recover offsite power prior to the turbine building batteries being depleted (2 hours; noted as a key modeling uncertainty); convolution is applied. Core damage is assumed when the safety related DC bus 1CD1 is deenergized when its associated safety-related battery is depleted (in 4 hours), resulting in the eventual loss of control power for the turbine driven AFW pump.
9	8.4E-07	1.31%	36.20%	1-IE-LOOPWR,1-EPS-SEQ-CF-FOAB	Same as cut set #4, except a different LOOP initiating event type (weather-related) occurs.
10	7.7E-07	1.20%	37.40%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	A grid-related LOOP occurs causing a reactor trip. Both EDGs fail-to-run. Operators successfully recover offsite power prior to the turbine building batteries being depleted; however, operators fail to restore systems after successful AC power recovery, resulting in core damage.

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
11	7.4E-07	1.16%	38.56%	1-IE-OTRANS,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-CLOPT	Same as cut set #2, except a consequential LOOP (instead of LOOP initiating event) occurs.
12	6.8E-07	1.06%	39.62%	1-IE-LOOPPC,1-ACP-CRB-CF-A205301	Same as cut set #2, except a different LOOP initiating event type (plant-centered) occurs.
13	6.5E-07	1.01%	40.63%	1-IE-LOOPSC,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	Same as cut set #10, except a different LOOP initiating event type (switchyard-centered) occurs.
14	5.4E-07	0.85%	41.48%	1-IE-SSBO,1-EPS-SEQ-CF-FOAB,1-OA-NSCW FAN---H,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	A secondary-side break (SSB) downstream of main steam isolation valves (MSIVs) [or upstream of main feedwater isolation valves (MFIVs)] initiating event occurs resulting in a reactor trip, main steamline isolation, and safety injection (SI) actuation. The CCF of the SI sequencers, assumed to fail the standby NSCW fans resulting in a loss of NSCW (3/4 NSCW fans success criterion per train), results in a loss of all RCP seal injection/cooling. A RCP seal failure occurs due to the operators failing to trip RCPs. This cut set is potentially conservative because SI can be terminated; thus, the NSCW fan success criterion would be 1/4 fans per train. In addition, no credit is provided for manual start of NSCW fans (sequencer failures will not prevent manual start of fans).
15	4.5E-07	0.71%	42.19%	1-IE-OTRANS,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-CLOPT	Same as cut set #4, except a consequential LOOP (instead of LOOP initiating event) occurs.
16	4.4E-07	0.69%	42.88%	1-IE-LO125BD1,1-ACP-BAC-MA-AA02____,1-DCP-BDC-FC-BD1&____	A loss of 125V DC safety-related bus initiating event with the unavailability of the opposite side safety-related alternating current (AC) bus renders both trains of safety-related equipment unavailable. Note that the unavailability of bus 1AA02 will eventually render the turbine-driven AFW pump unavailable after depletion of the safety-related batteries (4 hours).
17	4.4E-07	0.69%	43.57%	1-IE-LOOPWR,1-EPS-DGN-FR-G4002____, 1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	Same as cut set #8, except for different EDG unavailabilities; different convolution factor applied.
18	4.4E-07	0.69%	44.26%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001____, 1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	Same as cut set #8, except for different EDG unavailabilities; different convolution factor applied.
19	4.1E-07	0.65%	44.91%	1-IE-LOOPPC,1-EPS-SEQ-CF-FOAB	Same as cut set #4, except a different LOOP initiating event type (plant-centered) occurs.
20	3.8E-07	0.59%	45.50%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-RCS-MDP-LK-BP1	Same as cut set #1, except for different RCP seal failure (stage 1).



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
21	3.7E-07	0.58%	46.09%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	Same as cut set #8, except a different LOOP initiating event type (grid-related) and EDG unavailabilities occur; different convolution factor applied.
22	3.7E-07	0.58%	46.67%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	Same as cut set #8, except a different LOOP initiating event type (grid-related) and EDG unavailabilities occur; different convolution factor applied.
23	3.5E-07	0.55%	47.22%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-ACP-CRB-CC-BA0301____	Same as cut set #2, except for different breaker failures (individual).
24	3.4E-07	0.54%	47.76%	1-IE-LOOPWR,1-EPS-DGN-CF-FRUN1,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR0	Same as cut set #8, except for different EDG unavailabilities; different convolution factor applied.
25	3.4E-07	0.53%	48.28%	1-IE-LOSINJ,1-ACP-CRB-CF-A205301,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT	Same as cut set #2, except a consequential LOOP (instead of LOOP initiating event) occurs.
26	3.3E-07	0.52%	48.80%	1-IE-SSBO,1-EPS-SEQ-CF-FOAB,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	Same as cut set #14, except for different RCP seal failure (stage 2).
27	3.2E-07	0.51%	49.31%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HGR	A grid-related LOOP occurs causing a reactor trip. A recoverable EDG unavailability occurs on one safety-related train, while a non-recoverable failure/unavailability occurs on the opposite train resulting in a SBO. Core damage occurs when operators fail to restore offsite power to recoverable train. As a modeling simplification, the L3PRA Level 1 model assumes that both trains are recoverable, which is noted as a key modeling uncertainty.
28	3.2E-07	0.51%	49.82%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HGR	Same as cut set #27, except for opposite train electrical failures.
29	3.2E-07	0.49%	50.31%	1-IE-TTRIP,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-CLOPT	Same as cut set #2, except a consequential LOOP (instead of LOOP initiating event) occurs.
30	3.1E-07	0.49%	50.80%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR2	Same as cut set #8, except a different LOOP initiating event type (grid-related) occurs; different convolution factor applied.
31	3.0E-07	0.47%	51.27%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205____,1-ACP-CRB-CC-BA0301____	Same as cut set #2, except a different LOOP initiating event type (switchyard-centered) and different breaker failures (individual) occur.
32	2.9E-07	0.46%	51.72%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	Same as cut set #10, except for different EDG unavailabilities.

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
33	2.9E-07	0.46%	52.18%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	Same as cut set #10, except for different EDG unavailabilities.
34	2.9E-07	0.45%	52.64%	1-IE-LOOPGR,1-EPS-DGN-CF-FRUN1,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR0	Same as cut set #8, except different EDG unavailabilities; different convolution factor applied.
35	2.9E-07	0.45%	53.09%	1-IE-RTRIP,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-CLOPT	Same as cut set #2, except a consequential LOOP (instead of LOOP initiating event) occurs.
36	2.5E-07	0.39%	53.48%	1-IE-LOOPSC,1-EPS-DGN-FR-G4001____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	Same as cut set #10, except a different LOOP initiating event type (switchyard-centered) and EDG unavailabilities occur.
37	2.5E-07	0.39%	53.86%	1-IE-LOOPSC,1-EPS-DGN-FR-G4002____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	Same as cut set #10, except a different LOOP initiating event type (switchyard-centered) and EDG unavailabilities occur.
38	2.4E-07	0.38%	54.24%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	Same as cut set #10, except a different LOOP initiating event type (weather-related) occurs.
39	2.3E-07	0.37%	54.61%	1-IE-LO4160VB,1-ACP-BAC-MA-AA02____	A loss of 4.16kV safety-related bus initiating event with the unavailability of the opposite side 4.16kV safety-related AC bus renders both trains of safety-related equipment unavailable (i.e., all decay heat removal is lost).
40	2.3E-07	0.37%	54.98%	1-IE-LO4160VB,1-ACP-BAC-MA-AB15____	A loss of 4.16kV safety-related bus initiating event with the unavailability of the opposite side 480V safety-related AC switchgear. AFW is available, but an elevated RCP seal leakage occurs (~21 gpm/RCP); core damage occurs prior to 72 hours without makeup. This cut set assumes that the atmospheric relief valves (ARVs) are unavailable due to lack of electrical power; however, it is possible to open these locally. Therefore, this cut set is potentially conservative.
41	2.3E-07	0.37%	55.34%	1-IE-LO4160VA,1-ACP-BAC-MA-BA03____	Same as cut set #39, except for opposite side bus unavailabilities.
42	2.3E-07	0.37%	55.71%	1-IE-LO4160VA,1-ACP-BAC-MA-BB16____	Same as cut set #40, except for opposite side bus unavailabilities.
43	2.3E-07	0.36%	56.07%	1-IE-LOOPGR,1-EPS-DGN-CF-FRUN1,1-OA-ORS-----H	Same as cut set #10, except for different EDG unavailabilities (CCF).
44	2.2E-07	0.34%	56.41%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-EPS-SEQ-FO-1821U301	Same as cut set #2, except different, non-recoverable (individual) electrical failures occur.
45	2.2E-07	0.34%	56.75%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-EPS-SEQ-FO-1821U302	Same as cut set #2, except different, non-recoverable (individual) electrical failures occur.

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
46	2.1E-07	0.32%	57.08%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-CLOPT	Same as cut set #4, except a consequential LOOP (instead of LOOP initiating event) occurs.
47	2.0E-07	0.32%	57.39%	1-IE-LOOPGR,1-EPS-DGN-MA-G4001___,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	Same as cut set #27, except for different electrical failures.
48	2.0E-07	0.32%	57.71%	1-IE-LOOPGR,1-EPS-DGN-MA-G4002___,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	Same as cut set #27, except for different electrical failures.
49	1.9E-07	0.30%	58.01%	1-IE-TTRIP,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-CLOPT	Same as cut set #4, except a consequential LOOP (instead of LOOP initiating event) occurs.
50	1.9E-07	0.30%	58.31%	1-IE-LOOPSC,1-EPS-DGN-CF-FRUN1,1-OA-ORS-----H	Same as cut set #10, except a different LOOP initiating event type (switchyard-centered) and EDG unavailabilities (CCF) occur.
51	1.9E-07	0.30%	58.61%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002___,1-OAB_TR-----H	A loss of 4.16kV safety-related AC bus and failure of opposite train AFW with failure of operators to initiate FAB. Note that safety related DC bus 1CD1 is deenergized when its associated safety-related battery is depleted (in 4 hours), resulting in the eventual loss of control power for the turbine-driven AFW pump.
52	1.9E-07	0.29%	58.90%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205___,1-EPS-DGN-FR-G4002___,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	Same as cut set #27, except a different LOOP initiating event type (weather-related) and different electrical failures occur; convolution applied.
53	1.9E-07	0.29%	59.20%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301___,1-EPS-DGN-FR-G4001___,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	Same as cut set #27, except a different LOOP initiating event type (weather-related) and different electrical failures occur; convolution applied.
54	1.9E-07	0.29%	59.49%	1-IE-LOOPSC,1-ACP-CRB-CC-BA0301___,1-EPS-SEQ-FO-1821U301	Same as cut set #2, except a different LOOP initiating event type (switchyard-centered) and different, non-recoverable (individual) electrical failures occur.
55	1.9E-07	0.29%	59.78%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205___,1-EPS-SEQ-FO-1821U302	Same as cut set #2, except a different LOOP initiating event type (switchyard-centered) and different, non-recoverable (individual) electrical failures occur.
56	1.8E-07	0.28%	60.06%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205___,1-DCP-BAT-MA-BD1B___	Same as cut set #2, except different, non-recoverable (individual) electrical unavailabilities occur.
57	1.8E-07	0.28%	60.34%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301___,1-DCP-BAT-MA-AD1B___	Same as cut set #2, except different, non-recoverable (individual) electrical unavailabilities occur.
58	1.8E-07	0.28%	60.62%	1-IE-LOOPGR,1-EPS-DGN-FS-G4001___,1-EPS-DGN-MA-G4002___,1-OEP-XHE-XL-NR02HGR	Same as cut set #8, except a different LOOP initiating event type (grid-related) and EDG unavailabilities occur; no convolution applied.

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
59	1.8E-07	0.28%	60.90%	1-IE-LOOPGR,1-EPS-DGN-FS-G4002____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HGR	Same as cut set #8, except a different LOOP initiating event type (grid-related) and EDG unavailabilities occur; no convolution applied.
60	1.8E-07	0.28%	61.17%	1-IE-RTRIP,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-CLOPT	Same as cut set #4, except a consequential LOOP (instead of LOOP initiating event) occurs.
61	1.8E-07	0.28%	61.45%	1-IE-LOOPGR,1-EPS-DGN-CF-FSUN1,1-OEP-XHE-XL-NR02HGR	Same as cut set #8, except a different LOOP initiating event type (grid-related) and EDG unavailabilities (CCF) occur; no convolution applied.
62	1.7E-07	0.27%	61.72%	1-IE-LOOPGR,1-EPS-MDP-FS-XFERPPS_CC,1-OEP-XHE-XL-NR02HGR	Same as cut set #8, except a different LOOP initiating event type (grid-related) and EDG unavailabilities (CCF) occur; no convolution applied.
63	1.6E-07	0.25%	61.97%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP-LONSCW	Same as cut set #1, except for RCP seal failure is due to operator failure to trip RCPs.
64	1.6E-07	0.25%	62.22%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	Same as cut set #8, except a different LOOP initiating event type (grid-related) and EDG unavailabilities occur; different convolution factor applied.
65	1.6E-07	0.25%	62.47%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	Same as cut set #8, except a different LOOP initiating event type (grid-related) and EDG unavailabilities occur; different convolution factor applied.
66	1.5E-07	0.24%	62.70%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205____,1-DCP-BAT-MA-BD1B_____	Same as cut set #2, except a different LOOP initiating event type (switchyard-centered) and different, non-recoverable (individual) electrical failures occur.
67	1.5E-07	0.24%	62.94%	1-IE-LOOPSC,1-ACP-CRB-CC-BA0301____,1-DCP-BAT-MA-AD1B_____	Same as cut set #2, except a different LOOP initiating event type (switchyard-centered) and different, non-recoverable (individual) electrical failures occur.
68	1.5E-07	0.23%	63.17%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HWR	Same as cut set #8, except for different electrical unavailabilities; no convolution applied.
69	1.5E-07	0.23%	63.40%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HWR	Same as cut set #8, except for different electrical unavailabilities; no convolution applied.
70	1.4E-07	0.21%	63.61%	1-IE-LOOPGR,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302	Same as cut set #2, except for different electrical failures (individual).

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
71	1.3E-07	0.20%	63.81%	1-IE-LOACCW,1-IE-ACW-MDP-CF-FR12,1-OA-CCP-ALIGN---H,1-OAC_NC-----H-MD,1-OAR_HPSLA----H-LD,1-RCS-MDP-LK-BP2	A loss of ACCW initiating event (CCF of both ACCW pumps) and the operator failure to align the centrifugal charging pumps (CCPs) results in a loss of all RCP seal injection/cooling and subsequent failure of RCP seals (stage 2). Core damage occurs due to operator failures to initiate cooldown/depressurization and HPR (dependent failures).
72	1.2E-07	0.19%	64.01%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301___,1-EPS-DGN-FR-G4001___,1-OA-ORS-----H	Same as cut set #10, except for different electrical failures.
73	1.2E-07	0.19%	64.20%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205___,1-EPS-DGN-FR-G4002___,1-OA-ORS-----H	Same as cut set #10, except for different electrical failures.
74	1.2E-07	0.19%	64.39%	1-IE-LOMFOW,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-CLOPT	Same as cut set #2, except a consequential LOOP (instead of LOOP initiating event) occurs.
75	1.2E-07	0.19%	64.58%	1-IE-LOOPPC,1-EPS-DGN-FR-G4001___,1-EPS-DGN-FR-G4002___,1-OA-ORS-----H	Same as cut set #10, except a different LOOP initiating event type (plant-centered) occurs.
76	1.2E-07	0.18%	64.76%	1-IE-SSBO,1-OAC_NC-----H-HD,1-OAR_HPSLA----H-LD,1-OAT-----H	A secondary-side break downstream of MSIVs (or upstream of MFIVS) initiating event occurs resulting in a reactor trip main steamline isolation and SI actuation. A consequential small LOCA occurs due to operator failure to terminate SI. Core damage occurs due to operator failures to initiate cooldown/depressurization and HPR (dependent failures).
77	1.2E-07	0.18%	64.95%	1-IE-LOOPWR,1-EPS-DGN-FR-G4002___,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	Same as cut set #8, except for different electrical unavailabilities; different convolution factor applied.
78	1.2E-07	0.18%	65.13%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001___,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	Same as cut set #8, except for different electrical unavailabilities; different convolution factor applied.
79	1.2E-07	0.18%	65.31%	1-IE-LOOPSC,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302	Same as cut set #4, except a different LOOP initiating event type (switchyard-centered) and different electrical failures (individual) occur.
80	1.1E-07	0.18%	65.48%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205___,1-ACP-CRB-CC-BA0301___	Same as cut set #2, except a different LOOP initiating event type (weather-related) and different electrical failures (individual) occur.
81	1.1E-07	0.17%	65.66%	1-IE-LOCHS,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-CLOPT	Same as cut set #2, except a consequential LOOP (instead of LOOP initiating event) occurs.
82	1.1E-07	0.17%	65.83%	1-IE-LOOPGR,1-DCP-BAT-MA-BD1B___,1-EPS-SEQ-FO-1821U301	Same as cut set #4, except for different electrical unavailabilities.
83	1.1E-07	0.17%	66.01%	1-IE-LOOPGR,1-DCP-BAT-MA-AD1B___,1-EPS-SEQ-FO-1821U302	Same as cut set #4, except for different electrical unavailabilities.

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
84	1.1E-07	0.17%	66.18%	1-IE-MLOCA,1-EPS-SEQ-CF-FOAB	A medium LOCA initiating event occurs with the subsequent failure of the SI sequencer resulting in the unavailability of all emergency core cooling systems (ECCS).
85	1.1E-07	0.16%	66.34%	1-IE-LOOPSC,1-ACP-CRB-CC-BA0301____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	Same as cut set #10, except a different LOOP initiating event type (switchyard-centered) and different electrical failures occur.
86	1.1E-07	0.16%	66.51%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	Same as cut set #10, except a different LOOP initiating event type (switchyard-centered) and different electrical failures occur.
87	1.0E-07	0.16%	66.67%	1-IE-LOOPWR,1-EPS-DGN-FR-G4002____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	Same as cut set #8, except for different EDG failures; different convolution factor applied.
88	1.0E-07	0.16%	66.83%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	Same as cut set #8, except for different EDG failures; different convolution factor applied.
89	1.0E-07	0.16%	66.99%	1-IE-XLOCA,1-RPVRM	A reactor pressure vessel rupture occurs; assumed to lead directly to core damage.
90	9.8E-08	0.15%	67.14%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	Same as cut set #8, except a different LOOP initiating event type (grid-related) and electrical unavailabilities occur; different convolution factor applied.
91	9.8E-08	0.15%	67.29%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	Same as cut set #8, except a different LOOP initiating event type (grid-related) and electrical unavailabilities occur; different convolution factor applied.
92	9.8E-08	0.15%	67.45%	1-IE-LO125BD1,1-ACP-BAC-FC-AA02____,1-DCP-BDC-FC-BD1&_____	Same as cut set #16, except for different bus unavailability.
93	9.5E-08	0.15%	67.60%	1-IE-LOOPWR,1-DCP-BAT-MA-AD1B____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	Same as cut set #8, except for different electrical unavailabilities; different convolution factor applied.
94	9.5E-08	0.15%	67.75%	1-IE-LOOPWR,1-DCP-BAT-MA-BD1B____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	Same as cut set #8, except for different electrical unavailabilities; different convolution factor applied.
95	9.4E-08	0.15%	67.89%	1-IE-LOOPSC,1-DCP-BAT-MA-BD1B____,1-EPS-SEQ-FO-1821U301	Same as cut set #4, except a different LOOP initiating event type (switchyard-centered) and different electrical unavailabilities occur.

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
96	9.4E-08	0.15%	68.04%	1-IE-LOOPSC,1-DCP-BAT-MA-AD1B____,1-EPS-SEQ-FO-1821U302	Same as cut set #4, except a different LOOP initiating event type (switchyard-centered) and different electrical unavailabilities occur.
97	9.3E-08	0.15%	68.19%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	Same as cut set #10, except a different LOOP initiating event type (switchyard-centered) and EDG unavailabilities occur.
98	9.3E-08	0.15%	68.33%	1-IE-LOOPWR,1-EPS-DGN-FR-G4002____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	Same as cut set #10, except a different LOOP initiating event type (switchyard-centered) and EDG unavailabilities occur.
99	9.2E-08	0.14%	68.48%	1-IE-LOOPWR,1-EPS-DGN-MA-G4001____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HWR	Same as cut set #8, except for different electrical unavailabilities; no convolution applied.
100	9.2E-08	0.14%	68.62%	1-IE-LOOPWR,1-EPS-DGN-MA-G4002____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HWR	Same as cut set #8, except for different electrical unavailabilities; no convolution applied.
101	8.8E-08	0.14%	68.76%	1-IE-OTRANS,1-AFW-PMP-CF-RUN,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
102	8.7E-08	0.14%	68.89%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
103	8.7E-08	0.14%	69.03%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
104	8.1E-08	0.13%	69.16%	1-IE-LOOPWR,1-EPS-DGN-FS-G4001____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HWR	
105	8.1E-08	0.13%	69.28%	1-IE-LOOPWR,1-EPS-DGN-FS-G4002____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HWR	
106	8.1E-08	0.13%	69.41%	1-IE-SSBO,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-CLOPL	
107	8.0E-08	0.13%	69.53%	1-IE-LOOPWR,1-EPS-DGN-CF-FSUN1,1-OEP-XHE-XL-NR02HWR	
108	8.0E-08	0.13%	69.66%	1-IE-LOOPGR,1-DCP-BAT-MA-AD1B____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
109	8.0E-08	0.13%	69.79%	1-IE-LOOPGR,1-DCP-BAT-MA-BD1B____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
110	7.9E-08	0.12%	69.91%	1-IE-SLOCA,1-EPS-SEQ-CF-FOAB	
111	7.7E-08	0.12%	70.03%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-EPS-SEQ-FO-1821U302,1-OA-ORS-----H	
112	7.7E-08	0.12%	70.15%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002____,1-EPS-SEQ-FO-1821U301,1-OA-ORS-----H	
113	7.7E-08	0.12%	70.27%	1-IE-LONSCW,1-IE-SWS-MDP-CR-2356,1-OA-OSW-----H-CD,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP-LONSCW	
114	7.7E-08	0.12%	70.39%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1256,1-OA-OSW-----H-CD,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP-LONSCW	
115	7.7E-08	0.12%	70.51%	1-IE-LONSCW,1-IE-SWS-MDP-CR-3456,1-OA-OSW-----H-CD,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP-LONSCW	
116	7.7E-08	0.12%	70.64%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1456,1-OA-OSW-----H-CD,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP-LONSCW	
117	7.7E-08	0.12%	70.76%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1234,1-OA-OSW-----H-CD,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP-LONSCW	
118	7.7E-08	0.12%	70.88%	1-IE-LONSCW,1-IE-SWS-MDP-CR-2345,1-OA-OSW-----H-CD,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP-LONSCW	
119	7.7E-08	0.12%	71.00%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1245,1-OA-OSW-----H-CD,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP-LONSCW	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
120	7.7E-08	0.12%	71.12%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1236,1-OA-OSW-----H-CD,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP-LONSCW	
121	7.7E-08	0.12%	71.24%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1346,1-OA-OSW-----H-CD,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP-LONSCW	
122	7.7E-08	0.12%	71.36%	1-IE-LOOPWR,1-EPS-MDP-FS-XFERPPS_-CC,1-OEP-XHE-XL-NR02HWR	
123	7.6E-08	0.12%	71.48%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301__,1-EPS-DGN-FS-G4001__,1-OEP-XHE-XL-NR02HGR	
124	7.6E-08	0.12%	71.60%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205__,1-EPS-DGN-FS-G4002__,1-OEP-XHE-XL-NR02HGR	
125	7.5E-08	0.12%	71.72%	1-IE-LOMFV,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-CLOPT	
126	7.3E-08	0.11%	71.83%	1-IE-LOOPWR,1-EPS-DGN-CF-FRUN1,1-OA-ORS-----H	
127	7.3E-08	0.11%	71.94%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12356,1-OA-OSW-----H-CD,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP-LONSCW	
128	7.3E-08	0.11%	72.06%	1-IE-LONSCW,1-IE-SWS-MDP-CR-13456,1-OA-OSW-----H-CD,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP-LONSCW	
129	7.3E-08	0.11%	72.17%	1-IE-LONSCW,1-IE-SWS-MDP-CR-23456,1-OA-OSW-----H-CD,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP-LONSCW	
130	7.3E-08	0.11%	72.28%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12456,1-OA-OSW-----H-CD,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP-LONSCW	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
131	7.3E-08	0.11%	72.40%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12345,1-OA-OSW-----H-CD,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP-LONSCW	
132	7.3E-08	0.11%	72.51%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12346,1-OA-OSW-----H-CD,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP-LONSCW	
133	7.1E-08	0.11%	72.62%	1-IE-LOOPGR,1-AFW-MDP-MA-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	
134	7.0E-08	0.11%	72.73%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-EPS-SEQ-FO-1821U301	
135	7.0E-08	0.11%	72.84%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-EPS-SEQ-FO-1821U302	
136	6.8E-08	0.11%	72.95%	1-IE-LOCHS,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-CLOPT	
137	6.8E-08	0.11%	73.05%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FS-G4002____,1-OA-ORS-----H	
138	6.8E-08	0.11%	73.16%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002____,1-EPS-DGN-FS-G4001____,1-OA-ORS-----H	
139	6.5E-08	0.10%	73.26%	1-IE-LOOPSC,1-EPS-DGN-FR-G4001____,1-EPS-SEQ-FO-1821U302,1-OA-ORS-----H	
140	6.5E-08	0.10%	73.36%	1-IE-LOOPSC,1-EPS-DGN-FR-G4002____,1-EPS-SEQ-FO-1821U301,1-OA-ORS-----H	
141	6.3E-08	0.10%	73.46%	1-IE-LO4160VA,1-AFW-MDP-FS-P4002____,1-OAB_TR-----H	
142	6.3E-08	0.10%	73.56%	1-IE-LO4160VA,1-OA-MISPAF5094H,1-OAB_TR-----H	
143	6.3E-08	0.10%	73.66%	1-IE-LOOPGR,1-DCP-BAT-MA-AD1B____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
144	6.3E-08	0.10%	73.76%	1-IE-LOOPGR,1-DCP-BAT-MA-BD1B____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
145	6.1E-08	0.09%	73.85%	1-IE-OTRANS,1-ACP-CRB-CC-AA0205____,1-ACP-CRB-CC-BA0301____,1-OEP-VPF-LP-CLOPT	
146	6.0E-08	0.09%	73.95%	1-IE-LOOPSC,1-AFW-MDP-MA-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	
147	5.9E-08	0.09%	74.04%	1-IE-LOMFW,1-AFW-PMP-CF-RUN,1-OAB_TR-----H	
148	5.8E-08	0.09%	74.13%	1-IE-LO125AD1,1-ACP-CRB-CC-BA0301____,1-DCP-BDC-FC-AD1&____,1-OEP-VPF-LP-CLOPT	
149	5.8E-08	0.09%	74.22%	1-IE-LO125BD1,1-ACP-CRB-CC-AA0205____,1-DCP-BDC-FC-BD1&____,1-OEP-VPF-LP-CLOPT	
150	5.8E-08	0.09%	74.31%	1-IE-LOOPSC,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FS-G4002____,1-OA-ORS-----H	
151	5.8E-08	0.09%	74.40%	1-IE-LOOPSC,1-EPS-DGN-FR-G4002____,1-EPS-DGN-FS-G4001____,1-OA-ORS-----H	
152	5.8E-08	0.09%	74.49%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1256,1-OA-OSW-----H,1-RCS-MDP-LK-BP2	
153	5.8E-08	0.09%	74.58%	1-IE-LONSCW,1-IE-SWS-MDP-CR-2356,1-OA-OSW-----H,1-RCS-MDP-LK-BP2	
154	5.8E-08	0.09%	74.67%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1456,1-OA-OSW-----H,1-RCS-MDP-LK-BP2	
155	5.8E-08	0.09%	74.76%	1-IE-LONSCW,1-IE-SWS-MDP-CR-3456,1-OA-OSW-----H,1-RCS-MDP-LK-BP2	
156	5.8E-08	0.09%	74.85%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1236,1-OA-OSW-----H,1-RCS-MDP-LK-BP2	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
157	5.8E-08	0.09%	74.94%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1346,1-OA-OSW-----H,1-RCS-MDP-LK-BP2	
158	5.8E-08	0.09%	75.03%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1234,1-OA-OSW-----H,1-RCS-MDP-LK-BP2	
159	5.8E-08	0.09%	75.12%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1245,1-OA-OSW-----H,1-RCS-MDP-LK-BP2	
160	5.8E-08	0.09%	75.21%	1-IE-LONSCW,1-IE-SWS-MDP-CR-2345,1-OA-OSW-----H,1-RCS-MDP-LK-BP2	
161	5.7E-08	0.09%	75.30%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205__,1-DCP-BAT-MA-BD1B__	
162	5.7E-08	0.09%	75.39%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301__,1-DCP-BAT-MA-AD1B__	
163	5.5E-08	0.09%	75.48%	1-IE-LOOPPC,1-ACP-CRB-CC-AA0205__,1-ACP-CRB-CC-BA0301__	
164	5.4E-08	0.08%	75.56%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12356,1-OA-OSW-----H,1-RCS-MDP-LK-BP2	
165	5.4E-08	0.08%	75.65%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12456,1-OA-OSW-----H,1-RCS-MDP-LK-BP2	
166	5.4E-08	0.08%	75.73%	1-IE-LONSCW,1-IE-SWS-MDP-CR-13456,1-OA-OSW-----H,1-RCS-MDP-LK-BP2	
167	5.4E-08	0.08%	75.82%	1-IE-LONSCW,1-IE-SWS-MDP-CR-23456,1-OA-OSW-----H,1-RCS-MDP-LK-BP2	
168	5.4E-08	0.08%	75.90%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12346,1-OA-OSW-----H,1-RCS-MDP-LK-BP2	
169	5.4E-08	0.08%	75.99%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12345,1-OA-OSW-----H,1-RCS-MDP-LK-BP2	
170	5.4E-08	0.08%	76.07%	1-IE-LOCHS,1-AFW-PMP-CF-RUN,1-OAB_TR-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
171	5.3E-08	0.08%	76.15%	1-IE-LOOPSC,1-DCP-BAT-MA-AD1B____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
172	5.3E-08	0.08%	76.24%	1-IE-LOOPSC,1-DCP-BAT-MA-BD1B____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
173	5.2E-08	0.08%	76.32%	1-IE-LO4160VB,1-ACP-BAC-FC-AA02____	
174	5.2E-08	0.08%	76.40%	1-IE-LO4160VB,1-ACP-BAC-FC-AB15____	
175	5.2E-08	0.08%	76.48%	1-IE-LO4160VA,1-ACP-BAC-FC-BA03____	
176	5.2E-08	0.08%	76.56%	1-IE-LO4160VA,1-ACP-BAC-FC-BB16____	
177	5.1E-08	0.08%	76.64%	1-IE-LOOPGR,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CF-1668A69A	
178	5.1E-08	0.08%	76.72%	1-IE-MLOCA,1-HPI-XHE-XR-XVM207	
179	5.0E-08	0.08%	76.80%	1-IE-SSBO,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-CLOPL	
180	4.8E-08	0.07%	76.88%	1-IE-OTRANS,1-ESF-ACT-CF-____SAFACT-CC,1-OA-START-AFW-H,1-OAB_TR-----H-HD,1-OAF_MFW-----H-CD	
181	4.8E-08	0.07%	76.95%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	
182	4.8E-08	0.07%	77.03%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	
183	4.7E-08	0.07%	77.10%	1-IE-ISINJ,1-OAC_NC-----H-HD,1-OAR_HPSLA-----H-LD,1-OAT-----H	
184	4.7E-08	0.07%	77.17%	1-IE-LOOPGR,1-EPS-DGN-FS-G4001____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	
185	4.7E-08	0.07%	77.25%	1-IE-LOOPGR,1-EPS-DGN-FS-G4002____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
186	4.6E-08	0.07%	77.32%	1-IE-LOOPPC,1-EPS-DGN-FR-G4001____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	
187	4.6E-08	0.07%	77.39%	1-IE-LOOPPC,1-EPS-DGN-FR-G4002____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	
188	4.5E-08	0.07%	77.46%	1-IE-LOACCCW,1-IE-ACW-MDP-CF-FR12,1-OA-CCP-ALIGN---H,1-OAN_SL-----H-LD,1-OAR_LPSL-----H-LD, 1-RCS-MDP-LK-BP2	
189	4.3E-08	0.07%	77.53%	1-IE-LOOPWR,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302	
190	4.3E-08	0.07%	77.60%	1-IE-OTRANS,1-NSCW-CT-NEED-SWAP,1-NSCWCT-BYPASS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-SWT-FC-TY16689B-CC	
191	4.2E-08	0.07%	77.66%	1-IE-LOOPGR,1-EPS-DGN-FS-G4001____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HGR	
192	4.0E-08	0.06%	77.72%	1-IE-LOOPSC,1-ACP-CRB-CC-BA0301____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	
193	4.0E-08	0.06%	77.79%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	
194	4.0E-08	0.06%	77.85%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
195	4.0E-08	0.06%	77.91%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
196	3.9E-08	0.06%	77.97%	1-IE-LOOPGR,1-DCP-BAT-MA-AD1B____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HGR	
197	3.9E-08	0.06%	78.03%	1-IE-LOOPGR,1-DCP-BAT-MA-BD1B____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
198	3.8E-08	0.06%	78.09%	1-IE-OTRANS,1-ACP-CRB-CC-AA0205____,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
199	3.8E-08	0.06%	78.15%	1-IE-OTRANS,1-ACP-CRB-CC-BA0301____,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	
200	3.8E-08	0.06%	78.21%	1-IE-TTRIP,1-AFW-PMP-CF-RUN,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
201	3.7E-08	0.06%	78.26%	1-IE-SLOCA,1-HPI-XHE-XR-XVM207	
202	3.6E-08	0.06%	78.32%	1-IE-LO125AD1,1-DCP-BDC-FC-AD1&____,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
203	3.6E-08	0.06%	78.38%	1-IE-LO125BD1,1-DCP-BDC-FC-BD1&____,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	
204	3.6E-08	0.06%	78.43%	1-IE-LOOPPC,1-EPS-DGN-CF-FRUN1,1-OA-ORS-----H	
205	3.6E-08	0.06%	78.49%	1-IE-ISL-RHR-HLS,1-IE-RHR-MOV-RP-HV8701B,1-RHR-MOV-RP-HV8701A-CON	
206	3.6E-08	0.06%	78.55%	1-IE-ISL-RHR-HLS,1-IE-RHR-MOV-RP-HV8702B,1-RHR-MOV-RP-HV8702A-CON	
207	3.5E-08	0.06%	78.60%	1-IE-LOOPWR,1-DCP-BAT-MA-BD1B____,1-EPS-SEQ-FO-1821U301	
208	3.5E-08	0.06%	78.66%	1-IE-LOOPWR,1-DCP-BAT-MA-AD1B____,1-EPS-SEQ-FO-1821U302	
209	3.5E-08	0.05%	78.71%	1-IE-LOOPGR,1-EPS-MDP-FR-XFERPPS__CC,1-OEP-XHE-XL-NR02HGR	
210	3.5E-08	0.05%	78.77%	1-IE-MLOCA,1-ESF-ACT-CF-____SAFACT-CC	
211	3.5E-08	0.05%	78.82%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR2	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
212	3.5E-08	0.05%	78.87%	1-IE-RTRIP,1-AFW-PMP-CF-RUN,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
213	3.4E-08	0.05%	78.93%	1-IE-LOOPPC,1-ACP-CRB-CC-BA0301___,1-EPS-SEQ-FO-1821U301	
214	3.4E-08	0.05%	78.98%	1-IE-LOOPPC,1-ACP-CRB-CC-AA0205___,1-EPS-SEQ-FO-1821U302	
215	3.4E-08	0.05%	79.04%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301___,1-EPS-DGN-FS-G4001___,1-OEP-XHE-XL-NR02HWR	
216	3.4E-08	0.05%	79.09%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205___,1-EPS-DGN-FS-G4002___,1-OEP-XHE-XL-NR02HWR	
217	3.3E-08	0.05%	79.14%	1-IE-ISL-RHR-HLS,1-IE-RHR-MOV-CO-HV8702B,1-RHR-MOV-CO-HV8702A__	
218	3.3E-08	0.05%	79.19%	1-IE-ISL-RHR-HLS,1-IE-RHR-MOV-CO-HV8701A,1-RHR-MOV-CO-HV8701B__	
219	3.3E-08	0.05%	79.24%	1-IE-ISL-RHR-HLS,1-IE-RHR-MOV-CO-HV8702A,1-RHR-MOV-CO-HV8702B__	
220	3.3E-08	0.05%	79.29%	1-IE-ISL-RHR-HLS,1-IE-RHR-MOV-CO-HV8701B,1-RHR-MOV-CO-HV8701A__	
221	3.3E-08	0.05%	79.35%	1-IE-ISINJ,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-CLOPL	
222	3.2E-08	0.05%	79.40%	1-IE-LO125AD1,1-DCP-BDC-FC-AD1&___,1-EPS-DGN-FS-G4002___,1-OEP-VCF-LP-CLOPT	
223	3.2E-08	0.05%	79.45%	1-IE-LO125BD1,1-DCP-BDC-FC-BD1&___,1-EPS-DGN-FS-G4001___,1-OEP-VCF-LP-CLOPT	
224	3.1E-08	0.05%	79.49%	1-IE-LO4160VA,1-ACP-CRB-CC-BA0301___,1-OEP-VCF-LP-CLOPT	
225	3.1E-08	0.05%	79.54%	1-IE-LO4160VB,1-ACP-CRB-CC-AA0205___,1-OEP-VCF-LP-CLOPT	
226	3.1E-08	0.05%	79.59%	1-IE-LOOPWR,1-ACP-INV-MA-AD1I11___,1-EPS-DGN-FR-G4002___,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
227	3.1E-08	0.05%	79.64%	1-IE-OTRANS,1-ACP-CRB-CC-BA0301___,1-DCP-BAT-MA-AD1B___,1-OEP-VCF-LP-CLOPT	
228	3.1E-08	0.05%	79.69%	1-IE-OTRANS,1-ACP-CRB-CC-AA0205___,1-DCP-BAT-MA-BD1B___,1-OEP-VCF-LP-CLOPT	
229	3.0E-08	0.05%	79.73%	1-IE-LO125AD1,1-DCP-BAT-MA-BD1B___,1-DCP-BDC-FC-AD1&___,1-OEP-VCF-LP-CLOPT	
230	3.0E-08	0.05%	79.78%	1-IE-LO125BD1,1-DCP-BAT-MA-AD1B___,1-DCP-BDC-FC-BD1&___,1-OEP-VCF-LP-CLOPT	
231	3.0E-08	0.05%	79.83%	1-IE-LOOPGR,1-EPS-DGN-MA-G4001___,1-EPS-SEQ-FO-1821U302,1-OA-ORS-----H	
232	3.0E-08	0.05%	79.87%	1-IE-LOOPGR,1-EPS-DGN-MA-G4002___,1-EPS-SEQ-FO-1821U301,1-OA-ORS-----H	
233	2.8E-08	0.04%	79.92%	1-IE-LO4160VB,1-NSCWCT-SPRAY,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-MA-1668ACT_	
234	2.8E-08	0.04%	79.96%	1-IE-LOOPPC,1-ACP-CRB-CC-AA0205___,1-DCP-BAT-MA-BD1B___	
235	2.8E-08	0.04%	80.00%	1-IE-LOOPPC,1-ACP-CRB-CC-BA0301___,1-DCP-BAT-MA-AD1B___	
236	2.8E-08	0.04%	80.05%	1-IE-SSBO,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
237	2.8E-08	0.04%	80.09%	1-IE-LOACCW,1-IE-ACW-TNK-RP-T4_001_,1-OA-CCP-ALIGN---H,1-OAC_NC-----H-MD,1-OAR_HPSLA----H-LD,1-RCS-MDP-LK-BP2	
238	2.8E-08	0.04%	80.14%	1-IE-LOSINJ,1-ACP-CRB-CC-AA0205___,1-ACP-CRB-CC-BA0301___,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
239	2.7E-08	0.04%	80.18%	1-IE-LOOPGR,1-AFW-MDP-MA-P4002____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H	
240	2.6E-08	0.04%	80.22%	1-IE-SSBO,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-CTF-CF-FS-ALL	
241	2.6E-08	0.04%	80.26%	1-IE-LOOPGR,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-1668A69A	
242	2.6E-08	0.04%	80.30%	1-IE-LOOPGR,1-EPS-DGN-FS-G4001____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	
243	2.6E-08	0.04%	80.34%	1-IE-LOOPGR,1-EPS-DGN-FS-G4002____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	
244	2.6E-08	0.04%	80.38%	1-IE-OTRANS,1-NSCW-CT-NEED-SWAP,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-SWT-FC-TY16689B-CC	
245	2.6E-08	0.04%	80.42%	1-IE-LOOPGR,1-ACP-INV-MA-AD1111____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
246	2.6E-08	0.04%	80.46%	1-IE-LOOPGR,1-EPS-DGN-CF-FSUN1,1-OA-ORS-----H	
247	2.6E-08	0.04%	80.50%	1-IE-SSBI,1-EPS-SEQ-CF-FOAB,1-OA-NSCW-FAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
248	2.6E-08	0.04%	80.54%	1-IE-TTRIP,1-ACP-CRB-CC-AA0205____,1-ACP-CRB-CC-BA0301____,1-OEP-VCF-LP-CLOPT	
249	2.5E-08	0.04%	80.58%	1-IE-LOOPSC,1-EPS-DGN-MA-G4001____,1-EPS-SEQ-FO-1821U302,1-OA-ORS-----H	
250	2.5E-08	0.04%	80.62%	1-IE-LOOPSC,1-EPS-DGN-MA-G4002____,1-EPS-SEQ-FO-1821U301,1-OA-ORS-----H	
251	2.5E-08	0.04%	80.66%	1-IE-MLOCA,1-LPI-MDP-CF-START	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
252	2.5E-08	0.04%	80.70%	1-IE-LOOPGR,1-EPS-MDP-FS-XFERPPS__CC,1-OA-ORS-----H	
253	2.5E-08	0.04%	80.74%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001____,1-EPS-SEQ-FO-1821U302,1-OA-ORS-----H	
254	2.5E-08	0.04%	80.78%	1-IE-LOOPWR,1-EPS-DGN-FR-G4002____,1-EPS-SEQ-FO-1821U301,1-OA-ORS-----H	
255	2.4E-08	0.04%	80.81%	1-IE-RTRIP,1-ACP-CRB-CC-AA0205____,1-ACP-CRB-CC-BA0301____,1-OEP-VCF-LP-CLOPT	
256	2.4E-08	0.04%	80.85%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-OA-MISPAF5094H,1-OAB_TR-----H	
257	2.4E-08	0.04%	80.89%	1-IE-LOOPGR,1-AFW-MDP-FS-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	
258	2.3E-08	0.04%	80.93%	1-IE-OTRANS,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-RLOOP	
259	2.3E-08	0.04%	80.96%	1-IE-OTRANS,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
260	2.3E-08	0.04%	81.00%	1-IE-LOOPWR,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-1668A69A	
261	2.3E-08	0.04%	81.03%	1-IE-SSBO,1-DCP-BAT-MA-AD1B____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
262	2.3E-08	0.04%	81.07%	1-IE-SSBO,1-DCP-BAT-MA-BD1B____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
263	2.3E-08	0.04%	81.11%	1-IE-LOOPSC,1-AFW-MDP-MA-P4002____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
264	2.3E-08	0.04%	81.14%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301___,1-ACP-INV-MA-AD1I11___,1-OEP-XHE-XL-NR02HGR	
265	2.3E-08	0.04%	81.18%	1-IE-OTRANS,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-1668A69A	
266	2.2E-08	0.04%	81.21%	1-IE-LOOPWR,1-AFW-MDP-MA-P4002___,1-EPS-DGN-FR-G4001___,1-OAB_TR-----H	
267	2.2E-08	0.03%	81.25%	1-IE-LO4160VA,1-AFW-MOV-OO-FV5154___,1-OAB_TR-----H	
268	2.2E-08	0.03%	81.28%	1-IE-OTRANS,1-EPS-DGN-FR-G4002___,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A___	
269	2.2E-08	0.03%	81.32%	1-IE-OTRANS,1-EPS-DGN-FR-G4001___,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A___	
270	2.2E-08	0.03%	81.35%	1-IE-LOOPSC,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-1668A69A	
271	2.2E-08	0.03%	81.39%	1-IE-LOOPSC,1-EPS-DGN-FS-G4001___,1-EPS-DGN-MA-G4002___,1-OA-ORS-----H	
272	2.2E-08	0.03%	81.42%	1-IE-LOOPSC,1-EPS-DGN-FS-G4002___,1-EPS-DGN-MA-G4001___,1-OA-ORS-----H	
273	2.2E-08	0.03%	81.45%	1-IE-LOOPWR,1-EPS-DGN-FR-G4002___,1-EPS-TNK-MA-DFOSTKA_,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
274	2.2E-08	0.03%	81.49%	1-IE-LOOPSC,1-EPS-DGN-CF-FSUN1,1-OA-ORS-----H	
275	2.2E-08	0.03%	81.52%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001___,1-EPS-DGN-FS-G4002___,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
276	2.2E-08	0.03%	81.56%	1-IE-LOOPWR,1-EPS-DGN-FR-G4002____,1-EPS-DGN-FS-G4001____,1-OA-ORS-----H	
277	2.1E-08	0.03%	81.59%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
278	2.1E-08	0.03%	81.62%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4002____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
279	2.1E-08	0.03%	81.66%	1-IE-LOOPPC,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302	
280	2.1E-08	0.03%	81.69%	1-IE-LOOPWR,1-EPS-DGN-FS-G4001____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HWR	
281	2.1E-08	0.03%	81.72%	1-IE-LOOPWR,1-EPS-DGN-FS-G4002____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HWR	
282	2.1E-08	0.03%	81.76%	1-IE-LOOPSC,1-EPS-MDP-FS-XFERPPS__CC,1-OA-ORS-----H	
283	2.1E-08	0.03%	81.79%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR01HGR	
284	2.1E-08	0.03%	81.82%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR01HGR	
285	2.1E-08	0.03%	81.85%	1-IE-SSBO,1-EPS-SEQ-CF-FOAB,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP1	
286	2.0E-08	0.03%	81.89%	1-IE-LOOPGR,1-ACP-INV-MA-AD1I11____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
287	2.0E-08	0.03%	81.92%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-CF-FS-ABCDEF	
288	2.0E-08	0.03%	81.95%	1-IE-TTRIP,1-ESF-ACT-CF-__SAFACT-CC,1-OA-START-AFW-H,1-OAB_TR-----H-HD,1-OAF_MFW-----H-CD	
289	2.0E-08	0.03%	81.98%	1-IE-LOOPWR,1-DCP-BAT-MA-AD1B____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
290	2.0E-08	0.03%	82.01%	1-IE-LOOPWR,1-DCP-BAT-MA-BD1B____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
291	2.0E-08	0.03%	82.04%	1-IE-ISINJ,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-CLOPL	
292	2.0E-08	0.03%	82.08%	1-IE-LOOPSC,1-EPS-DGN-FR-G4001____,1-OA-MISPAF5094H,1-OAB_TR-----H	
293	2.0E-08	0.03%	82.11%	1-IE-LOOPSC,1-AFW-MDP-FS-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	
294	2.0E-08	0.03%	82.14%	1-IE-LOOPPC,1-ACP-CRB-CC-BA0301____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
295	2.0E-08	0.03%	82.17%	1-IE-LOOPPC,1-ACP-CRB-CC-AA0205____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
296	1.9E-08	0.03%	82.20%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-NSCW-CT-NEED-SWAP,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-SWT-FC-TY16689B-CC	
297	1.9E-08	0.03%	82.23%	1-IE-LOOPGR,1-EPS-DGN-MA-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CC-1669A	
298	1.9E-08	0.03%	82.26%	1-IE-LOOPGR,1-EPS-DGN-MA-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CC-1668A	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
299	1.9E-08	0.03%	82.29%	1-IE-LO4160VA,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
300	1.9E-08	0.03%	82.32%	1-IE-LO4160VB,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	
301	1.9E-08	0.03%	82.35%	1-IE-OTRANS,1-DCP-BAT-MA-AD1B____,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
302	1.9E-08	0.03%	82.38%	1-IE-OTRANS,1-DCP-BAT-MA-BD1B____,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	
303	1.9E-08	0.03%	82.41%	1-IE-LO120VAB,1-ACP-DPL-FC-BY1B&____,1-ACP-INV-MA-AD111____,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
304	1.9E-08	0.03%	82.44%	1-IE-LO120VAB,1-ACP-DPL-FC-AY1A&____,1-ACP-INV-MA-BD112____,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
305	1.9E-08	0.03%	82.47%	1-IE-LOOPWR,1-EPS-DGN-FS-G4001____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HWR	
306	1.9E-08	0.03%	82.50%	1-IE-LOOPGR,1-DCP-BCH-FC-AAABBABB-CC	
307	1.9E-08	0.03%	82.53%	1-IE-RTRIP,1-ESF-ACT-CF-__SAFACT-CC,1-OA-START-AFW-H,1-OAB_TR-----H-HD,1-OAF_MFW-----H-CD	
308	1.8E-08	0.03%	82.56%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002____,1-EPS-TNK-MA-DFOSTKA____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
309	1.8E-08	0.03%	82.58%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4002____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
310	1.8E-08	0.03%	82.61%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
311	1.8E-08	0.03%	82.64%	1-IE-SLOCA,1-OAN_SL-----H,1-OAR_LPSL-----H-LD	
312	1.8E-08	0.03%	82.67%	1-IE-TTRIP,1-NSCW-CT-NEED-SWAP,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-SWT-FC-TY16689B-CC	
313	1.8E-08	0.03%	82.70%	1-IE-SLOCA,1-LPI-MDP-CF-START	
314	1.7E-08	0.03%	82.73%	1-IE-LOOPPC,1-DCP-BAT-MA-BD1B____,1-EPS-SEQ-FO-1821U301	
315	1.7E-08	0.03%	82.75%	1-IE-LOOPPC,1-DCP-BAT-MA-AD1B____,1-EPS-SEQ-FO-1821U302	
316	1.7E-08	0.03%	82.78%	1-IE-LOOPWR,1-DCP-BAT-MA-AD1B____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HWR	
317	1.7E-08	0.03%	82.81%	1-IE-LOOPWR,1-DCP-BAT-MA-BD1B____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HWR	
318	1.7E-08	0.03%	82.84%	1-IE-LOOPSC,1-ACP-INV-MA-AD1I11____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
319	1.7E-08	0.03%	82.86%	1-IE-LO4160VB,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-MA-1668ACT_	
320	1.7E-08	0.03%	82.89%	1-IE-LOSINJ,1-ACP-CRB-CC-AA0205____,1-CVC-MDP-FR-NCP4001&,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
321	1.7E-08	0.03%	82.92%	1-IE-LOSINJ,1-ACP-CRB-CC-BA0301____,1-CVC-MDP-FR-NCP4001&,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
322	1.7E-08	0.03%	82.94%	1-IE-SSBO,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302,1-OA-NSCW-FAN---H,1-RCS-MDP-LK-BP2	
323	1.7E-08	0.03%	82.97%	1-IE-LO4160VA,1-EPS-DGN-FS-G4002____,1-OEP-VCF-LP-CLOPT	
324	1.7E-08	0.03%	83.00%	1-IE-LO4160VB,1-EPS-DGN-FS-G4001____,1-OEP-VCF-LP-CLOPT	
325	1.7E-08	0.03%	83.02%	1-IE-SLOCA,1-OAC_NC-----H,1-OAR_HPSLA----H-LD	
326	1.7E-08	0.03%	83.05%	1-IE-LO125AD1,1-ACP-BAC-MA-BA03____,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-AD1&____	
327	1.7E-08	0.03%	83.07%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-CF-FRUN1,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR0	
328	1.7E-08	0.03%	83.10%	1-IE-RTRIP,1-NSCW-CT-NEED-SWAP,1-NSCWCT-BYPASS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-SWT-FC-TY16689B-CC	
329	1.7E-08	0.03%	83.13%	1-IE-LO4160VB,1-ACP-TFW-FC-AB15X____	
330	1.7E-08	0.03%	83.15%	1-IE-LO4160VA,1-ACP-TFW-FC-BB16X____	
331	1.6E-08	0.03%	83.18%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR2	
332	1.6E-08	0.03%	83.20%	1-IE-SSBO,1-RCS-MDP-LK-BP2,1-SWS-CTF-CF-FS-ALL	
333	1.6E-08	0.03%	83.23%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-EPS-TNK-MA-DFOSTKA____,1-OEP-XHE-XL-NR02HGR	
334	1.6E-08	0.03%	83.25%	1-IE-TTRIP,1-ACP-CRB-CC-AA0205____,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
335	1.6E-08	0.03%	83.28%	1-IE-TTRIP,1-ACP-CRB-CC-BA0301___,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	
336	1.6E-08	0.02%	83.30%	1-IE-ISL-RHR-CLI-A,1-IE-HPI-CKV-RP-084_____,1-RHR-CKV-RP-148___CON,1-RHR-MOV-OO-HV8809A-HDP	
337	1.6E-08	0.02%	83.33%	1-IE-ISL-RHR-CLI-B,1-IE-HPI-CKV-RP-085_____,1-RHR-CKV-RP-149___CON,1-RHR-MOV-OO-HV8809B-HDP	
338	1.6E-08	0.02%	83.35%	1-IE-ISL-RHR-CLI-B,1-IE-HPI-CKV-RP-086_____,1-RHR-CKV-RP-150___CON,1-RHR-MOV-OO-HV8809B-HDP	
339	1.6E-08	0.02%	83.38%	1-IE-ISL-RHR-CLI-A,1-IE-HPI-CKV-RP-083_____,1-RHR-CKV-RP-147___CON,1-RHR-MOV-OO-HV8809A-HDP	
340	1.6E-08	0.02%	83.40%	1-IE-LOOPSC,1-DCP-BCH-FC-AAABBABB-CC	
341	1.6E-08	0.02%	83.43%	1-IE-LOOPWR,1-EPS-MDP-FR-XFERPPS___CC,1-OEP-XHE-XL-NR02HWR	
342	1.6E-08	0.02%	83.45%	1-IE-SSBI,1-EPS-SEQ-CF-FOAB,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
343	1.6E-08	0.02%	83.48%	1-IE-LO4160VA,1-DCP-BAT-MA-BD1B_____,1-OEP-VCF-LP-CLOPT	
344	1.6E-08	0.02%	83.50%	1-IE-LO4160VB,1-DCP-BAT-MA-AD1B_____,1-OEP-VCF-LP-CLOPT	
345	1.5E-08	0.02%	83.53%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301___,1-EPS-DGN-MA-G4001___,1-OA-ORS-----H	
346	1.5E-08	0.02%	83.55%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205___,1-EPS-DGN-MA-G4002___,1-OA-ORS-----H	
347	1.5E-08	0.02%	83.57%	1-IE-RTRIP,1-ACP-CRB-CC-AA0205___,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
348	1.5E-08	0.02%	83.60%	1-IE-RTRIP,1-ACP-CRB-CC-BA0301___,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	
349	1.5E-08	0.02%	83.62%	1-IE-LO4160VA,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-CTF-MA-_B_1234_	
350	1.5E-08	0.02%	83.64%	1-IE-LO4160VB,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-CTF-MA-_A_1234_	
351	1.5E-08	0.02%	83.66%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002___,1-EPS-TNK-MA-DFOSTKA___,1-OA-ORS-----H	
352	1.4E-08	0.02%	83.69%	1-IE-SGTR,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-CLOPL	
353	1.4E-08	0.02%	83.71%	1-IE-OTRANS,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-RLOOP	
354	1.4E-08	0.02%	83.73%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001___,1-EPS-DGN-CF-FRUN1,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR0	
355	1.4E-08	0.02%	83.75%	1-IE-LOACCW,1-ACW-MDP-MA-P4_002___,1-IE-ACW-MDP-FR-P4_001___,1-OA-CCP-ALIGN---H,1-OAC_NC-----H-MD,1-OAR_HPSLA----H-LD,1-RCS-MDP-LK-BP2	
356	1.4E-08	0.02%	83.78%	1-IE-LOOPGR,1-ACP-INV-MA-AD1I11___,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	
357	1.4E-08	0.02%	83.80%	1-IE-LOSINJ,1-ACP-CRB-CC-AA0205___,1-CVC-MDP-FR-NCP4001&,1-DCP-BAT-MA-BD1B___,1-OEP-VCF-LP-CLOPT	
358	1.4E-08	0.02%	83.82%	1-IE-LOSINJ,1-ACP-CRB-CC-BA0301___,1-CVC-MDP-FR-NCP4001&,1-DCP-BAT-MA-AD1B___,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
359	1.4E-08	0.02%	83.84%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001____,1-EPS-TNK-MA-DFOSTKB_,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
360	1.4E-08	0.02%	83.86%	1-IE-SSBO,1-DCP-BAT-MA-BD1B____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
361	1.4E-08	0.02%	83.89%	1-IE-SSBO,1-DCP-BAT-MA-AD1B____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H, 1-RCS-MDP-LK-BP2	
362	1.4E-08	0.02%	83.91%	1-IE-LO125AD1,1-AFW-MDP-MA-P4002____,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-AD1&____,1-OAB_TR----H	
363	1.4E-08	0.02%	83.93%	1-IE-LO125BD1,1-AFW-MDP-MA-P4003____,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-BD1&____,1-OAB_TR----H	
364	1.4E-08	0.02%	83.95%	1-IE-LO4160VA,1-ACP-BAC-MA-MCCBBF____,1-OAB_TR-----H	
365	1.4E-08	0.02%	83.97%	1-IE-LO4160VA,1-ACP-BAC-MA-BB07____,1-OAB_TR-----H	
366	1.3E-08	0.02%	83.99%	1-IE-LOSINJ,1-AFW-PMP-CF-RUN,1-CVC-MDP-FR-NCP4001&,1-OA-SAGD-CHG--H,1-OAB_TR-----H-HD, 1-OAF_MFW-----H-LD	
367	1.3E-08	0.02%	84.01%	1-IE-LOOPGR,1-EPS-MOT-CF-START,1-OEP-XHE-XL-NR02HGR	
368	1.3E-08	0.02%	84.03%	1-IE-LO4160VA,1-NSCWCT-SPRAY,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-MA-1669ACT_	
369	1.3E-08	0.02%	84.05%	1-IE-TTRIP,1-ACP-CRB-CC-BA0301____,1-DCP-BAT-MA-AD1B____,1-OEP-VCF-LP-CLOPT	
370	1.3E-08	0.02%	84.07%	1-IE-TTRIP,1-ACP-CRB-CC-AA0205____,1-DCP-BAT-MA-BD1B____,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
371	1.3E-08	0.02%	84.10%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBB__,1-EPS-DGN-MA-G4001__,1-OEP-XHE-XL-NR02HGR	
372	1.3E-08	0.02%	84.12%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBF__,1-EPS-DGN-MA-G4001__,1-OEP-XHE-XL-NR02HGR	
373	1.3E-08	0.02%	84.14%	1-IE-LOOPGR,1-ACP-INV-FC-AD1I11__,1-EPS-DGN-MA-G4002__,1-OEP-XHE-XL-NR02HGR	
374	1.3E-08	0.02%	84.16%	1-IE-LOOPGR,1-ACP-INV-FC-BD1I12__,1-EPS-DGN-MA-G4001__,1-OEP-XHE-XL-NR02HGR	
375	1.3E-08	0.02%	84.18%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001__,1-EPS-DGN-MA-G4002__,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR01HGR	
376	1.3E-08	0.02%	84.20%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001__,1-EPS-DGN-MA-G4001__,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR01HGR	
377	1.3E-08	0.02%	84.22%	1-IE-LO4160VA,1-AFW-MDP-FR-P4002__,1-OAB_TR-----H	
378	1.2E-08	0.02%	84.24%	1-IE-LOOPGR,1-ACP-INV-MA-AD1I11__,1-EPS-DGN-FS-G4002__,1-OEP-XHE-XL-NR02HGR	
379	1.2E-08	0.02%	84.26%	1-IE-SSBO,1-RPS-BME-CF-RTBAB	
380	1.2E-08	0.02%	84.27%	1-IE-LOOPSC,1-EPS-DGN-FR-G4002__,1-EPS-TNK-MA-DFOSTKA__,1-OA-ORS-----H	
381	1.2E-08	0.02%	84.29%	1-IE-LOOPPC,1-EPS-DGN-FR-G4001__,1-EPS-SEQ-FO-1821U302,1-OA-ORS-----H	
382	1.2E-08	0.02%	84.31%	1-IE-LOOPPC,1-EPS-DGN-FR-G4002__,1-EPS-SEQ-FO-1821U301,1-OA-ORS-----H	
383	1.2E-08	0.02%	84.33%	1-IE-OTRANS,1-AFW-MDP-MA-P4002__,1-EPS-DGN-FR-G4001__,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
384	1.2E-08	0.02%	84.35%	1-IE-LO4160VB,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-MA-P4_00135-3	
385	1.2E-08	0.02%	84.37%	1-IE-RTRIP,1-ACP-CRB-CC-BA0301__,1-DCP-BAT-MA-AD1B__,1-OEP-VCF-LP-CLOPT	
386	1.2E-08	0.02%	84.39%	1-IE-RTRIP,1-ACP-CRB-CC-AA0205__,1-DCP-BAT-MA-BD1B__,1-OEP-VCF-LP-CLOPT	
387	1.2E-08	0.02%	84.41%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-NSCW-CT-NEED-SWAP,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-SWT-FC-TY16689B-CC	
388	1.2E-08	0.02%	84.43%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001__,1-EPS-TNK-MA-DFOSTKB__,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
389	1.2E-08	0.02%	84.44%	1-IE-SSBO,1-DCP-BCH-FC-AAABBABB-CC	
390	1.2E-08	0.02%	84.46%	1-IE-LOMFW,1-RPS-BME-CF-RTBAB,1-UET2-NOPORV-BLK	
391	1.2E-08	0.02%	84.48%	1-IE-LO120VAB,1-ACP-INV-FC-AD1I1&__,1-ACP-INV-MA-BD1I2__,1-OA-HURGXFMR--H-LD,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
392	1.2E-08	0.02%	84.50%	1-IE-LO120VAB,1-ACP-INV-FC-BD1I2&__,1-ACP-INV-MA-AD1I1__,1-OA-HURGXFMR--H-LD,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
393	1.1E-08	0.02%	84.52%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002__,1-RCS-PRV-CC-RV0456A_	
394	1.1E-08	0.02%	84.53%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205__,1-AFW-MDP-MA-P4002__,1-OAB_TR-----H	
395	1.1E-08	0.02%	84.55%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001__,1-EPS-DGN-FS-G4001__,1-EPS-DGN-MA-G4002__,1-OEP-XHE-XL-NR01HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
396	1.1E-08	0.02%	84.57%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FS-G4002____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR01HGR	
397	1.1E-08	0.02%	84.59%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-CF-FSUN1,1-OEP-XHE-XL-NR01HGR	
398	1.1E-08	0.02%	84.61%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1,1-SWS-MOV-CC-1669A____	
399	1.1E-08	0.02%	84.62%	1-IE-LOOPWR,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1,1-SWS-MOV-CC-1668A____	
400	1.1E-08	0.02%	84.64%	1-IE-TTRIP,1-NSCW-CT-NEED-SWAP,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-SWT-FC-TY16689B-CC	
401	1.1E-08	0.02%	84.66%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-EPS-DGN-FS-G4001____,1-OA-ORS-----H	
402	1.1E-08	0.02%	84.67%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-EPS-DGN-FS-G4002____,1-OA-ORS-----H	
403	1.1E-08	0.02%	84.69%	1-IE-LOOPPC,1-AFW-MDP-MA-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	
404	1.1E-08	0.02%	84.71%	1-IE-LOOPGR,1-AFW-PMP-CF-RUN,1-OAB_TR-----H	
405	1.1E-08	0.02%	84.73%	1-IE-OTRANS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDEF	
406	1.1E-08	0.02%	84.74%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
407	1.1E-08	0.02%	84.76%	1-IE-OTRANS,1-AFW-MDP-CF-START,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
408	1.1E-08	0.02%	84.78%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-EPS-MDP-FS-XFERPPS_-CC,1-OEP-XHE-XL-NR01HGR	
409	1.1E-08	0.02%	84.79%	1-IE-LOOPGR,1-NSCW-F-WTRHAMMER,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-OO-1668A69A-CC	
410	1.1E-08	0.02%	84.81%	1-IE-LOOPPC,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FS-G4002____,1-OA-ORS-----H	
411	1.1E-08	0.02%	84.83%	1-IE-LOOPPC,1-EPS-DGN-FR-G4002____,1-EPS-DGN-FS-G4001____,1-OA-ORS-----H	
412	1.1E-08	0.02%	84.84%	1-IE-LOSINJ,1-ACP-CRB-CF-A205301,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-RLOOP	
413	1.1E-08	0.02%	84.86%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
414	1.1E-08	0.02%	84.88%	1-IE-LOCHS,1-RPS-BME-CF-RTBAB,1-UET2-NOPORV-BLK	
415	1.0E-08	0.02%	84.89%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCDEF	
416	1.0E-08	0.02%	84.91%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-EPS-TNK-MA-DFOSTKB____,1-OEP-XHE-XL-NR02HGR	
417	1.0E-08	0.02%	84.93%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-ACP-INV-MA-AD1I11____,1-OEP-XHE-XL-NR02HWR	
418	1.0E-08	0.02%	84.94%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-1668A69A	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
419	1.0E-08	0.02%	84.96%	1-IE-RTRIP,1-NSCW-CT-NEED-SWAP,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-SWT-FC-TY16689B-CC	
420	1.0E-08	0.02%	84.97%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-EPS-DGN-FR-G4001___,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A___	
421	1.0E-08	0.02%	84.99%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-EPS-DGN-FR-G4002___,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A___	
422	1.0E-08	0.02%	85.01%	1-IE-LOOPGR,1-EPS-SEQ-FO-1821U302,1-EPS-TNK-MA-DFOSTKA___,1-OEP-XHE-XL-NR02HGR	
423	1.0E-08	0.02%	85.02%	1-IE-LOMFV,1-ACP-CRB-CC-AA0205___,1-ACP-CRB-CC-BA0301___,1-OEP-VCF-LP-CLOPT	
424	1.0E-08	0.02%	85.04%	1-IE-TTRIP,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-RLOOP	
425	1.0E-08	0.02%	85.05%	1-IE-TTRIP,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
426	9.9E-09	0.02%	85.07%	1-IE-LOOPPC,1-DCP-BAT-MA-AD1B___,1-EPS-DGN-FR-G4002___,1-OA-ORS-----H	
427	9.9E-09	0.02%	85.08%	1-IE-LOOPPC,1-DCP-BAT-MA-BD1B___,1-EPS-DGN-FR-G4001___,1-OA-ORS-----H	
428	9.8E-09	0.02%	85.10%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002___,1-CVC-MDP-MA-CCPB___	
429	9.8E-09	0.02%	85.11%	1-IE-LOACCW,1-IE-ACW-TNK-RP-T4_001___,1-OA-CCP-ALIGN---H,1-OAN_SL-----H-LD,1-OAR_LPSL-----H-LD,1-RCS-MDP-LK-BP2	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
430	9.7E-09	0.02%	85.13%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205___,1-AFW-MDP-MA-P4002___,1-OAB_TR-----H	
431	9.6E-09	0.02%	85.15%	1-IE-TTRIP,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-1668A69A	
432	9.6E-09	0.02%	85.16%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-CF-FS-ADEF	
433	9.6E-09	0.02%	85.18%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-CF-FS-ABEF	
434	9.6E-09	0.02%	85.19%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-CF-FS-BCEF	
435	9.6E-09	0.02%	85.21%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-CF-FS-CDEF	
436	9.6E-09	0.02%	85.22%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-CF-FS-BCDE	
437	9.6E-09	0.02%	85.24%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-CF-FS-ABCF	
438	9.6E-09	0.02%	85.25%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-CF-FS-ABCD	
439	9.6E-09	0.02%	85.27%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-CF-FS-ACDF	
440	9.6E-09	0.02%	85.28%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-CF-FS-ABDE	
441	9.6E-09	0.02%	85.30%	1-IE-LO125BD1,1-ACP-INV-MA-AD1111___,1-DCP-BDC-FC-BD1&___,1-OEP-VCF-LP-CLOPT	
442	9.6E-09	0.01%	85.31%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS4___,1-EPS-DGN-MA-G4001___,1-OEP-XHE-XL-NR02HGR	
443	9.6E-09	0.01%	85.33%	1-IE-LOOPGR,1-ACP-DCP-FC-1A_PS1___,1-EPS-DGN-MA-G4002___,1-OEP-XHE-XL-NR02HGR	
444	9.6E-09	0.01%	85.34%	1-IE-LOOPGR,1-ACP-DCP-FC-1A_PS4___,1-EPS-DGN-MA-G4002___,1-OEP-XHE-XL-NR02HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
445	9.6E-09	0.01%	85.36%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS1____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HGR	
446	9.5E-09	0.01%	85.37%	1-IE-TTRIP,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A____	
447	9.5E-09	0.01%	85.39%	1-IE-TTRIP,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A____	
448	9.4E-09	0.01%	85.40%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1,1-SWS-MOV-CC-1669A____	
449	9.4E-09	0.01%	85.41%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1,1-SWS-MOV-CC-1668A____	
450	9.4E-09	0.01%	85.43%	1-IE-LOOPWR,1-EPS-DGN-MA-G4001____,1-EPS-SEQ-FO-1821U302,1-OA-ORS-----H	
451	9.4E-09	0.01%	85.44%	1-IE-LOOPWR,1-EPS-DGN-MA-G4002____,1-EPS-SEQ-FO-1821U301,1-OA-ORS-----H	
452	9.4E-09	0.01%	85.46%	1-IE-LOOPSC,1-ACP-CRB-CC-BA0301____,1-EPS-DGN-FS-G4001____,1-OA-ORS-----H	
453	9.4E-09	0.01%	85.47%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205____,1-EPS-DGN-FS-G4002____,1-OA-ORS-----H	
454	9.3E-09	0.01%	85.49%	1-IE-LOOPSC,1-AFW-PMP-CF-RUN,1-OAB_TR-----H	
455	9.3E-09	0.01%	85.50%	1-IE-SSBO,1-RPS-ROD-CF-RCCAS	
456	9.3E-09	0.01%	85.52%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-EPS-TNK-MA-DFOSTKB____,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
457	9.2E-09	0.01%	85.53%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MDP-CF-FS-ABCDEF	
458	9.2E-09	0.01%	85.55%	1-IE-RTRIP,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-RLOOP	
459	9.2E-09	0.01%	85.56%	1-IE-RTRIP,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
460	9.1E-09	0.01%	85.57%	1-IE-LLOCA,1-OAR_LPLL-----H	
461	9.1E-09	0.01%	85.59%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205___,1-AFW-TDP-FR-P4001___,1-EPS-DGN-FR-G4002___,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
462	9.1E-09	0.01%	85.60%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301___,1-AFW-TDP-FR-P4001___,1-EPS-DGN-FR-G4001___,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
463	9.1E-09	0.01%	85.62%	1-IE-LOCHS,1-ACP-CRB-CC-AA0205___,1-ACP-CRB-CC-BA0301___,1-OEP-VCF-LP-CLOPT	
464	9.0E-09	0.01%	85.63%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-CF-FS-ABCDF	
465	9.0E-09	0.01%	85.65%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-CF-FS-ABCEF	
466	9.0E-09	0.01%	85.66%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-CF-FS-ABDEF	
467	9.0E-09	0.01%	85.67%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-CF-FS-BCDEF	
468	9.0E-09	0.01%	85.69%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-CF-FS-ACDEF	
469	9.0E-09	0.01%	85.70%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-CF-FS-ABCDE	
470	9.0E-09	0.01%	85.72%	1-IE-LOOPGR,1-EPS-DGN-MA-G4001___,1-OA-MISPAF5094H,1-OAB_TR-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
471	9.0E-09	0.01%	85.73%	1-IE-LOOPGR,1-AFW-MDP-FS-P4002____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H	
472	8.9E-09	0.01%	85.74%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCDEF	
473	8.9E-09	0.01%	85.76%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-DCP-BAT-MA-BD1B____,1-OA-NSCW-FAN---H	
474	8.9E-09	0.01%	85.77%	1-IE-LO4160VA,1-RCS-MDP-LK-BP2,1-SWS-CTF-MA-_B_1234_	
475	8.9E-09	0.01%	85.79%	1-IE-LO4160VB,1-RCS-MDP-LK-BP2,1-SWS-CTF-MA-_A_1234_	A loss of 4.16kV safety-related AC bus initiating event and the failure of the opposite train NSCW cooling tower fans results in a total loss of NSCW. Core damage occurs due to RCP seal failure (stage 2) with no ECCS systems unavailable due NSCW being unavailable.
476	8.9E-09	0.01%	85.80%	1-IE-SGTR,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-CLOPL	Same as cut set #4, except a consequential LOOP (instead of LOOP initiating event) occurs.
477	8.9E-09	0.01%	85.81%	1-IE-LOOPGR,1-EPS-DGN-FS-G4002____,1-EPS-TNK-MA-DFOSTKA____,1-OEP-XHE-XL-NR02HGR	Same as cut set #8, except a different LOOP initiating event type (grid-related) and EDG unavailabilities occur; no convolution applied.
478	8.8E-09	0.01%	85.83%	1-IE-RTRIP,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-1668A69A	A reactor trip and consequential LOOP occurs. NSCW fails due to failure of the cooling tower sprays (CCF of the spray valves) resulting in a non-recoverable SBO.
479	8.8E-09	0.01%	85.84%	1-IE-LOMFV,1-RPS-ROD-CF-RCCAS,1-UET2-NOPORV-BLK	A loss of main feedwater (MFW) initiating event with subsequent anticipated transient without scram (ATWS) due to the control rods being mechanically stuck. Core damage occurs because the reactor in the unfavorable exposure time [i.e., reactor coolant system (RCS) pressure will exceed 3200 pounds per square inch (psi)].
480	8.8E-09	0.01%	85.86%	1-IE-LOOPWR,1-EPS-DGN-MA-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CC-1669A____	A weather-related LOOP initiating event occurs. NSCW fails due to EDG unavailabilities and failure of the opposite train cooling tower spray valve resulting in a SBO. Core damage occurs when operators fail to recover offsite power within 2 hours (i.e., the turbine building battery depletion time).
481	8.8E-09	0.01%	85.87%	1-IE-LOOPWR,1-EPS-DGN-MA-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CC-1668A____	Same as cut set #480, except unavailabilities are on opposite trains.
482	8.8E-09	0.01%	85.88%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCDEF	A plant-centered LOOP initiating event occurs with a subsequent CCF of the NSCW pumps, which results in a SBO and a loss of all RCP seal injection/cooling. Core damage occurs due to RCP seal failure (stage 2) with ECCS unavailable.

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
483	8.7E-09	0.01%	85.90%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-DCP-BAT-MA-BD1B____,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	Same as cut set #4, except a consequential LOOP (instead of LOOP initiating event) and different electrical unavailabilities occur.
484	8.7E-09	0.01%	85.91%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-DCP-BAT-MA-AD1B____,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	Same as cut set #4, except a consequential LOOP (instead of LOOP initiating event) and different electrical unavailabilities occur.
485	8.7E-09	0.01%	85.92%	1-IE-RTRIP,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A____	Same as cut set #478, except NSCW sprays are failed due to a combination of electrical and spray valve failures.
486	8.7E-09	0.01%	85.94%	1-IE-RTRIP,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A____	Same as cut set #478, except NSCW sprays are failed due to a combination of electrical and spray valve failures.
487	8.6E-09	0.01%	85.95%	1-IE-LOOPWR,1-AFW-MDP-MA-P4002____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H	A weather-related LOOP initiating event occurs with subsequent AFW and EDG unavailabilities rendering the AFW system unavailable. Core damage occurs due to operator failure to initiate feed and bleed cooling. Note that this cut set is potentially conservative since no credit for offsite power recovery is provided for non-SBO scenarios.
488	8.4E-09	0.01%	85.96%	1-IE-OTRANS,1-AFW-PMP-CF-RUN,1-OAF_MFW-----H,1-OAR_LTFB-TRA-H-LD	A transient initiating event occurs. The AFW is unavailable (due to CCF of the pumps) and operators fail to restore MFW, which was isolated on low T <sub>avg</sub> . Feed and bleed cooling is initially successful; however, core damage occurs when operators fail to align for recirculation.
489	8.4E-09	0.01%	85.98%	1-IE-LOOPWR,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-1668A69A	A weather-related LOOP initiating event occurs. NSCW fails due to failure of the NSCW cooling tower spray valves (CCF) resulting in a SBO. Core damage occurs due to RCP seal failure (stage 2) with no ECCS systems unavailable due NSCW being unavailable.
490	8.3E-09	0.01%	85.99%	1-IE-LOOPGR,1-AFW-MOV-OO-FV5154____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	Same as cut set #487, except a different LOOP initiating event type (grid-related) and different AFW unavailabilities occur.
491	8.3E-09	0.01%	86.00%	1-IE-LOOPWR,1-EPS-DGN-FS-G4001____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	Same as cut set #10, except a different LOOP initiating event type (weather-related) and different electrical failures occur.
492	8.3E-09	0.01%	86.02%	1-IE-LOOPWR,1-EPS-DGN-FS-G4002____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	Same as cut set #10, except a different LOOP initiating event type (weather-related) and different electrical failures occur.

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
493	8.2E-09	0.01%	86.03%	1-IE-LOOPWR,1-EPS-DGN-CF-FSUN1,1-OA-ORS-----H	Same as cut set #10, except a different LOOP initiating event type (weather-related) and different electrical failures (CCF) occur.
494	8.2E-09	0.01%	86.04%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205___,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CC-1669A___	Same as cut set #480, except a different LOOP initiating event type (grid-related) and different electrical failures occur.
495	8.2E-09	0.01%	86.05%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301___,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CC-1668A___	Same as cut set #480, except a different LOOP initiating event type (grid-related) and different electrical failures occur.
496	8.2E-09	0.01%	86.07%	1-IE-LOOPGR,1-DCP-BAT-MA-BD1B___,1-EPS-TNK-MA-DFOSTKA___,1-OEP-XHE-XL-NR02HGR	Same as cut set #8, except a different LOOP initiating event type (grid-related) and EDG unavailabilities occur; no convolution applied.
497	8.2E-09	0.01%	86.08%	1-IE-TTRIP,1-DCP-BAT-MA-AD1B___,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	Same as cut set #4, except a consequential LOOP (instead of LOOP initiating event) and different electrical unavailabilities occur.
498	8.2E-09	0.01%	86.09%	1-IE-TTRIP,1-DCP-BAT-MA-BD1B___,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	Same as cut set #4, except a consequential LOOP (instead of LOOP initiating event) and different electrical unavailabilities occur.
499	8.1E-09	0.01%	86.11%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12345,1-RCS-MDP-LK-BP2,1-SWS-MDP-MA-P4_006___	Same as cut set #1, except one NSCW pump was in test and maintenance prior to the initiating event.
500	8.1E-09	0.01%	86.12%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12346,1-RCS-MDP-LK-BP2,1-SWS-MDP-MA-P4_005___	
501	8.1E-09	0.01%	86.13%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002___,1-CVC-MDP-TE-CCPB___	
502	8.0E-09	0.01%	86.14%	1-IE-SGTR,1-EPS-DGN-FR-G4001___,1-OAB_SI-----H,1-OEP-VCF-LP-CLOPL,1-SGTR2	
503	8.0E-09	0.01%	86.16%	1-IE-SGTR,1-EPS-DGN-FR-G4001___,1-OAB_SI-----H,1-OEP-VCF-LP-CLOPL,1-SGTR3	
504	8.0E-09	0.01%	86.17%	1-IE-LO4160VA,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-MA-1669ACT___	
505	8.0E-09	0.01%	86.18%	1-IE-LOCHS,1-RPS-ROD-CF-RCCAS,1-UET2-NOPORV-BLK	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
506	7.9E-09	0.01%	86.19%	1-IE-LOOPWR,1-EPS-MDP-FS-XFERPPS__CC,1-OA-ORS-----H	
507	7.9E-09	0.01%	86.21%	1-IE-LOOPSC,1-EPS-DGN-FR-G4001____,1-EPS-TNK-MA-DFOSTKB__,1-OA-ORS-----H	
508	7.8E-09	0.01%	86.22%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
509	7.8E-09	0.01%	86.23%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
510	7.6E-09	0.01%	86.24%	1-IE-LOOPSC,1-EPS-DGN-MA-G4001____,1-OA-MISPAF5094H,1-OAB_TR-----H	
511	7.6E-09	0.01%	86.25%	1-IE-LOOPSC,1-AFW-MDP-FS-P4002____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H	
512	7.5E-09	0.01%	86.27%	1-IE-LOOPGR,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CF-1668A69A	
513	7.5E-09	0.01%	86.28%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCABF____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
514	7.5E-09	0.01%	86.29%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCABB____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
515	7.5E-09	0.01%	86.30%	1-IE-LOOPWR,1-ACP-BAC-MA-AB05____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
516	7.5E-09	0.01%	86.31%	1-IE-LOOPWR,1-ACP-BAC-MA-AB15____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
517	7.5E-09	0.01%	86.32%	1-IE-LOOPWR,1-ACP-BAC-MA-AA02____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
518	7.5E-09	0.01%	86.34%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCBBF____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
519	7.5E-09	0.01%	86.35%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCBBB____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
520	7.5E-09	0.01%	86.36%	1-IE-LOOPWR,1-ACP-BAC-MA-BB07____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
521	7.5E-09	0.01%	86.37%	1-IE-LOOPWR,1-ACP-BAC-MA-BB16____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
522	7.5E-09	0.01%	86.38%	1-IE-LOOPWR,1-ACP-BAC-MA-BA03____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
523	7.5E-09	0.01%	86.40%	1-IE-LOOPWR,1-ACP-INV-FC-AD1I11____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
524	7.5E-09	0.01%	86.41%	1-IE-LOOPWR,1-ACP-INV-FC-BD1I12____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
525	7.5E-09	0.01%	86.42%	1-IE-RTRIP,1-DCP-BAT-MA-AD1B____,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
526	7.5E-09	0.01%	86.43%	1-IE-RTRIP,1-DCP-BAT-MA-BD1B____,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	
527	7.5E-09	0.01%	86.44%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001____,1-OA-MISPAF5094H,1-OAB_TR-----H	
528	7.5E-09	0.01%	86.45%	1-IE-LOOPWR,1-AFW-MDP-FS-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	
529	7.5E-09	0.01%	86.47%	1-IE-LOOPPC,1-ACP-CRB-CC-BA0301____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	
530	7.5E-09	0.01%	86.48%	1-IE-LOOPPC,1-ACP-CRB-CC-AA0205____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	
531	7.4E-09	0.01%	86.49%	1-IE-SSBO,1-ACP-INV-MA-AD1111____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWAN---H,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
532	7.4E-09	0.01%	86.50%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1668A____	
533	7.4E-09	0.01%	86.51%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1669A____	
534	7.4E-09	0.01%	86.52%	1-IE-LO4160VB,1-RCS-MDP-LK-BP2,1-SWS-MDP-MA-P4_00135-3	
535	7.3E-09	0.01%	86.53%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-EPS-TNK-MA-DFOSTKA____,1-OEP-XHE-XL-NR02HWR	
536	7.3E-09	0.01%	86.55%	1-IE-LOMFV,1-AFW-MDP-CF-START,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H	
537	7.2E-09	0.01%	86.56%	1-IE-LOOPWR,1-ACP-SSD-MA-1821U301,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
538	7.2E-09	0.01%	86.57%	1-IE-LOOPGR,1-ACP-INV-MA-AD1I11____,1-EPS-SEQ-FO-1821U302,1-RCS-MDP-LK-BP2	
539	7.2E-09	0.01%	86.58%	1-IE-LO4160VB,1-AFW-MDP-MA-P4003____,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H	
540	7.2E-09	0.01%	86.59%	1-IE-LOOPWR,1-ACP-INV-MA-BD1I12____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
541	7.1E-09	0.01%	86.60%	1-IE-LOOPGR,1-AFW-MDP-MA-P4002____,1-EPS-SEQ-FO-1821U301,1-OAB_TR-----H	
542	7.1E-09	0.01%	86.61%	1-IE-LOMFW,1-NSCW-CT-NEED-SWAP,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-SWT-FC-TY16689B-CC	
543	7.0E-09	0.01%	86.62%	1-IE-LOOPSC,1-AFW-MOV-OO-FV5154____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	
544	6.9E-09	0.01%	86.64%	1-IE-SSBO,1-AFW-PMP-CF-RUN,1-OAB_TR-----H	
545	6.9E-09	0.01%	86.65%	1-IE-LOOPGR,1-EPS-DGN-FS-G4001____,1-EPS-SEQ-FO-1821U302,1-OA-ORS-----H	
546	6.9E-09	0.01%	86.66%	1-IE-LOOPGR,1-EPS-DGN-FS-G4002____,1-EPS-SEQ-FO-1821U301,1-OA-ORS-----H	
547	6.9E-09	0.01%	86.67%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR01HWR	
548	6.9E-09	0.01%	86.68%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR01HWR	
549	6.8E-09	0.01%	86.69%	1-IE-LO125BD1,1-DCP-BDC-FC-BD1&____,1-EPS-TNK-MA-DFOSTKA____,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
550	6.8E-09	0.01%	86.70%	1-IE-LOOPWR,1-ACP-BAC-MA-BYB1____,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
551	6.8E-09	0.01%	86.71%	1-IE-LOOPWR,1-ACP-BAC-MA-AYB1____,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
552	6.7E-09	0.01%	86.72%	1-IE-LOOPGR,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-RLY-FC-AX36869__CC	
553	6.7E-09	0.01%	86.73%	1-IE-LOOPGR,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-RLY-FC-162__1X89-CC	
554	6.7E-09	0.01%	86.74%	1-IE-OTRANS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCDEF	
555	6.7E-09	0.01%	86.75%	1-IE-LOCHS,1-AFW-MDP-CF-START,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H	
556	6.6E-09	0.01%	86.76%	1-IE-SSBO,1-ACP-CRB-CC-AA0205____,1-ACP-CRB-CC-BA0301____,1-OEP-VCF-LP-CLOPL	
557	6.6E-09	0.01%	86.77%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-RLOOP	
558	6.5E-09	0.01%	86.78%	1-IE-LOOPWR,1-ACP-SSD-MA-1821U302,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
559	6.5E-09	0.01%	86.79%	1-IE-LOOPWR,1-ACP-INV-MA-AD1111____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
560	6.4E-09	0.01%	86.80%	1-IE-LOCHS,1-NSCW-CT-NEED-SWAP,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-SWT-FC-TY16689B-CC	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
561	6.4E-09	0.01%	86.81%	1-IE-LOOPGR,1-EPS-SEQ-FO-1821U301,1-EPS-TNK-MA-DFOSTKB_,1-OEP-XHE-XL-NR02HGR	
562	6.4E-09	0.01%	86.82%	1-IE-LOOPWR,1-ACP-INV-MA-AD1111__,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HWR	
563	6.4E-09	0.01%	86.83%	1-IE-LOOPSC,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CF-1668A69A	
564	6.3E-09	0.01%	86.84%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCABF_,1-EPS-DGN-FR-G4002__,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
565	6.3E-09	0.01%	86.85%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCABB_,1-EPS-DGN-FR-G4002__,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
566	6.3E-09	0.01%	86.86%	1-IE-LOOPGR,1-ACP-BAC-MA-AB15__,1-EPS-DGN-FR-G4002__,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
567	6.3E-09	0.01%	86.87%	1-IE-LOOPGR,1-ACP-BAC-MA-AB05__,1-EPS-DGN-FR-G4002__,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
568	6.3E-09	0.01%	86.88%	1-IE-LOOPGR,1-ACP-BAC-MA-AA02__,1-EPS-DGN-FR-G4002__,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
569	6.3E-09	0.01%	86.89%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBF_,1-EPS-DGN-FR-G4001__,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
570	6.3E-09	0.01%	86.90%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBB_,1-EPS-DGN-FR-G4001__,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
571	6.3E-09	0.01%	86.91%	1-IE-LOOPGR,1-ACP-BAC-MA-BA03____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
572	6.3E-09	0.01%	86.92%	1-IE-LOOPGR,1-ACP-BAC-MA-BB16____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
573	6.3E-09	0.01%	86.93%	1-IE-LOOPGR,1-ACP-BAC-MA-BB07____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
574	6.3E-09	0.01%	86.94%	1-IE-LOOPGR,1-ACP-INV-FC-AD1I11____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
575	6.3E-09	0.01%	86.95%	1-IE-LOOPGR,1-ACP-INV-FC-BD1I12____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
576	6.3E-09	0.01%	86.96%	1-IE-LOOPGR,1-AFW-MDP-MA-P4002____,1-EPS-DGN-FS-G4001____,1-OAB_TR-----H	
577	6.3E-09	0.01%	86.97%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-MSS-AOV-OO-TV500F____,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
578	6.3E-09	0.01%	86.98%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-MSS-AOV-OO-TV500E____,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
579	6.3E-09	0.01%	86.99%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-MSS-AOV-OO-TV500H____,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
580	6.3E-09	0.01%	87.00%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-MSS-AOV-OO-TV500G____,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
581	6.3E-09	0.01%	87.01%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-MSS-AOV-OO-TV500B___,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
582	6.3E-09	0.01%	87.02%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-MSS-AOV-OO-TV500A___,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
583	6.3E-09	0.01%	87.03%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-MSS-AOV-OO-TV500D___,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
584	6.3E-09	0.01%	87.04%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-MSS-AOV-OO-TV500C___,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
585	6.3E-09	0.01%	87.05%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-MSS-AOV-OO-TV500J___,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
586	6.3E-09	0.01%	87.06%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-MSS-AOV-OO-PV507B___,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
587	6.3E-09	0.01%	87.07%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-MSS-AOV-OO-PV507A___,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
588	6.3E-09	0.01%	87.08%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-MSS-AOV-OO-PV507C___,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
589	6.3E-09	0.01%	87.09%	1-IE-LOOPSC,1-EPS-DGN-FR-G4002___,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1668A___	
590	6.3E-09	0.01%	87.10%	1-IE-LOOPSC,1-EPS-DGN-FR-G4001___,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1669A___	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
591	6.2E-09	0.01%	87.11%	1-IE-LOMFW,1-ACP-CRB-CC-AA0205____,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
592	6.2E-09	0.01%	87.12%	1-IE-LOMFW,1-ACP-CRB-CC-BA0301____,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	
593	6.2E-09	0.01%	87.13%	1-IE-SGTR,1-EPS-SEQ-CF-FOAB,1-OAI_SG-----H	
594	6.1E-09	0.01%	87.14%	1-IE-LO4160VA,1-DCP-BDC-FC-BD1_____	
595	6.1E-09	0.01%	87.15%	1-IE-LO4160VA,1-DCP-DPL-FC-BD11_____	
596	6.1E-09	0.01%	87.16%	1-IE-TTRIP,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-RLOOP	
597	6.1E-09	0.01%	87.17%	1-IE-LOOPWR,1-EPS-MOT-CF-START,1-OEP-XHE-XL-NR02HWR	
598	6.1E-09	0.01%	87.18%	1-IE-LOOPGR,1-ACP-SSD-MA-1821U301,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
599	6.1E-09	0.01%	87.19%	1-IE-LOOPSC,1-ACP-INV-MA-AD1111____,1-EPS-SEQ-FO-1821U302,1-RCS-MDP-LK-BP2	
600	6.1E-09	0.01%	87.20%	1-IE-LOOPGR,1-EPS-DGN-FS-G4001____,1-EPS-DGN-FS-G4002____,1-OA-ORS-----H	
601	6.1E-09	0.01%	87.21%	1-IE-LOOPGR,1-ACP-INV-MA-BD1112____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
602	6.0E-09	0.01%	87.22%	1-IE-MLOCA,1-HPI-MOV-CF-8804AB	
603	6.0E-09	0.01%	87.23%	1-IE-MLOCA,1-LPI-MOV-CF-8811AB	
604	6.0E-09	0.01%	87.23%	1-IE-LOOPSC,1-AFW-MDP-MA-P4002____,1-EPS-SEQ-FO-1821U301,1-OAB_TR-----H	
605	6.0E-09	0.01%	87.24%	1-IE-LOOPWR,1-DCP-BCH-FC-AAABBABB-CC	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
606	5.9E-09	0.01%	87.25%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCBBB____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HWR	
607	5.9E-09	0.01%	87.26%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCBBF____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HWR	
608	5.9E-09	0.01%	87.27%	1-IE-LOOPWR,1-ACP-INV-FC-AD1111____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HWR	
609	5.9E-09	0.01%	87.28%	1-IE-LOOPWR,1-ACP-INV-FC-BD1112____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HWR	
610	5.9E-09	0.01%	87.29%	1-IE-LO4160VA,1-DCP-CRB-CO-BD105____	
611	5.9E-09	0.01%	87.30%	1-IE-LO4160VB,1-ACP-CRB-CO-AA0210____	
612	5.9E-09	0.01%	87.31%	1-IE-LO4160VB,1-ACP-CRB-CO-AB1501____	
613	5.9E-09	0.01%	87.32%	1-IE-LO4160VA,1-ACP-CRB-CO-BA0309____	
614	5.9E-09	0.01%	87.33%	1-IE-LO4160VA,1-ACP-CRB-CO-BB1601____	
615	5.9E-09	0.01%	87.34%	1-IE-LOOPGR,1-EPS-PND-CF-1205X,1-OEP-XHE-XL-NR02HGR	
616	5.9E-09	0.01%	87.35%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-CVC-MDP-FS-CCPB_____	
617	5.8E-09	0.01%	87.35%	1-IE-LOOPSC,1-EPS-DGN-FS-G4001____,1-EPS-SEQ-FO-1821U302,1-OA-ORS-----H	
618	5.8E-09	0.01%	87.36%	1-IE-LOOPSC,1-EPS-DGN-FS-G4002____,1-EPS-SEQ-FO-1821U301,1-OA-ORS-----H	
619	5.8E-09	0.01%	87.37%	1-IE-LOOPGR,1-AFW-MDP-MA-P4002____,1-DCP-BAT-MA-AD1B____,1-OAB_TR-----H	
620	5.8E-09	0.01%	87.38%	1-IE-LOOPGR,1-ACP-INV-FC-AD11BD12-CC,1-OEP-XHE-XL-NR02HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
621	5.7E-09	0.01%	87.39%	1-IE-LOOPGR,1-ACP-BAC-MA-AYB1____,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
622	5.7E-09	0.01%	87.40%	1-IE-LOOPGR,1-ACP-BAC-MA-BYB1____,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
623	5.7E-09	0.01%	87.41%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
624	5.7E-09	0.01%	87.42%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4002____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
625	5.7E-09	0.01%	87.43%	1-IE-LOCHS,1-ACP-CRB-CC-AA0205____,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
626	5.7E-09	0.01%	87.44%	1-IE-LOCHS,1-ACP-CRB-CC-BA0301____,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	
627	5.7E-09	0.01%	87.44%	1-IE-LOOPGR,1-EPS-DGN-FS-G4001____,1-EPS-TNK-MA-DFOSTKB____,1-OEP-XHE-XL-NR02HGR	
628	5.7E-09	0.01%	87.45%	1-IE-LOOPWR,1-ACP-INV-MA-AD1111____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HWR	
629	5.7E-09	0.01%	87.46%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302	
630	5.7E-09	0.01%	87.47%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U301,1-ESF-SSD-FC-_3A3131B	
631	5.7E-09	0.01%	87.48%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U302,1-ESF-SSD-FC-_3A3131A	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
632	5.7E-09	0.01%	87.49%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U301,1-ESF-SSD-FC-_A513_1B	
633	5.7E-09	0.01%	87.50%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U302,1-ESF-SSD-FC-_A513_1A	
634	5.7E-09	0.01%	87.51%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U302,1-ESF-SSD-FC-_A517_1A	
635	5.7E-09	0.01%	87.51%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U301,1-ESF-SSD-FC-_3A4161B	
636	5.7E-09	0.01%	87.52%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U302,1-ESF-SSD-FC-_3A4161A	
637	5.7E-09	0.01%	87.53%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U301,1-ESF-SSD-FC-_4A315B	
638	5.7E-09	0.01%	87.54%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U302,1-ESF-SSD-FC-_4A315A	
639	5.7E-09	0.01%	87.55%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U301,1-ESF-SSD-FC-_A517_1B	
640	5.7E-09	0.01%	87.56%	1-IE-MLOCA,1-ESF-SSD-FC-_3A3131A,1-ESF-SSD-FC-_3A3131B	
641	5.7E-09	0.01%	87.57%	1-IE-MLOCA,1-ESF-SSD-FC-_3A3131A,1-ESF-SSD-FC-_A513_1B	
642	5.7E-09	0.01%	87.58%	1-IE-MLOCA,1-ESF-SSD-FC-_3A4161A,1-ESF-SSD-FC-_A513_1B	
643	5.7E-09	0.01%	87.59%	1-IE-MLOCA,1-ESF-SSD-FC-_A513_1A,1-ESF-SSD-FC-_A513_1B	
644	5.7E-09	0.01%	87.59%	1-IE-MLOCA,1-ESF-SSD-FC-_3A3131B,1-ESF-SSD-FC-_A513_1A	
645	5.7E-09	0.01%	87.60%	1-IE-MLOCA,1-ESF-SSD-FC-_3A4161B,1-ESF-SSD-FC-_A513_1A	
646	5.7E-09	0.01%	87.61%	1-IE-MLOCA,1-ESF-SSD-FC-_3A3131B,1-ESF-SSD-FC-_A517_1A	
647	5.7E-09	0.01%	87.62%	1-IE-MLOCA,1-ESF-SSD-FC-_3A4161B,1-ESF-SSD-FC-_A517_1A	
648	5.7E-09	0.01%	87.63%	1-IE-MLOCA,1-ESF-SSD-FC-_A513_1B,1-ESF-SSD-FC-_A517_1A	
649	5.7E-09	0.01%	87.64%	1-IE-MLOCA,1-ESF-SSD-FC-_3A3131A,1-ESF-SSD-FC-_3A4161B	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
650	5.7E-09	0.01%	87.65%	1-IE-MLOCA,1-ESF-SSD-FC- _3A4161A,1-ESF-SSD-FC- _3A4161B	
651	5.7E-09	0.01%	87.66%	1-IE-MLOCA,1-ESF-SSD-FC- _3A3131B,1-ESF-SSD-FC- _3A4161A	
652	5.7E-09	0.01%	87.67%	1-IE-MLOCA,1-ESF-SSD-FC- _3A3131A,1-ESF-SSD-FC- _4A315B	
653	5.7E-09	0.01%	87.67%	1-IE-MLOCA,1-ESF-SSD-FC- _3A4161A,1-ESF-SSD-FC- _4A315B	
654	5.7E-09	0.01%	87.68%	1-IE-MLOCA,1-ESF-SSD-FC- _4A315A,1-ESF-SSD-FC- _4A315B	
655	5.7E-09	0.01%	87.69%	1-IE-MLOCA,1-ESF-SSD-FC- _A513 _1A,1-ESF-SSD-FC- _4A315B	
656	5.7E-09	0.01%	87.70%	1-IE-MLOCA,1-ESF-SSD-FC- _A517 _1A,1-ESF-SSD-FC- _4A315B	
657	5.7E-09	0.01%	87.71%	1-IE-MLOCA,1-ESF-SSD-FC- _3A3131B,1-ESF-SSD-FC- _4A315A	
658	5.7E-09	0.01%	87.72%	1-IE-MLOCA,1-ESF-SSD-FC- _3A4161B,1-ESF-SSD-FC- _4A315A	
659	5.7E-09	0.01%	87.73%	1-IE-MLOCA,1-ESF-SSD-FC- _A513 _1B,1-ESF-SSD-FC- _4A315A	
660	5.7E-09	0.01%	87.74%	1-IE-MLOCA,1-ESF-SSD-FC- _A517 _1B,1-ESF-SSD-FC- _4A315A	
661	5.7E-09	0.01%	87.75%	1-IE-MLOCA,1-ESF-SSD-FC- _3A3131A,1-ESF-SSD-FC- _A517 _1B	
662	5.7E-09	0.01%	87.75%	1-IE-MLOCA,1-ESF-SSD-FC- _3A4161A,1-ESF-SSD-FC- _A517 _1B	
663	5.7E-09	0.01%	87.76%	1-IE-MLOCA,1-ESF-SSD-FC- _A513 _1A,1-ESF-SSD-FC- _A517 _1B	
664	5.7E-09	0.01%	87.77%	1-IE-MLOCA,1-ESF-SSD-FC- _A517 _1A,1-ESF-SSD-FC- _A517 _1B	
665	5.6E-09	0.01%	87.78%	1-IE-RTRIP,1-EPS-SEQ-CF-FOAB,1- OEP-VCF-LP-RLOOP	
666	5.6E-09	0.01%	87.79%	1-IE-LOOPGR,1-DCP-BAT-MA- AD1B____,1-EPS-DGN-FS- G4002____,1-OA-ORS-----H	
667	5.6E-09	0.01%	87.80%	1-IE-LOOPGR,1-DCP-BAT-MA- BD1B____,1-EPS-DGN-FS- G4001____,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
668	5.5E-09	0.01%	87.81%	1-IE-LOOPGR,1-ACP-BAC-MA-AA02____,1-ACP-CRB-CC-BA0301____,1-OEP-XHE-XL-NR02HGR	
669	5.5E-09	0.01%	87.82%	1-IE-LOOPGR,1-ACP-BAC-MA-AB05____,1-ACP-CRB-CC-BA0301____,1-OEP-XHE-XL-NR02HGR	
670	5.5E-09	0.01%	87.82%	1-IE-LOOPGR,1-ACP-BAC-MA-AB15____,1-ACP-CRB-CC-BA0301____,1-OEP-XHE-XL-NR02HGR	
671	5.5E-09	0.01%	87.83%	1-IE-LOOPGR,1-ACP-BAC-MA-BA03____,1-ACP-CRB-CC-AA0205____,1-OEP-XHE-XL-NR02HGR	
672	5.5E-09	0.01%	87.84%	1-IE-LOOPGR,1-ACP-BAC-MA-BB07____,1-ACP-CRB-CC-AA0205____,1-OEP-XHE-XL-NR02HGR	
673	5.5E-09	0.01%	87.85%	1-IE-LOOPGR,1-ACP-BAC-MA-BB16____,1-ACP-CRB-CC-AA0205____,1-OEP-XHE-XL-NR02HGR	
674	5.5E-09	0.01%	87.86%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCABB____,1-ACP-CRB-CC-BA0301____,1-OEP-XHE-XL-NR02HGR	
675	5.5E-09	0.01%	87.87%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCABF____,1-ACP-CRB-CC-BA0301____,1-OEP-XHE-XL-NR02HGR	
676	5.5E-09	0.01%	87.88%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBB____,1-ACP-CRB-CC-AA0205____,1-OEP-XHE-XL-NR02HGR	
677	5.5E-09	0.01%	87.88%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBF____,1-ACP-CRB-CC-AA0205____,1-OEP-XHE-XL-NR02HGR	
678	5.5E-09	0.01%	87.89%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-ACP-INV-FC-AD1111____,1-OEP-XHE-XL-NR02HGR	
679	5.5E-09	0.01%	87.90%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-ACP-INV-FC-BD1112____,1-OEP-XHE-XL-NR02HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
680	5.5E-09	0.01%	87.91%	1-IE-LOOPGR,1-ACP-SSD-MA-1821U302,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
681	5.5E-09	0.01%	87.92%	1-IE-LOOPGR,1-NSCW-F-WTRHAMMER,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-OO-1668A69A-CC	
682	5.5E-09	0.01%	87.93%	1-IE-LOOPWR,1-ACP-DCP-FC-1A_PS1____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
683	5.5E-09	0.01%	87.94%	1-IE-LOOPWR,1-ACP-DCP-FC-1A_PS4____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
684	5.5E-09	0.01%	87.95%	1-IE-LOOPWR,1-ACP-DCP-FC-1B_PS4____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
685	5.5E-09	0.01%	87.95%	1-IE-LOOPWR,1-ACP-DCP-FC-1B_PS1____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
686	5.5E-09	0.01%	87.96%	1-IE-LOOPGR,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CF-1668A69A	
687	5.4E-09	0.01%	87.97%	1-IE-LOOPWR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR2	
688	5.4E-09	0.01%	87.98%	1-IE-LOOPGR,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HGR,1-SWS-SWT-FC-TY16689B-CC	
689	5.4E-09	0.01%	87.99%	1-IE-MLOCA,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-CLOPL	
690	5.3E-09	0.01%	88.00%	1-IE-MLOCA,1-SWS-CTF-CF-FS-ALL	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
691	5.3E-09	0.01%	88.00%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301___,1-ACP-SSD-MA-1821U301,1-OEP-XHE-XL-NR02HGR	
692	5.3E-09	0.01%	88.01%	1-IE-LOOPSC,1-AFW-MDP-MA-P4002___,1-EPS-DGN-FS-G4001___,1-OAB_TR-----H	
693	5.3E-09	0.01%	88.02%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205___,1-ACP-INV-MA-BD1I12___,1-OEP-XHE-XL-NR02HGR	
694	5.3E-09	0.01%	88.03%	1-IE-LO4160VB,1-EPS-SEQ-FO-1821U301,1-RCS-PRV-DP-LODC,1-RCS-PRV-OO-RV0456A_	
695	5.3E-09	0.01%	88.04%	1-IE-LO4160VA,1-EPS-SEQ-FO-1821U302,1-RCS-PRV-DP-LODC,1-RCS-PRV-OO-RV0455A_	
696	5.3E-09	0.01%	88.05%	1-IE-SSBI,1-EPS-DGN-FR-G4001___,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPL,1-SSBI-2	
697	5.3E-09	0.01%	88.05%	1-IE-SSBI,1-EPS-DGN-FR-G4001___,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPL,1-SSBI-3	
698	5.2E-09	0.01%	88.06%	1-IE-LOOPGR,1-DCP-BAT-MA-AD1B___,1-EPS-TNK-MA-DFOSTKB___,1-OEP-XHE-XL-NR02HGR	
699	5.2E-09	0.01%	88.07%	1-IE-OTRANS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCD	
700	5.2E-09	0.01%	88.08%	1-IE-OTRANS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABDE	
701	5.2E-09	0.01%	88.09%	1-IE-OTRANS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCDE	
702	5.2E-09	0.01%	88.09%	1-IE-OTRANS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ADEF	
703	5.2E-09	0.01%	88.10%	1-IE-OTRANS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-CDEF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
704	5.2E-09	0.01%	88.11%	1-IE-OTRANS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCF	
705	5.2E-09	0.01%	88.12%	1-IE-OTRANS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABEF	
706	5.2E-09	0.01%	88.13%	1-IE-OTRANS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ACDF	
707	5.2E-09	0.01%	88.14%	1-IE-OTRANS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCEF	
708	5.2E-09	0.01%	88.14%	1-IE-OTRANS,1-NSCW-CT-NEED-SWAP,1-NSCW-MOV-F-NON-RECBLE,1-NSCWCT-BYPASS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-CF-1668A69A	
709	5.2E-09	0.01%	88.15%	1-IE-TTRIP,1-AFW-MDP-MA-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
710	5.2E-09	0.01%	88.16%	1-IE-LOOPSC,1-EPS-DGN-FS-G4001____,1-EPS-DGN-FS-G4002____,1-OA-ORS-----H	
711	5.1E-09	0.01%	88.17%	1-IE-LOOPGR,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CC-1668A____	
712	5.1E-09	0.01%	88.18%	1-IE-LOOPGR,1-EPS-SEQ-FO-1821U301,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CC-1669A____	
713	5.1E-09	0.01%	88.18%	1-IE-LOOPGR,1-EPS-MDP-FR-XFERPPS____CC,1-OA-ORS-----H	
714	5.1E-09	0.01%	88.19%	1-IE-LOMFW,1-ACP-CRB-CC-BA0301____,1-DCP-BAT-MA-AD1B____,1-OEP-VCF-LP-CLOPT	
715	5.1E-09	0.01%	88.20%	1-IE-LOMFW,1-ACP-CRB-CC-AA0205____,1-DCP-BAT-MA-BD1B____,1-OEP-VCF-LP-CLOPT	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
716	5.1E-09	0.01%	88.21%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U301,1-LPI-MDP-MA-RHRB____,1-OA-NSCWGAN---H	
717	5.1E-09	0.01%	88.22%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U302,1-LPI-MDP-MA-RHRA____,1-OA-NSCWGAN---H	
718	5.1E-09	0.01%	88.22%	1-IE-LO4160VB,1-ACP-INV-MA-AD1111____,1-OEP-VCF-LP-CLOPT	
719	5.1E-09	0.01%	88.23%	1-IE-LOACCW,1-ACW-MDP-MA-P4_002____,1-IE-ACW-MDP-FR-P4_001____,1-OA-CCP-ALIGN---H,1-OAN_SL-----H-LD,1-OAR_LPSL-----H-LD,1-RCS-MDP-LK-BP2	
720	5.0E-09	0.01%	88.24%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
721	5.0E-09	0.01%	88.25%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4002____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
722	5.0E-09	0.01%	88.26%	1-IE-LOOPGR,1-ACP-BAC-MA-AYB1____,1-ACP-CRB-CC-BA0301____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR	
723	5.0E-09	0.01%	88.26%	1-IE-LOOPGR,1-ACP-BAC-MA-BYB1____,1-ACP-CRB-CC-AA0205____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR	
724	5.0E-09	0.01%	88.27%	1-IE-LOOPGR,1-ACP-BAC-MA-BA03____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
725	5.0E-09	0.01%	88.28%	1-IE-LOOPGR,1-ACP-BAC-MA-BB07____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
726	5.0E-09	0.01%	88.29%	1-IE-LOOPGR,1-ACP-BAC-MA-BB16____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
727	5.0E-09	0.01%	88.29%	1-IE-LOOPGR,1-ACP-BAC-MA-AA02____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
728	5.0E-09	0.01%	88.30%	1-IE-LOOPGR,1-ACP-BAC-MA-AB05____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
729	5.0E-09	0.01%	88.31%	1-IE-LOOPGR,1-ACP-BAC-MA-AB15____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
730	5.0E-09	0.01%	88.32%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCABF____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
731	5.0E-09	0.01%	88.33%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBB____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
732	5.0E-09	0.01%	88.33%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBF____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
733	5.0E-09	0.01%	88.34%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCABB____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
734	5.0E-09	0.01%	88.35%	1-IE-LOOPGR,1-ACP-INV-FC-AD1111____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
735	5.0E-09	0.01%	88.36%	1-IE-LOOPGR,1-ACP-INV-FC-BD1112____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
736	5.0E-09	0.01%	88.36%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDEF	
737	5.0E-09	0.01%	88.37%	1-IE-OTRANS,1-ACP-BAC-MA-AA02____,1-AFW-MDP-FS-P4002____,1-OAB_TR-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
738	5.0E-09	0.01%	88.38%	1-IE-OTRANS,1-ACP-BAC-MA-AA02____,1-OA-MISPAF5094H,1-OAB_TR-----H	
739	4.9E-09	0.01%	88.39%	1-IE-LOOPSC,1-AFW-MDP-MA-P4002____,1-DCP-BAT-MA-AD1B____,1-OAB_TR-----H	
740	4.9E-09	0.01%	88.40%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ADEF	
741	4.9E-09	0.01%	88.40%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABEF	
742	4.9E-09	0.01%	88.41%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-BCEF	
743	4.9E-09	0.01%	88.42%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-CDEF	
744	4.9E-09	0.01%	88.43%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-BCDE	
745	4.9E-09	0.01%	88.43%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCF	
746	4.9E-09	0.01%	88.44%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCD	
747	4.9E-09	0.01%	88.45%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ACDF	
748	4.9E-09	0.01%	88.46%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABDE	
749	4.9E-09	0.01%	88.46%	1-IE-LOOPWR,1-NSCW-F-WTRHAMMER,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-OO-1668A69A-CC	
750	4.9E-09	0.01%	88.47%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4002____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
751	4.9E-09	0.01%	88.48%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
752	4.9E-09	0.01%	88.49%	1-IE-OTRANS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDE	
753	4.9E-09	0.01%	88.50%	1-IE-OTRANS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABDEF	
754	4.9E-09	0.01%	88.50%	1-IE-OTRANS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCDEF	
755	4.9E-09	0.01%	88.51%	1-IE-OTRANS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ACDEF	
756	4.9E-09	0.01%	88.52%	1-IE-OTRANS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDF	
757	4.9E-09	0.01%	88.53%	1-IE-OTRANS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCEF	
758	4.9E-09	0.01%	88.53%	1-IE-LOOPGR,1-EPS-MOT-CF-RUN,1-OEP-XHE-XL-NR02HGR	
759	4.8E-09	0.01%	88.54%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205___,1-AFW-TDP-FR-P4001___,1-EPS-DGN-FS-G4002___,1-OEP-XHE-XL-NR01HGR	
760	4.8E-09	0.01%	88.55%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301___,1-AFW-TDP-FR-P4001___,1-EPS-DGN-FS-G4001___,1-OEP-XHE-XL-NR01HGR	
761	4.8E-09	0.01%	88.56%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205___,1-ACP-SSD-MA-1821U302,1-OEP-XHE-XL-NR02HGR	
762	4.8E-09	0.01%	88.56%	1-IE-LOOPGR,1-ACP-SSD-MA-1821U301,1-EPS-DGN-FR-G4002___,1-OA-ORS-----H	
763	4.8E-09	0.01%	88.57%	1-IE-LOOPGR,1-EPS-DGN-MA-G4002___,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-MA-1668ACT_	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
764	4.8E-09	0.01%	88.58%	1-IE-LOOPGR,1-ACP-INV-MA-BD1I12____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
765	4.8E-09	0.01%	88.59%	1-IE-LO4160VB,1-LPI-MDP-MA-RHRA____,1-RCS-PRV-DP-LODC,1-RCS-PRV-OO-RV0456A_	
766	4.8E-09	0.01%	88.59%	1-IE-LO4160VA,1-LPI-MDP-MA-RHRB____,1-RCS-PRV-DP-LODC,1-RCS-PRV-OO-RV0455A_	
767	4.8E-09	0.01%	88.60%	1-IE-LOOPSC,1-DCP-BAT-MA-AD1B____,1-EPS-DGN-FS-G4002____,1-OA-ORS-----H	
768	4.8E-09	0.01%	88.61%	1-IE-LOOPSC,1-DCP-BAT-MA-BD1B____,1-EPS-DGN-FS-G4001____,1-OA-ORS-----H	
769	4.7E-09	0.01%	88.62%	1-IE-RTRIP,1-AFW-MDP-MA-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
770	4.7E-09	0.01%	88.62%	1-IE-OTRANS,1-NSCW-F-WTRHAMMER,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-OO-1668A69A-CC	
771	4.7E-09	0.01%	88.63%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-EPS-TNK-MA-DFOSTKB____,1-OEP-XHE-XL-NR02HWR	
772	4.7E-09	0.01%	88.64%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDEF	
773	4.7E-09	0.01%	88.65%	1-IE-LOOPGR,1-AFW-MDP-FR-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	
774	4.7E-09	0.01%	88.65%	1-IE-LOOPSC,1-NSCW-F-WTRHAMMER,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-OO-1668A69A-CC	
775	4.6E-09	0.01%	88.66%	1-IE-OTRANS,1-ESF-ACT-CF-____SAFACT-CC,1-OA-START-AFW-H,1-OA-SUMPMOV---H-LD,1-OAF_MFW-----H-CD	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
776	4.6E-09	0.01%	88.67%	1-IE-LO120VAB,1-ACP-DPL-FC-BY1B&____,1-ACP-INV-FC-AD1I1____,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
777	4.6E-09	0.01%	88.67%	1-IE-LO120VAB,1-ACP-DPL-FC-AY1A&____,1-ACP-INV-FC-BD1I2____,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
778	4.6E-09	0.01%	88.68%	1-IE-LOOPGR,1-ACP-DCP-FC-1A_PS4____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
779	4.6E-09	0.01%	88.69%	1-IE-LOOPGR,1-ACP-DCP-FC-1A_PS1____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
780	4.6E-09	0.01%	88.70%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS4____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
781	4.6E-09	0.01%	88.70%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS1____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
782	4.6E-09	0.01%	88.71%	1-IE-LOOPPC,1-EPS-DGN-MA-G4001____,1-EPS-SEQ-FO-1821U302,1-OA-ORS-----H	
783	4.6E-09	0.01%	88.72%	1-IE-LOOPPC,1-EPS-DGN-MA-G4002____,1-EPS-SEQ-FO-1821U301,1-OA-ORS-----H	
784	4.6E-09	0.01%	88.73%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-DCP-BAT-MA-AD1B____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
785	4.6E-09	0.01%	88.73%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-DCP-BAT-MA-BD1B____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
786	4.6E-09	0.01%	88.74%	1-IE-OTRANS,1-AFW-MDP-MA-P4002____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
787	4.6E-09	0.01%	88.75%	1-IE-LOCHS,1-ACP-CRB-CC-BA0301____,1-DCP-BAT-MA-AD1B____,1-OEP-VCF-LP-CLOPT	
788	4.6E-09	0.01%	88.75%	1-IE-LOCHS,1-ACP-CRB-CC-AA0205____,1-DCP-BAT-MA-BD1B____,1-OEP-VCF-LP-CLOPT	
789	4.6E-09	0.01%	88.76%	1-IE-TTRIP,1-AFW-MDP-CF-START,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
790	4.6E-09	0.01%	88.77%	1-IE-LOOPWR,1-EPS-DGN-FR-G4002____,1-EPS-TNK-MA-DFOSTKA____,1-OA-ORS-----H	
791	4.6E-09	0.01%	88.78%	1-IE-MLOCA,1-DCP-BAT-MA-BD1B____,1-EPS-SEQ-FO-1821U301	
792	4.6E-09	0.01%	88.78%	1-IE-MLOCA,1-DCP-BAT-MA-AD1B____,1-EPS-SEQ-FO-1821U302	
793	4.6E-09	0.01%	88.79%	1-IE-MLOCA,1-DCP-BAT-MA-AD1B____,1-ESF-SSD-FC- 3A3131B	
794	4.6E-09	0.01%	88.80%	1-IE-MLOCA,1-DCP-BAT-MA-BD1B____,1-ESF-SSD-FC- 3A3131A	
795	4.6E-09	0.01%	88.81%	1-IE-MLOCA,1-DCP-BAT-MA-AD1B____,1-ESF-SSD-FC- A513_1B	
796	4.6E-09	0.01%	88.81%	1-IE-MLOCA,1-DCP-BAT-MA-BD1B____,1-ESF-SSD-FC- A513_1A	
797	4.6E-09	0.01%	88.82%	1-IE-MLOCA,1-DCP-BAT-MA-BD1B____,1-ESF-SSD-FC- A517_1A	
798	4.6E-09	0.01%	88.83%	1-IE-MLOCA,1-DCP-BAT-MA-AD1B____,1-ESF-SSD-FC- 3A4161B	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
799	4.6E-09	0.01%	88.83%	1-IE-MLOCA,1-DCP-BAT-MA-BD1B____,1-ESF-SSD-FC- 3A4161A	
800	4.6E-09	0.01%	88.84%	1-IE-MLOCA,1-DCP-BAT-MA-AD1B____,1-ESF-SSD-FC- 4A315B	
801	4.6E-09	0.01%	88.85%	1-IE-MLOCA,1-DCP-BAT-MA-BD1B____,1-ESF-SSD-FC- 4A315A	
802	4.6E-09	0.01%	88.86%	1-IE-MLOCA,1-DCP-BAT-MA-AD1B____,1-ESF-SSD-FC- A517_1B	
803	4.6E-09	0.01%	88.86%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCDF	
804	4.6E-09	0.01%	88.87%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCEF	
805	4.6E-09	0.01%	88.88%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABDEF	
806	4.6E-09	0.01%	88.88%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-BCDEF	
807	4.6E-09	0.01%	88.89%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ACDEF	
808	4.6E-09	0.01%	88.90%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCDE	
809	4.6E-09	0.01%	88.91%	1-IE-LOOPWR,1-EPS-SEQ-FO-1821U302,1-EPS-TNK-MA-DFOSTKA_,1-OEP-XHE-XL-NR02HWR	
810	4.6E-09	0.01%	88.91%	1-IE-OTRANS,1-ESF-ACT-CF-__SAFACT-CC,1-OA-START-AFW-H,1-OAF_MFW-----H-CD,1-OAR_LTFB-TRA-H-LD	
811	4.5E-09	0.01%	88.92%	1-IE-LO125AD1,1-AFW-MDP-FS-P4002____,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-AD1&____,1-OAB_TR----H	
812	4.5E-09	0.01%	88.93%	1-IE-LO125AD1,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-AD1&____,1-OA-MISPAF5094H,1-OAB_TR-----H	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
813	4.5E-09	0.01%	88.93%	1-IE-LO125BD1,1-AFW-MDP-FS-P4003____,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-BD1&____,1-OAB_TR----H	
814	4.5E-09	0.01%	88.94%	1-IE-LO125BD1,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-BD1&____,1-OA-MISPAF5095H,1-OAB_TR-----H	
815	4.5E-09	0.01%	88.95%	1-IE-LOOPGR,1-DCP-FUS-OP-BD104____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HGR	
816	4.5E-09	0.01%	88.96%	1-IE-LOOPGR,1-DCP-FUS-OP-AD104____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HGR	
817	4.5E-09	0.01%	88.96%	1-IE-SSBO,1-ACP-INV-MA-AD1111____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
818	4.5E-09	0.01%	88.97%	1-IE-LOOPGR,1-EPS-DGN-FS-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CC-1669A____	
819	4.5E-09	0.01%	88.98%	1-IE-LOOPGR,1-EPS-DGN-FS-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CC-1668A____	
820	4.5E-09	0.01%	88.98%	1-IE-LOOPGR,1-ACP-BAC-MA-AYB1____,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OA-ORS-----H	
821	4.5E-09	0.01%	88.99%	1-IE-LOOPGR,1-ACP-BAC-MA-BYB1____,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OA-ORS-----H	
822	4.5E-09	0.01%	89.00%	1-IE-SSBO,/1-RPS-BME-TM-RTBA,/1-RPS-BME-TM-RTBB,1-RPS-CBI-CF-6OF8,/1-RPS-CCP-TM-CHA,1-RPS-XHE-XE-NSGNL	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
823	4.5E-09	0.01%	89.01%	1-IE-ISL-RHR-CLI-B,1-IE-HPI-CKV-RP-085____,1-OA-IS-ISLRHR-H,1-RHR-CKV-RP-149__CON	
824	4.5E-09	0.01%	89.01%	1-IE-ISL-RHR-CLI-B,1-IE-HPI-CKV-RP-086____,1-OA-IS-ISLRHR-H,1-RHR-CKV-RP-150__CON	
825	4.5E-09	0.01%	89.02%	1-IE-ISL-RHR-CLI-A,1-IE-HPI-CKV-RP-083____,1-OA-IS-ISLRHR-H,1-RHR-CKV-RP-147__CON	
826	4.5E-09	0.01%	89.03%	1-IE-ISL-RHR-CLI-A,1-IE-HPI-CKV-RP-084____,1-OA-IS-ISLRHR-H,1-RHR-CKV-RP-148__CON	
827	4.4E-09	0.01%	89.03%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MDP-CF-FS-ADEF	
828	4.4E-09	0.01%	89.04%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MDP-CF-FS-ABEF	
829	4.4E-09	0.01%	89.05%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MDP-CF-FS-BCEF	
830	4.4E-09	0.01%	89.05%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MDP-CF-FS-CDEF	
831	4.4E-09	0.01%	89.06%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MDP-CF-FS-BCDE	
832	4.4E-09	0.01%	89.07%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MDP-CF-FS-ABCF	
833	4.4E-09	0.01%	89.07%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MDP-CF-FS-ABCD	
834	4.4E-09	0.01%	89.08%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MDP-CF-FS-ACDF	
835	4.4E-09	0.01%	89.09%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MDP-CF-FS-ABDE	
836	4.4E-09	0.01%	89.09%	1-IE-LO125AD1,1-DCP-BDC-FC-AD1&____,1-EPS-TNK-MA-DFOSTKB_,1-OEP-VCF-LP-CLOPT	
837	4.4E-09	0.01%	89.10%	1-IE-LO125AD1,1-DCP-BDC-FC-AD1&____,1-EPS-DGN-MA-G4002____,1-OEP-VCF-LP-RLOOP	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
838	4.4E-09	0.01%	89.11%	1-IE-LO125BD1,1-DCP-BDC-FC-BD1&____,1-EPS-DGN-MA-G4001____,1-OEP-VCF-LP-RLOOP	
839	4.3E-09	0.01%	89.12%	1-IE-LOOPGR,1-ACP-SSD-MA-1821U302,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
840	4.3E-09	0.01%	89.12%	1-IE-LOOPWR,1-ACP-DCP-FC-1B_PS4____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HWR	
841	4.3E-09	0.01%	89.13%	1-IE-LOOPWR,1-ACP-DCP-FC-1A_PS1____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HWR	
842	4.3E-09	0.01%	89.14%	1-IE-LOOPWR,1-ACP-DCP-FC-1A_PS4____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HWR	
843	4.3E-09	0.01%	89.14%	1-IE-LOOPWR,1-ACP-DCP-FC-1B_PS1____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HWR	
844	4.3E-09	0.01%	89.15%	1-IE-LO4160VB,1-DCP-BAT-MA-AD1B____,1-RCS-PRV-DP-LODC,1-RCS-PRV-OO-RV0456A_	
845	4.3E-09	0.01%	89.16%	1-IE-LO4160VA,1-DCP-BAT-MA-BD1B____,1-RCS-PRV-DP-LODC,1-RCS-PRV-OO-RV0455A_	
846	4.3E-09	0.01%	89.16%	1-IE-LOOPSC,1-EPS-MDP-FR-XFERPPS_--CC,1-OA-ORS-----H	
847	4.3E-09	0.01%	89.17%	1-IE-LOMFW,1-NSCW-CT-NEED-SWAP,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-SWT-FC-TY16689B-CC	
848	4.3E-09	0.01%	89.18%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4002____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
849	4.3E-09	0.01%	89.18%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
850	4.3E-09	0.01%	89.19%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-MA-G4002____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR01HWR	
851	4.3E-09	0.01%	89.20%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-MA-G4001____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR01HWR	
852	4.3E-09	0.01%	89.20%	1-IE-RTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDEF	
853	4.3E-09	0.01%	89.21%	1-IE-RTRIP,1-AFW-MDP-CF-START,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
854	4.2E-09	0.01%	89.22%	1-IE-LOMFV,/1-RPS-BME-TM-RTBA,/1-RPS-BME-TM-RTBB,1-RPS-CBI-CF-6OF8,/1-RPS-CCP-TM-CHA,1-RPS-XHE-XE-NSGNL,1-UET2-NOPORV-BLK	
855	4.2E-09	0.01%	89.22%	1-IE-LOPPC,1-AFW-MDP-MA-P4002____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H	
856	4.2E-09	0.01%	89.23%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ADEF	
857	4.2E-09	0.01%	89.24%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABEF	
858	4.2E-09	0.01%	89.24%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-BCEF	
859	4.2E-09	0.01%	89.25%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-CDEF	
860	4.2E-09	0.01%	89.26%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-BCDE	
861	4.2E-09	0.01%	89.26%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
862	4.2E-09	0.01%	89.27%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCD	
863	4.2E-09	0.01%	89.28%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ACDF	
864	4.2E-09	0.01%	89.28%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABDE	
865	4.2E-09	0.01%	89.29%	1-IE-LOOPSC,1-ACP-BAC-MA-BA03____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
866	4.2E-09	0.01%	89.30%	1-IE-LOOPSC,1-ACP-BAC-MA-BB07____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
867	4.2E-09	0.01%	89.30%	1-IE-LOOPSC,1-ACP-BAC-MA-BB16____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
868	4.2E-09	0.01%	89.31%	1-IE-LOOPSC,1-ACP-BAC-MA-AA02____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
869	4.2E-09	0.01%	89.32%	1-IE-LOOPSC,1-ACP-BAC-MA-AB05____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
870	4.2E-09	0.01%	89.32%	1-IE-LOOPSC,1-ACP-BAC-MA-AB15____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
871	4.2E-09	0.01%	89.33%	1-IE-LOOPSC,1-ACP-BAC-MA-MCCABF____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
872	4.2E-09	0.01%	89.34%	1-IE-LOOPSC,1-ACP-BAC-MA-MCCBBB____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
873	4.2E-09	0.01%	89.34%	1-IE-LOOPSC,1-ACP-BAC-MA-MCCBBF____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
874	4.2E-09	0.01%	89.35%	1-IE-LOOPSC,1-ACP-BAC-MA-MCCABB____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
875	4.2E-09	0.01%	89.36%	1-IE-LOOPSC,1-ACP-INV-FC-AD1I11____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
876	4.2E-09	0.01%	89.36%	1-IE-LOOPSC,1-ACP-INV-FC-BD1I12____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
877	4.2E-09	0.01%	89.37%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CF-116-ABCDEF	
878	4.2E-09	0.01%	89.37%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12345,1-RCS-MDP-LK-BP2,1-SWS-MDP-FS-P4_006__	
879	4.2E-09	0.01%	89.38%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12346,1-RCS-MDP-LK-BP2,1-SWS-MDP-FS-P4_005__	
880	4.2E-09	0.01%	89.39%	1-IE-LOOPGR,1-DCP-BAT-MA-AD1B____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CC-1669A__	
881	4.2E-09	0.01%	89.39%	1-IE-LOOPGR,1-DCP-BAT-MA-BD1B____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CC-1668A__	
882	4.2E-09	0.01%	89.40%	1-IE-MLOCA,1-DCP-BAT-MA-AD1B____,1-LPI-MDP-MA-RHRB____,1-OA-NSCWFAN---H	
883	4.2E-09	0.01%	89.41%	1-IE-MLOCA,1-DCP-BAT-MA-BD1B____,1-LPI-MDP-MA-RHRA____,1-OA-NSCWFAN---H	
884	4.2E-09	0.01%	89.41%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ADEF	
885	4.2E-09	0.01%	89.42%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABEF	
886	4.2E-09	0.01%	89.43%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-BCEF	
887	4.2E-09	0.01%	89.43%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-CDEF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
888	4.2E-09	0.01%	89.44%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-BCDE	
889	4.2E-09	0.01%	89.45%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCF	
890	4.2E-09	0.01%	89.45%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCD	
891	4.2E-09	0.01%	89.46%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ACDF	
892	4.2E-09	0.01%	89.47%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABDE	
893	4.1E-09	0.01%	89.47%	1-IE-LO120VAB,1-ACP-INV-MA-BD1I2____,1-DCP-FUS-OP-AD110&____,1-OA-HURGXFMR--H-LD,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
894	4.1E-09	0.01%	89.48%	1-IE-LO120VAB,1-ACP-INV-MA-AD1I1____,1-DCP-FUS-OP-BD110&____,1-OA-HURGXFMR--H-LD,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
895	4.1E-09	0.01%	89.49%	1-IE-LOOPPC,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-1668A69A	
896	4.1E-09	0.01%	89.49%	1-IE-SSBO,1-ACP-CRB-CC-AA0205____,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPL	
897	4.1E-09	0.01%	89.50%	1-IE-SSBO,1-ACP-CRB-CC-BA0301____,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPL	
898	4.1E-09	0.01%	89.50%	1-IE-OTRANS,1-ACP-BAC-FC-AA02____,1-ACP-BAC-MA-BA03_____	
899	4.1E-09	0.01%	89.51%	1-IE-OTRANS,1-ACP-BAC-FC-BA03_____,1-ACP-BAC-MA-AA02_____	
900	4.1E-09	0.01%	89.52%	1-IE-LOOPPC,1-EPS-DGN-FS-G4001____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
901	4.1E-09	0.01%	89.52%	1-IE-LOOPPC,1-EPS-DGN-FS-G4002____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	
902	4.1E-09	0.01%	89.53%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MDP-CF-FS-ABCDF	
903	4.1E-09	0.01%	89.54%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MDP-CF-FS-ABCEF	
904	4.1E-09	0.01%	89.54%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MDP-CF-FS-ABDEF	
905	4.1E-09	0.01%	89.55%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MDP-CF-FS-BCDEF	
906	4.1E-09	0.01%	89.56%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MDP-CF-FS-ACDEF	
907	4.1E-09	0.01%	89.56%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MDP-CF-FS-ABCDE	
908	4.1E-09	0.01%	89.57%	1-IE-SLOCA,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302	
909	4.1E-09	0.01%	89.58%	1-IE-LOOPSC,1-ACP-SSD-MA-1821U301,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
910	4.1E-09	0.01%	89.58%	1-IE-LOOPPC,1-EPS-DGN-CF-FSUN1,1-OA-ORS-----H	
911	4.1E-09	0.01%	89.59%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCDEF	
912	4.1E-09	0.01%	89.59%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-ACP-DCP-FC-1A_PS4____,1-OEP-XHE-XL-NR02HGR	
913	4.1E-09	0.01%	89.60%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-ACP-DCP-FC-1A_PS1____,1-OEP-XHE-XL-NR02HGR	
914	4.1E-09	0.01%	89.61%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-ACP-DCP-FC-1B_PS1____,1-OEP-XHE-XL-NR02HGR	
915	4.1E-09	0.01%	89.61%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-ACP-DCP-FC-1B_PS4____,1-OEP-XHE-XL-NR02HGR	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
916	4.0E-09	0.01%	89.62%	1-IE-LOOPSC,1-ACP-INV-MA-BD1I12____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
917	4.0E-09	0.01%	89.63%	1-IE-LOMFWD,1-AFW-TDP-FR-P4001____,1-RPS-BME-CF-RTBAB	
918	4.0E-09	0.01%	89.63%	1-IE-OTRANS,1-EPS-DGN-FR-G4001____,1-OA-MISPAF5094H,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
919	4.0E-09	0.01%	89.64%	1-IE-OTRANS,1-AFW-MDP-FS-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
920	4.0E-09	0.01%	89.64%	1-IE-LOOPWR,1-EPS-DGN-FS-G4002____,1-EPS-TNK-MA-DFOSTKA____,1-OEP-XHE-XL-NR02HWR	
921	4.0E-09	0.01%	89.65%	1-IE-MLOCA,1-HPI-MOV-OO-13148920-CC	
922	4.0E-09	0.01%	89.66%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-OEP-VCF-LP-RLLOOP,/1-RCS-MDP-LK-BP1,/1-RCS-MDP-LK-BP2,/1-RCS-XHE-XM-TRIP-LONSCW	
923	4.0E-09	0.01%	89.66%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-DCP-BAT-MA-BD1B____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
924	4.0E-09	0.01%	89.67%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-DCP-BAT-MA-AD1B____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
925	4.0E-09	0.01%	89.68%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCDF	
926	4.0E-09	0.01%	89.68%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCEF	
927	4.0E-09	0.01%	89.69%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABDEF	
928	4.0E-09	0.01%	89.69%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-BCDEF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
929	4.0E-09	0.01%	89.70%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ACDEF	
930	4.0E-09	0.01%	89.71%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCDE	
931	3.9E-09	0.01%	89.71%	1-IE-LOOPSC,1-AFW-MDP-FR-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	
932	3.9E-09	0.01%	89.72%	1-IE-LOCHS,1-NSCW-CT-NEED-SWAP,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-SWT-FC-TY16689B-CC	
933	3.9E-09	0.01%	89.73%	1-IE-LOOPPC,1-EPS-MDP-FS-XFERPPS__CC,1-OA-ORS-----H	
934	3.9E-09	0.01%	89.73%	1-IE-LOMFW,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-RLOOP	
935	3.9E-09	0.01%	89.74%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCDF	
936	3.9E-09	0.01%	89.74%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCEF	
937	3.9E-09	0.01%	89.75%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABDEF	
938	3.9E-09	0.01%	89.76%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-BCDEF	
939	3.9E-09	0.01%	89.76%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ACDEF	
940	3.9E-09	0.01%	89.77%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCDE	
941	3.9E-09	0.01%	89.77%	1-IE-LOMFW,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
942	3.9E-09	0.01%	89.78%	1-IE-LOCHS,/1-RPS-BME-TM-RTBA,/1-RPS-BME-TM-RTBB,1-RPS-CBI-CF-6OF8,/1-RPS-CCP-TM-CHA,1-RPS-XHE-XE-NSGNL,1-UET2-NOPORV-BLK	
943	3.9E-09	0.01%	89.79%	1-IE-SLOCA,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-CLOPL	
944	3.9E-09	0.01%	89.79%	1-IE-SSBI,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-CLOPL	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
945	3.8E-09	0.01%	89.80%	1-IE-SLOCA,1-SWS-CTF-CF-FS-ALL	
946	3.8E-09	0.01%	89.80%	1-IE-LO4160VA,1-AFW-MDP-FS-P4002____,1-RCS-PRV-CC-RV0456A__	
947	3.8E-09	0.01%	89.81%	1-IE-LO4160VA,1-OA-MISPAF5094H,1-RCS-PRV-CC-RV0456A__	
948	3.8E-09	0.01%	89.82%	1-IE-LOOPSC,1-ACP-BAC-MA-AYB1____,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OA-ORS-----H	
949	3.8E-09	0.01%	89.82%	1-IE-LOOPSC,1-ACP-BAC-MA-BYB1____,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OA-ORS-----H	
950	3.8E-09	0.01%	89.83%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-OA-MISPAF5094H,1-OAB_TR-----H	
951	3.8E-09	0.01%	89.83%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-AFW-MDP-FS-P4002____,1-OAB_TR-----H	
952	3.8E-09	0.01%	89.84%	1-IE-LO125AD1,1-ACP-CRB-CF-A205301,1-DCP-BDC-FC-AD1&____,1-OEP-VCF-LP-CLOPT	
953	3.8E-09	0.01%	89.85%	1-IE-LO125BD1,1-ACP-CRB-CF-A205301,1-DCP-BDC-FC-BD1&____,1-OEP-VCF-LP-CLOPT	
954	3.8E-09	0.01%	89.85%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCDEF	
955	3.8E-09	0.01%	89.86%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FS-G4001____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR01HWR	
956	3.8E-09	0.01%	89.86%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FS-G4002____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR01HWR	
957	3.8E-09	0.01%	89.87%	1-IE-ISINJ,1-ACP-INV-FC-AD11BD12-CC	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
958	3.8E-09	0.01%	89.88%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-CF-FSUN1,1-OEP-XHE-XL-NR01HWR	
959	3.7E-09	0.01%	89.88%	1-IE-LOMFW,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-1668A69A	
960	3.7E-09	0.01%	89.89%	1-IE-LO125AD1,1-ACP-BAC-FC-BA03____,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-AD1&____	
961	3.7E-09	0.01%	89.89%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CC-1669A____	
962	3.7E-09	0.01%	89.90%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CC-1668A____	
963	3.7E-09	0.01%	89.90%	1-IE-LOACCW,1-EPS-SEQ-CF-FOAB,1-IE-ACW-MDP-CF-FR12,1-OA-CCP-ALIGN---H,1-RCS-MDP-LK-BP2	
964	3.7E-09	0.01%	89.91%	1-IE-LOOPWR,1-DCP-BAT-MA-BD1B____,1-EPS-TNK-MA-DFOSTKA____,1-OEP-XHE-XL-NR02HWR	
965	3.7E-09	0.01%	89.92%	1-IE-LOOPPC,1-EPS-DGN-FR-G4001____,1-OA-MISPAF5094H,1-OAB_TR-----H	
966	3.7E-09	0.01%	89.92%	1-IE-LOOPPC,1-AFW-MDP-FS-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	
967	3.7E-09	0.01%	89.93%	1-IE-LOMFW,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A____	
968	3.7E-09	0.01%	89.93%	1-IE-LOMFW,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A____	
969	3.7E-09	0.01%	89.94%	1-IE-LOCHS,1-AFW-TDP-FR-P4001____,1-RPS-BME-CF-RTBAB	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
970	3.7E-09	0.01%	89.95%	1-IE-LOOPSC,1-ACP-SSD-MA-1821U302,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
971	3.7E-09	0.01%	89.95%	1-IE-SLOCA,1-EPS-SEQ-FO-1821U301,1-LPI-MDP-MA-RHRB____,1-OA-NSCWFAN---H	
972	3.7E-09	0.01%	89.96%	1-IE-SLOCA,1-EPS-SEQ-FO-1821U302,1-LPI-MDP-MA-RHRA____,1-OA-NSCWFAN---H	
973	3.7E-09	0.01%	89.96%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS4____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
974	3.7E-09	0.01%	89.97%	1-IE-LOOPGR,1-ACP-DCP-FC-1A_PS1____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
975	3.7E-09	0.01%	89.97%	1-IE-LOOPGR,1-ACP-DCP-FC-1A_PS4____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	Same as cut set #10, except for different electrical failures.
976	3.7E-09	0.01%	89.98%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS1____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	Same as cut set #10, except for different electrical failures.
977	3.6E-09	0.01%	89.99%	1-IE-LOOPGR,1-AFW-MDP-MA-P4002____,1-CVC-MDP-MA-CCPB____,1-EPS-DGN-FR-G4001____	Same as cut set #487, except a different LOOP initiating event type (grid-related). In addition, feed and bleed cooling is failed both CCPs being unavailable. It is not believed that plant TS would prevent this maintenance combination.
978	3.6E-09	0.01%	89.99%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-AFW-MDP-MA-P4002____,1-OAB_TR-----H	Same as cut set #487, except for different electrical failures.
979	3.6E-09	0.01%	90.00%	1-IE-LO4160VA,1-AFW-MDP-FS-P4002____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H	A loss of 4.16kV safety-related bus initiating event with opposite train AFW pump failure results in a total loss of AFW. Core damage occurs due to the failure of feed and bleed cooling due to the electrical failures resulting in a loss of NSCW fans (except the normally running fan on train B). Note that the CCPs and SI pumps require NSCW to operate. This cut set is potentially conservative because no credit is provided for manual start of NSCW fans (sequencer failures will not prevent manual start of fans; however, no procedure direction could be found for this action).

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
980	3.6E-09	0.01%	90.00%	1-IE-LO4160VA,1-EPS-SEQ-FO-1821U302,1-OA-MISPAF5094H,1-OA-NSCWFAN---H	Same as cut set #979, except different AFW train unavailabilities. Credit is not provided for operators to restore the applicable AFW pump train, which is potentially conservative. In addition, no credit is provided for manual start of NSCW fans (sequencer failures will not prevent manual start of fans; however, no procedure direction could be found for this action).
981	3.6E-09	0.01%	90.01%	1-IE-LO4160VB,1-EPS-TNK-MA-DFOSTKA_,1-OEP-VCF-LP-CLOPT	A loss of 4.16kV safety-related bus initiating event with consequential LOOP and subsequent opposite-train electrical failures renders both trains of safety-related equipment unavailable. Note that this cut set is conservative since operators could restore offsite power to safety-related train A. This (expected) conservatism is due to the limited nature of the consequential LOOP recovery post-processing rules.
982	3.6E-09	0.01%	90.01%	1-IE-OTRANS,1-ACP-CRB-CC-AA0205_,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A	Same as cut set #478, except for different initiating event and NSCW sprays are failed due to a combination of electrical and spray valve failures.
983	3.6E-09	0.01%	90.02%	1-IE-OTRANS,1-ACP-CRB-CC-BA0301_,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A	Same as cut set #478, except for different initiating event and NSCW sprays are failed due to a combination of electrical and spray valve failures.
984	3.6E-09	0.01%	90.02%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001_,1-EPS-MDP-FS-XFERPPS_-CC,1-OEP-XHE-XL-NR01HWR	A weather-related LOOP initiating event occurs. Electrical failures and failure of the turbine-driven AFW pump result in a loss of decay heat removal via AFW. Core damage occurs due to operators failing to recover offsite power within 1 hour.
985	3.6E-09	0.01%	90.03%	1-IE-TTRIP,1-AFW-PMP-CF-RUN,1-OAF_MFW-----H,1-OAR_LTFB-TRA-H-LD	Same as cut set #488, except different initiating event.
986	3.6E-09	0.01%	90.04%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1256,1-OA-OSW-----H,1-RCS-MDP-LK-BP1	Same as cut set #1, except NSCW CCF event is for 4 pumps with operators failing to align for single-pump operation. In addition, RCP seal failure is different (stage 1).
987	3.6E-09	0.01%	90.04%	1-IE-LONSCW,1-IE-SWS-MDP-CR-2356,1-OA-OSW-----H,1-RCS-MDP-LK-BP1	Same as cut set #1, except NSCW CCF event is for 4 pumps with operators failing to align for single-pump operation. In addition, RCP seal failure is different (stage 1).
988	3.6E-09	0.01%	90.05%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1456,1-OA-OSW-----H,1-RCS-MDP-LK-BP1	Same as cut set #1, except NSCW CCF event is for 4 pumps with operators failing to align for single-pump operation. In addition, RCP seal failure is different (stage 1).
989	3.6E-09	0.01%	90.05%	1-IE-LONSCW,1-IE-SWS-MDP-CR-3456,1-OA-OSW-----H,1-RCS-MDP-LK-BP1	Same as cut set #1, except NSCW CCF event is for 4 pumps with operators failing to align for single-pump operation. In addition, RCP seal failure is different (stage 1).

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
990	3.6E-09	0.01%	90.06%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1236,1-OA-OSW-----H,1-RCS-MDP-LK-BP1	Same as cut set #1, except NSCW CCF event is for 4 pumps with operators failing to align for single-pump operation. In addition, RCP seal failure is different (stage 1).
991	3.6E-09	0.01%	90.06%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1346,1-OA-OSW-----H,1-RCS-MDP-LK-BP1	Same as cut set #1, except NSCW CCF event is for 4 pumps with operators failing to align for single-pump operation. In addition, RCP seal failure is different (stage 1).
992	3.6E-09	0.01%	90.07%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1234,1-OA-OSW-----H,1-RCS-MDP-LK-BP1	Same as cut set #1, except NSCW CCF event is for 4 pumps with operators failing to align for single-pump operation. In addition, RCP seal failure is different (stage 1).
993	3.6E-09	0.01%	90.08%	1-IE-LONSCW,1-IE-SWS-MDP-CR-1245,1-OA-OSW-----H,1-RCS-MDP-LK-BP1	Same as cut set #1, except NSCW CCF event is for 4 pumps with operators failing to align for single-pump operation. In addition, RCP seal failure is different (stage 1).
994	3.6E-09	0.01%	90.08%	1-IE-LONSCW,1-IE-SWS-MDP-CR-2345,1-OA-OSW-----H,1-RCS-MDP-LK-BP1	Same as cut set #1, except NSCW CCF event is for 4 pumps with operators failing to align for single-pump operation. In addition, RCP seal failure is different (stage 1).
995	3.6E-09	0.01%	90.09%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-RLY-FC-162_1ALL-CC	A grid-related LOOP initiating event occurs. Both EDGs fail to start due the failure of relays fail the NSCW pump discharge motor-operated valves (MOVs) from opening, which results in a SBO. Core damage occurs due to operators failing to recovery offsite power within the most limiting (turbine building) battery depletion time of 2 hours. Operators may be able to manually open these valves; and therefore, this cut set may be potentially conservative.
996	3.6E-09	0.01%	90.09%	1-IE-LO4160VA,1-ACW-MDP-MA-P4_002__,1-EPS-SEQ-FO-1821U302,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	A loss of 4.16kV safety-related AC bus initiating event and the failure of the opposite train ACCW pump results in a loss of RCP seal cooling and injection. A RCP seal failure occurs due to the operator failure to trip the reactor coolant pumps. Core damage occurs due to unavailability of ECCS.
997	3.5E-09	0.01%	90.10%	1-IE-LOCHS,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-RLOOP	A loss of condenser heat sink initiating event occurs with a subsequent LOOP with failures of RAT breaker results in a non-recoverable SBO.
998	3.5E-09	0.01%	90.10%	1-IE-LOCHS,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	Same as cut set #4, except a consequential LOOP (instead of LOOP initiating event) and different electrical failures occur.
999	3.5E-09	0.01%	90.11%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301__,1-EPS-DGN-FS-G4001__,1-OA-ORS-----H	Same as cut set #10, except a different LOOP initiating event type (weather-related) and different electrical failures occur.
1000	3.5E-09	0.01%	90.11%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205__,1-EPS-DGN-FS-G4002__,1-OA-ORS-----H	
1001	3.5E-09	0.01%	90.12%	1-IE-LOOPWR,1-AFW-PMP-CF-RUN,1-OAB_TR-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1002	3.5E-09	0.01%	90.13%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCDEF	
1003	3.5E-09	0.01%	90.13%	1-IE-LO125BD1,1-DCP-BDC-FC-BD1&____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A____	
1004	3.5E-09	0.01%	90.14%	1-IE-LO125AD1,1-DCP-BDC-FC-AD1&____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A____	
1005	3.4E-09	0.01%	90.14%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCABF____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	
1006	3.4E-09	0.01%	90.15%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBB____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	
1007	3.4E-09	0.01%	90.15%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBF____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	
1008	3.4E-09	0.01%	90.16%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCABB____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	
1009	3.4E-09	0.01%	90.16%	1-IE-LOOPGR,1-ACP-BAC-MA-BA03____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	
1010	3.4E-09	0.01%	90.17%	1-IE-LOOPGR,1-ACP-BAC-MA-BB07____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	
1011	3.4E-09	0.01%	90.17%	1-IE-LOOPGR,1-ACP-BAC-MA-BB16____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	
1012	3.4E-09	0.01%	90.18%	1-IE-LOOPGR,1-ACP-BAC-MA-AA02____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	
1013	3.4E-09	0.01%	90.18%	1-IE-LOOPGR,1-ACP-BAC-MA-AB05____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1014	3.4E-09	0.01%	90.19%	1-IE-LOOPGR,1-ACP-BAC-MA-AB15____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	
1015	3.4E-09	0.01%	90.20%	1-IE-LOOPGR,1-ACP-INV-FC-AD1111____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	
1016	3.4E-09	0.01%	90.20%	1-IE-LOOPGR,1-ACP-INV-FC-BD1112____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	
1017	3.4E-09	0.01%	90.21%	1-IE-LOOPWR,1-AFW-TDP-MA-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR2	
1018	3.4E-09	0.01%	90.21%	1-IE-LOOPGR,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-RLY-FC-AX36869 _CC	
1019	3.4E-09	0.01%	90.22%	1-IE-LOOPGR,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-RLY-FC-162 _1X89-CC	
1020	3.4E-09	0.01%	90.22%	1-IE-LOCHS,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-1668A69A	
1021	3.4E-09	0.01%	90.23%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12356,1-OA-OSW-----H,1-RCS-MDP-LK-BP1	
1022	3.4E-09	0.01%	90.23%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12456,1-OA-OSW-----H,1-RCS-MDP-LK-BP1	
1023	3.4E-09	0.01%	90.24%	1-IE-LONSCW,1-IE-SWS-MDP-CR-13456,1-OA-OSW-----H,1-RCS-MDP-LK-BP1	
1024	3.4E-09	0.01%	90.24%	1-IE-LONSCW,1-IE-SWS-MDP-CR-23456,1-OA-OSW-----H,1-RCS-MDP-LK-BP1	
1025	3.4E-09	0.01%	90.25%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12346,1-OA-OSW-----H,1-RCS-MDP-LK-BP1	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1026	3.4E-09	0.01%	90.25%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12345,1-OA-OSW-----H,1-RCS-MDP-LK-BP1	
1027	3.4E-09	0.01%	90.26%	1-IE-SSBO,1-ACP-CRB-CC-BA0301___,1-DCP-BAT-MA-AD1B___,1-OEP-VCF-LP-CLOPL	
1028	3.4E-09	0.01%	90.26%	1-IE-SSBO,1-ACP-CRB-CC-AA0205___,1-DCP-BAT-MA-BD1B___,1-OEP-VCF-LP-CLOPL	
1029	3.4E-09	0.01%	90.27%	1-IE-LOOPGR,1-AFW-TDP-FS-P4001___,1-EPS-DGN-FR-G4001___,1-EPS-DGN-MA-G4002___,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
1030	3.4E-09	0.01%	90.28%	1-IE-LOOPGR,1-AFW-TDP-FS-P4001___,1-EPS-DGN-FR-G4002___,1-EPS-DGN-MA-G4001___,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
1031	3.4E-09	0.01%	90.28%	1-IE-LOCHS,1-EPS-DGN-FR-G4002___,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A___	
1032	3.4E-09	0.01%	90.29%	1-IE-LOCHS,1-EPS-DGN-FR-G4001___,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A___	
1033	3.3E-09	0.01%	90.29%	1-IE-SLOCA,1-DCP-BAT-MA-BD1B___,1-EPS-SEQ-FO-1821U301	
1034	3.3E-09	0.01%	90.30%	1-IE-SLOCA,1-DCP-BAT-MA-AD1B___,1-EPS-SEQ-FO-1821U302	
1035	3.3E-09	0.01%	90.30%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301___,1-ACP-INV-MA-AD1I11___,1-OA-ORS-----H	
1036	3.3E-09	0.01%	90.31%	1-IE-LOOPGR,1-ACP-SSD-MA-1821U301,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1037	3.3E-09	0.01%	90.31%	1-IE-OTRANS,1-ACP-BAC-FC-AA02____,1-AFW-MDP-MA-P4002____,1-OAB_TR-----H	
1038	3.3E-09	0.01%	90.32%	1-IE-LO125BD1,1-DCP-BDC-FC-BD1&____,1-RPS-BME-CF-RTBAB	
1039	3.3E-09	0.01%	90.32%	1-IE-LO125AD1,1-DCP-BDC-FC-AD1&____,1-RPS-BME-CF-RTBAB	
1040	3.3E-09	0.01%	90.33%	1-IE-LOOPGR,1-ACP-INV-MA-BD1I12____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	
1041	3.3E-09	0.01%	90.33%	1-IE-RTRIP,1-AFW-PMP-CF-RUN,1-OAF_MFW-----H,1-OAR_LTFB-TRA-H-LD	
1042	3.3E-09	0.01%	90.34%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR01HGR,1-SWS-MOV-CF-1668A69A	
1043	3.3E-09	0.01%	90.34%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCDEF	
1044	3.3E-09	0.01%	90.35%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-LPI-MDP-FS-RHRB____	
1045	3.3E-09	0.01%	90.35%	1-IE-LO4160VA,1-AFW-MDP-FS-P4002____,1-LPI-MDP-MA-RHRB____	
1046	3.3E-09	0.01%	90.36%	1-IE-LO4160VA,1-AFW-MDP-FS-P4002____,1-CVC-MDP-MA-CCPB____	
1047	3.3E-09	0.01%	90.36%	1-IE-LO4160VA,1-CVC-MDP-MA-CCPB____,1-OA-MISPAF5094H	
1048	3.3E-09	0.01%	90.37%	1-IE-LO4160VA,1-LPI-MDP-MA-RHRB____,1-OA-MISPAF5094H	
1049	3.2E-09	0.01%	90.37%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-AFW-TDP-FS-P4001____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR01HGR	
1050	3.2E-09	0.01%	90.38%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-AFW-TDP-FS-P4001____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR01HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1051	3.2E-09	0.01%	90.38%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205____,1-OA-MISPAF5094H,1-OAB_TR-----H	
1052	3.2E-09	0.01%	90.39%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205____,1-AFW-MDP-FS-P4002____,1-OAB_TR-----H	
1053	3.2E-09	0.01%	90.39%	1-IE-LO4160VA,1-ACW-MDP-MA-P4_002____,1-LPI-MDP-MA-RHRB____,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1054	3.2E-09	0.01%	90.40%	1-IE-LOOPPC,1-ACP-INV-MA-AD1111____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
1055	3.2E-09	0.00%	90.40%	1-IE-LO4160VA,1-AFW-MDP-CF-START,1-OAB_TR-----H	
1056	3.2E-09	0.00%	90.41%	1-IE-LOMFW,1-DCP-BAT-MA-AD1B____,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
1057	3.2E-09	0.00%	90.41%	1-IE-LOMFW,1-DCP-BAT-MA-BD1B____,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	
1058	3.2E-09	0.00%	90.42%	1-IE-LOOPGR,1-AFW-MOV-OO-FV5154____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H	
1059	3.2E-09	0.00%	90.42%	1-IE-OTRANS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCD	
1060	3.2E-09	0.00%	90.43%	1-IE-OTRANS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABDE	
1061	3.2E-09	0.00%	90.43%	1-IE-OTRANS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-BCDE	
1062	3.2E-09	0.00%	90.44%	1-IE-OTRANS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ADEF	
1063	3.2E-09	0.00%	90.44%	1-IE-OTRANS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-CDEF	
1064	3.2E-09	0.00%	90.45%	1-IE-OTRANS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABEF	
1065	3.2E-09	0.00%	90.45%	1-IE-OTRANS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-BCEF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1066	3.2E-09	0.00%	90.46%	1-IE-OTRANS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCF	
1067	3.2E-09	0.00%	90.46%	1-IE-OTRANS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ACDF	
1068	3.2E-09	0.00%	90.47%	1-IE-OTRANS,1-NSCW-CT-NEED-SWAP,1-NSCW-MOV-F-NON-RECBLE,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-1668A69A	
1069	3.1E-09	0.00%	90.47%	1-IE-LOOPGR,1-ACP-BAC-MA-BYB1____,1-EPS-SEQ-FO-1821U301,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR	
1070	3.1E-09	0.00%	90.48%	1-IE-LOOPGR,1-ACP-BAC-MA-AYB1____,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR	
1071	3.1E-09	0.00%	90.48%	1-IE-LOOPSC,1-ACP-DCP-FC-1B_PS4____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
1072	3.1E-09	0.00%	90.49%	1-IE-LOOPSC,1-ACP-DCP-FC-1A_PS1____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
1073	3.1E-09	0.00%	90.49%	1-IE-LOOPSC,1-ACP-DCP-FC-1A_PS4____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
1074	3.1E-09	0.00%	90.50%	1-IE-LOOPSC,1-ACP-DCP-FC-1B_PS1____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
1075	3.1E-09	0.00%	90.50%	1-IE-LOOPSC,1-AFW-MDP-MA-P4002____,1-CVC-MDP-MA-CCPB____,1-EPS-DGN-FR-G4001____	
1076	3.1E-09	0.00%	90.51%	1-IE-SGTR,1-EPS-DGN-MA-G4001____,1-OAB_SI-----H,1-OEP-VCF-LP-CLOPL,1-SGTR3	
1077	3.1E-09	0.00%	90.51%	1-IE-SGTR,1-EPS-DGN-MA-G4001____,1-OAB_SI-----H,1-OEP-VCF-LP-CLOPL,1-SGTR2	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1078	3.1E-09	0.00%	90.52%	1-IE-SSBO,1-ACP-INV-FC-AD11BD12-CC,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1079	3.0E-09	0.00%	90.52%	1-IE-SSBO,/1-RPS-BME-TM-RTBA,/1-RPS-BME-TM-RTBB,/1-RPS-CCP-TM-CHA,1-RPS-CCX-CF-6OF8,1-RPS-XHE-XE-NSGNL	
1080	3.0E-09	0.00%	90.53%	1-IE-LOOPGR,1-ACP-BAC-MA-BA03____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HGR	
1081	3.0E-09	0.00%	90.53%	1-IE-LOOPGR,1-ACP-BAC-MA-BB07____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HGR	
1082	3.0E-09	0.00%	90.54%	1-IE-LOOPGR,1-ACP-BAC-MA-BB16____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HGR	
1083	3.0E-09	0.00%	90.54%	1-IE-LOOPGR,1-ACP-BAC-MA-AA02____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HGR	
1084	3.0E-09	0.00%	90.54%	1-IE-LOOPGR,1-ACP-BAC-MA-AB05____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HGR	
1085	3.0E-09	0.00%	90.55%	1-IE-LOOPGR,1-ACP-BAC-MA-AB15____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HGR	
1086	3.0E-09	0.00%	90.55%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCABF____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HGR	
1087	3.0E-09	0.00%	90.56%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBB____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HGR	
1088	3.0E-09	0.00%	90.56%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBF____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HGR	
1089	3.0E-09	0.00%	90.57%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCABB____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HGR	
1090	3.0E-09	0.00%	90.57%	1-IE-LOMFWD,1-AFW-TDP-FR-P4001____,1-RPS-ROD-CF-RCCAS	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1091	3.0E-09	0.00%	90.58%	1-IE-LOOPGR,1-ACP-INV-FC-AD1I11____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HGR	
1092	3.0E-09	0.00%	90.58%	1-IE-LOOPGR,1-ACP-INV-FC-BD1I12____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HGR	
1093	3.0E-09	0.00%	90.59%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCDEF	
1094	3.0E-09	0.00%	90.59%	1-IE-LOOPWR,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-RLY-FC-162_1X89-CC	
1095	3.0E-09	0.00%	90.60%	1-IE-LOOPWR,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-RLY-FC-AX36869_-CC	
1096	3.0E-09	0.00%	90.60%	1-IE-LO4160VA,1-ACP-BAC-FC-MCCBBF____,1-OAB_TR-----H	
1097	3.0E-09	0.00%	90.61%	1-IE-LO4160VA,1-ACP-BAC-FC-BB07____,1-OAB_TR-----H	
1098	3.0E-09	0.00%	90.61%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FS-G4002____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR01HGR	
1099	3.0E-09	0.00%	90.62%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FS-G4001____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR01HGR	
1100	3.0E-09	0.00%	90.62%	1-IE-LOOPGR,1-AFW-MDP-MA-P4002____,1-CVC-MDP-TE-CCPB____,1-EPS-DGN-FR-G4001____	
1101	3.0E-09	0.00%	90.63%	1-IE-LOOPGR,1-ACP-SSD-MA-1821U302,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	
1102	3.0E-09	0.00%	90.63%	1-IE-SLOCA,1-DCP-BAT-MA-AD1B____,1-LPI-MDP-MA-RHRB____,1-OA-NSCWGAN---H	
1103	3.0E-09	0.00%	90.63%	1-IE-SLOCA,1-DCP-BAT-MA-BD1B____,1-LPI-MDP-MA-RHRA____,1-OA-NSCWGAN---H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1104	3.0E-09	0.00%	90.64%	1-IE-OTRANS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCDE	
1105	3.0E-09	0.00%	90.64%	1-IE-OTRANS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABDEF	
1106	3.0E-09	0.00%	90.65%	1-IE-OTRANS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ACDEF	
1107	3.0E-09	0.00%	90.65%	1-IE-OTRANS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-BCDEF	
1108	3.0E-09	0.00%	90.66%	1-IE-OTRANS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCEF	
1109	3.0E-09	0.00%	90.66%	1-IE-OTRANS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCDF	
1110	3.0E-09	0.00%	90.67%	1-IE-LOOPGR,1-ACP-INV-FC-AD11BD12-CC,1-RCS-MDP-LK-BP2	
1111	3.0E-09	0.00%	90.67%	1-IE-LOOPGR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABCDEF	
1112	3.0E-09	0.00%	90.68%	1-IE-LO4160VA,1-AFW-MDP-FS-P4002____,1-DCP-BAT-MA-BD1B____,1-OA-NSCWFAN---H	
1113	3.0E-09	0.00%	90.68%	1-IE-LO4160VA,1-DCP-BAT-MA-BD1B____,1-OA-MISPAF5094H,1-OA-NSCWFAN---H	
1114	3.0E-09	0.00%	90.69%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001____,1-EPS-TNK-MA-DFOSTKB_,1-OA-ORS-----H	
1115	3.0E-09	0.00%	90.69%	1-IE-LOOPGR,1-CAD-XHE-SAFESTBLE,1-CHG-XHE-NORMAL	
1116	2.9E-09	0.00%	90.70%	1-IE-LOOPPC,1-DCP-BCH-FC-AAABBABB-CC	
1117	2.9E-09	0.00%	90.70%	1-IE-OTRANS,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-RLY-FC-AX36869_ _CC	
1118	2.9E-09	0.00%	90.70%	1-IE-OTRANS,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-RLY-FC-162_1X89-CC	
1119	2.9E-09	0.00%	90.71%	1-IE-LOOPGR,1-ACP-SSD-MA-1821U301,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HGR	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1120	2.9E-09	0.00%	90.71%	1-IE-LOIA,1-ACP-CRB-CF-A205301,1-IE-IAS-MDC-CF-FR-ABCD,1-OEP-VCF-LP-CLOPT	
1121	2.9E-09	0.00%	90.72%	1-IE-LO4160VA,1-ACW-MDP-MA-P4_002___,1-DCP-BAT-MA-BD1B___,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1122	2.9E-09	0.00%	90.72%	1-IE-LOOPGR,1-ACP-INV-MA-BD1I12___,1-EPS-DGN-FS-G4001___,1-OEP-XHE-XL-NR02HGR	
1123	2.9E-09	0.00%	90.73%	1-IE-LOOPWR,1-EPS-SEQ-FO-1821U301,1-EPS-TNK-MA-DFOSTKB___,1-OEP-XHE-XL-NR02HWR	
1124	2.9E-09	0.00%	90.73%	1-IE-SGTR,1-HPI-XHE-XR-XVM207,1-OAI_SG-----H	
1125	2.9E-09	0.00%	90.74%	1-IE-SGTR,1-OAI_SG-----H,1-RFL-XHE-REFILL-LT	
1126	2.9E-09	0.00%	90.74%	1-IE-LOOPGR,1-ACP-BAC-FC-BA03___,1-EPS-DGN-MA-G4001___,1-OEP-XHE-XL-NR02HGR	
1127	2.9E-09	0.00%	90.75%	1-IE-LOOPGR,1-ACP-BAC-FC-BB07___,1-EPS-DGN-MA-G4001___,1-OEP-XHE-XL-NR02HGR	
1128	2.9E-09	0.00%	90.75%	1-IE-LOOPGR,1-ACP-BAC-FC-BB16___,1-EPS-DGN-MA-G4001___,1-OEP-XHE-XL-NR02HGR	
1129	2.9E-09	0.00%	90.75%	1-IE-LOOPGR,1-ACP-BAC-FC-AA02___,1-EPS-DGN-MA-G4002___,1-OEP-XHE-XL-NR02HGR	
1130	2.9E-09	0.00%	90.76%	1-IE-LOOPGR,1-ACP-BAC-FC-AB05___,1-EPS-DGN-MA-G4002___,1-OEP-XHE-XL-NR02HGR	
1131	2.9E-09	0.00%	90.76%	1-IE-LOOPGR,1-ACP-BAC-FC-AB15___,1-EPS-DGN-MA-G4002___,1-OEP-XHE-XL-NR02HGR	
1132	2.9E-09	0.00%	90.77%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCABF___,1-EPS-DGN-MA-G4002___,1-OEP-XHE-XL-NR02HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1133	2.9E-09	0.00%	90.77%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCBBB____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HGR	
1134	2.9E-09	0.00%	90.78%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCBBF____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HGR	
1135	2.9E-09	0.00%	90.78%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCABB____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HGR	
1136	2.9E-09	0.00%	90.79%	1-IE-LOOPSC,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-RLY-FC-162_1X89-CC	
1137	2.9E-09	0.00%	90.79%	1-IE-LOOPSC,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-RLY-FC-AX36869_-CC	
1138	2.9E-09	0.00%	90.80%	1-IE-MLOCA,1-LPI-MOV-CF-8812AB	
1139	2.9E-09	0.00%	90.80%	1-IE-LOCHS,1-DCP-BAT-MA-AD1B____,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
1140	2.9E-09	0.00%	90.80%	1-IE-LOCHS,1-DCP-BAT-MA-BD1B____,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	
1141	2.9E-09	0.00%	90.81%	1-IE-LOOPWR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FR-G4002____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
1142	2.9E-09	0.00%	90.81%	1-IE-LOOPWR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
1143	2.9E-09	0.00%	90.82%	1-IE-SSBO,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-CF-1668A69A	
1144	2.9E-09	0.00%	90.82%	1-IE-LOMFWD,1-RPS-BME-TM-RTBA,1-RPS-BME-TM-RTBB,1-RPS-CCP-TM-CHA,1-RPS-CCX-CF-6OF8,1-RPS-XHE-XE-NSGNL,1-UET2-NOPORV-BLK	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1145	2.9E-09	0.00%	90.83%	1-IE-LOOPWR,1-EPS-DGN-MA-G4001____,1-OA-MISPAF5094H,1-OAB_TR-----H	
1146	2.9E-09	0.00%	90.83%	1-IE-LOOPWR,1-AFW-MDP-FS-P4002____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H	
1147	2.8E-09	0.00%	90.84%	1-IE-SSBO,1-NSCWCT-BYPASS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-SWT-FC-TY16689B-CC	
1148	2.8E-09	0.00%	90.84%	1-IE-TTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCDEF	
1149	2.8E-09	0.00%	90.84%	1-IE-LOOPGR,1-EPS-DGN-MA-G4001____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1669A____	
1150	2.8E-09	0.00%	90.85%	1-IE-LOOPGR,1-EPS-DGN-MA-G4002____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1668A____	
1151	2.8E-09	0.00%	90.85%	1-IE-LO120VAB,1-ACP-INV-FC-AD111&____,1-ACP-INV-FC-BD112____,1-OA-HURGXFMR--H-LD,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
1152	2.8E-09	0.00%	90.86%	1-IE-LO120VAB,1-ACP-INV-FC-AD111____,1-ACP-INV-FC-BD112&____,1-OA-HURGXFMR--H-LD,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
1153	2.8E-09	0.00%	90.86%	1-IE-SSBO,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-CTF-CF-FR-ALL	
1154	2.8E-09	0.00%	90.87%	1-IE-LOOPGR,1-ACP-INV-FC-AD1111____,1-DCP-BAT-MA-BD1B____,1-OEP-XHE-XL-NR02HGR	
1155	2.8E-09	0.00%	90.87%	1-IE-LOOPGR,1-ACP-INV-FC-BD1112____,1-DCP-BAT-MA-AD1B____,1-OEP-XHE-XL-NR02HGR	
1156	2.8E-09	0.00%	90.88%	1-IE-LOOPSC,1-ACP-CRB-CC-BA0301____,1-ACP-INV-MA-AD1111____,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1157	2.8E-09	0.00%	90.88%	1-IE-LOOPGR,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-1668A69A	
1158	2.8E-09	0.00%	90.88%	1-IE-ISINJ,1-AFW-PMP-CF-RUN,1-OAB_TR-----H	
1159	2.8E-09	0.00%	90.89%	1-IE-LOOPGR,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-SWT-FC-TY16689B-CC	
1160	2.8E-09	0.00%	90.89%	1-IE-LOCHS,1-AFW-TDP-FR-P4001____,1-RPS-ROD-CF-RCCAS	
1161	2.8E-09	0.00%	90.90%	1-IE-LOOPWR,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1,1-SWS-MOV-MA-1668ACT_	
1162	2.8E-09	0.00%	90.90%	1-IE-LOOPGR,1-ACP-BAC-MA-BYB1____,1-EPS-DGN-FS-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR	
1163	2.8E-09	0.00%	90.91%	1-IE-LOOPGR,1-ACP-BAC-MA-AYB1____,1-EPS-DGN-FS-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR	
1164	2.7E-09	0.00%	90.91%	1-IE-LO4160VA,1-AFW-MDP-FS-P4002____,1-CVC-MDP-TE-CCPB____	
1165	2.7E-09	0.00%	90.91%	1-IE-LO4160VA,1-CVC-MDP-TE-CCPB____,1-OA-MISPAF5094H	
1166	2.7E-09	0.00%	90.92%	1-IE-ISL-RHR-HLS,1-IE-RHR-MOV-RP-HV8701A,1-RHR-MOV-CO-HV8701B_	
1167	2.7E-09	0.00%	90.92%	1-IE-ISL-RHR-HLS,1-IE-RHR-MOV-RP-HV8702A,1-RHR-MOV-CO-HV8702B_	
1168	2.7E-09	0.00%	90.93%	1-IE-ISL-RHR-HLS,1-IE-RHR-MOV-RP-HV8702B,1-RHR-MOV-CO-HV8702A_	
1169	2.7E-09	0.00%	90.93%	1-IE-ISL-RHR-HLS,1-IE-RHR-MOV-RP-HV8701B,1-RHR-MOV-CO-HV8701A_	
1170	2.7E-09	0.00%	90.94%	1-IE-ISL-RHR-HLS,1-IE-RHR-MOV-CO-HV8702B,1-RHR-MOV-RP-HV8702A-RAN	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1171	2.7E-09	0.00%	90.94%	1-IE-ISL-RHR-HLS,1-IE-RHR-MOV-CO-HV8701B,1-RHR-MOV-RP-HV8701A-RAN	
1172	2.7E-09	0.00%	90.94%	1-IE-ISL-RHR-HLS,1-IE-RHR-MOV-CO-HV8701A,1-RHR-MOV-RP-HV8701B-RAN	
1173	2.7E-09	0.00%	90.95%	1-IE-ISL-RHR-HLS,1-IE-RHR-MOV-CO-HV8702A,1-RHR-MOV-RP-HV8702B-RAN	
1174	2.7E-09	0.00%	90.95%	1-IE-LOOPSC,1-AFW-MOV-OO-FV5154____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H	
1175	2.7E-09	0.00%	90.96%	1-IE-LOOPGR,1-AFW-MDP-MA-P4003____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4002____,1-OAB_TR-----H	
1176	2.7E-09	0.00%	90.96%	1-IE-ISINJ,1-ACP-CRB-CC-AA0205____,1-ACP-CRB-CC-BA0301____,1-OEP-VCF-LP-CLOPL	
1177	2.7E-09	0.00%	90.96%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FS-G4001____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR01HGR	
1178	2.7E-09	0.00%	90.97%	1-IE-LOOPWR,1-EPS-PND-CF-1205X,1-OEP-XHE-XL-NR02HWR	
1179	2.6E-09	0.00%	90.97%	1-IE-LOOPGR,1-ACP-SSD-MA-1821U302,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HGR	
1180	2.6E-09	0.00%	90.98%	1-IE-LOOPWR,1-AFW-MOV-OO-FV5154____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	
1181	2.6E-09	0.00%	90.98%	1-IE-LOOPWR,1-ACP-INV-FC-AD11BD12-CC,1-OEP-XHE-XL-NR02HWR	
1182	2.6E-09	0.00%	90.99%	1-IE-LO125AD1,1-ACP-BAC-MA-BA03____,1-AFW-TDP-FS-P4001____,1-DCP-BDC-FC-AD1&____	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1183	2.6E-09	0.00%	90.99%	1-IE-LOOPGR,1-ACP-BAC-FC-BYB1____,1-EPS-DGN-MA-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR	
1184	2.6E-09	0.00%	90.99%	1-IE-LOOPGR,1-ACP-BAC-FC-AYB1____,1-EPS-DGN-MA-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR	
1185	2.6E-09	0.00%	91.00%	1-IE-LOOPGR,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CC-1668A____	
1186	2.6E-09	0.00%	91.00%	1-IE-LOOPGR,1-EPS-SEQ-FO-1821U301,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CC-1669A____	
1187	2.6E-09	0.00%	91.01%	1-IE-LOCHS,/1-RPS-BME-TM-RTBA,/1-RPS-BME-TM-RTBB,/1-RPS-CCP-TM-CHA,1-RPS-CCX-CF-6OF8,1-RPS-XHE-XE-NSGNL,1-UET2-NOPORV-BLK	
1188	2.6E-09	0.00%	91.01%	1-IE-LOOPGR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-CF-FRUN1,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR0	
1189	2.6E-09	0.00%	91.01%	1-IE-LOOPWR,1-DCP-FUS-OP-AD104____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
1190	2.6E-09	0.00%	91.02%	1-IE-LOOPWR,1-DCP-FUS-OP-BD104____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
1191	2.6E-09	0.00%	91.02%	1-IE-RTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCDEF	
1192	2.6E-09	0.00%	91.03%	1-IE-LOOPWR,1-EPS-DGN-FS-G4001____,1-EPS-TNK-MA-DFOSTKB____,1-OEP-XHE-XL-NR02HWR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1193	2.6E-09	0.00%	91.03%	1-IE-LONSCW,1-IE-SWS-MDP-CR-123456,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-TTSIGNAL	
1194	2.6E-09	0.00%	91.03%	1-IE-SSBO,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPL	
1195	2.5E-09	0.00%	91.04%	1-IE-LOOPGR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR2	
1196	2.5E-09	0.00%	91.04%	1-IE-LOOPSC,1-AFW-MDP-MA-P4002____,1-CVC-MDP-TE-CCPB____,1-EPS-DGN-FR-G4001____	
1197	2.5E-09	0.00%	91.05%	1-IE-LOOPSC,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-OA-ALIGNPW-02HR,1-OEP-XHE-XL-NR02HSC,1-OEP-XHE-XX-NR02HSC2	
1198	2.5E-09	0.00%	91.05%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS4____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	
1199	2.5E-09	0.00%	91.05%	1-IE-LOOPGR,1-ACP-DCP-FC-1A_PS1____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	
1200	2.5E-09	0.00%	91.06%	1-IE-LOOPGR,1-ACP-DCP-FC-1A_PS4____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	
1201	2.5E-09	0.00%	91.06%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS1____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	
1202	2.5E-09	0.00%	91.07%	1-IE-LOOPWR,1-ACP-BAC-MA-AA02____,1-ACP-CRB-CC-BA0301____,1-OEP-XHE-XL-NR02HWR	
1203	2.5E-09	0.00%	91.07%	1-IE-LOOPWR,1-ACP-BAC-MA-AB05____,1-ACP-CRB-CC-BA0301____,1-OEP-XHE-XL-NR02HWR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1204	2.5E-09	0.00%	91.07%	1-IE-LOOPWR,1-ACP-BAC-MA-AB15____,1-ACP-CRB-CC-BA0301____,1-OEP-XHE-XL-NR02HWR	
1205	2.5E-09	0.00%	91.08%	1-IE-LOOPWR,1-ACP-BAC-MA-BA03____,1-ACP-CRB-CC-AA0205____,1-OEP-XHE-XL-NR02HWR	
1206	2.5E-09	0.00%	91.08%	1-IE-LOOPWR,1-ACP-BAC-MA-BB07____,1-ACP-CRB-CC-AA0205____,1-OEP-XHE-XL-NR02HWR	
1207	2.5E-09	0.00%	91.09%	1-IE-LOOPWR,1-ACP-BAC-MA-BB16____,1-ACP-CRB-CC-AA0205____,1-OEP-XHE-XL-NR02HWR	
1208	2.5E-09	0.00%	91.09%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCABB____,1-ACP-CRB-CC-BA0301____,1-OEP-XHE-XL-NR02HWR	
1209	2.5E-09	0.00%	91.09%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCABF____,1-ACP-CRB-CC-BA0301____,1-OEP-XHE-XL-NR02HWR	
1210	2.5E-09	0.00%	91.10%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCBBB____,1-ACP-CRB-CC-AA0205____,1-OEP-XHE-XL-NR02HWR	
1211	2.5E-09	0.00%	91.10%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCBBF____,1-ACP-CRB-CC-AA0205____,1-OEP-XHE-XL-NR02HWR	
1212	2.5E-09	0.00%	91.11%	1-IE-LOOPSC,1-ACP-INV-FC-AD11BD12-CC,1-RCS-MDP-LK-BP2	
1213	2.5E-09	0.00%	91.11%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-ACP-INV-FC-AD11I1____,1-OEP-XHE-XL-NR02HWR	
1214	2.5E-09	0.00%	91.11%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-ACP-INV-FC-BD11I12____,1-OEP-XHE-XL-NR02HWR	
1215	2.5E-09	0.00%	91.12%	1-IE-LOOPSC,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABCDEF	
1216	2.5E-09	0.00%	91.12%	1-IE-LOOPSC,1-CAD-XHE-SAFESTBLE,1-CHG-XHE-NORMAL	
1217	2.5E-09	0.00%	91.12%	1-IE-LO125BD1,1-DCP-BDC-FC-BD1&____,1-RPS-ROD-CF-RCCAS	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1218	2.5E-09	0.00%	91.13%	1-IE-LO125AD1,1-DCP-BDC-FC-AD1&____,1-RPS-ROD-CF-RCCAS	
1219	2.5E-09	0.00%	91.13%	1-IE-LOOPWR,1-DCP-BAT-MA-CD1B____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR2	
1220	2.5E-09	0.00%	91.14%	1-IE-LOOPWR,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-1668A69A	
1221	2.5E-09	0.00%	91.14%	1-IE-OTRANS,1-AFW-TNK-RP-V4001____,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
1222	2.5E-09	0.00%	91.14%	1-IE-SSBO,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPL,1-SWS-MOV-CF-1668A69A	
1223	2.5E-09	0.00%	91.15%	1-IE-LOOPSC,1-EPS-DGN-FR-G4001____,1-EPS-DGN-MA-G4002____,1-OA-ALIGNPW-02HR,1-OEP-XHE-XL-NR02HSC,1-OEP-XHE-XX-NR02HSC1	
1224	2.5E-09	0.00%	91.15%	1-IE-LOOPSC,1-EPS-DGN-FR-G4002____,1-EPS-DGN-MA-G4001____,1-OA-ALIGNPW-02HR,1-OEP-XHE-XL-NR02HSC,1-OEP-XHE-XX-NR02HSC1	
1225	2.5E-09	0.00%	91.16%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-DCP-BAT-MA-BD1B____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR01HGR	
1226	2.5E-09	0.00%	91.16%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-DCP-BAT-MA-AD1B____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR01HGR	
1227	2.5E-09	0.00%	91.16%	1-IE-LOOPWR,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HWR,1-SWS-SWT-FC-TY16689B-CC	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1228	2.4E-09	0.00%	91.17%	1-IE-SSBO,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPL,1-SWS-MOV-CC-1668A____	
1229	2.4E-09	0.00%	91.17%	1-IE-SSBO,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPL,1-SWS-MOV-CC-1669A____	
1230	2.4E-09	0.00%	91.17%	1-IE-SSBO,1-OEP-VCF-LP-CLOPL,1-SWS-CTF-CF-FS-ALL	
1231	2.4E-09	0.00%	91.18%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-ACP-SSD-MA-1821U301,1-OEP-XHE-XL-NR02HWR	
1232	2.4E-09	0.00%	91.18%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-ACP-INV-MA-BD1I12____,1-OEP-XHE-XL-NR02HWR	
1233	2.4E-09	0.00%	91.19%	1-IE-OTRANS,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-1668A69A	
1234	2.4E-09	0.00%	91.19%	1-IE-LO4160VB,1-AFW-TDP-FR-P4001____,1-OA-MISPAF5095H,1-OAB_TR-----H	
1235	2.4E-09	0.00%	91.19%	1-IE-LO4160VB,1-AFW-MDP-FS-P4003____,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H	
1236	2.4E-09	0.00%	91.20%	1-IE-LOOPSC,1-EPS-DGN-MA-G4001____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1669A____	
1237	2.4E-09	0.00%	91.20%	1-IE-LOOPSC,1-EPS-DGN-MA-G4002____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1668A____	
1238	2.4E-09	0.00%	91.21%	1-IE-LOOPWR,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CF-1668A69A	
1239	2.4E-09	0.00%	91.21%	1-IE-LOMFV,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-RLOOP	
1240	2.4E-09	0.00%	91.21%	1-IE-OTRANS,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT,1-SWS-SWT-FC-TY16689B-CC	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1241	2.4E-09	0.00%	91.22%	1-IE-LOOPWR,1-DCP-BAT-MA-AD1B____,1-EPS-TNK-MA-DFOSTKB_,1-OEP-XHE-XL-NR02HWR	
1242	2.4E-09	0.00%	91.22%	1-IE-LOOPGR,1-AFW-MDP-FS-P4002____,1-EPS-SEQ-FO-1821U301,1-OAB_TR-----H	
1243	2.4E-09	0.00%	91.22%	1-IE-LOOPGR,1-EPS-SEQ-FO-1821U301,1-OA-MISPAF5094H,1-OAB_TR-----H	
1244	2.4E-09	0.00%	91.23%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABDE	
1245	2.4E-09	0.00%	91.23%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCD	
1246	2.4E-09	0.00%	91.23%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCDE	
1247	2.4E-09	0.00%	91.24%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCEF	
1248	2.4E-09	0.00%	91.24%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABEF	
1249	2.4E-09	0.00%	91.25%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCF	
1250	2.4E-09	0.00%	91.25%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ACDF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1251	2.4E-09	0.00%	91.25%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-CDEF	
1252	2.4E-09	0.00%	91.26%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ADEF	
1253	2.4E-09	0.00%	91.26%	1-IE-LOOPSC,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-1668A69A	
1254	2.4E-09	0.00%	91.26%	1-IE-LO125AD1,1-ACP-BAC-MA-BA03____,1-ACP-CRB-CC-NA0503____,1-DCP-BDC-FC-AD1&_____	
1255	2.4E-09	0.00%	91.27%	1-IE-LO125AD1,1-ACP-BAC-MA-BA03____,1-ACP-CRB-OO-NA0501____,1-DCP-BDC-FC-AD1&_____	
1256	2.4E-09	0.00%	91.27%	1-IE-LO125AD1,1-ACP-BAC-MA-BB16____,1-ACP-CRB-CC-NA0503____,1-DCP-BDC-FC-AD1&_____	
1257	2.4E-09	0.00%	91.28%	1-IE-LO125AD1,1-ACP-BAC-MA-BB16____,1-ACP-CRB-OO-NA0501____,1-DCP-BDC-FC-AD1&_____	
1258	2.4E-09	0.00%	91.28%	1-IE-LO125BD1,1-ACP-BAC-MA-AB15____,1-ACP-CRB-CC-NA0503____,1-DCP-BDC-FC-BD1&_____	
1259	2.4E-09	0.00%	91.28%	1-IE-LO125BD1,1-ACP-BAC-MA-AB15____,1-ACP-CRB-OO-NA0501____,1-DCP-BDC-FC-BD1&_____	
1260	2.4E-09	0.00%	91.29%	1-IE-LO125AD1,1-ACP-BAC-MA-MCCBBB____,1-ACP-CRB-CC-NA0503____,1-DCP-BDC-FC-AD1&_____	
1261	2.4E-09	0.00%	91.29%	1-IE-LO125AD1,1-ACP-BAC-MA-MCCBBB____,1-ACP-CRB-OO-NA0501____,1-DCP-BDC-FC-AD1&_____	
1262	2.4E-09	0.00%	91.29%	1-IE-LO125BD1,1-ACP-BAC-MA-MCCABB____,1-ACP-CRB-CC-NA0503____,1-DCP-BDC-FC-BD1&_____	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1263	2.4E-09	0.00%	91.30%	1-IE-LO125BD1,1-ACP-BAC-MA-MCCABB__,1-ACP-CRB-OO-NA0501__,1-DCP-BDC-FC-BD1&__	
1264	2.4E-09	0.00%	91.30%	1-IE-SSBI,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-CLOPL	
1265	2.4E-09	0.00%	91.31%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-NSCW-CT-NEED-SWAP,1-NSCW-MOV-F-NON-RECBLE,1-NSCWCT-BYPASS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-CF-1668A69A	
1266	2.4E-09	0.00%	91.31%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301__,1-EPS-TNK-MA-DFOSTKA__,1-OA-ORS-----H	
1267	2.4E-09	0.00%	91.31%	1-IE-LOOPWR,1-EPS-DGN-FR-G4002__,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1668A__	
1268	2.4E-09	0.00%	91.32%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001__,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1669A__	
1269	2.3E-09	0.00%	91.32%	1-IE-LO125BD1,1-ACP-BAC-MA-AB05__,1-DCP-BDC-FC-BD1&__,1-OEP-VCF-LP-CLOPT	
1270	2.3E-09	0.00%	91.32%	1-IE-LO125AD1,1-ACP-BAC-MA-BA03__,1-DCP-BDC-FC-AD1&__,1-OEP-VCF-LP-CLOPT	
1271	2.3E-09	0.00%	91.33%	1-IE-LO125BD1,1-ACP-BAC-MA-AB15__,1-DCP-BDC-FC-BD1&__,1-OEP-VCF-LP-CLOPT	
1272	2.3E-09	0.00%	91.33%	1-IE-LO125AD1,1-ACP-BAC-MA-BB07__,1-DCP-BDC-FC-AD1&__,1-OEP-VCF-LP-CLOPT	
1273	2.3E-09	0.00%	91.33%	1-IE-LO125AD1,1-ACP-BAC-MA-BB16__,1-DCP-BDC-FC-AD1&__,1-OEP-VCF-LP-CLOPT	
1274	2.3E-09	0.00%	91.34%	1-IE-LO125BD1,1-ACP-BAC-MA-MCCABF__,1-DCP-BDC-FC-BD1&__,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1275	2.3E-09	0.00%	91.34%	1-IE-LO125AD1,1-ACP-BAC-MA-MCCBBB__,1-DCP-BDC-FC-AD1&____,1-OEP-VCF-LP-CLOPT	
1276	2.3E-09	0.00%	91.35%	1-IE-LO125BD1,1-ACP-BAC-MA-MCCABB__,1-DCP-BDC-FC-BD1&____,1-OEP-VCF-LP-CLOPT	
1277	2.3E-09	0.00%	91.35%	1-IE-LO125AD1,1-ACP-BAC-MA-MCCBBF__,1-DCP-BDC-FC-AD1&____,1-OEP-VCF-LP-CLOPT	
1278	2.3E-09	0.00%	91.35%	1-IE-LOOPSC,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-SWT-FC-TY16689B-CC	
1279	2.3E-09	0.00%	91.36%	1-IE-LO125AD1,1-DCP-BDC-FC-AD1&____,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-CLOPT	
1280	2.3E-09	0.00%	91.36%	1-IE-LO125BD1,1-DCP-BDC-FC-BD1&____,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-CLOPT	
1281	2.3E-09	0.00%	91.36%	1-IE-LO125BD1,1-ACP-INV-FC-AD1I11__,1-DCP-BDC-FC-BD1&____,1-OEP-VCF-LP-CLOPT	
1282	2.3E-09	0.00%	91.37%	1-IE-LO125AD1,1-ACP-INV-FC-BD1I12__,1-DCP-BDC-FC-AD1&____,1-OEP-VCF-LP-CLOPT	
1283	2.3E-09	0.00%	91.37%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002__,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1,1-SWS-MOV-MA-1668ACT__	
1284	2.3E-09	0.00%	91.37%	1-IE-LOOPWR,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CC-1668A__	
1285	2.3E-09	0.00%	91.38%	1-IE-LOOPWR,1-EPS-SEQ-FO-1821U301,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CC-1669A__	
1286	2.3E-09	0.00%	91.38%	1-IE-MLOCA,1-HPI-MOV-OO-88138814-CC	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1287	2.3E-09	0.00%	91.39%	1-IE-MLOCA,1-HPI-MOV-OO-88138920-CC	
1288	2.3E-09	0.00%	91.39%	1-IE-LO4160VA,1-EPS-TNK-MA-DFOSTKB_,1-OEP-VCF-LP-CLOPT	
1289	2.3E-09	0.00%	91.39%	1-IE-LO4160VA,1-EPS-DGN-MA-G4002____,1-OEP-VCF-LP-RLOOP	
1290	2.3E-09	0.00%	91.40%	1-IE-LO4160VB,1-EPS-DGN-MA-G4001____,1-OEP-VCF-LP-RLOOP	
1291	2.3E-09	0.00%	91.40%	1-IE-LOOPWR,1-ACP-INV-MA-AD1I11____,1-EPS-SEQ-FO-1821U302,1-RCS-MDP-LK-BP2	
1292	2.3E-09	0.00%	91.40%	1-IE-OTRANS,1-AFW-MOV-CF-MINFL,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
1293	2.3E-09	0.00%	91.41%	1-IE-LOOPPC,1-EPS-DGN-FR-G4002____,1-EPS-TNK-MA-DFOSTKA_,1-OA-ORS-----H	
1294	2.3E-09	0.00%	91.41%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U302,1-RPS-ICC-TE-605Q5SPA	
1295	2.3E-09	0.00%	91.41%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U301,1-RPS-ICC-TE-605Q5SPB	
1296	2.3E-09	0.00%	91.42%	1-IE-MLOCA,1-ESF-SSD-FC-3A3131B,1-RPS-ICC-TE-605Q5SPA	
1297	2.3E-09	0.00%	91.42%	1-IE-MLOCA,1-ESF-SSD-FC-3A4161B,1-RPS-ICC-TE-605Q5SPA	
1298	2.3E-09	0.00%	91.43%	1-IE-MLOCA,1-ESF-SSD-FC-4A315B,1-RPS-ICC-TE-605Q5SPA	
1299	2.3E-09	0.00%	91.43%	1-IE-MLOCA,1-ESF-SSD-FC-A513_1B,1-RPS-ICC-TE-605Q5SPA	
1300	2.3E-09	0.00%	91.43%	1-IE-MLOCA,1-ESF-SSD-FC-A517_1B,1-RPS-ICC-TE-605Q5SPA	
1301	2.3E-09	0.00%	91.44%	1-IE-MLOCA,1-ESF-SSD-FC-3A3131A,1-RPS-ICC-TE-605Q5SPB	
1302	2.3E-09	0.00%	91.44%	1-IE-MLOCA,1-ESF-SSD-FC-3A4161A,1-RPS-ICC-TE-605Q5SPB	
1303	2.3E-09	0.00%	91.44%	1-IE-MLOCA,1-ESF-SSD-FC-4A315A,1-RPS-ICC-TE-605Q5SPB	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1304	2.3E-09	0.00%	91.45%	1-IE-MLOCA,1-ESF-SSD-FC- _A513_1A,1-RPS-ICC-TE-605Q5SPB	
1305	2.3E-09	0.00%	91.45%	1-IE-MLOCA,1-ESF-SSD-FC- _A517_1A,1-RPS-ICC-TE-605Q5SPB	
1306	2.3E-09	0.00%	91.45%	1-IE-LOOPWR,1-ACP-BAC-MA- AYB1____,1-ACP-CRB-CC- BA0301____,1-NSCWCT-SPRAY,1-OEP- XHE-XL-NR02HWR	
1307	2.3E-09	0.00%	91.46%	1-IE-LOOPWR,1-ACP-BAC-MA- BYB1____,1-ACP-CRB-CC- AA0205____,1-NSCWCT-SPRAY,1-OEP- XHE-XL-NR02HWR	
1308	2.3E-09	0.00%	91.46%	1-IE-LOOPSC,1-AFW-MDP-MA- P4003____,1-AFW-TDP-FR-P4001____,1- EPS-DGN-FR-G4002____,1-OAB_TR----- --H	
1309	2.3E-09	0.00%	91.46%	1-IE-LOOPWR,1-AFW-MDP-MA- P4002____,1-EPS-SEQ-FO-1821U301,1- OAB_TR-----H	
1310	2.3E-09	0.00%	91.47%	1-IE-LOOPGR,1-OEP-XHE-XL- NR02HGR,1-SWS-MOV-CF-116- ABCEF	
1311	2.3E-09	0.00%	91.47%	1-IE-LOOPGR,1-OEP-XHE-XL- NR02HGR,1-SWS-MOV-CF-116- ABDEF	
1312	2.3E-09	0.00%	91.47%	1-IE-LOOPGR,1-OEP-XHE-XL- NR02HGR,1-SWS-MOV-CF-116- BCDEF	
1313	2.3E-09	0.00%	91.48%	1-IE-LOOPGR,1-OEP-XHE-XL- NR02HGR,1-SWS-MOV-CF-116- ACDEF	
1314	2.3E-09	0.00%	91.48%	1-IE-LOOPGR,1-OEP-XHE-XL- NR02HGR,1-SWS-MOV-CF-116- ABCDE	
1315	2.3E-09	0.00%	91.49%	1-IE-LOOPGR,1-OEP-XHE-XL- NR02HGR,1-SWS-MOV-CF-116- ABCDF	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1316	2.3E-09	0.00%	91.49%	1-IE-ISL-RCP-S1LO,1-ACP-CRB-CF-A205301,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-RCS-MDP-LK-BP1,/1-RCS-MDP-LK-BP2,/1-RCS-XHE-XM-TRIP	
1317	2.3E-09	0.00%	91.49%	1-IE-LO125BD1,1-ACP-SSD-MA-1821U301,1-DCP-BDC-FC-BD1&____,1-OEP-VCF-LP-CLOPT	
1318	2.2E-09	0.00%	91.50%	1-IE-OTRANS,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A____	
1319	2.2E-09	0.00%	91.50%	1-IE-OTRANS,1-EPS-SEQ-FO-1821U301,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A____	
1320	2.2E-09	0.00%	91.50%	1-IE-LO125AD1,1-ACP-INV-MA-BD1I12____,1-DCP-BDC-FC-AD1&____,1-OEP-VCF-LP-CLOPT	
1321	2.2E-09	0.00%	91.51%	1-IE-LOOPWR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-CF-FRUN1,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR0	
1322	2.2E-09	0.00%	91.51%	1-IE-MLOCA,1-CVC-MDP-MA-CCPA____,1-ESF-SSD-FC-_A513_1B,1-OAD_MLA-----H	
1323	2.2E-09	0.00%	91.51%	1-IE-MLOCA,1-CVC-MDP-MA-CCPA____,1-ESF-SSD-FC-_3A4161B,1-OAD_MLA-----H	
1324	2.2E-09	0.00%	91.52%	1-IE-MLOCA,1-CVC-MDP-MA-CCPA____,1-ESF-SSD-FC-_4A315B,1-OAD_MLA-----H	
1325	2.2E-09	0.00%	91.52%	1-IE-MLOCA,1-CVC-MDP-MA-CCPA____,1-ESF-SSD-FC-_A517_1B,1-OAD_MLA-----H	
1326	2.2E-09	0.00%	91.52%	1-IE-MLOCA,1-CVC-MDP-MA-CCPA____,1-ESF-SSD-FC-_3A3131B,1-OAD_MLA-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1327	2.2E-09	0.00%	91.53%	1-IE-MLOCA,1-CVC-MDP-MA-CCPB____,1-ESF-SSD-FC-_A513_1A,1-OAD_MLA-----H	
1328	2.2E-09	0.00%	91.53%	1-IE-MLOCA,1-CVC-MDP-MA-CCPB____,1-ESF-SSD-FC-_A517_1A,1-OAD_MLA-----H	
1329	2.2E-09	0.00%	91.53%	1-IE-MLOCA,1-CVC-MDP-MA-CCPB____,1-ESF-SSD-FC-_3A4161A,1-OAD_MLA-----H	
1330	2.2E-09	0.00%	91.54%	1-IE-MLOCA,1-CVC-MDP-MA-CCPB____,1-ESF-SSD-FC-_4A315A,1-OAD_MLA-----H	
1331	2.2E-09	0.00%	91.54%	1-IE-MLOCA,1-CVC-MDP-MA-CCPB____,1-ESF-SSD-FC-_3A3131A,1-OAD_MLA-----H	
1332	2.2E-09	0.00%	91.55%	1-IE-MLOCA,1-CVC-MDP-MA-CCPA____,1-EPS-SEQ-FO-1821U302,1-OAD_MLA-----H	
1333	2.2E-09	0.00%	91.55%	1-IE-MLOCA,1-CVC-MDP-MA-CCPB____,1-EPS-SEQ-FO-1821U301,1-OAD_MLA-----H	
1334	2.2E-09	0.00%	91.55%	1-IE-MLOCA,1-ESF-SSD-FC-_3A4161A,1-OAD_MLA-----H,1-SIS-MDP-MA-SIB____	
1335	2.2E-09	0.00%	91.56%	1-IE-MLOCA,1-ESF-SSD-FC-_3A4161B,1-OAD_MLA-----H,1-SIS-MDP-MA-SIA____	
1336	2.2E-09	0.00%	91.56%	1-IE-MLOCA,1-ESF-SSD-FC-_4A315A,1-OAD_MLA-----H,1-SIS-MDP-MA-SIB____	
1337	2.2E-09	0.00%	91.56%	1-IE-MLOCA,1-ESF-SSD-FC-_4A315B,1-OAD_MLA-----H,1-SIS-MDP-MA-SIA____	
1338	2.2E-09	0.00%	91.57%	1-IE-MLOCA,1-ESF-SSD-FC-_A513_1A,1-OAD_MLA-----H,1-SIS-MDP-MA-SIB____	
1339	2.2E-09	0.00%	91.57%	1-IE-MLOCA,1-ESF-SSD-FC-_A513_1B,1-OAD_MLA-----H,1-SIS-MDP-MA-SIA____	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1340	2.2E-09	0.00%	91.57%	1-IE-MLOCA,1-ESF-SSD-FC- _A517_1A,1-OAD_MLA-----H,1-SIS- MDP-MA-SIB_____	
1341	2.2E-09	0.00%	91.58%	1-IE-MLOCA,1-ESF-SSD-FC- _A517_1B,1-OAD_MLA-----H,1-SIS- MDP-MA-SIA_____	
1342	2.2E-09	0.00%	91.58%	1-IE-MLOCA,1-ESF-SSD-FC- _3A3131A,1-OAD_MLA-----H,1-SIS- MDP-MA-SIB_____	
1343	2.2E-09	0.00%	91.58%	1-IE-MLOCA,1-ESF-SSD-FC- _3A3131B,1-OAD_MLA-----H,1-SIS- MDP-MA-SIA_____	
1344	2.2E-09	0.00%	91.59%	1-IE-MLOCA,1-EPS-SEQ-FO- 1821U301,1-OAD_MLA-----H,1-SIS- MDP-MA-SIB_____	
1345	2.2E-09	0.00%	91.59%	1-IE-MLOCA,1-EPS-SEQ-FO- 1821U302,1-OAD_MLA-----H,1-SIS- MDP-MA-SIA_____	
1346	2.2E-09	0.00%	91.59%	1-IE-LOOPGR,1-AFW-TDP-FR- P4001____,1-EPS-MDP-FR-XFERPPS_- CC,1-OEP-XHE-XL-NR01HGR	
1347	2.2E-09	0.00%	91.60%	1-IE-LOOPGR,1-ACP-DCP-FC- 1B_PS4____,1-EPS-DGN-FS- G4001____,1-OEP-XHE-XL-NR02HGR	
1348	2.2E-09	0.00%	91.60%	1-IE-LOOPGR,1-ACP-DCP-FC- 1A_PS1____,1-EPS-DGN-FS- G4002____,1-OEP-XHE-XL-NR02HGR	
1349	2.2E-09	0.00%	91.60%	1-IE-LOOPGR,1-ACP-DCP-FC- 1A_PS4____,1-EPS-DGN-FS- G4002____,1-OEP-XHE-XL-NR02HGR	
1350	2.2E-09	0.00%	91.61%	1-IE-LOOPGR,1-ACP-DCP-FC- 1B_PS1____,1-EPS-DGN-FS- G4001____,1-OEP-XHE-XL-NR02HGR	
1351	2.2E-09	0.00%	91.61%	1-IE-LOOPGR,1-EPS-DGN-MA- G4001____,1-NSCWCT-SPRAY,1-OEP- XHE-XL-NR02HGR,1-SWS-MOV-MA- 1669ACT_	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1352	2.2E-09	0.00%	91.62%	1-IE-OTRANS,1-ACP-BAC-MA-BB16____,1-NSCWCT-SPRAY,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-MA-1668ACT_	
1353	2.2E-09	0.00%	91.62%	1-IE-OTRANS,1-ACP-BAC-MA-BA03____,1-NSCWCT-SPRAY,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-MA-1668ACT_	
1354	2.2E-09	0.00%	91.62%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDE	
1355	2.2E-09	0.00%	91.63%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCEF	
1356	2.2E-09	0.00%	91.63%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDF	
1357	2.2E-09	0.00%	91.63%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ACDEF	
1358	2.2E-09	0.00%	91.64%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCDEF	
1359	2.2E-09	0.00%	91.64%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABDEF	
1360	2.2E-09	0.00%	91.64%	1-IE-TTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABDE	
1361	2.2E-09	0.00%	91.65%	1-IE-TTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCD	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1362	2.2E-09	0.00%	91.65%	1-IE-TTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCDE	
1363	2.2E-09	0.00%	91.65%	1-IE-TTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-CDEF	
1364	2.2E-09	0.00%	91.66%	1-IE-TTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ADEF	
1365	2.2E-09	0.00%	91.66%	1-IE-TTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCEF	
1366	2.2E-09	0.00%	91.66%	1-IE-TTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABEF	
1367	2.2E-09	0.00%	91.67%	1-IE-TTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCF	
1368	2.2E-09	0.00%	91.67%	1-IE-TTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ACDF	
1369	2.2E-09	0.00%	91.67%	1-IE-LOOPSC,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CC-1668A	
1370	2.2E-09	0.00%	91.68%	1-IE-LOOPSC,1-EPS-SEQ-FO-1821U301,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CC-1669A	
1371	2.2E-09	0.00%	91.68%	1-IE-TTRIP,1-NSCW-CT-NEED-SWAP,1-NSCW-MOV-F-NON-RECBLE,1-NSCWCT-BYPASS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-CF-1668A69A	
1372	2.2E-09	0.00%	91.68%	1-IE-LOOPWR,1-EPS-MOT-CF-RUN,1-OEP-XHE-XL-NR02HWR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1373	2.2E-09	0.00%	91.69%	1-IE-LOOPGR,1-DCP-FUS-OP-AD104____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
1374	2.2E-09	0.00%	91.69%	1-IE-LOOPGR,1-DCP-FUS-OP-BD104____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
1375	2.2E-09	0.00%	91.69%	1-IE-LOOPWR,1-EPS-DGN-FS-G4001____,1-EPS-SEQ-FO-1821U302,1-OA-ORS-----H	
1376	2.2E-09	0.00%	91.70%	1-IE-LOOPWR,1-EPS-DGN-FS-G4002____,1-EPS-SEQ-FO-1821U301,1-OA-ORS-----H	
1377	2.2E-09	0.00%	91.70%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-ACP-SSD-MA-1821U302,1-OEP-XHE-XL-NR02HWR	
1378	2.2E-09	0.00%	91.71%	1-IE-LO4160VA,1-ACW-MDP-MA-P4_002____,1-EPS-SEQ-FO-1821U302,1-RCS-MDP-LK-BP2	
1379	2.2E-09	0.00%	91.71%	1-IE-LOOPGR,1-AFW-MDP-MA-P4002____,1-CVC-MDP-FS-CCPB____,1-EPS-DGN-FR-G4001____	
1380	2.2E-09	0.00%	91.71%	1-IE-LOOPWR,1-EPS-DGN-MA-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-MA-1668ACT__	
1381	2.2E-09	0.00%	91.72%	1-IE-LOCHS,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-RLOOP	
1382	2.2E-09	0.00%	91.72%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-NSCW-F-WTRHAMMER,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-OO-1668A69A-CC	
1383	2.1E-09	0.00%	91.72%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABCDEF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1384	2.1E-09	0.00%	91.73%	1-IE-LOOPGR,1-DCP-BAT-MA-AD1B____,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CC-1669A____	
1385	2.1E-09	0.00%	91.73%	1-IE-LOOPGR,1-DCP-BAT-MA-BD1B____,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CC-1668A____	
1386	2.1E-09	0.00%	91.73%	1-IE-LO125AD1,1-AFW-MDP-MA-P4002____,1-AFW-TDP-FS-P4001____,1-DCP-BDC-FC-AD1&____,1-OAB_TR----H	
1387	2.1E-09	0.00%	91.74%	1-IE-LO125BD1,1-AFW-MDP-MA-P4003____,1-AFW-TDP-FS-P4001____,1-DCP-BDC-FC-BD1&____,1-OAB_TR----H	
1388	2.1E-09	0.00%	91.74%	1-IE-TTRIP,1-ACP-BAC-MA-AA02____,1-AFW-MDP-FS-P4002____,1-OAB_TR-----H	
1389	2.1E-09	0.00%	91.74%	1-IE-TTRIP,1-ACP-BAC-MA-AA02____,1-OA-MISPAF5094H,1-OAB_TR-----H	
1390	2.1E-09	0.00%	91.75%	1-IE-LO125AD1,1-ACP-BAC-MA-BYB1____,1-DCP-BDC-FC-AD1&____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT	
1391	2.1E-09	0.00%	91.75%	1-IE-LO125BD1,1-ACP-BAC-MA-AYB1____,1-DCP-BDC-FC-BD1&____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT	
1392	2.1E-09	0.00%	91.75%	1-IE-SGTR,1-DCP-BCH-FC-AAABBABB-CC	
1393	2.1E-09	0.00%	91.76%	1-IE-LOOPGR,1-EPS-DGN-FS-G4001____,1-OA-MISPAF5094H,1-OAB_TR-----H	
1394	2.1E-09	0.00%	91.76%	1-IE-LOOPGR,1-AFW-MDP-FS-P4002____,1-EPS-DGN-FS-G4001____,1-OAB_TR-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1395	2.1E-09	0.00%	91.76%	1-IE-SSBO,1-DCP-BAT-MA-AD1B____,1-EPS-SEQ-FO-1821U302,1-OEP-VCf-LP-CLOPL	
1396	2.1E-09	0.00%	91.77%	1-IE-SSBO,1-DCP-BAT-MA-BD1B____,1-EPS-SEQ-FO-1821U301,1-OEP-VCf-LP-CLOPL	
1397	2.1E-09	0.00%	91.77%	1-IE-TTRIP,/1-OEP-VCf-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDE	
1398	2.1E-09	0.00%	91.77%	1-IE-TTRIP,/1-OEP-VCf-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCDEF	
1399	2.1E-09	0.00%	91.77%	1-IE-TTRIP,/1-OEP-VCf-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ACDEF	
1400	2.1E-09	0.00%	91.78%	1-IE-TTRIP,/1-OEP-VCf-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABDEF	
1401	2.1E-09	0.00%	91.78%	1-IE-TTRIP,/1-OEP-VCf-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCEF	
1402	2.1E-09	0.00%	91.78%	1-IE-TTRIP,/1-OEP-VCf-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDF	
1403	2.1E-09	0.00%	91.79%	1-IE-LOOPGR,1-ACP-INV-MA-AD1I11____,1-EPS-SEQ-FO-1821U302,1-OA-ORS-----H	
1404	2.1E-09	0.00%	91.79%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS4____,1-DCP-BAT-MA-AD1B____,1-OEP-XHE-XL-NR02HGR	
1405	2.1E-09	0.00%	91.79%	1-IE-LOOPGR,1-ACP-DCP-FC-1A_PS1____,1-DCP-BAT-MA-BD1B____,1-OEP-XHE-XL-NR02HGR	
1406	2.1E-09	0.00%	91.80%	1-IE-LOOPGR,1-ACP-DCP-FC-1A_PS4____,1-DCP-BAT-MA-BD1B____,1-OEP-XHE-XL-NR02HGR	
1407	2.1E-09	0.00%	91.80%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS1____,1-DCP-BAT-MA-AD1B____,1-OEP-XHE-XL-NR02HGR	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1408	2.1E-09	0.00%	91.80%	1-IE-LOOPGR,1-EPS-DGN-MA-G4001____,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CC-1669A____	
1409	2.1E-09	0.00%	91.81%	1-IE-LOOPGR,1-EPS-DGN-MA-G4002____,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CC-1668A____	
1410	2.1E-09	0.00%	91.81%	1-IE-LOOPWR,1-DCP-FUS-OP-BD104____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HWR	
1411	2.1E-09	0.00%	91.81%	1-IE-LOOPWR,1-DCP-FUS-OP-AD104____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HWR	
1412	2.1E-09	0.00%	91.82%	1-IE-LOOPWR,1-EPS-DGN-FS-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CC-1669A____	
1413	2.1E-09	0.00%	91.82%	1-IE-LOOPWR,1-EPS-DGN-FS-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CC-1668A____	
1414	2.0E-09	0.00%	91.82%	1-IE-LO125AD1,1-ACP-SSD-MA-1821U302,1-DCP-BDC-FC-AD1&____,1-OEP-VCF-LP-CLOPT	
1415	2.0E-09	0.00%	91.83%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-MA-1668ACT__	
1416	2.0E-09	0.00%	91.83%	1-IE-RTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCD	
1417	2.0E-09	0.00%	91.83%	1-IE-RTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABDE	
1418	2.0E-09	0.00%	91.84%	1-IE-RTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCDE	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1419	2.0E-09	0.00%	91.84%	1-IE-RTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ADEF	
1420	2.0E-09	0.00%	91.84%	1-IE-RTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-CDEF	
1421	2.0E-09	0.00%	91.85%	1-IE-RTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABEF	
1422	2.0E-09	0.00%	91.85%	1-IE-RTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCEF	
1423	2.0E-09	0.00%	91.85%	1-IE-RTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCF	
1424	2.0E-09	0.00%	91.86%	1-IE-RTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ACDF	
1425	2.0E-09	0.00%	91.86%	1-IE-RTRIP,1-NSCW-CT-NEED-SWAP,1-NSCW-MOV-F-NON-RECBLE,1-NSCWCT-BYPASS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-CF-1668A69A	
1426	2.0E-09	0.00%	91.86%	1-IE-LO4160VA,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-CLOPT	
1427	2.0E-09	0.00%	91.86%	1-IE-LO4160VB,1-ACP-CRB-CF-A205301,1-OEP-VCF-LP-CLOPT	
1428	2.0E-09	0.00%	91.87%	1-IE-TTRIP,1-NSCW-F-WTRHAMMER,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-OO-1668A69A-CC	
1429	2.0E-09	0.00%	91.87%	1-IE-LOOPGR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-MA-G4002____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR01HGR	
1430	2.0E-09	0.00%	91.87%	1-IE-LOOPGR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-MA-G4001____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR01HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1431	2.0E-09	0.00%	91.88%	1-IE-SSBI,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPL,1-SSBI-2	
1432	2.0E-09	0.00%	91.88%	1-IE-SSBI,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPL,1-SSBI-3	
1433	2.0E-09	0.00%	91.88%	1-IE-LOMFW,1-AFW-MDP-MA-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
1434	2.0E-09	0.00%	91.89%	1-IE-MLOCA,1-LPI-MDP-CF-RUN	
1435	2.0E-09	0.00%	91.89%	1-IE-LOOPSC,1-AFW-MDP-FS-P4002____,1-EPS-SEQ-FO-1821U301,1-OAB_TR-----H	
1436	2.0E-09	0.00%	91.89%	1-IE-LOOPSC,1-EPS-SEQ-FO-1821U301,1-OA-MISPAF5094H,1-OAB_TR-----H	
1437	2.0E-09	0.00%	91.90%	1-IE-LOOPWR,1-AFW-MDP-MA-P4002____,1-EPS-DGN-FS-G4001____,1-OAB_TR-----H	
1438	2.0E-09	0.00%	91.90%	1-IE-LOOPSC,1-ACP-CRB-CC-BA0301____,1-EPS-TNK-MA-DFOSTKA____,1-OA-ORS-----H	
1439	2.0E-09	0.00%	91.90%	1-IE-TTRIP,1-ESF-ACT-CF-____SAFACT-CC,1-OA-START-AFW-H,1-OA-SUMPMOV---H-LD,1-OAF_MFW-----H-CD	
1440	2.0E-09	0.00%	91.91%	1-IE-TTRIP,1-AFW-MDP-MA-P4002____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
1441	2.0E-09	0.00%	91.91%	1-IE-LOOPGR,1-EPS-MOT-CF-START,1-OA-ORS-----H	
1442	2.0E-09	0.00%	91.91%	1-IE-OTRANS,1-ACP-CRB-CC-AA0205____,1-AFW-MDP-MA-P4002____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
1443	2.0E-09	0.00%	91.91%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-OAR_LTFB-TRA-H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1444	2.0E-09	0.00%	91.92%	1-IE-LO4160VA,1-ACW-MDP-MA-P4_002____,1-LPI-MDP-MA-RHRB____,1-RCS-MDP-LK-BP2	
1445	2.0E-09	0.00%	91.92%	1-IE-LO4160VA,1-AFW-MDP-FS-P4002____,1-CVC-MDP-FS-CCPB____	
1446	2.0E-09	0.00%	91.92%	1-IE-LO4160VA,1-CVC-MDP-FS-CCPB____,1-OA-MISPAF5094H	
1447	1.9E-09	0.00%	91.93%	1-IE-RTRIP,1-ACP-BAC-MA-AA02____,1-AFW-MDP-FS-P4002____,1-OAB_TR-----H	
1448	1.9E-09	0.00%	91.93%	1-IE-RTRIP,1-ACP-BAC-MA-AA02____,1-OA-MISPAF5094H,1-OAB_TR-----H	
1449	1.9E-09	0.00%	91.93%	1-IE-LOOPGR,1-AFW-MDP-FS-P4002____,1-DCP-BAT-MA-AD1B____,1-OAB_TR-----H	
1450	1.9E-09	0.00%	91.94%	1-IE-LOOPGR,1-DCP-BAT-MA-AD1B____,1-OA-MISPAF5094H,1-OAB_TR-----H	
1451	1.9E-09	0.00%	91.94%	1-IE-LOOPWR,1-EPS-DGN-FS-G4001____,1-EPS-DGN-FS-G4002____,1-OA-ORS-----H	
1452	1.9E-09	0.00%	91.94%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCF	
1453	1.9E-09	0.00%	91.95%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-BCDE	
1454	1.9E-09	0.00%	91.95%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCD	
1455	1.9E-09	0.00%	91.95%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ACDF	
1456	1.9E-09	0.00%	91.95%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABDE	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1457	1.9E-09	0.00%	91.96%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ADEF	
1458	1.9E-09	0.00%	91.96%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABEF	
1459	1.9E-09	0.00%	91.96%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-BCEF	
1460	1.9E-09	0.00%	91.97%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-CDEF	
1461	1.9E-09	0.00%	91.97%	1-IE-LOOPSC,1-EPS-DGN-CF-FRUN1,1-OA-ALIGNPW-02HR,1-OEP-XHE-XL-NR02HSC,1-OEP-XHE-XX-NR02HSC0	
1462	1.9E-09	0.00%	91.97%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301__,1-DCP-FUS-OP-AD104__,1-OEP-XHE-XL-NR02HGR	
1463	1.9E-09	0.00%	91.98%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205__,1-DCP-FUS-OP-BD104__,1-OEP-XHE-XL-NR02HGR	
1464	1.9E-09	0.00%	91.98%	1-IE-OTRANS,1-ACP-CRB-CC-AA0205__,1-ACP-CRB-CC-BA0301__,1-OEP-VCF-LP-RLOOP	
1465	1.9E-09	0.00%	91.98%	1-IE-LOOPSC,1-ACP-CRB-CC-BA0301__,1-EPS-DGN-MA-G4001__,1-OA-ALIGNPW-02HR,1-OEP-XHE-XL-NR02HSC	
1466	1.9E-09	0.00%	91.98%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205__,1-EPS-DGN-MA-G4002__,1-OA-ALIGNPW-02HR,1-OEP-XHE-XL-NR02HSC	
1467	1.9E-09	0.00%	91.99%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBB__,1-EPS-DGN-MA-G4001__,1-OA-ORS-----H	
1468	1.9E-09	0.00%	91.99%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBF__,1-EPS-DGN-MA-G4001__,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1469	1.9E-09	0.00%	91.99%	1-IE-LOOPGR,1-ACP-INV-FC-AD1I11____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	
1470	1.9E-09	0.00%	92.00%	1-IE-LOOPGR,1-ACP-INV-FC-BD1I12____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	
1471	1.9E-09	0.00%	92.00%	1-IE-RTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDE	
1472	1.9E-09	0.00%	92.00%	1-IE-RTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABDEF	
1473	1.9E-09	0.00%	92.01%	1-IE-RTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ACDEF	
1474	1.9E-09	0.00%	92.01%	1-IE-RTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCDEF	
1475	1.9E-09	0.00%	92.01%	1-IE-RTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCEF	A reactor trip with subsequent loss of NSCW (CCF of 5/ 6 pumps) occurs (no consequential LOOP). Core damage occurs due to operator failure to trip the RCPs (i.e., small SLOCA without ECCS). Note that this cut set is potentially conservative because operators may be able to align for single pump operation; however, strong dependency is likely between the operator actions (i.e., thus limiting any potential credit).
1476	1.9E-09	0.00%	92.01%	1-IE-RTRIP,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDF	Same as cut set #1475, except for different NSCW pump CCF event.
1477	1.9E-09	0.00%	92.02%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-116-ABCDEF	Same as cut set #995, except a different LOOP initiating event (weather-related) and different NSCW failures (MOVs) occur.
1478	1.9E-09	0.00%	92.02%	1-IE-OTRANS,1-AFW-PMP-CF-RUN,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	A transient initiating event with consequential LOOP occurs, which results in a loss of MFW. Core damage occurs due to a complete loss of AFW with operator failure to initiate feed and bleed cooling.
1479	1.9E-09	0.00%	92.02%	1-IE-LOOPWR,1-DCP-BAT-MA-AD1B____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CC-1669A____	Same as cut set #480, except for different electrical unavailabilities.

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1480	1.9E-09	0.00%	92.03%	1-IE-LOOPWR,1-DCP-BAT-MA-BD1B____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CC-1668A____	Same as cut set #480, except for different electrical unavailabilities.
1481	1.9E-09	0.00%	92.03%	1-IE-LO125AD1,1-AFW-MDP-MA-P4002____,1-DCP-BDC-FC-AD1&____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	A loss of 125V safety-related DC bus initiating event with consequential LOOP occurs (and results in a loss of MFW). Electrical and AFW unavailabilities result in a loss of AFW. Core damage occurs due to a complete loss of AFW with the operator failure to initiate feed and bleed cooling.
1482	1.9E-09	0.00%	92.03%	1-IE-LOOPGR,1-ACP-INV-MA-AD1I11____,1-AFW-MDP-MA-P4002____,1-OAB_TR-----H	A grid-related LOOP initiating event occurs. Electrical and AFW unavailabilities result in a loss of AFW. Core damage occurs due to a complete loss of AFW with the operator failure to initiate feed and bleed cooling.
1483	1.9E-09	0.00%	92.03%	1-IE-LOSINJ,1-ACP-BAC-FC-AA02____,1-ACP-BAC-MA-BA03____,1-CVC-MDP-FR-NCP4001&	A loss of RCP seal injection initiating event and subsequent unavailabilities of both 4.16kV safety-related AC buses results in a total loss of decay removal (AFW and feed and bleed cooling). Core damage is assumed when the safety related DC bus 1CD1 is deenergized when its associated safety-related battery is depleted (in 4 hours), resulting in the eventual loss of control power for the turbine driven AFW pump.
1484	1.9E-09	0.00%	92.04%	1-IE-LOSINJ,1-ACP-BAC-FC-BA03____,1-ACP-BAC-MA-AA02____,1-CVC-MDP-FR-NCP4001&	Same as cut set #1484, except for opposite train failures/unavailabilities.
1485	1.9E-09	0.00%	92.04%	1-IE-SSBO,1-ACP-INV-FC-AD11BD12-CC,1-OA-NSCW-FAN---H,1-RCS-MDP-LK-BP2	Same as cut set #14, except for different electrical failures and RCP seal failure (stage 2).
1486	1.9E-09	0.00%	92.04%	1-IE-MLOCA,1-DCP-BAT-MA-BD1B____,1-RPS-ICC-TE-605Q5SPA	A medium LOCA initiating event occurs with subsequent electrical/ESFAS-related failures resulting in the failure of both HPI and LPI.
1487	1.9E-09	0.00%	92.05%	1-IE-MLOCA,1-DCP-BAT-MA-AD1B____,1-RPS-ICC-TE-605Q5SPB	Same as cut set #1486, except for opposite train failures/unavailabilities.
1488	1.9E-09	0.00%	92.05%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CF-116-ABDE	Same as cut set #995, except different NSCW failures (pump).
1489	1.9E-09	0.00%	92.05%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CF-116-BCDE	Same as cut set #995, except different NSCW failures (pump).
1490	1.9E-09	0.00%	92.06%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CF-116-ACDE	Same as cut set #995, except different NSCW failures (pump).
1491	1.9E-09	0.00%	92.06%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CF-116-BCDF	Same as cut set #995, except different NSCW failures (pump).
1492	1.9E-09	0.00%	92.06%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CF-116-ACDF	Same as cut set #995, except different NSCW failures (pump).

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1493	1.9E-09	0.00%	92.06%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CF-116-ABEF	Same as cut set #995, except different NSCW failures (pump).
1494	1.9E-09	0.00%	92.07%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CF-116-BCEF	Same as cut set #995, except different NSCW failures (pump).
1495	1.9E-09	0.00%	92.07%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CF-116-ABDF	Same as cut set #995, except different NSCW failures (pump).
1496	1.9E-09	0.00%	92.07%	1-IE-LOOPGR,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CF-116-ACEF	Same as cut set #995, except different NSCW failures (pump).
1497	1.9E-09	0.00%	92.08%	1-IE-RTRIP,1-NSCW-F-WTRHAMMER,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-OO-1668A69A-CC	A reactor trip with a consequential LOOP and subsequent loss of NSCW (system failure due to water hammer) results in SBO. Note that this cut set is conservative since operators could restore offsite power. This (expected) conservatism is due to the limited nature of the consequential LOOP recovery post-processing rules.
1498	1.9E-09	0.00%	92.08%	1-IE-LO125AD1,1-ACP-CRB-CC-BA0301____,1-DCP-BDC-FC-AD1&____,1-OEP-VCF-LP-RLOOP	A loss of 125V safety-related DC bus initiating event with consequential LOOP occurs with subsequent electrical failures on the opposite train renders both trains of safety-related equipment unavailable. Note that the unavailability of bus 1AA02 will eventually render the turbine-driven AFW pump unavailable after depletion of the safety-related batteries (4 hours).
1499	1.9E-09	0.00%	92.08%	1-IE-LO125BD1,1-ACP-CRB-CC-AA0205____,1-DCP-BDC-FC-BD1&____,1-OEP-VCF-LP-RLOOP	Same as cut set #1498, except opposite train failures.
1500	1.9E-09	0.00%	92.08%	1-IE-LOOPWR,1-AFW-MDP-MA-P4002____,1-DCP-BAT-MA-AD1B____,1-OAB_TR-----H	
1501	1.8E-09	0.00%	92.09%	1-IE-LO125AD1,1-AFW-PMP-CF-RUN,1-DCP-BDC-FC-AD1&____,1-OAB_TR-----H	
1502	1.8E-09	0.00%	92.09%	1-IE-LO125BD1,1-AFW-PMP-CF-RUN,1-DCP-BDC-FC-BD1&____,1-OAB_TR-----H	
1503	1.8E-09	0.00%	92.09%	1-IE-MLOCA,1-CVC-MDP-TE-CCPA____,1-ESF-SSD-FC-A513_1B,1-OAD_MLA-----H	
1504	1.8E-09	0.00%	92.10%	1-IE-MLOCA,1-CVC-MDP-TE-CCPA____,1-ESF-SSD-FC-3A4161B,1-OAD_MLA-----H	
1505	1.8E-09	0.00%	92.10%	1-IE-MLOCA,1-CVC-MDP-TE-CCPA____,1-ESF-SSD-FC-4A315B,1-OAD_MLA-----H	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1506	1.8E-09	0.00%	92.10%	1-IE-MLOCA,1-CVC-MDP-TE-CCPA____,1-ESF-SSD-FC-_A517_1B,1-OAD_MLA-----H	
1507	1.8E-09	0.00%	92.10%	1-IE-MLOCA,1-CVC-MDP-TE-CCPA____,1-ESF-SSD-FC-_3A3131B,1-OAD_MLA-----H	
1508	1.8E-09	0.00%	92.11%	1-IE-MLOCA,1-CVC-MDP-TE-CCPB____,1-ESF-SSD-FC-_A513_1A,1-OAD_MLA-----H	
1509	1.8E-09	0.00%	92.11%	1-IE-MLOCA,1-CVC-MDP-TE-CCPB____,1-ESF-SSD-FC-_A517_1A,1-OAD_MLA-----H	
1510	1.8E-09	0.00%	92.11%	1-IE-MLOCA,1-CVC-MDP-TE-CCPB____,1-ESF-SSD-FC-_3A4161A,1-OAD_MLA-----H	
1511	1.8E-09	0.00%	92.12%	1-IE-MLOCA,1-CVC-MDP-TE-CCPB____,1-ESF-SSD-FC-_4A315A,1-OAD_MLA-----H	
1512	1.8E-09	0.00%	92.12%	1-IE-MLOCA,1-CVC-MDP-TE-CCPB____,1-ESF-SSD-FC-_3A3131A,1-OAD_MLA-----H	
1513	1.8E-09	0.00%	92.12%	1-IE-MLOCA,1-CVC-MDP-TE-CCPA____,1-EPS-SEQ-FO-1821U302,1-OAD_MLA-----H	
1514	1.8E-09	0.00%	92.12%	1-IE-MLOCA,1-CVC-MDP-TE-CCPB____,1-EPS-SEQ-FO-1821U301,1-OAD_MLA-----H	
1515	1.8E-09	0.00%	92.13%	1-IE-LO4160VA,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A	
1516	1.8E-09	0.00%	92.13%	1-IE-LO4160VB,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A	
1517	1.8E-09	0.00%	92.13%	1-IE-LOOPSC,1-AFW-MDP-MA-P4002____,1-CVC-MDP-FS-CCPB____,1-EPS-DGN-FR-G4001____	
1518	1.8E-09	0.00%	92.14%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-ACP-DCP-FC-1A_PS4____,1-OEP-XHE-XL-NR02HWR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1519	1.8E-09	0.00%	92.14%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301___,1-ACP-DCP-FC-1A_PS1___,1-OEP-XHE-XL-NR02HWR	
1520	1.8E-09	0.00%	92.14%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205___,1-ACP-DCP-FC-1B_PS1___,1-OEP-XHE-XL-NR02HWR	
1521	1.8E-09	0.00%	92.14%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205___,1-ACP-DCP-FC-1B_PS4___,1-OEP-XHE-XL-NR02HWR	
1522	1.8E-09	0.00%	92.15%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-ABCDEF	
1523	1.8E-09	0.00%	92.15%	1-IE-OTRANS,1-DCP-BAT-MA-AD1B___,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A___	
1524	1.8E-09	0.00%	92.15%	1-IE-OTRANS,1-DCP-BAT-MA-BD1B___,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A___	
1525	1.8E-09	0.00%	92.16%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002___,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-MA-1668ACT___	
1526	1.8E-09	0.00%	92.16%	1-IE-MLOCA,1-DCP-BAT-MA-AD1B___,1-OAD_MLA-----H,1-SIS-MDP-MA-SIB___	
1527	1.8E-09	0.00%	92.16%	1-IE-MLOCA,1-DCP-BAT-MA-BD1B___,1-OAD_MLA-----H,1-SIS-MDP-MA-SIA___	
1528	1.8E-09	0.00%	92.16%	1-IE-MLOCA,1-CVC-MDP-MA-CCPA___,1-DCP-BAT-MA-BD1B___,1-OAD_MLA-----H	
1529	1.8E-09	0.00%	92.17%	1-IE-MLOCA,1-CVC-MDP-MA-CCPB___,1-DCP-BAT-MA-AD1B___,1-OAD_MLA-----H	
1530	1.8E-09	0.00%	92.17%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-RLY-FC-162_1ALL-CC	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1531	1.8E-09	0.00%	92.17%	1-IE-LOCHS,1-AFW-MDP-MA-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
1532	1.8E-09	0.00%	92.18%	1-IE-LOOPGR,1-ACP-INV-MA-AD1111____,1-EPS-DGN-FS-G4002____,1-OA-ORS-----H	
1533	1.8E-09	0.00%	92.18%	1-IE-RTRIP,1-ESF-ACT-CF-____SAFACT-CC,1-OA-START-AFW-H,1-OA-SUMPMOV---H-LD,1-OAF_MFW-----H-CD	
1534	1.8E-09	0.00%	92.18%	1-IE-LOMFW,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDEF	
1535	1.8E-09	0.00%	92.18%	1-IE-RTRIP,1-AFW-MDP-MA-P4002____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
1536	1.8E-09	0.00%	92.19%	1-IE-SSBO,1-ACP-BAC-MA-AA02____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1537	1.8E-09	0.00%	92.19%	1-IE-SSBO,1-ACP-BAC-MA-AB15____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1538	1.8E-09	0.00%	92.19%	1-IE-SSBO,1-ACP-BAC-MA-BB16____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1539	1.8E-09	0.00%	92.20%	1-IE-SSBO,1-ACP-BAC-MA-BA03____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1540	1.8E-09	0.00%	92.20%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABCDEF	
1541	1.8E-09	0.00%	92.20%	1-IE-SSBO,1-ACP-INV-FC-AD1111____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1542	1.8E-09	0.00%	92.20%	1-IE-SSBO,1-ACP-INV-FC-BD1I12__,1-EPS-SEQ-FO-1821U301,1-OA-NSCWAN---H,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1543	1.8E-09	0.00%	92.21%	1-IE-LOOPSC,1-DCP-BAT-MA-AD1B____,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CC-1669A____	
1544	1.8E-09	0.00%	92.21%	1-IE-LOOPSC,1-DCP-BAT-MA-BD1B____,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CC-1668A____	
1545	1.8E-09	0.00%	92.21%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ADEF	
1546	1.8E-09	0.00%	92.22%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABEF	
1547	1.8E-09	0.00%	92.22%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-BCEF	
1548	1.8E-09	0.00%	92.22%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-CDEF	
1549	1.8E-09	0.00%	92.22%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCD	
1550	1.8E-09	0.00%	92.23%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-BCDE	
1551	1.8E-09	0.00%	92.23%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABDE	
1552	1.8E-09	0.00%	92.23%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCF	
1553	1.8E-09	0.00%	92.24%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ACDF	
1554	1.8E-09	0.00%	92.24%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCDE	
1555	1.8E-09	0.00%	92.24%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCEF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1556	1.8E-09	0.00%	92.24%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCDF	
1557	1.8E-09	0.00%	92.25%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABDEF	
1558	1.8E-09	0.00%	92.25%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ACDEF	
1559	1.8E-09	0.00%	92.25%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-BCDEF	
1560	1.8E-09	0.00%	92.26%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-CVC-MDP-FR-CCPB____	
1561	1.8E-09	0.00%	92.26%	1-IE-LOOPPC,1-ACP-CRB-CC-AA0205____,1-AFW-MDP-MA-P4002____,1-OAB_TR-----H	
1562	1.8E-09	0.00%	92.26%	1-IE-LOIA,1-EPS-SEQ-CF-FOAB,1-IE-IAS-MDC-CF-FR-ABCD,1-OEP-VCF-LP-CLOPT	
1563	1.8E-09	0.00%	92.26%	1-IE-LOOPWR,1-DCP-BAT-MA-AD1B____,1-EPS-DGN-FS-G4002____,1-OA-ORS-----H	
1564	1.8E-09	0.00%	92.27%	1-IE-LOOPWR,1-DCP-BAT-MA-BD1B____,1-EPS-DGN-FS-G4001____,1-OA-ORS-----H	
1565	1.8E-09	0.00%	92.27%	1-IE-LOOPGR,1-AFW-MDP-FR-P4002____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H	
1566	1.8E-09	0.00%	92.27%	1-IE-LOOPGR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FS-G4001____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR01HGR	
1567	1.8E-09	0.00%	92.28%	1-IE-LOOPGR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FS-G4002____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR01HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1568	1.8E-09	0.00%	92.28%	1-IE-LO4160VA,1-ACW-MDP-MA-P4_002__,1-DCP-BAT-MA-BD1B__,1-RCS-MDP-LK-BP2	
1569	1.8E-09	0.00%	92.28%	1-IE-LOOPSC,1-EPS-DGN-FS-G4001__,1-OA-MISPAF5094H,1-OAB_TR-----H	
1570	1.8E-09	0.00%	92.28%	1-IE-LOOPSC,1-AFW-MDP-FS-P4002__,1-EPS-DGN-FS-G4001__,1-OAB_TR-----H	
1571	1.8E-09	0.00%	92.29%	1-IE-LOOPGR,1-AFW-TDP-FS-P4001__,1-EPS-DGN-CF-FSUN1,1-OEP-XHE-XL-NR01HGR	
1572	1.8E-09	0.00%	92.29%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBB__,1-EPS-SEQ-FO-1821U301,1-RCS-MDP-LK-BP2	
1573	1.8E-09	0.00%	92.29%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCABB__,1-EPS-SEQ-FO-1821U302,1-RCS-MDP-LK-BP2	
1574	1.8E-09	0.00%	92.29%	1-IE-LOOPGR,1-ACP-BAC-MA-BA03__,1-EPS-SEQ-FO-1821U301,1-RCS-MDP-LK-BP2	
1575	1.8E-09	0.00%	92.30%	1-IE-LOOPGR,1-ACP-BAC-MA-BB16__,1-EPS-SEQ-FO-1821U301,1-RCS-MDP-LK-BP2	
1576	1.8E-09	0.00%	92.30%	1-IE-LOOPGR,1-ACP-BAC-MA-AA02__,1-EPS-SEQ-FO-1821U302,1-RCS-MDP-LK-BP2	
1577	1.8E-09	0.00%	92.30%	1-IE-LOOPGR,1-ACP-BAC-MA-AB15__,1-EPS-SEQ-FO-1821U302,1-RCS-MDP-LK-BP2	
1578	1.8E-09	0.00%	92.31%	1-IE-LOOPGR,1-ACP-INV-FC-AD1111__,1-EPS-SEQ-FO-1821U302,1-RCS-MDP-LK-BP2	
1579	1.8E-09	0.00%	92.31%	1-IE-LOOPGR,1-ACP-INV-FC-BD1112__,1-EPS-SEQ-FO-1821U301,1-RCS-MDP-LK-BP2	
1580	1.8E-09	0.00%	92.31%	1-IE-OTRANS,1-ACP-BAC-MA-AA02__,1-AFW-MOV-OO-FV5154__,1-OAB_TR-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1581	1.8E-09	0.00%	92.31%	1-IE-LO4160VA,1-RPS-BME-CF-RTBAB	
1582	1.8E-09	0.00%	92.32%	1-IE-LO4160VB,1-RPS-BME-CF-RTBAB	
1583	1.8E-09	0.00%	92.32%	1-IE-LOOPWR,1-NSCW-F-WTRHAMMER,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-OO-1668A69A-CC	
1584	1.8E-09	0.00%	92.32%	1-IE-SSBO,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-1668A69A	
1585	1.7E-09	0.00%	92.32%	1-IE-LOOPSC,1-ACP-INV-MA-AD111__,1-EPS-SEQ-FO-1821U302,1-OA-ORS-----H	
1586	1.7E-09	0.00%	92.33%	1-IE-TTRIP,1-ACP-BAC-FC-BA03____,1-ACP-BAC-MA-AA02____	
1587	1.7E-09	0.00%	92.33%	1-IE-TTRIP,1-ACP-BAC-FC-AA02____,1-ACP-BAC-MA-BA03____	
1588	1.7E-09	0.00%	92.33%	1-IE-SGTR,1-ACP-BAC-MA-AA02____,1-OAB_SI-----H,1-SGTR3	
1589	1.7E-09	0.00%	92.34%	1-IE-SGTR,1-ACP-BAC-MA-AA02____,1-OAB_SI-----H,1-SGTR2	
1590	1.7E-09	0.00%	92.34%	1-IE-SSBO,1-ACP-SSD-MA-1821U301,1-EPS-SEQ-FO-1821U302,1-OA-NSCW-FAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1591	1.7E-09	0.00%	92.34%	1-IE-LOOPPC,1-ACP-CRB-CC-BA0301__,1-EPS-DGN-FS-G4001____,1-OA-ORS-----H	
1592	1.7E-09	0.00%	92.34%	1-IE-LOOPPC,1-ACP-CRB-CC-AA0205__,1-EPS-DGN-FS-G4002____,1-OA-ORS-----H	
1593	1.7E-09	0.00%	92.35%	1-IE-LOOPGR,1-DCP-FUS-OP-BD104____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
1594	1.7E-09	0.00%	92.35%	1-IE-LOOPGR,1-DCP-FUS-OP-AD104____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
1595	1.7E-09	0.00%	92.35%	1-IE-LOOPPC,1-AFW-PMP-CF-RUN,1-OAB_TR-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1596	1.7E-09	0.00%	92.35%	1-IE-SSBO,1-ACP-INV-MA-BD1112____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1597	1.7E-09	0.00%	92.36%	1-IE-SSBO,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-SWT-FC-TY16689B-CC	
1598	1.7E-09	0.00%	92.36%	1-IE-LOACCW,1-HPI-XHE-XR-XVM207,1-IE-ACW-MDP-CF-FR12,1-OA-CCP-ALIGN---H,1-RCS-MDP-LK-BP2	
1599	1.7E-09	0.00%	92.36%	1-IE-SSBO,1-RCS-MDP-LK-BP2,1-SWS-CTF-CF-FR-ALL	
1600	1.7E-09	0.00%	92.37%	1-IE-TTRIP,1-AFW-MDP-FS-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
1601	1.7E-09	0.00%	92.37%	1-IE-TTRIP,1-EPS-DGN-FR-G4001____,1-OA-MISPAF5094H,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
1602	1.7E-09	0.00%	92.37%	1-IE-LO125AD1,1-ACP-DCP-FC-1B_PS1____,1-DCP-BDC-FC-AD1&____,1-OEP-VCF-LP-CLOPT	
1603	1.7E-09	0.00%	92.37%	1-IE-LO125AD1,1-ACP-DCP-FC-1B_PS4____,1-DCP-BDC-FC-AD1&____,1-OEP-VCF-LP-CLOPT	
1604	1.7E-09	0.00%	92.38%	1-IE-LO125BD1,1-ACP-DCP-FC-1A_PS1____,1-DCP-BDC-FC-BD1&____,1-OEP-VCF-LP-CLOPT	
1605	1.7E-09	0.00%	92.38%	1-IE-LO125BD1,1-ACP-DCP-FC-1A_PS4____,1-DCP-BDC-FC-BD1&____,1-OEP-VCF-LP-CLOPT	
1606	1.7E-09	0.00%	92.38%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U301,1-LPI-MDP-FS-RHRB____,1-OA-NSCWFAN---H	
1607	1.7E-09	0.00%	92.38%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U302,1-LPI-MDP-FS-RHRA____,1-OA-NSCWFAN---H	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1608	1.7E-09	0.00%	92.39%	1-IE-LOOPGR,1-ACP-INV-MA-AD1I11___,1-EPS-TNK-MA-DFOSTKB_,1-OEP-XHE-XL-NR02HGR	
1609	1.7E-09	0.00%	92.39%	1-IE-OTRANS,1-AFW-MDP-CF-START,1-AFW-TDP-FS-P4001___,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
1610	1.7E-09	0.00%	92.39%	1-IE-LOOPGR,1-ACP-SSD-MA-1821U301,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
1611	1.7E-09	0.00%	92.39%	1-IE-LOOPGR,1-AFW-TDP-FS-P4001___,1-EPS-MDP-FS-XFERPPS_-CC,1-OEP-XHE-XL-NR01HGR	
1612	1.7E-09	0.00%	92.40%	1-IE-LOOPGR,1-ACP-INV-MA-BD1I12___,1-EPS-SEQ-FO-1821U301,1-RCS-MDP-LK-BP2	
1613	1.7E-09	0.00%	92.40%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCDF	
1614	1.7E-09	0.00%	92.40%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCEF	
1615	1.7E-09	0.00%	92.41%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABDEF	
1616	1.7E-09	0.00%	92.41%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-BCDEF	
1617	1.7E-09	0.00%	92.41%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ACDEF	
1618	1.7E-09	0.00%	92.41%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCDE	
1619	1.7E-09	0.00%	92.42%	1-IE-MLOCA,1-EPS-DGN-FR-G4001___,1-ESF-SSD-FC-_A513_1B,1-OEP-VCF-LP-CLOPL	
1620	1.7E-09	0.00%	92.42%	1-IE-MLOCA,1-EPS-DGN-FR-G4001___,1-ESF-SSD-FC-_3A4161B,1-OEP-VCF-LP-CLOPL	
1621	1.7E-09	0.00%	92.42%	1-IE-MLOCA,1-EPS-DGN-FR-G4001___,1-ESF-SSD-FC-__4A315B,1-OEP-VCF-LP-CLOPL	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1622	1.7E-09	0.00%	92.42%	1-IE-MLOCA,1-EPS-DGN-FR-G4001____,1-ESF-SSD-FC-_A517_1B,1-OEP-VCF-LP-CLOPL	
1623	1.7E-09	0.00%	92.43%	1-IE-MLOCA,1-EPS-DGN-FR-G4001____,1-ESF-SSD-FC-_3A3131B,1-OEP-VCF-LP-CLOPL	
1624	1.7E-09	0.00%	92.43%	1-IE-MLOCA,1-EPS-DGN-FR-G4002____,1-ESF-SSD-FC-_A513_1A,1-OEP-VCF-LP-CLOPL	
1625	1.7E-09	0.00%	92.43%	1-IE-MLOCA,1-EPS-DGN-FR-G4002____,1-ESF-SSD-FC-_A517_1A,1-OEP-VCF-LP-CLOPL	
1626	1.7E-09	0.00%	92.43%	1-IE-MLOCA,1-EPS-DGN-FR-G4002____,1-ESF-SSD-FC-_3A4161A,1-OEP-VCF-LP-CLOPL	
1627	1.7E-09	0.00%	92.44%	1-IE-MLOCA,1-EPS-DGN-FR-G4002____,1-ESF-SSD-FC-_4A315A,1-OEP-VCF-LP-CLOPL	
1628	1.7E-09	0.00%	92.44%	1-IE-MLOCA,1-EPS-DGN-FR-G4002____,1-ESF-SSD-FC-_3A3131A,1-OEP-VCF-LP-CLOPL	
1629	1.7E-09	0.00%	92.44%	1-IE-LOOPWR,1-ACP-BAC-FC-MCCABF____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
1630	1.7E-09	0.00%	92.44%	1-IE-LOOPWR,1-ACP-BAC-FC-MCCABB____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
1631	1.7E-09	0.00%	92.45%	1-IE-LOOPWR,1-ACP-BAC-FC-AB15____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
1632	1.7E-09	0.00%	92.45%	1-IE-LOOPWR,1-ACP-BAC-FC-AB05____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1633	1.7E-09	0.00%	92.45%	1-IE-LOOPWR,1-ACP-BAC-FC-AA02____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
1634	1.7E-09	0.00%	92.46%	1-IE-LOOPWR,1-ACP-BAC-FC-MCCBBF____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
1635	1.7E-09	0.00%	92.46%	1-IE-LOOPWR,1-ACP-BAC-FC-MCCBBB____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
1636	1.7E-09	0.00%	92.46%	1-IE-LOOPWR,1-ACP-BAC-FC-BB07____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
1637	1.7E-09	0.00%	92.46%	1-IE-LOOPWR,1-ACP-BAC-FC-BB16____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
1638	1.7E-09	0.00%	92.47%	1-IE-LOOPWR,1-ACP-BAC-FC-BA03____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
1639	1.7E-09	0.00%	92.47%	1-IE-LOOPSC,1-EPS-MOT-CF-START,1-OA-ORS-----H	
1640	1.7E-09	0.00%	92.47%	1-IE-LOSINJ,1-AFW-MDP-CF-START,1-AFW-TDP-FR-P4001____,1-CVC-MDP-FR-NCP4001&,1-OA-SAGD-CHG--H,1-OAB_TR-----H-HD,1-OAF_MFW-----H-LD	
1641	1.7E-09	0.00%	92.47%	1-IE-ISINJ,1-ACP-CRB-CC-AA0205____,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPL	
1642	1.7E-09	0.00%	92.48%	1-IE-ISINJ,1-ACP-CRB-CC-BA0301____,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPL	
1643	1.7E-09	0.00%	92.48%	1-IE-LOMFV,1-AFW-TNK-RP-V4001____,1-OAB_TR-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1644	1.7E-09	0.00%	92.48%	1-IE-LOOPGR,1-AFW-TDP-MA-P4001____,1-EPS-DGN-CF-FRUN1,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR0	
1645	1.7E-09	0.00%	92.48%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ADEF	
1646	1.7E-09	0.00%	92.49%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABEF	
1647	1.7E-09	0.00%	92.49%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-BCEF	
1648	1.7E-09	0.00%	92.49%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-CDEF	
1649	1.7E-09	0.00%	92.49%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCD	
1650	1.7E-09	0.00%	92.50%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-BCDE	
1651	1.7E-09	0.00%	92.50%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABDE	
1652	1.7E-09	0.00%	92.50%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCF	
1653	1.7E-09	0.00%	92.50%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ACDF	
1654	1.7E-09	0.00%	92.51%	1-IE-LOCHS,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDEF	
1655	1.6E-09	0.00%	92.51%	1-IE-LOSINJ,1-ACP-CRB-CC-AA0205____,1-CVC-MDP-FR-NCP4001&,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A_____	
1656	1.6E-09	0.00%	92.51%	1-IE-LOSINJ,1-ACP-CRB-CC-BA0301____,1-CVC-MDP-FR-NCP4001&,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A_____	
1657	1.6E-09	0.00%	92.51%	1-IE-LOOPGR,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP1,1-SWS-MOV-CF-1668A69A	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1658	1.6E-09	0.00%	92.52%	1-IE-LOOPSC,1-AFW-MDP-FS-P4002____,1-DCP-BAT-MA-AD1B____,1-OAB_TR-----H	
1659	1.6E-09	0.00%	92.52%	1-IE-LOOPSC,1-DCP-BAT-MA-AD1B____,1-OA-MISPAF5094H,1-OAB_TR-----H	
1660	1.6E-09	0.00%	92.52%	1-IE-LOOPGR,1-RPS-ROD-CF-RCCAS,1-UET2-NOPORV-BLK	
1661	1.6E-09	0.00%	92.53%	1-IE-OTRANS,1-NSCW-CT-NEED-SWAP,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP1,1-SWS-SWT-FC-TY16689B-CC	
1662	1.6E-09	0.00%	92.53%	1-IE-LOOPWR,1-EPS-MDP-FR-XFERPPS____CC,1-OA-ORS-----H	
1663	1.6E-09	0.00%	92.53%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-RLY-FC-162_1ALL-CC	
1664	1.6E-09	0.00%	92.53%	1-IE-LOOPPC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCDEF	
1665	1.6E-09	0.00%	92.54%	1-IE-LO120VAB,1-ACP-DPL-FC-AY1A&____,1-DCP-FUS-OP-BD110____,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
1666	1.6E-09	0.00%	92.54%	1-IE-LO120VAB,1-ACP-DPL-FC-BY1B&____,1-DCP-FUS-OP-AD110____,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
1667	1.6E-09	0.00%	92.54%	1-IE-LOOPSC,1-ACP-BAC-MA-MCCBBB____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	
1668	1.6E-09	0.00%	92.54%	1-IE-LOOPSC,1-ACP-BAC-MA-MCCBBF____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	
1669	1.6E-09	0.00%	92.55%	1-IE-LOOPSC,1-ACP-INV-FC-AD1111____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	
1670	1.6E-09	0.00%	92.55%	1-IE-LOOPSC,1-ACP-INV-FC-BD1112____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1671	1.6E-09	0.00%	92.55%	1-IE-LOOPGR,1-AFW-TDP-MA-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR2	
1672	1.6E-09	0.00%	92.55%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR01HWR	
1673	1.6E-09	0.00%	92.56%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR01HWR	
1674	1.6E-09	0.00%	92.56%	1-IE-RTRIP,1-ACP-BAC-FC-BA03____,1-ACP-BAC-MA-AA02____	
1675	1.6E-09	0.00%	92.56%	1-IE-RTRIP,1-ACP-BAC-FC-AA02____,1-ACP-BAC-MA-BA03____	
1676	1.6E-09	0.00%	92.56%	1-IE-LO125AD1,1-AFW-MOV-OO-FV5154____,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-AD1&____,1-OAB_TR----H	
1677	1.6E-09	0.00%	92.57%	1-IE-LO125BD1,1-AFW-MOV-OO-FV5155____,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-BD1&____,1-OAB_TR----H	
1678	1.6E-09	0.00%	92.57%	1-IE-LOOPSC,1-ACP-INV-MA-AD1111____,1-AFW-MDP-MA-P4002____,1-OAB_TR-----H	
1679	1.6E-09	0.00%	92.57%	1-IE-LOOPGR,1-ACP-BAC-MA-BYB1____,1-EPS-SEQ-FO-1821U301,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2	
1680	1.6E-09	0.00%	92.57%	1-IE-LOOPGR,1-ACP-BAC-MA-AYB1____,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2	
1681	1.6E-09	0.00%	92.58%	1-IE-LO4160VB,1-LPI-MDP-FS-RHRA____,1-RCS-PRV-DP-LODC,1-RCS-PRV-OO-RV0456A_	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1682	1.6E-09	0.00%	92.58%	1-IE-LO4160VA,1-LPI-MDP-FS-RHRB____,1-RCS-PRV-DP-LODC,1-RCS-PRV-OO-RV0455A_	
1683	1.6E-09	0.00%	92.58%	1-IE-OTRANS,1-ACP-INV-FC-A1B2____-CC,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
1684	1.6E-09	0.00%	92.58%	1-IE-LOOPWR,1-ACP-BAC-MA-BA03____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
1685	1.6E-09	0.00%	92.59%	1-IE-LOOPWR,1-ACP-BAC-MA-BB07____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
1686	1.6E-09	0.00%	92.59%	1-IE-LOOPWR,1-ACP-BAC-MA-BB16____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
1687	1.6E-09	0.00%	92.59%	1-IE-LOOPWR,1-ACP-BAC-MA-AA02____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
1688	1.6E-09	0.00%	92.59%	1-IE-LOOPWR,1-ACP-BAC-MA-AB05____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
1689	1.6E-09	0.00%	92.60%	1-IE-LOOPWR,1-ACP-BAC-MA-AB15____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
1690	1.6E-09	0.00%	92.60%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCABF____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
1691	1.6E-09	0.00%	92.60%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCBBB____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
1692	1.6E-09	0.00%	92.60%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCBBF____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
1693	1.6E-09	0.00%	92.61%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCABB____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
1694	1.6E-09	0.00%	92.61%	1-IE-LOOPWR,1-ACP-INV-FC-AD1111____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1695	1.6E-09	0.00%	92.61%	1-IE-LOOPWR,1-ACP-INV-FC-BD1I12____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
1696	1.6E-09	0.00%	92.61%	1-IE-RTRIP,1-AFW-MDP-FS-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
1697	1.6E-09	0.00%	92.62%	1-IE-RTRIP,1-EPS-DGN-FR-G4001____,1-OA-MISPAF5094H,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
1698	1.6E-09	0.00%	92.62%	1-IE-LOOPGR,1-NSCW-F-WTRHAMMER,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-OO-1668A69A-CC	
1699	1.6E-09	0.00%	92.62%	1-IE-SSBO,1-ACP-SSD-MA-1821U302,1-EPS-SEQ-FO-1821U301,1-OA-NSCW-FAN---H,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1700	1.6E-09	0.00%	92.62%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-RLY-FC-162_1ALL-CC	
1701	1.6E-09	0.00%	92.63%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCABF____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HWR	
1702	1.6E-09	0.00%	92.63%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCBBB____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HWR	
1703	1.6E-09	0.00%	92.63%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCBBF____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HWR	
1704	1.6E-09	0.00%	92.63%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCABB____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HWR	
1705	1.6E-09	0.00%	92.63%	1-IE-LOOPWR,1-ACP-BAC-MA-BA03____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HWR	
1706	1.6E-09	0.00%	92.64%	1-IE-LOOPWR,1-ACP-BAC-MA-BB07____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HWR	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1707	1.6E-09	0.00%	92.64%	1-IE-LOOPWR,1-ACP-BAC-MA-BB16____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HWR	
1708	1.6E-09	0.00%	92.64%	1-IE-LOOPWR,1-ACP-BAC-MA-AA02____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HWR	
1709	1.6E-09	0.00%	92.64%	1-IE-LOOPWR,1-ACP-BAC-MA-AB05____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HWR	
1710	1.6E-09	0.00%	92.65%	1-IE-LOOPWR,1-ACP-BAC-MA-AB15____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HWR	
1711	1.6E-09	0.00%	92.65%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ADEF	
1712	1.6E-09	0.00%	92.65%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABEF	
1713	1.6E-09	0.00%	92.65%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-BCEF	
1714	1.6E-09	0.00%	92.66%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-CDEF	
1715	1.6E-09	0.00%	92.66%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-BCDE	
1716	1.6E-09	0.00%	92.66%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCF	
1717	1.6E-09	0.00%	92.66%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCD	
1718	1.6E-09	0.00%	92.67%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ACDF	
1719	1.6E-09	0.00%	92.67%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABDE	
1720	1.6E-09	0.00%	92.67%	1-IE-LOOPWR,1-ACP-INV-FC-AD111____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HWR	
1721	1.6E-09	0.00%	92.67%	1-IE-LOOPWR,1-ACP-INV-FC-BD1112____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HWR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1722	1.6E-09	0.00%	92.68%	1-IE-LOOPSC,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-MA-1668ACT_	
1723	1.5E-09	0.00%	92.68%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-RLY-FC-162_1ALL-CC	
1724	1.5E-09	0.00%	92.68%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCDF	
1725	1.5E-09	0.00%	92.68%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCEF	
1726	1.5E-09	0.00%	92.69%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABDEF	
1727	1.5E-09	0.00%	92.69%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-BCDEF	
1728	1.5E-09	0.00%	92.69%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ACDEF	
1729	1.5E-09	0.00%	92.69%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCDE	
1730	1.5E-09	0.00%	92.70%	1-IE-OTRANS,1-EPS-DGN-MA-G4001____,1-OA-MISPAF5094H,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
1731	1.5E-09	0.00%	92.70%	1-IE-OTRANS,1-AFW-MDP-FS-P4002____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
1732	1.5E-09	0.00%	92.70%	1-IE-LOOPSC,1-ACP-INV-MA-AD1111____,1-EPS-DGN-FS-G4002____,1-OA-ORS-----H	
1733	1.5E-09	0.00%	92.70%	1-IE-LOMFW,1-AFW-MOV-CF-MINFL,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H	
1734	1.5E-09	0.00%	92.71%	1-IE-TTRIP,1-ACP-CRB-CC-AA0205____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A____	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1735	1.5E-09	0.00%	92.71%	1-IE-TTRIP,1-ACP-CRB-CC-BA0301____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A____	
1736	1.5E-09	0.00%	92.71%	1-IE-LOOPGR,1-DCP-BAT-MA-CD1B____,1-EPS-DGN-FR-G4002____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
1737	1.5E-09	0.00%	92.71%	1-IE-LOOPGR,1-DCP-BAT-MA-CD1B____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
1738	1.5E-09	0.00%	92.72%	1-IE-LOOPGR,1-ACP-SSD-MA-1821U302,1-EPS-SEQ-FO-1821U301,1-OA-NSCW-FAN---H,1-RCS-MDP-LK-BP2	
1739	1.5E-09	0.00%	92.72%	1-IE-MLOCA,1-LPI-MDP-FS-RHRA____,1-LPI-MDP-MA-RHRB____	
1740	1.5E-09	0.00%	92.72%	1-IE-MLOCA,1-LPI-MDP-FS-RHRB____,1-LPI-MDP-MA-RHRA____	
1741	1.5E-09	0.00%	92.72%	1-IE-LOOPWR,1-ACP-SSD-MA-1821U301,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
1742	1.5E-09	0.00%	92.72%	1-IE-LOOPGR,1-CVC-MDP-MA-CCPA____,1-EPS-DGN-FR-G4002____,1-MSS-ADV-MA-VPV3000____,1-MSS-ADV-MA-VPV3030____	
1743	1.5E-09	0.00%	92.73%	1-IE-LOOPWR,1-ACP-INV-MA-BD1112____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
1744	1.5E-09	0.00%	92.73%	1-IE-OTRANS,1-ACP-BAC-MA-MCCABB____,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
1745	1.5E-09	0.00%	92.73%	1-IE-MLOCA,1-EPS-DGN-FR-G4001____,1-LPI-MDP-MA-RHRB____,1-OEP-VCF-LP-CLOPL	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1746	1.5E-09	0.00%	92.73%	1-IE-MLOCA,1-EPS-DGN-FR-G4002____,1-LPI-MDP-MA-RHRA____,1-OEP-VCF-LP-CLOPL	
1747	1.5E-09	0.00%	92.74%	1-IE-OTRANS,1-ACP-INV-FC-AD1I11____,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
1748	1.5E-09	0.00%	92.74%	1-IE-OTRANS,1-ACP-INV-FC-BD1I12____,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	
1749	1.5E-09	0.00%	92.74%	1-IE-LOOPWR,1-ACP-BAC-FC-BYB1____,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
1750	1.5E-09	0.00%	92.74%	1-IE-LOOPWR,1-ACP-BAC-FC-AYB1____,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	
1751	1.5E-09	0.00%	92.75%	1-IE-LOCHS,1-AFW-TNK-RP-V4001____,1-OAB_TR-----H	
1752	1.5E-09	0.00%	92.75%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-EPS-TNK-MA-DFOSTKB____,1-OA-ORS-----H	
1753	1.5E-09	0.00%	92.75%	1-IE-LOOPSC,1-AFW-MDP-FR-P4002____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H	
1754	1.5E-09	0.00%	92.75%	1-IE-MLOCA,1-CVC-MDP-TE-CCPA____,1-DCP-BAT-MA-BD1B____,1-OAD_MLA-----H	
1755	1.5E-09	0.00%	92.76%	1-IE-MLOCA,1-CVC-MDP-TE-CCPB____,1-DCP-BAT-MA-AD1B____,1-OAD_MLA-----H	
1756	1.5E-09	0.00%	92.76%	1-IE-LOOPWR,1-ACP-SSD-MA-1821U301,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HWR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1757	1.5E-09	0.00%	92.76%	1-IE-LOOPGR,1-ACP-INV-MA-AD1I11___,1-AFW-TDP-FR-P4001___,1-EPS-DGN-FR-G4002___,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
1758	1.5E-09	0.00%	92.76%	1-IE-LOOPWR,1-ACP-INV-MA-BD1I12___,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HWR	
1759	1.5E-09	0.00%	92.76%	1-IE-MLOCA,1-ACP-INV-MA-BD1I2___,1-EPS-SEQ-FO-1821U301	
1760	1.5E-09	0.00%	92.77%	1-IE-MLOCA,1-ACP-INV-MA-AD1I11___,1-EPS-SEQ-FO-1821U302	
1761	1.5E-09	0.00%	92.77%	1-IE-MLOCA,1-ACP-INV-MA-AD1I1___,1-EPS-SEQ-FO-1821U302	
1762	1.5E-09	0.00%	92.77%	1-IE-MLOCA,1-ACP-INV-MA-AD1I11___,1-ESF-SSD-FC-_3A3131B	
1763	1.5E-09	0.00%	92.77%	1-IE-MLOCA,1-ACP-INV-MA-AD1I1___,1-ESF-SSD-FC-_3A3131B	
1764	1.5E-09	0.00%	92.78%	1-IE-MLOCA,1-ACP-INV-MA-BD1I2___,1-ESF-SSD-FC-_3A3131A	
1765	1.5E-09	0.00%	92.78%	1-IE-MLOCA,1-ACP-INV-MA-AD1I11___,1-ESF-SSD-FC-_A513_1B	
1766	1.5E-09	0.00%	92.78%	1-IE-MLOCA,1-ACP-INV-MA-AD1I1___,1-ESF-SSD-FC-_A513_1B	
1767	1.5E-09	0.00%	92.78%	1-IE-MLOCA,1-ACP-INV-MA-BD1I2___,1-ESF-SSD-FC-_A513_1A	
1768	1.5E-09	0.00%	92.79%	1-IE-MLOCA,1-ACP-INV-MA-BD1I2___,1-ESF-SSD-FC-_A517_1A	
1769	1.5E-09	0.00%	92.79%	1-IE-MLOCA,1-ACP-INV-MA-AD1I11___,1-ESF-SSD-FC-_3A4161B	
1770	1.5E-09	0.00%	92.79%	1-IE-MLOCA,1-ACP-INV-MA-AD1I1___,1-ESF-SSD-FC-_3A4161B	
1771	1.5E-09	0.00%	92.79%	1-IE-MLOCA,1-ACP-INV-MA-BD1I2___,1-ESF-SSD-FC-_3A4161A	
1772	1.5E-09	0.00%	92.80%	1-IE-MLOCA,1-ACP-INV-MA-AD1I11___,1-ESF-SSD-FC-_4A315B	
1773	1.5E-09	0.00%	92.80%	1-IE-MLOCA,1-ACP-INV-MA-AD1I1___,1-ESF-SSD-FC-_4A315B	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1774	1.5E-09	0.00%	92.80%	1-IE-MLOCA,1-ACP-INV-MA-BD1I2____,1-ESF-SSD-FC-__4A315A	
1775	1.5E-09	0.00%	92.80%	1-IE-MLOCA,1-ACP-INV-MA-AD1I11____,1-ESF-SSD-FC-__A517__1B	
1776	1.5E-09	0.00%	92.80%	1-IE-MLOCA,1-ACP-INV-MA-AD1I1____,1-ESF-SSD-FC-__A517__1B	
1777	1.5E-09	0.00%	92.81%	1-IE-LOOPSC,1-ACP-BAC-MA-MCCBBB____,1-EPS-SEQ-FO-1821U301,1-RCS-MDP-LK-BP2	
1778	1.5E-09	0.00%	92.81%	1-IE-LOOPSC,1-ACP-BAC-MA-MCCABB____,1-EPS-SEQ-FO-1821U302,1-RCS-MDP-LK-BP2	
1779	1.5E-09	0.00%	92.81%	1-IE-LOOPSC,1-ACP-BAC-MA-BA03____,1-EPS-SEQ-FO-1821U301,1-RCS-MDP-LK-BP2	
1780	1.5E-09	0.00%	92.81%	1-IE-LOOPSC,1-ACP-BAC-MA-BB16____,1-EPS-SEQ-FO-1821U301,1-RCS-MDP-LK-BP2	
1781	1.5E-09	0.00%	92.82%	1-IE-LOOPSC,1-ACP-BAC-MA-AA02____,1-EPS-SEQ-FO-1821U302,1-RCS-MDP-LK-BP2	
1782	1.5E-09	0.00%	92.82%	1-IE-LOOPSC,1-ACP-BAC-MA-AB15____,1-EPS-SEQ-FO-1821U302,1-RCS-MDP-LK-BP2	
1783	1.5E-09	0.00%	92.82%	1-IE-LOOPSC,1-ACP-INV-FC-AD1I11____,1-EPS-SEQ-FO-1821U302,1-RCS-MDP-LK-BP2	
1784	1.5E-09	0.00%	92.82%	1-IE-LOOPSC,1-ACP-INV-FC-BD1I12____,1-EPS-SEQ-FO-1821U301,1-RCS-MDP-LK-BP2	
1785	1.5E-09	0.00%	92.83%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-DCP-BAT-MA-CD1B____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR01HGR	
1786	1.5E-09	0.00%	92.83%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-DCP-BAT-MA-CD1B____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR01HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1787	1.5E-09	0.00%	92.83%	1-IE-LOOPWR,1-AFW-MDP-FR-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	
1788	1.5E-09	0.00%	92.83%	1-IE-SSBO,1-ACP-INV-FC-BD1112____,1-DCP-BAT-MA-AD1B____,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1789	1.5E-09	0.00%	92.83%	1-IE-SSBO,1-ACP-INV-FC-AD1111____,1-DCP-BAT-MA-BD1B____,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1790	1.5E-09	0.00%	92.84%	1-IE-LOMFW,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCDEF	
1791	1.5E-09	0.00%	92.84%	1-IE-LOOPGR,1-EPS-SEQ-FO-1821U302,1-EPS-TNK-MA-DFOSTKA____,1-OA-ORS-----H	
1792	1.5E-09	0.00%	92.84%	1-IE-LOOPSC,1-DCP-FUS-OP-BD104____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
1793	1.5E-09	0.00%	92.84%	1-IE-LOOPSC,1-DCP-FUS-OP-AD104____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
1794	1.5E-09	0.00%	92.85%	1-IE-LOMFW,1-AFW-TDP-FR-P4001____,/1-RPS-BME-TM-RTBA,/1-RPS-BME-TM-RTBB,1-RPS-CBI-CF-6OF8,/1-RPS-CCP-TM-CHA,1-RPS-XHE-XE-NSGNL	
1795	1.5E-09	0.00%	92.85%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCDF	
1796	1.5E-09	0.00%	92.85%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCEF	
1797	1.5E-09	0.00%	92.85%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABDEF	
1798	1.5E-09	0.00%	92.86%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-BCDEF	
1799	1.5E-09	0.00%	92.86%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ACDEF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1800	1.5E-09	0.00%	92.86%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCDE	
1801	1.5E-09	0.00%	92.86%	1-IE-LOOPPC,1-EPS-DGN-FR-G4001____,1-EPS-TNK-MA-DFOSTKB____,1-OA-ORS-----H	
1802	1.5E-09	0.00%	92.86%	1-IE-OTRANS,1-ACP-SSD-MA-1821U301,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
1803	1.5E-09	0.00%	92.87%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-ACP-INV-MA-AD1I11____,1-AFW-TDP-FR-P4001____,1-OEP-XHE-XL-NR01HGR	
1804	1.5E-09	0.00%	92.87%	1-IE-OTRANS,1-ACP-INV-MA-BD1I12____,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	
1805	1.4E-09	0.00%	92.87%	1-IE-SLOCA,1-LPI-MDP-CF-RUN	
1806	1.4E-09	0.00%	92.87%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-BCEF	
1807	1.4E-09	0.00%	92.88%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABEF	
1808	1.4E-09	0.00%	92.88%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCF	
1809	1.4E-09	0.00%	92.88%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ACDF	
1810	1.4E-09	0.00%	92.88%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-CDEF	
1811	1.4E-09	0.00%	92.89%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ADEF	
1812	1.4E-09	0.00%	92.89%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABDE	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1813	1.4E-09	0.00%	92.89%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCD	
1814	1.4E-09	0.00%	92.89%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-BCDE	
1815	1.4E-09	0.00%	92.89%	1-IE-OTRANS,1-ACP-BAC-MA-AYB1____,1-EPS-DGN-FR-G4002____,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT	
1816	1.4E-09	0.00%	92.90%	1-IE-OTRANS,1-ACP-BAC-MA-BYB1____,1-EPS-DGN-FR-G4001____,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT	
1817	1.4E-09	0.00%	92.90%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-NSCW-CT-NEED-SWAP,1-NSCW-MOV-F-NON-RECBLE,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-1668A69A	
1818	1.4E-09	0.00%	92.90%	1-IE-LOOPGR,1-ACP-INV-FC-AD1I11____,1-DCP-BAT-MA-BD1B____,1-RCS-MDP-LK-BP2	
1819	1.4E-09	0.00%	92.90%	1-IE-LOOPGR,1-ACP-INV-FC-BD1I12____,1-DCP-BAT-MA-AD1B____,1-RCS-MDP-LK-BP2	
1820	1.4E-09	0.00%	92.91%	1-IE-LOOPWR,1-ACP-BAC-MA-AYB1____,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OA-ORS-----H	
1821	1.4E-09	0.00%	92.91%	1-IE-LOOPWR,1-ACP-BAC-MA-BYB1____,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OA-ORS-----H	
1822	1.4E-09	0.00%	92.91%	1-IE-LOOPSC,1-ACP-SSD-MA-1821U301,1-EPS-SEQ-FO-1821U302,1-OA-NSCW-FAN---H,1-RCS-MDP-LK-BP2	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1823	1.4E-09	0.00%	92.91%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1,1-SWS-CTF-MA-_B_1234_	
1824	1.4E-09	0.00%	92.91%	1-IE-LOOPWR,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1,1-SWS-CTF-MA-_A_1234_	
1825	1.4E-09	0.00%	92.92%	1-IE-OTRANS,1-AFW-MOV-OO-FV5154____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
1826	1.4E-09	0.00%	92.92%	1-IE-LOOPSC,1-ACP-INV-MA-BD1I12____,1-EPS-SEQ-FO-1821U301,1-RCS-MDP-LK-BP2	
1827	1.4E-09	0.00%	92.92%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
1828	1.4E-09	0.00%	92.92%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
1829	1.4E-09	0.00%	92.93%	1-IE-LOOPWR,1-AFW-TDP-MA-P4001____,1-EPS-DGN-CF-FRUN1,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR0	
1830	1.4E-09	0.00%	92.93%	1-IE-LOIA,1-AFW-PMP-CF-RUN,1-IE-IAS-MDC-CF-FR-ABCD,1-OAB_TR-----H	
1831	1.4E-09	0.00%	92.93%	1-IE-LOOPWR,1-ACP-BAC-MA-BYB1____,1-EPS-SEQ-FO-1821U301,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1832	1.4E-09	0.00%	92.93%	1-IE-LOOPWR,1-ACP-BAC-MA-AYB1____,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR	
1833	1.4E-09	0.00%	92.93%	1-IE-TTRIP,1-ACP-BAC-FC-AA02____,1-AFW-MDP-MA-P4002____,1-OAB_TR-----H	
1834	1.4E-09	0.00%	92.94%	1-IE-RTRIP,1-ACP-CRB-CC-AA0205____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A____	
1835	1.4E-09	0.00%	92.94%	1-IE-RTRIP,1-ACP-CRB-CC-BA0301____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A____	
1836	1.4E-09	0.00%	92.94%	1-IE-LOOPPC,1-EPS-DGN-MA-G4001____,1-OA-MISPAF5094H,1-OAB_TR-----H	
1837	1.4E-09	0.00%	92.94%	1-IE-LOOPPC,1-AFW-MDP-FS-P4002____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H	
1838	1.4E-09	0.00%	92.95%	1-IE-LOOPGR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ADEF	
1839	1.4E-09	0.00%	92.95%	1-IE-LOOPGR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABEF	
1840	1.4E-09	0.00%	92.95%	1-IE-LOOPGR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-BCEF	
1841	1.4E-09	0.00%	92.95%	1-IE-LOOPGR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-CDEF	
1842	1.4E-09	0.00%	92.95%	1-IE-LOOPGR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-BCDE	
1843	1.4E-09	0.00%	92.96%	1-IE-LOOPGR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABCF	
1844	1.4E-09	0.00%	92.96%	1-IE-LOOPGR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABCD	
1845	1.4E-09	0.00%	92.96%	1-IE-LOOPGR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ACDF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1846	1.4E-09	0.00%	92.96%	1-IE-LOOPGR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABDE	
1847	1.4E-09	0.00%	92.97%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCABF___,1-EPS-DGN-FR-G4002___,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
1848	1.4E-09	0.00%	92.97%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCABB___,1-EPS-DGN-FR-G4002___,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
1849	1.4E-09	0.00%	92.97%	1-IE-LOOPGR,1-ACP-BAC-FC-AB15___,1-EPS-DGN-FR-G4002___,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
1850	1.4E-09	0.00%	92.97%	1-IE-LOOPGR,1-ACP-BAC-FC-AA02___,1-EPS-DGN-FR-G4002___,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
1851	1.4E-09	0.00%	92.97%	1-IE-LOOPGR,1-ACP-BAC-FC-AB05___,1-EPS-DGN-FR-G4002___,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
1852	1.4E-09	0.00%	92.98%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCBBF___,1-EPS-DGN-FR-G4001___,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
1853	1.4E-09	0.00%	92.98%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCBBB___,1-EPS-DGN-FR-G4001___,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
1854	1.4E-09	0.00%	92.98%	1-IE-LOOPGR,1-ACP-BAC-FC-BA03___,1-EPS-DGN-FR-G4001___,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
1855	1.4E-09	0.00%	92.98%	1-IE-LOOPGR,1-ACP-BAC-FC-BB16___,1-EPS-DGN-FR-G4001___,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1856	1.4E-09	0.00%	92.99%	1-IE-LOOPGR,1-ACP-BAC-FC-BB07____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
1857	1.4E-09	0.00%	92.99%	1-IE-LO4160VB,1-ACP-INV-MA-AD111____,1-RCS-PRV-DP-LODC,1-RCS-PRV-OO-RV0456A_	
1858	1.4E-09	0.00%	92.99%	1-IE-LOCHS,1-AFW-MOV-CF-MINFL,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H	
1859	1.4E-09	0.00%	92.99%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS4____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	
1860	1.4E-09	0.00%	92.99%	1-IE-LOOPGR,1-ACP-DCP-FC-1A_PS1____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	
1861	1.4E-09	0.00%	93.00%	1-IE-LOOPGR,1-ACP-DCP-FC-1A_PS4____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	
1862	1.4E-09	0.00%	93.00%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS1____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	
1863	1.4E-09	0.00%	93.00%	1-IE-LOOPSC,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP1,1-SWS-MOV-CF-1668A69A	
1864	1.4E-09	0.00%	93.00%	1-IE-MLOCA,1-DCP-BAT-MA-AD1B____,1-LPI-MDP-FS-RHRB____,1-OA-NSCWFAN---H	
1865	1.4E-09	0.00%	93.00%	1-IE-MLOCA,1-DCP-BAT-MA-BD1B____,1-LPI-MDP-FS-RHRA____,1-OA-NSCWFAN---H	
1866	1.4E-09	0.00%	93.01%	1-IE-ISL-RCP-S1LO,1-CVC-MDP-FR-NCP4001&,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-CLOPT,1-RCS-MDP-LK-BP1,/1-RCS-MDP-LK-BP2,/1-RCS-XHE-XM-TRIP	
1867	1.4E-09	0.00%	93.01%	1-IE-LOOPSC,1-RPS-ROD-CF-RCCAS,1-UET2-NOPORV-BLK	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1868	1.4E-09	0.00%	93.01%	1-IE-LOOPWR,1-ACP-BAC-MA-BA03____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HWR	
1869	1.4E-09	0.00%	93.01%	1-IE-LOOPWR,1-ACP-BAC-MA-BB07____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HWR	
1870	1.4E-09	0.00%	93.02%	1-IE-LOOPWR,1-ACP-BAC-MA-BB16____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HWR	
1871	1.4E-09	0.00%	93.02%	1-IE-LOOPWR,1-ACP-BAC-MA-AA02____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HWR	
1872	1.4E-09	0.00%	93.02%	1-IE-LOOPWR,1-ACP-BAC-MA-AB05____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HWR	
1873	1.4E-09	0.00%	93.02%	1-IE-LOOPWR,1-ACP-BAC-MA-AB15____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HWR	
1874	1.4E-09	0.00%	93.02%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCABF____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HWR	
1875	1.4E-09	0.00%	93.03%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCBBB____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HWR	
1876	1.4E-09	0.00%	93.03%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCBBF____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HWR	
1877	1.4E-09	0.00%	93.03%	1-IE-LOOPWR,1-ACP-BAC-MA-MCCABB____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HWR	
1878	1.4E-09	0.00%	93.03%	1-IE-LOOPWR,1-ACP-SSD-MA-1821U302,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
1879	1.4E-09	0.00%	93.03%	1-IE-LOOPWR,1-ACP-INV-FC-AD1111____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HWR	
1880	1.4E-09	0.00%	93.04%	1-IE-LOOPWR,1-ACP-INV-FC-BD1112____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HWR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1881	1.4E-09	0.00%	93.04%	1-IE-OTRANS,1-ACP-BAC-MA-BYB1____,1-EPS-SEQ-FO-1821U301,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT	
1882	1.4E-09	0.00%	93.04%	1-IE-OTRANS,1-ACP-BAC-MA-AYB1____,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT	
1883	1.4E-09	0.00%	93.04%	1-IE-LOIA,1-ACP-CRB-CF-A205301,1-IE-IAS-XVM-CO-2240151,1-OEP-VCF-LP-CLOPT	
1884	1.4E-09	0.00%	93.05%	1-IE-LOOPGR,1-AFW-MDP-CF-START,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H	
1885	1.4E-09	0.00%	93.05%	1-IE-LOOPWR,1-ACP-SSD-MA-1821U302,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HWR	
1886	1.4E-09	0.00%	93.05%	1-IE-LOOPGR,1-EPS-DGN-MA-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-RLY-FC-162_1X69	
1887	1.4E-09	0.00%	93.05%	1-IE-LOOPGR,1-EPS-DGN-MA-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-RLY-FC-162_1X68	
1888	1.4E-09	0.00%	93.05%	1-IE-LOOPGR,1-EPS-DGN-MA-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-RLY-FC-AX3_68AB	
1889	1.4E-09	0.00%	93.06%	1-IE-LOOPGR,1-EPS-DGN-MA-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-RLY-FC-AX3_69AB	
1890	1.4E-09	0.00%	93.06%	1-IE-ISINJ,1-ACP-CRB-CC-BA0301____,1-DCP-BAT-MA-AD1B____,1-OEP-VCF-LP-CLOPL	
1891	1.4E-09	0.00%	93.06%	1-IE-ISINJ,1-ACP-CRB-CC-AA0205____,1-DCP-BAT-MA-BD1B____,1-OEP-VCF-LP-CLOPL	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1892	1.4E-09	0.00%	93.06%	1-IE-OTRANS,1-ACP-BAC-MA-BA03____,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-MA-1668ACT_	
1893	1.4E-09	0.00%	93.06%	1-IE-OTRANS,1-ACP-BAC-MA-BB16____,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-MA-1668ACT_	
1894	1.4E-09	0.00%	93.07%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCEF	
1895	1.4E-09	0.00%	93.07%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCDF	
1896	1.4E-09	0.00%	93.07%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ACDEF	
1897	1.4E-09	0.00%	93.07%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-BCDEF	
1898	1.4E-09	0.00%	93.08%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABDEF	
1899	1.4E-09	0.00%	93.08%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCDE	
1900	1.4E-09	0.00%	93.08%	1-IE-LOOPGR,1-ACP-INV-MA-AD1111____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CC-1669A_	
1901	1.4E-09	0.00%	93.08%	1-IE-LO4160VA,1-AFW-MOV-OO-FV5154____,1-RCS-PRV-CC-RV0456A_	
1902	1.3E-09	0.00%	93.08%	1-IE-TTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCD	
1903	1.3E-09	0.00%	93.09%	1-IE-TTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABDE	
1904	1.3E-09	0.00%	93.09%	1-IE-TTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-BCDE	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1905	1.3E-09	0.00%	93.09%	1-IE-TTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCF	
1906	1.3E-09	0.00%	93.09%	1-IE-TTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABEF	
1907	1.3E-09	0.00%	93.09%	1-IE-TTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ACDF	
1908	1.3E-09	0.00%	93.10%	1-IE-TTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-BCEF	
1909	1.3E-09	0.00%	93.10%	1-IE-TTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ADEF	
1910	1.3E-09	0.00%	93.10%	1-IE-TTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-CDEF	
1911	1.3E-09	0.00%	93.10%	1-IE-MLOCA,1-ACP-INV-MA-AD1111__,1-LPI-MDP-MA-RHRB____,1-OA-NSCWFAN---H	
1912	1.3E-09	0.00%	93.10%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205__,1-AFW-MOV-OO-FV5154__,1-OAB_TR-----H	
1913	1.3E-09	0.00%	93.11%	1-IE-LOOPSC,1-ACP-BAC-MA-BYB1____,1-EPS-SEQ-FO-1821U301,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2	
1914	1.3E-09	0.00%	93.11%	1-IE-LOOPSC,1-ACP-BAC-MA-AYB1____,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2	
1915	1.3E-09	0.00%	93.11%	1-IE-TTRIP,1-NSCW-CT-NEED-SWAP,1-NSCW-MOV-F-NON-RECBLE,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-1668A69A	
1916	1.3E-09	0.00%	93.11%	1-IE-OTRANS,1-ACP-BAC-FC-BB16____,1-ACP-BAC-MA-AA02____,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1917	1.3E-09	0.00%	93.12%	1-IE-OTRANS,1-ACP-BAC-FC-BB16____,1-ACP-BAC-MA-AB15____,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1918	1.3E-09	0.00%	93.12%	1-IE-OTRANS,1-ACP-BAC-FC-BA03____,1-ACP-BAC-MA-AB15____,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1919	1.3E-09	0.00%	93.12%	1-IE-OTRANS,1-ACP-BAC-FC-AB15____,1-ACP-BAC-MA-BB16____,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1920	1.3E-09	0.00%	93.12%	1-IE-OTRANS,1-ACP-BAC-FC-AA02____,1-ACP-BAC-MA-BB16____,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1921	1.3E-09	0.00%	93.12%	1-IE-OTRANS,1-ACP-BAC-FC-AB15____,1-ACP-BAC-MA-BA03____,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1922	1.3E-09	0.00%	93.13%	1-IE-LOCHS,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCDEF	
1923	1.3E-09	0.00%	93.13%	1-IE-LOOPGR,1-AFW-MDP-MA-P4002____,1-EPS-TNK-MA-DFOSTKA____,1-OAB_TR-----H	
1924	1.3E-09	0.00%	93.13%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-RLY-FC-162_1X89-CC	
1925	1.3E-09	0.00%	93.13%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-RLY-FC-AX36869____-CC	
1926	1.3E-09	0.00%	93.13%	1-IE-MLOCA,1-CVC-MDP-FS-CCPA____,1-ESF-SSD-FC-_A513_1B,1-OAD_MLA-----H	
1927	1.3E-09	0.00%	93.14%	1-IE-MLOCA,1-CVC-MDP-FS-CCPA____,1-ESF-SSD-FC-_3A4161B,1-OAD_MLA-----H	
1928	1.3E-09	0.00%	93.14%	1-IE-MLOCA,1-CVC-MDP-FS-CCPA____,1-ESF-SSD-FC-_4A315B,1-OAD_MLA-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1929	1.3E-09	0.00%	93.14%	1-IE-MLOCA,1-CVC-MDP-FS-CCPA____,1-ESF-SSD-FC-_A517_1B,1-OAD_MLA-----H	
1930	1.3E-09	0.00%	93.14%	1-IE-MLOCA,1-CVC-MDP-FS-CCPA____,1-ESF-SSD-FC-_3A3131B,1-OAD_MLA-----H	
1931	1.3E-09	0.00%	93.14%	1-IE-MLOCA,1-CVC-MDP-FS-CCPB____,1-ESF-SSD-FC-_A513_1A,1-OAD_MLA-----H	
1932	1.3E-09	0.00%	93.15%	1-IE-MLOCA,1-CVC-MDP-FS-CCPB____,1-ESF-SSD-FC-_A517_1A,1-OAD_MLA-----H	
1933	1.3E-09	0.00%	93.15%	1-IE-MLOCA,1-CVC-MDP-FS-CCPB____,1-ESF-SSD-FC-_3A4161A,1-OAD_MLA-----H	
1934	1.3E-09	0.00%	93.15%	1-IE-MLOCA,1-CVC-MDP-FS-CCPB____,1-ESF-SSD-FC-_4A315A,1-OAD_MLA-----H	
1935	1.3E-09	0.00%	93.15%	1-IE-MLOCA,1-CVC-MDP-FS-CCPB____,1-ESF-SSD-FC-_3A3131A,1-OAD_MLA-----H	
1936	1.3E-09	0.00%	93.16%	1-IE-MLOCA,1-CVC-MDP-FS-CCPA____,1-EPS-SEQ-FO-1821U302,1-OAD_MLA-----H	
1937	1.3E-09	0.00%	93.16%	1-IE-MLOCA,1-CVC-MDP-FS-CCPB____,1-EPS-SEQ-FO-1821U301,1-OAD_MLA-----H	
1938	1.3E-09	0.00%	93.16%	1-IE-ISL-RCP-S1LO,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-IE-LOOPGR,1-OA-IS-ISLSEALSBO,1-RCS-MDP-LK-BP1,/1-RCS-MDP-LK-BP2	
1939	1.3E-09	0.00%	93.16%	1-IE-OTRANS,1-ACP-BAC-MA-BA03____,1-EPS-DGN-FS-G4001____,1-OEP-VCF-LP-CLOPT	
1940	1.3E-09	0.00%	93.16%	1-IE-OTRANS,1-ACP-BAC-MA-BB07____,1-EPS-DGN-FS-G4001____,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1941	1.3E-09	0.00%	93.17%	1-IE-OTRANS,1-ACP-BAC-MA-BB16____,1-EPS-DGN-FS-G4001____,1-OEP-VCF-LP-CLOPT	
1942	1.3E-09	0.00%	93.17%	1-IE-OTRANS,1-ACP-BAC-MA-AA02____,1-EPS-DGN-FS-G4002____,1-OEP-VCF-LP-CLOPT	
1943	1.3E-09	0.00%	93.17%	1-IE-OTRANS,1-ACP-BAC-MA-AB05____,1-EPS-DGN-FS-G4002____,1-OEP-VCF-LP-CLOPT	
1944	1.3E-09	0.00%	93.17%	1-IE-OTRANS,1-ACP-BAC-MA-AB15____,1-EPS-DGN-FS-G4002____,1-OEP-VCF-LP-CLOPT	
1945	1.3E-09	0.00%	93.17%	1-IE-OTRANS,1-ACP-BAC-MA-MCCABF____,1-EPS-DGN-FS-G4002____,1-OEP-VCF-LP-CLOPT	
1946	1.3E-09	0.00%	93.18%	1-IE-OTRANS,1-ACP-BAC-MA-MCCBBB____,1-EPS-DGN-FS-G4001____,1-OEP-VCF-LP-CLOPT	
1947	1.3E-09	0.00%	93.18%	1-IE-OTRANS,1-ACP-BAC-MA-MCCBBF____,1-EPS-DGN-FS-G4001____,1-OEP-VCF-LP-CLOPT	
1948	1.3E-09	0.00%	93.18%	1-IE-OTRANS,1-ACP-BAC-MA-MCCABB____,1-EPS-DGN-FS-G4002____,1-OEP-VCF-LP-CLOPT	
1949	1.3E-09	0.00%	93.18%	1-IE-LOOPSC,1-NSCW-F-WTRHAMMER,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-OO-1668A69A-CC	
1950	1.3E-09	0.00%	93.18%	1-IE-SSBI,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302,1-OA-NSCW-FAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1951	1.3E-09	0.00%	93.19%	1-IE-OTRANS,1-ACP-INV-FC-AD1111____,1-EPS-DGN-FS-G4002____,1-OEP-VCF-LP-CLOPT	
1952	1.3E-09	0.00%	93.19%	1-IE-OTRANS,1-ACP-INV-FC-BD1112____,1-EPS-DGN-FS-G4001____,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1953	1.3E-09	0.00%	93.19%	1-IE-LOCHS,1-AFW-TDP-FR-P4001____,1-RPS-BME-TM-RTBA,1-RPS-BME-TM-RTBB,1-RPS-CBI-CF-6OF8,1-RPS-CCP-TM-CHA,1-RPS-XHE-XE-NSGNL	
1954	1.3E-09	0.00%	93.19%	1-IE-LOOPWR,1-ACP-SSD-MA-1821U301,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HWR	
1955	1.3E-09	0.00%	93.20%	1-IE-SSBO,1-AFW-MDP-MA-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPL	
1956	1.3E-09	0.00%	93.20%	1-IE-SSBO,1-ACP-DCP-FC-1A_PS4____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1957	1.3E-09	0.00%	93.20%	1-IE-SSBO,1-ACP-DCP-FC-1A_PS1____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1958	1.3E-09	0.00%	93.20%	1-IE-SSBO,1-ACP-DCP-FC-1B_PS4____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1959	1.3E-09	0.00%	93.20%	1-IE-SSBO,1-ACP-DCP-FC-1B_PS1____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
1960	1.3E-09	0.00%	93.21%	1-IE-LOOPWR,1-ACP-INV-MA-BD1I12____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HWR	
1961	1.3E-09	0.00%	93.21%	1-IE-LOOPWR,1-DCP-BAT-MA-CD1B____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1962	1.3E-09	0.00%	93.21%	1-IE-LOOPWR,1-DCP-BAT-MA-CD1B____,1-EPS-DGN-FR-G4002____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
1963	1.3E-09	0.00%	93.21%	1-IE-LO4160VA,1-RPS-ROD-CF-RCCAS	
1964	1.3E-09	0.00%	93.21%	1-IE-LO4160VB,1-RPS-ROD-CF-RCCAS	
1965	1.3E-09	0.00%	93.22%	1-IE-LOOPGR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABCDF	
1966	1.3E-09	0.00%	93.22%	1-IE-LOOPGR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABCEF	
1967	1.3E-09	0.00%	93.22%	1-IE-LOOPGR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABDEF	
1968	1.3E-09	0.00%	93.22%	1-IE-LOOPGR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-BCDEF	
1969	1.3E-09	0.00%	93.22%	1-IE-LOOPGR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ACDEF	
1970	1.3E-09	0.00%	93.23%	1-IE-LOOPGR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABCDE	
1971	1.3E-09	0.00%	93.23%	1-IE-OTRANS,1-ACP-SSD-MA-1821U302,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	
1972	1.3E-09	0.00%	93.23%	1-IE-OTRANS,1-AFW-MDP-CF-RUN,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
1973	1.3E-09	0.00%	93.23%	1-IE-LOOPWR,1-ACP-BAC-FC-BA03____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HWR	
1974	1.3E-09	0.00%	93.23%	1-IE-LOOPWR,1-ACP-BAC-FC-BB07____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HWR	
1975	1.3E-09	0.00%	93.24%	1-IE-LOOPWR,1-ACP-BAC-FC-BB16____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HWR	Same as cut set #8, except for different electrical unavailabilities; no convolution applied.

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1976	1.3E-09	0.00%	93.24%	1-IE-LOOPWR,1-ACP-BAC-FC-AA02____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HWR	Same as cut set #8, except for different electrical unavailabilities; no convolution applied.
1977	1.3E-09	0.00%	93.24%	1-IE-LOOPWR,1-ACP-BAC-FC-AB05____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HWR	Same as cut set #8, except for different electrical unavailabilities; no convolution applied.
1978	1.3E-09	0.00%	93.24%	1-IE-LOOPWR,1-ACP-BAC-FC-AB15____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HWR	Same as cut set #8, except for different electrical unavailabilities; no convolution applied.
1979	1.3E-09	0.00%	93.24%	1-IE-LOOPWR,1-ACP-BAC-FC-MCCABF____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HWR	Same as cut set #8, except for different electrical unavailabilities; no convolution applied.
1980	1.3E-09	0.00%	93.25%	1-IE-LOOPWR,1-ACP-BAC-FC-MCCBBB____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HWR	Same as cut set #8, except for different electrical unavailabilities; no convolution applied.
1981	1.3E-09	0.00%	93.25%	1-IE-LOOPWR,1-ACP-BAC-FC-MCCBBF____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HWR	Same as cut set #8, except for different electrical unavailabilities; no convolution applied.
1982	1.3E-09	0.00%	93.25%	1-IE-LOOPWR,1-ACP-BAC-FC-MCCABB____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HWR	Same as cut set #8, except for different electrical unavailabilities; no convolution applied.
1983	1.3E-09	0.00%	93.25%	1-IE-LOOPPC,1-AFW-MOV-OO-FV5154____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	Same as cut set #1482, except a different LOOP initiating event and different electrical/AFW unavailabilities occur.
1984	1.3E-09	0.00%	93.25%	1-IE-SGTR,1-ACP-CRB-CC-AA0205____,1-OAB_SI-----H,1-OEP-VCF-LP-CLOPL,1-SGTR3	A steam generator tube rupture (SGTR) initiating event and consequential LOOP occur. Electrical failure [along with the rupture steam generator (SG)] result in AFW unavailability to 1/4 SGs (success criterion is 2/4). Core damage occurs when operators fail to initiate feed and bleed cooling. Note that similar cut sets for SGs 1 and 4 with opposite train failures require an additional failure/unavailability of the turbine-driven AFW pump; and therefore, have a lower CDF.
1985	1.3E-09	0.00%	93.26%	1-IE-SGTR,1-ACP-CRB-CC-AA0205____,1-OAB_SI-----H,1-OEP-VCF-LP-CLOPL,1-SGTR2	Same as cut set #1984, except different SG is ruptured.

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1986	1.3E-09	0.00%	93.26%	1-IE-RTRIP,1-OAB_TR-----H-HD,1-OAF_MFW-----H,1-RPS-BME-TM-RTBA,1-RPS-BME-TM-RTBB,1-RPS-CBI-CF-6OF8,1-RPS-CCP-TM-CHA,1-RPS-XHE-XE-NSGNL	This cut set is invalid. It involves a successful reactor trip, but reactor protection system (RPS) failures result in the failure of the AFW system. To correct this error, the AFW fault tree logic needs to be changed to account for the fact that the RTRIP event tree does not include the RPS top event fault tree. Note that this modeling issue is minor and has a negligible effect on overall CDF; and therefore, does not warrant a model change at this time.
1987	1.3E-09	0.00%	93.26%	1-IE-LOOPGR,1-EPS-DGN-FS-G4002____,1-EPS-TNK-MA-DFOSTKA____,1-OA-ORS-----H	Same as cut set #10, except for different electrical failures/unavailabilities.
1988	1.3E-09	0.00%	93.26%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-OEP-XHE-XL-NR01HGR,1-SWS-MDP-CF-FS-ABCDEF	A grid-related LOOP initiating event occurs with subsequent NSCW failures (pump CCF) resulting in a SBO. The turbine-driven AFW pump fails to run and core damage occurs when operators fail to recover offsite power within 1 hour.
1989	1.3E-09	0.00%	93.27%	1-IE-RTRIP,1-ACP-BAC-FC-AA02____,1-AFW-MDP-MA-P4002____,1-OAB_TR-----H	A reactor trip occurs. Subsequent electrical and AFW failures result in the loss of AFW. Core damage occurs when operators fail to initiate feed and bleed cooling.
1990	1.3E-09	0.00%	93.27%	1-IE-LOOPSC,1-ACP-SSD-MA-1821U302,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,-RCS-MDP-LK-BP2	Potentially invalid cut set. A switchyard-centered LOOP initiating event occurs with sequencer-related failures resulting in a SBO and subsequent RCP seal failure (stage 2). The operators successfully recover AC power, restore AFW and HPI, and perform cooldown/depressurization. The sequencer related failures result in the unavailability of residual heat removal (RHR) and low-pressure recirculation (LPR) due to unavailability of the NSCW cooling tower fans, which is inconsistent with successful HPI. An operator action (1-OA-ORS-----H) is included in the applicable system fault trees to account for system restoration after AC power recovery. However, the evaluation of this human failure event (HFE) does not explicitly include the manual restart of NSCW cooling tower fans. Given the negligible contribution this cut set, further evaluation at this time is not warranted.
1991	1.3E-09	0.00%	93.27%	1-IE-LOOPSC,1-CVC-MDP-MA-CCPA____,1-EPS-DGN-FR-G4002____,1-MSS-ADV-MA-VPV3000____,1-MSS-ADV-MA-VPV3030____	A plant-centered LOOP initiating event occurs. Core damage occurs due to elevated RCP seal leakage with unavailability of charging via the CCPs and unavailability of SG ARVs (valve unavailabilities and electrical failures). Note that this cut set is potentially conservative because no credit is given for offsite power during non-SBO scenarios and the unavailabilities of these three components may not be allowed by either technical specifications {TS} or plant risk management.
1992	1.3E-09	0.00%	93.27%	1-IE-LOSINJ,1-AFW-PMP-CF-RUN,1-CVC-MDP-FR-NCP4001&,1-OA-SAGD-CHG--H,1-OAF_MFW-----H-LD,1-OAR_LTFB-TRA-H-LD	A loss of RCP seal injection initiating event occurs. Operators fail to align safety-related seal injection via the CCPs. The AFW system is failed (CCF of the pumps). Operators fail to restore MFW and align recirculation for feed and bleed cooling (dependent failures). Note that operator successfully initiated feed and bleed cooling.



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
1993	1.3E-09	0.00%	93.27%	1-IE-LOOPWR,1-ACP-INV-MA-AD1I11___,1-AFW-TDP-FR-P4001___,1-EPS-DGN-FR-G4002___,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	Same as cut set #984, except for different electrical/AFW failures/unavailabilities; convolution applied.
1994	1.3E-09	0.00%	93.28%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS4___,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	Potentially invalid cut set. Same as cut set #1990, except a different LOOP initiating event (grid-related) and different sequencer-related failures occur.
1995	1.3E-09	0.00%	93.28%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS1___,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	Potentially invalid cut set. Same as cut set #1990, except a different LOOP initiating event (grid-related) and different sequencer-related failures occur.
1996	1.3E-09	0.00%	93.28%	1-IE-LOOPGR,1-ACP-DCP-FC-1A_PS1___,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	Potentially invalid cut set. Same as cut set #1990, except a different LOOP initiating event (grid-related) and different sequencer-related failures occur.
1997	1.3E-09	0.00%	93.28%	1-IE-LOOPGR,1-ACP-DCP-FC-1A_PS4___,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	Potentially invalid cut set. Same as cut set #1990, except a different LOOP initiating event (grid-related) and different sequencer-related failures occur.
1998	1.3E-09	0.00%	93.28%	1-IE-OTRANS,1-ACP-SSD-MA-1821U301,1-EPS-DGN-FS-G4002___,1-OEP-VCF-LP-CLOPT	Same as cut set #2482, except for different electrical failures/unavailabilities.
1999	1.3E-09	0.00%	93.29%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001___,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1,1-SWS-MOV-MA-1669ACT_	Same as cut set #480, except for different electrical/NSCW failures/unavailabilities; convolution applied.
2000	1.3E-09	0.00%	93.29%	1-IE-LO4160VA,1-AFW-MOV-OO-FV5154___,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H	
2001	1.3E-09	0.00%	93.29%	1-IE-OTRANS,1-ACP-INV-MA-BD1I12___,1-EPS-DGN-FS-G4001___,1-OEP-VCF-LP-CLOPT	
2002	1.3E-09	0.00%	93.29%	1-IE-LOOPWR,1-ACP-INV-FC-AD1I11___,1-DCP-BAT-MA-BD1B___,1-OEP-XHE-XL-NR02HWR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2003	1.3E-09	0.00%	93.29%	1-IE-LOOPWR,1-ACP-INV-FC-BD1I12____,1-DCP-BAT-MA-AD1B____,1-OEP-XHE-XL-NR02HWR	
2004	1.3E-09	0.00%	93.30%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205____,1-EPS-TNK-MA-DFOSTKB____,1-OA-ORS-----H	
2005	1.3E-09	0.00%	93.30%	1-IE-LOOPGR,1-ACP-BAC-FC-AYB1____,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
2006	1.3E-09	0.00%	93.30%	1-IE-LOOPGR,1-ACP-BAC-FC-BYB1____,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1	
2007	1.3E-09	0.00%	93.30%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-1,1-CVC-MDP-MA-CCPA____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H	
2008	1.3E-09	0.00%	93.30%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-2,1-CVC-MDP-MA-CCPA____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H	
2009	1.3E-09	0.00%	93.31%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-3,1-CVC-MDP-MA-CCPB____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H	
2010	1.3E-09	0.00%	93.31%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-4,1-CVC-MDP-MA-CCPB____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H	
2011	1.3E-09	0.00%	93.31%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-3,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,1-SIS-MDP-MA-SIB_____	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2012	1.3E-09	0.00%	93.31%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-4,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,1-SIS-MDP-MA-SIB_____	
2013	1.3E-09	0.00%	93.31%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-2,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-SIS-MDP-MA-SIA_____	
2014	1.3E-09	0.00%	93.32%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-1,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-SIS-MDP-MA-SIA_____	
2015	1.3E-09	0.00%	93.32%	1-IE-OTRANS,1-ACP-BAC-FC-BA03_____,1-EPS-DGN-MA-G4001_____,1-OEP-VCF-LP-CLOPT	
2016	1.3E-09	0.00%	93.32%	1-IE-OTRANS,1-ACP-BAC-FC-BB07_____,1-EPS-DGN-MA-G4001_____,1-OEP-VCF-LP-CLOPT	
2017	1.3E-09	0.00%	93.32%	1-IE-OTRANS,1-ACP-BAC-FC-BB16_____,1-EPS-DGN-MA-G4001_____,1-OEP-VCF-LP-CLOPT	
2018	1.3E-09	0.00%	93.32%	1-IE-OTRANS,1-ACP-BAC-FC-AA02_____,1-EPS-DGN-MA-G4002_____,1-OEP-VCF-LP-CLOPT	
2019	1.3E-09	0.00%	93.33%	1-IE-OTRANS,1-ACP-BAC-FC-AB05_____,1-EPS-DGN-MA-G4002_____,1-OEP-VCF-LP-CLOPT	
2020	1.3E-09	0.00%	93.33%	1-IE-OTRANS,1-ACP-BAC-FC-AB15_____,1-EPS-DGN-MA-G4002_____,1-OEP-VCF-LP-CLOPT	
2021	1.3E-09	0.00%	93.33%	1-IE-OTRANS,1-ACP-BAC-FC-MCCABF_____,1-EPS-DGN-MA-G4002_____,1-OEP-VCF-LP-CLOPT	
2022	1.3E-09	0.00%	93.33%	1-IE-OTRANS,1-ACP-BAC-FC-MCCBBB_____,1-EPS-DGN-MA-G4001_____,1-OEP-VCF-LP-CLOPT	
2023	1.3E-09	0.00%	93.33%	1-IE-OTRANS,1-ACP-BAC-FC-MCCBBF_____,1-EPS-DGN-MA-G4001_____,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2024	1.3E-09	0.00%	93.34%	1-IE-OTRANS,1-ACP-BAC-FC-MCCABB____,1-EPS-DGN-MA-G4002____,1-OEP-VPF-LP-CLOPT	
2025	1.3E-09	0.00%	93.34%	1-IE-TTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCDE	
2026	1.3E-09	0.00%	93.34%	1-IE-TTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCDF	
2027	1.3E-09	0.00%	93.34%	1-IE-TTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCEF	
2028	1.3E-09	0.00%	93.34%	1-IE-TTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABDEF	
2029	1.3E-09	0.00%	93.34%	1-IE-TTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ACDEF	
2030	1.3E-09	0.00%	93.35%	1-IE-TTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-BCDEF	
2031	1.3E-09	0.00%	93.35%	1-IE-LOOPGR,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-MA-1668ACT__	
2032	1.3E-09	0.00%	93.35%	1-IE-SSBI,/1-OEP-VPF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-CTF-CF-FS-ALL	
2033	1.3E-09	0.00%	93.35%	1-IE-LOOPGR,1-CVC-MDP-TE-CCPA____,1-EPS-DGN-FR-G4002____,1-MSS-ADV-MA-VPV3000____,1-MSS-ADV-MA-VPV3030__	
2034	1.3E-09	0.00%	93.35%	1-IE-OTRANS,1-ACP-DPL-FC-AY2A____,1-EPS-DGN-FR-G4002____,1-OEP-VPF-LP-CLOPT	
2035	1.3E-09	0.00%	93.36%	1-IE-OTRANS,1-ACP-DPL-FC-BY2B____,1-EPS-DGN-FR-G4001____,1-OEP-VPF-LP-CLOPT	
2036	1.3E-09	0.00%	93.36%	1-IE-LLOCA,1-EPS-DGN-FR-G4001____,1-OEP-VPF-LP-CLOPL	
2037	1.3E-09	0.00%	93.36%	1-IE-LLOCA,1-EPS-DGN-FR-G4002____,1-OEP-VPF-LP-CLOPL	
2038	1.3E-09	0.00%	93.36%	1-IE-LO4160VA,1-ACP-BAC-MA-MCCBBB____,1-ACP-CRB-CC-NA0503__	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2039	1.3E-09	0.00%	93.36%	1-IE-LO4160VA,1-ACP-BAC-MA-MCCBBB__,1-ACP-CRB-OO-NA0501__	
2040	1.3E-09	0.00%	93.37%	1-IE-LO4160VB,1-ACP-BAC-MA-MCCABB__,1-ACP-CRB-CC-NA0503__	
2041	1.3E-09	0.00%	93.37%	1-IE-LO4160VB,1-ACP-BAC-MA-MCCABB__,1-ACP-CRB-OO-NA0501__	
2042	1.3E-09	0.00%	93.37%	1-IE-TTRIP,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-RLY-FC-AX36869_-CC	
2043	1.3E-09	0.00%	93.37%	1-IE-TTRIP,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-RLY-FC-162_1X89-CC	
2044	1.3E-09	0.00%	93.37%	1-IE-OTRANS,1-OA-START-AFW-H,1-OAB_TR-----H-HD,1-OAF_MFW-----H-CD,1-RPS-ICC-TE-605Q5SPA,1-RPS-ICC-TE-605Q5SPB	
2045	1.2E-09	0.00%	93.38%	1-IE-LOOPWR,1-ACP-BAC-MA-BYB1____,1-EPS-DGN-FS-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR	
2046	1.2E-09	0.00%	93.38%	1-IE-LOOPWR,1-ACP-BAC-MA-AYB1____,1-EPS-DGN-FS-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR	
2047	1.2E-09	0.00%	93.38%	1-IE-LOOPSC,1-EPS-SEQ-FO-1821U302,1-EPS-TNK-MA-DFOSTKA_,1-OA-ORS-----H	
2048	1.2E-09	0.00%	93.38%	1-IE-LO4160VA,1-ACP-BAC-MA-BB07____,1-OEP-VCF-LP-CLOPT	
2049	1.2E-09	0.00%	93.38%	1-IE-LO4160VA,1-ACP-BAC-MA-MCCBBB__,1-OEP-VCF-LP-CLOPT	
2050	1.2E-09	0.00%	93.39%	1-IE-LO4160VA,1-ACP-BAC-MA-MCCBBF__,1-OEP-VCF-LP-CLOPT	
2051	1.2E-09	0.00%	93.39%	1-IE-LO4160VB,1-ACP-BAC-MA-AB05____,1-OEP-VCF-LP-CLOPT	
2052	1.2E-09	0.00%	93.39%	1-IE-LO4160VB,1-ACP-BAC-MA-MCCABF__,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2053	1.2E-09	0.00%	93.39%	1-IE-LO4160VB,1-ACP-BAC-MA-MCCABB__,1-OEP-VCF-LP-CLOPT	
2054	1.2E-09	0.00%	93.39%	1-IE-LO4160VA,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-CLOPT	
2055	1.2E-09	0.00%	93.40%	1-IE-LO4160VB,1-EPS-SEQ-CF-FOAB,1-OEP-VCF-LP-CLOPT	
2056	1.2E-09	0.00%	93.40%	1-IE-LO4160VA,1-ACP-INV-FC-BD1112__,1-OEP-VCF-LP-CLOPT	
2057	1.2E-09	0.00%	93.40%	1-IE-LO4160VB,1-ACP-INV-FC-AD1111__,1-OEP-VCF-LP-CLOPT	
2058	1.2E-09	0.00%	93.40%	1-IE-SSBO,1-CAD-XHE-SAFESTBLE,1-EPS-SEQ-CF-FOAB	
2059	1.2E-09	0.00%	93.40%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001__,1-EPS-DGN-MA-G4002__,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR01HGR,1-SWS-MOV-CC-1668A__	
2060	1.2E-09	0.00%	93.41%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001__,1-EPS-DGN-MA-G4001__,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR01HGR,1-SWS-MOV-CC-1669A__	
2061	1.2E-09	0.00%	93.41%	1-IE-RTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCD	
2062	1.2E-09	0.00%	93.41%	1-IE-RTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABDE	
2063	1.2E-09	0.00%	93.41%	1-IE-RTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-BCDE	
2064	1.2E-09	0.00%	93.41%	1-IE-RTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCF	
2065	1.2E-09	0.00%	93.42%	1-IE-RTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABEF	
2066	1.2E-09	0.00%	93.42%	1-IE-RTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ACDF	
2067	1.2E-09	0.00%	93.42%	1-IE-RTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-BCEF	
2068	1.2E-09	0.00%	93.42%	1-IE-RTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ADEF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2069	1.2E-09	0.00%	93.42%	1-IE-RTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-CDEF	
2070	1.2E-09	0.00%	93.42%	1-IE-OTRANS,1-ACP-INV-FC-AD1111___,1-DCP-BAT-MA-BD1B___,1-OEP-VCF-LP-CLOPT	
2071	1.2E-09	0.00%	93.43%	1-IE-OTRANS,1-ACP-INV-FC-BD1112___,1-DCP-BAT-MA-AD1B___,1-OEP-VCF-LP-CLOPT	
2072	1.2E-09	0.00%	93.43%	1-IE-RTRIP,1-NSCW-CT-NEED-SWAP,1-NSCW-MOV-F-NON-RECBLE,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-1668A69A	
2073	1.2E-09	0.00%	93.43%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,/1-RPS-BME-TM-RTBA,/1-RPS-BME-TM-RTBB,1-RPS-CBI-CF-6OF8,/1-RPS-CCP-TM-CHA,1-RPS-XHE-XE-NSGNL	
2074	1.2E-09	0.00%	93.43%	1-IE-LOOPGR,1-ACP-BAC-FC-AA02___,1-ACP-CRB-CC-BA0301___,1-OEP-XHE-XL-NR02HGR	
2075	1.2E-09	0.00%	93.43%	1-IE-LOOPGR,1-ACP-BAC-FC-AB05___,1-ACP-CRB-CC-BA0301___,1-OEP-XHE-XL-NR02HGR	
2076	1.2E-09	0.00%	93.44%	1-IE-LOOPGR,1-ACP-BAC-FC-AB15___,1-ACP-CRB-CC-BA0301___,1-OEP-XHE-XL-NR02HGR	
2077	1.2E-09	0.00%	93.44%	1-IE-LOOPGR,1-ACP-BAC-FC-BA03___,1-ACP-CRB-CC-AA0205___,1-OEP-XHE-XL-NR02HGR	
2078	1.2E-09	0.00%	93.44%	1-IE-LOOPGR,1-ACP-BAC-FC-BB07___,1-ACP-CRB-CC-AA0205___,1-OEP-XHE-XL-NR02HGR	
2079	1.2E-09	0.00%	93.44%	1-IE-LOOPGR,1-ACP-BAC-FC-BB16___,1-ACP-CRB-CC-AA0205___,1-OEP-XHE-XL-NR02HGR	
2080	1.2E-09	0.00%	93.44%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCABB___,1-ACP-CRB-CC-BA0301___,1-OEP-XHE-XL-NR02HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2081	1.2E-09	0.00%	93.45%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCABF____,1-ACP-CRB-CC-BA0301____,1-OEP-XHE-XL-NR02HGR	
2082	1.2E-09	0.00%	93.45%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCBBB____,1-ACP-CRB-CC-AA0205____,1-OEP-XHE-XL-NR02HGR	
2083	1.2E-09	0.00%	93.45%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCBBF____,1-ACP-CRB-CC-AA0205____,1-OEP-XHE-XL-NR02HGR	
2084	1.2E-09	0.00%	93.45%	1-IE-OTRANS,1-AFW-MDP-MA-P4002____,1-EPS-SEQ-FO-1821U301,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
2085	1.2E-09	0.00%	93.45%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
2086	1.2E-09	0.00%	93.46%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
2087	1.2E-09	0.00%	93.46%	1-IE-MLOCA,1-ACP-INV-MA-AD1I1____,1-DCP-BAT-MA-BD1B_____	
2088	1.2E-09	0.00%	93.46%	1-IE-MLOCA,1-ACP-INV-MA-BD1I2____,1-DCP-BAT-MA-AD1B_____	
2089	1.2E-09	0.00%	93.46%	1-IE-SLOCA,1-EPS-SEQ-FO-1821U301,1-LPI-MDP-FS-RHRB_____,1-OA-NSCWFAN---H	
2090	1.2E-09	0.00%	93.46%	1-IE-SLOCA,1-EPS-SEQ-FO-1821U302,1-LPI-MDP-FS-RHRA_____,1-OA-NSCWFAN---H	
2091	1.2E-09	0.00%	93.47%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-LPI-MDP-MA-RHRB_____,1-OA-MISPAF5094H	
2092	1.2E-09	0.00%	93.47%	1-IE-LOOPGR,1-AFW-MDP-FS-P4002____,1-EPS-DGN-FR-G4001____,1-LPI-MDP-MA-RHRB_____	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2093	1.2E-09	0.00%	93.47%	1-IE-LOOPGR,1-AFW-MDP-MA-P4002____,1-EPS-DGN-FR-G4001____,1-LPI-MDP-FS-RHRB_____	
2094	1.2E-09	0.00%	93.47%	1-IE-LOOPGR,1-AFW-MDP-FS-P4002____,1-CVC-MDP-MA-CCPB____,1-EPS-DGN-FR-G4001_____	
2095	1.2E-09	0.00%	93.47%	1-IE-LOOPGR,1-CVC-MDP-MA-CCPB____,1-EPS-DGN-FR-G4001____,1-OA-MISPAF5094H	
2096	1.2E-09	0.00%	93.47%	1-IE-LOOPSC,1-ACP-INV-FC-AD1I11____,1-DCP-BAT-MA-BD1B____,1-RCS-MDP-LK-BP2	
2097	1.2E-09	0.00%	93.48%	1-IE-LOOPSC,1-ACP-INV-FC-BD1I12____,1-DCP-BAT-MA-AD1B____,1-RCS-MDP-LK-BP2	
2098	1.2E-09	0.00%	93.48%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-OA-MISPAF5094H,1-OAB_TR-----H	
2099	1.2E-09	0.00%	93.48%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-AFW-MDP-FS-P4002____,1-OAB_TR-----H	
2100	1.2E-09	0.00%	93.48%	1-IE-OTRANS,1-ACP-BAC-MA-BYB1____,1-EPS-DGN-FS-G4001____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT	
2101	1.2E-09	0.00%	93.48%	1-IE-OTRANS,1-ACP-BAC-MA-AYB1____,1-EPS-DGN-FS-G4002____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT	
2102	1.2E-09	0.00%	93.49%	1-IE-LOOPGR,1-EPS-TNK-MA-DFOSTKA____,1-EPS-TNK-MA-DFOSTKB____,1-OEP-XHE-XL-NR02HGR	
2103	1.2E-09	0.00%	93.49%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1,1-SWS-CTF-MA-_B_1234_	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2104	1.2E-09	0.00%	93.49%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1,1-SWS-CTF-MA-_A_1234__	
2105	1.2E-09	0.00%	93.49%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1669A__	
2106	1.2E-09	0.00%	93.49%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1668A__	
2107	1.2E-09	0.00%	93.50%	1-IE-LOOPWR,1-ACP-SSD-MA-1821U302,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HWR	
2108	1.2E-09	0.00%	93.50%	1-IE-LOOPGR,1-DCP-BAT-MA-BD1B____,1-EPS-TNK-MA-DFOSTKA____,1-OA-ORS-----H	
2109	1.2E-09	0.00%	93.50%	1-IE-LO125AD1,1-DCP-BDC-FC-AD1&____,/1-RPS-BME-TM-RTBA,/1-RPS-BME-TM-RTBB,1-RPS-CBI-CF-6OF8,/1-RPS-CCP-TM-CHA,1-RPS-XHE-XE-NSGNL	
2110	1.2E-09	0.00%	93.50%	1-IE-LO125BD1,1-DCP-BDC-FC-BD1&____,/1-RPS-BME-TM-RTBA,/1-RPS-BME-TM-RTBB,1-RPS-CBI-CF-6OF8,/1-RPS-CCP-TM-CHA,1-RPS-XHE-XE-NSGNL	
2111	1.2E-09	0.00%	93.50%	1-IE-LOOPGR,1-DCP-BAT-MA-CD1B____,1-EPS-DGN-CF-FRUN1,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR0	
2112	1.2E-09	0.00%	93.50%	1-IE-LOOPGR,1-DCP-FUS-OP-AD104____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	
2113	1.2E-09	0.00%	93.51%	1-IE-LOOPGR,1-DCP-FUS-OP-BD104____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	
2114	1.2E-09	0.00%	93.51%	1-IE-LO4160VB,1-ACP-SSD-MA-1821U301,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2115	1.2E-09	0.00%	93.51%	1-IE-OTRANS,1-ACP-CRB-CC-AA0205__,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-RLOOP	
2116	1.2E-09	0.00%	93.51%	1-IE-OTRANS,1-ACP-CRB-CC-BA0301__,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-RLOOP	
2117	1.2E-09	0.00%	93.51%	1-IE-LOOPSC,1-EPS-DGN-MA-G4002__,1-EPS-SEQ-FO-1821U301,1-OA-ALIGNPW-02HR,1-OEP-XHE-XL-NR02HSC	
2118	1.2E-09	0.00%	93.52%	1-IE-LOOPSC,1-EPS-DGN-MA-G4001__,1-EPS-SEQ-FO-1821U302,1-OA-ALIGNPW-02HR,1-OEP-XHE-XL-NR02HSC	
2119	1.2E-09	0.00%	93.52%	1-IE-LOOPSC,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ADEF	
2120	1.2E-09	0.00%	93.52%	1-IE-LOOPSC,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABEF	
2121	1.2E-09	0.00%	93.52%	1-IE-LOOPSC,1-OA-ORS-----H,1-SWS-MDP-CF-FS-BCEF	
2122	1.2E-09	0.00%	93.52%	1-IE-LOOPSC,1-OA-ORS-----H,1-SWS-MDP-CF-FS-CDEF	
2123	1.2E-09	0.00%	93.53%	1-IE-LOOPSC,1-OA-ORS-----H,1-SWS-MDP-CF-FS-BCDE	
2124	1.2E-09	0.00%	93.53%	1-IE-LOOPSC,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABCF	
2125	1.2E-09	0.00%	93.53%	1-IE-LOOPSC,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABCD	
2126	1.2E-09	0.00%	93.53%	1-IE-LOOPSC,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ACDF	
2127	1.2E-09	0.00%	93.53%	1-IE-LOOPSC,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABDE	
2128	1.2E-09	0.00%	93.53%	1-IE-LO4160VA,1-ACP-INV-MA-BD1112__,1-OEP-VCF-LP-CLOPT	
2129	1.2E-09	0.00%	93.54%	1-IE-LOOPWR,1-ACP-BAC-FC-BYB1__,1-EPS-DGN-MA-G4001__,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2130	1.2E-09	0.00%	93.54%	1-IE-LOOPWR,1-ACP-BAC-FC-AYB1____,1-EPS-DGN-MA-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR	
2131	1.2E-09	0.00%	93.54%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001____,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1,1-SWS-MOV-CC-1669A____	
2132	1.2E-09	0.00%	93.54%	1-IE-LOOPWR,1-EPS-DGN-FR-G4002____,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1,1-SWS-MOV-CC-1668A____	
2133	1.2E-09	0.00%	93.54%	1-IE-LOOPWR,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1,1-SWS-MDP-MA-P4_00135-3	
2134	1.2E-09	0.00%	93.55%	1-IE-SGTR,1-ACP-CRB-CC-AA0205____,1-ACP-CRB-CC-BA0301____,1-OEP-VCf-LP-CLOPL	
2135	1.2E-09	0.00%	93.55%	1-IE-LOOPPC,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CF-1668A69A	
2136	1.2E-09	0.00%	93.55%	1-IE-LOOPSC,1-ACP-DCP-FC-1B_PS4____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	
2137	1.2E-09	0.00%	93.55%	1-IE-LOOPSC,1-ACP-DCP-FC-1A_PS1____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	
2138	1.2E-09	0.00%	93.55%	1-IE-LOOPSC,1-ACP-DCP-FC-1A_PS4____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	
2139	1.2E-09	0.00%	93.56%	1-IE-LOOPSC,1-ACP-DCP-FC-1B_PS1____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2140	1.2E-09	0.00%	93.56%	1-IE-LOOPGR,1-AFW-MDP-CF-START,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	
2141	1.2E-09	0.00%	93.56%	1-IE-LOOPGR,1-DCP-BAT-MA-CD1B____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR2	
2142	1.2E-09	0.00%	93.56%	1-IE-LOOPPC,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1668A____	
2143	1.2E-09	0.00%	93.56%	1-IE-LOOPPC,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1669A____	
2144	1.2E-09	0.00%	93.56%	1-IE-LOOPWR,1-ACP-DCP-FC-1B_PS4____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
2145	1.2E-09	0.00%	93.57%	1-IE-LOOPWR,1-ACP-DCP-FC-1A_PS1____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
2146	1.2E-09	0.00%	93.57%	1-IE-LOOPWR,1-ACP-DCP-FC-1A_PS4____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
2147	1.2E-09	0.00%	93.57%	1-IE-LOOPWR,1-ACP-DCP-FC-1B_PS1____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
2148	1.2E-09	0.00%	93.57%	1-IE-OTRANS,1-ACP-SSD-MA-1821U302,1-EPS-DGN-FS-G4001____,1-OEP-VCF-LP-CLOPT	
2149	1.2E-09	0.00%	93.57%	1-IE-RTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCDE	
2150	1.2E-09	0.00%	93.58%	1-IE-RTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCDF	
2151	1.2E-09	0.00%	93.58%	1-IE-RTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCEF	
2152	1.2E-09	0.00%	93.58%	1-IE-RTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABDEF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2153	1.2E-09	0.00%	93.58%	1-IE-RTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ACDEF	
2154	1.2E-09	0.00%	93.58%	1-IE-RTRIP,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-BCDEF	
2155	1.2E-09	0.00%	93.58%	1-IE-LOOPWR,1-AFW-MDP-MA-P4002____,1-CVC-MDP-MA-CCPB____,1-EPS-DGN-FR-G4001____	
2156	1.2E-09	0.00%	93.59%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABCEF	
2157	1.2E-09	0.00%	93.59%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABDEF	
2158	1.2E-09	0.00%	93.59%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-BCDEF	
2159	1.2E-09	0.00%	93.59%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ACDEF	
2160	1.2E-09	0.00%	93.59%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABCDE	
2161	1.2E-09	0.00%	93.60%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABCDF	
2162	1.2E-09	0.00%	93.60%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-HPI-MOV-OO-HV8105__	
2163	1.2E-09	0.00%	93.60%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-HPI-MOV-OO-HV8508B__	
2164	1.2E-09	0.00%	93.60%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-HPI-MOV-CC-HV8801B__	
2165	1.2E-09	0.00%	93.60%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-HPI-MOV-CC-HV8804B__	
2166	1.2E-09	0.00%	93.60%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-HPI-MOV-CC-HV8807B__	
2167	1.2E-09	0.00%	93.61%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-HPI-MOV-OO-HV8813__	
2168	1.2E-09	0.00%	93.61%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-HPI-MOV-OO-LV0112C__	
2169	1.2E-09	0.00%	93.61%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-HPI-MOV-CC-LV0112E__	
2170	1.2E-09	0.00%	93.61%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-LPI-MOV-OO-HV8812B__	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2171	1.2E-09	0.00%	93.61%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-LPI-MOV-CC-HV8811B_	
2172	1.2E-09	0.00%	93.62%	1-IE-LO4160VA,1-AFW-MOV-OO-FV5154____,1-LPI-MDP-MA-RHRB	
2173	1.2E-09	0.00%	93.62%	1-IE-LO4160VA,1-AFW-MOV-OO-FV5154____,1-CVC-MDP-MA-CCPB	
2174	1.2E-09	0.00%	93.62%	1-IE-LO125AD1,1-DCP-BDC-FC-AD1&____,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-RLOOP	
2175	1.2E-09	0.00%	93.62%	1-IE-LO125BD1,1-DCP-BDC-FC-BD1&____,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-RLOOP	
2176	1.2E-09	0.00%	93.62%	1-IE-LOOPSC,1-AFW-MDP-CF-START,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H	
2177	1.2E-09	0.00%	93.62%	1-IE-OTRANS,1-ACP-BAC-FC-BYB1____,1-EPS-DGN-MA-G4001____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT	
2178	1.2E-09	0.00%	93.63%	1-IE-OTRANS,1-ACP-BAC-FC-AYB1____,1-EPS-DGN-MA-G4002____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT	
2179	1.1E-09	0.00%	93.63%	1-IE-RTRIP,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-RLY-FC-AX36869_-CC	
2180	1.1E-09	0.00%	93.63%	1-IE-RTRIP,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-RLY-FC-162_1X89-CC	
2181	1.1E-09	0.00%	93.63%	1-IE-LOOPGR,1-NSCW-F-WTRHAMMER,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-OO-1668B69B-CC	
2182	1.1E-09	0.00%	93.63%	1-IE-LOOPGR,1-AFW-MDP-MA-P4002____,1-CVC-MDP-TE-CCPB____,1-EPS-DGN-MA-G4001____	
2183	1.1E-09	0.00%	93.63%	1-IE-LOOPWR,1-ACP-DCP-FC-1B_PS4____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HWR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2184	1.1E-09	0.00%	93.64%	1-IE-LOOPWR,1-ACP-DCP-FC-1A_PS1__,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HWR	
2185	1.1E-09	0.00%	93.64%	1-IE-LOOPWR,1-ACP-DCP-FC-1A_PS4__,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HWR	
2186	1.1E-09	0.00%	93.64%	1-IE-LOOPWR,1-ACP-DCP-FC-1B_PS1__,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HWR	
2187	1.1E-09	0.00%	93.64%	1-IE-SSBI,1-ACP-BAC-MA-AA02____,1-OAB_TR-----H,1-SSBI-2	
2188	1.1E-09	0.00%	93.64%	1-IE-SSBI,1-ACP-BAC-MA-AA02____,1-OAB_TR-----H,1-SSBI-3	
2189	1.1E-09	0.00%	93.65%	1-IE-LOMFW,1-AFW-MDP-CF-START,1-AFW-TDP-FS-P4001____,1-OAB_TR-----H	
2190	1.1E-09	0.00%	93.65%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205__,1-AFW-MOV-OO-FV5154__,1-OAB_TR-----H	
2191	1.1E-09	0.00%	93.65%	1-IE-LOOPSC,1-AFW-MDP-MA-P4002____,1-EPS-TNK-MA-DFOSTKA__,1-OAB_TR-----H	
2192	1.1E-09	0.00%	93.65%	1-IE-LOOPPC,1-ACP-INV-MA-AD1111__,1-EPS-SEQ-FO-1821U302,1-RCS-MDP-LK-BP2	
2193	1.1E-09	0.00%	93.65%	1-IE-ISL-RCP-S1LO,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-IE-LOOPSC,1-OA-IS-ISLSEALSBO,1-RCS-MDP-LK-BP1,/1-RCS-MDP-LK-BP2	
2194	1.1E-09	0.00%	93.65%	1-IE-LO4160VB,1-AFW-MDP-MA-P4003____,1-AFW-TDP-FS-P4001____,1-OAB_TR-----H	
2195	1.1E-09	0.00%	93.66%	1-IE-LO4160VA,1-ACP-BAC-MA-BYB1____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT	
2196	1.1E-09	0.00%	93.66%	1-IE-LO4160VB,1-ACP-BAC-MA-AYB1____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2197	1.1E-09	0.00%	93.66%	1-IE-LOOPGR,1-AFW-TDP-MA-P4001____,1-EPS-DGN-CF-FSUN1,1-OEP-XHE-XL-NR01HGR	
2198	1.1E-09	0.00%	93.66%	1-IE-LOOPPC,1-AFW-MDP-MA-P4002____,1-EPS-SEQ-FO-1821U301,1-OAB_TR-----H	
2199	1.1E-09	0.00%	93.66%	1-IE-LOOPGR,1-EPS-DGN-FS-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-MA-1668ACT_	
2200	1.1E-09	0.00%	93.67%	1-IE-LOOPSC,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABCDF	
2201	1.1E-09	0.00%	93.67%	1-IE-LOOPSC,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABCEF	
2202	1.1E-09	0.00%	93.67%	1-IE-LOOPSC,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABDEF	
2203	1.1E-09	0.00%	93.67%	1-IE-LOOPSC,1-OA-ORS-----H,1-SWS-MDP-CF-FS-BCDEF	
2204	1.1E-09	0.00%	93.67%	1-IE-LOOPSC,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ACDEF	
2205	1.1E-09	0.00%	93.67%	1-IE-LOOPSC,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABCDE	
2206	1.1E-09	0.00%	93.68%	1-IE-LOOPSC,1-ACP-CRB-OO-ANA0401____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HSC,1-OEP-XHE-XX-NR02HSC2	
2207	1.1E-09	0.00%	93.68%	1-IE-LOOPSC,1-ACP-CRB-OO-AA0201____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HSC,1-OEP-XHE-XX-NR02HSC2	
2208	1.1E-09	0.00%	93.68%	1-IE-LOOPGR,1-ACP-BAC-FC-AYB1____,1-ACP-CRB-CC-BA0301____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2209	1.1E-09	0.00%	93.68%	1-IE-LOOPGR,1-ACP-BAC-FC-BYB1____,1-ACP-CRB-CC-AA0205____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR	
2210	1.1E-09	0.00%	93.68%	1-IE-LOOPGR,1-ACP-BAC-FC-BA03____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
2211	1.1E-09	0.00%	93.68%	1-IE-LOOPGR,1-ACP-BAC-FC-BB07____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
2212	1.1E-09	0.00%	93.69%	1-IE-LOOPGR,1-ACP-BAC-FC-BB16____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
2213	1.1E-09	0.00%	93.69%	1-IE-LOOPGR,1-ACP-BAC-FC-AA02____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
2214	1.1E-09	0.00%	93.69%	1-IE-LOOPGR,1-ACP-BAC-FC-AB05____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
2215	1.1E-09	0.00%	93.69%	1-IE-LOOPGR,1-ACP-BAC-FC-AB15____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
2216	1.1E-09	0.00%	93.69%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCABF____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
2217	1.1E-09	0.00%	93.69%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCBBB____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
2218	1.1E-09	0.00%	93.70%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCBBF____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
2219	1.1E-09	0.00%	93.70%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCABB____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
2220	1.1E-09	0.00%	93.70%	1-IE-OTRANS,1-ACP-DCP-FC-1B_PS4____,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2221	1.1E-09	0.00%	93.70%	1-IE-OTRANS,1-ACP-DCP-FC-1A_PS1__,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
2222	1.1E-09	0.00%	93.70%	1-IE-OTRANS,1-ACP-DCP-FC-1A_PS4__,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
2223	1.1E-09	0.00%	93.71%	1-IE-OTRANS,1-ACP-DCP-FC-1B_PS1__,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	
2224	1.1E-09	0.00%	93.71%	1-IE-LOMFW,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCDEF	
2225	1.1E-09	0.00%	93.71%	1-IE-OTRANS,1-ACP-BAC-FC-AA02____,1-AFW-MDP-FS-P4002____,1-OAB_TR-----H	
2226	1.1E-09	0.00%	93.71%	1-IE-OTRANS,1-ACP-BAC-FC-AA02____,1-OA-MISPAF5094H,1-OAB_TR-----H	
2227	1.1E-09	0.00%	93.71%	1-IE-SSBO,1-ACP-BAC-MA-BA03____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2228	1.1E-09	0.00%	93.71%	1-IE-SSBO,1-ACP-BAC-MA-BB16____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2229	1.1E-09	0.00%	93.72%	1-IE-SSBO,1-ACP-BAC-MA-AB15____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2230	1.1E-09	0.00%	93.72%	1-IE-SSBO,1-ACP-BAC-MA-AA02____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2231	1.1E-09	0.00%	93.72%	1-IE-SSBO,1-ACP-INV-FC-BD1I12____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2232	1.1E-09	0.00%	93.72%	1-IE-SSBO,1-ACP-INV-FC-AD1I11____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2233	1.1E-09	0.00%	93.72%	1-IE-SLOCA,1-LPI-MDP-FS-RHRA____,1-LPI-MDP-MA-RHRB____	
2234	1.1E-09	0.00%	93.72%	1-IE-SLOCA,1-LPI-MDP-FS-RHRB____,1-LPI-MDP-MA-RHRA____	
2235	1.1E-09	0.00%	93.73%	1-IE-LOOPSC,1-EPS-DGN-FS-G4002____,1-EPS-TNK-MA-DFOSTKA____,1-OA-ORS-----H	
2236	1.1E-09	0.00%	93.73%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-1668A69A	
2237	1.1E-09	0.00%	93.73%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U302,1-ESF-RLY-MA-____K601A	
2238	1.1E-09	0.00%	93.73%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U302,1-ESF-RLY-MA-____K603A	
2239	1.1E-09	0.00%	93.73%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U302,1-ESF-RLY-MA-____K610A	
2240	1.1E-09	0.00%	93.73%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U302,1-ESF-RLY-MA-____K609A	
2241	1.1E-09	0.00%	93.74%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U302,1-ESF-RLY-MA-____K615A	
2242	1.1E-09	0.00%	93.74%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U302,1-ESF-RLY-MA-____K618A	
2243	1.1E-09	0.00%	93.74%	1-IE-MLOCA,1-ESF-RLY-MA-____K618A,1-ESF-SSD-FC-____3A3131B	
2244	1.1E-09	0.00%	93.74%	1-IE-MLOCA,1-ESF-RLY-MA-____K609A,1-ESF-SSD-FC-____3A3131B	
2245	1.1E-09	0.00%	93.74%	1-IE-MLOCA,1-ESF-RLY-MA-____K610A,1-ESF-SSD-FC-____3A3131B	
2246	1.1E-09	0.00%	93.74%	1-IE-MLOCA,1-ESF-RLY-MA-____K615A,1-ESF-SSD-FC-____3A3131B	
2247	1.1E-09	0.00%	93.75%	1-IE-MLOCA,1-ESF-RLY-MA-____K601A,1-ESF-SSD-FC-____3A3131B	
2248	1.1E-09	0.00%	93.75%	1-IE-MLOCA,1-ESF-RLY-MA-____K603A,1-ESF-SSD-FC-____3A3131B	
2249	1.1E-09	0.00%	93.75%	1-IE-MLOCA,1-ESF-RLY-MA-____K618A,1-ESF-SSD-FC-____A513_1B	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2250	1.1E-09	0.00%	93.75%	1-IE-MLOCA,1-ESF-RLY-MA- K609A,1-ESF-SSD-FC-__A513__1B	
2251	1.1E-09	0.00%	93.75%	1-IE-MLOCA,1-ESF-RLY-MA- K610A,1-ESF-SSD-FC-__A513__1B	
2252	1.1E-09	0.00%	93.75%	1-IE-MLOCA,1-ESF-RLY-MA- K615A,1-ESF-SSD-FC-__A513__1B	
2253	1.1E-09	0.00%	93.76%	1-IE-MLOCA,1-ESF-RLY-MA- K601A,1-ESF-SSD-FC-__A513__1B	
2254	1.1E-09	0.00%	93.76%	1-IE-MLOCA,1-ESF-RLY-MA- K603A,1-ESF-SSD-FC-__A513__1B	
2255	1.1E-09	0.00%	93.76%	1-IE-MLOCA,1-ESF-RLY-MA- K618A,1-ESF-SSD-FC-__3A4161B	
2256	1.1E-09	0.00%	93.76%	1-IE-MLOCA,1-ESF-RLY-MA- K609A,1-ESF-SSD-FC-__3A4161B	
2257	1.1E-09	0.00%	93.76%	1-IE-MLOCA,1-ESF-RLY-MA- K610A,1-ESF-SSD-FC-__3A4161B	
2258	1.1E-09	0.00%	93.77%	1-IE-MLOCA,1-ESF-RLY-MA- K615A,1-ESF-SSD-FC-__3A4161B	
2259	1.1E-09	0.00%	93.77%	1-IE-MLOCA,1-ESF-RLY-MA- K601A,1-ESF-SSD-FC-__3A4161B	
2260	1.1E-09	0.00%	93.77%	1-IE-MLOCA,1-ESF-RLY-MA- K603A,1-ESF-SSD-FC-__3A4161B	
2261	1.1E-09	0.00%	93.77%	1-IE-MLOCA,1-ESF-RLY-MA- K618A,1-ESF-SSD-FC-__4A315B	
2262	1.1E-09	0.00%	93.77%	1-IE-MLOCA,1-ESF-RLY-MA- K609A,1-ESF-SSD-FC-__4A315B	
2263	1.1E-09	0.00%	93.77%	1-IE-MLOCA,1-ESF-RLY-MA- K610A,1-ESF-SSD-FC-__4A315B	
2264	1.1E-09	0.00%	93.78%	1-IE-MLOCA,1-ESF-RLY-MA- K615A,1-ESF-SSD-FC-__4A315B	
2265	1.1E-09	0.00%	93.78%	1-IE-MLOCA,1-ESF-RLY-MA- K601A,1-ESF-SSD-FC-__4A315B	
2266	1.1E-09	0.00%	93.78%	1-IE-MLOCA,1-ESF-RLY-MA- K603A,1-ESF-SSD-FC-__4A315B	
2267	1.1E-09	0.00%	93.78%	1-IE-MLOCA,1-ESF-RLY-MA- K618A,1-ESF-SSD-FC-__A517__1B	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2268	1.1E-09	0.00%	93.78%	1-IE-MLOCA,1-ESF-RLY-MA-K609A,1-ESF-SSD-FC-_A517_1B	
2269	1.1E-09	0.00%	93.78%	1-IE-MLOCA,1-ESF-RLY-MA-K610A,1-ESF-SSD-FC-_A517_1B	
2270	1.1E-09	0.00%	93.79%	1-IE-MLOCA,1-ESF-RLY-MA-K615A,1-ESF-SSD-FC-_A517_1B	
2271	1.1E-09	0.00%	93.79%	1-IE-MLOCA,1-ESF-RLY-MA-K601A,1-ESF-SSD-FC-_A517_1B	
2272	1.1E-09	0.00%	93.79%	1-IE-MLOCA,1-ESF-RLY-MA-K603A,1-ESF-SSD-FC-_A517_1B	
2273	1.1E-09	0.00%	93.79%	1-IE-LOOPGR,1-ACP-DPL-FC-AY2A____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HGR	
2274	1.1E-09	0.00%	93.79%	1-IE-LOOPGR,1-ACP-DPL-FC-BY2B____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HGR	
2275	1.1E-09	0.00%	93.79%	1-IE-MLOCA,1-CVC-MDP-FS-CCPA____,1-DCP-BAT-MA-BD1B____,1-OAD_MLA-----H	
2276	1.1E-09	0.00%	93.80%	1-IE-MLOCA,1-CVC-MDP-FS-CCPB____,1-DCP-BAT-MA-AD1B____,1-OAD_MLA-----H	
2277	1.1E-09	0.00%	93.80%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR01HWR,1-SWS-MOV-CF-1668A69A	
2278	1.1E-09	0.00%	93.80%	1-IE-SSBI,1-DCP-BAT-MA-AD1B____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
2279	1.1E-09	0.00%	93.80%	1-IE-SSBI,1-DCP-BAT-MA-BD1B____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2280	1.1E-09	0.00%	93.80%	1-IE-LOOPSC,1-ACP-DCP-FC-1B_PS4___,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFFAN---H,1-RCS-MDP-LK-BP2	
2281	1.1E-09	0.00%	93.80%	1-IE-LOOPSC,1-ACP-DCP-FC-1B_PS1___,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFFAN---H,1-RCS-MDP-LK-BP2	
2282	1.1E-09	0.00%	93.81%	1-IE-LOOPSC,1-ACP-DCP-FC-1A_PS1___,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFFAN---H,1-RCS-MDP-LK-BP2	
2283	1.1E-09	0.00%	93.81%	1-IE-LOOPSC,1-ACP-DCP-FC-1A_PS4___,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFFAN---H,1-RCS-MDP-LK-BP2	
2284	1.1E-09	0.00%	93.81%	1-IE-LO4160VA,1-AFW-MDP-FS-P4002___,1-LPI-MDP-FS-RHRB_____	
2285	1.1E-09	0.00%	93.81%	1-IE-LO4160VA,1-LPI-MDP-FS-RHRB_____,1-OA-MISPAF5094H	
2286	1.1E-09	0.00%	93.81%	1-IE-SLOCA,1-EPS-DGN-FR-G4001___,1-LPI-MDP-MA-RHRB_____,1-OEP-VCF-LP-CLOPL	
2287	1.1E-09	0.00%	93.81%	1-IE-SLOCA,1-EPS-DGN-FR-G4002___,1-LPI-MDP-MA-RHRA_____,1-OEP-VCF-LP-CLOPL	
2288	1.1E-09	0.00%	93.82%	1-IE-LOOPWR,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-RLY-FC-162_1X89-CC	
2289	1.1E-09	0.00%	93.82%	1-IE-LOOPWR,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-RLY-FC-AX36869_-CC	
2290	1.1E-09	0.00%	93.82%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT,1-SWS-SWT-FC-TY16689B-CC	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2291	1.1E-09	0.00%	93.82%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1,1-SWS-MOV-MA-1669ACT__	
2292	1.1E-09	0.00%	93.82%	1-IE-LOOPSC,1-ACP-CRB-OO-AA0201____,1-EPS-DGN-FR-G4002____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HSC,1-OEP-XHE-XX-NR02HSC1	
2293	1.1E-09	0.00%	93.82%	1-IE-LOOPSC,1-ACP-CRB-OO-ANA0401____,1-EPS-DGN-FR-G4002____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HSC,1-OEP-XHE-XX-NR02HSC1	
2294	1.1E-09	0.00%	93.83%	1-IE-LOOPSC,1-ACP-CRB-OO-AA0201____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HSC,1-OEP-XHE-XX-NR02HSC1	
2295	1.1E-09	0.00%	93.83%	1-IE-LOOPSC,1-ACP-CRB-OO-ANA0401____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HSC,1-OEP-XHE-XX-NR02HSC1	
2296	1.1E-09	0.00%	93.83%	1-IE-LOOPPC,1-EPS-DGN-FS-G4001____,1-EPS-SEQ-FO-1821U302,1-OA-ORS-----H	
2297	1.1E-09	0.00%	93.83%	1-IE-LOOPPC,1-EPS-DGN-FS-G4002____,1-EPS-SEQ-FO-1821U301,1-OA-ORS-----H	
2298	1.1E-09	0.00%	93.83%	1-IE-SSBO,1-ACP-DCP-FC-1B_PS4____,1-DCP-BAT-MA-AD1B____,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2299	1.1E-09	0.00%	93.84%	1-IE-SSBO,1-ACP-DCP-FC-1B_PS1____,1-DCP-BAT-MA-AD1B____,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
2300	1.1E-09	0.00%	93.84%	1-IE-SSBO,1-ACP-DCP-FC-1A_PS4____,1-DCP-BAT-MA-BD1B____,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
2301	1.1E-09	0.00%	93.84%	1-IE-SSBO,1-ACP-DCP-FC-1A_PS1____,1-DCP-BAT-MA-BD1B____,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
2302	1.1E-09	0.00%	93.84%	1-IE-OTRANS,1-AFW-MDP-MA-P4002____,1-EPS-DGN-FS-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
2303	1.1E-09	0.00%	93.84%	1-IE-LO4160VA,1-ACP-SSD-MA-1821U302,1-OEP-VCF-LP-CLOPT	
2304	1.1E-09	0.00%	93.84%	1-IE-SLOCA,1-ACP-INV-MA-AD1I11____,1-EPS-SEQ-FO-1821U302	
2305	1.1E-09	0.00%	93.85%	1-IE-LO4160VB,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP1,1-SWS-MOV-MA-1668ACT_	
2306	1.1E-09	0.00%	93.85%	1-IE-OTRANS,1-AFW-MDP-CF-START,1-AFW-TDP-MA-P4001____,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
2307	1.1E-09	0.00%	93.85%	1-IE-LOOPGR,1-AFW-TDP-MA-P4001____,1-EPS-MDP-FS-XFERPPS_-CC,1-OEP-XHE-XL-NR01HGR	
2308	1.1E-09	0.00%	93.85%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-AFW-TDP-FS-P4001____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR01HWR	
2309	1.1E-09	0.00%	93.85%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-AFW-TDP-FS-P4001____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR01HWR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2310	1.1E-09	0.00%	93.85%	1-IE-LO4160VA,1-ACW-MDP-MA-P4_002___,1-LPI-MDP-FS-RHRB___,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP	
2311	1.1E-09	0.00%	93.86%	1-IE-LOOPGR,1-ACP-INV-MA-AD111___,1-CVC-MDP-MA-CCPA___,1-EPS-DGN-FR-G4002___	
2312	1.1E-09	0.00%	93.86%	1-IE-LOOPGR,1-ACP-INV-MA-BD112___,1-CVC-MDP-MA-CCPB___,1-EPS-DGN-FR-G4001___	
2313	1.1E-09	0.00%	93.86%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001___,1-EPS-DGN-FR-G4002___,1-EPS-TNK-MA-DFOSTKA___,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
2314	1.1E-09	0.00%	93.86%	1-IE-SSBO,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP1	
2315	1.1E-09	0.00%	93.86%	1-IE-LOMFWD,1-AMSAC,1-RPS-BME-CF-RTBAB,1-RPS-ROD-CF-RCCAS	
2316	1.1E-09	0.00%	93.86%	1-IE-OTRANS,1-ACP-TFW-FC-AB15X___,1-EPS-DGN-FR-G4002___,1-OEP-VCF-LP-CLOPT	
2317	1.1E-09	0.00%	93.87%	1-IE-OTRANS,1-ACP-TFW-FC-BB07X___,1-EPS-DGN-FR-G4001___,1-OEP-VCF-LP-CLOPT	
2318	1.1E-09	0.00%	93.87%	1-IE-OTRANS,1-ACP-TFW-FC-BB16X___,1-EPS-DGN-FR-G4001___,1-OEP-VCF-LP-CLOPT	
2319	1.1E-09	0.00%	93.87%	1-IE-OTRANS,1-ACP-TFW-FC_1ASEQT1,1-EPS-DGN-FR-G4002___,1-OEP-VCF-LP-CLOPT	
2320	1.1E-09	0.00%	93.87%	1-IE-OTRANS,1-ACP-TFW-FC_1ASEQT2,1-EPS-DGN-FR-G4002___,1-OEP-VCF-LP-CLOPT	
2321	1.1E-09	0.00%	93.87%	1-IE-OTRANS,1-ACP-TFW-FC_1BSEQT1,1-EPS-DGN-FR-G4001___,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2322	1.1E-09	0.00%	93.87%	1-IE-OTRANS,1-ACP-TFW-FC-1BSEQT2,1-EPS-DGN-FR-G4001____,1-OEP-VCF-LP-CLOPT	
2323	1.1E-09	0.00%	93.88%	1-IE-OTRANS,1-ACP-TFW-FC-AB05X____,1-EPS-DGN-FR-G4002____,1-OEP-VCF-LP-CLOPT	
2324	1.1E-09	0.00%	93.88%	1-IE-LOOPSC,1-CVC-MDP-TE-CCPA____,1-EPS-DGN-FR-G4002____,1-MSS-ADV-MA-VPV3000____,1-MSS-ADV-MA-VPV3030__	
2325	1.1E-09	0.00%	93.88%	1-IE-SSBO,1-ACP-SSD-MA-1821U301,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2326	1.1E-09	0.00%	93.88%	1-IE-LOACCW,1-ACP-CRB-CF-A205301,1-IE-ACW-MDP-CF-FR12,1-OEP-VCF-LP-CLOPT,/1-RCS-MDP-LK-BP1,/1-RCS-MDP-LK-BP2	
2327	1.1E-09	0.00%	93.88%	1-IE-LLOCA,1-2-5--PC-PG-T_ON_LOO-1,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H	
2328	1.1E-09	0.00%	93.88%	1-IE-LLOCA,1-2-5--PC-PG-T_ON_LOO-2,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H	
2329	1.1E-09	0.00%	93.89%	1-IE-LLOCA,1-2-5--PC-PG-T_ON_LOO-3,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H	
2330	1.1E-09	0.00%	93.89%	1-IE-LLOCA,1-2-5--PC-PG-T_ON_LOO-4,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H	
2331	1.1E-09	0.00%	93.89%	1-IE-LOOPGR,1-DCP-FUS-OP-BD104____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HGR	
2332	1.1E-09	0.00%	93.89%	1-IE-LOOPGR,1-DCP-FUS-OP-AD104____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HGR	
2333	1.1E-09	0.00%	93.89%	1-IE-SSBO,1-ACP-INV-MA-BD1112____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2334	1.1E-09	0.00%	93.89%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301__,1-ACP-INV-MA-AD1I11__,1-OA-ORS-----H	
2335	1.1E-09	0.00%	93.90%	1-IE-LOOPGR,1-ACP-DCP-FC-1A_PS1__,1-DCP-BAT-MA-BD1B__,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2336	1.1E-09	0.00%	93.90%	1-IE-LOOPGR,1-ACP-DCP-FC-1A_PS4__,1-DCP-BAT-MA-BD1B__,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2337	1.1E-09	0.00%	93.90%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS4__,1-DCP-BAT-MA-AD1B__,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2338	1.1E-09	0.00%	93.90%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS1__,1-DCP-BAT-MA-AD1B__,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2339	1.1E-09	0.00%	93.90%	1-IE-LOOPSC,1-EPS-DGN-FS-G4002__,1-EPS-DGN-MA-G4001__,1-OA-ALIGNPW-02HR,1-OEP-XHE-XL-NR02HSC	
2340	1.1E-09	0.00%	93.90%	1-IE-LOOPSC,1-EPS-DGN-FS-G4001__,1-EPS-DGN-MA-G4002__,1-OA-ALIGNPW-02HR,1-OEP-XHE-XL-NR02HSC	
2341	1.1E-09	0.00%	93.91%	1-IE-TTRIP,1-AFW-TNK-RP-V4001__,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
2342	1.1E-09	0.00%	93.91%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205__,1-OEP-XHE-XL-NR02HGR,1-SWS-CTF-MA- B_1234_	
2343	1.1E-09	0.00%	93.91%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301__,1-OEP-XHE-XL-NR02HGR,1-SWS-CTF-MA- A_1234_	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2344	1.0E-09	0.00%	93.91%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-1,1-CVC-MDP-TE-CCPA____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H	
2345	1.0E-09	0.00%	93.91%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-2,1-CVC-MDP-TE-CCPA____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H	
2346	1.0E-09	0.00%	93.91%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-3,1-CVC-MDP-TE-CCPB____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H	
2347	1.0E-09	0.00%	93.91%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-4,1-CVC-MDP-TE-CCPB____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H	
2348	1.0E-09	0.00%	93.92%	1-IE-LOOPSC,1-ACP-CRB-CC-BA0301____,1-EPS-DGN-FR-G4001____,1-OA-ALIGNPW-02HR,1-OEP-XHE-XL-NR02HSC,1-OEP-XHE-XX-NR02HSC1	
2349	1.0E-09	0.00%	93.92%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205____,1-EPS-DGN-FR-G4002____,1-OA-ALIGNPW-02HR,1-OEP-XHE-XL-NR02HSC,1-OEP-XHE-XX-NR02HSC1	
2350	1.0E-09	0.00%	93.92%	1-IE-LO4160VA,1-AFW-MOV-OO-FV5154____,1-DCP-BAT-MA-BD1B____,1-OA-NSCWFAN---H	
2351	1.0E-09	0.00%	93.92%	1-IE-LOOPSC,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-MA-G4002____,1-OA-ALIGNPW-01HR,1-OEP-XHE-XL-NR01HSC,1-OEP-XHE-XX-NR01HSC1	
2352	1.0E-09	0.00%	93.92%	1-IE-LOOPSC,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4002____,1-EPS-DGN-MA-G4001____,1-OA-ALIGNPW-01HR,1-OEP-XHE-XL-NR01HSC,1-OEP-XHE-XX-NR01HSC1	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2353	1.0E-09	0.00%	93.92%	1-IE-LOOPSC,1-EPS-DGN-CF-FSUN1,1-OA-ALIGNPW-02HR,1-OEP-XHE-XL-NR02HSC	
2354	1.0E-09	0.00%	93.93%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-1,1-CVC-MDP-MA-CCPA____,1-DCP-BAT-MA-BD1B____,1-OA-NSCWFAN---H	
2355	1.0E-09	0.00%	93.93%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-2,1-CVC-MDP-MA-CCPA____,1-DCP-BAT-MA-BD1B____,1-OA-NSCWFAN---H	
2356	1.0E-09	0.00%	93.93%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-3,1-CVC-MDP-MA-CCPB____,1-DCP-BAT-MA-AD1B____,1-OA-NSCWFAN---H	
2357	1.0E-09	0.00%	93.93%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-4,1-CVC-MDP-MA-CCPB____,1-DCP-BAT-MA-AD1B____,1-OA-NSCWFAN---H	
2358	1.0E-09	0.00%	93.93%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-2,1-DCP-BAT-MA-BD1B____,1-OA-NSCWFAN---H,1-SIS-MDP-MA-SIA_____	
2359	1.0E-09	0.00%	93.93%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-1,1-DCP-BAT-MA-BD1B____,1-OA-NSCWFAN---H,1-SIS-MDP-MA-SIA_____	
2360	1.0E-09	0.00%	93.94%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-3,1-DCP-BAT-MA-AD1B____,1-OA-NSCWFAN---H,1-SIS-MDP-MA-SIB_____	
2361	1.0E-09	0.00%	93.94%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-4,1-DCP-BAT-MA-AD1B____,1-OA-NSCWFAN---H,1-SIS-MDP-MA-SIB_____	
2362	1.0E-09	0.00%	93.94%	1-IE-OTRANS,1-AFW-MDP-CF-START,1-AFW-TDP-FR-P4001____,1-OAF_MFW-----H,1-OAR_LTFB-TRA-H-LD	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2363	1.0E-09	0.00%	93.94%	1-IE-LOCHS,1-AFW-MDP-CF-START,1-AFW-TDP-FS-P4001____,1-OAB_TR-----H	
2364	1.0E-09	0.00%	93.94%	1-IE-LO125BD1,1-ACP-TFW-FC-NXRA____,1-DCP-BDC-FC-BD1&____,1-EPS-DGN-FR-G4001____	
2365	1.0E-09	0.00%	93.94%	1-IE-ISINJ,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPL	
2366	1.0E-09	0.00%	93.95%	1-IE-LOOPGR,1-DCP-BAT-MA-BD1B____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-MA-1668ACT_	
2367	1.0E-09	0.00%	93.95%	1-IE-OTRANS,1-ACP-BAC-MA-AB15____,1-NSCWCT-SPRAY,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-MA-1669ACT_	
2368	1.0E-09	0.00%	93.95%	1-IE-OTRANS,1-ACP-BAC-MA-AA02____,1-NSCWCT-SPRAY,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-MA-1669ACT_	
2369	1.0E-09	0.00%	93.95%	1-IE-LO120VAB,1-ACP-DPL-FC-AY1A____,1-ACP-DPL-FC-BY1B&____,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
2370	1.0E-09	0.00%	93.95%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-AFW-TDP-FR-P4001____,1-EPS-TNK-MA-DFOSTKA_,1-OEP-XHE-XL-NR01HGR	
2371	1.0E-09	0.00%	93.95%	1-IE-LOOPWR,1-DCP-BAT-MA-CD1B____,1-EPS-DGN-CF-FRUN1,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR0	
2372	1.0E-09	0.00%	93.96%	1-IE-LOOPSC,1-EPS-DGN-FR-G4001____,1-LPI-MDP-MA-RHRB____,1-OA-MISPAF5094H	
2373	1.0E-09	0.00%	93.96%	1-IE-LOOPSC,1-AFW-MDP-FS-P4002____,1-EPS-DGN-FR-G4001____,1-LPI-MDP-MA-RHRB____	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2374	1.0E-09	0.00%	93.96%	1-IE-LOOPSC,1-AFW-MDP-MA-P4002____,1-EPS-DGN-FR-G4001____,1-LPI-MDP-FS-RHRB_____	
2375	1.0E-09	0.00%	93.96%	1-IE-LOOPSC,1-AFW-MDP-FS-P4002____,1-CVC-MDP-MA-CCPB____,1-EPS-DGN-FR-G4001_____	
2376	1.0E-09	0.00%	93.96%	1-IE-LOOPSC,1-CVC-MDP-MA-CCPB____,1-EPS-DGN-FR-G4001____,1-OA-MISPAF5094H	
2377	1.0E-09	0.00%	93.96%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-116-ABCEF	
2378	1.0E-09	0.00%	93.97%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-116-ABDEF	
2379	1.0E-09	0.00%	93.97%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-116-BCDEF	
2380	1.0E-09	0.00%	93.97%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-116-ACDEF	
2381	1.0E-09	0.00%	93.97%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-116-ABCDE	
2382	1.0E-09	0.00%	93.97%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-116-ABCDF	
2383	1.0E-09	0.00%	93.97%	1-IE-LOOPGR,1-AFW-MDP-MA-P4003____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-MA-G4002____,1-OAB_TR----H	
2384	1.0E-09	0.00%	93.97%	1-IE-TTRIP,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-1668A69A	
2385	1.0E-09	0.00%	93.98%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-EPS-SEQ-FO-1821U301,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A_____	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2386	1.0E-09	0.00%	93.98%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A	
2387	1.0E-09	0.00%	93.98%	1-IE-SGTR,1-EPS-DGN-FR-G4001____,1-LPI-MDP-MA-RHRB____,1-OEP-VCF-LP-CLOPL,1-SGTR2	
2388	1.0E-09	0.00%	93.98%	1-IE-SGTR,1-EPS-DGN-FR-G4001____,1-LPI-MDP-MA-RHRB____,1-OEP-VCF-LP-CLOPL,1-SGTR3	
2389	1.0E-09	0.00%	93.98%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1669A	
2390	1.0E-09	0.00%	93.98%	1-IE-LOOPSC,1-ACP-CRB-CC-BA0301____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1668A	
2391	1.0E-09	0.00%	93.99%	1-IE-LO125AD1,1-DCP-BDC-FC-AD1&____,1-EPS-DGN-FS-G4002____,1-OEP-VCF-LP-RLOOP	
2392	1.0E-09	0.00%	93.99%	1-IE-LO125BD1,1-DCP-BDC-FC-BD1&____,1-EPS-DGN-FS-G4001____,1-OEP-VCF-LP-RLOOP	
2393	1.0E-09	0.00%	93.99%	1-IE-LOOPSC,1-DCP-BAT-MA-BD1B____,1-EPS-TNK-MA-DFOSTKA____,1-OA-ORS-----H	
2394	1.0E-09	0.00%	93.99%	1-IE-TTRIP,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT,1-SWS-SWT-FC-TY16689B-CC	
2395	1.0E-09	0.00%	93.99%	1-IE-LOSINJ,1-ACP-BAC-MA-BB16____,1-CVC-MDP-FR-NCP4001&,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-MA-1668ACT_	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2396	1.0E-09	0.00%	93.99%	1-IE-LOSINJ,1-ACP-BAC-MA-BA03____,1-CVC-MDP-FR-NCP4001&,1-NSCWCT-SPRAY,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-MA-1668ACT_	
2397	1.0E-09	0.00%	94.00%	1-IE-LOOPWR,1-ACP-DCP-FC-1B_PS4____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HWR	
2398	1.0E-09	0.00%	94.00%	1-IE-LOOPWR,1-ACP-DCP-FC-1A_PS1____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HWR	
2399	1.0E-09	0.00%	94.00%	1-IE-LOOPWR,1-ACP-DCP-FC-1A_PS4____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HWR	
2400	1.0E-09	0.00%	94.00%	1-IE-LOOPWR,1-ACP-DCP-FC-1B_PS1____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HWR	
2401	1.0E-09	0.00%	94.00%	1-IE-LOOPWR,1-EPS-DGN-MA-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-MA-1669ACT_	
2402	1.0E-09	0.00%	94.00%	1-IE-LO120VAB,1-ACP-INV-FC-BD112____,1-DCP-FUS-OP-AD110&____,1-OA-HURGXFMR--H-LD,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
2403	1.0E-09	0.00%	94.01%	1-IE-LO120VAB,1-ACP-INV-FC-AD111____,1-DCP-FUS-OP-BD110&____,1-OA-HURGXFMR--H-LD,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
2404	1.0E-09	0.00%	94.01%	1-IE-SSBO,1-RCS-MDP-LK-BP1,1-SWS-CTF-CF-FS-ALL	
2405	1.0E-09	0.00%	94.01%	1-IE-LOOPWR,1-AFW-MOV-OO-FV5154____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H	
2406	1.0E-09	0.00%	94.01%	1-IE-LOCHS,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FR-ABCDEF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2407	1.0E-09	0.00%	94.01%	1-IE-LOOPGR,1-ACP-BAC-FC-AYB1____,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OA-ORS-----H	
2408	1.0E-09	0.00%	94.01%	1-IE-LOOPGR,1-ACP-BAC-FC-BYB1____,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OA-ORS-----H	
2409	1.0E-09	0.00%	94.01%	1-IE-LOOPSC,1-EPS-MDP-FS-XFERPPS_-CC,1-OA-ALIGNPW-02HR,1-OEP-XHE-XL-NR02HSC	
2410	1.0E-09	0.00%	94.02%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1,1-SWS-MOV-CC-1669A	
2411	1.0E-09	0.00%	94.02%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002____,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1,1-SWS-MOV-CC-1668A	
2412	1.0E-09	0.00%	94.02%	1-IE-LOOPGR,1-AFW-MDP-FS-P4002____,1-CVC-MDP-TE-CCPB____,1-EPS-DGN-FR-G4001____	
2413	1.0E-09	0.00%	94.02%	1-IE-LOOPGR,1-CVC-MDP-TE-CCPB____,1-EPS-DGN-FR-G4001____,1-OA-MISPAF5094H	
2414	1.0E-09	0.00%	94.02%	1-IE-OTRANS,1-AFW-MDP-MA-P4002____,1-DCP-BAT-MA-AD1B____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
2415	1.0E-09	0.00%	94.02%	1-IE-LOOPGR,1-DCP-BAT-CF-ALL,1-OEP-XHE-XL-NR01HGR	
2416	1.0E-09	0.00%	94.03%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1,1-SWS-MDP-MA-P4_00135-3	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2417	1.0E-09	0.00%	94.03%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FS-G4002____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR01HWR	
2418	1.0E-09	0.00%	94.03%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FS-G4001____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR01HWR	
2419	1.0E-09	0.00%	94.03%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U301,1-ESF-RLY-MA-____K601B	
2420	1.0E-09	0.00%	94.03%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U301,1-ESF-RLY-MA-____K603B	
2421	1.0E-09	0.00%	94.03%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U301,1-ESF-RLY-MA-____K609B	
2422	1.0E-09	0.00%	94.03%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U301,1-ESF-RLY-MA-____K615B	
2423	1.0E-09	0.00%	94.04%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U301,1-ESF-RLY-MA-____K610B	
2424	1.0E-09	0.00%	94.04%	1-IE-MLOCA,1-EPS-SEQ-FO-1821U301,1-ESF-RLY-MA-____K618B	
2425	1.0E-09	0.00%	94.04%	1-IE-MLOCA,1-ESF-RLY-MA-____K618B,1-ESF-SSD-FC-__3A3131A	
2426	1.0E-09	0.00%	94.04%	1-IE-MLOCA,1-ESF-RLY-MA-____K609B,1-ESF-SSD-FC-__3A3131A	
2427	1.0E-09	0.00%	94.04%	1-IE-MLOCA,1-ESF-RLY-MA-____K610B,1-ESF-SSD-FC-__3A3131A	
2428	1.0E-09	0.00%	94.04%	1-IE-MLOCA,1-ESF-RLY-MA-____K615B,1-ESF-SSD-FC-__3A3131A	
2429	1.0E-09	0.00%	94.05%	1-IE-MLOCA,1-ESF-RLY-MA-____K601B,1-ESF-SSD-FC-__3A3131A	
2430	1.0E-09	0.00%	94.05%	1-IE-MLOCA,1-ESF-RLY-MA-____K603B,1-ESF-SSD-FC-__3A3131A	
2431	1.0E-09	0.00%	94.05%	1-IE-MLOCA,1-ESF-RLY-MA-____K618B,1-ESF-SSD-FC-__A513__1A	
2432	1.0E-09	0.00%	94.05%	1-IE-MLOCA,1-ESF-RLY-MA-____K609B,1-ESF-SSD-FC-__A513__1A	
2433	1.0E-09	0.00%	94.05%	1-IE-MLOCA,1-ESF-RLY-MA-____K610B,1-ESF-SSD-FC-__A513__1A	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2434	1.0E-09	0.00%	94.05%	1-IE-MLOCA,1-ESF-RLY-MA- K615B,1-ESF-SSD-FC- _A513_ 1A	
2435	1.0E-09	0.00%	94.06%	1-IE-MLOCA,1-ESF-RLY-MA- K601B,1-ESF-SSD-FC- _A513_ 1A	
2436	1.0E-09	0.00%	94.06%	1-IE-MLOCA,1-ESF-RLY-MA- K603B,1-ESF-SSD-FC- _A513_ 1A	
2437	1.0E-09	0.00%	94.06%	1-IE-MLOCA,1-ESF-RLY-MA- K618B,1-ESF-SSD-FC- _A517_ 1A	
2438	1.0E-09	0.00%	94.06%	1-IE-MLOCA,1-ESF-RLY-MA- K609B,1-ESF-SSD-FC- _A517_ 1A	
2439	1.0E-09	0.00%	94.06%	1-IE-MLOCA,1-ESF-RLY-MA- K610B,1-ESF-SSD-FC- _A517_ 1A	
2440	1.0E-09	0.00%	94.06%	1-IE-MLOCA,1-ESF-RLY-MA- K615B,1-ESF-SSD-FC- _A517_ 1A	
2441	1.0E-09	0.00%	94.06%	1-IE-MLOCA,1-ESF-RLY-MA- K601B,1-ESF-SSD-FC- _A517_ 1A	
2442	1.0E-09	0.00%	94.07%	1-IE-MLOCA,1-ESF-RLY-MA- K603B,1-ESF-SSD-FC- _A517_ 1A	
2443	1.0E-09	0.00%	94.07%	1-IE-MLOCA,1-ESF-RLY-MA- K618B,1-ESF-SSD-FC- _3A4161A	
2444	1.0E-09	0.00%	94.07%	1-IE-MLOCA,1-ESF-RLY-MA- K609B,1-ESF-SSD-FC- _3A4161A	
2445	1.0E-09	0.00%	94.07%	1-IE-MLOCA,1-ESF-RLY-MA- K610B,1-ESF-SSD-FC- _3A4161A	
2446	1.0E-09	0.00%	94.07%	1-IE-MLOCA,1-ESF-RLY-MA- K615B,1-ESF-SSD-FC- _3A4161A	
2447	1.0E-09	0.00%	94.07%	1-IE-MLOCA,1-ESF-RLY-MA- K601B,1-ESF-SSD-FC- _3A4161A	
2448	1.0E-09	0.00%	94.08%	1-IE-MLOCA,1-ESF-RLY-MA- K603B,1-ESF-SSD-FC- _3A4161A	
2449	1.0E-09	0.00%	94.08%	1-IE-MLOCA,1-ESF-RLY-MA- K618B,1-ESF-SSD-FC- _4A315A	
2450	1.0E-09	0.00%	94.08%	1-IE-MLOCA,1-ESF-RLY-MA- K609B,1-ESF-SSD-FC- _4A315A	
2451	1.0E-09	0.00%	94.08%	1-IE-MLOCA,1-ESF-RLY-MA- K610B,1-ESF-SSD-FC- _4A315A	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2452	1.0E-09	0.00%	94.08%	1-IE-MLOCA,1-ESF-RLY-MA-K615B,1-ESF-SSD-FC-__4A315A	
2453	1.0E-09	0.00%	94.08%	1-IE-MLOCA,1-ESF-RLY-MA-K601B,1-ESF-SSD-FC-__4A315A	
2454	1.0E-09	0.00%	94.08%	1-IE-MLOCA,1-ESF-RLY-MA-K603B,1-ESF-SSD-FC-__4A315A	
2455	1.0E-09	0.00%	94.09%	1-IE-LOOPSC,1-AFW-MDP-CF-START,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	
2456	1.0E-09	0.00%	94.09%	1-IE-LO4160VA,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-MA-P4_00246-3	
2457	1.0E-09	0.00%	94.09%	1-IE-SLOCA,1-DCP-BAT-MA-AD1B____,1-LPI-MDP-FS-RHRB____,1-OA-NSCWGAN---H	
2458	1.0E-09	0.00%	94.09%	1-IE-SLOCA,1-DCP-BAT-MA-BD1B____,1-LPI-MDP-FS-RHRA____,1-OA-NSCWGAN---H	
2459	1.0E-09	0.00%	94.09%	1-IE-ISINJ,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPL,1-SWS-MOV-CF-1668A69A	
2460	9.9E-10	0.00%	94.09%	1-IE-LOMFV,1-AFW-TDP-FR-P4001____,/1-RPS-BME-TM-RTBA,/1-RPS-BME-TM-RTBB,/1-RPS-CCP-TM-CHA,1-RPS-CCX-CF-60F8,1-RPS-XHE-XE-NSGNL	
2461	9.9E-10	0.00%	94.10%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-ABCEF	
2462	9.9E-10	0.00%	94.10%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-ABDEF	
2463	9.9E-10	0.00%	94.10%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-BCDEF	
2464	9.9E-10	0.00%	94.10%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-ACDEF	
2465	9.9E-10	0.00%	94.10%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-ABCDE	
2466	9.9E-10	0.00%	94.10%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-ABCDEF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2467	9.9E-10	0.00%	94.11%	1-IE-LOOPPC,1-AFW-MDP-MA-P4002____,1-EPS-DGN-FS-G4001____,1-OAB_TR-----H	
2468	9.9E-10	0.00%	94.11%	1-IE-OTRANS,1-ACP-BAC-MA-AA02____,1-AFW-MDP-FR-P4002____,1-OAB_TR-----H	
2469	9.9E-10	0.00%	94.11%	1-IE-SSBI,1-EPS-SEQ-CF-FOAB,1-OA-NSCWGAN---H,1-RCS-MDP-LK-BP1	
2470	9.8E-10	0.00%	94.11%	1-IE-LOOPSC,1-ACP-CRB-CC-BA0301____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-MA-G4001____,1-OA-ALIGNPW-01HR,1-OEP-XHE-XL-NR01HSC	
2471	9.8E-10	0.00%	94.11%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-MA-G4002____,1-OA-ALIGNPW-01HR,1-OEP-XHE-XL-NR01HSC	
2472	9.8E-10	0.00%	94.11%	1-IE-LO120VAB,1-ACP-INV-FC-AD111&____,1-DCP-FUS-OP-BD110____,1-OA-HURGXFMR--H-LD,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
2473	9.8E-10	0.00%	94.11%	1-IE-LO120VAB,1-ACP-INV-FC-BD112&____,1-DCP-FUS-OP-AD110____,1-OA-HURGXFMR--H-LD,1-OA-START-AFW-H,1-OAF_MFW-----H-CD	
2474	9.8E-10	0.00%	94.12%	1-IE-ISINJ,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPL,1-SWS-MOV-CC-1668A____	
2475	9.8E-10	0.00%	94.12%	1-IE-ISINJ,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPL,1-SWS-MOV-CC-1669A____	An inadvertent SI actuation with a consequential LOOP occurs. NSCW and electrical failures result in a SBO. Note that this cut set is conservative since operators could restore offsite power. This (expected) conservatism is due to the limited nature of the consequential LOOP recovery post-processing rules.
2476	9.8E-10	0.00%	94.12%	1-IE-LO4160VA,1-ACP-CRB-CC-BA0301____,1-OEP-VCF-LP-RLOOP	Loss of 4.16kV safety-related AC bus initiating event with a subsequent LOOP occurs. Opposite train electrical failures result in a non-recoverable SBO.

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2477	9.8E-10	0.00%	94.12%	1-IE-LO4160VB,1-ACP-CRB-CC-AA0205___,1-OEP-VCF-LP-RLOOP	Same as cut set #2476, except for opposite train failures.
2478	9.8E-10	0.00%	94.12%	1-IE-LOOPGR,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-RLY-FC-AX36869_-CC	Same as cut set #10, except for different failures result in SBO (NSCW).
2479	9.8E-10	0.00%	94.12%	1-IE-LOOPGR,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-RLY-FC-162_1X89-CC	Same as cut set #10, except for different failures result in SBO (NSCW).
2480	9.8E-10	0.00%	94.13%	1-IE-LO4160VA,1-AFW-PMP-CF-RUN,1-OAB_TR-----H	Loss of 4.16kV safety-related AC bus initiating event occurs. Core damage occurs due to a complete loss of AFW with operator failure to initiate feed and bleed cooling.
2481	9.8E-10	0.00%	94.13%	1-IE-LO4160VB,1-AFW-PMP-CF-RUN,1-OAB_TR-----H	Same as cut set #2481, except for opposite train failures.
2482	9.8E-10	0.00%	94.13%	1-IE-OTRANS,1-DCP-BAT-FC-AD1B___,1-EPS-DGN-FR-G4002___,1-OEP-VCF-LP-CLOPT	A transient initiating event and consequential LOOP occurs. Electrical failures on both trains result in a SBO. Note that this cut set is conservative since operators could restore offsite power. This (expected) conservatism is due to the limited nature of the consequential LOOP recovery post-processing rules.
2483	9.8E-10	0.00%	94.13%	1-IE-OTRANS,1-DCP-BAT-FC-BD1B___,1-EPS-DGN-FR-G4001___,1-OEP-VCF-LP-CLOPT	Same as cut set #2482, except for opposite train failures.
2484	9.8E-10	0.00%	94.13%	1-IE-OTRANS,1-ACP-DCP-FC-1B_PS4___,1-EPS-DGN-FS-G4001___,1-OEP-VCF-LP-CLOPT	Same as cut set #2482, except for opposite train failures.
2485	9.8E-10	0.00%	94.13%	1-IE-OTRANS,1-ACP-DCP-FC-1A_PS1___,1-EPS-DGN-FS-G4002___,1-OEP-VCF-LP-CLOPT	Same as cut set #2482, except for opposite train failures.
2486	9.8E-10	0.00%	94.13%	1-IE-OTRANS,1-ACP-DCP-FC-1A_PS4___,1-EPS-DGN-FS-G4002___,1-OEP-VCF-LP-CLOPT	Same as cut set #2482, except for opposite train failures.
2487	9.8E-10	0.00%	94.14%	1-IE-OTRANS,1-ACP-DCP-FC-1B_PS1___,1-EPS-DGN-FS-G4001___,1-OEP-VCF-LP-CLOPT	Same as cut set #2482, except for opposite train failures.
2488	9.8E-10	0.00%	94.14%	1-IE-OTRANS,1-EPS-DGN-MA-G4001___,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-MA-1669ACT_	Same as cut set #2482, except for different failures/unavailabilities.
2489	9.8E-10	0.00%	94.14%	1-IE-ISINJ,1-OEP-VCF-LP-CLOPL,1-SWS-CTF-CF-FS-ALL	Same at cut set #2475, except different electrical/NSCW failures.



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2490	9.8E-10	0.00%	94.14%	1-IE-LOOPGR,1-DCP-BAT-MA-AD1B____,1-DCP-FUS-OP-BD104____,1-OEP-XHE-XL-NR02HGR	A grid-related LOOP initiating event occurs. Electrical failures on both safety-related DC trains results in a SBO. Core damage occurs due to operators failing to recover offsite power within 2 hours. Only certain DC electrical-related failures were evaluated to determine their potential recoverability, as part of a top-down review. Note that the removal of recovery in this cut set would result in a CDF contribution in the $10^{-9}$ range; and therefore, does not warrant a model change at this time.
2491	9.8E-10	0.00%	94.14%	1-IE-LOOPGR,1-DCP-BAT-MA-BD1B____,1-DCP-FUS-OP-AD104____,1-OEP-XHE-XL-NR02HGR	Same as cut set #2490, except for opposite train failures.
2492	9.8E-10	0.00%	94.14%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABCEF	Same as cut set #482, except for different NSCW failures (discharge MOVs).
2493	9.8E-10	0.00%	94.15%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABDEF	Same as cut set #482, except for different NSCW failures (discharge MOVs).
2494	9.8E-10	0.00%	94.15%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-BCDEF	Same as cut set #482, except for different NSCW failures (discharge MOVs).
2495	9.8E-10	0.00%	94.15%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ACDEF	Same as cut set #482, except for different NSCW failures (discharge MOVs).
2496	9.8E-10	0.00%	94.15%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABCDE	Same as cut set #482, except for different NSCW failures (discharge MOVs).
2497	9.8E-10	0.00%	94.15%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABCDF	Same as cut set #482, except for different NSCW failures (discharge MOVs).
2498	9.8E-10	0.00%	94.15%	1-IE-OTRANS,1-ACP-CRB-CC-BA0301____,1-DCP-BAT-MA-AD1B____,1-OEP-VCF-LP-RLOOP	A transient initiating event and subsequent LOOP occurs. Electrical failures on both trains result in a non-recoverable SBO.
2499	9.8E-10	0.00%	94.15%	1-IE-OTRANS,1-ACP-CRB-CC-AA0205____,1-DCP-BAT-MA-BD1B____,1-OEP-VCF-LP-RLOOP	Same as cut set #2498, except for opposite train failures/unavailabilities.
2500	9.7E-10	0.00%	94.16%	1-IE-LO125AD1,1-ACP-BAC-MA-MCCBBF____,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-AD1&____,1-OAB_TR-----H	
2501	9.7E-10	0.00%	94.16%	1-IE-LO125AD1,1-ACP-BAC-MA-BB07____,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-AD1&____,1-OAB_TR----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2502	9.7E-10	0.00%	94.16%	1-IE-LO125BD1,1-ACP-BAC-MA-MCCABF____,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-BD1&____,1-OAB_TR-----H	
2503	9.7E-10	0.00%	94.16%	1-IE-LO125BD1,1-ACP-BAC-MA-AB05____,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-BD1&____,1-OAB_TR----H	
2504	9.7E-10	0.00%	94.16%	1-IE-TTRIP,1-AFW-MOV-CF-MINFL,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
2505	9.7E-10	0.00%	94.16%	1-IE-SSBO,1-OEP-VCF-LP-CLOPL,1-SWS-MDP-CF-FS-ABCDEF	
2506	9.7E-10	0.00%	94.16%	1-IE-LOOPSC,1-AFW-MDP-MA-P4002____,1-CVC-MDP-TE-CCPB____,1-EPS-DGN-MA-G4001____	
2507	9.7E-10	0.00%	94.17%	1-IE-SLOCA,1-ACP-INV-MA-AD1I11____,1-LPI-MDP-MA-RHRB____,1-OA-NSCWFAN---H	
2508	9.7E-10	0.00%	94.17%	1-IE-LOCHS,1-AMSAC,1-RPS-BME-CF-RTBAB,1-RPS-ROD-CF-RCCAS	
2509	9.7E-10	0.00%	94.17%	1-IE-RTRIP,1-AFW-TNK-RP-V4001____,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
2510	9.7E-10	0.00%	94.17%	1-IE-LO4160VA,1-ACP-TFW-FC-BB07X____,1-OAB_TR-----H	
2511	9.6E-10	0.00%	94.17%	1-IE-OTRANS,1-ACP-TFW-FC-ABB03X____,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT	
2512	9.6E-10	0.00%	94.17%	1-IE-OTRANS,1-ACP-TFW-FC-BBB03X____,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT	
2513	9.6E-10	0.00%	94.18%	1-IE-LOOPGR,1-EPS-TNK-MA-DFOSTKA____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CC-1669A____	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2514	9.6E-10	0.00%	94.18%	1-IE-SSBO,1-ACP-SSD-MA-1821U302,1-EPS-SEQ-FO-1821U301,1-OA-NSCWAN---H,1-RCS-MDP-LK-BP2	
2515	9.6E-10	0.00%	94.18%	1-IE-TTRIP,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A	
2516	9.6E-10	0.00%	94.18%	1-IE-TTRIP,1-EPS-SEQ-FO-1821U301,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A	
2517	9.6E-10	0.00%	94.18%	1-IE-LOOPPC,1-EPS-DGN-FS-G4001,1-EPS-DGN-FS-G4002,1-OA-ORS-----H	
2518	9.6E-10	0.00%	94.18%	1-IE-LOOPWR,1-AFW-MDP-MA-P4002,1-CVC-MDP-TE-CCPB,1-EPS-DGN-FR-G4001	
2519	9.5E-10	0.00%	94.18%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12345,1-RCS-MDP-LK-BP2,1-SWS-MOV-CC-11612	
2520	9.5E-10	0.00%	94.19%	1-IE-LONSCW,1-IE-SWS-MDP-CR-12346,1-RCS-MDP-LK-BP2,1-SWS-MOV-CC-11605	
2521	9.5E-10	0.00%	94.19%	1-IE-LLOCA,1-2-5--PC-PG-T_ON_LOO-1,1-LPI-MDP-MA-RHRB	
2522	9.5E-10	0.00%	94.19%	1-IE-LLOCA,1-2-5--PC-PG-T_ON_LOO-2,1-LPI-MDP-MA-RHRB	
2523	9.5E-10	0.00%	94.19%	1-IE-LLOCA,1-2-5--PC-PG-T_ON_LOO-3,1-LPI-MDP-MA-RHRA	
2524	9.5E-10	0.00%	94.19%	1-IE-LLOCA,1-2-5--PC-PG-T_ON_LOO-4,1-LPI-MDP-MA-RHRA	
2525	9.5E-10	0.00%	94.19%	1-IE-LO4160VA,1-AFW-MOV-OO-FV5154,1-CVC-MDP-TE-CCPB	
2526	9.5E-10	0.00%	94.19%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001,1-OA-ORS-----H,1-SWS-CTF-MA-B_1234	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2527	9.5E-10	0.00%	94.20%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H,1-SWS-CTF-MA-__A_1234_	
2528	9.5E-10	0.00%	94.20%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABDE	
2529	9.5E-10	0.00%	94.20%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-BCDE	
2530	9.5E-10	0.00%	94.20%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ACDE	
2531	9.5E-10	0.00%	94.20%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-BCDF	
2532	9.5E-10	0.00%	94.20%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ACDF	
2533	9.5E-10	0.00%	94.21%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABEF	
2534	9.5E-10	0.00%	94.21%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-BCEF	
2535	9.5E-10	0.00%	94.21%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABDF	
2536	9.5E-10	0.00%	94.21%	1-IE-LOOPGR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ACEF	
2537	9.5E-10	0.00%	94.21%	1-IE-TTRIP,1-ACP-BAC-MA-BB16____,1-NSCWCT-SPRAY,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-MA-1668ACT_	
2538	9.5E-10	0.00%	94.21%	1-IE-TTRIP,1-ACP-BAC-MA-BA03____,1-NSCWCT-SPRAY,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-MA-1668ACT_	
2539	9.5E-10	0.00%	94.21%	1-IE-SSBO,1-ESF-ACT-CF-__SAFACT-CC,1-OA-ESFAS-HE1-H	
2540	9.5E-10	0.00%	94.22%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-MA-1669ACT_	
2541	9.4E-10	0.00%	94.22%	1-IE-LOOPWR,1-ACP-INV-FC-AD11BD12-CC,1-RCS-MDP-LK-BP2	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2542	9.4E-10	0.00%	94.22%	1-IE-LOOPWR,1-OA-ORS-----H,1-SWS-MDP-CF-FS-ABCDEF	
2543	9.4E-10	0.00%	94.22%	1-IE-LO125AD1,1-DCP-BAT-MA-BD1B____,1-DCP-BDC-FC-AD1&____,1-OEP-VCF-LP-RLOOP	
2544	9.4E-10	0.00%	94.22%	1-IE-LO125BD1,1-DCP-BAT-MA-AD1B____,1-DCP-BDC-FC-BD1&____,1-OEP-VCF-LP-RLOOP	
2545	9.4E-10	0.00%	94.22%	1-IE-RTRIP,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-1668A69A	
2546	9.4E-10	0.00%	94.22%	1-IE-LOOPGR,1-EPS-SEQ-FO-1821U301,1-EPS-TNK-MA-DFOSTKB____,1-OA-ORS-----H	
2547	9.4E-10	0.00%	94.23%	1-IE-LOOPWR,1-CAD-XHE-SAFESTBLE,1-CHG-XHE-NORMAL	
2548	9.4E-10	0.00%	94.23%	1-IE-LOOPSC,1-ACP-BAC-FC-BA03____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
2549	9.4E-10	0.00%	94.23%	1-IE-LOOPSC,1-ACP-BAC-FC-BB07____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
2550	9.4E-10	0.00%	94.23%	1-IE-LOOPSC,1-ACP-BAC-FC-BB16____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
2551	9.4E-10	0.00%	94.23%	1-IE-LOOPSC,1-ACP-BAC-FC-AA02____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
2552	9.4E-10	0.00%	94.23%	1-IE-LOOPSC,1-ACP-BAC-FC-AB05____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
2553	9.4E-10	0.00%	94.23%	1-IE-LOOPSC,1-ACP-BAC-FC-AB15____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
2554	9.4E-10	0.00%	94.24%	1-IE-LOOPSC,1-ACP-BAC-FC-MCCABF____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2555	9.4E-10	0.00%	94.24%	1-IE-LOOPSC,1-ACP-BAC-FC-MCCBBB__,1-EPS-DGN-FR-G4001__,1-OA-ORS-----H	
2556	9.4E-10	0.00%	94.24%	1-IE-LOOPSC,1-ACP-BAC-FC-MCCBBF__,1-EPS-DGN-FR-G4001__,1-OA-ORS-----H	
2557	9.4E-10	0.00%	94.24%	1-IE-LOOPSC,1-ACP-BAC-FC-MCCABB__,1-EPS-DGN-FR-G4002__,1-OA-ORS-----H	
2558	9.4E-10	0.00%	94.24%	1-IE-LOOPWR,1-ACP-DCP-FC-1B_PS4__,1-DCP-BAT-MA-AD1B__,1-OEP-XHE-XL-NR02HWR	
2559	9.4E-10	0.00%	94.24%	1-IE-LOOPWR,1-ACP-DCP-FC-1A_PS1__,1-DCP-BAT-MA-BD1B__,1-OEP-XHE-XL-NR02HWR	
2560	9.4E-10	0.00%	94.25%	1-IE-LOOPWR,1-ACP-DCP-FC-1A_PS4__,1-DCP-BAT-MA-BD1B__,1-OEP-XHE-XL-NR02HWR	
2561	9.4E-10	0.00%	94.25%	1-IE-LOOPWR,1-ACP-DCP-FC-1B_PS1__,1-DCP-BAT-MA-AD1B__,1-OEP-XHE-XL-NR02HWR	
2562	9.4E-10	0.00%	94.25%	1-IE-LOOPWR,1-EPS-DGN-MA-G4001__,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CC-1669A__	
2563	9.4E-10	0.00%	94.25%	1-IE-LOOPWR,1-EPS-DGN-MA-G4002__,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CC-1668A__	
2564	9.3E-10	0.00%	94.25%	1-IE-LOOPSC,1-AFW-TDP-FR-P4001__,1-EPS-DGN-FR-G4001__,1-EPS-DGN-FR-G4002__,1-OA-ALIGNPW-01HR,1-OEP-XHE-XL-NR01HSC,1-OEP-XHE-XX-NR01HSC2	
2565	9.3E-10	0.00%	94.25%	1-IE-RTRIP,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT,1-SWS-SWT-FC-TY16689B-CC	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2566	9.3E-10	0.00%	94.25%	1-IE-LOOPGR,1-ACP-TFW-FC-AB15X____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HGR	
2567	9.3E-10	0.00%	94.26%	1-IE-LOOPGR,1-ACP-TFW-FC-BB07X____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HGR	
2568	9.3E-10	0.00%	94.26%	1-IE-LOOPGR,1-ACP-TFW-FC-BB16X____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HGR	
2569	9.3E-10	0.00%	94.26%	1-IE-LOOPGR,1-ACP-TFW-FC-_1ASEQT1,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HGR	
2570	9.3E-10	0.00%	94.26%	1-IE-LOOPGR,1-ACP-TFW-FC-_1ASEQT2,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HGR	
2571	9.3E-10	0.00%	94.26%	1-IE-LOOPGR,1-ACP-TFW-FC-_1BSEQT1,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HGR	
2572	9.3E-10	0.00%	94.26%	1-IE-LOOPGR,1-ACP-TFW-FC-_1BSEQT2,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HGR	
2573	9.3E-10	0.00%	94.26%	1-IE-LOOPGR,1-ACP-TFW-FC-AB05X____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HGR	
2574	9.2E-10	0.00%	94.27%	1-IE-SGTR,1-AFW-MDP-MA-P4002____,1-AFW-TDP-FR-P4001____,1-OAB_SI-----H,1-SGTR1	
2575	9.2E-10	0.00%	94.27%	1-IE-SGTR,1-AFW-MDP-MA-P4002____,1-AFW-TDP-FR-P4001____,1-OAB_SI-----H,1-SGTR4	
2576	9.2E-10	0.00%	94.27%	1-IE-SGTR,1-AFW-MDP-MA-P4003____,1-AFW-TDP-FR-P4001____,1-OAB_SI-----H,1-SGTR2	
2577	9.2E-10	0.00%	94.27%	1-IE-SGTR,1-AFW-MDP-MA-P4003____,1-AFW-TDP-FR-P4001____,1-OAB_SI-----H,1-SGTR3	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2578	9.2E-10	0.00%	94.27%	1-IE-LOOPGR,1-DCP-BAT-MA-CD1B____,1-EPS-DGN-MA-G4002____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR01HGR	
2579	9.2E-10	0.00%	94.27%	1-IE-LOOPGR,1-DCP-BAT-MA-CD1B____,1-EPS-DGN-MA-G4001____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR01HGR	
2580	9.2E-10	0.00%	94.27%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-MA-1668ACT__	
2581	9.2E-10	0.00%	94.28%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4002____,1-EPS-TNK-MA-DFOSTKA____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
2582	9.2E-10	0.00%	94.28%	1-IE-MLOCA,1-RPS-ICC-TE-605Q5SPA,1-RPS-ICC-TE-605Q5SPB	
2583	9.1E-10	0.00%	94.28%	1-IE-LOOPPC,1-AFW-MDP-MA-P4002____,1-DCP-BAT-MA-AD1B____,1-OAB_TR-----H	
2584	9.1E-10	0.00%	94.28%	1-IE-LOOPGR,1-CAD-XHE-SAFESTBLE,1-CVC-MDP-MA-CCPA____,1-EPS-DGN-FR-G4002____	
2585	9.1E-10	0.00%	94.28%	1-IE-LOOPGR,1-CAD-XHE-SAFESTBLE,1-CVC-MDP-MA-CCPB____,1-EPS-DGN-FR-G4001____	
2586	9.1E-10	0.00%	94.28%	1-IE-LOOPGR,1-ACP-BAC-MA-BA03____,1-ACP-INV-MA-AD1I11____,1-OEP-XHE-XL-NR02HGR	
2587	9.1E-10	0.00%	94.28%	1-IE-LOOPGR,1-ACP-BAC-MA-BB07____,1-ACP-INV-MA-AD1I11____,1-OEP-XHE-XL-NR02HGR	
2588	9.1E-10	0.00%	94.29%	1-IE-LOOPGR,1-ACP-BAC-MA-BB16____,1-ACP-INV-MA-AD1I11____,1-OEP-XHE-XL-NR02HGR	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2589	9.1E-10	0.00%	94.29%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBB___,1-ACP-INV-MA-AD1I11___,1-OEP-XHE-XL-NR02HGR	
2590	9.1E-10	0.00%	94.29%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBF___,1-ACP-INV-MA-AD1I11___,1-OEP-XHE-XL-NR02HGR	
2591	9.1E-10	0.00%	94.29%	1-IE-LOOPGR,1-ACP-INV-FC-BD1I12___,1-ACP-INV-MA-AD1I11___,1-OEP-XHE-XL-NR02HGR	
2592	9.1E-10	0.00%	94.29%	1-IE-LOOPGR,1-CVC-MDP-FS-CCPA___,1-EPS-DGN-FR-G4002___,1-MSS-ADV-MA-VPV3000___,1-MSS-ADV-MA-VPV3030__	
2593	9.1E-10	0.00%	94.29%	1-IE-OTRANS,1-ACP-BAC-FC-AA02___,1-ACP-BAC-FC-BA03___	
2594	9.1E-10	0.00%	94.29%	1-IE-LO4160VA,1-ACP-DCP-FC-1B_PS4___,1-OEP-VCF-LP-CLOPT	
2595	9.1E-10	0.00%	94.30%	1-IE-LO4160VA,1-ACP-DCP-FC-1B_PS1___,1-OEP-VCF-LP-CLOPT	
2596	9.1E-10	0.00%	94.30%	1-IE-LO4160VB,1-ACP-DCP-FC-1A_PS1___,1-OEP-VCF-LP-CLOPT	
2597	9.1E-10	0.00%	94.30%	1-IE-LO4160VB,1-ACP-DCP-FC-1A_PS4___,1-OEP-VCF-LP-CLOPT	
2598	9.1E-10	0.00%	94.30%	1-IE-LOOPSC,1-ACP-INV-MA-AD1I1___,1-CVC-MDP-MA-CCPA___,1-EPS-DGN-FR-G4002___	
2599	9.1E-10	0.00%	94.30%	1-IE-LOOPSC,1-ACP-INV-MA-BD1I2___,1-CVC-MDP-MA-CCPB___,1-EPS-DGN-FR-G4001___	
2600	9.1E-10	0.00%	94.30%	1-IE-OTRANS,1-ACP-DCP-FC-1B_PS4___,1-DCP-BAT-MA-AD1B___,1-OEP-VCF-LP-CLOPT	
2601	9.1E-10	0.00%	94.30%	1-IE-OTRANS,1-ACP-DCP-FC-1A_PS1___,1-DCP-BAT-MA-BD1B___,1-OEP-VCF-LP-CLOPT	
2602	9.1E-10	0.00%	94.31%	1-IE-OTRANS,1-ACP-DCP-FC-1A_PS4___,1-DCP-BAT-MA-BD1B___,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2603	9.1E-10	0.00%	94.31%	1-IE-OTRANS,1-ACP-DCP-FC-1B_PS1____,1-DCP-BAT-MA-AD1B____,1-OEP-VCF-LP-CLOPT	
2604	9.0E-10	0.00%	94.31%	1-IE-OTRANS,1-EPS-DGN-MA-G4001____,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A____	
2605	9.0E-10	0.00%	94.31%	1-IE-OTRANS,1-EPS-DGN-MA-G4002____,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A____	
2606	9.0E-10	0.00%	94.31%	1-IE-LOOPGR,1-ACP-INV-MA-AD1I11____,1-AFW-TDP-FR-P4001____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR01HGR	
2607	9.0E-10	0.00%	94.31%	1-IE-LOCHS,1-AFW-TDP-FR-P4001____,1-RPS-BME-TM-RTBA,1-RPS-BME-TM-RTBB,1-RPS-CCP-TM-CHA,1-RPS-CCX-CF-6OF8,1-RPS-XHE-XE-NSGNL	
2608	9.0E-10	0.00%	94.31%	1-IE-MLOCA,1-OAD_MLA-----H,1-RPS-ICC-TE-605Q5SPA,1-SIS-MDP-MA-SIB____	
2609	9.0E-10	0.00%	94.32%	1-IE-MLOCA,1-OAD_MLA-----H,1-RPS-ICC-TE-605Q5SPB,1-SIS-MDP-MA-SIA____	
2610	9.0E-10	0.00%	94.32%	1-IE-MLOCA,1-CVC-MDP-MA-CCPA____,1-OAD_MLA-----H,1-RPS-ICC-TE-605Q5SPB	
2611	9.0E-10	0.00%	94.32%	1-IE-MLOCA,1-CVC-MDP-MA-CCPB____,1-OAD_MLA-----H,1-RPS-ICC-TE-605Q5SPA	
2612	9.0E-10	0.00%	94.32%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-AFW-TDP-MA-P4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2613	9.0E-10	0.00%	94.32%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-AFW-TDP-MA-P4001____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
2614	9.0E-10	0.00%	94.32%	1-IE-LOOPWR,1-EPS-DGN-MA-G4001____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1669A____	
2615	9.0E-10	0.00%	94.32%	1-IE-LOOPWR,1-EPS-DGN-MA-G4002____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1668A____	
2616	9.0E-10	0.00%	94.33%	1-IE-LO125AD1,1-AFW-MDP-FR-P4002____,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-AD1&____,1-OAB_TR----H	
2617	9.0E-10	0.00%	94.33%	1-IE-LO125BD1,1-AFW-MDP-FR-P4003____,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-BD1&____,1-OAB_TR----H	
2618	9.0E-10	0.00%	94.33%	1-IE-SSBO,1-ACP-INV-FC-AD1I11____,1-DCP-BAT-MA-BD1B____,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2619	9.0E-10	0.00%	94.33%	1-IE-SSBO,1-ACP-INV-FC-BD1I12____,1-DCP-BAT-MA-AD1B____,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2620	8.9E-10	0.00%	94.33%	1-IE-MLOCA,1-DCP-BAT-MA-BD1B____,1-ESF-RLY-MA-____K601A	
2621	8.9E-10	0.00%	94.33%	1-IE-MLOCA,1-DCP-BAT-MA-BD1B____,1-ESF-RLY-MA-____K603A	
2622	8.9E-10	0.00%	94.33%	1-IE-MLOCA,1-DCP-BAT-MA-BD1B____,1-ESF-RLY-MA-____K610A	
2623	8.9E-10	0.00%	94.33%	1-IE-MLOCA,1-DCP-BAT-MA-BD1B____,1-ESF-RLY-MA-____K609A	
2624	8.9E-10	0.00%	94.34%	1-IE-MLOCA,1-DCP-BAT-MA-BD1B____,1-ESF-RLY-MA-____K615A	
2625	8.9E-10	0.00%	94.34%	1-IE-MLOCA,1-DCP-BAT-MA-BD1B____,1-ESF-RLY-MA-____K618A	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2626	8.9E-10	0.00%	94.34%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4002____,1-OA-MISPAF5095H,1-OAB_TR-----H	
2627	8.9E-10	0.00%	94.34%	1-IE-LOOPGR,1-AFW-MDP-FS-P4003____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4002____,1-OAB_TR-----H	
2628	8.9E-10	0.00%	94.34%	1-IE-RTRIP,1-AFW-MOV-CF-MINFL,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
2629	8.9E-10	0.00%	94.34%	1-IE-OTRANS,1-ACP-CRB-CC-BA0301____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-MA-1668ACT_	
2630	8.9E-10	0.00%	94.34%	1-IE-LOOPSC,1-ACP-DCP-FC-1A_PS1____,1-DCP-BAT-MA-BD1B____,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2631	8.9E-10	0.00%	94.35%	1-IE-LOOPSC,1-ACP-DCP-FC-1A_PS4____,1-DCP-BAT-MA-BD1B____,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2632	8.9E-10	0.00%	94.35%	1-IE-LOOPSC,1-ACP-DCP-FC-1B_PS4____,1-DCP-BAT-MA-AD1B____,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2633	8.9E-10	0.00%	94.35%	1-IE-LOOPSC,1-ACP-DCP-FC-1B_PS1____,1-DCP-BAT-MA-AD1B____,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2634	8.9E-10	0.00%	94.35%	1-IE-LOOPWR,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-1668A69A	
2635	8.9E-10	0.00%	94.35%	1-IE-LOOPGR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2636	8.9E-10	0.00%	94.35%	1-IE-LOOPGR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FR-G4002____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
2637	8.8E-10	0.00%	94.35%	1-IE-LOMFW,1-AFW-MDP-CF-RUN,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H	
2638	8.8E-10	0.00%	94.36%	1-IE-LOOPPC,1-DCP-BAT-MA-AD1B____,1-EPS-DGN-FS-G4002____,1-OA-ORS-----H	
2639	8.8E-10	0.00%	94.36%	1-IE-LOOPPC,1-DCP-BAT-MA-BD1B____,1-EPS-DGN-FS-G4001____,1-OA-ORS-----H	
2640	8.8E-10	0.00%	94.36%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FS-G4001____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR01HWR	
2641	8.8E-10	0.00%	94.36%	1-IE-LOOPGR,1-ACP-INV-MA-AD1I1____,1-CVC-MDP-TE-CCPA____,1-EPS-DGN-FR-G4002____	
2642	8.8E-10	0.00%	94.36%	1-IE-LOOPGR,1-ACP-INV-MA-BD1I2____,1-CVC-MDP-TE-CCPB____,1-EPS-DGN-FR-G4001____	
2643	8.8E-10	0.00%	94.36%	1-IE-RTRIP,1-OAB_TR-----H-HD,1-OAF_MFW-----H,/1-RPS-BME-TM-RTBA,/1-RPS-BME-TM-RTBB,/1-RPS-CCP-TM-CHA,1-RPS-CCX-CF-6OF8,1-RPS-XHE-XE-NSGNL	
2644	8.8E-10	0.00%	94.36%	1-IE-LOOPWR,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP2,1-SWS-SWT-FC-TY16689B-CC	
2645	8.8E-10	0.00%	94.37%	1-IE-RTRIP,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A____	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2646	8.8E-10	0.00%	94.37%	1-IE-RTRIP,1-EPS-SEQ-FO-1821U301,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A____	
2647	8.8E-10	0.00%	94.37%	1-IE-LOSINJ,1-ACP-CRB-CC-AA0205____,1-ACP-CRB-CC-BA0301____,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-RLOOP	
2648	8.7E-10	0.00%	94.37%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CC-1668A____	
2649	8.7E-10	0.00%	94.37%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HGR,1-SWS-MOV-CC-1669A____	
2650	8.7E-10	0.00%	94.37%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-OEP-XHE-XL-NR02HGR,1-SWS-MDP-MA-P4_00135-3	
2651	8.7E-10	0.00%	94.37%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-DCP-FUS-OP-AD104____,1-OEP-XHE-XL-NR02HWR	
2652	8.7E-10	0.00%	94.38%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205____,1-DCP-FUS-OP-BD104____,1-OEP-XHE-XL-NR02HWR	
2653	8.7E-10	0.00%	94.38%	1-IE-ISL-RCP-S1LO,1-ACP-BAC-MA-MCCBBB____,1-EPS-DGN-FR-G4001____,1-IE-LOOPGR,1-RCS-MDP-LK-BP1,1-RCS-MDP-LK-BP2	
2654	8.7E-10	0.00%	94.38%	1-IE-ISL-RCP-S1LO,1-ACP-BAC-MA-BA03____,1-EPS-DGN-FR-G4001____,1-IE-LOOPGR,1-RCS-MDP-LK-BP1,1-RCS-MDP-LK-BP2	
2655	8.7E-10	0.00%	94.38%	1-IE-ISL-RCP-S1LO,1-ACP-BAC-MA-BB16____,1-EPS-DGN-FR-G4001____,1-IE-LOOPGR,1-RCS-MDP-LK-BP1,1-RCS-MDP-LK-BP2	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2656	8.7E-10	0.00%	94.38%	1-IE-SSBO,1-DCP-BAT-MA-BD1B____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP1	
2657	8.7E-10	0.00%	94.38%	1-IE-SSBO,1-DCP-BAT-MA-AD1B____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP1	
2658	8.7E-10	0.00%	94.38%	1-IE-RTRIP,1-ACP-BAC-MA-BB16____,1-NSCWCT-SPRAY,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-MA-1668ACT_	
2659	8.7E-10	0.00%	94.38%	1-IE-RTRIP,1-ACP-BAC-MA-BA03____,1-NSCWCT-SPRAY,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-MA-1668ACT_	
2660	8.7E-10	0.00%	94.39%	1-IE-LOOPSC,1-AFW-MDP-MA-P4003____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-MA-G4002____,1-OAB_TR----H	
2661	8.7E-10	0.00%	94.39%	1-IE-LOOPPC,1-NSCW-F-WTRHAMMER,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-OO-1668A69A-CC	
2662	8.6E-10	0.00%	94.39%	1-IE-LLOCA,1-2-5--PC-PG-T_ON_LOO-1,1-DCP-BAT-MA-BD1B____,1-OA-NSCWFAN---H	
2663	8.6E-10	0.00%	94.39%	1-IE-LLOCA,1-2-5--PC-PG-T_ON_LOO-2,1-DCP-BAT-MA-BD1B____,1-OA-NSCWFAN---H	
2664	8.6E-10	0.00%	94.39%	1-IE-LLOCA,1-2-5--PC-PG-T_ON_LOO-3,1-DCP-BAT-MA-AD1B____,1-OA-NSCWFAN---H	
2665	8.6E-10	0.00%	94.39%	1-IE-LLOCA,1-2-5--PC-PG-T_ON_LOO-4,1-DCP-BAT-MA-AD1B____,1-OA-NSCWFAN---H	
2666	8.6E-10	0.00%	94.39%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-EPS-MOT-CF-START,1-OEP-XHE-XL-NR01HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2667	8.6E-10	0.00%	94.40%	1-IE-LOMFV,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABDE	
2668	8.6E-10	0.00%	94.40%	1-IE-LOMFV,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCD	
2669	8.6E-10	0.00%	94.40%	1-IE-LOMFV,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCDE	
2670	8.6E-10	0.00%	94.40%	1-IE-LOMFV,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-CDEF	
2671	8.6E-10	0.00%	94.40%	1-IE-LOMFV,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ADEF	
2672	8.6E-10	0.00%	94.40%	1-IE-LOMFV,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCF	
2673	8.6E-10	0.00%	94.40%	1-IE-LOMFV,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCEF	
2674	8.6E-10	0.00%	94.40%	1-IE-LOMFV,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ACDF	
2675	8.6E-10	0.00%	94.41%	1-IE-LOMFV,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABEF	
2676	8.6E-10	0.00%	94.41%	1-IE-LO125BD1,1-DCP-BDC-FC-BD1&____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-MA-1668ACT_	
2677	8.6E-10	0.00%	94.41%	1-IE-LOMFV,1-NSCW-CT-NEED-SWAP,1-NSCW-MOV-F-NON-RECBLE,1-NSCWCT-BYPASS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-CF-1668A69A	
2678	8.6E-10	0.00%	94.41%	1-IE-LOOPGR,1-EPS-PND-CF-1205X,1-OA-ORS-----H	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2679	8.6E-10	0.00%	94.41%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-1,1-CVC-MDP-TE-CCPA____,1-DCP-BAT-MA-BD1B____,1-OA-NSCWFAN---H	
2680	8.6E-10	0.00%	94.41%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-2,1-CVC-MDP-TE-CCPA____,1-DCP-BAT-MA-BD1B____,1-OA-NSCWFAN---H	
2681	8.6E-10	0.00%	94.41%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-3,1-CVC-MDP-TE-CCPB____,1-DCP-BAT-MA-AD1B____,1-OA-NSCWFAN---H	
2682	8.6E-10	0.00%	94.42%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-4,1-CVC-MDP-TE-CCPB____,1-DCP-BAT-MA-AD1B____,1-OA-NSCWFAN---H	
2683	8.5E-10	0.00%	94.42%	1-IE-SSBI,1-ACP-CRB-CC-AA0205____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPL,1-SSBI-2	
2684	8.5E-10	0.00%	94.42%	1-IE-SSBI,1-ACP-CRB-CC-AA0205____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPL,1-SSBI-3	
2685	8.5E-10	0.00%	94.42%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-MA-1669ACT_	
2686	8.5E-10	0.00%	94.42%	1-IE-LOOPWR,1-AFW-MDP-MA-P4003____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4002____,1-OAB_TR-----H	
2687	8.5E-10	0.00%	94.42%	1-IE-SSBO,1-AFW-MDP-CF-START,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H	
2688	8.5E-10	0.00%	94.42%	1-IE-LOOPGR,1-DCP-BAT-FC-AD1B____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR02HGR	
2689	8.5E-10	0.00%	94.43%	1-IE-LOOPGR,1-DCP-BAT-FC-BD1B____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR02HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2690	8.5E-10	0.00%	94.43%	1-IE-LOOPGR,1-ACP-INV-FC-AD11BD12-CC,1-OA-ORS-----H	
2691	8.5E-10	0.00%	94.43%	1-IE-LO4160VB,1-AFW-MOV-OO-FV5155___,1-AFW-TDP-FR-P4001___,1-OAB_TR-----H	
2692	8.5E-10	0.00%	94.43%	1-IE-LOOPSC,1-ACP-BAC-FC-AYB1___,1-EPS-DGN-FR-G4002___,1-NSCWCT-SPRAY,1-OA-ORS-----H	
2693	8.5E-10	0.00%	94.43%	1-IE-LOOPSC,1-ACP-BAC-FC-BYB1___,1-EPS-DGN-FR-G4001___,1-NSCWCT-SPRAY,1-OA-ORS-----H	
2694	8.5E-10	0.00%	94.43%	1-IE-LOOPSC,1-AFW-MDP-FS-P4002___,1-CVC-MDP-TE-CCPB___,1-EPS-DGN-FR-G4001___	
2695	8.5E-10	0.00%	94.43%	1-IE-LOOPSC,1-CVC-MDP-TE-CCPB___,1-EPS-DGN-FR-G4001___,1-OA-MISPAF5094H	
2696	8.5E-10	0.00%	94.43%	1-IE-LOACCW,1-IE-ACW-MDP-CF-FR12,1-LPI-MDP-CF-START,1-OA-CCP-ALIGN---H,1-RCS-MDP-LK-BP2	
2697	8.5E-10	0.00%	94.44%	1-IE-ISINJ,1-DCP-BAT-MA-AD1B___,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPL	
2698	8.5E-10	0.00%	94.44%	1-IE-ISINJ,1-DCP-BAT-MA-BD1B___,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPL	
2699	8.4E-10	0.00%	94.44%	1-IE-OTRANS,1-ACP-CRB-CC-BA0301___,1-DCP-FUS-OP-AD104___,1-OEP-VCF-LP-CLOPT	
2700	8.4E-10	0.00%	94.44%	1-IE-OTRANS,1-ACP-CRB-CC-AA0205___,1-DCP-FUS-OP-BD104___,1-OEP-VCF-LP-CLOPT	
2701	8.4E-10	0.00%	94.44%	1-IE-LOOPSC,1-ACP-CRB-OO-AA0201___,1-EPS-DGN-CF-FRUN1,1-OEP-XHE-XL-NR02HSC,1-OEP-XHE-XX-NR02HSC0	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2702	8.4E-10	0.00%	94.44%	1-IE-LOOPSC,1-ACP-CRB-OO-ANA0401_,1-EPS-DGN-CF-FRUN1,1-OEP-XHE-XL-NR02HSC,1-OEP-XHE-XX-NR02HSC0	
2703	8.4E-10	0.00%	94.44%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-116-ABDE	
2704	8.4E-10	0.00%	94.44%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-116-BCDE	
2705	8.4E-10	0.00%	94.45%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-116-ACDE	
2706	8.4E-10	0.00%	94.45%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-116-BCDF	
2707	8.4E-10	0.00%	94.45%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-116-ACDF	
2708	8.4E-10	0.00%	94.45%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-116-ABEF	
2709	8.4E-10	0.00%	94.45%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-116-BCEF	
2710	8.4E-10	0.00%	94.45%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-116-ABDF	
2711	8.4E-10	0.00%	94.45%	1-IE-LOOPWR,1-OEP-XHE-XL-NR02HWR,1-SWS-MOV-CF-116-ACEF	
2712	8.4E-10	0.00%	94.46%	1-IE-SSBO,/1-RPS-BME-TM-RTBA,/1-RPS-BME-TM-RTBB,1-RPS-CBI-CF-4OF6,1-RPS-CCP-TM-CHA,1-RPS-XHE-XE-NSGNL	
2713	8.4E-10	0.00%	94.46%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205_,1-ACP-CRB-OO-AA0201_,1-EPS-DGN-MA-G4002_,1-OEP-XHE-XL-NR02HSC	
2714	8.4E-10	0.00%	94.46%	1-IE-LOOPSC,1-ACP-CRB-CC-BA0301_,1-ACP-CRB-OO-AA0201_,1-EPS-DGN-MA-G4001_,1-OEP-XHE-XL-NR02HSC	
2715	8.4E-10	0.00%	94.46%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205_,1-ACP-CRB-OO-ANA0401_,1-EPS-DGN-MA-G4002_,1-OEP-XHE-XL-NR02HSC	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2716	8.4E-10	0.00%	94.46%	1-IE-LOOPSC,1-ACP-CRB-CC-BA0301__,1-ACP-CRB-OO-ANA0401__,1-EPS-DGN-MA-G4001__,1-OEP-XHE-XL-NR02HSC	
2717	8.4E-10	0.00%	94.46%	1-IE-LOIA,1-EPS-SEQ-CF-FOAB,1-IE-IAS-XVM-CO-2240151,1-OEP-VCF-LP-CLOPT	
2718	8.4E-10	0.00%	94.46%	1-IE-TTRIP,1-ACP-CRB-CC-AA0205__,1-AFW-MDP-MA-P4002__,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
2719	8.4E-10	0.00%	94.46%	1-IE-LOOPGR,1-AFW-MOV-OO-FV5154__,1-EPS-SEQ-FO-1821U301,1-OAB_TR-----H	
2720	8.4E-10	0.00%	94.47%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-ABCDEF	
2721	8.4E-10	0.00%	94.47%	1-IE-LOOPGR,1-ACP-TFW-FC-BBB03X__,1-EPS-DGN-MA-G4001__,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR	
2722	8.4E-10	0.00%	94.47%	1-IE-LOOPGR,1-ACP-TFW-FC-ABB03X__,1-EPS-DGN-MA-G4002__,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR	
2723	8.4E-10	0.00%	94.47%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-DCP-BAT-MA-BD1B__,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A__	
2724	8.4E-10	0.00%	94.47%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-DCP-BAT-MA-AD1B__,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A__	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2725	8.4E-10	0.00%	94.47%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,/1-RPS-BME-TM-RTBA,/1-RPS-BME-TM-RTBB,/1-RPS-CCP-TM-CHA,1-RPS-CCX-CF-6OF8,1-RPS-XHE-XE-NSGNL	
2726	8.3E-10	0.00%	94.47%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBB___,1-AFW-TDP-FR-P4001___,1-EPS-DGN-MA-G4001___,1-OEP-XHE-XL-NR01HGR	
2727	8.3E-10	0.00%	94.48%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBF___,1-AFW-TDP-FR-P4001___,1-EPS-DGN-MA-G4001___,1-OEP-XHE-XL-NR01HGR	
2728	8.3E-10	0.00%	94.48%	1-IE-LOOPGR,1-ACP-INV-FC-AD1111___,1-AFW-TDP-FR-P4001___,1-EPS-DGN-MA-G4002___,1-OEP-XHE-XL-NR01HGR	
2729	8.3E-10	0.00%	94.48%	1-IE-LOOPGR,1-ACP-INV-FC-BD1112___,1-AFW-TDP-FR-P4001___,1-EPS-DGN-MA-G4001___,1-OEP-XHE-XL-NR01HGR	
2730	8.3E-10	0.00%	94.48%	1-IE-LOOPGR,1-AFW-MDP-MA-P4002___,1-CVC-MDP-FS-CCPB___,1-EPS-DGN-MA-G4001___	
2731	8.3E-10	0.00%	94.48%	1-IE-LOOPWR,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CC-1668A___	
2732	8.3E-10	0.00%	94.48%	1-IE-LOOPWR,1-EPS-SEQ-FO-1821U301,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CC-1669A___	
2733	8.3E-10	0.00%	94.48%	1-IE-LOOPGR,1-EPS-DGN-FS-G4001___,1-EPS-TNK-MA-DFOSTKB___,1-OA-ORS-----H	
2734	8.3E-10	0.00%	94.48%	1-IE-LOOPSC,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-RLY-FC-162_1X89-CC	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2735	8.3E-10	0.00%	94.49%	1-IE-LOOPSC,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-RLY-FC-AX36869_-CC	
2736	8.3E-10	0.00%	94.49%	1-IE-LOOPGR,1-DCP-BCH-FC-AAAB_____-CC,1-EPS-DGN-FR-G4002____	
2737	8.3E-10	0.00%	94.49%	1-IE-LOOPGR,1-DCP-BCH-FC-____BABB-CC,1-EPS-DGN-FR-G4001____	
2738	8.2E-10	0.00%	94.49%	1-IE-LOOPGR,1-ACP-BAC-MA-BYB1_____,1-ACP-INV-MA-AD1I11_____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR	
2739	8.2E-10	0.00%	94.49%	1-IE-LOMFW,1-ACP-BAC-MA-AA02_____,1-AFW-MDP-FS-P4002_____,1-OAB_TR-----H	
2740	8.2E-10	0.00%	94.49%	1-IE-LOMFW,1-ACP-BAC-MA-AA02_____,1-OA-MISPAF5094H,1-OAB_TR-----H	
2741	8.2E-10	0.00%	94.49%	1-IE-LO125AD1,1-AFW-MDP-MA-P4002_____,1-AFW-TDP-FR-P4001_____,1-DCP-BDC-FC-AD1&_____,1-RCS-PRV-CC-RV0456A____	
2742	8.2E-10	0.00%	94.49%	1-IE-LO125BD1,1-AFW-MDP-MA-P4003_____,1-AFW-TDP-FR-P4001_____,1-DCP-BDC-FC-BD1&_____,1-RCS-PRV-CC-RV0455A____	
2743	8.2E-10	0.00%	94.50%	1-IE-LO4160VA,1-ACP-BAC-MA-MCCBBF_____,1-RCS-PRV-CC-RV0456A____	
2744	8.2E-10	0.00%	94.50%	1-IE-LO4160VA,1-ACP-BAC-MA-BB07_____,1-RCS-PRV-CC-RV0456A____	
2745	8.2E-10	0.00%	94.50%	1-IE-OTRANS,1-ACP-INV-MA-AD1I1_____,1-OA-START-AFW-H,1-OAB_TR-----H-HD,1-OAF_MFW-----H-CD,1-RPS-ICC-TE-605Q5SPB	
2746	8.2E-10	0.00%	94.50%	1-IE-OTRANS,1-ACP-INV-MA-BD1I2_____,1-OA-START-AFW-H,1-OAB_TR-----H-HD,1-OAF_MFW-----H-CD,1-RPS-ICC-TE-605Q5SPA	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2747	8.2E-10	0.00%	94.50%	1-IE-MLOCA,1-RPS-BME-CF-RTBAB	
2748	8.2E-10	0.00%	94.50%	1-IE-OTRANS,1-ACP-BAC-FC-AA02____,1-ACP-BAC-MA-BB16____,1-RCS-MDP-LK-BP2	
2749	8.2E-10	0.00%	94.50%	1-IE-OTRANS,1-ACP-BAC-FC-AB15____,1-ACP-BAC-MA-BB16____,1-RCS-MDP-LK-BP2	
2750	8.2E-10	0.00%	94.50%	1-IE-OTRANS,1-ACP-BAC-FC-AB15____,1-ACP-BAC-MA-BA03____,1-RCS-MDP-LK-BP2	
2751	8.2E-10	0.00%	94.51%	1-IE-OTRANS,1-ACP-BAC-FC-BA03____,1-ACP-BAC-MA-AB15____,1-RCS-MDP-LK-BP2	
2752	8.2E-10	0.00%	94.51%	1-IE-OTRANS,1-ACP-BAC-FC-BB16____,1-ACP-BAC-MA-AA02____,1-RCS-MDP-LK-BP2	
2753	8.2E-10	0.00%	94.51%	1-IE-OTRANS,1-ACP-BAC-FC-BB16____,1-ACP-BAC-MA-AB15____,1-RCS-MDP-LK-BP2	
2754	8.2E-10	0.00%	94.51%	1-IE-TTRIP,1-ACP-CRB-CC-AA0205____,1-ACP-CRB-CC-BA0301____,1-OEP-VPF-LP-RLOOP	
2755	8.2E-10	0.00%	94.51%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-DCP-BAT-MA-BD1B____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR01HWR	
2756	8.2E-10	0.00%	94.51%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-DCP-BAT-MA-AD1B____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR01HWR	
2757	8.2E-10	0.00%	94.51%	1-IE-LOOPGR,1-DCP-BAT-MA-CD1B____,1-EPS-DGN-FS-G4001____,1-EPS-DGN-MA-G4002____,1-OEP-XHE-XL-NR01HGR	
2758	8.2E-10	0.00%	94.52%	1-IE-LOOPGR,1-DCP-BAT-MA-CD1B____,1-EPS-DGN-FS-G4002____,1-EPS-DGN-MA-G4001____,1-OEP-XHE-XL-NR01HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2759	8.2E-10	0.00%	94.52%	1-IE-MLOCA,1-DCP-BAT-MA-AD1B____,1-ESF-RLY-MA-____K601B	
2760	8.2E-10	0.00%	94.52%	1-IE-MLOCA,1-DCP-BAT-MA-AD1B____,1-ESF-RLY-MA-____K603B	
2761	8.2E-10	0.00%	94.52%	1-IE-MLOCA,1-DCP-BAT-MA-AD1B____,1-ESF-RLY-MA-____K609B	
2762	8.2E-10	0.00%	94.52%	1-IE-MLOCA,1-DCP-BAT-MA-AD1B____,1-ESF-RLY-MA-____K615B	
2763	8.2E-10	0.00%	94.52%	1-IE-MLOCA,1-DCP-BAT-MA-AD1B____,1-ESF-RLY-MA-____K610B	
2764	8.2E-10	0.00%	94.52%	1-IE-MLOCA,1-DCP-BAT-MA-AD1B____,1-ESF-RLY-MA-____K618B	
2765	8.2E-10	0.00%	94.52%	1-IE-LOACCW,1-EPS-SEQ-CF-FOAB,1-IE-ACW-TNK-RP-T4_001_,1-OA-CCP-ALIGN---H,1-RCS-MDP-LK-BP2	
2766	8.2E-10	0.00%	94.53%	1-IE-LOOPSC,1-AFW-TDP-FR-P4001____,1-EPS-DGN-CF-FRUN1,1-OA-ALIGNPW-01HR,1-OEP-XHE-XL-NR01HSC,1-OEP-XHE-XX-NR01HSC0	
2767	8.1E-10	0.00%	94.53%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-ABDE	
2768	8.1E-10	0.00%	94.53%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-BCDE	
2769	8.1E-10	0.00%	94.53%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-ACDE	
2770	8.1E-10	0.00%	94.53%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-BCDF	
2771	8.1E-10	0.00%	94.53%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-ACDF	
2772	8.1E-10	0.00%	94.53%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-ABEF	
2773	8.1E-10	0.00%	94.53%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-BCEF	
2774	8.1E-10	0.00%	94.54%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-ABDF	
2775	8.1E-10	0.00%	94.54%	1-IE-OTRANS,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-ACEF	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2776	8.1E-10	0.00%	94.54%	1-IE-SSBI,1-EPS-SEQ-FO-1821U301,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2777	8.1E-10	0.00%	94.54%	1-IE-LO125AD1,1-DCP-BDC-FC-AD1&____,1-DCP-FUS-OP-BD104____,1-OEP-VPF-LP-CLOPT	
2778	8.1E-10	0.00%	94.54%	1-IE-LO125BD1,1-DCP-BDC-FC-BD1&____,1-DCP-FUS-OP-AD104____,1-OEP-VPF-LP-CLOPT	
2779	8.1E-10	0.00%	94.54%	1-IE-LO125AD1,1-DCP-BDC-FC-AD1&____,1-RPS-BME-TM-RTBA,/1-RPS-BME-TM-RTBB,/1-RPS-CCP-TM-CHA,1-RPS-CCX-CF-6OF8,1-RPS-XHE-XE-NSGNL	
2780	8.1E-10	0.00%	94.54%	1-IE-LO125BD1,1-DCP-BDC-FC-BD1&____,1-RPS-BME-TM-RTBA,/1-RPS-BME-TM-RTBB,/1-RPS-CCP-TM-CHA,1-RPS-CCX-CF-6OF8,1-RPS-XHE-XE-NSGNL	
2781	8.1E-10	0.00%	94.54%	1-IE-LOOPGR,1-ACP-BAC-MA-AA02____,1-ACP-CRB-CC-BA0301____,1-OA-ORS-----H	
2782	8.1E-10	0.00%	94.55%	1-IE-LOOPGR,1-ACP-BAC-MA-AB05____,1-ACP-CRB-CC-BA0301____,1-OA-ORS-----H	
2783	8.1E-10	0.00%	94.55%	1-IE-LOOPGR,1-ACP-BAC-MA-AB15____,1-ACP-CRB-CC-BA0301____,1-OA-ORS-----H	
2784	8.1E-10	0.00%	94.55%	1-IE-LOOPGR,1-ACP-BAC-MA-BA03____,1-ACP-CRB-CC-AA0205____,1-OA-ORS-----H	
2785	8.1E-10	0.00%	94.55%	1-IE-LOOPGR,1-ACP-BAC-MA-BB07____,1-ACP-CRB-CC-AA0205____,1-OA-ORS-----H	
2786	8.1E-10	0.00%	94.55%	1-IE-LOOPGR,1-ACP-BAC-MA-BB16____,1-ACP-CRB-CC-AA0205____,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2787	8.1E-10	0.00%	94.55%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCABB__,1-ACP-CRB-CC-BA0301__,1-OA-ORS-----H	
2788	8.1E-10	0.00%	94.55%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCABF__,1-ACP-CRB-CC-BA0301__,1-OA-ORS-----H	
2789	8.1E-10	0.00%	94.55%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBB__,1-ACP-CRB-CC-AA0205__,1-OA-ORS-----H	
2790	8.1E-10	0.00%	94.56%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBF__,1-ACP-CRB-CC-AA0205__,1-OA-ORS-----H	
2791	8.1E-10	0.00%	94.56%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002__,1-EPS-SEQ-FO-1821U301,1-LPI-MDP-MA-RHRB__,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2792	8.1E-10	0.00%	94.56%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001__,1-EPS-SEQ-FO-1821U302,1-LPI-MDP-MA-RHRA__,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2793	8.1E-10	0.00%	94.56%	1-IE-SGTR,1-EPS-SEQ-FO-1821U301,1-OAB_SI-----H,1-OEP-VCF-LP-CLOPL,1-SGTR2	
2794	8.1E-10	0.00%	94.56%	1-IE-SGTR,1-EPS-SEQ-FO-1821U301,1-OAB_SI-----H,1-OEP-VCF-LP-CLOPL,1-SGTR3	
2795	8.1E-10	0.00%	94.56%	1-IE-LOOPGR,1-DCP-BAT-MA-CD1B__,1-EPS-DGN-CF-FSUN1,1-OEP-XHE-XL-NR01HGR	
2796	8.1E-10	0.00%	94.56%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301__,1-ACP-INV-FC-AD1111__,1-OA-ORS-----H	
2797	8.1E-10	0.00%	94.56%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205__,1-ACP-INV-FC-BD1112__,1-OA-ORS-----H	
2798	8.1E-10	0.00%	94.57%	1-IE-TTRIP,1-AFW-PMP-CF-RUN,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2799	8.1E-10	0.00%	94.57%	1-IE-LOMFW,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDE	
2800	8.1E-10	0.00%	94.57%	1-IE-LOMFW,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ACDEF	
2801	8.1E-10	0.00%	94.57%	1-IE-LOMFW,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCDEF	
2802	8.1E-10	0.00%	94.57%	1-IE-LOMFW,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABDEF	
2803	8.1E-10	0.00%	94.57%	1-IE-LOMFW,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCEF	
2804	8.1E-10	0.00%	94.57%	1-IE-LOMFW,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDF	
2805	8.1E-10	0.00%	94.57%	1-IE-SSBO,1-ACP-DCP-FC-1B_PS4__,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2806	8.1E-10	0.00%	94.58%	1-IE-SSBO,1-ACP-DCP-FC-1B_PS1__,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2807	8.1E-10	0.00%	94.58%	1-IE-SSBO,1-ACP-DCP-FC-1A_PS1__,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2808	8.1E-10	0.00%	94.58%	1-IE-SSBO,1-ACP-DCP-FC-1A_PS4__,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
2809	8.0E-10	0.00%	94.58%	1-IE-LOCHS,1-AFW-MDP-CF-RUN,1-AFW-TDP-FR-P4001__,1-OAB_TR-----H	
2810	8.0E-10	0.00%	94.58%	1-IE-LOOPPC,1-EPS-MDP-FR-XFERPPS_-CC,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2811	8.0E-10	0.00%	94.58%	1-IE-OTRANS,1-AFW-MDP-FR-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H,1-OEP-VCf-LP-CLOPT	
2812	8.0E-10	0.00%	94.58%	1-IE-LOOPGR,1-NSCWCT-BYPASS,1-OA-ORS-----H,1-SWS-MOV-CF-1668A69A	
2813	8.0E-10	0.00%	94.58%	1-IE-LOOPSC,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H,1-SWS-CTF-MA- B 1234	
2814	8.0E-10	0.00%	94.59%	1-IE-LOOPSC,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H,1-SWS-CTF-MA- A 1234	
2815	8.0E-10	0.00%	94.59%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABDE	
2816	8.0E-10	0.00%	94.59%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-BCDE	
2817	8.0E-10	0.00%	94.59%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ACDE	
2818	8.0E-10	0.00%	94.59%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-BCDF	
2819	8.0E-10	0.00%	94.59%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ACDF	
2820	8.0E-10	0.00%	94.59%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABEF	
2821	8.0E-10	0.00%	94.59%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-BCEF	
2822	8.0E-10	0.00%	94.60%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABDF	
2823	8.0E-10	0.00%	94.60%	1-IE-LOOPSC,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ACEF	
2824	8.0E-10	0.00%	94.60%	1-IE-LOOPGR,1-ACP-INV-MA-AD111____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR01HGR	
2825	8.0E-10	0.00%	94.60%	1-IE-LO4160VA,1-AFW-SCV-CC-114____,1-OAB_TR-----H	
2826	8.0E-10	0.00%	94.60%	1-IE-LO4160VA,1-AFW-SCV-CC-115____,1-OAB_TR-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2827	8.0E-10	0.00%	94.60%	1-IE-LO4160VA,1-AFW-SCV-CC-037_____,1-OAB_TR-----H	
2828	8.0E-10	0.00%	94.60%	1-IE-LO4160VA,1-AFW-SCV-CC-040_____,1-OAB_TR-----H	
2829	7.9E-10	0.00%	94.60%	1-IE-LOMFV,1-RPS-BME-TM-RTBA,1-RPS-BME-TM-RTBB,1-RPS-CBI-CF-4OF6,1-RPS-CCP-TM-CHA,1-RPS-XHE-XE-NSGNL,1-UET2-NOPORV-BLK	
2830	7.9E-10	0.00%	94.61%	1-IE-LOOPSC,1-EPS-SEQ-FO-1821U301,1-EPS-TNK-MA-DFOSTKB_____,1-OA-ORS-----H	
2831	7.9E-10	0.00%	94.61%	1-IE-LOOPGR,1-NSCWCT-BYPASS,1-OA-ORS-----H,1-SWS-SWT-FC-TY16689B-CC	
2832	7.9E-10	0.00%	94.61%	1-IE-LOOPGR,1-ACP-INV-MA-AD111_____,1-ACP-SSD-MA-1821U302,1-OEP-XHE-XL-NR02HGR	
2833	7.9E-10	0.00%	94.61%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002_____,1-NSCWCT-BYPASS,1-OA-ORS-----H,1-SWS-MOV-CC-1668A____	
2834	7.9E-10	0.00%	94.61%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001_____,1-NSCWCT-BYPASS,1-OA-ORS-----H,1-SWS-MOV-CC-1669A____	
2835	7.9E-10	0.00%	94.61%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002_____,1-OA-ORS-----H,1-SWS-MDP-MA-P4_00135-3	
2836	7.9E-10	0.00%	94.61%	1-IE-LOMFV,1-NSCW-F-WTRHAMMER,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-OO-1668A69A-CC	
2837	7.8E-10	0.00%	94.61%	1-IE-LOOPWR,1-EPS-DGN-FR-G4002_____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1,1-SWS-RLY-FC-AX3_68AB	
2838	7.8E-10	0.00%	94.62%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001_____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1,1-SWS-RLY-FC-AX3_69AB	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2839	7.8E-10	0.00%	94.62%	1-IE-LOOPWR,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1,1-SWS-RLY-FC-162_1X68	
2840	7.8E-10	0.00%	94.62%	1-IE-LOOPWR,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1,1-SWS-RLY-FC-162_1X69	
2841	7.8E-10	0.00%	94.62%	1-IE-LO4160VB,1-ACP-BAC-MA-MCCABB____,1-NSCW-CT-NEED-SWAP,1-NSCW-MOV-F-NON-RECBLE,1-NSCWCT-BYPASS	
2842	7.8E-10	0.00%	94.62%	1-IE-LO4160VA,1-ACP-BAC-MA-MCCBBB____,1-NSCW-CT-NEED-SWAP,1-NSCW-MOV-F-NON-RECBLE,1-NSCWCT-BYPASS	
2843	7.8E-10	0.00%	94.62%	1-IE-LOOPPC,1-ACP-BAC-MA-BA03____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
2844	7.8E-10	0.00%	94.62%	1-IE-LOOPPC,1-ACP-BAC-MA-BB07____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
2845	7.8E-10	0.00%	94.62%	1-IE-LOOPPC,1-ACP-BAC-MA-BB16____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	
2846	7.8E-10	0.00%	94.63%	1-IE-LOOPPC,1-ACP-BAC-MA-AA02____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
2847	7.8E-10	0.00%	94.63%	1-IE-LOOPPC,1-ACP-BAC-MA-AB05____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
2848	7.8E-10	0.00%	94.63%	1-IE-LOOPPC,1-ACP-BAC-MA-AB15____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
2849	7.8E-10	0.00%	94.63%	1-IE-LOOPPC,1-ACP-BAC-MA-MCCABF____,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2850	7.8E-10	0.00%	94.63%	1-IE-LOOPPC,1-ACP-BAC-MA-MCCBBB__,1-EPS-DGN-FR-G4001__,1-OA-ORS-----H	
2851	7.8E-10	0.00%	94.63%	1-IE-LOOPPC,1-ACP-BAC-MA-MCCBBF__,1-EPS-DGN-FR-G4001__,1-OA-ORS-----H	
2852	7.8E-10	0.00%	94.63%	1-IE-LOOPPC,1-ACP-BAC-MA-MCCABB__,1-EPS-DGN-FR-G4002__,1-OA-ORS-----H	
2853	7.8E-10	0.00%	94.63%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-ABCDEF	
2854	7.8E-10	0.00%	94.64%	1-IE-LOOPPC,1-ACP-INV-FC-AD1I11__,1-EPS-DGN-FR-G4002__,1-OA-ORS-----H	
2855	7.8E-10	0.00%	94.64%	1-IE-LOOPPC,1-ACP-INV-FC-BD1I12__,1-EPS-DGN-FR-G4001__,1-OA-ORS-----H	
2856	7.8E-10	0.00%	94.64%	1-IE-LOCHS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCD	
2857	7.8E-10	0.00%	94.64%	1-IE-LOCHS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABDE	
2858	7.8E-10	0.00%	94.64%	1-IE-LOCHS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCDE	
2859	7.8E-10	0.00%	94.64%	1-IE-LOCHS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ADEF	
2860	7.8E-10	0.00%	94.64%	1-IE-LOCHS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-CDEF	
2861	7.8E-10	0.00%	94.64%	1-IE-LOCHS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCF	
2862	7.8E-10	0.00%	94.65%	1-IE-LOCHS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABEF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2863	7.8E-10	0.00%	94.65%	1-IE-LOCHS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ACDF	
2864	7.8E-10	0.00%	94.65%	1-IE-LOCHS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCEF	
2865	7.8E-10	0.00%	94.65%	1-IE-LOOPGR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
2866	7.8E-10	0.00%	94.65%	1-IE-LOOPGR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FR-G4002____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
2867	7.8E-10	0.00%	94.65%	1-IE-TTRIP,1-DCP-BAT-MA-AD1B____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A____	
2868	7.8E-10	0.00%	94.65%	1-IE-TTRIP,1-DCP-BAT-MA-BD1B____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A____	
2869	7.8E-10	0.00%	94.65%	1-IE-LOCHS,1-NSCW-CT-NEED-SWAP,1-NSCW-MOV-F-NON-RECBLE,1-NSCWCT-BYPASS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-CF-1668A69A	
2870	7.8E-10	0.00%	94.66%	1-IE-LO125BD1,1-AFW-MDP-MA-P4003____,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-BD1&____,1-EPS-SEQ-FO-1821U301,1-OA-NSCW-FAN---H	
2871	7.8E-10	0.00%	94.66%	1-IE-LO125AD1,1-AFW-MDP-MA-P4002____,1-AFW-TDP-FR-P4001____,1-DCP-BDC-FC-AD1&____,1-EPS-SEQ-FO-1821U302,1-OA-NSCW-FAN---H	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2872	7.8E-10	0.00%	94.66%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301__,1-ACP-SSD-MA-1821U301,1-OA-ORS-----H	
2873	7.8E-10	0.00%	94.66%	1-IE-LO4160VA,1-ACP-BAC-MA-MCCBBF__,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H	
2874	7.8E-10	0.00%	94.66%	1-IE-LO4160VA,1-ACP-BAC-MA-BB07____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H	
2875	7.8E-10	0.00%	94.66%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-HPI-CKV-OO-189_____	
2876	7.8E-10	0.00%	94.66%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-CCP-DIVT-THRNCP,1-HPI-CKV-OO-129_____	
2877	7.8E-10	0.00%	94.66%	1-IE-MLOCA,1-DCP-BCH-FC-AAABBABB-CC	
2878	7.8E-10	0.00%	94.66%	1-IE-LOOPGR,1-DCP-BAT-MA-CD1B____,1-EPS-MDP-FS-XFERPPS_-CC,1-OEP-XHE-XL-NR01HGR	
2879	7.8E-10	0.00%	94.67%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205__,1-ACP-INV-MA-BD1I12__,1-OA-ORS-----H	
2880	7.7E-10	0.00%	94.67%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301__,1-AFW-TDP-MA-P4001____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
2881	7.7E-10	0.00%	94.67%	1-IE-LOOPWR,1-ACP-CRB-CC-AA0205__,1-AFW-TDP-MA-P4001____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
2882	7.7E-10	0.00%	94.67%	1-IE-LOOPPC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ADEF	
2883	7.7E-10	0.00%	94.67%	1-IE-LOOPPC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABEF	
2884	7.7E-10	0.00%	94.67%	1-IE-LOOPPC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-BCEF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2885	7.7E-10	0.00%	94.67%	1-IE-LOOPPC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-CDEF	
2886	7.7E-10	0.00%	94.67%	1-IE-LOOPPC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-BCDE	
2887	7.7E-10	0.00%	94.68%	1-IE-LOOPPC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCF	
2888	7.7E-10	0.00%	94.68%	1-IE-LOOPPC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCD	
2889	7.7E-10	0.00%	94.68%	1-IE-LOOPPC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ACDF	
2890	7.7E-10	0.00%	94.68%	1-IE-LOOPPC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABDE	
2891	7.7E-10	0.00%	94.68%	1-IE-LOOPSC,1-CAD-XHE-SAFESTBLE,1-CVC-MDP-MA-CCPB____,1-EPS-DGN-FR-G4001____	
2892	7.7E-10	0.00%	94.68%	1-IE-LOOPSC,1-CAD-XHE-SAFESTBLE,1-CVC-MDP-MA-CCPA____,1-EPS-DGN-FR-G4002____	
2893	7.7E-10	0.00%	94.68%	1-IE-LOOPSC,1-CVC-MDP-FS-CCPA____,1-EPS-DGN-FR-G4002____,1-MSS-ADV-MA-VPV3000____,1-MSS-ADV-MA-VPV3030____	
2894	7.7E-10	0.00%	94.68%	1-IE-LOOPWR,1-ACP-INV-MA-AD1I11____,1-EPS-TNK-MA-DFOSTKB____,1-OEP-XHE-XL-NR02HWR	
2895	7.7E-10	0.00%	94.69%	1-IE-RTRIP,1-ACP-CRB-CC-AA0205____,1-AFW-MDP-MA-P4002____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
2896	7.7E-10	0.00%	94.69%	1-IE-SSBI,1-RCS-MDP-LK-BP2,1-SWS-CTF-CF-FS-ALL	
2897	7.7E-10	0.00%	94.69%	1-IE-LOMFV,1-AFW-MDP-MA-P4002____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
2898	7.7E-10	0.00%	94.69%	1-IE-LOOPGR,1-DCP-BAT-MA-AD1B____,1-EPS-TNK-MA-DFOSTKB____,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2899	7.7E-10	0.00%	94.69%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCABF____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	
2900	7.7E-10	0.00%	94.69%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCBBB____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	
2901	7.7E-10	0.00%	94.69%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCBBF____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	
2902	7.7E-10	0.00%	94.69%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCABB____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	
2903	7.7E-10	0.00%	94.70%	1-IE-LOOPGR,1-ACP-BAC-FC-BA03____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	
2904	7.7E-10	0.00%	94.70%	1-IE-LOOPGR,1-ACP-BAC-FC-BB07____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	
2905	7.7E-10	0.00%	94.70%	1-IE-LOOPGR,1-ACP-BAC-FC-BB16____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR	
2906	7.7E-10	0.00%	94.70%	1-IE-LOOPGR,1-ACP-BAC-FC-AA02____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	
2907	7.7E-10	0.00%	94.70%	1-IE-LOOPGR,1-ACP-BAC-FC-AB05____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	
2908	7.7E-10	0.00%	94.70%	1-IE-LOOPGR,1-ACP-BAC-FC-AB15____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR	
2909	7.6E-10	0.00%	94.70%	1-IE-LO125AD1,1-ACP-BAC-MA-BA03____,1-DCP-BDC-FC-AD1&____,1-MSS-ADV-OO-VPV3010_	
2910	7.6E-10	0.00%	94.70%	1-IE-LO125AD1,1-ACP-BAC-MA-BA03____,1-DCP-BDC-FC-AD1&____,1-MSS-ADV-OO-VPV3020_	
2911	7.6E-10	0.00%	94.70%	1-IE-LO125AD1,1-ACP-BAC-MA-BB16____,1-DCP-BDC-FC-AD1&____,1-MSS-ADV-OO-VPV3010_	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2912	7.6E-10	0.00%	94.71%	1-IE-LO125AD1,1-ACP-BAC-MA-BB16____,1-DCP-BDC-FC-AD1&____,1-MSS-ADV-OO-VPV3020__	
2913	7.6E-10	0.00%	94.71%	1-IE-LO125AD1,1-ACP-BAC-MA-MCCBBB____,1-DCP-BDC-FC-AD1&____,1-MSS-ADV-OO-VPV3010__	
2914	7.6E-10	0.00%	94.71%	1-IE-LO125AD1,1-ACP-BAC-MA-MCCBBB____,1-DCP-BDC-FC-AD1&____,1-MSS-ADV-OO-VPV3020__	
2915	7.6E-10	0.00%	94.71%	1-IE-LOOPWR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FR-G4002____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
2916	7.6E-10	0.00%	94.71%	1-IE-LOOPWR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
2917	7.6E-10	0.00%	94.71%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-1,1-CVC-MDP-FS-CCPA____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H	
2918	7.6E-10	0.00%	94.71%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-2,1-CVC-MDP-FS-CCPA____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H	
2919	7.6E-10	0.00%	94.71%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-3,1-CVC-MDP-FS-CCPB____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H	
2920	7.6E-10	0.00%	94.72%	1-IE-MLOCA,1-2-5--PC-PG-T_ON_LOO-4,1-CVC-MDP-FS-CCPB____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H	
2921	7.6E-10	0.00%	94.72%	1-IE-LO4160VA,1-AFW-MDP-FR-P4002____,1-RCS-PRV-CC-RV0456A__	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2922	7.6E-10	0.00%	94.72%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-AFW-MDP-FR-P4002____,1-OAB_TR-----H	
2923	7.6E-10	0.00%	94.72%	1-IE-LOOPSC,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4002____,1-OA-MISPAF5095H,1-OAB_TR-----H	
2924	7.6E-10	0.00%	94.72%	1-IE-LOOPSC,1-AFW-MDP-FS-P4003____,1-AFW-TDP-FR-P4001____,1-EPS-DGN-FR-G4002____,1-OAB_TR-----H	
2925	7.6E-10	0.00%	94.72%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR01HGR	
2926	7.6E-10	0.00%	94.72%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR01HGR	
2927	7.6E-10	0.00%	94.72%	1-IE-LOOPWR,1-AFW-MDP-FS-P4002____,1-EPS-SEQ-FO-1821U301,1-OAB_TR-----H	
2928	7.6E-10	0.00%	94.72%	1-IE-LOOPWR,1-EPS-SEQ-FO-1821U301,1-OA-MISPAF5094H,1-OAB_TR-----H	
2929	7.5E-10	0.00%	94.73%	1-IE-LOOPPC,1-ACP-SSD-MA-1821U301,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H	
2930	7.5E-10	0.00%	94.73%	1-IE-LOOPGR,1-CAD-XHE-SAFESTBLE,1-CVC-MDP-TE-CCPA____,1-EPS-DGN-FR-G4002____	
2931	7.5E-10	0.00%	94.73%	1-IE-LOOPGR,1-CAD-XHE-SAFESTBLE,1-CVC-MDP-TE-CCPB____,1-EPS-DGN-FR-G4001____	
2932	7.5E-10	0.00%	94.73%	1-IE-RTRIP,1-ACP-CRB-CC-AA0205____,1-ACP-CRB-CC-BA0301____,1-OEP-VPF-LP-RLOOP	
2933	7.5E-10	0.00%	94.73%	1-IE-LOOPPC,1-ACP-INV-MA-BD1112____,1-EPS-DGN-FR-G4001____,1-OA-ORS-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2934	7.5E-10	0.00%	94.73%	1-IE-LOOPWR,1-ACP-CRB-CC-BA0301____,1-EPS-TNK-MA-DFOSTKA____,1-OA-ORS-----H	
2935	7.5E-10	0.00%	94.73%	1-IE-LOCHS,1-ACP-BAC-MA-AA02____,1-AFW-MDP-FS-P4002____,1-OAB_TR-----H	
2936	7.5E-10	0.00%	94.73%	1-IE-LOCHS,1-ACP-BAC-MA-AA02____,1-OA-MISPAF5094H,1-OAB_TR-----H	
2937	7.5E-10	0.00%	94.74%	1-IE-LOOPGR,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1668A____	
2938	7.5E-10	0.00%	94.74%	1-IE-LOOPGR,1-EPS-SEQ-FO-1821U301,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1669A____	
2939	7.5E-10	0.00%	94.74%	1-IE-TTRIP,1-ACP-BAC-MA-AA02____,1-AFW-MOV-OO-FV5154____,1-OAB_TR-----H	
2940	7.5E-10	0.00%	94.74%	1-IE-MLOCA,1-ESF-SSD-FC-3A4161A,1-OAD_MLA-----H,1-SIS-MDP-FS-SIB____	
2941	7.5E-10	0.00%	94.74%	1-IE-MLOCA,1-ESF-SSD-FC-3A4161B,1-OAD_MLA-----H,1-SIS-MDP-FS-SIA____	
2942	7.5E-10	0.00%	94.74%	1-IE-MLOCA,1-ESF-SSD-FC-4A315A,1-OAD_MLA-----H,1-SIS-MDP-FS-SIB____	
2943	7.5E-10	0.00%	94.74%	1-IE-MLOCA,1-ESF-SSD-FC-4A315B,1-OAD_MLA-----H,1-SIS-MDP-FS-SIA____	
2944	7.5E-10	0.00%	94.74%	1-IE-MLOCA,1-ESF-SSD-FC-A513_1A,1-OAD_MLA-----H,1-SIS-MDP-FS-SIB____	
2945	7.5E-10	0.00%	94.74%	1-IE-MLOCA,1-ESF-SSD-FC-A513_1B,1-OAD_MLA-----H,1-SIS-MDP-FS-SIA____	
2946	7.5E-10	0.00%	94.75%	1-IE-MLOCA,1-ESF-SSD-FC-A517_1A,1-OAD_MLA-----H,1-SIS-MDP-FS-SIB____	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2947	7.5E-10	0.00%	94.75%	1-IE-MLOCA,1-ESF-SSD-FC- _A517_1B,1-OAD_MLA-----H,1-SIS- MDP-FS-SIA	
2948	7.5E-10	0.00%	94.75%	1-IE-MLOCA,1-ESF-SSD-FC- _3A3131A,1-OAD_MLA-----H,1-SIS- MDP-FS-SIB	
2949	7.5E-10	0.00%	94.75%	1-IE-MLOCA,1-ESF-SSD-FC- _3A3131B,1-OAD_MLA-----H,1-SIS- MDP-FS-SIA	
2950	7.5E-10	0.00%	94.75%	1-IE-MLOCA,1-EPS-SEQ-FO- 1821U301,1-OAD_MLA-----H,1-SIS- MDP-FS-SIB	
2951	7.5E-10	0.00%	94.75%	1-IE-MLOCA,1-EPS-SEQ-FO- 1821U302,1-OAD_MLA-----H,1-SIS- MDP-FS-SIA	
2952	7.5E-10	0.00%	94.75%	1-IE-LOOPSC,1-ACP-INV-MA- AD1I1____,1-CVC-MDP-TE- CCPA____,1-EPS-DGN-FR-G4002____	
2953	7.5E-10	0.00%	94.75%	1-IE-LOOPSC,1-ACP-INV-MA- BD1I2____,1-CVC-MDP-TE- CCPB____,1-EPS-DGN-FR-G4001____	
2954	7.5E-10	0.00%	94.76%	1-IE-OTRANS,1-ACP-INV-MA- AD1I11____,1-EPS-TNK-MA- DFOSTKB____,1-OEP-VCF-LP-CLOPT	
2955	7.4E-10	0.00%	94.76%	1-IE-OTRANS,1-EPS-SEQ-FO- 1821U301,1-EPS-SEQ-FO-1821U302,1- OEP-VCF-LP-RLOOP	
2956	7.4E-10	0.00%	94.76%	1-IE-RTRIP,1-AFW-PMP-CF-RUN,1- OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
2957	7.4E-10	0.00%	94.76%	1-IE-MLOCA,1-CVC-MDP-TE- CCPA____,1-OAD_MLA-----H,1-RPS- ICC-TE-605Q5SPB	
2958	7.4E-10	0.00%	94.76%	1-IE-MLOCA,1-CVC-MDP-TE- CCPB____,1-OAD_MLA-----H,1-RPS- ICC-TE-605Q5SPA	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2959	7.4E-10	0.00%	94.76%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-NSCW-CT-NEED-SWAP,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP1,1-SWS-SWT-FC-TY16689B-CC	
2960	7.4E-10	0.00%	94.76%	1-IE-LOOPWR,1-AFW-TDP-FR-P4001____,1-EPS-MDP-FR-XFERPPS_-CC,1-OEP-XHE-XL-NR01HWR	
2961	7.4E-10	0.00%	94.76%	1-IE-LOOPGR,1-AFW-MOV-OO-FV5154 __,1-EPS-DGN-FS-G4001____,1-OAB_TR-----H	
2962	7.4E-10	0.00%	94.76%	1-IE-SGTR,1-ACP-CRB-CC-AA0205__,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPL	
2963	7.4E-10	0.00%	94.77%	1-IE-SGTR,1-ACP-CRB-CC-BA0301__,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPL	
2964	7.4E-10	0.00%	94.77%	1-IE-ISL-RCP-S1LO,1-ACP-BAC-MA-MCCBBB__,1-EPS-DGN-FR-G4001____,1-IE-LOOPSC,1-RCS-MDP-LK-BP1,1-RCS-MDP-LK-BP2	
2965	7.4E-10	0.00%	94.77%	1-IE-ISL-RCP-S1LO,1-ACP-BAC-MA-BA03____,1-EPS-DGN-FR-G4001____,1-IE-LOOPSC,1-RCS-MDP-LK-BP1,1-RCS-MDP-LK-BP2	
2966	7.4E-10	0.00%	94.77%	1-IE-ISL-RCP-S1LO,1-ACP-BAC-MA-BB16____,1-EPS-DGN-FR-G4001____,1-IE-LOOPSC,1-RCS-MDP-LK-BP1,1-RCS-MDP-LK-BP2	
2967	7.3E-10	0.00%	94.77%	1-IE-LOCHS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDE	
2968	7.3E-10	0.00%	94.77%	1-IE-LOCHS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABDEF	
2969	7.3E-10	0.00%	94.77%	1-IE-LOCHS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCDEF	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2970	7.3E-10	0.00%	94.77%	1-IE-LOCHS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ACDEF	
2971	7.3E-10	0.00%	94.78%	1-IE-LOCHS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCDF	
2972	7.3E-10	0.00%	94.78%	1-IE-LOCHS,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCEF	
2973	7.3E-10	0.00%	94.78%	1-IE-LOOPGR,1-ACP-BAC-MA-AYB1____,1-ACP-CRB-CC-BA0301____,1-NSCWCT-SPRAY,1-OA-ORS-----H	
2974	7.3E-10	0.00%	94.78%	1-IE-LOOPGR,1-ACP-BAC-MA-BYB1____,1-ACP-CRB-CC-AA0205____,1-NSCWCT-SPRAY,1-OA-ORS-----H	
2975	7.3E-10	0.00%	94.78%	1-IE-LOOPPC,1-AFW-MDP-FR-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H	Same as cut set #1482, except a different LOOP initiating event and different electrical/AFW unavailabilities occur.
2976	7.3E-10	0.00%	94.78%	1-IE-LOOPGR,1-ACW-MDP-MA-P4_002____,1-EPS-DGN-FR-G4001____,1-LPI-MDP-MA-RHRB____,1-RCS-MDP-LK-BP2	A grid-related LOOP initiating event occurs. Electrical and ACCW failures result in a complete loss of RCP seal cooling and injection.
2977	7.3E-10	0.00%	94.78%	1-IE-LOOPGR,1-AFW-MDP-MA-P4002____,1-EPS-DGN-FR-G4001____,1-OAR_LTFB-TRA-H	A grid-related LOOP initiating event occurs. Electrical and AFW failures result in a complete loss of AFW. Feed and bleed is initially successful; however, core damage occurs due operator failure to align for recirculation (i.e., long-term feed and bleed cooling).
2978	7.3E-10	0.00%	94.78%	1-IE-LOOPGR,1-AFW-MDP-FS-P4002____,1-CVC-MDP-FS-CCPB____,1-EPS-DGN-FR-G4001____	A grid-related LOOP initiating event occurs. Various component failures result in a loss of AFW (all three pumps are eventually rendered unavailable) and feed and bleed cooling (both CCPs unavailable). Note that this cut set is potentially conservative because no credit is given for offsite power during non-SBO scenarios.
2979	7.3E-10	0.00%	94.78%	1-IE-LOOPGR,1-CVC-MDP-FS-CCPB____,1-EPS-DGN-FR-G4001____,1-OA-MISPAF5094H	Same as cut set #2978, except different AFW failure.
2980	7.2E-10	0.00%	94.79%	1-IE-LOOPSC,1-EPS-PND-CF-1205X,1-OA-ORS-----H	Same as cut set #10, except a different LOOP initiating event (plant-centered) and different electrical-related failures occur.

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2981	7.2E-10	0.00%	94.79%	1-IE-LOOPWR,1-ACP-BAC-MA-BYB1____,1-EPS-DGN-FR-G4001____,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	Same as cut set #8, except different electrical unavailabilities; different convolution factor applied.
2982	7.2E-10	0.00%	94.79%	1-IE-LOOPWR,1-ACP-BAC-MA-AYB1____,1-EPS-DGN-FR-G4002____,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HWR,1-OEP-XHE-XX-NR02HWR1	Same as cut set #8, except different electrical unavailabilities; different convolution factor applied.
2983	7.2E-10	0.00%	94.79%	1-IE-LOOPGR,1-AFW-TDP-FS-P4001____,1-DCP-BAT-MA-AD1B____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	A grid-related LOOP initiating event occurs with subsequent electrical failures/unavailabilities resulting in a SBO. With the turbine-driven AFW pump failed, core damage occurs due operators failing to recover offsite power within 1 hour (convolution applied).
2984	7.2E-10	0.00%	94.79%	1-IE-LOOPGR,1-AFW-TDP-FS-P4001____,1-DCP-BAT-MA-BD1B____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	Same as cut set #2983, except opposite train electrical unavailabilities.
2985	7.2E-10	0.00%	94.79%	1-IE-LOMFV,1-AFW-MDP-CF-START,1-AFW-TDP-MA-P4001____,1-OAB_TR-----H	A loss of MFW initiating event occurs with subsequent failures of both motor-driven AFW pumps and the unavailability of the turbine-driven AFW pump. Core damage occurs due to operator failure to initiate feed and bleed cooling.
2986	7.2E-10	0.00%	94.79%	1-IE-TTRIP,1-AFW-MDP-CF-START,1-AFW-TDP-FS-P4001____,1-OAB_TR-----H-HD,1-OAF_MFW-----H	A turbine trip initiating event occurs with subsequent failures of both motor-driven AFW pumps and the turbine-driven AFW pump. Operators fail to restore MFW. Core damage occurs due to operator failure to initiate feed and bleed cooling (dependent).
2987	7.2E-10	0.00%	94.79%	1-IE-LOCHS,1-RPS-BME-TM-RTBA,1-RPS-BME-TM-RTBB,1-RPS-CBI-CF-4OF6,1-RPS-CCP-TM-CHA,1-RPS-XHE-XE-NSGNL,1-UET2-NOPORV-BLK	A loss of condenser heat sink initiating event occurs with a subsequent ATWS (RPS failures). Core damage occurs because the reactor in the unfavorable exposure time (i.e., RCS pressure will exceed 3200 psi).
2988	7.2E-10	0.00%	94.79%	1-IE-LOPPC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCDF	Same as cut set #482, except a different LOOP initiating event (plant-centered) and different NSCW pump CCF event occur.
2989	7.2E-10	0.00%	94.80%	1-IE-LOPPC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCEF	Same as cut set #482, except a different LOOP initiating event (plant-centered) and different NSCW pump CCF event occur.
2990	7.2E-10	0.00%	94.80%	1-IE-LOPPC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABDEF	Same as cut set #482, except a different LOOP initiating event (plant-centered) and different NSCW pump CCF event occur.

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
2991	7.2E-10	0.00%	94.80%	1-IE-LOOPPC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-BCDEF	Same as cut set #482, except a different LOOP initiating event (plant-centered) and different NSCW pump CCF event occur.
2992	7.2E-10	0.00%	94.80%	1-IE-LOOPPC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ACDEF	Same as cut set #482, except a different LOOP initiating event (plant-centered) and different NSCW pump CCF event occur.
2993	7.2E-10	0.00%	94.80%	1-IE-LOOPPC,1-RCS-MDP-LK-BP2,1-SWS-MDP-CF-FS-ABCDE	Same as cut set #482, except a different LOOP initiating event (plant-centered) and different NSCW pump CCF event occur.
2994	7.2E-10	0.00%	94.80%	1-IE-LOOPSC,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-MA-1669ACT_	Same as cut set #10, except a different LOOP initiating event (switchyard-centered) and different electrical/NSCW failures occur.
2995	7.2E-10	0.00%	94.80%	1-IE-LO4160VA,1-AFW-MDP-FR-P4002____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWCFAN---H	Loss of 4.16kV safety-related AC bus initiating event with opposite train AFW and sequencer failures result in of all decay heat removal (AFW and feed and bleed cooling). This cut set is potentially conservative because no credit is provided for manual start of NSCW fans (sequencer failures will not prevent manual start of fans).
2996	7.2E-10	0.00%	94.80%	1-IE-LOOPSC,1-ACP-INV-FC-AD11BD12-CC,1-OA-ORS-----H	Same as cut set #10, except a different LOOP initiating event (switchyard-centered) and different electrical failures occur.
2997	7.2E-10	0.00%	94.80%	1-IE-RTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-116-ABCDEF	A reactor trip and consequential LOOP. NSCW failures (discharge valves) result in a SBO. Note that this cut set is conservative since operators could restore offsite power. This (expected) conservatism is due to the limited nature of the consequential LOOP recovery post-processing rules.
2998	7.2E-10	0.00%	94.81%	1-IE-RTRIP,1-DCP-BAT-MA-AD1B____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A____	Same as cut set #2997, except electrical unavailabilities and NSCW failures result in loss of NSCW.
2999	7.2E-10	0.00%	94.81%	1-IE-RTRIP,1-DCP-BAT-MA-BD1B____,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A____	Same as cut set #2997, except electrical unavailabilities and NSCW failures result in loss of NSCW.
3000	7.2E-10	0.00%	94.81%	1-IE-OTRANS,1-NSCWCT-SPRAY,1-OEP-VCF-LP-RLOOP,1-SWS-MOV-CF-1668A69A	
3001	7.2E-10	0.00%	94.81%	1-IE-LOSINJ,1-CVC-MDP-FR-NCP4001&,1-OEP-VCF-LP-CLOPT,1-SWS-RLY-FC-162_1ALL-CC	
3002	7.2E-10	0.00%	94.81%	1-IE-SGTR,1-EPS-DGN-FS-G4001____,1-OAB_SI-----H,1-OEP-VCF-LP-CLOPL,1-SGTR2	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
3003	7.2E-10	0.00%	94.81%	1-IE-SGTR,1-EPS-DGN-FS-G4001____,1-OAB_SI-----H,1-OEP-VCF-LP-CLOPL,1-SGTR3	
3004	7.1E-10	0.00%	94.81%	1-IE-LOCHS,1-NSCW-F-WTRHAMMER,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-OO-1668A69A-CC	
3005	7.1E-10	0.00%	94.81%	1-IE-LOOPGR,1-EPS-MOT-CF-RUN,1-OA-ORS-----H	
3006	7.1E-10	0.00%	94.81%	1-IE-LOOPGR,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HGR,1-SWS-RLY-FC-AX36869 _CC	
3007	7.1E-10	0.00%	94.82%	1-IE-LOOPGR,1-NSCWCT-BYPASS,1-OEP-XHE-XL-NR02HGR,1-SWS-RLY-FC-AX46869 _CC	
3008	7.1E-10	0.00%	94.82%	1-IE-LOOPSC,1-AFW-MOV-OO-FV5154 __,1-EPS-SEQ-FO-1821U301,1-OAB_TR-----H	
3009	7.1E-10	0.00%	94.82%	1-IE-LOOPPC,1-ACP-BAC-MA-AYB1____,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OA-ORS-----H	
3010	7.1E-10	0.00%	94.82%	1-IE-LOOPPC,1-ACP-BAC-MA-BYB1____,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OA-ORS-----H	
3011	7.1E-10	0.00%	94.82%	1-IE-LO125AD1,1-AFW-MDP-FS-P4002____,1-AFW-TDP-FS-P4001____,1-DCP-BDC-FC-AD1&____,1-OAB_TR----H	
3012	7.1E-10	0.00%	94.82%	1-IE-LO125BD1,1-AFW-MDP-FS-P4003____,1-AFW-TDP-FS-P4001____,1-DCP-BDC-FC-BD1&____,1-OAB_TR----H	
3013	7.1E-10	0.00%	94.82%	1-IE-LO125AD1,1-AFW-TDP-FS-P4001____,1-DCP-BDC-FC-AD1&____,1-OA-MISPAF5094H,1-OAB_TR-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
3014	7.1E-10	0.00%	94.82%	1-IE-LO125BD1,1-AFW-TDP-FS-P4001____,1-DCP-BDC-FC-BD1&____,1-OA-MISPAF5095H,1-OAB_TR-----H	
3015	7.1E-10	0.00%	94.82%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-ACP-SSD-MA-1821U302,1-OA-ORS-----H	
3016	7.0E-10	0.00%	94.83%	1-IE-LOOPSC,1-AFW-MDP-MA-P4002____,1-CVC-MDP-FS-CCPB____,1-EPS-DGN-MA-G4001____	
3017	7.0E-10	0.00%	94.83%	1-IE-LO125AD1,1-AFW-MDP-MA-P4002____,1-AFW-TDP-FR-P4001____,1-CVC-MDP-MA-CCPB____,1-DCP-BDC-FC-AD1&____	
3018	7.0E-10	0.00%	94.83%	1-IE-LO125BD1,1-AFW-MDP-MA-P4003____,1-AFW-TDP-FR-P4001____,1-CVC-MDP-MA-CCPA____,1-DCP-BDC-FC-BD1&____	
3019	7.0E-10	0.00%	94.83%	1-IE-LO4160VA,1-ACP-BAC-MA-MCCBBF____,1-LPI-MDP-MA-RHRB____	
3020	7.0E-10	0.00%	94.83%	1-IE-LO4160VA,1-ACP-BAC-MA-BB07____,1-LPI-MDP-MA-RHRB____	
3021	7.0E-10	0.00%	94.83%	1-IE-LO4160VA,1-ACP-BAC-MA-BB07____,1-CVC-MDP-MA-CCPB____	
3022	7.0E-10	0.00%	94.83%	1-IE-LO4160VA,1-ACP-BAC-MA-MCCBBF____,1-CVC-MDP-MA-CCPB____	
3023	7.0E-10	0.00%	94.83%	1-IE-LO4160VA,1-ACP-BAC-MA-MCCBBB____,1-AFW-MDP-MA-P4002____	
3024	7.0E-10	0.00%	94.83%	1-IE-LO4160VA,1-ACP-BAC-MA-MCCBBD____,1-AFW-MDP-MA-P4002____	
3025	7.0E-10	0.00%	94.84%	1-IE-LO4160VA,1-ACP-BAC-MA-MCCBBB____,1-ACW-MDP-MA-P4_002____	
3026	7.0E-10	0.00%	94.84%	1-IE-LO4160VA,1-AFW-MDP-MA-P4002____,1-EPS-SEQ-CF-FOAB,1-OA-NSCWFAN---H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
3027	7.0E-10	0.00%	94.84%	1-IE-LO4160VA,1-ACP-INV-FC-BD1112____,1-AFW-MDP-MA-P4002____,1-OA-NSCWCFAN---H	
3028	7.0E-10	0.00%	94.84%	1-IE-LOOPGR,1-EPS-DGN-MA-G4002____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-MA-1668ACT_	
3029	7.0E-10	0.00%	94.84%	1-IE-LOOPSC,1-EPS-DGN-FS-G4001____,1-EPS-TNK-MA-DFOSTKB____,1-OA-ORS-----H	
3030	7.0E-10	0.00%	94.84%	1-IE-LOMFWD,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ADEF	
3031	7.0E-10	0.00%	94.84%	1-IE-LOMFWD,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABEF	
3032	7.0E-10	0.00%	94.84%	1-IE-LOMFWD,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-BCEF	
3033	7.0E-10	0.00%	94.84%	1-IE-LOMFWD,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-CDEF	
3034	7.0E-10	0.00%	94.85%	1-IE-LOMFWD,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCD	
3035	7.0E-10	0.00%	94.85%	1-IE-LOMFWD,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-BCDE	
3036	7.0E-10	0.00%	94.85%	1-IE-LOMFWD,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABDE	
3037	7.0E-10	0.00%	94.85%	1-IE-LOMFWD,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCF	
3038	7.0E-10	0.00%	94.85%	1-IE-LOMFWD,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ACDF	
3039	7.0E-10	0.00%	94.85%	1-IE-LOCHS,1-AFW-MDP-MA-P4002____,1-EPS-DGN-MA-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
3040	7.0E-10	0.00%	94.85%	1-IE-LOOPSC,1-DCP-BCH-FC-AAAB____-CC,1-EPS-DGN-FR-G4002____	
3041	7.0E-10	0.00%	94.85%	1-IE-LOOPSC,1-DCP-BCH-FC-____BABB-CC,1-EPS-DGN-FR-G4001____	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
3042	7.0E-10	0.00%	94.85%	1-IE-LOOPGR,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CF-1668A69A	
3043	6.9E-10	0.00%	94.86%	1-IE-TTRIP,1-NSCW-CT-NEED-SWAP,1-NSCWCT-BYPASS,1-RCS-MDP-LK-BP1,1-SWS-SWT-FC-TY16689B-CC	
3044	6.9E-10	0.00%	94.86%	1-IE-LOOPGR,1-ACP-BAC-FC-BYB1____,1-EPS-SEQ-FO-1821U301,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR	
3045	6.9E-10	0.00%	94.86%	1-IE-LOOPGR,1-ACP-BAC-FC-AYB1____,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR	
3046	6.9E-10	0.00%	94.86%	1-IE-LOOPWR,1-AFW-MDP-MA-P4002____,1-CVC-MDP-FS-CCPB____,1-EPS-DGN-FR-G4001____	
3047	6.9E-10	0.00%	94.86%	1-IE-LOOPGR,1-ACP-INV-MA-AD1I11____,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CC-1669A____	
3048	6.9E-10	0.00%	94.86%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001____,1-NSCW-F-WTRHAMMER,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR01HGR,1-SWS-MOV-OO-1668A69A-CC	
3049	6.9E-10	0.00%	94.86%	1-IE-LOSINJ,1-ACP-BAC-MA-MCCABB____,1-CVC-MDP-FR-NCP4001&,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
3050	6.9E-10	0.00%	94.86%	1-IE-LOSINJ,1-ACP-INV-FC-AD1I11____,1-CVC-MDP-FR-NCP4001&,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
3051	6.9E-10	0.00%	94.86%	1-IE-LOSINJ,1-ACP-INV-FC-BD1I12____,1-CVC-MDP-FR-NCP4001&,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
3052	6.9E-10	0.00%	94.87%	1-IE-LO4160VA,1-AFW-MOV-OO-FV5154___,1-CVC-MDP-FS-CCPB___	
3053	6.9E-10	0.00%	94.87%	1-IE-RTRIP,1-ACP-BAC-MA-AA02___,1-AFW-MOV-OO-FV5154___,1-OAB_TR-----H	
3054	6.9E-10	0.00%	94.87%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002___,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1668A___	
3055	6.9E-10	0.00%	94.87%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001___,1-NSCWCT-SPRAY,1-OEP-VCF-LP-CLOPT,1-SWS-MOV-CC-1669A___	
3056	6.9E-10	0.00%	94.87%	1-IE-LOOPSC,1-ACP-BAC-MA-AA02___,1-ACP-CRB-CC-BA0301___,1-OA-ORS-----H	
3057	6.9E-10	0.00%	94.87%	1-IE-LOOPSC,1-ACP-BAC-MA-AB05___,1-ACP-CRB-CC-BA0301___,1-OA-ORS-----H	
3058	6.9E-10	0.00%	94.87%	1-IE-LOOPSC,1-ACP-BAC-MA-AB15___,1-ACP-CRB-CC-BA0301___,1-OA-ORS-----H	
3059	6.9E-10	0.00%	94.87%	1-IE-LOOPSC,1-ACP-BAC-MA-BA03___,1-ACP-CRB-CC-AA0205___,1-OA-ORS-----H	
3060	6.9E-10	0.00%	94.87%	1-IE-LOOPSC,1-ACP-BAC-MA-BB07___,1-ACP-CRB-CC-AA0205___,1-OA-ORS-----H	
3061	6.9E-10	0.00%	94.87%	1-IE-LOOPSC,1-ACP-BAC-MA-BB16___,1-ACP-CRB-CC-AA0205___,1-OA-ORS-----H	
3062	6.9E-10	0.00%	94.88%	1-IE-LOOPSC,1-ACP-BAC-MA-MCCABB___,1-ACP-CRB-CC-BA0301___,1-OA-ORS-----H	
3063	6.9E-10	0.00%	94.88%	1-IE-LOOPSC,1-ACP-BAC-MA-MCCABF___,1-ACP-CRB-CC-BA0301___,1-OA-ORS-----H	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
3064	6.9E-10	0.00%	94.88%	1-IE-LOOPSC,1-ACP-BAC-MA-MCCBBB__,1-ACP-CRB-CC-AA0205__,1-OA-ORS-----H	
3065	6.9E-10	0.00%	94.88%	1-IE-LOOPSC,1-ACP-BAC-MA-MCCBBF__,1-ACP-CRB-CC-AA0205__,1-OA-ORS-----H	
3066	6.9E-10	0.00%	94.88%	1-IE-LOOPSC,1-EPS-DGN-FR-G4001__,1-EPS-SEQ-FO-1821U302,1-LPI-MDP-MA-RHRA__,1-OA-NSCWCFAN---H,1-RCS-MDP-LK-BP2	
3067	6.9E-10	0.00%	94.88%	1-IE-LOOPSC,1-EPS-DGN-FR-G4002__,1-EPS-SEQ-FO-1821U301,1-LPI-MDP-MA-RHRB__,1-OA-NSCWCFAN---H,1-RCS-MDP-LK-BP2	
3068	6.9E-10	0.00%	94.88%	1-IE-LOOPGR,1-AFW-MOV-OO-FV5154__,1-DCP-BAT-MA-AD1B__,1-OAB_TR-----H	
3069	6.8E-10	0.00%	94.88%	1-IE-LOOPSC,1-ACP-CRB-CC-BA0301__,1-ACP-INV-FC-AD1111__,1-OA-ORS-----H	
3070	6.8E-10	0.00%	94.88%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205__,1-ACP-INV-FC-BD1112__,1-OA-ORS-----H	
3071	6.8E-10	0.00%	94.89%	1-IE-LOOPGR,1-AFW-MDP-MA-P4002__,1-NSCWCT-SPRAY,1-OAB_TR-----H,1-SWS-MOV-CC-1668A__	
3072	6.8E-10	0.00%	94.89%	1-IE-LOOPGR,1-AFW-TDP-FR-P4001__,1-EPS-DGN-FR-G4001__,1-EPS-TNK-MA-DFOSTKB__,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
3073	6.8E-10	0.00%	94.89%	1-IE-LOOPPC,1-ACP-SSD-MA-1821U302,1-EPS-DGN-FR-G4001__,1-OA-ORS-----H	
3074	6.8E-10	0.00%	94.89%	1-IE-LOOPWR,1-RCS-MDP-LK-BP2,1-SWS-MOV-CF-116-ABCDEF	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
3075	6.8E-10	0.00%	94.89%	1-IE-LOOPWR,1-DCP-BAT-MA-AD1B____,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CC-1669A____	
3076	6.8E-10	0.00%	94.89%	1-IE-LOOPWR,1-DCP-BAT-MA-BD1B____,1-NSCWCT-SPRAY,1-RCS-MDP-LK-BP2,1-SWS-MOV-CC-1668A____	
3077	6.8E-10	0.00%	94.89%	1-IE-LOMFWD,1-ACP-BAC-FC-BA03____,1-ACP-BAC-MA-AA02____	
3078	6.8E-10	0.00%	94.89%	1-IE-LOMFWD,1-ACP-BAC-FC-BB16____,1-ACP-BAC-MA-AA02____	
3079	6.8E-10	0.00%	94.89%	1-IE-LOMFWD,1-ACP-BAC-FC-BA03____,1-ACP-BAC-MA-AB15____	
3080	6.8E-10	0.00%	94.89%	1-IE-LOMFWD,1-ACP-BAC-FC-AA02____,1-ACP-BAC-MA-BB16____	
3081	6.8E-10	0.00%	94.90%	1-IE-LOMFWD,1-ACP-BAC-FC-AA02____,1-ACP-BAC-MA-BA03____	
3082	6.8E-10	0.00%	94.90%	1-IE-LOMFWD,1-ACP-BAC-FC-AB15____,1-ACP-BAC-MA-BA03____	
3083	6.8E-10	0.00%	94.90%	1-IE-LOOPSC,1-NSCWCT-BYPASS,1-OA-ORS-----H,1-SWS-MOV-CF-1668A69A	
3084	6.8E-10	0.00%	94.90%	1-IE-TTRIP,1-ACP-INV-FC-A1B2____-CC,1-OA-START-AFW-H,1-OAF_MFW--H-CD	
3085	6.8E-10	0.00%	94.90%	1-IE-LO4160VA,1-AFW-CKV-CC-126____,1-OAB_TR-----H	
3086	6.8E-10	0.00%	94.90%	1-IE-LO4160VA,1-AFW-CKV-CC-128____,1-OAB_TR-----H	
3087	6.8E-10	0.00%	94.90%	1-IE-LO4160VA,1-AFW-CKV-CC-058____,1-OAB_TR-----H	
3088	6.8E-10	0.00%	94.90%	1-IE-LO4160VA,1-AFW-CKV-CC-002____,1-OAB_TR-----H	
3089	6.8E-10	0.00%	94.90%	1-IE-LOOPGR,1-ACP-BAC-FC-BA03____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
3090	6.8E-10	0.00%	94.91%	1-IE-LOOPGR,1-ACP-BAC-FC-BB07____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HGR	
3091	6.8E-10	0.00%	94.91%	1-IE-LOOPGR,1-ACP-BAC-FC-BB16____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HGR	
3092	6.8E-10	0.00%	94.91%	1-IE-LOOPGR,1-ACP-BAC-FC-AA02____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HGR	
3093	6.8E-10	0.00%	94.91%	1-IE-LOOPGR,1-ACP-BAC-FC-AB05____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HGR	
3094	6.8E-10	0.00%	94.91%	1-IE-LOOPGR,1-ACP-BAC-FC-AB15____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HGR	
3095	6.8E-10	0.00%	94.91%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCABF____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HGR	
3096	6.8E-10	0.00%	94.91%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCBBB____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HGR	
3097	6.8E-10	0.00%	94.91%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCBBF____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR02HGR	
3098	6.8E-10	0.00%	94.91%	1-IE-LOOPGR,1-ACP-BAC-FC-MCCABB____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR02HGR	
3099	6.8E-10	0.00%	94.92%	1-IE-MLOCA,1-EPS-DGN-FR-G4001____,1-OEP-VCF-LP-CLOPL,1-RPS-ICC-TE-605Q5SPB	
3100	6.8E-10	0.00%	94.92%	1-IE-MLOCA,1-EPS-DGN-FR-G4002____,1-OEP-VCF-LP-CLOPL,1-RPS-ICC-TE-605Q5SPA	
3101	6.7E-10	0.00%	94.92%	1-IE-LO4160VA,1-ACP-INV-MA-BD1112____,1-AFW-MDP-MA-P4002____,1-OA-NSCWAN---H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
3102	6.7E-10	0.00%	94.92%	1-IE-LOOPWR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FR-G4002____,1-EPS-DGN-FS-G4001____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
3103	6.7E-10	0.00%	94.92%	1-IE-LOOPWR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-FR-G4001____,1-EPS-DGN-FS-G4002____,1-OEP-XHE-XL-NR01HWR,1-OEP-XHE-XX-NR01HWR1	
3104	6.7E-10	0.00%	94.92%	1-IE-LOOPSC,1-NSCWCT-BYPASS,1-OA-ORS-----H,1-SWS-SWT-FC-TY16689B-CC	
3105	6.7E-10	0.00%	94.92%	1-IE-TTRIP,1-OEP-VCF-LP-CLOPT,1-SWS-RLY-FC-162_1ALL-CC	
3106	6.7E-10	0.00%	94.92%	1-IE-LOMFV,1-AFW-MDP-FS-P4002____,1-EPS-DGN-FR-G4001____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
3107	6.7E-10	0.00%	94.92%	1-IE-LOMFV,1-EPS-DGN-FR-G4001____,1-OA-MISPAF5094H,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
3108	6.7E-10	0.00%	94.92%	1-IE-LOOPGR,1-AFW-MDP-MA-P4002____,1-CVC-MDP-FR-CCPB____,1-EPS-DGN-FR-G4001____	
3109	6.7E-10	0.00%	94.93%	1-IE-LOOPWR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-MA-G4002____,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR01HWR	
3110	6.7E-10	0.00%	94.93%	1-IE-LOOPWR,1-AFW-TDP-FS-P4001____,1-EPS-DGN-MA-G4001____,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR01HWR	
3111	6.7E-10	0.00%	94.93%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS1____,1-ACP-INV-MA-AD1I11____,1-OEP-XHE-XL-NR02HGR	
3112	6.7E-10	0.00%	94.93%	1-IE-LOOPGR,1-ACP-DCP-FC-1B_PS4____,1-ACP-INV-MA-AD1I11____,1-OEP-XHE-XL-NR02HGR	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
3113	6.7E-10	0.00%	94.93%	1-IE-LO4160VA,1-AFW-MOV-CF-MINFL,1-OAB_TR-----H	
3114	6.7E-10	0.00%	94.93%	1-IE-LOOPSC,1-EPS-DGN-FR-G4002____,1-NSCWCT-BYPASS,1-OA-ORS-----H,1-SWS-MOV-CC-1668A____	
3115	6.7E-10	0.00%	94.93%	1-IE-LOOPSC,1-EPS-DGN-FR-G4001____,1-NSCWCT-BYPASS,1-OA-ORS-----H,1-SWS-MOV-CC-1669A____	
3116	6.7E-10	0.00%	94.93%	1-IE-LOOPWR,1-EPS-DGN-FS-G4001____,1-OA-MISPAF5094H,1-OAB_TR-----H	
3117	6.7E-10	0.00%	94.93%	1-IE-LOOPWR,1-AFW-MDP-FS-P4002____,1-EPS-DGN-FS-G4001____,1-OAB_TR-----H	
3118	6.7E-10	0.00%	94.93%	1-IE-LOOPSC,1-EPS-DGN-FR-G4002____,1-OA-ORS-----H,1-SWS-MDP-MA-P4_00135-3	
3119	6.7E-10	0.00%	94.94%	1-IE-MLOCA,1-CVC-MDP-MA-CCPA____,1-EPS-DGN-FR-G4002____,1-OAD_MLA-----H,1-OEP-VCF-LP-CLOPL	
3120	6.7E-10	0.00%	94.94%	1-IE-MLOCA,1-CVC-MDP-MA-CCPB____,1-EPS-DGN-FR-G4001____,1-OAD_MLA-----H,1-OEP-VCF-LP-CLOPL	
3121	6.7E-10	0.00%	94.94%	1-IE-MLOCA,1-EPS-DGN-FR-G4002____,1-OAD_MLA-----H,1-OEP-VCF-LP-CLOPL,1-SIS-MDP-MA-SIA____	
3122	6.7E-10	0.00%	94.94%	1-IE-MLOCA,1-EPS-DGN-FR-G4001____,1-OAD_MLA-----H,1-OEP-VCF-LP-CLOPL,1-SIS-MDP-MA-SIB____	
3123	6.6E-10	0.00%	94.94%	1-IE-SSBI,1-DCP-BAT-MA-BD1B____,1-EPS-SEQ-FO-1821U301,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
3124	6.6E-10	0.00%	94.94%	1-IE-SSBI,1-DCP-BAT-MA-AD1B____,1-EPS-SEQ-FO-1821U302,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
3125	6.6E-10	0.00%	94.94%	1-IE-OTRANS,1-AFW-CKV-CC-331358__-CC,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
3126	6.6E-10	0.00%	94.94%	1-IE-OTRANS,1-AFW-CKV-CC-010214__-CC,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
3127	6.6E-10	0.00%	94.94%	1-IE-SSBO,1-EPS-SEQ-FO-1821U302,1-NSCWCT-SPRAY,1-OA-NSCWFAN---H,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MOV-MA-1668ACT_	
3128	6.6E-10	0.00%	94.95%	1-IE-LOSINJ,1-ACP-SSD-MA-1821U301,1-CVC-MDP-FR-NCP4001&,1-EPS-SEQ-FO-1821U302,1-OEP-VCF-LP-CLOPT	
3129	6.6E-10	0.00%	94.95%	1-IE-RTRIP,1-AFW-MDP-CF-START,1-AFW-TDP-FS-P4001____,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
3130	6.6E-10	0.00%	94.95%	1-IE-LOSINJ,1-AFW-MDP-MA-P4002____,1-CVC-MDP-FR-NCP4001&,1-EPS-DGN-FR-G4001____,1-OA-SAGD-CHG--H,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
3131	6.6E-10	0.00%	94.95%	1-IE-LOOPGR,1-DCP-FUS-OP-BD104____,1-EPS-DGN-MA-G4001____,1-OA-ORS-----H	
3132	6.6E-10	0.00%	94.95%	1-IE-LOOPGR,1-DCP-FUS-OP-AD104____,1-EPS-DGN-MA-G4002____,1-OA-ORS-----H	
3133	6.6E-10	0.00%	94.95%	1-IE-LOIA,1-AFW-PMP-CF-RUN,1-IE-IAS-XVM-CO-2240151,1-OAB_TR-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
3134	6.6E-10	0.00%	94.95%	1-IE-LOOPGR,1-DCP-BAT-MA-AD1B____,1-EPS-DGN-FR-G4002____,1-LPI-MDP-MA-RHRB____,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
3135	6.6E-10	0.00%	94.95%	1-IE-LOOPGR,1-DCP-BAT-MA-BD1B____,1-EPS-DGN-FR-G4001____,1-LPI-MDP-MA-RHRA____,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
3136	6.6E-10	0.00%	94.95%	1-IE-SGTR,1-DCP-BAT-MA-AD1B____,1-OAB_SI-----H,1-OEP-VCF-LP-CLOPL,1-SGTR2	
3137	6.6E-10	0.00%	94.95%	1-IE-SGTR,1-DCP-BAT-MA-AD1B____,1-OAB_SI-----H,1-OEP-VCF-LP-CLOPL,1-SGTR3	
3138	6.6E-10	0.00%	94.96%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1,1-SWS-RLY-FC-AX3_68AB	
3139	6.6E-10	0.00%	94.96%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1,1-SWS-RLY-FC-AX3_69AB	
3140	6.6E-10	0.00%	94.96%	1-IE-LOOPGR,1-EPS-DGN-FR-G4002____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1,1-SWS-RLY-FC-162_1X68	
3141	6.6E-10	0.00%	94.96%	1-IE-LOOPGR,1-EPS-DGN-FR-G4001____,1-NSCWCT-SPRAY,1-OEP-XHE-XL-NR02HGR,1-OEP-XHE-XX-NR02HGR1,1-SWS-RLY-FC-162_1X69	
3142	6.6E-10	0.00%	94.96%	1-IE-LOOPGR,1-EPS-DGN-FS-G4001____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1669A____	
3143	6.6E-10	0.00%	94.96%	1-IE-LOOPGR,1-EPS-DGN-FS-G4002____,1-NSCWCT-SPRAY,1-OA-ORS-----H,1-SWS-MOV-CC-1668A____	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
3144	6.6E-10	0.00%	94.96%	1-IE-LOSINJ,1-ACP-INV-MA-BD1I12___,1-CVC-MDP-FR-NCP4001&,1-EPS-SEQ-FO-1821U301,1-OEP-VCF-LP-CLOPT	
3145	6.6E-10	0.00%	94.96%	1-IE-LOOPSC,1-ACP-CRB-CC-BA0301___,1-ACP-SSD-MA-1821U301,1-OA-ORS-----H	
3146	6.6E-10	0.00%	94.96%	1-IE-SSBO,1-ACP-DCP-FC-1A_PS1___,1-DCP-BAT-MA-BD1B___,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
3147	6.6E-10	0.00%	94.97%	1-IE-SSBO,1-ACP-DCP-FC-1A_PS4___,1-DCP-BAT-MA-BD1B___,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
3148	6.6E-10	0.00%	94.97%	1-IE-SSBO,1-ACP-DCP-FC-1B_PS4___,1-DCP-BAT-MA-AD1B___,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
3149	6.6E-10	0.00%	94.97%	1-IE-SSBO,1-ACP-DCP-FC-1B_PS1___,1-DCP-BAT-MA-AD1B___,1-OA-NSCWFAN---H,1-RCS-MDP-LK-BP2	
3150	6.6E-10	0.00%	94.97%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205___,1-AFW-TDP-FR-P4001___,1-EPS-TNK-MA-DFOSTKB_,1-OEP-XHE-XL-NR01HGR	
3151	6.6E-10	0.00%	94.97%	1-IE-TTRIP,1-AFW-MDP-FS-P4002___,1-EPS-DGN-MA-G4001___,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
3152	6.6E-10	0.00%	94.97%	1-IE-TTRIP,1-EPS-DGN-MA-G4001___,1-OA-MISPAF5094H,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
3153	6.6E-10	0.00%	94.97%	1-IE-LOOPWR,1-ACP-INV-MA-AD1I11___,1-EPS-SEQ-FO-1821U302,1-OA-ORS-----H	



**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
3154	6.6E-10	0.00%	94.97%	1-IE-LOCHS,1-AFW-MDP-CF-START,1-AFW-TDP-MA-P4001____,1-OAB_TR-----H	
3155	6.6E-10	0.00%	94.97%	1-IE-LOSINJ,1-ACP-BAC-MA-AYB1____,1-CVC-MDP-FR-NCP4001&,1-EPS-DGN-FR-G4002____,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT	
3156	6.6E-10	0.00%	94.97%	1-IE-LOSINJ,1-ACP-BAC-MA-BYB1____,1-CVC-MDP-FR-NCP4001&,1-EPS-DGN-FR-G4001____,1-NSCWCT-BYPASS,1-OEP-VCF-LP-CLOPT	
3157	6.6E-10	0.00%	94.98%	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205____,1-ACP-INV-MA-BD1112____,1-OA-ORS-----H	
3158	6.6E-10	0.00%	94.98%	1-IE-OTRANS,1-ACP-CRB-CC-AA0205____,1-OA-MISPAF5094H,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
3159	6.6E-10	0.00%	94.98%	1-IE-OTRANS,1-ACP-CRB-CC-AA0205____,1-AFW-MDP-FS-P4002____,1-OAB_TR-----H,1-OEP-VCF-LP-CLOPT	
3160	6.6E-10	0.00%	94.98%	1-IE-LOMFW,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCDF	
3161	6.6E-10	0.00%	94.98%	1-IE-LOMFW,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCEF	
3162	6.6E-10	0.00%	94.98%	1-IE-LOMFW,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABDEF	
3163	6.6E-10	0.00%	94.98%	1-IE-LOMFW,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-BCDEF	
3164	6.6E-10	0.00%	94.98%	1-IE-LOMFW,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ACDEF	
3165	6.6E-10	0.00%	94.98%	1-IE-LOMFW,1-OEP-VCF-LP-CLOPT,1-SWS-MDP-CF-FS-ABCDE	
3166	6.5E-10	0.00%	94.98%	1-IE-LOOPGR,1-EPS-SEQ-FO-1821U301,1-OEP-XHE-XL-NR02HGR,1-SWS-CTF-MA-_B_1234_	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
3167	6.5E-10	0.00%	94.99%	1-IE-LOOPGR,1-EPS-SEQ-FO-1821U302,1-OEP-XHE-XL-NR02HGR,1-SWS-CTF-MA- A_1234_	
3168	6.5E-10	0.00%	94.99%	1-IE-LO4160VA,1-AFW-MDP-FS-P4002____,1-OAR_LTFB-TRA-H	
3169	6.5E-10	0.00%	94.99%	1-IE-LO4160VA,1-OA-MISPAF5094H,1-OAR_LTFB-TRA-H	
3170	6.5E-10	0.00%	94.99%	1-IE-LO4160VA,1-ACW-MDP-MA-P4_002____,1-LPI-MDP-FS-RHRB____,1-RCS-MDP-LK-BP2	
3171	6.5E-10	0.00%	94.99%	1-IE-LOOPGR,1-ACP-CRB-CC-AA0205____,1-DCP-BAT-MA-CD1B____,1-EPS-DGN-FR-G4002____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
3172	6.5E-10	0.00%	94.99%	1-IE-LOOPGR,1-ACP-CRB-CC-BA0301____,1-DCP-BAT-MA-CD1B____,1-EPS-DGN-FR-G4001____,1-OEP-XHE-XL-NR01HGR,1-OEP-XHE-XX-NR01HGR1	
3173	6.5E-10	0.00%	94.99%	1-IE-LOOPSC,1-EPS-DGN-FR-G4001____,1-EPS-SEQ-FO-1821U302,1-OA-ALIGNPW-02HR,1-OEP-XHE-XL-NR02HSC,1-OEP-XHE-XX-NR02HSC1	
3174	6.5E-10	0.00%	94.99%	1-IE-LOOPSC,1-EPS-DGN-FR-G4002____,1-EPS-SEQ-FO-1821U301,1-OA-ALIGNPW-02HR,1-OEP-XHE-XL-NR02HSC,1-OEP-XHE-XX-NR02HSC1	
3175	6.5E-10	0.00%	94.99%	1-IE-OTRANS,1-AFW-MDP-FS-P4003____,1-AFW-MDP-MA-P4002____,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
3176	6.5E-10	0.00%	94.99%	1-IE-OTRANS,1-AFW-MDP-FS-P4002____,1-AFW-MDP-MA-P4003____,1-AFW-TDP-FR-P4001____,1-OAB_TR-----H-HD,1-OAF_MFW-----H	

**Table B-1. Level 3 PRA Level 1 Model Significant (Internal Event) Cut Sets**

#	CDF	Total %	Cumulative %	Cut Set	Notes
3177	6.5E-10	0.00%	95.00%	1-IE-OTRANS,1-AFW-MDP-MA-P4003____,1-AFW-TDP-FR-P4001____,1-OA-MISPAF5094H,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
3178	6.5E-10	0.00%	95.00%	1-IE-OTRANS,1-AFW-MDP-MA-P4002____,1-AFW-TDP-FR-P4001____,1-OA-MISPAF5095H,1-OAB_TR-----H-HD,1-OAF_MFW-----H	
3179	6.5E-10	0.00%	95.00%	1-IE-LOACCW,1-EPS-SEQ-CF-FOAB,1-IE-ACW-MDP-CF-FR12,1-OEP-VCF-LP-CLOPT,/1-RCS-MDP-LK-BP1,/1-RCS-MDP-LK-BP2	
3180	6.5E-10	0.00%	95.00%	1-IE-LO4160VA,1-AFW-MDP-FR-P4002____,1-LPI-MDP-MA-RHRB	
3181	6.5E-10	0.00%	95.00%	1-IE-LO4160VA,1-AFW-MDP-FR-P4002____,1-CVC-MDP-MA-CCPB____	
3182	6.5E-10	0.00%	95.00%	1-IE-SSBO,/1-RPS-BME-TM-RTBA,/1-RPS-BME-TM-RTBB,1-RPS-CCP-TM-CHA,1-RPS-CCX-CF-4OF6,1-RPS-XHE-XE-NSGNL	
3183	6.5E-10	0.00%	95.00%	1-IE-LOOPSC,1-DCP-BAT-MA-AD1B____,1-EPS-TNK-MA-DFOSTKB____,1-OA-ORS-----H	
3184	6.5E-10	0.00%	95.00%	1-IE-LOOPGR,1-ACP-BAC-MA-BA03____,1-EPS-TNK-MA-DFOSTKA____,1-OEP-XHE-XL-NR02HGR	
3185	6.5E-10	0.00%	95.00%	1-IE-LOOPGR,1-ACP-BAC-MA-BB07____,1-EPS-TNK-MA-DFOSTKA____,1-OEP-XHE-XL-NR02HGR	
3186	6.5E-10	0.00%	95.00%	1-IE-LOOPGR,1-ACP-BAC-MA-BB16____,1-EPS-TNK-MA-DFOSTKA____,1-OEP-XHE-XL-NR02HGR	
3187	6.5E-10	0.00%	95.01%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBB____,1-EPS-TNK-MA-DFOSTKA____,1-OEP-XHE-XL-NR02HGR	
3188	6.5E-10	0.00%	95.01%	1-IE-LOOPGR,1-ACP-BAC-MA-MCCBBF____,1-EPS-TNK-MA-DFOSTKA____,1-OEP-XHE-XL-NR02HGR	

**Table B-2. Sample Review of L3PRAP Level 1 Model Non-Significant Cut Sets**

#	CDF	Cut Set	Notes
10871	1.0E-10	1-IE-SSBO,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-CDEF	A secondary side break (SSB), downstream of MSIVs or upstream of MFIVs, initiating event occurs. A subsequent failure of NSCW pumps (CCF FTR) results in a loss of all RCP seal injection/cooling. The consequential small LOCA occurs when operators fail to trip the RCPs. Core damage occurs due to the unavailability of ECCS.
10872	1.0E-10	1-IE-SSBO,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABEF	Same as cut set #10871, except for different NSCW pump failures.
10873	1.0E-10	1-IE-SSBO,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-BCEF	Same as cut set #10871, except for different NSCW pump failures.
10874	1.0E-10	1-IE-SSBO,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ABCF	Same as cut set #10871, except for different NSCW pump failures.
10875	1.0E-10	1-IE-SSBO,/1-OEP-VCF-LP-CLOPT,1-RCS-XHE-XM-TRIP,1-SWS-MDP-CF-FR-ACDF	Same as cut set #10871, except for different NSCW pump failures.
10876	1.0E-10	1-IE-LOOPGR,1-CVC-MDP-TE-CCPA____,1-EPS-DGN-FR-G4002____,1-OA-ALTAFW----H	A grid-related LOOP initiating event and subsequent loss of RCP seal injection occur, which results in elevated RCP seal leakage of 21 gpm/RCP (conservatively assumed for cases with available ACCW). An unavailability of a CCP and opposite train electrical failure result in the unavailability of charging. Core damage occurs prior to 72 hours due to the operator failure to align CST 2 (automatic makeup is unavailable due to the LOOP). Note that this scenario is also potentially conservative since operator recovery of offsite power and restoration of the CCP (in testing) is not credited.
10877	1.0E-10	1-IE-LOOPGR,1-CVC-MDP-TE-CCPB____,1-EPS-DGN-FR-G4001____,1-OA-ALTAFW----H	Same as cut set #10876; except for opposite train failures/unavailabilities.
10878	1.0E-10	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205____,1-ACW-MDP-MA-P4_002____,1-LPI-MDP-MA-RHRB____,1-RCS-MDP-LK-BP2	A switchyard-related LOOP initiating event occurs resulting in a loss of RCP seal injection. An unavailability of an ACCW pump and opposite train electrical failure result in the loss of RCP seal cooling and subsequent failure of the RCP seals (stage 2) occurs. Operators successfully perform cooldown and depressurization. Core damage occurs due to the unavailability of both RHR pumps. It is believed that TS allow these two components to be in maintenance at the same time; however, it is possible that plant risk management may prevent simultaneous (planned) maintenance.
10879	1.0E-10	1-IE-LOOPSC,1-ACP-CRB-CC-AA0205____,1-AFW-MDP-MA-P4002____,1-OAR_LTFB-TRA-H	A switchyard-related LOOP initiating event occurs. An AFW pump unavailability and opposite train electrical failure result in a complete loss of the AFW system. Operators successfully initiate feed and bleed cooling. Core damage occurs due to operators failing to align for (cold-leg) recirculation. This cut set is potentially conservative because no credit is provided for recovery of the AFW pump in maintenance.
10880	1.0E-10	1-IE-LOOPGR,1-AFW-TDP-FS-P4001____,1-EPS-SEQ-FO-1821U302,1-EPS-TNK-MA-DFOSTKA____,1-OEP-XHE-XL-NR01HGR	A grid-related LOOP initiating occurs. Electrical-related failures result in an SBO. Core damage occurs due to the failure of the turbine-driven AFW pump and operators failing to recover offsite power within 1 hour.

**Table B-2. Sample Review of L3PRAP Level 1 Model Non-Significant Cut Sets**

#	CDF	Cut Set	Notes
42164	1.0E-11	1-IE-LOMFW,1-CAD-XHE-SAFESTBLE,1-CHG-XHE-NORMAL,1-MSS-AOV-OO-TV500J__	Invalid cut set. The failure of a turbine bypass valve (TBV) to close should lead to the transfer to the consequential SSB event tree; however, this cut set is for LOMFW sequence 7. In addition, a consequential SSB is assumed to result in an SI actuation. As long as CCPs supply a source of high-pressure injection, RCP seal injection will be maintained and, therefore, there is no need to query the 72-hour safe/stable nodes.
42165	1.0E-11	1-IE-LOMFW,1-CAD-XHE-SAFESTBLE,1-CHG-XHE-NORMAL,1-MSS-AOV-OO-TV500B__	Same as cut set #42164, except different TBV fails.
42166	1.0E-11	1-IE-LOMFW,1-CAD-XHE-SAFESTBLE,1-CHG-XHE-NORMAL,1-MSS-AOV-OO-TV500D__	Same as cut set #42164, except different TBV fails.
42167	1.0E-11	1-IE-LOMFW,1-CAD-XHE-SAFESTBLE,1-CHG-XHE-NORMAL,1-MSS-AOV-OO-TV500C__	Same as cut set #42164, except different TBV fails.
42168	1.0E-11	1-IE-LOMFW,1-CAD-XHE-SAFESTBLE,1-CHG-XHE-NORMAL,1-MSS-AOV-OO-TV500F__	Same as cut set #42164, except different TBV fails.
42169	1.0E-11	1-IE-LOMFW,1-CAD-XHE-SAFESTBLE,1-CHG-XHE-NORMAL,1-MSS-AOV-OO-TV500E__	Same as cut set #42164, except different TBV fails.
42170	1.0E-11	1-IE-LOMFW,1-CAD-XHE-SAFESTBLE,1-CHG-XHE-NORMAL,1-MSS-AOV-OO-TV500H__	Same as cut set #42164, except different TBV fails.
42171	1.0E-11	1-IE-LOMFW,1-CAD-XHE-SAFESTBLE,1-CHG-XHE-NORMAL,1-MSS-AOV-OO-TV500G__	Same as cut set #42164, except different TBV fails.
42172	1.0E-11	1-IE-OTRANS,1-EPS-DGN-FS-G4002____,1-OEP-VCF-LP-CLOPT,1-RPS-BME-CF-RTBAB	Invalid cut set. It involves a transient initiating event and subsequent consequential LOOP. A failure of the reactor trip breaker leads to an ATWS; however, a consequential LOOP would cause all control rods to insert (unless mechanically stuck. The issue has been isolated to RPS fault tree logic not accounting for consequential LOOPS in addition to LOOP initiating events.
42173	1.0E-11	1-IE-OTRANS,1-EPS-DGN-FS-G4001____,1-OEP-VCF-LP-CLOPT,1-RPS-BME-CF-RTBAB	Same as cut set #42172; except for opposite train EDG failure.

**Table B-2. Sample Review of L3PRAP Level 1 Model Non-Significant Cut Sets**

#	CDF	Cut Set	Notes
141441	1.0E-12	1-IE-LOOPSC,1-DCP-BAT-MA-AD1B____,1-HPI-MOV-OO-HV8105____,1-MSS-ADV-CC-VPV3010____,1-MSS-ADV-MA-VPV3020____	A switchyard-centered LOOP initiating event and subsequent loss of RCP seal injection occur, which results in elevated RCP seal leakage of 21 gallons per minute (gpm) per RCP (conservatively assumed for cases with available ACCW). A charging system valve failure and opposite train electrical failure result in the unavailability of charging. Core damage occurs prior to 72 hours due to the unavailability of all four ARVs due to electrical and valve failure/unavailabilities. It is believed that TS allow these two components to be in maintenance at the same time; however, it is possible that plant risk management may prevent simultaneous (planned) maintenance.
141442	1.0E-12	1-IE-LOOPSC,1-DCP-BAT-MA-AD1B____,1-HPI-MOV-OO-HV8111B____,1-MSS-ADV-CC-VPV3010____,1-MSS-ADV-MA-VPV3020____	Same as cut set #141441, except for different charging valve failures.
141443	1.0E-12	1-IE-LOOPSC,1-DCP-BAT-MA-AD1B____,1-HPI-MOV-OO-HV8485B____,1-MSS-ADV-CC-VPV3010____,1-MSS-ADV-MA-VPV3020____	Same as cut set #141441, except for different charging valve failures
141444	1.0E-12	1-IE-LOOPSC,1-DCP-BAT-MA-AD1B____,1-HPI-MOV-CC-HV8801B____,1-MSS-ADV-CC-VPV3010____,1-MSS-ADV-MA-VPV3020____	Same as cut set #141441, except for different charging valve failures
141445	1.0E-12	1-IE-LOOPGR,1-DCP-BAT-MA-BD1B____,1-DCP-BDC-FC-AD1____,1-OEP-VCF-LP-CLOPT	Invalid cut set; LOOP initiating event and consequential LOOP cannot occur. A grid-related LOOP initiating event occurs with subsequent electrical failures/unavailabilities resulting in a SBO. Operators successfully restore offsite power within 2 hours. Core damage occurs (within 72 hours) due to unavailabilities of charging and ARVs to perform late depressurization. Potentially non-conservative since DC unavailabilities may prevent AC power recovery (a product of only including battery test/maintenance events in the OPR-HW fault tree).
141446	1.0E-12	1-IE-LOOPGR,1-DCP-BAT-MA-AD1B____,1-DCP-BDC-FC-BD1____,1-OEP-VCF-LP-CLOPT	Same as cut set #141445, except for different electrical failures.
141447	1.0E-12	1-IE-LOOPGR,1-DCP-BAT-MA-AD1B____,1-DCP-DPL-FC-BD11____,1-OEP-VCF-LP-CLOPT	Same as cut set #141445, except for different electrical failures.
141448	1.0E-12	1-IE-LOOPGR,1-DCP-BAT-MA-BD1B____,1-DCP-DPL-FC-AD11____,1-OEP-VCF-LP-CLOPT	Same as cut set #141445, except for different electrical failures.
141449	1.0E-12	1-IE-SGTR,1-ACP-BAC-MA-AYB1____,1-ACP-CRB-CC-BA0301____,1-OAI_SG-----H,1-OEP-VCF-LP-CLOPL	A SGTR initiating event and consequential LOOP occurs. Operators fail to isolate the ruptured SG. Core damage occurs due to the unavailability of CST makeup capability. This cut set is potentially conservative because offsite power recovery is not credited for non-SBO scenarios.
141450	1.0E-12	1-IE-SGTR,1-ACP-BAC-MA-BYB1____,1-ACP-CRB-CC-AA0205____,1-OAI_SG-----H,1-OEP-VCF-LP-CLOPL	Same as cut set #141449, except for opposite train electrical failures/unavailabilities.

## Appendix C: Significant Basic Events—RAW Importance Measure

This appendix contains a table of the significant basic events in the Level 3 Probabilistic Risk Assessment (PRA) Level 1 model for internal events due to their risk achievement worth (RAW) importance measures being greater than or equal to two.

Name	Description	Probability/ Frequency	RAW
1-IE-XLOCA	REACTOR PRESSURE VESSEL RUPTURE	1.00E-07	1.56E+04
1-SWS-MDP-CF-FR-ABCDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	8.36E-08	7.15E+03
1-SWS-MDP-CF-FR-ABCD	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.97E-08	7.15E+03
1-SWS-MDP-CF-FR-ABCDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.72E-08	7.15E+03
1-SWS-MDP-CF-FR-ABCDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.72E-08	7.15E+03
1-SWS-MDP-CF-FR-ABCEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.72E-08	7.15E+03
1-SWS-MDP-CF-FR-ABCF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.97E-08	7.15E+03
1-SWS-MDP-CF-FR-ABDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.97E-08	7.15E+03
1-SWS-MDP-CF-FR-ABDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.72E-08	7.15E+03
1-SWS-MDP-CF-FR-ABEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.97E-08	7.15E+03
1-SWS-MDP-CF-FR-ACDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.72E-08	7.15E+03
1-SWS-MDP-CF-FR-ACDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.97E-08	7.15E+03
1-SWS-MDP-CF-FR-ADEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.97E-08	7.15E+03
1-SWS-MDP-CF-FR-BCDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.97E-08	7.15E+03
1-SWS-MDP-CF-FR-BCDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.72E-08	7.15E+03
1-SWS-MDP-CF-FR-BCEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.97E-08	7.15E+03
1-SWS-MDP-CF-FR-CDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.97E-08	7.15E+03
1-IE-SWS-MDP-CR-123456	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-IE-SWS-MDP-CF-	3.03E-05	3.39E+03
1-DCP-BCH-FC-AAABBABB-CC	BATTERY CHARGER 1AD1CA, 1AD1CB, 1BD1CA AND 1BD1CB FAIL BY CCF - QUADRUPLE CCF	1.53E-06	8.68E+02
1-RPS-ROD-CF-RCCAS	CCF 10 OR MORE RCCAS FAIL TO DROP	1.21E-06	7.91E+02
1-RPS-BME-CF-RTBAB	CCF RTB-A AND RTB-B (MECHANICAL)	1.61E-06	6.79E+02
1-EPS-SEQ-CF-FOAB	SEQUENCERS FAIL FROM COMMON CAUSE TO OPERATE	2.15E-04	6.16E+02
1-ACP-CRB-CF-A205301	SWITCHYARD AC BREAKERS AA205 AND BA301 FAIL FROM COMMON CAUSE TO OPEN	3.50E-04	5.36E+02
1-DCP-BAT-CF-ALL	125 VDC BATTERIES FAIL FROM COMMON CAUSE	1.24E-07	4.72E+02
1-IE-LLOCA	LARGE LOCA	1.27E-06	4.39E+02

Name	Description	Probability/ Frequency	RAW
1-SWS-MOV-CF-1668A69A	NSCW CT SPRAY VALVES HV1668A, 1669A FAIL FROM COMMON CAUSE TO OPEN	1.18E-05	3.75E+02
1-ACP-INV-FC-AD11BD12-CC	INVERTERS 1AD1I11/1BD1I12 FAIL BY COMMON CAUSE	1.21E-06	3.70E+02
1-AFW-PMP-CF-RUN	AFW PUMPS FAIL FROM COMMON CAUSE TO RUN (EXCLUDING DRIVER)	1.55E-05	3.69E+02
1-AFW-TNK-RP-V4001____	CST 1 FAILURE	4.33E-07	3.64E+02
1-SWS-RLY-FC-AX36869_-CC	CCF OF AX3 RELAYS FOR OPEN/CLOSE NSCW MOVs 1HV1668A/B AND 1669A/B AFTER LOSP	1.54E-06	3.46E+02
1-AFW-CKV-CC-010214_-CC	AFW PUMPS DISCHARGE LINE CVS 001, 002, 014 FAIL TO OPEN - CCF	1.17E-07	3.41E+02
1-AFW-CKV-CC-331358_-CC	AFW PUMPS SUCTION CVS 033, 013, 058 FAIL TO OPEN - CCF	1.17E-07	3.41E+02
1-AFW-CKV-CF-PDCV	PUMP DISCHARGE CHECK VALVES 001, 002, AND 014 FAIL FROM COMMON CAUSE	8.75E-08	3.40E+02
1-AFW-CKV-CF-PSCV	PUMP SUCTION CHECK VALVES 033, 058, AND 013 FAIL FROM COMMON CAUSE	8.75E-08	3.40E+02
1-AFW-CKV-CF-SGCV	SG CHECK VALVES 125, 126, 127, AND 128 FAIL FROM COMMON CAUSE	4.76E-08	3.37E+02
1-AFW-SCV-CC-1131415_-CC	SG AFW FEED LINESTOP CVS 113	4.23E-08	3.37E+02
1-AFW-SCV-CC-1161314_-CC	SG AFW FEED LINE STOP CVS 116, 113, 114 FAIL TO OPEN -CCF	4.23E-08	3.37E+02
1-AFW-SCV-CC-1161315_-CC	SG AFW FEED LINE STOP CVS 116, 113, 115 FAIL TO OPEN -CCF	4.23E-08	3.37E+02
1-AFW-SCV-CC-1161415_-CC	SG AFW FEED LINE STOP CVS 116, 114, 115 FAIL TO OPEN -CCF	4.23E-08	3.37E+02
1-SWS-MDP-CF-FS-ABCDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	4.21E-06	3.36E+02
1-SWS-MDP-CF-FS-ABCD	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.00E-06	3.36E+02
1-SWS-MDP-CF-FS-ABCDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	1.87E-06	3.36E+02
1-SWS-MDP-CF-FS-ABCDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	1.87E-06	3.36E+02
1-SWS-MDP-CF-FS-ABCEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	1.87E-06	3.36E+02
1-SWS-MDP-CF-FS-ABCF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.00E-06	3.36E+02
1-SWS-MDP-CF-FS-ABDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.00E-06	3.36E+02
1-SWS-MDP-CF-FS-ABDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	1.87E-06	3.36E+02
1-SWS-MDP-CF-FS-ABEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.00E-06	3.36E+02
1-SWS-MDP-CF-FS-ACDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	1.87E-06	3.36E+02
1-SWS-MDP-CF-FS-ACDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.00E-06	3.36E+02
1-SWS-MDP-CF-FS-ADEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.00E-06	3.36E+02
1-SWS-MDP-CF-FS-BCDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.00E-06	3.36E+02
1-SWS-MDP-CF-FS-BCDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	1.87E-06	3.36E+02
1-SWS-MDP-CF-FS-BCEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.00E-06	3.36E+02
1-SWS-MDP-CF-FS-CDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.00E-06	3.36E+02



Name	Description	Probability/ Frequency	RAW
1-SWS-MOV-CF-116-ABCDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	8.70E-07	3.36E+02
1-SWS-RLY-FC-162_1ALL-CC	RELAYS 162-1 ASSOC WITH OPENING OF HV-11600	7.44E-07	3.36E+02
1-SWS-MOV-CF-116-ABCDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	4.70E-07	3.36E+02
1-SWS-MOV-CF-116-ABCDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	4.70E-07	3.36E+02
1-SWS-MOV-CF-116-ABCEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	4.70E-07	3.36E+02
1-SWS-MOV-CF-116-ABDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	4.70E-07	3.36E+02
1-SWS-MOV-CF-116-ACDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	4.70E-07	3.36E+02
1-SWS-MOV-CF-116-BCDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	4.70E-07	3.36E+02
1-SWS-MOV-CF-116-ABDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	3.85E-07	3.35E+02
1-SWS-MOV-CF-116-ABDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	3.85E-07	3.35E+02
1-SWS-MOV-CF-116-ABEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	3.85E-07	3.35E+02
1-SWS-MOV-CF-116-ACDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	3.85E-07	3.35E+02
1-SWS-MOV-CF-116-ACDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	3.85E-07	3.35E+02
1-SWS-MOV-CF-116-ACEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	3.85E-07	3.35E+02
1-SWS-MOV-CF-116-BCDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	3.85E-07	3.35E+02
1-SWS-MOV-CF-116-BCDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	3.85E-07	3.35E+02
1-SWS-MOV-CF-116-BCEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	3.85E-07	3.35E+02
1-SWS-CTF-CF-S-ABCDEFGH	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-FAN-CF-S	1.07E-07	3.28E+02
1-SWS-CTF-CF-R-ABCDEFGH	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-CTF-CF-R	3.63E-08	3.27E+02
1-AFW-SCV-CC-16131415-CC	SG AFW FEED LINE STOP VS 116, 113, 114, 15 FAIL TO OPEN -CCF	2.77E-08	3.22E+02
1-AFW-SCV-CC-HICCF__-CC	HIGH ORDER CCF COMB. CAUSED AFWS FAIL-STOP CV FTO- AF FLOW DIST LINES	2.57E-08	3.22E+02
1-SWS-RLY-FC-162_1X89-CC	RELAYS 162-1X FOR OPENING HV1668A /BAND 1669A /B AFTER LOSP FAILS -CCF	1.54E-06	3.04E+02
1-SWS-RLY-FC-162_1PPS-CC	CCF OF NSCW PPS TDE RELAYES 162-1 - OVERALL CCF FOR CCCG = 6	6.50E-08	3.01E+02
1-SWS-SWT-FC-TY16689B-CC	NSCW RETURN WTR TEMP SWITCHES TY1668B AND 1669B FAIL - CCF	1.17E-05	2.85E+02
1-EPS-RLY-FC-RUN1234_-CC	DG RUNNING RELAYS 1234 FAILBY COMMON CAUSE	6.92E-08	2.40E+02
1-EPS-CKV-CC-FXFERP__-CC	CCF OF CVS IN DG FUEL XFER PUMPS TRAINS TO OPEN (047, 044, 053,050)	5.76E-08	2.39E+02
1-EPS-TFL-FC-XFERPSIG-CC	DG FUEL XFER PUMP SINGAL LT CCF	3.23E-08	2.36E+02
1-IE-SWS-MDP-CR-12346	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-IE-SWS-MDP-CF-	1.35E-05	1.69E+02
1-IE-SWS-MDP-CR-12345	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-IE-SWS-MDP-CF-	1.35E-05	1.69E+02
1-RPS-CBI-CF-6OF8	CCF 6 BISTABLES IN 3 OF 4 CHANNELS	2.70E-06	1.68E+02
1-RPS-CCX-CF-6OF8	CCF 6 ANALOG PROCESS LOGIC MODULES IN 3 OF 4 CHANNELS	1.83E-06	1.67E+02

Name	Description	Probability/ Frequency	RAW
1-IE-SWS-MDP-CR-12356	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-IE-SWS-MDP-CF-	1.35E-05	1.52E+02
1-IE-SWS-MDP-CR-12456	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-IE-SWS-MDP-CF-	1.35E-05	1.52E+02
1-IE-SWS-MDP-CR-13456	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-IE-SWS-MDP-CF-	1.35E-05	1.52E+02
1-IE-SWS-MDP-CR-23456	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-IE-SWS-MDP-CF-	1.35E-05	1.52E+02
1-IE-SWS-MDP-CR-1234	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-IE-SWS-MDP-CF-	1.44E-05	1.52E+02
1-IE-SWS-MDP-CR-1236	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-IE-SWS-MDP-CF-	1.44E-05	1.52E+02
1-IE-SWS-MDP-CR-1245	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-IE-SWS-MDP-CF-	1.44E-05	1.52E+02
1-IE-SWS-MDP-CR-1256	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-IE-SWS-MDP-CF-	1.44E-05	1.52E+02
1-IE-SWS-MDP-CR-1346	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-IE-SWS-MDP-CF-	1.44E-05	1.52E+02
1-IE-SWS-MDP-CR-1456	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-IE-SWS-MDP-CF-	1.44E-05	1.52E+02
1-IE-SWS-MDP-CR-2345	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-IE-SWS-MDP-CF-	1.44E-05	1.52E+02
1-IE-SWS-MDP-CR-2356	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-IE-SWS-MDP-CF-	1.44E-05	1.52E+02
1-IE-SWS-MDP-CR-3456	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-IE-SWS-MDP-CF-	1.44E-05	1.52E+02
1-EPS-DGN-CF-FSUN1	CCF OF UNIT 1 DGNS G4001/G4002 TO START	3.68E-05	1.46E+02
1-EPS-MDP-FR-XFERPPS_-CC	CCF OF DG FUEL TRANSFER PUMPS TO RUN	7.26E-06	1.46E+02
1-EPS-MDP-FS-XFERPPS_-CC	CCF OF DG FUEL TRANSFER PUMPS TO START	3.53E-05	1.46E+02
1-EPS-MOT-CF-START	DG ROOM VENT FANS FAIL FROM COMMON CAUSE TO START	2.80E-06	1.46E+02
1-EPS-PND-CF-1205X	DG VENT DAMPERS FAIL FROM COMMON CAUSE	1.22E-06	1.46E+02
1-EPS-MOT-CF-RUN	DG ROOM VENT FANS FAIL FROM COMMON CAUSE TO RUN	1.01E-06	1.46E+02
1-SWS-CTF-CF-FS-ALL	4 OR MORE (ALL COMBINATIONS) NSCW FANS FAIL FROM COMMON CAUSE TO START	1.05E-05	9.04E+01
1-SWS-CTF-CF-FR-ALL	4 OR MORE (ALL COMBINATIONS) NSCW FANS FAIL FROM COMMON CAUSE TO RUN	1.12E-06	9.00E+01
1-ACP-BAC-FC-AA02_____	4160V BUS 1AA02 FAILS	4.78E-05	7.81E+01
1-SWS-MDP-CF-FR-ABC	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	7.58E+01
1-SWS-MDP-CF-FR-ABD	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	7.58E+01
1-SWS-MDP-CF-FR-ABE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	7.58E+01
1-SWS-MDP-CF-FR-ABF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	7.58E+01
1-SWS-MDP-CF-FR-ACD	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	7.58E+01
1-SWS-MDP-CF-FR-ADE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	7.58E+01
1-SWS-MDP-CF-FR-ADF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	7.58E+01
1-SWS-MDP-CF-FR-BCD	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	7.58E+01
1-SWS-MDP-CF-FR-BCE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	7.58E+01

Name	Description	Probability/ Frequency	RAW
1-SWS-MDP-CF-FR-BCF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	7.58E+01
1-SWS-MDP-CF-FR-CDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	7.58E+01
1-SWS-MDP-CF-FR-CDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	7.58E+01
1-SWS-MDP-CF-FR-ABCE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.97E-08	7.36E+01
1-SWS-MDP-CF-FR-ABDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.97E-08	7.36E+01
1-SWS-MDP-CF-FR-ACDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.97E-08	7.36E+01
1-SWS-MDP-CF-FR-BCDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.97E-08	7.36E+01
1-IE-MLOCA	MEDIUM LOCA	5.10E-04	7.26E+01
1-ACP-BAC-MA-AA02____	BUS 1AA02 IN MAINTENANCE	2.15E-04	6.28E+01
1-EPS-DGN-CF-FRUN1	CCF OF UNIT 1 DGNS G4001/G4002 TO RUN	3.24E-04	5.95E+01
1-ACP-INV-FC-A1B2____-CC	INVERTERS 1AD1I1/1BD1I2 FAIL BY COMMON CAUSE	1.21E-06	5.42E+01
1-ACP-INV-FC-A1B2C3D4-CC	INVERTERS 1AD1I1/B2/C3/D4 FAIL BY COMMON CAUSE	4.58E-07	5.33E+01
1-ACP-INV-FC-A1B2C3__-CC	INVERTERS 1AD1I1/B2/C3 FAIL BY COMMON CAUSE	4.22E-07	5.33E+01
1-ACP-INV-FC-A1B2__D4-CC	INVERTERS 1AD1I1/B2/D4 FAIL BY COMMON CAUSE	4.22E-07	5.33E+01
1-SWS-MDP-CF-FRL-12356	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FRL	1.12E-07	4.98E+01
1-SWS-MDP-CF-FRL-12456	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FRL	1.12E-07	4.98E+01
1-SWS-MDP-CF-FRL-13456	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FRL	1.12E-07	4.98E+01
1-SWS-MDP-CF-FRL-23456	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FRL	1.12E-07	4.98E+01
1-SWS-RLY-FC-AX46869_-CC	RELAYS AX4 FOR OPENING NSCW 1HV1668A/B and 1669A/B AFTER LOSP FAILS - CCF	1.54E-06	4.40E+01
1-ACP-BAC-FC-BA03____	4160 V BUS 1BA03 FAILS	4.78E-05	4.18E+01
1-ACP-TFW-FC-BB16X____	TRANSFORMER 1BB16X FAILS	1.53E-05	4.06E+01
1-ACP-CRB-CO-BA0309__	1BA03 FEEDER BREAKER OPENS SPURIOUSLY - 1BA03 TO 1BB16X	5.40E-06	4.01E+01
1-ACP-CRB-CO-BB1601__	1BB16 SUPPLY BREAKER OPENS SPURIOUSLY - 1BB16X TO 1BB16	5.40E-06	4.01E+01
1-DCP-BDC-FC-BD1_____	125V DC BUS 1BD1 FAILS	5.64E-06	3.94E+01
1-ACP-TFW-FC-AB15X____	TRANSFORMER 1AB15X FAILS	1.53E-05	3.92E+01
1-DCP-DPL-FC-BD11_____	DISTRIBUTION PANEL 1BD11 FAILS	5.64E-06	3.91E+01
1-DCP-CRB-CO-BD105____	SUPPLY BREAKER 1BD105 FROM BUS 1BD1 TO 1BD11 OPENS SPURIOUSLY	5.40E-06	3.91E+01
1-ACP-CRB-CO-AA0210__	1AA02 FEEDER BREAKER OPENS SPURIOUSLY - 1AA02 TO 1AB15X	5.40E-06	3.87E+01
1-ACP-CRB-CO-AB1501__	1AB15 SUPPLY BREAKER OPENS SPURIOUSLY - 1AB15X TO 1AB15	5.40E-06	3.87E+01
1-ACP-BAC-FC-BB16_____	480V SWITCHGEAR 1BB16 RANDOM FAILURE	4.78E-05	3.79E+01
1-IE-LOOPWR	LOSS OF OFFSITE POWER (WEATHER- RELA TED)	3.91E-03	3.69E+01

Name	Description	Probability/ Frequency	RAW
1-ACP-BAC-FC-AB15____	480V SWITCHGEAR 1AB15 RANDOM FAILURE	4.78E-05	3.64E+01
1-DCP-BCH-FC-AA__BABB-CC	BATTERY CHARGERS 1AD1CA, 1BD1CA, AND 1BD1CB FAIL - TRIPLE CCF	1.08E-06	3.39E+01
1-DCP-BCH-FC-__ABBABB-CC	BATTERY CHARGERS 1AD1CB, 1BD1CA, AND 1BD1CB FAIL - TRIPLE CCF	1.08E-06	3.38E+01
1-DCP-BCH-FC-AAABBA__-CC	BATTERY CHARGERS 1AD1CA, 1AD1CB, AND 1BD1CA FAIL - TRIPLE CCF	1.08E-06	3.34E+01
1-DCP-BCH-FC-AAAB__BB-CC	BATTERY CHARGERS 1AD1CA, 1AD1CB, AND 1BD1CB FAIL - TRIPLE CCF	1.08E-06	3.34E+01
1-DCP-BCH-FC-____BABB-CC	BATTERY CHARGERS 1BD1CA AND 1BD1CB FAIL - DOUBLE CCF	2.04E-06	3.32E+01
1-DCP-BCH-FC-AAAB____-CC	BATTERY CHARGERS 1AD1CA AND 1AD1CB FAIL - DOUBLE CCF	2.04E-06	3.27E+01
1-ESF-ACT-CF-__SAFACT-CC	COMMON CAUSE FAILURE OF ESFAS TRAIN A AND TRAIN B	6.83E-05	3.21E+01
1-ACP-BAC-MA-BA03____	4160 V BUS 1BA03 IN MAINTENANCE	2.15E-04	3.00E+01
1-IE-RHR-MOV-RP-HV8701B	RHR SUCTION MOV HV8701B (ISLOCA INITIATOR)	2.10E-05	2.98E+01
1-IE-RHR-MOV-RP-HV8702B	RHR SUCTION MOV HV8702B (ISLOCA INITIATOR)	2.10E-05	2.98E+01
1-ACP-BAC-MA-BB16____	480V SWITCHGEAR 1BB16 IN MAINTENANCE	2.15E-04	2.78E+01
1-ACP-BAC-MA-AB15____	480V SWITCHGEAR 1AB15 IN MAINTENANCE	2.15E-04	2.67E+01
1-SWS-MDP-MA-P4_00246-3	ALL 3 NSCW TRAIN B PUMPS UNAVAILABLE DUE TO MAINTENANCE	2.79E-06	2.66E+01
1-SWS-MOV-OC-1669A____	NSCW TR B SPRAY VALVE HV1669A SPURIOUSLY CLOSES	7.01E-07	2.56E+01
1-SWS-MOV-MA-1669ACT__	NSCW TR B SPRAY VALVE HV1669A CLOSED FOR CT MAINT.	4.06E-05	2.48E+01
1-SWS-MOV-OC-1668A____	NSCW TR A RETURN ISOLATION VALVE HV1668A SPURIOUSLY CLOSES	7.01E-07	2.48E+01
1-IE-LOOPGR	LOSS OF OFFSITE POWER (GRID-RELATED)	1.23E-02	2.41E+01
1-SWS-MDP-CF-FR-BD	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	1.56E-07	2.34E+01
1-SWS-MDP-CF-FR-BF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	1.56E-07	2.34E+01
1-SWS-MDP-CF-FR-DF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	1.56E-07	2.34E+01
1-SWS-MOV-MA-1668ACT__	NSCW TR A RETURN ISOLATION VALVE HV1668A CLOSED FOR CT MAINT.	8.73E-05	2.33E+01
1-SWS-MDP-CF-FR-AC	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	1.56E-07	2.33E+01
1-SWS-MDP-CF-FR-AE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	1.56E-07	2.33E+01
1-SWS-MDP-CF-FR-CE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	1.56E-07	2.33E+01
1-AFW-MDP-CF-START	AFW MOTOR-DRIVEN PUMPS FAIL FROM COMMON CAUSE TO START	5.02E-05	2.24E+01
1-AFW-MOV-CF-MINFL	AFW MDP MIN FLOW VALVES 5155 AND 5154 FAIL FROM COMMON CAUSE	1.06E-05	2.19E+01
1-IE-LO4160VA	LOSS OF 4.16KV BUS A	1.09E-03	2.15E+01
1-AFW-MDP-CF-RUN	AFW MOTOR-DRIVEN PUMPS FAIL FROM COMMON CAUSE TO RUN	6.07E-06	2.14E+01
1-SWS-MDP-MA-P4_00135-3	ALL 3 NSCW TRAIN A PUMPS UNAVAILABLE DUE TO MAINTENANCE	3.39E-05	2.00E+01
1-DCP-DPL-FC-AD11____	DISTRIBUTION PANEL 1AD11 FAILS	5.64E-06	1.98E+01

Name	Description	Probability/ Frequency	RAW
1-DCP-CRB-CO-AD105__	SUPPLY BREAKER 1AD105 FROM BUS 1AD1 TO 1AD11 OPENS SPURIOUSLY	5.40E-06	1.98E+01
1-DCP-BDC-FC-AD1_____	125V DC BUS 1AD1 FAILS	5.64E-06	1.97E+01
1-OEP-VCF-LP-RLOOP	RANDOM LOSS OF OFFSITE POWER DURING POST-TRIP MISSION TIME (24 HOURS)	1.68E-04	1.83E+01
1-SWS-CTF-MA-_A_1234_	ALL FOUR NSCW TRAIN A TOWER FANS UNAVAILABLE DUE TO MAINTENANCE (PSA VALUE)	4.08E-05	1.81E+01
1-AFW-CKV-CC-001002__-CC	AFW PUMPS DISCHARGE LINE CVS 001, 002 FAIL TO OPEN - CCF	4.51E-07	1.81E+01
1-AFW-CKV-CC-033058__-CC	AFW PUMPS SUCTION CVS 033, 058 FAIL TO OPEN -CCF	4.51E-07	1.81E+01
1-SWS-CTF-MA-_B_1234_	ALL FOUR NSCW TRAIN B TOWER FANS UNAVAILABLE DUE TO MAINTENANCE	4.08E-05	1.80E+01
1-OEP-VCF-LP-CLOPT	CONSEQUENTIAL LOSS OF OFFSITE POWER - TRANSIENT	5.30E-03	1.76E+01
1-SWS-MDP-CF-FR-ACE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	1.72E+01
1-SWS-MDP-CF-FR-ACF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	1.72E+01
1-SWS-MDP-CF-FR-AEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	1.72E+01
1-SWS-MDP-CF-FR-BDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	1.72E+01
1-SWS-MDP-CF-FR-BDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	1.72E+01
1-SWS-MDP-CF-FR-BEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	1.72E+01
1-SWS-MDP-CF-FR-CEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	1.72E+01
1-SWS-MDP-CF-FR-DEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	5.73E-08	1.72E+01
1-HPI-XHE-XR-XVM207	OPERATOR FAILS TO RESTORE RWST XVM 207 AFTER MAINTENANCE	1.00E-04	1.70E+01
1-SWS-MDP-CF-FR-ACEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.97E-08	1.66E+01
1-SWS-MDP-CF-FR-BDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FR	3.97E-08	1.66E+01
1-IE-LOOPPC	LOSS OF OFFSITE POWER (PLANT- CENTERED)	1.93E-03	1.65E+01
1-IE-LOOPSC	LOSS OF OFFSITE POWER (SWITCHYARD- CENTERED)	1.04E-02	1.64E+01
1-LPI-MDP-CF-START	RHR PUMPS A, B FAIL FROM COMMON CAUSE TO START	4.88E-05	1.62E+01
1-ACP-CRB-CO-BB1609__	1BB16 FEEDER BREAKER OPENS SPURIOUSLY - 1BB16 TO 1BBB	5.40E-06	1.61E+01
1-SWS-MDP-CF-FS-ABD	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.60E+01
1-SWS-MDP-CF-FS-ABF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.60E+01
1-SWS-MDP-CF-FS-ADF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.60E+01
1-SWS-MDP-CF-FS-BCD	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.60E+01
1-SWS-MDP-CF-FS-BCF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.60E+01
1-SWS-MDP-CF-FS-CDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.60E+01
1-AFW-TFF-CF-MINFL	AFW MINFLOW LINE FLOW TRANSMITTERS FT-5155 AND FT-5154 FAIL FROM COMMON CAUSE	1.50E-07	1.60E+01

Name	Description	Probability/ Frequency	RAW
1-ACP-DPL-FC-BY2B____	PANEL 1BY2B FAILS	1.80E-05	1.59E+01
1-SWS-MDP-CF-FS-ABC	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.59E+01
1-SWS-MDP-CF-FS-ABE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.59E+01
1-SWS-MDP-CF-FS-ACD	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.59E+01
1-SWS-MDP-CF-FS-ADE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.59E+01
1-SWS-MDP-CF-FS-BCE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.59E+01
1-SWS-MDP-CF-FS-CDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.59E+01
1-ACP-TFW-FC-_1BSEQT1	FAILURE OF SEQUENCER TRANSFORMER T1	1.53E-05	1.58E+01
1-ACP-TFW-FC-_1BSEQT2	FAILURE OF SEQUENCER TRANSFORMER T3	1.53E-05	1.58E+01
1-DCP-BAT-FC-BD1B____	BATTERY 1BD1B FAILS DUE TO RANDOM CAUSE (125V)	1.40E-05	1.58E+01
1-LPI-MDP-CF-RUN	RHR PUMPS A, B FAIL FROM COMMON CAUSE TO RUN	3.94E-06	1.58E+01
1-SWS-MDP-CF-FS-ABDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.00E-06	1.57E+01
1-SWS-MDP-CF-FS-BCDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.00E-06	1.57E+01
1-HPI-TNK-RP-RWST____	TANK RUPTURES	4.33E-07	1.57E+01
1-ACP-TFW-FC-BB07X____	TRANSFORMER 1BB07X FAILS	1.53E-05	1.57E+01
1-ACP-DPL-FC-AY2A____	PANEL 1AY2A FAILS	1.80E-05	1.55E+01
1-SWS-MDP-CF-FS-ABCE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.00E-06	1.55E+01
1-SWS-MDP-CF-FS-ACDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.00E-06	1.55E+01
1-ACP-CRB-CO-AB1509__	1AB15 FEEDER BREAKER OPENS SPURIOUSLY - 1AB15 TO 1ABB	5.40E-06	1.55E+01
1-ACP-TFW-FC-_1ASEQT1	FAILURE OF SEQUENCER TRANSFORMER T1	1.53E-05	1.55E+01
1-ACP-TFW-FC-_1ASEQT2	FAILURE OF SEQUENCER TRANSFORMER T3	1.53E-05	1.55E+01
1-DCP-BAT-FC-AD1B____	BATTERY 1AD1B FAILS DUE TO RANDOM CAUSE (125V)	1.40E-05	1.55E+01
1-HPI-XVM-PG-207_____	MANUAL VALVE 207 PLUGS	7.20E-08	1.54E+01
1-ACP-CRB-CO-BY2B02__	BREAKER 1BY2B02 BETWEEN INVERTER 1BD1I12 AND 1BY2B OPENS SPURIOUSLY	5.40E-06	1.54E+01
1-DCP-CRB-CO-BD104__	BREAKER 1BD104 BETWEEN INVERTER1BD1I12 AND 1BD1 OPENS SPURIOUSLY	5.40E-06	1.54E+01
1-DCP-CRB-CO-BD101__	BREAKER FROM BATTERY 1BD1B TO BUS 1BD1 OPENS SPURIOUSLY	5.40E-06	1.54E+01
1-DCP-CRB-CO-BD1104__	DC CB BD1104 SPURIOUSLY OPENS ON LOAD SHED LOGIC CIRCUITS	5.40E-06	1.54E+01
1-DCP-CRB-CO-BY2B08__	DC CIRCUIT BREAKER SPURIOUSLY OPENS (BY2B08 TO SEQUENCER B)	5.40E-06	1.54E+01
1-LPI-CKV-CC-009010__-CC	RHR PUMPS DISCHARGE CVS 009 AND 010 FAIL TO OPEN BY COMMON CAUSE	6.76E-07	1.54E+01
1-ACP-CRB-CO-BA0304__	1BA03 FEEDER BREAKER OPENS SPURIOUSLY - 1BA03 TO 1BB07X	5.40E-06	1.53E+01
1-ACP-CRB-CO-BB0701__	1BB07 SUPPLY BREAKER OPENS SPURIOUSLY - 1BB07X TO 1BB07	5.40E-06	1.53E+01

Name	Description	Probability/ Frequency	RAW
1-ACP-CRB-CO-BB0714__	AC CB FROM 480V SWGR 1BB07 TO 480V MCC 1BBF SPURIOUSLY OPENS	5.40E-06	1.53E+01
1-LPI-CKV-CF-009010	RHR PUMP DISCHARGE CVS 009, 010 FAIL FROM COMMON CAUSE TO OPEN	4.87E-07	1.53E+01
1-SWS-MDP-CF-FS-BDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.51E+01
1-SWS-MDP-CF-FS-BEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.51E+01
1-SWS-MDP-CF-FS-DEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.51E+01
1-ACP-CRB-CO-AY2A02__	BREAKER 1AY2A02 BETWEEN INVERTER1AD1I11 AND 1AY2A OPENS SPURIOUSLY	5.40E-06	1.50E+01
1-DCP-CRB-CO-AD104__	BREAKER 1AD104 BETWEEN INVERTER1AD1I11 AND 1AD1 OPENS SPURIOUSLY	5.40E-06	1.50E+01
1-DCP-CRB-CO-AD101__	BREAKER FROM BATTERY 1AD1B TO BUS 1AD1 OPENS SPURIOUSLY	5.40E-06	1.50E+01
1-DCP-CRB-CO-AD1104__	DC CB AD1104 SPURIOUSLY OPENS ON LOAD SHED LOGIC CIRCUITS	5.40E-06	1.50E+01
1-DCP-CRB-CO-AY2A08__	DC CIRCUIT BREAKER SPURIOUSLY OPENS (AY2A08 TO SEQUENCER A)	5.40E-06	1.50E+01
1-SWS-MDP-CF-FS-ACF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.49E+01
1-SWS-MDP-CF-FS-AEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.49E+01
1-SWS-MDP-CF-FS-CEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.49E+01
1-DCP-CRB-CO-BD1101__	DC CB BD1101 SPURIOUSLY OPENS ON LOAD SHED LOGIC CIRCUITS	5.40E-06	1.49E+01
1-ACP-TFW-FC-BBB03X__	480V MCC TRANSFORMER 1BBB03X FAILS	1.53E-05	1.48E+01
1-SWS-MDP-CF-FS-BDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.00E-06	1.48E+01
1-ACP-TFW-FC-ABB03X__	480V MCC TRANSFORMER 1ABB03X FAILS	1.53E-05	1.46E+01
1-SWS-MDP-CF-FS-ACEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.00E-06	1.46E+01
1-DCP-CRB-CO-AD1101__	DC CB AD1101 SPURIOUSLY OPENS ON LOAD SHED LOGIC CIRCUITS	5.40E-06	1.46E+01
1-SWS-MOV-CF-116-ADE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.45E+01
1-SWS-MOV-CF-116-ADF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.45E+01
1-SWS-MOV-CF-116-AEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.45E+01
1-SWS-MOV-CF-116-CDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.45E+01
1-SWS-MOV-CF-116-CDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.45E+01
1-SWS-MOV-CF-116-CEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.45E+01
1-SWS-MDP-CF-FS-BD	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	8.31E-06	1.44E+01
1-SWS-MDP-CF-FS-BF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	8.31E-06	1.44E+01
1-SWS-MDP-CF-FS-DF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	8.31E-06	1.44E+01
1-SWS-MOV-CF-116-ABD	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.43E+01
1-SWS-MOV-CF-116-ABF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.43E+01
1-SWS-MOV-CF-116-ACD	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.43E+01

Name	Description	Probability/ Frequency	RAW
1-SWS-MOV-CF-116-ACF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.43E+01
1-SWS-MOV-CF-116-BCD	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.43E+01
1-SWS-MOV-CF-116-BCF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.43E+01
1-SWS-MDP-CF-FS-AC	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	8.31E-06	1.43E+01
1-SWS-MDP-CF-FS-AE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	8.31E-06	1.43E+01
1-SWS-MDP-CF-FS-CE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	8.31E-06	1.43E+01
1-ACP-CRB-CO-BBB45__	480V MCC AC CIRCUIT BREAKER 1BBB45 SPURIOUSLY OPENS	5.40E-06	1.42E+01
1-ACP-CRB-CO-BYB116__	120/240V AC CIRCUIT BREAKER 1BYB116 SPURIOUSLY OPENS	5.40E-06	1.42E+01
1-EPS-SEQ-FO-1821U302	SEQUENCER B FAILS TO OPERATE	3.33E-03	1.42E+01
1-ACP-CRB-CO-ABB02__	480V MCC AC CIRCUIT BREAKER 1ABB02 SPURIOUSLY OPENS	5.40E-06	1.41E+01
1-ACP-CRB-CO-AYB116__	120/240V AC CIRCUIT BREAKER 1AYB116 SPURIOUSLY OPENS	5.40E-06	1.41E+01
1-EPS-SEQ-FO-1821U301	SEQUENCER A FAILS TO OPERATE	3.33E-03	1.40E+01
1-ACP-TFW-FC-AB05X__	TRANSFORMER 1AB05X FAILS	1.53E-05	1.40E+01
1-SWS-MDP-CF-FS-BDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.39E+01
1-ACP-BAC-FC-MCCBBB__	480V MCC 1BBB RANDOM FAILURE	4.78E-05	1.39E+01
1-SWS-MDP-CF-FS-ACE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MDP-CF-FS	2.91E-06	1.38E+01
1-SWS-MOV-CF-116-BDE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.36E+01
1-SWS-MOV-CF-116-BDF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.36E+01
1-SWS-MOV-CF-116-BEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.36E+01
1-SWS-MOV-CF-116-ADEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	3.85E-07	1.36E+01
1-SWS-MOV-CF-116-CDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	3.85E-07	1.36E+01
1-ACP-CRB-CO-AA0221__	1AA02 FEEDER BREAKER OPENS SPURIOUSLY - 1AA02 TO 1AB05X	5.40E-06	1.36E+01
1-ACP-CRB-CO-AB0501__	1AB05 SUPPLY BREAKER OPENS SPURIOUSLY - 1AB05X TO 1AB05	5.40E-06	1.36E+01
1-IE-LO4160VB	LOSS OF 4.16KV BUS B	1.09E-03	1.36E+01
1-ACP-CRB-CO-AB0514__	AC CB FROM 480V SWGR 1AB05 TO 480V MCC 1ABF SPURIOUSLY OPENS	5.40E-06	1.36E+01
1-SWS-MOV-CF-116-ABE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.35E+01
1-SWS-MOV-CF-116-ACE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.35E+01
1-SWS-MOV-CF-116-BCE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.35E+01
1-SWS-MOV-CF-116-ABCD	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	3.85E-07	1.35E+01
1-SWS-MOV-CF-116-ABCF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	3.85E-07	1.35E+01
1-DCP-CRB-CO-BD111024	DC CIRCUIT BREAKER BD1110 TO FAN CONTROL LOGIC SPURIOUSLY OPENS	5.40E-06	1.35E+01



Name	Description	Probability/ Frequency	RAW
1-SWS-MOV-CC-1669A___	NSCW CT B SPRAY VALVE HV1669A FAILS TO OPEN ON DEMAND	3.53E-04	1.34E+01
1-DCP-CRB-CO-AD111024	DC CIRCUIT BREAKER AD1110 TO FAN CONTROL LOGIC SPURIOUSLY OPENS	5.40E-06	1.34E+01
1-SWS-MOV-CC-1668A___	NSCW CT A SPRAY VALVE HV1668A FAILS TO OPEN ON DEMAND	3.53E-04	1.33E+01
1-SWS-MOV-CF-116-DE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	9.76E-07	1.32E+01
1-SWS-MOV-CF-116-DF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	9.76E-07	1.32E+01
1-SWS-MOV-CF-116-EF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	9.76E-07	1.32E+01
1-ACP-BAC-FC-MCCABB__	480V MCC 1ABB RANDOM FAILURE	4.78E-05	1.32E+01
1-SWS-MOV-CF-116-AB	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	9.76E-07	1.30E+01
1-SWS-MOV-CF-116-AC	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	9.76E-07	1.30E+01
1-SWS-MOV-CF-116-BC	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	9.76E-07	1.30E+01
1-SWS-MOV-CF-116-BDEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	3.85E-07	1.29E+01
1-SWS-MOV-CF-116-DEF	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.29E+01
1-ACP-BAC-FC-BB07____	480V SWITCHGEAR 1BB07 RANDOM FAILURE	4.78E-05	1.28E+01
1-SWS-MOV-CF-116-ABCE	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	3.85E-07	1.27E+01
1-ACP-BAC-FC-MCCBBF__	480V MCC 1BBF FAILS	4.78E-05	1.27E+01
1-SWS-MOV-CF-116-ABC	SYSTEM GENERATED EVENT BASED UPON RASP CCF EVENT: 1-SWS-MOV-CF-116	7.14E-07	1.27E+01
1-ACP-CRB-CC-AA0205__	RAT A SUPPLY CIRCUIT BREAKER FAILS TO OPEN BY RANDOM CAUSE	5.35E-03	1.25E+01
1-ACP-CRB-CC-BA0301__	RAT B SUPPLY CIRCUIT BREAKER FAILS TO OPEN BY RANDOM CAUSE	5.35E-03	1.24E+01
1-ACP-BAC-FC-BYB1_____	120/240 VOLT PANEL 1BYB1 FAILS	4.78E-05	1.23E+01
1-ACP-BAC-FC-AYB1_____	120/240 VOLT PANEL 1AYB1 FAILS	4.78E-05	1.21E+01
1-EPS-TNK-RP-DFOSTKB_	TR B. DIESEL FUEL OIL STORAGE TANK 1-2403-T4-002 RUPTURES	4.33E-07	1.18E+01
1-EPS-TNK-RP-DGBDAY__	DG B FUEL OIL DAY TANK RUPTURES	4.33E-07	1.18E+01
1-SWS-RLY-FC-AX3_69AB	NSCW RELAY AX3 FOR OPENING/CLOSING 1HV1669A/B FAILS	2.48E-05	1.18E+01
1-DCP-FUS-OP-BD104___	SUPPLY CURRENT FUSE BETWEEN BREAKER 1BD104 AND INVERTER FAILS	7.46E-05	1.18E+01
1-EPS-TNK-RP-DFOSTKA_	TR A. DIESEL FUEL OIL STORAGE TANK 1-2403-T4-001 RUPTURES	4.33E-07	1.17E+01
1-EPS-TNK-RP-DGADAY__	DG A FUEL OIL DAY TANK RUPTURES	4.33E-07	1.17E+01
1-SWS-RLY-FC-AX3_68AB	RELAY AX3 FOR OPENING/CLOSING NSCW 1HV1668A/B FAILS -RANDOM FAULT	2.48E-05	1.17E+01
1-EPS-RLY-FC-RUN24___-CC	DG RUNNING RELAYS 24 FAIL BY COMMON CAUSE	3.57E-07	1.16E+01
1-ACP-DPL-MA-AY2A_____	PANEL 1AY2A IN MAINTENANCE	2.12E-07	1.15E+01
1-ACP-DPL-MA-BY2B_____	PANEL 1BY2B IN MAINTENANCE	2.12E-07	1.15E+01
1-EPS-RLY-FC-RUN13___-CC	DG RUNNING RELAYS 13 FAIL BY COMMON CAUSE	3.57E-07	1.15E+01

Name	Description	Probability/ Frequency	RAW
1-DCP-FUS-OP-AD104___	SUPPLY CURRENT FUSE BETWEEN BREAKER 1AD104 AND INVERTER FAILS	7.46E-05	1.14E+01
1-ACP-INV-FC-BD1112__	INVERTER 1BD1112 FAILS BY RANDOM CAUSE	2.15E-04	1.14E+01
1-IE-HPI-CKV-RP-083____	ECCS CL1 INJ CV083 RUPTURE (ISLOCA INI>)	3.15E-05	1.14E+01
1-IE-HPI-CKV-RP-084____	ECCS CL 2 INJ CV 084 RUPTURE (ISLOCA INI)	3.15E-05	1.14E+01
1-IE-HPI-CKV-RP-085____	ECCS CL 3 INJ CV 085 RUPTURE (ISLOCA INI)	3.15E-05	1.14E+01
1-IE-HPI-CKV-RP-086____	ECCS CL4 INJ CV 086 RUPTURE (ISLOCA INI)	3.15E-05	1.14E+01
1-ACP-DCP-FC-1B_PS1__	FAILURE OF 48 VOLT SEQUENCER POWER SUPPLY PS-1	1.57E-04	1.12E+01
1-ACP-DCP-FC-1B_PS4__	FAILURE OF 28 VOLT SEQUENCER POWER SUPPLY PS-4	1.57E-04	1.12E+01
1-IE-SLOCA	SMALL LOCA	3.67E-04	1.12E+01
1-RPS-CBI-CF-4OF6	CCF 4 BISTABLES IN 2 OF 3 CHANNELS	8.21E-06	1.12E+01
1-RPS-CCX-CF-4OF6	CCF 4 ANALOG PROCESS LOGIC MODULES IN 2 OF 3 CHANNELS	6.33E-06	1.11E+01
1-ACP-BAC-FC-AB05____	480V SWITCHGEAR 1AB05 RANDOM FAILURE	4.78E-05	1.10E+01
1-ACP-BAC-MA-MCCBBB__	480V MCC 1BBB IN MAINTENANCE	2.15E-04	1.10E+01
1-ACP-INV-FC-AD1111__	INVERTER 1AD1111 FAILS BY RANDOM CAUSE	2.15E-04	1.10E+01
1-ACP-BAC-FC-MCCABF__	480V MCC 1ABF FAILS	4.78E-05	1.10E+01
1-ACP-DCP-FC-1A_PS1__	FAILURE OF 48 VOLT SEQUENCER POWER SUPPLY PS-1	1.57E-04	1.09E+01
1-ACP-DCP-FC-1A_PS4__	FAILURE OF 28 VOLT SEQUENCER POWER SUPPLY PS-4	1.57E-04	1.09E+01
1-SWS-RLY-FC-162_1X69	RELAY 162-1X FOR OPENING HV1669A/B FAILS RANDOM	2.48E-05	1.05E+01
1-SWS-RLY-FC-162_1X68	RELAY 162-1X FOR OPENING HV1668A/B FAILS RANDOM	2.48E-05	1.04E+01
1-DCP-BAT-MA-AD1B____	BATTERY 1AD1B IN MAINTENANCE	2.72E-03	9.95E+00
1-DCP-BAT-MA-BD1B____	BATTERY 1BD1B IN MAINTENANCE	2.72E-03	9.92E+00
1-ACP-BAC-MA-MCCBBF__	480V MCC 1BBF IN MAINTENANCE	2.15E-04	9.84E+00
1-LPI-MOV-CF-8811AB	RHR CONTAINMENT SUMP SUCTION MOVES HV8811A AND B FAIL FROM COMMON CAUSE TO OPEN	1.18E-05	9.31E+00
1-HPI-MOV-CF-8804AB	HV8804A, HV8804B FAIL FROM COMMON CAUSE TO OPEN	1.18E-05	9.28E+00
1-LPI-MOV-CF-8812AB	RWST SUCTION MOVSS HV8812A AND B FAIL FROM COMMON CAUSE TO CLOSE	5.66E-06	9.25E+00
1-HPI-MOV-OO-13148920-CC	SI PUMPS MINI FLOW ISOLATION MOVES HV8813, 8814, 8920 FAILS TO CLOSE - CCF	7.86E-06	9.25E+00
1-HPI-MOV-OO-88138814-CC	SI PUMPS MINI FLOW ISOLATION MOVES HV8813 AND 8814 FAILS TO CLOSE - CCF	4.54E-06	9.21E+00
1-HPI-MOV-OO-88138920-CC	SI PUMPS MINI FLOW ISOLATION MOVES HV8813 AND 8920 FAILS TO CLOSE - CCF	4.54E-06	9.21E+00
1-LPI-CKV-CC-122123___-CC	CONTAINMENT SUMP CVS 122 AND 123 (RHRP SUCTION) FAIL TO OPEN BY COMMON CAUSE	1.24E-06	9.15E+00

Name	Description	Probability/ Frequency	RAW
1-HPI-CKV-CF-436_163	HP RECIR SUCTION FROM RHR HXS CVS 436 AND 163 FAIL FROM COMMON CAUSE TO OPEN	4.87E-07	9.03E+00
1-LPI-CKV-CF-122123	CONTAINMENT SUMP CVS 122 AND 123 (RHRP SUCTION) FAIL FROM COMMON CAUSE TO OPEN	4.87E-07	9.03E+00
1-LPI-SMP-CF-SUMPAB	ECCS CONTAINMENT SUMPS A, B FAIL FROM COMMON CAUSE PLUGGING	3.50E-08	8.98E+00
1-OAR_HPML-----H	OPERATOR FAILS TO ESTABLISH HIGH PRESSURE RECIRCULATION - MLOCA	2.31E-03	8.96E+00
1-ACP-BAC-MA-MCCABB__	480V MCC 1ABB INMAINTENANCE	2.15E-04	8.80E+00
1-EPS-DGN-FS-G4001__	DG1A FAILS TO START BY RANDOM CAUSE	2.94E-03	8.20E+00
1-ACP-SSD-MA-1821U302	SEQUENCER B UNAVAILABLE DUE TO MAINTENANCE	1.87E-04	8.15E+00
1-EPS-DGN-FS-G4002__	DG1B FAILS TO START BY RANDOM CAUSE	2.94E-03	8.11E+00
1-ACP-BAC-MA-BB07__	480V SWITCHGEAR 1BB07 IN MAINTENANCE	2.15E-04	8.07E+00
1-EPS-RLY-FC-RUN123__-CC	DG RUNNING RELAYS 123 FAIL BY COMMON CAUSE	8.13E-08	8.03E+00
1-EPS-RLY-FC-RUN124__-CC	DG RUNNING RELAYS 124 FAIL BY COMMON CAUSE	8.13E-08	8.03E+00
1-EPS-RLY-FC-RUN134__-CC	DG RUNNING RELAYS 134 FAIL BY COMMON CAUSE	8.13E-08	8.03E+00
1-EPS-RLY-FC-RUN234__-CC	DG RUNNING RELAYS 234 FAIL BY COMMON CAUSE	8.13E-08	8.03E+00
1-ACP-INV-MA-BD1I12__	INVERTER 1BD1I12 IN MAINTENANCE	2.06E-04	7.98E+00
1-ACP-BAC-MA-BYB1__	120/240 VOLT PANEL 1BYB1 IN MAINTENANCE	2.15E-04	7.95E+00
1-ACP-SSD-MA-1821U301	SEQUENCER A UNAVAILABLE DUE TO MAINTENANCE	2.07E-04	7.85E+00
1-EPS-XVM-PG-038FXFR__	DGA FUEL TRANSFER LINE MANUAL VALVE 038 PLUGS	7.20E-08	7.83E+00
1-EPS-XVM-PG-041FXFR__	DGB FUEL TRANSFER LINE MANUAL VALVE 041 PLUGS	7.20E-08	7.83E+00
1-ACP-BAC-MA-AYB1__	120/240 VOLT PANEL 1AYB1 IN MAINTENANCE	2.15E-04	7.81E+00
1-DCP-BDC-FC-BD1&__	125V DC BUS 1BD1 FAILS - 1 YR	2.06E-03	7.53E+00
1-ACP-INV-MA-AD1I11__	INVERTER 1AD1I11 IN MAINTENANCE	8.81E-04	7.38E+00
1-AFW-CKV-CC-001014__-CC	AFW PUMP DISCHARGE LINE CVS 001, 014 FAIL TO OPEN -CCF	4.51E-07	7.24E+00
1-AFW-CKV-CC-002014__-CC	AFW PUMPS DISCAHRGE CVS 002, 014 FAIL DUE - CCF	4.51E-07	7.24E+00
1-AFW-CKV-CC-033013__-CC	AFW PUMPS SUCTION CVS 033, 013 FAIL TO OPEN -CCF	4.51E-07	7.24E+00
1-AFW-CKV-CC-058013__-CC	AFW PUMPS SUCTION CVS 058, 013 FAIL TO OPEN - CCF	4.51E-07	7.24E+00
1-HPI-CKV-CF-CLALL	COLD LEG CVS 083, 084, 085, 086 FAIL FROM COMMON CAUSE TO OPEN	1.63E-07	7.01E+00
1-LPI-CKV-CF-CLALL	RHR COLD LEG CHECK VALVES 147, 148, 149, 150 FAIL FROM COMMON CAUSE TO OPEN	1.63E-07	7.01E+00
1-ACP-BAC-MA-MCCABF__	480V MCC 1ABF INMAINTENANCE	2.15E-04	6.59E+00
1-ACP-BAC-MA-AB05__	480V SWITCHGEAR 1AB05 IN MAINTENANCE	2.15E-04	6.49E+00
1-EPS-TNK-MA-DFOSTKB__	TR A. DIESEL FUEL OIL STORAGE TANK 1-2403-T4-002IN MAINTENANCE	4.00E-04	6.45E+00

Name	Description	Probability/ Frequency	RAW
1-EPS-TNK-MA-DFOSTKA_	TR A. DIESEL FUEL OIL STORAGE TANK 1-2403-T4-001 IN MAINTENANCE	6.26E-04	6.44E+00
1-AFW-MDP-FS-P4002__	MDAFWP B (P4-002) FAILS TO START DUE TO RANDOM FAILURE	1.00E-03	5.55E+00
1-OA-MISPAF5094H	POST-TEST MISPOSITIONING OF MDAFWP B SUCTION MANUAL VLV HV5094	1.00E-03	5.55E+00
1-IE-SSBI	SECONDARY SIDE BREAK UPSTREAM OF MSIVS	3.67E-04	5.52E+00
1-AFW-MOV-OO-FV5154__	MDAFWP B MINI FLOW MOV FV-5154 FAILS TO CLOSE DUE TO RANDOM FAILURE	3.53E-04	5.51E+00
1-AFW-MDP-FR-P4002__	MDAFWP B (P4-002) FAILS TO RUN DUE TO RANDOM FAILURE	1.98E-04	5.47E+00
1-OAT-----H	OPERATOR FAILS TO TERMINATE SI	6.00E-04	5.34E+00
1-RHR-MOV-CO-HV8701A_	RHR SUCTION MOV HV8701A TRANSFERS OPEN	1.28E-04	5.33E+00
1-RHR-MOV-CO-HV8701B_	RHR SUCTION MOV HV8701A TRANSFERS OPEN	1.28E-04	5.33E+00
1-RHR-MOV-CO-HV8702A_	RHR SUCTION MOV HV8702A TRANSFERS OPEN	1.28E-04	5.33E+00
1-RHR-MOV-CO-HV8702B_	RHR SUCTION MOV HV8702B TRANSFERS OPEN	1.28E-04	5.33E+00
1-RHR-MOV-RP-HV8701A-RAN	RHR SUCTION MOV HV8701A FAILS (RANDOM)	1.05E-05	5.33E+00
1-RHR-MOV-RP-HV8701B-RAN	RHR SUCTION MOV HV8701B FAILS (RANDOM)	1.05E-05	5.33E+00
1-RHR-MOV-RP-HV8702A-RAN	RHR SUCTION MOV HV8702A FAILS (RANDOM)	1.05E-05	5.33E+00
1-RHR-MOV-RP-HV8702B-RAN	RHR SUCTION MOV HV8702B FAILS (RANDOM)	1.05E-05	5.33E+00
1-EPS-DGN-MA-G4001__	DG1A IN MAINTENANCE	1.26E-02	5.19E+00
1-AFW-MDP-MA-P4002__	AFW MDP B (P4-002) UNAVAILABLE DUE TO TEST OR MAINT	3.00E-03	5.09E+00
1-AFW-SCV-CC-037_____	MDAFWP B FLOW DIST TO SG 2 STOP CV037 RANDOMLY FAILS TO OPEN	1.26E-05	5.08E+00
1-AFW-SCV-CC-040_____	MDAFWP B FLOW DIST LINETO SG3 STOP CV040 RANDOMLY FAIL TO OPEN	1.26E-05	5.08E+00
1-AFW-SCV-CC-114_____	SG 2 AFW FEED LINE STOP CV 114 RANDOMLY FAILS TO OPEN	1.26E-05	5.08E+00
1-AFW-SCV-CC-115_____	SG3 AFW FEED LINE STOP CV 115 RANDOMLY FAILS TO OPEN	1.26E-05	5.08E+00
1-AFW-CKV-CC-002_____	MDAFWP DISCHARGE CHECK VALVE 002 RANDOMLY FAILS TO OPEN	1.07E-05	5.06E+00
1-AFW-CKV-CC-058_____	MDAFWP B SUCTION CHECK VALVE 058 RANDOMLY FAILS TO OPEN	1.07E-05	5.06E+00
1-AFW-CKV-CC-126_____	SG 2 AFW FEED LINE CHECK VALVE 126 RANDOMLY FAILS TO OPEN	1.07E-05	5.04E+00
1-AFW-CKV-CC-128_____	SG3 AFW FEED LINE CHECKVALVE 128 RANDOMLY FAIL TO OPEN	1.07E-05	5.04E+00
1-IE-ACW-MDP-CF-FR12	CCF TO RUN OF ACCW PUMPS 1-1217-P4-001 AND 002 - 1 YEAR EXPOSURE TIME	7.22E-04	5.00E+00
1-IE-ACW-TNK-RP-T4_001_	ACCW SURGE TANK 1-1217-T4-001 RUPTURES CAUSINGLOW LOW LEVEL - ONE YEAR EXPOSURE	1.58E-04	4.98E+00
1-EPS-DGN-MA-G4002__	DG1B IN MAINTENANCE	1.26E-02	4.91E+00
1-ACP-TFW-FC-NXRA_____	RESERVE AUXILIARY TRANSFORMER 1NXRA FAILS	1.53E-05	4.84E+00
1-RCS-XHE-XM-TRIP-LONSCW	OPERATOR FAILS TO TRIP REACTOR COOLANT PUMPS (LONSCW)	5.40E-03	4.73E+00

Name	Description	Probability/ Frequency	RAW
1-ACP-CRB-CO-AA0205__	RAT A SUPPLY BREAKER AA0205 TO 4160V BUS AA02 SPURIOUSLY OPENS	5.40E-06	4.61E+00
1-ACW-MDP-CF-FR0012	CCF TO RUN OF ACCW PUMPS 1-1217-P4-001 AND 002 (24 HR)	2.01E-06	4.60E+00
1-AFW-TFF-FC-FT5154__	MDAFWP B MINI FLOW LINE FLOW TRANSMITTER FT-5154 FAILS RANDOMLY	2.32E-06	4.54E+00
1-EPS-DGN-FR-G4001__	DG1A FAILS TO RUN BY RANDOM CAUSE (24 HR MISSION TIME)	3.30E-02	4.47E+00
1-EPS-DGN-FR-G4002__	DG1B FAILS TO RUN BY RANDOM CAUSE (24 HR MISSION TIME)	3.30E-02	4.30E+00
1-IE-SSBO	SECONDARY SIDE BREAK OUTSIDE OF MSIVS	7.70E-03	4.20E+00
1-AFW-MOV-CO-FV5154__	MDAFWP B FLOW MOV FV-5154 FAILS TO REMAIN CLOSED	7.01E-07	4.13E+00
1-SWS-MOV-OO-1668A69A-CC	NSCW CT SPRAY VALVES HV1668A AND 69A FAILS TO CLOSE DUE TO CCF	2.48E-04	4.06E+00
1-DCP-BDC-FC-AD1&__	125V DC BUS 1AD1 FAILS - 1YR	2.06E-03	3.72E+00
1-ACW-TNK-RP-T4_001__	ACCW SURGE TANK 1-1217-T4-001 RUPTURES CAUSING LOW LEVEL	4.33E-07	3.35E+00
1-IE-RHR-MOV-RP-HV8701A	RHR SUCTION MOV HV8701A (ISLOCA INITIATOR)	2.10E-05	3.17E+00
1-IE-RHR-MOV-RP-HV8702A	RHR SUCTION MOV HV8702A (ISLOCA INITIATOR)	2.10E-05	3.17E+00
1-IE-RHR-MOV-CO-HV8701A	RHR SUCTION MOV HV8701A TRANSFERS OPEN (ISLOCA INITIATOR)	2.56E-04	3.16E+00
1-IE-RHR-MOV-CO-HV8701B	RHR SUCTION MOV HV8701B TRANSFERS OPEN (ISLOCA INITIATOR)	2.56E-04	3.16E+00
1-IE-RHR-MOV-CO-HV8702A	RHR SUCTION MOV HV8702A TRANSFERS OPEN (ISLOCA INITIATOR)	2.56E-04	3.16E+00
1-IE-RHR-MOV-CO-HV8702B	RHR SUCTION MOV HV8702B TRANSFERS OPEN (ISLOCA INITIATOR)	2.56E-04	3.16E+00
1-AFW-MOV-PG-HV5132__	MDAFWP B FLOW DIST. TO SG 2 MOV HV5132 TRANSFER CLOSED/PLUGGED	1.20E-07	2.81E+00
1-AFW-MOV-PG-HV5134__	MDAFWP B FLOW DIST. LINE TO SG3 MOV HV5134 TRANSFER CLOSED/PLUGGED	1.20E-07	2.81E+00
1-AFW-SCV-CC-113114__-CC	SG AFW FEED LINE STOP CVS 113 AND 114 FAIL TO OPEN - CCF	1.12E-07	2.81E+00
1-AFW-SCV-CC-113115__-CC	SG AFW FEED LINE STOP CVS 113 AND 115 FAIL TO OPEN - CCF	1.12E-07	2.81E+00
1-AFW-SCV-CC-114115__-CC	SG AFW FEED LINE STOP CVS 114 AND 115 FAIL TO OPEN - CCF	1.12E-07	2.81E+00
1-AFW-SCV-CC-116114__-CC	SG FEED LINE STOP CVS 116 AND 114 FAIL TO OPEN - CCF	1.12E-07	2.81E+00
1-AFW-SCV-CC-116115__-CC	SG AFW FEED LINE STOP CVS 116 AND 115 FAIL TO OPEN - CCF	1.12E-07	2.81E+00
1-OA-ORS-----H	OPERATOR FAILS TO RESTORE SYSTEMS AFTER AC RECOVERED IN SBO	5.73E-02	2.75E+00
1-AFW-XVM-PG-036__	MDAFWP B FLOW DIST. TO SG 2 MAN. VLV 036 TRANSFER CLOSED/PLUGGED	7.20E-08	2.67E+00
1-AFW-XVM-PG-039__	MDAFWP B FLOW DIST. LINE TO SG3 MAN. VLV 039 TRANSFER CLOSED/PLUGGED	7.20E-08	2.67E+00
1-AFW-XVM-PG-060__	MDAFWP B DISCHARGE MAN. VLV 060 TRANSFER CLOSED/PLUGGED	7.20E-08	2.67E+00
1-AFW-XVM-PG-HV5091__	MDAFWP B SUCTION MAN. VALVE HV5091 TRANSFER CLOSED/PLUGGED	7.20E-08	2.67E+00
1-AFW-XVM-PG-HV5094__	MDAFWP B SUCTION MAN. VALVE HV5094 TRANSFER CLOSED/PLUGGED	7.20E-08	2.67E+00
1-SWS-SWT-FC-TY1669B_	NSCW TR B RETURN WTR TEMP SWITCH TY1669B FAILS - RANDOM FAULT	9.86E-06	2.62E+00
1-SWS-SWT-FC-TY1668B_	NSCW TR A RETURN WTR TEMP SWITCH TY1668B FAILS - RANDOM FAULT	9.86E-06	2.58E+00

Name	Description	Probability/ Frequency	RAW
1-ACP-TFW-FC-NXRB____	RESERVE AUXILIARY TRANSFORMER 1NXRB FAILS	1.53E-05	2.56E+00
1-CVC-MDP-FS-CCPACCPB-CC	CCP A AND CCP B FAIL TO START DUE TO CCF	4.22E-05	2.44E+00
1-ACP-CRB-CO-BA0301__	RAT B SUPPLY BREAKER BA0301 TO 4160V BUS BA03 SPURIOUSLY OPENS	5.40E-06	2.43E+00
1-ACP-CNT-OO-_BK346__	SFSS RELAY K346B CONTACTS FAIL TO CLOSE	2.48E-05	2.42E+00
1-ACP-INV-MA-BD1I2____	INVERTER 1BD1I2 IN MAINTENANCE	8.81E-04	2.41E+00
1-IE-SGTR	STEAM GENERATOR TUBE RUPTURE	1.38E-03	2.40E+00
1-HPI-MOV-OO-HV8105&6-CC	NORMAL CHARGING ISOLATION MOVs HV8106 AND HV8105 FAIL TO CLOSE DUE TO CCF	3.17E-05	2.39E+00
1-RPS-UVL-CF-UVDAB	CCF UV DRIVERS TRAINS A AND B (2 OF 2)	1.04E-05	2.39E+00
1-ACP-INV-FC-BD1I2____	INVERTER 1BD1I2 FAILS BY RANDOM CAUSE	2.15E-04	2.35E+00
1-ACP-INV-MA-AD1I1____	INVERTER 1AD1I1 IN MAINTENANCE	8.81E-04	2.35E+00
1-SWS-RLY-FC-AX4_69AB	RELAY AX4 FOR OPENING NSCW 1HV1669A/B FAILS -RANDOM FAULT	2.48E-05	2.34E+00
1-SWS-RLY-FC-AX4_68AB	RELAY AX4 FOR OPENING NSCW 1HV1668A/B FAILS -RANDOM FAULT	2.48E-05	2.30E+00
1-ACP-INV-FC-AD1I1____	INVERTER 1AD1I1 FAILS BY RANDOM CAUSE	2.15E-04	2.30E+00
1-DCP-FUS-OP-BD110____	SUPPLY CURRENT FUSE BETWEEN BREAKER 1BD110 AND INVERTER FAILS	7.46E-05	2.21E+00
1-ACP-CNT-OO-_AK346__	SFSS RELAY K346A CONTACTS FAIL TO CLOSE	2.48E-05	2.20E+00
1-DCP-FUS-OP-AD110____	SUPPLY CURRENT FUSE BETWEEN BREAKER 1AD110 AND INVERTER FAILS	7.46E-05	2.18E+00
1-RPS-TLC-CF-SSLAB	CCF SOLID STATE LOGIC IN TRAINS A AND B (4 OF 4)	2.10E-06	2.16E+00
1-ACP-DPL-FC-AY1A____	PANEL 1AY1A FAILS	4.78E-05	2.15E+00
1-OA-START-AFW-H	OPERATOR FAILS TO MANUALLY START AFW PUMPS IN MCR FAILS	3.30E-03	2.05E+00
1-CAD-XHE-SAFESTBLE	OPERATOR FAILS TO DEPRESSURIZE SECONDARY (72HR SAFE/STABLE)	7.50E-04	2.04E+00
1-CVC-MDP-FR-CCPACCPB-CC	CCP A AND CCP B FAIL TO RUN DUE TO COMMON CAUSE	4.88E-06	2.04E+00
1-ACP-CNT-CO-___K346B	RELAY K346B CONTACTS SPURIOUSLY OPEN	1.95E-06	2.00E+00

## Appendix D: L3PRA Project Level 1 At-Power for Internal Events Model Issues

This appendix contains a table that identifies potential model enhancements, many of which were not included in the current study due to time and resource limitations and because they are not expected to have a significant impact on the model results. This table also includes errors or omissions in the model that were not identified in time to be corrected in the current version, but are believed to have minimal impact on the model results.

#	Issue Type	Description	Impact	Level of Effort	Notes
1	Model Enhancement	<p>Certain fault tree logic elements were not fully developed. A review of the logic to determine how many of these undeveloped events are used and what it would take to develop the logic fully could be explored. Examples include:</p> <ul style="list-style-type: none"> <li>Basic event 1-RPS-ICC-FC-GNAL_____ (Failure of RPS Low Pressure Block Signal) in the PVC fault tree uses a <math>10^{-3}</math> failure probability and was labeled in the reference plant probabilistic risk assessment (PRA) model as "to be developed."</li> <li>In the event tree for the interfacing-systems loss-of-coolant accident (ISLOCA) from the reactor coolant pump (RCP) thermal barrier heat exchangers, failure of the high flow control system logic for the automatic closure of the auxiliary component cooling water (ACCW) isolation valves is enveloped into a single basic event (ACW-TFF-FC-FT19052_).</li> <li>The condensate storage tank (CST) auto-makeup modeling is simplified in that refill from the demineralizer water system is enveloped into a single basic event 1-REFILCST-DEM (in addition to explicit modeling of the instrument air dependency).</li> </ul>	Low	High	The level of effort to develop this fault tree logic could be substantial. Additional information from the reference plant to implement the modeling would be needed. These modeling simplifications are believed to have a minimal effect on the L3PRA Level 1 model results.

#	Issue Type	Description	Impact	Level of Effort	Notes
2	Model Enhancement*	It has been determined that during the modeling of consequential losses of offsite power (LOOPs) that some events that were considered as consequential in the LOOP event database did not meet the coding definition. A new coding definition should be developed to remove some of the ambiguity from the coding process. In addition, updated consequential LOOP probabilities should be calculated based on an additional decade of operating experience.	Moderate	Moderate	This work falls outside the scope of the L3PRA project. Currently, work on this area is in progress as part of other NRC activities; however, this work will not be completed in time for the R02 model revision. Sensitivity studies could be readily performed to determine the impact of revised consequential LOOP probabilities on the L3PRA Level 1 model.
3	Model Enhancement	The currently modeled elevated RCP seal leakage (21 gpm/RCP) sequences do not account for the isolation capabilities (automatic and/or manual) of the RCP stage 1 seal leak-off line. Also, the current event tree logic structure prevents the Level 2 portion of the model from querying the different RCP seal leakage pathways for these scenarios.	Low	High	The potential that operators could manually isolate elevated RCP seal leakage (21 gpm/RCP) via valve for each leak-off line is not included in the model; and therefore, is conservative. Depending on the sequence, the modeling of potential isolation of the elevated RCP seal leakage pathway would differ. For the sequences in which the elevated RCP seal leakage leads to potential core damage due to loss of RCS inventory (e.g., OTRANS sequence 7), the modeling revision could be handled using changes to current fault trees (e.g., CHG). However, the model changes required for sequences that include elevated RCP seal leakage that lead to core damage due to loss of all decay heat removal (e.g., OTRANS sequences 9 and 10) would be more difficult. Note that isolation of the RCP seal leak-off line via the applicable containment isolation valves, as a means of preventing containment bypass, is not currently accounted for in the Level 1 or Level 2 portion of the model for these scenarios. See issue 3 for additional information. In either case, the amount of work on the Level 2 portion of the model could be substantial.



#	Issue Type	Description	Impact	Level of Effort	Notes
4	Model Enhancement / Error	<p>The RCP stage 1 seal leak-off ISLOCA scenarios included in the ISL-RCP-S1LO event tree are currently limited to the following initiating events:</p> <ul style="list-style-type: none"> <li>• LOOP initiating events with subsequent SBO,</li> <li>• Total loss of NSCW,</li> <li>• Loss of ACCW with subsequent failure to align the CCPs for seal injection, and</li> <li>• Loss of normal seal injection with subsequent failure to align the CCPs for alternate seal injection, and loss of ACCW flow to the RCP thermal barrier heat exchangers.</li> </ul> <p>There are other scenarios, not considered in the ISL-RCP-S1LO event tree, which could result in the failure of the stage 1 seals (with stage 2 seal intact), resulting in a 76 gpm/RCP seal loss-of-coolant accident (LOCA) bypassing containment. The core damage frequency (CDF) impacts of these scenarios are accounted for in their applicable event trees (e.g., other transients, turbine trip, reactor trip, secondary-side breaks, etc.); however, these scenarios are not structured in a manner that allow the Level 2 portion of the model to query the RCP seal LOCA pathway (i.e., whether the LOCA bypasses containment). In addition, the potential for (automatic and/or manual) isolation of the RCP stage 1 seal leak-off path is not considered in the applicable event trees (except for ISL-RCP-S1LO).</p>	Low	High	<p>This issue does not substantially affect the L3PRA Level 1 model results since the failure of the stage 1 RCP seals is accounted for in all applicable event trees. Ideally, the modeling of this ISLOCA pathway would be accounted for directly in the various event trees, and not in a separate ISL-RCP-S1LO event tree. However, the level of effort to implement these revisions would be high and could increase the model size considerably, possibly resulting in calculation issues. For non-SBO scenarios (or SBO scenarios with recovered AC power), the potential contribution for an ISLOCA through this pathway is likely to be minimal, given that multiple valves (would be available to automatically and/or manually isolate the RCP stage 1 seal LOCA. However, the potential containment bypass contribution for consequential LOOPS that result in a subsequent SBO and RCP stage 1 seal LOCA may not be negligible, since only one valve would be available to isolate the RCP stage 1 seal leak-off line. Note that the current model (1-ISL-RCP-S1LO-AUTO fault tree) does not appropriately credit the potential for manual isolation of single valve for all SBO scenarios, including consequential LOOPS. In addition, the loss of NSCW scenarios with consequential LOOP are being suppressed by non-minimal AC power failures. The Level 2 portion of the model includes the modeling of containment isolation; however, this pathway was screened out by the analysis performed by reference plant (and adopted by the NRC), because "penetrations less than 2 inches in diameter do not present a significant pathway for fission product release to the environment." Note that isolation valves might be available to terminate any leakage from the stage 1 seals (regardless of the seal integrity), given instrument</p>

#	Issue Type	Description	Impact	Level of Effort	Notes
					air is available to these valves. It is expected that additional communication with reference plant operations staff would be required to implement any model changes for this issue.
5	Model Enhancement	The currently modeled elevated RCP seal leakage (21 gpm/RCP) sequences do not account for the isolation capabilities (automatic and/or manual) of the RCP stage 1 seal leak-off line. Also, the current event tree logic structure prevents the Level 2 portion of the model from querying the different RCP seal leakage pathways for these scenarios.	Low	High	The potential that operators could manually isolate elevated RCP seal leakage (21 gpm/RCP) via valve for each leak-off line is not included in the model; and therefore, is conservative. Depending on the sequence, the modeling of potential isolation of the elevated RCP seal leakage pathway would differ. For the sequences in which the elevated RCP seal leakage leads to potential core damage due to loss of RCS inventory (e.g., OTRANS sequence 7), the modeling revision could be handled using changes to current fault trees (e.g., CHG). However, the model changes required for sequences that include elevated RCP seal leakage that lead to core damage due to loss of all decay heat removal (e.g., OTRANS sequences 9 and 10) would be more difficult. Note that isolation of the RCP seal leak-off line via the applicable containment isolation valves, as a means of preventing containment bypass, is not currently accounted for in the Level 1 or Level 2 portion of the model for these scenarios. See issue 3 for additional information. In either case, the amount of work on the Level 2 portion of the model could be substantial.

#	Issue Type	Description	Impact	Level of Effort	Notes
6	Error	The anticipated transient without scram (ATWS) tree should be updated to more appropriately account for steam generator tube rupture (SGTR) initiating events.	Low	Moderate	The current ATWS event tree uses a simplified LOCA response modeling approach that only queries high-pressure injection (HPI) and high-pressure recirculation (HPR). The alternative would be to transfer to the consequential small loss-of-coolant accident (CSLOCA) event tree, which would result in a substantial increase in accident sequences, which could lead to model size and calculation time issues. However, the current modeling simplification does not properly account for SGTR scenarios in which no water will be available to bring the plant to a safe/stable end state via HPR. This modeling simplification is believed to have a negligible effect on the results.
7	Model Enhancement*	The ISLOCA event trees could be enhanced to model sequence progression to a safe/stable end state. In addition, the ISLOCA expert elicitation provided different effective break sizes, which are not currently accounted for in the applicable event trees.	Low	Moderate	It is believed that most PRAs limit the modeling of ISLOCA scenarios to whether the leaks can either be terminated completely or isolated within containment prior to core damage. Additional modeling to bring ISLOCAs scenarios to a safe/stable end state is not typically included. This modeling concept is used because if ISLOCAs are either terminated or isolated within containment, the scenarios will either respond like a transient or LOCA, respectively; and therefore, are covered by the applicable event trees. The modeling of the potential for different break sizes is only a Level 1 PRA concern if this post-ISLOCA response is included.

#	Issue Type	Description	Impact	Level of Effort	Notes
8	Error	The fault tree logic for normally running systems that was originally converted over (from the reference plant PRA) was modified to remove the toggling capability to switch which equipment is running and which is in standby. These modifications were made to streamline the fault tree logic and because this flexibility was determined not to be needed as part of the Level 3 PRA project. As part of the conversion effort, the test and maintenance basic events for running equipment were eliminated. However, the test and maintenance unavailability for the standby equipment was not correspondingly increased to account for the test and maintenance unavailability of the equipment that is assumed to be normally running.	Low	Low	Maintenance data to support these calculations were not readily available at the time of completion for the R02 version of the L3PRA Level 1 model. For the key running systems (e.g., NSCW, ACCW), a review of the importance measures for the pump test/maintenance events reveal that potential changes to these probabilities would have a minimal impact on the L3PRA Level 1 model results.
9	Model Enhancement	The SGTR event tree and its associated top event fault trees do not account for the potential for the SG relief valves to remain open due to being stuck or SG pressure being above the relief valve set point. This modeling simplification may be non-conservative for certain scenarios. For example, open SG relief valves would divert water from the containment sump during feed and bleed cooling (potentially resulting in eventual recirculation failure), which is not considered in the current SGTR modeling.	Moderate	High	Additional thermal-hydraulic calculations would need to be performed to support potential modeling changes. In addition, both event tree and fault tree revisions are likely to be needed.
10	Error	The loss of RCP seal injection event tree does not include the top event for the reactor protection system (RPS) fault tree.	Low	Moderate	The amount of effort to incorporate this change in the Level 1 portion of the model is minimal; however, it would require significant re-work for the Level 2 model.

#	Issue Type	Description	Impact	Level of Effort	Notes
11	Model Enhancement	The available time to start the AFW pumps (as represented by OA-START-AFW-H) is 44 minutes, which is based on the time to SG dry out during a loss of feedwater transient. However, time estimates for small and medium LOCA scenarios could be more limiting and were not considered.	Low	Moderate	The potential for operators to manually start the AFW pumps given a failure of the automatic actuation are negligible CDF contributors. It is not expected that any increase in the human error probability (HEP) given a decreased time window for small and medium LOCA scenarios would have a substantial effect on overall CDF.
12	Model Enhancement	The modeling of an inadvertent safety injection (SI) initiating event and subsequent consequential SLOCA given an operator failure to terminate SI does not account for certain sequence-specific aspects. For example, when applicable sequences are transferred to the consequential small LOCA event tree, refueling water storage tank (RWST) inventory is considered full; however, there is the potential for significant inventory being already used during the injection phase of the event [depending on how quickly operators terminate SI and if a pressurizer power-operated relief valve (PORV) fails to reclose).	Low	High	Due to the relatively large RWST, operators have a significant amount of time before the RWST is emptied (at least 3 hours). However, the failure of operators to quickly terminate SI or failure of a pressurizer PORV to reclose would shorten the time for operators to initiate cooldown/depressurization, initiate shutdown cooling, or align for recirculation. This decrease in time is not expected to result in significant increase in applicable HEPs if they are not determined to be time critical. A human reliability analysis (including dependency) would need to be performed to account for these sequence-specific aspects for these scenarios. In addition, new thermal-hydraulic calculations may need to be performed.
13	Error	The human failure event (HFE) dependency evaluation was completed prior to the completion of all L3PRA Level 1 model changes. It was initially believed that modeling changes made after the completion of the dependency evaluation would not significantly impact the key HFE combinations. However, a review performed to verify this assumption identified an additional seven HFE pairs.	Low	Moderate	In addition to completing the revised dependency evaluation, the implemented revisions would result in changes to the model results, requiring revisions to multiple parts of the L3PRA Level 1 documentation. Based on a review of these newly identified HFE pairs and their associated cut sets, it is believed that these omissions would have a negligible effect on the overall CDF.

#	Issue Type	Description	Impact	Level of Effort	Notes																		
14	Error	<p>During the review of the HFE evaluations documented in Appendix C, some issues were identified that resulted in the following minor changes to five HEPs:</p> <table><thead><tr><th>HFE</th><th>Old HEP</th><th>Revised HEP</th></tr></thead><tbody><tr><td>OAD_SGR-----H</td><td>1.4×10<sup>-3</sup></td><td>1.5×10<sup>-3</sup></td></tr><tr><td>OAL_LPLL-----H</td><td>2.6×10<sup>-4</sup></td><td>1.3×10<sup>-4</sup></td></tr><tr><td>OAN_SL-----H</td><td>9.8×10<sup>-4</sup></td><td>1.1×10<sup>-3</sup></td></tr><tr><td>OAR_LPSL-----H</td><td>7.1×10<sup>-4</sup></td><td>1.1×10<sup>-3</sup></td></tr><tr><td>OAT-----H</td><td>6.0×10<sup>-4</sup></td><td>2.6×10<sup>-4</sup></td></tr></tbody></table> <p>In addition, the error factors for three HFEs (OAN_SL-----H, OAR_LPSL-----H, and RCS-XHE-XM-TRIP) were incorrect.</p>	HFE	Old HEP	Revised HEP	OAD_SGR-----H	1.4×10 <sup>-3</sup>	1.5×10 <sup>-3</sup>	OAL_LPLL-----H	2.6×10 <sup>-4</sup>	1.3×10 <sup>-4</sup>	OAN_SL-----H	9.8×10 <sup>-4</sup>	1.1×10 <sup>-3</sup>	OAR_LPSL-----H	7.1×10 <sup>-4</sup>	1.1×10 <sup>-3</sup>	OAT-----H	6.0×10 <sup>-4</sup>	2.6×10 <sup>-4</sup>	Low	Moderate	Appendix A and the HRA section of the L3PRA Level 1 PRA main report have been updated accordingly. In addition, the applicable probabilities and error factors were updated in subsequent model revisions after the Level 1 model report for internal events was completed. Therefore, the quantification section of the main report has not been updated. It is believed that the revised HEPs and error factors would result in a negligible change in the overall results.
HFE	Old HEP	Revised HEP																					
OAD_SGR-----H	1.4×10 <sup>-3</sup>	1.5×10 <sup>-3</sup>																					
OAL_LPLL-----H	2.6×10 <sup>-4</sup>	1.3×10 <sup>-4</sup>																					
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15	Error	<p>The second alpha factor for applicable common-cause failure (CCF) events of two motor-operated valves (MOVs) is incorrect. Currently, the second alpha factor used in these MOV CCF events (ZA-AOV-CC-02A02) is for air-operated valves.</p>	Low	Moderate	The current alpha factor for ZA-AOV-CC-02A02 is similar to the MOV alpha factor; and therefore, the resultant change in the applicable MOV CCF events is minimal.																		
16	Error	<p>Some of the basic event descriptions contain errors. Most of the errors are believed to have occurred during the initial model conversion. However, some errors were inherited from the SNC PRA model. Many of these errors are minor (e.g., misspellings, spacing, etc.). There was an attempt to correct identified errors during the revision process, but some errors reoccurred in later model revisions.</p>	Low	Moderate	Identified errors will be corrected during other modeling efforts (e.g., Level 2, external hazards, low-power/shutdown).																		
18	Error	<p>Modify 1-BP2 fault tree (Y-type process flag, with S-type failure model) to ensure success probability of 0.8 is captured in cut sets.</p>	Low	Moderate	With high failure probabilities (greater than 0.1), the success probability of approximately 1.0 assumed by SAPHIRE is no longer valid.																		
19	Error	<p>The L3PRA Level 1 model failure data for the normal charging pump was based on positive displacement pump data instead of centrifugal pump data.</p>	Low	Moderate	This change is not expected to result in a significant change in the L3PRA Level 1 model results.																		

#	Issue Type	Description	Impact	Level of Effort	Notes
20	Error	There are low CDF cut sets (i.e., less than $7 \times 10^{-9}$ per year) that have both a LOOP initiating event and consequential LOOP in them.	Low	Moderate	This issue appears to be caused by logic in the 1-CHG-ACR and 1-SAFESTABLE-ACR fault trees for SBO sequences in which offsite power was successfully recovered. The total CDF contribution from these cut sets is approximately $2 \times 10^{-8}$ per year.
21	Model Enhancement	The SBO event tree does not query for potential stuck-open secondary side valves (i.e., the transfer to the SBO event tree occurs prior to the 1-SVC fault tree being queried in the LOOP event tree).	Low	Moderate	Given the strong likelihood that main steam isolation valves will be closed (on the loss of power) this modeling change is expected to result in negligible change in the overall results.
* This model enhancement may apply more broadly to PRAs in general (beyond the Level 3 PRA project) and/or require additional research or discussion with the PRA technical community.					