ArevaEPRDCPEm Resource

From: Pederson Ronda M (AREVA NP INC) [Ronda.Pederson@areva.com]
Sent: Thursday, July 16, 2009 1:57 PM
To: Tesfaye, Getachew
Cc: BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); NOXON David B (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 227, FSAR Ch 19, Supplement 1
Attachments: RAI 227 Supplement 1 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. provided responses to 12 of the 20 questions of RAI No. 227 on July 6, 2009. The attached file, "RAI 227 Supplement 1 Response U.S. EPR DC" provides a technically correct and complete response to one of the remaining 8 questions.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 227 Question 19-285.

The following table indicates the respective pages in the response document, "RAI 227 Supplement 1 Response U.S. EPR DC," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 227 — 19-285	2 A-1 B-1	3 A-90 B-130

A complete answer is not provided for 7 of the 20 questions. The schedule for a technically correct and complete response to these questions was provided previously and remains as indicated below.

Question #	Response Date
RAI 227 — 19-284	September 18, 2009
RAI 227 — 19-287	September 18, 2009
RAI 227 — 19-292	September 18, 2009
RAI 227 — 19-293	September 18, 2009
RAI 227 — 19-294	September 18, 2009
RAI 227 — 19-295	September 18, 2009
RAI 227 — 19-298	August 28, 2009

Sincerely,

Ronda Pederson
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AREVA NP Inc.
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3315 Old Forest Road
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From: WELLS Russell D (AREVA NP INC)
Sent: Monday, July 06, 2009 6:08 PM
To: 'Getachew Tesfaye'
Cc: Pederson Ronda M (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 227, FSAR Ch 19

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 227 Response US EPR DC.pdf" provides technically correct and complete responses to 12 of the 20 questions.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 227 Questions 19-299 and 19-300.

The following table indicates the respective pages in the response document, "RAI 227 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 227 — 19-284	2	3
RAI 227 — 19-285	4	4
RAI 227 — 19-286	5	5
RAI 227 — 19-287	6	6
RAI 227 — 19-288	7	10
RAI 227 — 19-289	11	11
RAI 227 — 19-290	12	12
RAI 227 — 19-291	13	13
RAI 227 — 19-292	14	14
RAI 227 — 19-293	15	15
RAI 227 — 19-294	16	16
RAI 227 — 19-295	17	17
RAI 227 — 19-296	18	19
RAI 227 — 19-297	20	22
RAI 227 — 19-298	23	23
RAI 227 — 19-299	24	26
RAI 227 — 19-300	27	32
RAI 227 — 19-301	33	33
RAI 227 — 19-302	34	35
RAI 227 — 19-303	36	37

A complete answer is not provided for 8 of the 20 questions. The schedule for a technically correct and complete response to these questions is provided below.

Question #	Response Date
RAI 227 — 19-284	September 18, 2009
RAI 227 — 19-285	July 20, 2009
RAI 227 — 19-287	September 18, 2009
RAI 227 — 19-292	September 18, 2009
RAI 227 — 19-293	September 18, 2009
RAI 227 — 19-294	September 18, 2009

RAI 227 — 19-295	September 18, 2009
RAI 227 — 19-298	August 28, 2009

(Russ Wells on behalf of)
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From: Getachew Tesfaye [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Friday, June 05, 2009 3:29 PM
To: ZZ-DL-A-USEPR-DL
Cc: Theresa Clark; Hanh Phan; Edward Fuller; Lynn Mrowca; Prosanta Chowdhury; Joseph Colaccino; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 227 (2564, 2598),FSAR Ch. 19

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on May 15, 2009, and discussed with your staff on May 29, 2009. Draft RAI Questions 19-296, 19-300, and 19-302 were modified as a result of that discussion. The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs. For any RAIs that cannot be answered within 30 days, it is expected that a date for receipt of this information will be provided to the staff within the 30 day period so that the staff can assess how this information will impact the published schedule.

Thanks,
Getachew Tesfaye
Sr. Project Manager
NRO/DNRL/NARP
(301) 415-3361

Hearing Identifier: AREVA_EPR_DC_RAIs
Email Number: 667

Mail Envelope Properties (5CEC4184E98FFE49A383961FAD402D310110FAC3)

Subject: Response to U.S. EPR Design Certification Application RAI No. 227, FSAR Ch 19, Supplement 1
Sent Date: 7/16/2009 1:57:08 PM
Received Date: 7/16/2009 1:57:12 PM
From: Pederson Ronda M (AREVA NP INC)

Created By: Ronda.Pederson@areva.com

Recipients:
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Post Office: AUSLYNCMX02.adom.ad.corp

Files	Size	Date & Time
MESSAGE	5217	7/16/2009 1:57:12 PM
RAI 227 Supplement 1 Response US EPR DC.pdf	455270	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Response to

Request for Additional Information No. 227 (2564, 2598), Supplement 1
6/05/2009

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 19 - Probabilistic Risk Assessment and Severe Accident Evaluation
Application Section: 19

QUESTIONS for PRA Licensing, Operations Support and Maintenance Branch 1
(AP1000/EPR Projects) (SPLA)

Question 19-285:

(Follow-up to Question 19-125) The significant sequences (i.e., those with a sequence frequency greater than 1 percent of internal events or shutdown core damage frequency (CDF) or those that have an aggregate contribution of 95 percent of CDF when ranked by frequency) provided in response to Question 19-125 yield different insights than the cutset groups listed in FSAR Table 19.1-7. For example:

- The response to Question 19-125 states that sequence 14 in the loss-of-offsite-power (LOOP) event tree has a sequence frequency of 8.58E-8 per year (/yr), about 30 percent of the internal events point estimate for CDF. In comparison, the first cutset group in FSAR Table 19.1-7 includes cutsets from this sequence that are included in the top 100 cutsets, and represents only about 19 percent of the internal events CDF.
- The top five cutset groups based on the percent contributions listed in FSAR Table 19.1-7 are 1 (LOOP-14), 9 (SLOCA-17), 17 (ATWS-12), 8 (SLOCA-34), and 18 (GT-15). In contrast, the top five sequences based on the response to Question 19-125 are LOOP-14, GT-15, SLOCA-17, SLOCA-34, and LOOP-45.

The staff uses the significant cutsets and sequences to communicate important scenarios both to other reviewers and to the public in the Safety Evaluation Report (SER). In addition, the staff uses individual cutsets to understand the modeling of systems and operator actions. Therefore, the staff needs to see both cutsets and sequences and understand the reasons for any discrepancies in the rankings.

a. Revise the FSAR to include a ranking of significant sequences (those provided in response to Question 19-125), with a description of each. The representative cutsets and sequence descriptions currently provided in FSAR Table 19.1-7 are one way of describing the sequences.
b. Provide (in the RAI response only) the top 10 cutsets for each significant sequence, or the cutsets contributing 95 percent to the sequence frequency, whichever is less.
c. Provide (in the RAI response only) the top 200 core damage cutsets for internal events, internal fire, internal flooding, shutdown, and the total at-power and shutdown model.

Response to Question 19-285:

Response to Question 19-285a:

The following tables (with table descriptions added to the sections where they are referenced) will be added to the U.S. EPR FSAR:

- Table 19.1-127—U.S. EPR Important Sequences – Level 1 Internal Events (Referenced in Section 19.1.4.1.2.3).
- Table 19.1-128—U.S. EPR Important Sequences – Level 1 Flooding Events (Referenced in Section 19.1.5.2.2.3).
- Table 19.1-129—U.S. EPR Important Sequences – Level 1 Fire Events (Referenced in Section 19.1.5.3.2.3).
- Table 19.1-130—U.S. EPR Important Sequences – Level 1 Shutdown (Referenced in Section 19.1.6.2.3).

Response to Question 19-285b:

The top 10 cutsets (or fewer if cutsets contribute to at least 95 percent of sequence frequency) for each significant sequence for internal events, internal fire, internal flooding, and shutdown are provided in Appendix A to this response.

Response to Question 19-285c:

The top 200 core damage cut sets for internal events, internal fire, internal flooding, shutdown, and total at-power are provided in Appendix B to this response.

FSAR Impact:

U.S. EPR FSAR Tier 2, tables 19.1-127, 19.1-128, 19.1-129, and 19.1-130 will be added as described in the response to 19-285a and indicated on the enclosed markup.

U.S. EPR FSAR, Tier 2, Sections 19.1.4.1.2.3, 19.1.5.2.2.3, 19.1.5.3.2.3 and 19.1.6.2.3 will be revised as described in the response and indicated on the enclosed markup.

Response to
Request for Additional Information No. 227

Question 19-285
Appendix A
Top 10 Cutsets for Significant Sequences

Minimal Cutsets

Top Event probability Q = 9.359E-09

No.	Prob.	%	Event	Description
1	3.932E-09	42.01	IE LOMFW	Initiator - Total Loss of Main Feedwater
			STUCK ROD	Stuck Control Rods
2	3.325E-09	35.53	IE LOC	Initiator - Loss of Main Condenser (Includes MSIV Closure etc.)
			STUCK ROD	Stuck Control Rods
3	2.083E-09	22.25	IE LBOP	Initiator - Loss of Balance of Plant - Closed Loop Cooling Water or Aux Cooling Water
			STUCK ROD	Stuck Control Rods

Minimal Cutsets

Top Event probability Q = 6.780E-09

No.	Prob.	%	Event	Description
1	4.112E-10	6.07	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
2	3.959E-10	5.84	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			BTD01_BAT__ST_D-ALL	CCF of Safety Related Batteries on Demand
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
3	3.024E-10	4.46	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			EFWS PM1	EFWS Train 1 Unavailable due to Preventive Maintenance
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
4	3.024E-10	4.46	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			EFWS PM4	EFWS Train 4 Unavailable due to Preventive Maintenance
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
5	3.024E-10	4.46	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			SBODG5 PM1	SBO-DG Train 1 Unavailable due to Preventive Maintenance
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
6	3.024E-10	4.46	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			SBODG8 PM4	SBO-DG Train 4 Unavailable due to Preventive Maintenance
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run

GT:0014

No.	Prob.	%	Event	Description
7	2.186E-10	3.22	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR_B-ALL	CCF of SBO DGs to Run
8	1.352E-10	1.99	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			CL-TXS-OSCCF	SW CCF of TXS operating system or multiple diversity groups
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
9	8.978E-11	1.32	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
10	8.978E-11	1.32	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run

Minimal Cutsets

Top Event probability Q = 2.018E-08

No.	Prob.	%	Event	Description
1	2.715E-09	13.45	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Start
2	2.555E-09	12.66	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
3	2.555E-09	12.66	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
4	4.126E-10	2.04	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
5	3.908E-10	1.94	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Run
6	3.677E-10	1.82	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FR	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Run
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance

GT:0015

No.	Prob.	%	Event	Description
7	3.677E-10	1.82	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
8	3.428E-10	1.70	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			31BTD01_BATST	ELEC, 250V 1E 2-hr Battery 31BTD01, Fails on Demand
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
9	3.428E-10	1.70	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			34BTD01_BATST	ELEC, 250V 1E 2-hr Battery 34BTD01, Fails on Demand
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
10	2.029E-10	1.01	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40AP107EFS	SCWS, Train 4 Motor Driven Safety Chiller Pump QKA40AP107, Fails to Start on Demand
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance

LOOP:0011

Minimal Cutsets

Top Event probability Q = 6.389E-09

No.	Prob.	%	Event	Description
1	2.260E-10	3.54	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D -124	CCF of Safety Related Batteries on Demand
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
2	2.260E-10	3.54	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D -134	CCF of Safety Related Batteries on Demand
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
3	1.507E-10	2.36	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D -124	CCF of Safety Related Batteries on Demand
			LHSI PM3	LHSI Train 3 Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
4	1.507E-10	2.36	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D -134	CCF of Safety Related Batteries on Demand
			LHSI PM2	LHSI Train 2 Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
5	1.130E-10	1.77	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D -124	CCF of Safety Related Batteries on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC03/QKA30 PM3	Normal SAC03/QKA30 Train Unavailable due to Preventive Maintenance
6	1.130E-10	1.77	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D -134	CCF of Safety Related Batteries on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC02/QKA20 PM2	Normal SAC02/QKA20 Train Unavailable due to Preventive Maintenance

LOOP:0011

No.	Prob.	%	Event	Description
7	9.236E-11	1.45	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM1	EFWS Train 1 Unavailable due to Preventive Maintenance
			LHSI PM1	LHSI Train 1 Unavailable due to Preventive Maintenance
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-234	CCF of EDGs to Run
8	9.236E-11	1.45	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM4	EFWS Train 4 Unavailable due to Preventive Maintenance
			LHSI PM4	LHSI Train 4 Unavailable due to Preventive Maintenance
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-123	CCF of EDGs to Run
9	9.236E-11	1.45	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM3	EFWS Train 3 Unavailable due to Preventive Maintenance
			LHSI PM3	LHSI Train 3 Unavailable due to Preventive Maintenance
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-124	CCF of EDGs to Run
10	9.236E-11	1.45	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM2	EFWS Train 2 Unavailable due to Preventive Maintenance
			LHSI PM2	LHSI Train 2 Unavailable due to Preventive Maintenance
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-134	CCF of EDGs to Run

LOOP:0014

Minimal Cutsets

Top Event probability Q = 8.578E-08

No.	Prob.	%	Event	Description
1	1.220E-08	14.22	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Start
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
2	1.148E-08	13.38	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
3	1.148E-08	13.38	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
4	1.854E-09	2.16	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
5	1.756E-09	2.05	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
6	1.652E-09	1.93	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FR	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
7	1.652E-09	1.93	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance

LOOP:0014

No.	Prob.	%	Event	Description
8	1.540E-09	1.80	IE LOOP	Initiator - Loss Of Offsite Power
			34BTD01_BATST	ELEC, 250V 1E 2-hr Battery 34BTD01, Fails on Demand
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
9	1.540E-09	1.80	IE LOOP	Initiator - Loss Of Offsite Power
			31BTD01_BATST	ELEC, 250V 1E 2-hr Battery 31BTD01, Fails on Demand
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
10	9.116E-10	1.06	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40AP107EFS	SCWS, Train 4 Motor Driven Safety Chiller Pump QKA40AP107, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance

LOOP:0029

Minimal Cutsets

Top Event probability Q = 5.382E-09

No.	Prob.	%	Event	Description
1	6.281E-11	1.17	IE LOOP	Initiator - Loss Of Offsite Power
			32BTB01_BATST	ELEC, 250V Non 1E 12-hr Battery 32BTB01, Fails on Demand
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run
2	6.281E-11	1.17	IE LOOP	Initiator - Loss Of Offsite Power
			31BTB01_BATST	ELEC, 250V Non 1E 12-hr Battery 31BTB01, Fails on Demand
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-123	CCF of EDGs to Run
3	3.782E-11	0.70	IE LOOP	Initiator - Loss Of Offsite Power
			JEB20AA010EFC	RCP, RCP2 Leakoff Isolation MOV JEB20AA010, Fails to Close on Demand
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
4	3.782E-11	0.70	IE LOOP	Initiator - Loss Of Offsite Power
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run

LOOP:0029

No.	Prob.	%	Event	Description
5	3.782E-11	0.70	IE LOOP	Initiator - Loss Of Offsite Power
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
6	3.782E-11	0.70	IE LOOP	Initiator - Loss Of Offsite Power
			JEB20AA020EFC	RCP Seal, RCP2 Seal Nitrogen Venting Isolation MOV JEB20AA020, Fails to Close on Demand
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
7	3.782E-11	0.70	IE LOOP	Initiator - Loss Of Offsite Power
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
8	3.782E-11	0.70	IE LOOP	Initiator - Loss Of Offsite Power
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run

LOOP:0029

No.	Prob.	%	Event	Description
9	3.782E-11	0.70	IE LOOP	Initiator - Loss Of Offsite Power
			JEB10AA020EFC	RCP Seal, RCP1 Seal Nitrogen Venting Isolation MOV JEB10AA020, Fails to Close on Demand
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
10	3.782E-11	0.70	IE LOOP	Initiator - Loss Of Offsite Power
			JEB10AA010EFC	RCP, RCP1 Leakoff Isolation MOV JEB10AA010, Fails to Close on Demand
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run

LOOP:0030

Minimal Cutsets

Top Event probability Q = 5.481E-09

No.	Prob.	%	Event	Description
1	4.351E-11	0.79	IE LOOP	Initiator - Loss Of Offsite Power
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run
2	4.351E-11	0.79	IE LOOP	Initiator - Loss Of Offsite Power
			JEB20AA010EFC	RCP, RCP2 Leakoff Isolation MOV JEB20AA010, Fails to Close on Demand
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-123	CCF of EDGs to Run
3	4.351E-11	0.79	IE LOOP	Initiator - Loss Of Offsite Power
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run
4	4.351E-11	0.79	IE LOOP	Initiator - Loss Of Offsite Power
			JEB20AA020EFC	RCP Seal, RCP2 Seal Nitrogen Venting Isolation MOV JEB20AA020, Fails to Close on Demand
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-123	CCF of EDGs to Run

LOOP:0030

No.	Prob.	%	Event	Description
5	4.351E-11	0.79	IE LOOP	Initiator - Loss Of Offsite Power
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run
6	4.351E-11	0.79	IE LOOP	Initiator - Loss Of Offsite Power
			JEB10AA010EFC	RCP, RCP1 Leakoff Isolation MOV JEB10AA010, Fails to Close on Demand
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-123	CCF of EDGs to Run
7	4.351E-11	0.79	IE LOOP	Initiator - Loss Of Offsite Power
			JEB10AA020EFC	RCP Seal, RCP1 Seal Nitrogen Venting Isolation MOV JEB10AA020, Fails to Close on Demand
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-123	CCF of EDGs to Run
8	4.351E-11	0.79	IE LOOP	Initiator - Loss Of Offsite Power
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run

LOOP:0030

No.	Prob.	%	Event	Description
9	2.083E-11	0.38	IE LOOP	Initiator - Loss Of Offsite Power
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB20AA010EFC	RCP, RCP2 Leakoff Isolation MOV JEB20AA010, Fails to Close on Demand
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR	ELEC, Emergency Diesel Generator XKA10, Fails to Run
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
10	2.083E-11	0.38	IE LOOP	Initiator - Loss Of Offsite Power
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
			XKA40_____DFR	ELEC, Emergency Diesel Generator XKA40, Fails to Run

LOOP:0044

Minimal Cutsets

Top Event probability Q = 1.117E-08

No.	Prob.	%	Event	Description
1	1.359E-09	12.16	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM1	EFWS Train 1 Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
2	1.359E-09	12.16	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM4	EFWS Train 4 Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
3	6.074E-10	5.44	IE LOOP	Initiator - Loss Of Offsite Power
			CL-TXS-OSCCF	SW CCF of TXS operating system or multiple diversity groups
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
4	4.034E-10	3.61	IE LOOP	Initiator - Loss Of Offsite Power
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
5	4.034E-10	3.61	IE LOOP	Initiator - Loss Of Offsite Power
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
6	2.966E-10	2.66	IE LOOP	Initiator - Loss Of Offsite Power
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SBODG8 PM4	SBO-DG Train 4 Unavailable due to Preventive Maintenance
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
7	2.966E-10	2.66	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM4	EFWS Train 4 Unavailable due to Preventive Maintenance
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run

LOOP:0044

No.	Prob.	%	Event	Description
8	2.966E-10	2.66	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM1	EFWS Train 1 Unavailable due to Preventive Maintenance
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
9	2.966E-10	2.66	IE LOOP	Initiator - Loss Of Offsite Power
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SBODG5 PM1	SBO-DG Train 1 Unavailable due to Preventive Maintenance
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
10	1.107E-10	0.99	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM4	EFWS Train 4 Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFS	ELEC, SBO Diesel Generator XKA50, Fails to Start on Demand

Minimal Cutsets

Top Event probability Q = 1.665E-08

No.	Prob.	%	Event	Description
1	1.848E-09	11.10	IE LOOP	Initiator - Loss Of Offsite Power
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
2	1.779E-09	10.69	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D-ALL	CCF of Safety Related Batteries on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
3	1.359E-09	8.16	IE LOOP	Initiator - Loss Of Offsite Power
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SBODG5 PM1	SBO-DG Train 1 Unavailable due to Preventive Maintenance
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
4	1.359E-09	8.16	IE LOOP	Initiator - Loss Of Offsite Power
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SBODG8 PM4	SBO-DG Train 4 Unavailable due to Preventive Maintenance
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
5	9.820E-10	5.90	IE LOOP	Initiator - Loss Of Offsite Power
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR_B-ALL	CCF of SBO DGs to Run
6	3.746E-10	2.25	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-XTLDSBO-2H	Operator Fails to Connect and Load SBO DGs to Div 1 and 4
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
7	2.260E-10	1.36	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D-134	CCF of Safety Related Batteries on Demand
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours

LOOP:0045

No.	Prob.	%	Event	Description
8	2.260E-10	1.36	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D-124	CCF of Safety Related Batteries on Demand
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
9	2.085E-10	1.25	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFS_D-ALL	CCF of SCWS Pumps to Start
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
10	1.507E-10	0.91	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D-134	CCF of Safety Related Batteries on Demand
			EDG PM2	EDG Train 2 Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours

LOOP:0052

Minimal Cutsets

Top Event probability Q = 5.307E-09

No.	Prob.	%	Event	Description
1	1.359E-10	2.56	IE LOOP	Initiator - Loss Of Offsite Power
			31BTB01_BATST	ELEC, 250V Non 1E 12-hr Battery 31BTB01, Fails on Demand
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D -ALL	CCF of EDGs to Run
2	1.359E-10	2.56	IE LOOP	Initiator - Loss Of Offsite Power
			32BTB01_BATST	ELEC, 250V Non 1E 12-hr Battery 32BTB01, Fails on Demand
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D -ALL	CCF of EDGs to Run
3	5.068E-11	0.96	IE LOOP	Initiator - Loss Of Offsite Power
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D -ALL	CCF of EDGs to Run
4	5.068E-11	0.96	IE LOOP	Initiator - Loss Of Offsite Power
			JEB10AA010EFC	RCP, RCP1 Leakoff Isolation MOV JEB10AA010, Fails to Close on Demand
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D -ALL	CCF of EDGs to Run
5	5.068E-11	0.96	IE LOOP	Initiator - Loss Of Offsite Power
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D -ALL	CCF of EDGs to Run

LOOP:0052

No.	Prob.	%	Event	Description
6	5.068E-11	0.96	IE LOOP	Initiator - Loss Of Offsite Power
			JEB20AA020EFC	RCP Seal, RCP2 Seal Nitrogen Venting Isolation MOV JEB20AA020, Fails to Close on Demand
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
7	5.068E-11	0.96	IE LOOP	Initiator - Loss Of Offsite Power
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
8	5.068E-11	0.96	IE LOOP	Initiator - Loss Of Offsite Power
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
9	5.068E-11	0.96	IE LOOP	Initiator - Loss Of Offsite Power
			JEB20AA010EFC	RCP, RCP2 Leakoff Isolation MOV JEB20AA010, Fails to Close on Demand
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
10	5.068E-11	0.96	IE LOOP	Initiator - Loss Of Offsite Power
			JEB10AA020EFC	RCP Seal, RCP1 Seal Nitrogen Venting Isolation MOV JEB10AA020, Fails to Close on Demand
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run

Minimal Cutsets

Top Event probability Q = 7.236E-09

No.	Prob.	%	Event	Description
1	3.620E-10	5.00	IE LOOP	Initiator - Loss Of Offsite Power
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
2	3.620E-10	5.00	IE LOOP	Initiator - Loss Of Offsite Power
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
3	3.620E-10	5.00	IE LOOP	Initiator - Loss Of Offsite Power
			JEB20AA020EFC	RCP Seal, RCP2 Seal Nitrogen Venting Isolation MOV JEB20AA020, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
4	3.620E-10	5.00	IE LOOP	Initiator - Loss Of Offsite Power
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
5	3.620E-10	5.00	IE LOOP	Initiator - Loss Of Offsite Power
			JEB10AA010EFC	RCP, RCP1 Leakoff Isolation MOV JEB10AA010, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run

LOOP:0053

No.	Prob.	%	Event	Description
6	3.620E-10	5.00	IE LOOP	Initiator - Loss Of Offsite Power
			JEB20AA010EFC	RCP, RCP2 Leakoff Isolation MOV JEB20AA010, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
7	3.620E-10	5.00	IE LOOP	Initiator - Loss Of Offsite Power
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
8	3.620E-10	5.00	IE LOOP	Initiator - Loss Of Offsite Power
			JEB10AA020EFC	RCP Seal, RCP1 Seal Nitrogen Venting Isolation MOV JEB10AA020, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
9	1.008E-10	1.39	IE LOOP	Initiator - Loss Of Offsite Power
			JEB40 SSSF	Mechanical Failure of the Stand Still Seal for RCP4
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
10	1.008E-10	1.39	IE LOOP	Initiator - Loss Of Offsite Power
			JEB10 SSSF	Mechanical Failure of the Stand Still Seal for RCP1
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run

LOOP:0056

Minimal Cutsets

Top Event probability Q = 5.627E-09

No.	Prob.	%	Event	Description
1	5.594E-09	99.42	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D -ALL	CCF of Safety Related Batteries on Demand

Minimal Cutsets

Top Event probability Q = 9.717E-09

No.	Prob.	%	Event	Description
1	3.936E-09	40.51	IE SGTR	Initiator - Steam Generator Tube Rupture
			LBA40AA002PFC	MSS, Train 4 Main Steam Isolation Valve LBA40AA002, Fails to Close on Demand
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours
2	3.388E-09	34.86	IE SGTR	Initiator - Steam Generator Tube Rupture
			LBA43AA101EFC	MSS, Train 4 MSRCV LBA43AA101, Fails to Close on Demand
			OPD-RHR4H/SGTR 1H	Dependency (MED) Between Operator Actions for Stabilizing SGTR and Initiating RHR
			OPF-SGTR-1H	Operator Fails to Isolate SGTR and Initiate Cooldown
3	2.832E-10	2.91	IE SGTR	Initiator - Steam Generator Tube Rupture
			LBA40AA002POP	MSS, Train 4 Main Steam Isolation Valve LBA40AA002, Fails to Remain Closed (SO)
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours
4	2.574E-10	2.65	IE SGTR	Initiator - Steam Generator Tube Rupture
			LBA42AA191SPO	MSS, Train 4 Main Steam Safety Relief Valve LBA42AA191, Premature Opening
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours
5	2.574E-10	2.65	IE SGTR	Initiator - Steam Generator Tube Rupture
			LBA41AA191SPO	MSS, Train 4 Main Steam Safety Relief Valve LBA41AA191, Premature Opening
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours
6	1.520E-10	1.56	IE SGTR	Initiator - Steam Generator Tube Rupture
			34BRA_____RFR	ELEC, 480V AC to 24V DC Rectifier for MCC 34BRA Control Power, Fails to Run
			OPD-RHR4H/SGTR 1H	Dependency (MED) Between Operator Actions for Stabilizing SGTR and Initiating RHR
			OPF-SGTR-1H	Operator Fails to Isolate SGTR and Initiate Cooldown
7	8.581E-11	0.88	IE SGTR	Initiator - Steam Generator Tube Rupture
			BRW70BUW71OFL	ELEC, 24V DC I&C Power Rack 34BRW70/34BUW71, Fails During Operation
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours
8	6.950E-11	0.72	IE SGTR	Initiator - Steam Generator Tube Rupture
			LBA10AA002PFC_D -24	CCF to Close Main Steam Isolation Valves
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours

SGTR:0018

No.	Prob.	%	Event	Description
9	6.950E-11	0.72	IE SGTR	Initiator - Steam Generator Tube Rupture
			LBA10AA002PFC_D-14	CCF to Close Main Steam Isolation Valves
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours
10	6.950E-11	0.72	IE SGTR	Initiator - Steam Generator Tube Rupture
			LBA10AA002PFC_D-34	CCF to Close Main Steam Isolation Valves
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours

Minimal Cutsets

Top Event probability Q = 6.777E-09

No.	Prob.	%	Event	Description
1	5.000E-09	73.78	IE SLBI	Initiator - Steam Break Inside Containment
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
2	3.342E-10	4.93	IE SLBI	Initiator - Steam Break Inside Containment
			ALU-B CCF NS-ALL	CCF of ALU-B Protection System Computer Processors (Non-Self-Monitored)
3	3.342E-10	4.93	IE SLBI	Initiator - Steam Break Inside Containment
			APU4 CCF NS-ALL	CCF of APU-4 Protection System Computer Processors (Non-Self-Monitored)
4	1.000E-10	1.48	IE SLBI	Initiator - Steam Break Inside Containment
			CL-TXS-OSCCF	SW CCF of TXS operating system or multiple diversity groups
5	9.036E-11	1.33	IE SLBI	Initiator - Steam Break Inside Containment
			ALU-B CCF SM-ALL	CCF of ALU-B Protection System Computer Processors (Self-Monitored)
6	9.036E-11	1.33	IE SLBI	Initiator - Steam Break Inside Containment
			APU4 CCF SM-ALL	CCF of APU-4 Protection System Computer Processors (Self-Monitored)
7	4.024E-11	0.59	IE SLBI	Initiator - Steam Break Inside Containment
			CLE23EQ002LB01NS	Digital output module fails (non-self-monitored)
			CLF23EQ002LB01NS	Digital output module fails (non-self-monitored)
			CLG23EQ002LB01NS	Digital output module fails (non-self-monitored)
8	4.024E-11	0.59	IE SLBI	Initiator - Steam Break Inside Containment
			CLF23EQ002LB01NS	Digital output module fails (non-self-monitored)
			CLG23EQ002LB01NS	Digital output module fails (non-self-monitored)
			CLH23EQ002LB01NS	Digital output module fails (non-self-monitored)
9	4.024E-11	0.59	IE SLBI	Initiator - Steam Break Inside Containment
			CLE23EQ002LB01NS	Digital output module fails (non-self-monitored)
			CLF23EQ002LB01NS	Digital output module fails (non-self-monitored)
			CLH23EQ002LB01NS	Digital output module fails (non-self-monitored)

SLBI:0017

No.	Prob.	%	Event	Description
10	4.024E-11	0.59	IE SLBI	Initiator - Steam Break Inside Containment
			CLE23EQ002LB01NS	Digital output module fails (non-self-monitored)
			CLG23EQ002LB01NS	Digital output module fails (non-self-monitored)
			CLH23EQ002LB01NS	Digital output module fails (non-self-monitored)

Minimal Cutsets

Top Event probability Q = 6.487E-09

No.	Prob.	%	Event	Description
1	5.000E-09	77.08	IE SLBI	Initiator - Steam Break Inside Containment
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
2	3.342E-10	5.15	IE SLBI	Initiator - Steam Break Inside Containment
			ALU-B CCF NS-ALL	CCF of ALU-B Protection System Computer Processors (Non-Self-Monitored)
3	3.342E-10	5.15	IE SLBI	Initiator - Steam Break Inside Containment
			APU4 CCF NS-ALL	CCF of APU-4 Protection System Computer Processors (Non-Self-Monitored)
4	1.000E-10	1.54	IE SLBI	Initiator - Steam Break Inside Containment
			CL-TXS-OSCCF	SW CCF of TXS operating system or multiple diversity groups
5	9.036E-11	1.39	IE SLBI	Initiator - Steam Break Inside Containment
			APU4 CCF SM-ALL	CCF of APU-4 Protection System Computer Processors (Self-Monitored)
6	9.036E-11	1.39	IE SLBI	Initiator - Steam Break Inside Containment
			ALU-B CCF SM-ALL	CCF of ALU-B Protection System Computer Processors (Self-Monitored)
7	4.024E-11	0.62	IE SLBI	Initiator - Steam Break Inside Containment
			CLE23EQ002LB01NS	Digital output module fails (non-self-monitored)
			CLG23EQ002LB01NS	Digital output module fails (non-self-monitored)
			CLH23EQ002LB01NS	Digital output module fails (non-self-monitored)
8	4.024E-11	0.62	IE SLBI	Initiator - Steam Break Inside Containment
			CLF23EQ002LB01NS	Digital output module fails (non-self-monitored)
			CLG23EQ002LB01NS	Digital output module fails (non-self-monitored)
			CLH23EQ002LB01NS	Digital output module fails (non-self-monitored)
9	4.024E-11	0.62	IE SLBI	Initiator - Steam Break Inside Containment
			CLE23EQ002LB01NS	Digital output module fails (non-self-monitored)
			CLF23EQ002LB01NS	Digital output module fails (non-self-monitored)
			CLG23EQ002LB01NS	Digital output module fails (non-self-monitored)

SLBI:0030

No.	Prob.	%	Event	Description
10	4.024E-11	0.62	IE SLBI	Initiator - Steam Break Inside Containment
			CLE23EQ002LB01NS	Digital output module fails (non-self-monitored)
			CLF23EQ002LB01NS	Digital output module fails (non-self-monitored)
			CLH23EQ002LB01NS	Digital output module fails (non-self-monitored)

Minimal Cutsets

Top Event probability Q = 1.038E-08

No.	Prob.	%	Event	Description
1	5.000E-09	48.16	IE SLBI	Initiator - Steam Break Inside Containment
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
2	6.723E-10	6.48	IE SLBI	Initiator - Steam Break Inside Containment
			SG4 PRES CCF-ALL	CCF of SG4 pressure sensors
3	4.180E-10	4.03	IE SLBI	Initiator - Steam Break Inside Containment
			SG4 PRES CCF-124	CCF of SG4 pressure sensors
4	4.180E-10	4.03	IE SLBI	Initiator - Steam Break Inside Containment
			SG4 PRES CCF-234	CCF of SG4 pressure sensors
5	4.180E-10	4.03	IE SLBI	Initiator - Steam Break Inside Containment
			SG4 PRES CCF-134	CCF of SG4 pressure sensors
6	4.180E-10	4.03	IE SLBI	Initiator - Steam Break Inside Containment
			SG4 PRES CCF-123	CCF of SG4 pressure sensors
7	3.342E-10	3.22	IE SLBI	Initiator - Steam Break Inside Containment
			APU4 CCF NS-ALL	CCF of APU-4 Protection System Computer Processors (Non-Self-Monitored)
8	3.342E-10	3.22	IE SLBI	Initiator - Steam Break Inside Containment
			ALU-B CCF NS-ALL	CCF of ALU-B Protection System Computer Processors (Non-Self-Monitored)
9	1.000E-10	0.96	IE SLBI	Initiator - Steam Break Inside Containment
			CL-TXS-OSCCF	SW CCF of TXS operating system or multiple diversity groups
10	9.036E-11	0.87	IE SLBI	Initiator - Steam Break Inside Containment
			ALU-B CCF SM-ALL	CCF of ALU-B Protection System Computer Processors (Self-Monitored)

Minimal Cutsets

Top Event probability Q = 1.946E-08

No.	Prob.	%	Event	Description
1	6.659E-09	34.22	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			LBA13AA001PFO_D-ALL	CCF to Open Main Steam Relief Isolation Valves
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
2	2.269E-09	11.66	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			MSRIVSCPFO_P-ALL	CCF to Open Main Steam Relief Isolation Pneumatic Pilot Valves
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
3	8.970E-10	4.61	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
4	7.856E-10	4.04	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
5	7.856E-10	4.04	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
6	7.564E-10	3.89	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			MSRIVSOOFO_P-ALL	CCF to Open Main Steam Relief Isolation Solenoid Pilot Valves
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
7	5.237E-10	2.69	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			EDG PM3	EDG Train 3 Unavailable due to Preventive Maintenance
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run

SLOCA:0017

No.	Prob.	%	Event	Description
8	5.237E-10	2.69	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			EDG PM2	EDG Train 2 Unavailable due to Preventive Maintenance
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
9	3.606E-10	1.85	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
10	1.394E-10	0.72	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PEB20AP001EFS	ESWS, Train 2 Motor Driven Pump PEB20AP001, Fails to Start on Demand

SLOCA:0020

Minimal Cutsets

Top Event probability Q = 6.241E-09

No.	Prob.	%	Event	Description
1	6.178E-09	98.98	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves

Minimal Cutsets

Top Event probability Q = 1.734E-08

No.	Prob.	%	Event	Description
1	6.822E-09	39.35	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
2	8.970E-10	5.17	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
3	8.294E-10	4.78	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JND10AP001EFS_D-ALL	CCF of MHSI Pumps to Start
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
4	8.031E-10	4.63	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
5	4.321E-10	2.49	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JND10AP001EFR_D-134	CCF of MHSI Pumps to Run
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
6	4.321E-10	2.49	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JND10AP001EFR_D-124	CCF of MHSI Pumps to Run
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
7	2.881E-10	1.66	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JND10AP001EFR_D-124	CCF of MHSI Pumps to Run
			MHSI PM3	MHSI Train 3 Unavailable due to Preventive Maintenance
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
8	2.881E-10	1.66	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			MHSI PM4	MHSI Train 4 Unavailable due to Preventive Maintenance
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA

SLOCA:0034

No.	Prob.	%	Event	Description
9	2.881E-10	1.66	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JND10AP001EFR_D-234	CCF of MHSI Pumps to Run
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
10	2.881E-10	1.66	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JND10AP001EFR_D-134	CCF of MHSI Pumps to Run
			MHSI PM2	MHSI Train 2 Unavailable due to Preventive Maintenance
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA

FLD-ANN ALL:0002

Minimal Cutsets

Top Event probability Q = 3.200E-08

No.	Prob.	%	Event	Description
1	3.200E-08	100.00	IE FLD-ANN ALL	Initiator - Flood in the RB Annulus (Contained)
			PROB ANNULUS	Probability that the Annulus connection boxes will withstand a contained Flood

Minimal Cutsets

Top Event probability Q = 8.659E-09

No.	Prob.	%	Event	Description
1	8.933E-11	1.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
2	8.933E-11	1.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
3	8.933E-11	1.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
4	8.933E-11	1.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
5	7.478E-11	0.86	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
6	7.478E-11	0.86	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

IE FLD-SAB14 FB:0017

No.	Prob.	%	Event	Description
7	7.478E-11	0.86	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
8	7.478E-11	0.86	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
9	4.823E-11	0.56	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JNG13AA005CFO_D-123	CCF to Open LHSI/MHSI Common Injection Check Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
10	4.823E-11	0.56	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JNG13AA005CFO_D-123	CCF to Open LHSI/MHSI Common Injection Check Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

Minimal Cutsets

Top Event probability Q = 8.979E-09

No.	Prob.	%	Event	Description
1	1.620E-10	1.80	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
2	1.620E-10	1.80	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
3	1.620E-10	1.80	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
4	1.620E-10	1.80	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
5	1.535E-10	1.71	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
6	1.535E-10	1.71	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

IE FLD-SAB14 FB:0031

No.	Prob.	%	Event	Description
7	1.535E-10	1.71	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
8	1.535E-10	1.71	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
9	4.823E-11	0.54	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JNG13AA005CFO_D-123	CCF to Open LHSI/MHSI Common Injection Check Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
10	4.823E-11	0.54	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JNG13AA005CFO_D-123	CCF to Open LHSI/MHSI Common Injection Check Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

Minimal Cutsets

Top Event probability Q = 1.253E-08

No.	Prob.	%	Event	Description
1	7.800E-09	62.25	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
2	2.808E-09	22.41	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
3	4.535E-10	3.62	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
4	3.744E-10	2.99	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			LOOP24+REC	Loss Of Offsite Power During Mission Time and Failure of Recovery Within 1 Hour
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
5	1.814E-10	1.45	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
6	9.062E-11	0.72	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC31AN001EFR	SAC, Normal Air Exhaust Fan SAC31AN001, Fails to Run

IE FIRE-SAB-078:0015

No.	Prob.	%	Event	Description
7	9.062E-11	0.72	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC01AN001EFR	SAC, Normal Air Supply Fan SAC01AN001, Fails to Run
8	6.529E-11	0.52	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
9	6.171E-11	0.49	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			QKA10AP107EFR	SCWS, Train 1 Motor Driven Safety Chiller Pump QKA10AP107, Fails to Run

Minimal Cutsets

Top Event probability Q = 1.717E-08

No.	Prob.	%	Event	Description
1	8.854E-10	5.16	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
2	7.412E-10	4.32	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
3	4.609E-10	2.68	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PED10AN002EFS_D-123	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
4	3.607E-10	2.10	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			KAA12AA005EFO_D-123	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
5	1.579E-10	0.92	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			LHSI PM1	LHSI Train 1 Unavailable due to Preventive Maintenance
			PEB20AP001EFS_B-ALL	CCF of ESWS Pumps 2 and 3 to Start (Standby)
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
6	1.536E-10	0.89	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			JNG10AA006MEC3	LHSI, LHSI CL1 Discharge Manual CHECK Valve JNG10AA006, Left in Wrong Position
			JNG20AA006MEC3	LHSI, LHSI CL2 Discharge Manual CHECK Valve JNG20AA006, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

IE FIRE-SAB1072:0019

No.	Prob.	%	Event	Description
7	1.184E-10	0.69	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PEB20AP001EFS_B-ALL	CCF of ESWS Pumps 2 and 3 to Start (Standby)
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
8	1.076E-10	0.63	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			KAA20AP001EFS_B-ALL	CCF of CCWS Pumps 2 and 3 to Start (Standby)
			LHSI PM1	LHSI Train 1 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
9	1.067E-10	0.62	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PED10AN002EFR_D-ALL	CCF to Run Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
10	1.067E-10	0.62	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PED10AN001EFR_D-ALL	CCF to Run Normally Running Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

Minimal Cutsets

Top Event probability Q = 5.785E-08

No.	Prob.	%	Event	Description
1	6.133E-09	10.60	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BRA_____RFR	ELEC, 480V AC to 24V DC Rectifier for MCC 32BRA Control Power, Fails to Run
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
2	6.133E-09	10.60	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BRA_____RFR	ELEC, 480V AC to 24V DC Rectifier for MCC 31BRA Control Power, Fails to Run
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
3	4.320E-09	7.47	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
4	2.880E-09	4.98	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			EDG PM2	EDG Train 2 Unavailable due to Preventive Maintenance
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
5	1.983E-09	3.43	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
6	1.485E-09	2.57	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			LBA13AA001PFO_D-ALL	CCF to Open Main Steam Relief Isolation Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

IE FIRE-SAB1072:0032

No.	Prob.	%	Event	Description
7	9.600E-10	1.66	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BMT02___TFL	ELEC, 6.9kV-480V Transformer 32BMT02, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
8	9.600E-10	1.66	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BMB_____OFL	ELEC, 480V Load Center 31BMB, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
9	9.600E-10	1.66	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BMB_____OFL	ELEC, 480V Load Center 32BMB, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
10	9.600E-10	1.66	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BRA_____OFL	ELEC, 480V MCC 31BRA, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

Minimal Cutsets

Top Event probability Q = 7.520E-09

No.	Prob.	%	Event	Description
1	7.973E-10	10.60	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BRA_____RFR	ELEC, 480V AC to 24V DC Rectifier for MCC 31BRA Control Power, Fails to Run
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
2	7.973E-10	10.60	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BRA_____RFR	ELEC, 480V AC to 24V DC Rectifier for MCC 32BRA Control Power, Fails to Run
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
3	5.616E-10	7.47	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
4	3.744E-10	4.98	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			EDG PM2	EDG Train 2 Unavailable due to Preventive Maintenance
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
5	2.578E-10	3.43	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run

IE FIRE-SAB1072:0033

No.	Prob.	%	Event	Description
6	1.930E-10	2.57	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			LBA13AA001PFO_D-ALL	CCF to Open Main Steam Relief Isolation Valves
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
7	1.248E-10	1.66	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BMB_____OFL	ELEC, 480V Load Center 32BMB, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
8	1.248E-10	1.66	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BDA_____OFL	ELEC, 6.9kV Switchgear 31BDA, Fails During Operation
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
9	1.248E-10	1.66	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BDC_____OFL	ELEC, 6.9kV SWGR 31BDC, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
10	1.248E-10	1.66	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BDB_____OFL	ELEC, 6.9kV SWGR 31BDB, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

Minimal Cutsets

Top Event probability Q = 2.156E-08

No.	Prob.	%	Event	Description
1	8.963E-10	4.16	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Run
2	8.433E-10	3.91	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FR	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Run
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
3	8.433E-10	3.91	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
4	8.433E-10	3.91	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FR	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Run
			SAC02/QKA20 PM2	Normal SAC02/QKA20 Train Unavailable due to Preventive Maintenance
5	8.433E-10	3.91	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA30GH001_FR	SCWS, Train 3 Chiller Unit QKA30GH001, Fails to Run
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
6	8.433E-10	3.91	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA20GH001_FR	SCWS, Train 2 Chiller Unit QKA20GH001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
7	8.433E-10	3.91	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			SAC03/QKA30 PM3	Normal SAC03/QKA30 Train Unavailable due to Preventive Maintenance
8	5.736E-10	2.66	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run

IE FIRE-SWGR:0013

No.	Prob.	%	Event	Description
9	4.214E-10	1.95	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			SAC31AN001EFR	SAC, Normal Air Exhaust Fan SAC31AN001, Fails to Run
10	4.214E-10	1.95	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC03AN001EFR	SAC, Normal Air Supply Fan SAC03AN001, Fails to Run

IE FIRE-MS-VR:0024

Minimal Cutsets

Top Event probability Q = 2.733E-08

No.	Prob.	%	Event	Description
1	2.626E-08	96.07	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours

Minimal Cutsets

Top Event frequency F = 1.313E-09

No.	Freq.	%	Event	Description
1	1.917E-11	1.46	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			JNK11AA009EFO	IRWST, SAHR Sump Containment Isolation MOV JNK11AA009, Fails to Open on Demand
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
2	1.917E-11	1.46	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			JNK11AA009EFO	IRWST, SAHR Sump Containment Isolation MOV JNK11AA009, Fails to Open on Demand
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
3	1.917E-11	1.46	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			JNK11AA009EFO	IRWST, SAHR Sump Containment Isolation MOV JNK11AA009, Fails to Open on Demand
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
4	1.917E-11	1.46	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			JNK11AA009EFO	IRWST, SAHR Sump Containment Isolation MOV JNK11AA009, Fails to Open on Demand
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
5	1.917E-11	1.46	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			JNG30AA192SPO	LHSI, LHSI/RHR Train 30 Overpressure Protection Safety Valve JNG30AA192, Premature Opening
			JNK11AA009EFO	IRWST, SAHR Sump Containment Isolation MOV JNK11AA009, Fails to Open on Demand
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB

SD LOCA C:0029 CBD

No.	Freq.	%	Event	Description
6	1.917E-11	1.46	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNA30AA191SPO	RHR, LHSI Train 3 Safety Valve JNA30AA191, Premature Opening
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			JNK11AA009EFO	IRWST, SAHR Sump Containment Isolation MOV JNK11AA009, Fails to Open on Demand
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
7	1.917E-11	1.46	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JMQ40AA001EFO	SAHR, Suction Line Containment Isolation MOV JMQ40AA001, Fails to Open on Demand
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
8	1.917E-11	1.46	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JMQ42AA001EFO	SAHR, Active Cooling Line MOV JMQ42AA001, Fails to Open on Demand
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
9	1.917E-11	1.46	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JMQ42AA001EFO	SAHR, Active Cooling Line MOV JMQ42AA001, Fails to Open on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
10	1.917E-11	1.46	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JMQ40AA001EFO	SAHR, Suction Line Containment Isolation MOV JMQ40AA001, Fails to Open on Demand
			JNA30AA191SPO	RHR, LHSI Train 3 Safety Valve JNA30AA191, Premature Opening
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB

Minimal Cutsets

Top Event frequency F = 6.495E-10

No.	Freq.	%	Event	Description
1	1.437E-11	2.21	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			JNK11AA009EFO	IRWST, SAHR Sump Containment Isolation MOV JNK11AA009, Fails to Open on Demand
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
2	1.437E-11	2.21	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			JNK11AA009EFO	IRWST, SAHR Sump Containment Isolation MOV JNK11AA009, Fails to Open on Demand
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
3	1.437E-11	2.21	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			JNK11AA009EFO	IRWST, SAHR Sump Containment Isolation MOV JNK11AA009, Fails to Open on Demand
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
4	1.437E-11	2.21	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			JNK11AA009EFO	IRWST, SAHR Sump Containment Isolation MOV JNK11AA009, Fails to Open on Demand
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
5	1.437E-11	2.21	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JMQ40AA001EFO	SAHR, Suction Line Containment Isolation MOV JMQ40AA001, Fails to Open on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB

SD LOCA C:0029 CBU

No.	Freq.	%	Event	Description
6	1.437E-11	2.21	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JMQ40AA001EFO	SAHR, Suction Line Containment Isolation MOV JMQ40AA001, Fails to Open on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
7	1.437E-11	2.21	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JMQ42AA001EFO	SAHR, Active Cooling Line MOV JMQ42AA001, Fails to Open on Demand
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
8	1.437E-11	2.21	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JMQ40AA001EFO	SAHR, Suction Line Containment Isolation MOV JMQ40AA001, Fails to Open on Demand
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
9	1.437E-11	2.21	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JMQ42AA001EFO	SAHR, Active Cooling Line MOV JMQ42AA001, Fails to Open on Demand
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
10	1.437E-11	2.21	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JMQ42AA001EFO	SAHR, Active Cooling Line MOV JMQ42AA001, Fails to Open on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB

Minimal Cutsets

Top Event frequency F = 6.068E-09

No.	Freq.	%	Event	Description
1	6.446E-10	10.62	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
2	6.446E-10	10.62	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNA30AA191SPO	RHR, LHSI Train 3 Safety Valve JNA30AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
3	6.446E-10	10.62	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
4	6.446E-10	10.62	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
5	6.446E-10	10.62	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
6	6.446E-10	10.62	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG30AA192SPO	LHSI, LHSI/RHR Train 30 Overpressure Protection Safety Valve JNG30AA192, Premature Opening
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB

SD LOCA C:0030 CBD

No.	Freq.	%	Event	Description
7	1.074E-10	1.77	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JND30AA003CIR	MHSI, MHSI Pump 30 Discharge Manual CHECK Valve JND30AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
8	1.074E-10	1.77	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JND10AA003CIR	MHSI, MHSI Pump 10 Discharge Manual CHECK Valve JND10AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
9	1.074E-10	1.77	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JND20AA003CIR	MHSI, MHSI Pump 20 Discharge Manual CHECK Valve JND20AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
10	8.137E-11	1.34	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNA30AA191SPO	RHR, LHSI Train 3 Safety Valve JNA30AA191, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB

SD LOCA C:0030 CBU

Minimal Cutsets

Top Event frequency F = 3.039E-09

No.	Freq.	%	Event	Description
1	4.835E-10	15.91	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
2	4.835E-10	15.91	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
3	4.835E-10	15.91	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
4	4.835E-10	15.91	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
5	8.058E-11	2.65	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JND20AA003CIR	MHSI, MHSI Pump 20 Discharge Manual CHECK Valve JND20AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
6	8.058E-11	2.65	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JND10AA003CIR	MHSI, MHSI Pump 10 Discharge Manual CHECK Valve JND10AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB

SD LOCA C:0030 CBU

No.	Freq.	%	Event	Description
7	6.103E-11	2.01	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JNK10AT001SPG_P -ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
8	6.103E-11	2.01	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JNK10AT001SPG_P -ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
9	6.103E-11	2.01	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			JNK10AT001SPG_P -ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
10	6.103E-11	2.01	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			JNK10AT001SPG_P -ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB

Minimal Cutsets

Top Event frequency F = 1.351E-09

No.	Freq.	%	Event	Description
1	1.612E-10	11.93	IE SD LOCA DD	Initiator - LOCA During Shutdown State Dd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
2	1.612E-10	11.93	IE SD LOCA DD	Initiator - LOCA During Shutdown State Dd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG30AA192SPO	LHSI, LHSI/RHR Train 30 Overpressure Protection Safety Valve JNG30AA192, Premature Opening
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
3	1.612E-10	11.93	IE SD LOCA DD	Initiator - LOCA During Shutdown State Dd
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
4	1.612E-10	11.93	IE SD LOCA DD	Initiator - LOCA During Shutdown State Dd
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
5	1.612E-10	11.93	IE SD LOCA DD	Initiator - LOCA During Shutdown State Dd
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
6	2.686E-11	1.99	IE SD LOCA DD	Initiator - LOCA During Shutdown State Dd
			JND30AA003CIR	MHSI, MHSI Pump 30 Discharge Manual CHECK Valve JND30AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
7	2.686E-11	1.99	IE SD LOCA DD	Initiator - LOCA During Shutdown State Dd
			JND10AA003CIR	MHSI, MHSI Pump 10 Discharge Manual CHECK Valve JND10AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D

SD LOCA D E:0003 DD

No.	Freq.	%	Event	Description
8	2.686E-11	1.99	IE SD LOCA DD	Initiator - LOCA During Shutdown State Dd
			JND20AA003CIR	MHSI, MHSI Pump 20 Discharge Manual CHECK Valve JND20AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
9	2.034E-11	1.51	IE SD LOCA DD	Initiator - LOCA During Shutdown State Dd
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
10	2.034E-11	1.51	IE SD LOCA DD	Initiator - LOCA During Shutdown State Dd
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D

Minimal Cutsets

Top Event frequency F = 3.079E-09

No.	Freq.	%	Event	Description
1	4.835E-10	15.70	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
2	4.835E-10	15.70	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
3	4.835E-10	15.70	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
4	4.835E-10	15.70	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
5	8.058E-11	2.62	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JND20AA003CIR	MHSI, MHSI Pump 20 Discharge Manual CHECK Valve JND20AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
6	8.058E-11	2.62	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JND10AA003CIR	MHSI, MHSI Pump 10 Discharge Manual CHECK Valve JND10AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
7	6.103E-11	1.98	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D

SD LOCA D E:0003 DU

No.	Freq.	%	Event	Description
8	6.103E-11	1.98	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
9	6.103E-11	1.98	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
10	6.103E-11	1.98	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D

Minimal Cutsets

Top Event frequency F = 6.844E-10

No.	Freq.	%	Event	Description
1	7.599E-11	11.10	IE SD RHR CAD	Initiator - RHR in Power State CAd
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run
2	2.086E-11	3.05	IE SD RHR CAD	Initiator - RHR in Power State CAd
			KAA10AP001EFS	CCWS, Train 1 Motor Driven Pump KAA10AP001, Fails to Start on Demand
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run
3	1.670E-11	2.44	IE SD RHR CAD	Initiator - RHR in Power State CAd
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
			XKA40_____DFR	ELEC, Emergency Diesel Generator XKA40, Fails to Run
4	1.520E-11	2.22	IE SD RHR CAD	Initiator - RHR in Power State CAd
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-123	CCF of EDGs to Run
5	1.094E-11	1.60	IE SD RHR CAD	Initiator - RHR in Power State CAd
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run

SD RHR C:0012 CAD

No.	Freq.	%	Event	Description
6	1.030E-11	1.51	IE SD RHR CAD	Initiator - RHR in Power State CAd
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PEB10AP001EFS_D-234	CCF of the ESWS Pumps to Start
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
7	8.665E-12	1.27	IE SD RHR CAD	Initiator - RHR in Power State CAd
			JMQ42AA001EFO	SAHR, Active Cooling Line MOV JMQ42AA001, Fails to Open on Demand
			KAA10AP001EFRSD-ALL	CCF of the CCWS Pumps to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
8	8.665E-12	1.27	IE SD RHR CAD	Initiator - RHR in Power State CAd
			JMQ40AA001EFO	SAHR, Suction Line Containment Isolation MOV JMQ40AA001, Fails to Open on Demand
			KAA10AP001EFRSD-ALL	CCF of the CCWS Pumps to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
9	8.665E-12	1.27	IE SD RHR CAD	Initiator - RHR in Power State CAd
			JNK11AA009EFO	IRWST, SAHR Sump Containment Isolation MOV JNK11AA009, Fails to Open on Demand
			KAA10AP001EFRSD-ALL	CCF of the CCWS Pumps to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
10	8.267E-12	1.21	IE SD RHR CAD	Initiator - RHR in Power State CAd
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-123	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run

SD RHR C:0012 CBD

Minimal Cutsets

Top Event frequency F = 9.226E-10

No.	Freq.	%	Event	Description
1	1.013E-10	10.98	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run
2	2.781E-11	3.01	IE SD RHR CBD	Initiator - RHR in Power State CBd
			KAA10AP001EFS	CCWS, Train 1 Motor Driven Pump KAA10AP001, Fails to Start on Demand
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run
3	2.227E-11	2.41	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
			XKA40_____DFR	ELEC, Emergency Diesel Generator XKA40, Fails to Run
4	2.026E-11	2.20	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-123	CCF of EDGs to Run
5	1.458E-11	1.58	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run

SD RHR C:0012 CBD

No.	Freq.	%	Event	Description
6	1.374E-11	1.49	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PEB10AP001EFS_D-234	CCF of the ESWS Pumps to Start
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
7	1.155E-11	1.25	IE SD RHR CBD	Initiator - RHR in Power State CBd
			JMQ42AA001EFO	SAHR, Active Cooling Line MOV JMQ42AA001, Fails to Open on Demand
			KAA10AP001EFRSD-ALL	CCF of the CCWS Pumps to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
8	1.155E-11	1.25	IE SD RHR CBD	Initiator - RHR in Power State CBd
			JMQ40AA001EFO	SAHR, Suction Line Containment Isolation MOV JMQ40AA001, Fails to Open on Demand
			KAA10AP001EFRSD-ALL	CCF of the CCWS Pumps to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
9	1.155E-11	1.25	IE SD RHR CBD	Initiator - RHR in Power State CBd
			JNK11AA009EFO	IRWST, SAHR Sump Containment Isolation MOV JNK11AA009, Fails to Open on Demand
			KAA10AP001EFRSD-ALL	CCF of the CCWS Pumps to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
10	1.102E-11	1.19	IE SD RHR CBD	Initiator - RHR in Power State CBd
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-123	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run

SD RHR C:0012 CBU

Minimal Cutsets

Top Event frequency F = 6.848E-10

No.	Freq.	%	Event	Description
1	7.599E-11	11.10	IE SD RHR CBU	Initiator - RHR in Power State CBu
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run
2	2.086E-11	3.05	IE SD RHR CBU	Initiator - RHR in Power State CBu
			KAA10AP001EFS	CCWS, Train 1 Motor Driven Pump KAA10AP001, Fails to Start on Demand
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run
3	1.670E-11	2.44	IE SD RHR CBU	Initiator - RHR in Power State CBu
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
			XKA40_____DFR	ELEC, Emergency Diesel Generator XKA40, Fails to Run
4	1.520E-11	2.22	IE SD RHR CBU	Initiator - RHR in Power State CBu
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-123	CCF of EDGs to Run
5	1.094E-11	1.60	IE SD RHR CBU	Initiator - RHR in Power State CBu
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run

SD RHR C:0012 CBU

No.	Freq.	%	Event	Description
6	1.030E-11	1.50	IE SD RHR CBU	Initiator - RHR in Power State CBu
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PEB10AP001EFS_D-234	CCF of the ESWS Pumps to Start
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
7	8.665E-12	1.27	IE SD RHR CBU	Initiator - RHR in Power State CBu
			JMQ40AA001EFO	SAHR, Suction Line Containment Isolation MOV JMQ40AA001, Fails to Open on Demand
			KAA10AP001EFRSD-ALL	CCF of the CCWS Pumps to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
8	8.665E-12	1.27	IE SD RHR CBU	Initiator - RHR in Power State CBu
			JNK11AA009EFO	IRWST, SAHR Sump Containment Isolation MOV JNK11AA009, Fails to Open on Demand
			KAA10AP001EFRSD-ALL	CCF of the CCWS Pumps to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
9	8.665E-12	1.27	IE SD RHR CBU	Initiator - RHR in Power State CBu
			JMQ42AA001EFO	SAHR, Active Cooling Line MOV JMQ42AA001, Fails to Open on Demand
			KAA10AP001EFRSD-ALL	CCF of the CCWS Pumps to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
10	8.267E-12	1.21	IE SD RHR CBU	Initiator - RHR in Power State CBu
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-123	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run

Minimal Cutsets

Top Event frequency F = 4.513E-09

No.	Freq.	%	Event	Description
1	1.845E-09	40.89	IE SD RHR CAD	Initiator - RHR in Power State CAd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
2	2.464E-10	5.46	IE SD RHR CAD	Initiator - RHR in Power State CAd
			PEB10AP001EFS_D-ALL	CCF of the ESWS Pumps to Start
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
3	1.968E-10	4.36	IE SD RHR CAD	Initiator - RHR in Power State CAd
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			SA-ESWS UHS4 SBO	Failure of SA-ESWS/UHS4 in SBO Conditions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
4	1.504E-10	3.33	IE SD RHR CAD	Initiator - RHR in Power State CAd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFS	ELEC, SBO Diesel Generator XKA50, Fails to Start on Demand
5	1.252E-10	2.77	IE SD RHR CAD	Initiator - RHR in Power State CAd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFS_D-ALL	CCF of EDGs to Start
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
6	1.070E-10	2.37	IE SD RHR CAD	Initiator - RHR in Power State CAd
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run

SD RHR C:0015 CAD

No.	Freq.	%	Event	Description
7	9.665E-11	2.14	IE SD RHR CAD	Initiator - RHR in Power State CAd
			BTD01_BAT__ST_D -ALL	CCF of Safety Related Batteries on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
8	5.336E-11	1.18	IE SD RHR CAD	Initiator - RHR in Power State CAd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D -ALL	CCF of EDGs to Run
			XKA50_____DFR_B -ALL	CCF of SBO DGs to Run
9	4.699E-11	1.04	IE SD RHR CAD	Initiator - RHR in Power State CAd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR	ELEC, Emergency Diesel Generator XKA10, Fails to Run
			XKA10_____DFR_D -234	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
10	4.699E-11	1.04	IE SD RHR CAD	Initiator - RHR in Power State CAd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D -134	CCF of EDGs to Run
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run

Minimal Cutsets

Top Event frequency F = 2.987E-09

No.	Freq.	%	Event	Description
1	1.230E-09	41.18	IE SD RHR CAU	Initiator - RHR in Power State CAu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
2	1.642E-10	5.50	IE SD RHR CAU	Initiator - RHR in Power State CAu
			PEB10AP001EFS_D-ALL	CCF of the ESWS Pumps to Start
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
3	1.312E-10	4.39	IE SD RHR CAU	Initiator - RHR in Power State CAu
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			SA-ESWS UHS4 SBO	Failure of SA-ESWS/UHS4 in SBO Conditions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
4	1.003E-10	3.36	IE SD RHR CAU	Initiator - RHR in Power State CAu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFS	ELEC, SBO Diesel Generator XKA50, Fails to Start on Demand
5	8.346E-11	2.79	IE SD RHR CAU	Initiator - RHR in Power State CAu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFS_D-ALL	CCF of EDGs to Start
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
6	7.136E-11	2.39	IE SD RHR CAU	Initiator - RHR in Power State CAu
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run

SD RHR C:0015 CAU

No.	Freq.	%	Event	Description
7	6.444E-11	2.16	IE SD RHR CAU	Initiator - RHR in Power State CAu
			BTD01_BAT__ST_D -ALL	CCF of Safety Related Batteries on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
8	3.557E-11	1.19	IE SD RHR CAU	Initiator - RHR in Power State CAu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D -ALL	CCF of EDGs to Run
			XKA50_____DFR_B -ALL	CCF of SBO DGs to Run
9	3.133E-11	1.05	IE SD RHR CAU	Initiator - RHR in Power State CAu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D -124	CCF of EDGs to Run
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
10	3.133E-11	1.05	IE SD RHR CAU	Initiator - RHR in Power State CAu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D -134	CCF of EDGs to Run
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run

Minimal Cutsets

Top Event frequency F = 6.041E-09

No.	Freq.	%	Event	Description
1	2.461E-09	40.73	IE SD RHR CBD	Initiator - RHR in Power State CBd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
2	3.285E-10	5.44	IE SD RHR CBD	Initiator - RHR in Power State CBd
			PEB10AP001EFS_D-ALL	CCF of the ESWS Pumps to Start
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
3	2.623E-10	4.34	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			SA-ESWS UHS4 SBO	Failure of SA-ESWS/UHS4 in SBO Conditions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
4	2.005E-10	3.32	IE SD RHR CBD	Initiator - RHR in Power State CBd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFS	ELEC, SBO Diesel Generator XKA50, Fails to Start on Demand
5	1.669E-10	2.76	IE SD RHR CBD	Initiator - RHR in Power State CBd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFS_D-ALL	CCF of EDGs to Start
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
6	1.427E-10	2.36	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run

SD RHR C:0015 CBD

No.	Freq.	%	Event	Description
7	1.289E-10	2.13	IE SD RHR CBD	Initiator - RHR in Power State CBd
			BTD01_BAT__ST_D -ALL	CCF of Safety Related Batteries on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
8	7.114E-11	1.18	IE SD RHR CBD	Initiator - RHR in Power State CBd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D -ALL	CCF of EDGs to Run
			XKA50_____DFR_B -ALL	CCF of SBO DGs to Run
9	6.265E-11	1.04	IE SD RHR CBD	Initiator - RHR in Power State CBd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D -123	CCF of EDGs to Run
			XKA40_____DFR	ELEC, Emergency Diesel Generator XKA40, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
10	6.265E-11	1.04	IE SD RHR CBD	Initiator - RHR in Power State CBd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D -124	CCF of EDGs to Run
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run

Minimal Cutsets

Top Event frequency F = 4.513E-09

No.	Freq.	%	Event	Description
1	1.845E-09	40.89	IE SD RHR CBU	Initiator - RHR in Power State CBu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
2	2.464E-10	5.46	IE SD RHR CBU	Initiator - RHR in Power State CBu
			PEB10AP001EFS_D-ALL	CCF of the ESWS Pumps to Start
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
3	1.968E-10	4.36	IE SD RHR CBU	Initiator - RHR in Power State CBu
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			SA-ESWS UHS4 SBO	Failure of SA-ESWS/UHS4 in SBO Conditions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
4	1.504E-10	3.33	IE SD RHR CBU	Initiator - RHR in Power State CBu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFS	ELEC, SBO Diesel Generator XKA50, Fails to Start on Demand
5	1.252E-10	2.77	IE SD RHR CBU	Initiator - RHR in Power State CBu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFS_D-ALL	CCF of EDGs to Start
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
6	1.070E-10	2.37	IE SD RHR CBU	Initiator - RHR in Power State CBu
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run

SD RHR C:0015 CBU

No.	Freq.	%	Event	Description
7	9.665E-11	2.14	IE SD RHR CBU	Initiator - RHR in Power State CBu
			BTD01_BAT__ST_D -ALL	CCF of Safety Related Batteries on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
8	5.336E-11	1.18	IE SD RHR CBU	Initiator - RHR in Power State CBu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D -ALL	CCF of EDGs to Run
			XKA50_____DFR_B -ALL	CCF of SBO DGs to Run
9	4.699E-11	1.04	IE SD RHR CBU	Initiator - RHR in Power State CBu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D -124	CCF of EDGs to Run
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
10	4.699E-11	1.04	IE SD RHR CBU	Initiator - RHR in Power State CBu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR	ELEC, Emergency Diesel Generator XKA10, Fails to Run
			XKA10_____DFR_D -234	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run

Minimal Cutsets

Top Event frequency F = 6.401E-10

No.	Freq.	%	Event	Description
1	8.004E-11	12.50	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC31AN001EFR_D-ALL	CCF to Run Normal Air Exhaust Fans
2	8.004E-11	12.50	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC01AN001EFR_D-ALL	CCF to Run Normal Air Supply Fans
3	4.977E-11	7.77	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC31AN001EFR_D-123	CCF to Run Normal Air Exhaust Fans
4	4.977E-11	7.77	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC01AN001EFR_D-123	CCF to Run Normal Air Supply Fans
5	3.846E-11	6.01	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			QKA10AP107EFR_D-ALL	CCF of SCWS Pumps to Run
6	3.484E-11	5.44	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			QKA10AP107EFR_D-123	CCF of SCWS Pumps to Run

SD RHR C:0016 CBD

No.	Freq.	%	Event	Description
7	2.953E-11	4.61	IE SD RHR CBD	Initiator - RHR in Power State CBd
			31BTB01_BATST	ELEC, 250V Non 1E 12-hr Battery 31BTB01, Fails on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
8	1.510E-11	2.36	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFS_D-ALL	CCF of SCWS Pumps to Start
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
9	1.100E-11	1.72	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFS_D-124	CCF of SCWS Pumps to Start
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
10	7.630E-12	1.19	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC31AN001EFR_D-ALL	CCF to Run Normal Air Exhaust Fans
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour

SD RHR D:0003 DU

Minimal Cutsets

Top Event frequency F = 1.191E-09

No.	Freq.	%	Event	Description
1	1.004E-10	8.43	IE SD RHR DU	Initiator - RHR in Power State Du
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
2	9.665E-11	8.11	IE SD RHR DU	Initiator - RHR in Power State Du
			BTD01_BAT__ST_D-ALL	CCF of Safety Related Batteries on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
3	6.003E-11	5.04	IE SD RHR DU	Initiator - RHR in Power State Du
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC01AN001EFR_D-ALL	CCF to Run Normal Air Supply Fans
4	6.003E-11	5.04	IE SD RHR DU	Initiator - RHR in Power State Du
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC31AN001EFR_D-ALL	CCF to Run Normal Air Exhaust Fans
5	5.336E-11	4.48	IE SD RHR DU	Initiator - RHR in Power State Du
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR_B-ALL	CCF of SBO DGs to Run
6	4.068E-11	3.41	IE SD RHR DU	Initiator - RHR in Power State Du
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA40_____DFR	ELEC, Emergency Diesel Generator XKA40, Fails to Run

SD RHR D:0003 DU

No.	Freq.	%	Event	Description
7	3.809E-11	3.20	IE SD RHR DU	Initiator - RHR in Power State Du
			KAA10AP001EFRSD-ALL	CCF of the CCWS Pumps to Run
			OPF-LHSIRHR-DU	Operator Fails to Start LHSI Pump in DU, given a loss of RHR
8	3.192E-11	2.68	IE SD RHR DU	Initiator - RHR in Power State Du
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			JNG10AP001EFR_D-ALL	CCF of LHSI Pumps to Run
9	2.885E-11	2.42	IE SD RHR DU	Initiator - RHR in Power State Du
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			QKA10AP107EFR_D-ALL	CCF of SCWS Pumps to Run
10	2.563E-11	2.15	IE SD RHR DU	Initiator - RHR in Power State Du
			OPF-LHSIRHR-DU	Operator Fails to Start LHSI Pump in DU, given a loss of RHR
			PEB10AP001EFR_D-ALL	CCF of the ESWS Pumps to Run

SD RHR ISLOCA E:0002

Minimal Cutsets

Top Event frequency F = 7.919E-10

No.	Freq.	%	Event	Description
1	3.432E-10	43.34	IE SD RHR ISLOCA E	RHR ISLOCA During Shutdown State E
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR2 PIPE BRK	Pipe Break in RHR Train 2
2	3.432E-10	43.34	IE SD RHR ISLOCA E	RHR ISLOCA During Shutdown State E
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR1 PIPE BRK	Pipe Break in RHR Train 1
3	3.777E-11	4.77	IE SD RHR ISLOCA E	RHR ISLOCA During Shutdown State E
			JNA20AA001EFC	RHR, LHSI Pump 20 Hot Leg Isolation MOV JNA20AA001, Fails to Close on Demand
			JNA20AA002EFC	RHR, LHSI Pump 20 Hot Leg Isolation MOV JNA20AA002, Fails to Close on Demand
			RHR TR2 PIPE BRK	Pipe Break in RHR Train 2
4	3.777E-11	4.77	IE SD RHR ISLOCA E	RHR ISLOCA During Shutdown State E
			JNA10AA001EFC	RHR, LHSI Pump 10 Hot Leg Isolation MOV JNA10AA001, Fails to Close on Demand
			JNA10AA002EFC	RHR, LHSI Pump 10 Hot Leg Isolation MOV JNA10AA002, Fails to Close on Demand
			RHR TR1 PIPE BRK	Pipe Break in RHR Train 1

SD ULD CB:0003 CBD D

Minimal Cutsets

Top Event frequency F = 7.182E-09

No.	Freq.	%	Event	Description
1	3.388E-09	47.18	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			KBA14AA004EFC_B-ALL	CCF to Close CVCS Low Pressure Reducing Station MOVs
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
2	1.891E-09	26.33	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
3	6.502E-10	9.05	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
4	5.500E-10	7.66	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
			PAS	Proccess Automation System (PAS) Fails (Estimate)
5	1.891E-10	2.63	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
			PAS	Proccess Automation System (PAS) Fails (Estimate)
6	1.844E-10	2.57	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			KBA14AA004PANS	CVCS, LP Reducing Iso MOV KBA14AA004, PAC A Priority Module (Type AV42) Fails (Non-Self-Monitored)
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop

Minimal Cutsets

Top Event frequency F = 6.721E-10

No.	Freq.	%	Event	Description
1	2.758E-10	41.03	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			KBA14AA004EFC_B-ALL	CCF to Close CVCS Low Pressure Reducing Station MOVs
2	1.539E-10	22.90	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
3	5.292E-11	7.87	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
4	4.477E-11	6.66	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
			PAS	Proccess Automation System (PAS) Fails (Estimate)
5	3.481E-11	5.18	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			KBA14AA004EFC_B-ALL	CCF to Close CVCS Low Pressure Reducing Station MOVs
6	1.943E-11	2.89	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
7	1.539E-11	2.29	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
			PAS	Proccess Automation System (PAS) Fails (Estimate)

SD ULD CB:0039 CBD D

No.	Freq.	%	Event	Description
8	1.501E-11	2.23	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			KBA14AA004PANS	CVCS, LP Reducing Iso MOV KBA14AA004, PAC A Priority Module (Type AV42) Fails (Non-Self-Monitored)
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
9	6.681E-12	0.99	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
10	5.651E-12	0.84	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
			PAS	Proccess Automation System (PAS) Fails (Estimate)

SD ULD D:0003 DU D

Minimal Cutsets

Top Event frequency F = 7.182E-09

No.	Freq.	%	Event	Description
1	3.388E-09	47.18	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			KBA14AA004EFC_B-ALL	CCF to Close CVCS Low Pressure Reducing Station MOVs
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
2	1.891E-09	26.33	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
3	6.502E-10	9.05	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
4	5.500E-10	7.66	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
			PAS	Proccess Automation System (PAS) Fails (Estimate)
5	1.891E-10	2.63	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
			PAS	Proccess Automation System (PAS) Fails (Estimate)
6	1.844E-10	2.57	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			KBA14AA004PANS	CVCS, LP Reducing Iso MOV KBA14AA004, PAC A Priority Module (Type AV42) Fails (Non-Self-Monitored)
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop

SD ULD D:0006 DU D

Minimal Cutsets

Top Event frequency F = 6.740E-10

No.	Freq.	%	Event	Description
1	2.758E-10	40.91	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			KBA14AA004EFC_B-ALL	CCF to Close CVCS Low Pressure Reducing Station MOVs
2	1.539E-10	22.84	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
3	5.292E-11	7.85	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
4	4.477E-11	6.64	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
			PAS	Proccess Automation System (PAS) Fails (Estimate)
5	3.481E-11	5.16	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			KBA14AA004EFC_B-ALL	CCF to Close CVCS Low Pressure Reducing Station MOVs
6	1.943E-11	2.88	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
7	1.539E-11	2.28	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
			PAS	Proccess Automation System (PAS) Fails (Estimate)

SD ULD D:0006 DU D

No.	Freq.	%	Event	Description
8	1.501E-11	2.23	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			KBA14AA004PANS	CVCS, LP Reducing Iso MOV KBA14AA004, PAC A Priority Module (Type AV42) Fails (Non-Self-Monitored)
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
9	6.681E-12	0.99	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
10	5.651E-12	0.84	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
			PAS	Proccess Automation System (PAS) Fails (Estimate)

Response to
Request for Additional Information No. 227

Question 19-285
Appendix B
Top 200 Core Damage Cutsets

Minimal Cutsets

Top Event probability Q = 2.886E-07

No.	Prob.	%	Event	Description
1	1.220E-08	4.23	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Start
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
2	1.148E-08	3.98	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
3	1.148E-08	3.98	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
4	6.822E-09	2.36	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
5	6.659E-09	2.31	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			LBA13AA001PFO_D-ALL	CCF to Open Main Steam Relief Isolation Valves
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
6	6.178E-09	2.14	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves
7	5.594E-09	1.94	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D-ALL	CCF of Safety Related Batteries on Demand
8	5.000E-09	1.73	IE SLBI	Initiator - Steam Break Inside Containment
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
9	3.936E-09	1.36	IE SGTR	Initiator - Steam Generator Tube Rupture
			LBA40AA002PFC	MSS, Train 4 Main Steam Isolation Valve LBA40AA002, Fails to Close on Demand
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours
10	3.932E-09	1.36	IE LOMFW	Initiator - Total Loss of Main Feedwater
			STUCK ROD	Stuck Control Rods
11	3.388E-09	1.17	IE SGTR	Initiator - Steam Generator Tube Rupture
			LBA43AA101EFC	MSS, Train 4 MSRCV LBA43AA101, Fails to Close on Demand
			OPD-RHR4H/SGTR1H	Dependency (MED) Between Operator Actions for Stabilizing SGTR and Initiating RHR
			OPF-SGTR-1H	Operator Fails to Isolate SGTR and Initiate Cooldown

No.	Prob.	%	Event	Description
12	3.325E-09	1.15	IE LOC	Initiator - Loss of Main Condenser (Includes MSIV Closure etc.)
			STUCK ROD	Stuck Control Rods
13	2.715E-09	0.94	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Start
14	2.555E-09	0.89	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
15	2.555E-09	0.89	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
16	2.269E-09	0.79	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			MSRIVSCPFO_P-ALL	CCF to Open Main Steam Relief Isolation Pneumatic Pilot Valves
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
17	2.083E-09	0.72	IE LBOP	Initiator - Loss of Balance of Plant - Closed Loop Cooling Water or Aux Cooling Water
			STUCK ROD	Stuck Control Rods
18	1.854E-09	0.64	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
19	1.848E-09	0.64	IE LOOP	Initiator - Loss Of Offsite Power
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
20	1.756E-09	0.61	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
21	1.652E-09	0.57	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FR	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
22	1.652E-09	0.57	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
23	1.540E-09	0.53	IE LOOP	Initiator - Loss Of Offsite Power
			31BTD01_BATST	ELEC, 250V 1E 2-hr Battery 31BTD01, Fails on Demand
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
24	1.540E-09	0.53	IE LOOP	Initiator - Loss Of Offsite Power
			34BTD01_BATST	ELEC, 250V 1E 2-hr Battery 34BTD01, Fails on Demand
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
25	1.359E-09	0.47	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM1	EFWS Train 1 Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
26	1.359E-09	0.47	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM4	EFWS Train 4 Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
27	1.359E-09	0.47	IE LOOP	Initiator - Loss Of Offsite Power
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SBODG8 PM4	SBO-DG Train 4 Unavailable due to Preventive Maintenance
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
28	1.359E-09	0.47	IE LOOP	Initiator - Loss Of Offsite Power
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SBODG5 PM1	SBO-DG Train 1 Unavailable due to Preventive Maintenance
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
29	1.222E-09	0.42	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			SAHR PM4	SAHR Train Unavailable due to Preventive Maintenance
30	1.212E-09	0.42	IE IND SGTR	Initiator - Induced Steam Generator Tube Rupture
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours

No.	Prob.	%	Event	Description
31	1.023E-09	0.35	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			SAHR PM4	SAHR Train Unavailable due to Preventive Maintenance
32	9.820E-10	0.34	IE LOOP	Initiator - Loss Of Offsite Power
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR_B-ALL	CCF of SBO DGs to Run
33	9.116E-10	0.32	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFS	SCWS, Train 1 Motor Driven Safety Chiller Pump QKA10AP107, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
34	9.116E-10	0.32	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40AP107EFS	SCWS, Train 4 Motor Driven Safety Chiller Pump QKA40AP107, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
35	8.970E-10	0.31	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
36	8.970E-10	0.31	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
37	8.810E-10	0.31	IE LBOP	Initiator - Loss of Balance of Plant - Closed Loop Cooling Water or Aux Cooling Water
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01AN001EFR_D-ALL	CCF to Run Normal Air Supply Fans
38	8.810E-10	0.31	IE LBOP	Initiator - Loss of Balance of Plant - Closed Loop Cooling Water or Aux Cooling Water
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC31AN001EFR_D-ALL	CCF to Run Normal Air Exhaust Fans
39	8.294E-10	0.29	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JND10AP001EFS_D-ALL	CCF of MHSI Pumps to Start
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
40	8.256E-10	0.29	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			SAC31AN001EFR	SAC, Normal Air Exhaust Fan SAC31AN001, Fails to Run

No.	Prob.	%	Event	Description
41	8.256E-10	0.29	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC04AN001EFR	SAC, Normal Air Supply Fan SAC04AN001, Fails to Run
42	8.256E-10	0.29	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC34AN001EFR	SAC, Normal Air Exhaust Fan SAC34AN001, Fails to Run
43	8.256E-10	0.29	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01AN001EFR	SAC, Normal Air Supply Fan SAC01AN001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
44	7.943E-10	0.28	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001PANS	SCWS, Train 4 Chiller Unit QKA40GH001, PAC A Priority Module (Type AV42) Fails (Non-Self-Monitored)
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
45	7.943E-10	0.28	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001PANS	SCWS, Train 1 Chiller Unit QKA10GH001, PAC A Priority Module (Type AV42) Fails (Non-Self-Monitored)
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
46	7.856E-10	0.27	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
47	7.856E-10	0.27	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
48	7.798E-10	0.27	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged

No.	Prob.	%	Event	Description
49	7.747E-10	0.27	IE LOOP	Initiator - Loss Of Offsite Power
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
50	7.747E-10	0.27	IE LOOP	Initiator - Loss Of Offsite Power
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
51	7.564E-10	0.26	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			MSRIVSOOFO_P-ALL	CCF to Open Main Steam Relief Isolation Solenoid Pilot Valves
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
52	7.519E-10	0.26	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
53	6.774E-10	0.23	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
			STUCK ROD	Stuck Control Rods
54	6.723E-10	0.23	IE SLBI	Initiator - Steam Break Inside Containment
			SG4 PRES CCF-ALL	CCF of SG4 pressure sensors
55	6.074E-10	0.21	IE LOOP	Initiator - Loss Of Offsite Power
			CL-TXS-OSCCF	SW CCF of TXS operating system or multiple diversity groups
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
56	5.622E-10	0.19	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40AP107EFR	SCWS, Train 4 Motor Driven Safety Chiller Pump QKA40AP107, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
57	5.622E-10	0.19	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFR	SCWS, Train 1 Motor Driven Safety Chiller Pump QKA10AP107, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
58	5.358E-10	0.19	IE SLBO	Initiator - Steam Break Downstream of MSIV
			LBA10AA002PFC_D-ALL	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)

No.	Prob.	%	Event	Description
59	5.237E-10	0.18	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			EDG PM3	EDG Train 3 Unavailable due to Preventive Maintenance
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
60	5.237E-10	0.18	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			EDG PM2	EDG Train 2 Unavailable due to Preventive Maintenance
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
61	5.016E-10	0.17	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC34AN001EFS	SAC, Normal Air Exhaust Fan SAC34AN001, Fails to Start on Demand
62	5.016E-10	0.17	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			SAC31AN001EFS	SAC, Normal Air Exhaust Fan SAC31AN001, Fails to Start on Demand
63	5.016E-10	0.17	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC04AN001EFS	SAC, Normal Air Supply Fan SAC04AN001, Fails to Start on Demand
64	5.016E-10	0.17	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01AN001EFS	SAC, Normal Air Supply Fan SAC01AN001, Fails to Start on Demand
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
65	4.979E-10	0.17	IE SLBO	Initiator - Steam Break Downstream of MSIV
			LBA10AA002PFC_D-234	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
66	4.979E-10	0.17	IE SLBO	Initiator - Steam Break Downstream of MSIV
			LBA10AA002PFC_D-124	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
67	4.979E-10	0.17	IE SLBO	Initiator - Steam Break Downstream of MSIV
			LBA10AA002PFC_D-123	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)

No.	Prob.	%	Event	Description
68	4.979E-10	0.17	IE SLBO	Initiator - Steam Break Downstream of MSIV
			LBA10AA002PFC_D-134	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
69	4.321E-10	0.15	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JND10AP001EFR_D-124	CCF of MHSI Pumps to Run
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
70	4.321E-10	0.15	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JND10AP001EFR_D-134	CCF of MHSI Pumps to Run
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
71	4.234E-10	0.15	IE LBOP	Initiator - Loss of Balance of Plant - Closed Loop Cooling Water or Aux Cooling Water
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFR_D-ALL	CCF of SCWS Pumps to Run
72	4.215E-10	0.15	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM4	EFWS Train 4 Unavailable due to Preventive Maintenance
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
73	4.215E-10	0.15	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM1	EFWS Train 1 Unavailable due to Preventive Maintenance
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
74	4.180E-10	0.14	IE SLBI	Initiator - Steam Break Inside Containment
			SG4 PRES CCF-124	CCF of SG4 pressure sensors
75	4.180E-10	0.14	IE SLBI	Initiator - Steam Break Inside Containment
			SG4 PRES CCF-234	CCF of SG4 pressure sensors
76	4.180E-10	0.14	IE SLBI	Initiator - Steam Break Inside Containment
			SG4 PRES CCF-134	CCF of SG4 pressure sensors
77	4.180E-10	0.14	IE SLBI	Initiator - Steam Break Inside Containment
			SG4 PRES CCF-123	CCF of SG4 pressure sensors
78	4.126E-10	0.14	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand

No.	Prob.	%	Event	Description
79	4.112E-10	0.14	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
80	4.034E-10	0.14	IE LOOP	Initiator - Loss Of Offsite Power
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
81	4.034E-10	0.14	IE LOOP	Initiator - Loss Of Offsite Power
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
82	3.959E-10	0.14	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			BTD01_BAT__ST_D-ALL	CCF of Safety Related Batteries on Demand
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
83	3.908E-10	0.14	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Run
84	3.746E-10	0.13	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-XTLDSBO-2H	Operator Fails to Connect and Load SBO DGs to Div 1 and 4
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
85	3.677E-10	0.13	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
86	3.677E-10	0.13	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FR	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Run
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
87	3.632E-10	0.13	IE LOOP	Initiator - Loss Of Offsite Power
			34BNB01___RFR	ELEC, 480V AC to 24V DC Rectifier for MCC 34BNB01 Control Power, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
88	3.632E-10	0.13	IE LOOP	Initiator - Loss Of Offsite Power
			31BNB01___RFR	ELEC, 480V AC to 24V DC Rectifier for MCC 31BNB01 Control Power, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
89	3.620E-10	0.13	IE LOOP	Initiator - Loss Of Offsite Power
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
90	3.620E-10	0.13	IE LOOP	Initiator - Loss Of Offsite Power
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
91	3.620E-10	0.13	IE LOOP	Initiator - Loss Of Offsite Power
			JEB20AA020EFC	RCP Seal, RCP2 Seal Nitrogen Venting Isolation MOV JEB20AA020, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
92	3.620E-10	0.13	IE LOOP	Initiator - Loss Of Offsite Power
			JEB10AA020EFC	RCP Seal, RCP1 Seal Nitrogen Venting Isolation MOV JEB10AA020, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
93	3.620E-10	0.13	IE LOOP	Initiator - Loss Of Offsite Power
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
94	3.620E-10	0.13	IE LOOP	Initiator - Loss Of Offsite Power
			JEB20AA010EFC	RCP, RCP2 Leakoff Isolation MOV JEB20AA010, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run

No.	Prob.	%	Event	Description
95	3.620E-10	0.13	IE LOOP	Initiator - Loss Of Offsite Power
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
96	3.620E-10	0.13	IE LOOP	Initiator - Loss Of Offsite Power
			JEB10AA010EFC	RCP, RCP1 Leakoff Isolation MOV JEB10AA010, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
97	3.606E-10	0.12	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
98	3.467E-10	0.12	IE LOMFW	Initiator - Total Loss of Main Feedwater
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Start
99	3.428E-10	0.12	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			31BTD01_BATST	ELEC, 250V 1E 2-hr Battery 31BTD01, Fails on Demand
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
100	3.428E-10	0.12	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			34BTD01_BATST	ELEC, 250V 1E 2-hr Battery 34BTD01, Fails on Demand
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
101	3.342E-10	0.12	IE SLBI	Initiator - Steam Break Inside Containment
			ALU-B CCF NS-ALL	CCF of ALU-B Protection System Computer Processors (Non-Self-Monitored)
102	3.342E-10	0.12	IE SLBI	Initiator - Steam Break Inside Containment
			APU4 CCF NS-ALL	CCF of APU-4 Protection System Computer Processors (Non-Self-Monitored)

No.	Prob.	%	Event	Description
103	3.341E-10	0.12	IE LOOP	Initiator - Loss Of Offsite Power
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			LAS21AP001EFR	EFWS, Train 2 Motor Driven Pump LAS21AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
104	3.341E-10	0.12	IE LOOP	Initiator - Loss Of Offsite Power
			LAS31AP001EFR	EFWS, Train 3 Motor Driven Pump LAS31AP001, Fails to Run
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
105	3.326E-10	0.12	IE LOMFW	Initiator - Total Loss of Main Feedwater
			CF LOMFW/SSS	Common Factor LOMFW/SSS
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC31AN001EFR_D-ALL	CCF to Run Normal Air Exhaust Fans
106	3.326E-10	0.12	IE LOMFW	Initiator - Total Loss of Main Feedwater
			CF LOMFW/SSS	Common Factor LOMFW/SSS
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01AN001EFR_D-ALL	CCF to Run Normal Air Supply Fans
107	3.262E-10	0.11	IE LOMFW	Initiator - Total Loss of Main Feedwater
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
108	3.262E-10	0.11	IE LOMFW	Initiator - Total Loss of Main Feedwater
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
109	3.024E-10	0.10	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			EFWS PM4	EFWS Train 4 Unavailable due to Preventive Maintenance
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
110	3.024E-10	0.10	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			SBODG5 PM1	SBO-DG Train 1 Unavailable due to Preventive Maintenance
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run

No.	Prob.	%	Event	Description
111	3.024E-10	0.10	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			SBODG8 PM4	SBO-DG Train 4 Unavailable due to Preventive Maintenance
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
112	3.024E-10	0.10	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			EFWS PM1	EFWS Train 1 Unavailable due to Preventive Maintenance
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
113	2.966E-10	0.10	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM1	EFWS Train 1 Unavailable due to Preventive Maintenance
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
114	2.966E-10	0.10	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM4	EFWS Train 4 Unavailable due to Preventive Maintenance
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
115	2.966E-10	0.10	IE LOOP	Initiator - Loss Of Offsite Power
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SBODG5 PM1	SBO-DG Train 1 Unavailable due to Preventive Maintenance
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
116	2.966E-10	0.10	IE LOOP	Initiator - Loss Of Offsite Power
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SBODG8 PM4	SBO-DG Train 4 Unavailable due to Preventive Maintenance
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
117	2.932E-10	0.10	IE LOC	Initiator - Loss of Main Condenser (Includes MSIV Closure etc.)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Start
118	2.881E-10	0.10	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JND10AP001EFR_D-124	CCF of MHSI Pumps to Run
			MHSI PM3	MHSI Train 3 Unavailable due to Preventive Maintenance
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
119	2.881E-10	0.10	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			MHSI PM4	MHSI Train 4 Unavailable due to Preventive Maintenance
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA

No.	Prob.	%	Event	Description
120	2.881E-10	0.10	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JND10AP001EFR_D-234	CCF of MHSI Pumps to Run
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
121	2.881E-10	0.10	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JND10AP001EFR_D-134	CCF of MHSI Pumps to Run
			MHSI PM2	MHSI Train 2 Unavailable due to Preventive Maintenance
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
122	2.876E-10	0.10	IE LBOP	Initiator - Loss of Balance of Plant - Closed Loop Cooling Water or Aux Cooling Water
			LAS11AP001EFS_D-ALL	CCF of EFWS Pumps to Start
			OPE-FB-90M	Operator Fails to Initiate Feed & Bleed for Transient
123	2.832E-10	0.10	IE SGTR	Initiator - Steam Generator Tube Rupture
			LBA40AA002POP	MSS, Train 4 Main Steam Isolation Valve LBA40AA002, Fails to Remain Closed (SO)
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours
124	2.759E-10	0.10	IE LOC	Initiator - Loss of Main Condenser (Includes MSIV Closure etc.)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
125	2.759E-10	0.10	IE LOC	Initiator - Loss of Main Condenser (Includes MSIV Closure etc.)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
126	2.726E-10	0.09	IE LOOP	Initiator - Loss Of Offsite Power
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
127	2.726E-10	0.09	IE LOOP	Initiator - Loss Of Offsite Power
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
128	2.669E-10	0.09	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			QKA40GH001_FR	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours

No.	Prob.	%	Event	Description
129	2.669E-10	0.09	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
130	2.576E-10	0.09	IE SLBI	Initiator - Steam Break Inside Containment
			LBA10AA002PFC_D-ALL	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
131	2.576E-10	0.09	IE MSSV	Initiator - Spurious Opening of Steam Safety Valve
			LBA10AA002PFC_D-ALL	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
132	2.574E-10	0.09	IE SGTR	Initiator - Steam Generator Tube Rupture
			LBA41AA191SPO	MSS, Train 4 Main Steam Safety Relief Valve LBA41AA191, Premature Opening
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours
133	2.574E-10	0.09	IE SGTR	Initiator - Steam Generator Tube Rupture
			LBA42AA191SPO	MSS, Train 4 Main Steam Safety Relief Valve LBA42AA191, Premature Opening
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours
134	2.488E-10	0.09	IE LOOP	Initiator - Loss Of Offsite Power
			31BTD01_BATST	ELEC, 250V 1E 2-hr Battery 31BTD01, Fails on Demand
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
135	2.488E-10	0.09	IE LOOP	Initiator - Loss Of Offsite Power
			34BTD01_BATST	ELEC, 250V 1E 2-hr Battery 34BTD01, Fails on Demand
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
136	2.446E-10	0.08	IE LBOP	Initiator - Loss of Balance of Plant - Closed Loop Cooling Water or Aux Cooling Water
			LAS11AP001EFR_D-ALL	CCF of EFWS Pumps to Run
			OPE-FB-90M	Operator Fails to Initiate Feed & Bleed for Transient
137	2.394E-10	0.08	IE MSSV	Initiator - Spurious Opening of Steam Safety Valve
			LBA10AA002PFC_D-124	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
138	2.394E-10	0.08	IE SLBI	Initiator - Steam Break Inside Containment
			LBA10AA002PFC_D-234	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
139	2.394E-10	0.08	IE MSSV	Initiator - Spurious Opening of Steam Safety Valve
			LBA10AA002PFC_D-134	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)

No.	Prob.	%	Event	Description
140	2.394E-10	0.08	IE MSSV	Initiator - Spurious Opening of Steam Safety Valve
			LBA10AA002PFC_D-234	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
141	2.394E-10	0.08	IE SLBI	Initiator - Steam Break Inside Containment
			LBA10AA002PFC_D-124	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
142	2.394E-10	0.08	IE SLBI	Initiator - Steam Break Inside Containment
			LBA10AA002PFC_D-134	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
143	2.360E-10	0.08	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFS_D-14	CCF of SCWS Pumps to Start
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
144	2.288E-10	0.08	IE SLBO	Initiator - Steam Break Downstream of MSIV
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
145	2.260E-10	0.08	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D-124	CCF of Safety Related Batteries on Demand
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
146	2.260E-10	0.08	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D-134	CCF of Safety Related Batteries on Demand
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
147	2.189E-10	0.08	IE LOCCW-ALL	Initiator - Loss of CCWS/ESWS - Total Loss of 4 Divisions
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
148	2.189E-10	0.08	IE LOCCW-ALL	Initiator - Loss of CCWS/ESWS - Total Loss of 4 Divisions
			JEB10AA020EFC	RCP Seal, RCP1 Seal Nitrogen Venting Isolation MOV JEB10AA020, Fails to Close on Demand
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
149	2.189E-10	0.08	IE LOCCW-ALL	Initiator - Loss of CCWS/ESWS - Total Loss of 4 Divisions
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
150	2.189E-10	0.08	IE LOCCW-ALL	Initiator - Loss of CCWS/ESWS - Total Loss of 4 Divisions
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
151	2.189E-10	0.08	IE LOCCW-ALL	Initiator - Loss of CCWS/ESWS - Total Loss of 4 Divisions
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
152	2.189E-10	0.08	IE LOCCW-ALL	Initiator - Loss of CCWS/ESWS - Total Loss of 4 Divisions
			JEB10AA010EFC	RCP, RCP1 Leakoff Isolation MOV JEB10AA010, Fails to Close on Demand
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
153	2.189E-10	0.08	IE LOCCW-ALL	Initiator - Loss of CCWS/ESWS - Total Loss of 4 Divisions
			JEB20AA020EFC	RCP Seal, RCP2 Seal Nitrogen Venting Isolation MOV JEB20AA020, Fails to Close on Demand
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
154	2.189E-10	0.08	IE LOCCW-ALL	Initiator - Loss of CCWS/ESWS - Total Loss of 4 Divisions
			JEB20AA010EFC	RCP, RCP2 Leakoff Isolation MOV JEB20AA010, Fails to Close on Demand
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
155	2.186E-10	0.08	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR_B-ALL	CCF of SBO DGs to Run
156	2.085E-10	0.07	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFS_D-ALL	CCF of SCWS Pumps to Start
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
157	2.029E-10	0.07	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFS	SCWS, Train 1 Motor Driven Safety Chiller Pump QKA10AP107, Fails to Start on Demand
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
158	2.029E-10	0.07	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40AP107EFS	SCWS, Train 4 Motor Driven Safety Chiller Pump QKA40AP107, Fails to Start on Demand
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
159	1.997E-10	0.07	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC31AN001EFR_D-14	CCF to Run Normal Air Exhaust Fans

No.	Prob.	%	Event	Description
160	1.997E-10	0.07	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01AN001EFR_D-14	CCF to Run Normal Air Supply Fans
161	1.837E-10	0.06	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			SAC31AN001EFR	SAC, Normal Air Exhaust Fan SAC31AN001, Fails to Run
162	1.837E-10	0.06	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC34AN001EFR	SAC, Normal Air Exhaust Fan SAC34AN001, Fails to Run
163	1.837E-10	0.06	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC04AN001EFR	SAC, Normal Air Supply Fan SAC04AN001, Fails to Run
164	1.837E-10	0.06	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01AN001EFR	SAC, Normal Air Supply Fan SAC01AN001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
165	1.837E-10	0.06	IE LBOP	Initiator - Loss of Balance of Plant - Closed Loop Cooling Water or Aux Cooling Water
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Start
166	1.817E-10	0.06	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM3	EFWS Train 3 Unavailable due to Preventive Maintenance
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
167	1.817E-10	0.06	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM4	EFWS Train 4 Unavailable due to Preventive Maintenance
			LAS31AP001EFR	EFWS, Train 3 Motor Driven Pump LAS31AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours

No.	Prob.	%	Event	Description
168	1.817E-10	0.06	IE LOOP	Initiator - Loss Of Offsite Power
			EDG PM2	EDG Train 2 Unavailable due to Preventive Maintenance
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
169	1.817E-10	0.06	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM1	EFWS Train 1 Unavailable due to Preventive Maintenance
			LAS21AP001EFR	EFWS, Train 2 Motor Driven Pump LAS21AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
170	1.817E-10	0.06	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM2	EFWS Train 2 Unavailable due to Preventive Maintenance
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
171	1.817E-10	0.06	IE LOOP	Initiator - Loss Of Offsite Power
			EDG PM3	EDG Train 3 Unavailable due to Preventive Maintenance
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
172	1.797E-10	0.06	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			XKA10_____DFR	ELEC, Emergency Diesel Generator XKA10, Fails to Run
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
173	1.797E-10	0.06	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
			XKA40_____DFR	ELEC, Emergency Diesel Generator XKA40, Fails to Run
174	1.768E-10	0.06	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001PANS	SCWS, Train 1 Chiller Unit QKA10GH001, PAC A Priority Module (Type AV42) Fails (Non-Self-Monitored)
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
175	1.768E-10	0.06	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001PANS	SCWS, Train 4 Chiller Unit QKA40GH001, PAC A Priority Module (Type AV42) Fails (Non-Self-Monitored)
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
176	1.728E-10	0.06	IE LBOP	Initiator - Loss of Balance of Plant - Closed Loop Cooling Water or Aux Cooling Water
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
177	1.728E-10	0.06	IE LBOP	Initiator - Loss of Balance of Plant - Closed Loop Cooling Water or Aux Cooling Water
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
178	1.724E-10	0.06	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
179	1.724E-10	0.06	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
180	1.721E-10	0.06	IE MLOCA	Initiator - Medium Break LOCA (3 to 6-Inch Diameter)
			JNG13AA005CFO_D-123	CCF to Open LHSI/MHSI Common Injection Check Valves
181	1.705E-10	0.06	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40AP107EEL	SCWS, Train 4 Motor Driven Safety Chiller Pump QKA40AP107, External Leakage
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
182	1.705E-10	0.06	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EEL	SCWS, Train 1 Motor Driven Safety Chiller Pump QKA10AP107, External Leakage
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
183	1.698E-10	0.06	IE LOOP	Initiator - Loss Of Offsite Power
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			LBA11AA191SFO_H-ALL	CCF to Open Main Steam Safety Relief Valves
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
184	1.698E-10	0.06	IE LOOP	Initiator - Loss Of Offsite Power
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			LBA11AA191SFO_H-ALL	CCF to Open Main Steam Safety Relief Valves
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
185	1.667E-10	0.06	IE LOCCW-CH1L	Initiator - Loss of CCWS/ESWS - Leak in Common Header 1
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			LOOPCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to a Controlled Shutdown
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
186	1.598E-10	0.06	IE LOMFW	Initiator - Total Loss of Main Feedwater
			CF LOMFW/SSS	Common Factor LOMFW/SSS
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFR_D-ALL	CCF of SCWS Pumps to Run
187	1.520E-10	0.05	IE SGTR	Initiator - Steam Generator Tube Rupture
			34BRA_____RFR	ELEC, 480V AC to 24V DC Rectifier for MCC 34BRA Control Power, Fails to Run
			OPD-RHR4H/SGTR1H	Dependency (MED) Between Operator Actions for Stabilizing SGTR and Initiating RHR
			OPF-SGTR-1H	Operator Fails to Isolate SGTR and Initiate Cooldown
188	1.518E-10	0.05	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFS_D-134	CCF of SCWS Pumps to Start
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
189	1.518E-10	0.05	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFS_D-124	CCF of SCWS Pumps to Start
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
190	1.507E-10	0.05	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D-134	CCF of Safety Related Batteries on Demand
			EDG PM2	EDG Train 2 Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
191	1.507E-10	0.05	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D-134	CCF of Safety Related Batteries on Demand
			LHSI PM2	LHSI Train 2 Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours

No.	Prob.	%	Event	Description
192	1.507E-10	0.05	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D-134	CCF of Safety Related Batteries on Demand
			MHSI PM2	MHSI Train 2 Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
193	1.507E-10	0.05	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D-124	CCF of Safety Related Batteries on Demand
			MHSI PM3	MHSI Train 3 Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
194	1.507E-10	0.05	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D-124	CCF of Safety Related Batteries on Demand
			LHSI PM3	LHSI Train 3 Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
195	1.507E-10	0.05	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D-124	CCF of Safety Related Batteries on Demand
			EDG PM3	EDG Train 3 Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
196	1.506E-10	0.05	IE LOOP	Initiator - Loss Of Offsite Power
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFS	ELEC, SBO Diesel Generator XKA50, Fails to Start on Demand
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
197	1.506E-10	0.05	IE LOOP	Initiator - Loss Of Offsite Power
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
			XKA80_____DFS	ELEC, SBO Diesel Generator XKA80, Fails to Start on Demand
198	1.475E-10	0.05	IE LOOP	Initiator - Loss Of Offsite Power
			LAS11AP001EFR_D-12	CCF of EFWS Pumps to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
199	1.475E-10	0.05	IE LOOP	Initiator - Loss Of Offsite Power
			LAS11AP001EFR_D-34	CCF of EFWS Pumps to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
200	1.472E-10	0.05	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			PED10AN001EFR_D-ALL	CCF to Run Normally Running Cooling Tower Fans
			SAHR PM4	SAHR Train Unavailable due to Preventive Maintenance

Minimal Cutsets

Top Event probability Q = 1.763E-07

No.	Prob.	%	Event	Description
1	2.626E-08	14.90	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours
2	2.520E-08	14.30	IE FIRE-MCR	Initiator - Fire in the Main Control Room
			OPE-MCR-RSS-90M	Operator Fails to Transfer to the RSS in 90 Mins Given A MCR Fire
3	7.800E-09	4.43	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
4	6.133E-09	3.48	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BRA_____RFR	ELEC, 480V AC to 24V DC Rectifier for MCC 31BRA Control Power, Fails to Run
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
5	6.133E-09	3.48	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BRA_____RFR	ELEC, 480V AC to 24V DC Rectifier for MCC 32BRA Control Power, Fails to Run
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
6	4.320E-09	2.45	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
7	2.880E-09	1.63	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			EDG PM2	EDG Train 2 Unavailable due to Preventive Maintenance
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
8	2.808E-09	1.59	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
9	1.983E-09	1.12	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
10	1.485E-09	0.84	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			LBA13AA001PFO_D-ALL	CCF to Open Main Steam Relief Isolation Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
11	9.600E-10	0.54	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BDB_____OFL	ELEC, 6.9kV SWGR 31BDB, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
12	9.600E-10	0.54	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BMB_____OFL	ELEC, 480V Load Center 31BMB, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
13	9.600E-10	0.54	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BMB_____OFL	ELEC, 480V Load Center 32BMB, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
14	9.600E-10	0.54	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BDC_____OFL	ELEC, 6.9kV SWGR 31BDC, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
15	9.600E-10	0.54	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BMT02___TFL	ELEC, 6.9kV-480V Transformer 31BMT02, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
16	9.600E-10	0.54	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BRA_____OFL	ELEC, 480V MCC 32BRA, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
17	9.600E-10	0.54	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BRA_____OFL	ELEC, 480V MCC 31BRA, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
18	9.600E-10	0.54	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BMT02___TFL	ELEC, 6.9kV-480V Transformer 32BMT02, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
19	9.600E-10	0.54	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BDA_____OFL	ELEC, 6.9kV Switchgear 31BDA, Fails During Operation
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
20	9.600E-10	0.54	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BDB_____OFL	ELEC, 6.9kV SWGR 32BDB, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
21	9.600E-10	0.54	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			BRW32BUW33OFL	ELEC, 24V DC I&C Power Rack 32BRW32/32BUW33, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
22	9.600E-10	0.54	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			BRW10BUW11OFL	ELEC, 24V DC I&C Power Rack 31BRW10/31BUW11, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
23	8.963E-10	0.51	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Run
24	8.854E-10	0.50	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
25	8.433E-10	0.48	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
26	8.433E-10	0.48	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			SAC03/QKA30 PM3	Normal SAC03/QKA30 Train Unavailable due to Preventive Maintenance
27	8.433E-10	0.48	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA20GH001_FR	SCWS, Train 2 Chiller Unit QKA20GH001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
28	8.433E-10	0.48	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FR	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Run
			SAC02/QKA20 PM2	Normal SAC02/QKA20 Train Unavailable due to Preventive Maintenance
29	8.433E-10	0.48	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA30GH001_FR	SCWS, Train 3 Chiller Unit QKA30GH001, Fails to Run
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
30	8.433E-10	0.48	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FR	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Run
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
31	7.412E-10	0.42	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
32	7.052E-10	0.40	IE FIRE-PZR	Initiator - Fire in the Pressurizer Compartment With Spurious Opening of 1 PSRV
			LBA13AA001PFO_D-ALL	CCF to Open Main Steam Relief Isolation Valves
33	6.948E-10	0.39	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			LBA13AA001PFO_D-124	CCF to Open Main Steam Relief Isolation Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
34	6.297E-10	0.36	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			LBA10AA002PFC	MSS, Train 1 Main Steam Isolation Valve LBA10AA002, Fails to Close on Demand
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
35	6.297E-10	0.36	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			LBA20AA002PFC	MSS, Train 2 Main Steam Isolation Valve LBA20AA002, Fails to Close on Demand
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
36	5.760E-10	0.33	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			LOOP24+REC	Loss Of Offsite Power During Mission Time and Failure of Recovery Within 1 Hour
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
37	5.760E-10	0.33	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			EDG PM1	EDG Train 1 Unavailable due to Preventive Maintenance
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
38	5.755E-10	0.33	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
39	5.736E-10	0.33	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
40	5.059E-10	0.29	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			MSRIVSCPFO_P-ALL	CCF to Open Main Steam Relief Isolation Pneumatic Pilot Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
41	4.818E-10	0.27	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
42	4.800E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BDA_____OFL	ELEC, 6.9kV SWGR 32BDA, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
43	4.780E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			JNG13AA005CFO_D-123	CCF to Open LHSI/MHSI Common Injection Check Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
44	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB03NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB01NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
45	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB01NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB03NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
46	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB01NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB03NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
47	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB03NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB01NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
48	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB03NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB02NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
49	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB01NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB01NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
50	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB02NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB02NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
51	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB02NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB01NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
52	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB02NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB03NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
53	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB01NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB02NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
54	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB03NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB03NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
55	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB02NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB03NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
56	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB01NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB01NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
57	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB03NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB02NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
58	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB03NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB03NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
59	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB02NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB02NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
60	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB01NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB02NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
61	4.697E-10	0.27	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB02NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB01NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
62	4.609E-10	0.26	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PED10AN002EFS_D-123	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
63	4.535E-10	0.26	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
64	4.214E-10	0.24	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC33AN001EFR	SAC, Normal Air Exhaust Fan SAC33AN001, Fails to Run
65	4.214E-10	0.24	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			SAC32AN001EFR	SAC, Normal Air Exhaust Fan SAC32AN001, Fails to Run
66	4.214E-10	0.24	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC04AN001EFR	SAC, Normal Air Supply Fan SAC04AN001, Fails to Run
67	4.214E-10	0.24	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC34AN001EFR	SAC, Normal Air Exhaust Fan SAC34AN001, Fails to Run
68	4.214E-10	0.24	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC03AN001EFR	SAC, Normal Air Supply Fan SAC03AN001, Fails to Run
69	4.214E-10	0.24	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC02/QKA20 PM2	Normal SAC02/QKA20 Train Unavailable due to Preventive Maintenance
			SAC34AN001EFR	SAC, Normal Air Exhaust Fan SAC34AN001, Fails to Run
70	4.214E-10	0.24	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC03/QKA30 PM3	Normal SAC03/QKA30 Train Unavailable due to Preventive Maintenance
			SAC31AN001EFR	SAC, Normal Air Exhaust Fan SAC31AN001, Fails to Run
71	4.214E-10	0.24	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC02/QKA20 PM2	Normal SAC02/QKA20 Train Unavailable due to Preventive Maintenance
			SAC04AN001EFR	SAC, Normal Air Supply Fan SAC04AN001, Fails to Run

No.	Prob.	%	Event	Description
72	4.214E-10	0.24	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			SAC31AN001EFR	SAC, Normal Air Exhaust Fan SAC31AN001, Fails to Run
73	4.214E-10	0.24	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01AN001EFR	SAC, Normal Air Supply Fan SAC01AN001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
74	4.214E-10	0.24	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01AN001EFR	SAC, Normal Air Supply Fan SAC01AN001, Fails to Run
			SAC03/QKA30 PM3	Normal SAC03/QKA30 Train Unavailable due to Preventive Maintenance
75	4.214E-10	0.24	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC02AN001EFR	SAC, Normal Air Supply Fan SAC02AN001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
76	3.966E-10	0.22	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			XKA10_____DFR	ELEC, Emergency Diesel Generator XKA10, Fails to Run
77	3.840E-10	0.22	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			EDG PM2	EDG Train 2 Unavailable due to Preventive Maintenance
			LOOP24+REC	Loss Of Offsite Power During Mission Time and Failure of Recovery Within 1 Hour
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
78	3.744E-10	0.21	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			LOOP24+REC	Loss Of Offsite Power During Mission Time and Failure of Recovery Within 1 Hour
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
79	3.607E-10	0.20	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			KAA12AA005EFO_D-123	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
80	3.518E-10	0.20	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PEB20AP001EFS	ESWS, Train 2 Motor Driven Pump PEB20AP001, Fails to Start on Demand
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
81	3.182E-10	0.18	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			XKA20_____DFS	ELEC, Emergency Diesel Generator XKA20, Fails to Start on Demand
82	3.133E-10	0.18	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			EDG PM1	EDG Train 1 Unavailable due to Preventive Maintenance
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
83	2.948E-10	0.17	IE FIRE-CSR	Initiator - Fire in the Cable Spreading Room (Room Under Main Control Room)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
84	2.920E-10	0.17	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			JNA10AA003EFO_D-ALL	CCF to Open LHSI Pump Suction from RCS MOVs
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
85	2.920E-10	0.17	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			JNA10AA002EFO_D-ALL	CCF to Open LHSI Pump Suction from RCS Angled MOVs
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
86	2.920E-10	0.17	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			JNA10AA001EFO_D-ALL	CCF to Open LHSI Pump Suction from RCS MOVs
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
87	2.891E-10	0.16	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			LBA30AA002PFC	MSS, Train 3 Main Steam Isolation Valve LBA30AA002, Fails to Close on Demand
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours
88	2.891E-10	0.16	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			LBA20AA002PFC	MSS, Train 2 Main Steam Isolation Valve LBA20AA002, Fails to Close on Demand
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours

No.	Prob.	%	Q	Event	Description
89	2.891E-10	0.16		IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
				LBA10AA002PFC	MSS, Train 1 Main Steam Isolation Valve LBA10AA002, Fails to Close on Demand
				MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
				OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours
90	2.880E-10	0.16		IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
				1BDC_1BDB1BOP	ELEC, 6.9kV SWGR 31BDC to 6.9kV SWGR 31BDB Circuit Breaker, Fails to Remain Closed (SO)
				CVCS VCT	CVCS Switchover to IRWST May Not Be Required
				OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
				PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
91	2.880E-10	0.16		IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
				1BRU011BRABOP	ELEC, Inverter 31BRU01 to 480V MCC 31BRA Circuit Breaker, Fails to Remain Closed (SO)
				CVCS VCT	CVCS Switchover to IRWST May Not Be Required
				PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
92	2.880E-10	0.16		IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
				1BMT021BMBBOP	ELEC, Transformer 31BMT02 to 480V Load Center 31BMB Circuit Breaker, Fails to Remain Closed (SO)
				CVCS VCT	CVCS Switchover to IRWST May Not Be Required
				OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
				PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
93	2.880E-10	0.16		IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
				1BDB1BMT02BOP	ELEC, 6.9kV SWGR 31BDB to Transformer 31BMT02 Circuit Breaker, Fails to Remain Closed (SO)
				CVCS VCT	CVCS Switchover to IRWST May Not Be Required
				OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
				PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
94	2.880E-10	0.16		IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
				1BDC_1BDB2BOP	ELEC, 6.9kV SWGR 31BDC to 6.9kV SWGR 31BDB Circuit Breaker, Fails to Remain Closed (SO)
				CVCS VCT	CVCS Switchover to IRWST May Not Be Required
				OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
				PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
95	2.880E-10	0.16		IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
				2BRU012BRABOP	ELEC, Inverter 32BRU01 to 480V MCC 32BRA Circuit Breaker, Fails to Remain Closed (SO)
				CVCS VCT	CVCS Switchover to IRWST May Not Be Required
				PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
96	2.880E-10	0.16		IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
				2BDB2BMT02BOP	ELEC, 6.9kV SWGR 32BDB to Transformer 32BMT02 Circuit Breaker, Fails to Remain Closed (SO)
				CVCS VCT	CVCS Switchover to IRWST May Not Be Required
				OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
				PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
97	2.880E-10	0.16	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			2BMT022BMBBOP	ELEC, Transformer 32BMT02 to 480V Load Center 32BMB Circuit Breaker, Fails to Remain Closed (SO)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
98	2.870E-10	0.16	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA30AP107EFR	SCWS, Train 3 Motor Driven Safety Chiller Pump QKA30AP107, Fails to Run
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
99	2.870E-10	0.16	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40AP107EFR	SCWS, Train 4 Motor Driven Safety Chiller Pump QKA40AP107, Fails to Run
			SAC02/QKA20 PM2	Normal SAC02/QKA20 Train Unavailable due to Preventive Maintenance
100	2.870E-10	0.16	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA20AP107EFR	SCWS, Train 2 Motor Driven Safety Chiller Pump QKA20AP107, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
101	2.870E-10	0.16	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFR	SCWS, Train 1 Motor Driven Safety Chiller Pump QKA10AP107, Fails to Run
			SAC03/QKA30 PM3	Normal SAC03/QKA30 Train Unavailable due to Preventive Maintenance
102	2.870E-10	0.16	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40AP107EFR	SCWS, Train 4 Motor Driven Safety Chiller Pump QKA40AP107, Fails to Run
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
103	2.870E-10	0.16	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFR	SCWS, Train 1 Motor Driven Safety Chiller Pump QKA10AP107, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
104	2.808E-10	0.16	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
105	2.783E-10	0.16	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			JNG10AA004EFC_D-ALL	CCF to Close LHSI to Tangential Miniflow MOTOR Operated Check Valves
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room

No.	Prob.	%	Event	Description
106	2.644E-10	0.15	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			LOOP24+REC	Loss Of Offsite Power During Mission Time and Failure of Recovery Within 1 Hour
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
107	2.520E-10	0.14	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PEB20AA005EFO	ESWS, Train 2 Pump Discharge Isolation MOV PEB20AA005, Fails to Open on Demand
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
108	2.403E-10	0.14	IE FIRE-PZR	Initiator - Fire in the Pressurizer Compartment With Spurious Opening of 1 PSRV
			MSRIVSCPFO_P-ALL	CCF to Open Main Steam Relief Isolation Pneumatic Pilot Valves
109	2.157E-10	0.12	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			XKA10_____DFR	ELEC, Emergency Diesel Generator XKA10, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
110	2.087E-10	0.12	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
111	2.000E-10	0.11	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CL-TXS-OSCCF	SW CCF of TXS operating system or multiple diversity groups
112	2.000E-10	0.11	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
113	1.978E-10	0.11	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
114	1.814E-10	0.10	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run

No.	Prob.	%	Event	Description
115	1.791E-10	0.10	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
116	1.705E-10	0.10	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			LAS31AP001EFR	EFWS, Train 3 Motor Driven Pump LAS31AP001, Fails to Run
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
117	1.705E-10	0.10	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			LAS21AP001EFR	EFWS, Train 2 Motor Driven Pump LAS21AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
118	1.686E-10	0.10	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			MSRIVSOOFO_P-ALL	CCF to Open Main Steam Relief Isolation Solenoid Pilot Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
119	1.586E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			SBODG5 PM1	SBO-DG Train 1 Unavailable due to Preventive Maintenance
			XKA10_____DFR	ELEC, Emergency Diesel Generator XKA10, Fails to Run
120	1.579E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			LHSI PM1	LHSI Train 1 Unavailable due to Preventive Maintenance
			PEB20AP001EFS_B-ALL	CCF of ESWS Pumps 2 and 3 to Start (Standby)
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
121	1.544E-10	0.09	IE FIRE-BATT	Initiator - Fire in One of the Four Battery Rooms
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
122	1.536E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			JNG10AA006MEC3	LHSI, LHSI CL1 Discharge Manual CHECK Valve JNG10AA006, Left in Wrong Position
			JNG20AA006MEC3	LHSI, LHSI CL2 Discharge Manual CHECK Valve JNG20AA006, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
123	1.451E-10	0.08	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			SAC05 PM1	Maintenance SAC Safety System Train 5 Unavailable due to Preventive Maintenance
124	1.440E-10	0.08	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			2BDA_2BDB2BOP	ELEC, 6.9kV SWGR 32BDA to 6.9kV SWGR 32BDB Circuit Breaker, Fails to Remain Closed (SO)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
125	1.440E-10	0.08	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			2BDA_2BDB1BOP	ELEC, 6.9kV SWGR 32BDA to 6.9kV SWGR 32BDB Circuit Breaker, Fails to Remain Closed (SO)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
126	1.339E-10	0.08	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			LBA10AA002PFC_D-ALL	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
127	1.245E-10	0.07	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			LBA10AA002PFC_D-124	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
128	1.245E-10	0.07	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			LBA10AA002PFC_D-234	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
129	1.245E-10	0.07	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			LBA10AA002PFC_D-134	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
130	1.184E-10	0.07	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PEB20AP001EFS_B-ALL	CCF of ESWS Pumps 2 and 3 to Start (Standby)
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
131	1.164E-10	0.07	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
132	1.112E-10	0.06	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			LBA10AA002PFC_D-12	CCF to Close Main Steam Isolation Valves
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
133	1.112E-10	0.06	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			LBA10AA002PFC_D-13	CCF to Close Main Steam Isolation Valves
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
134	1.112E-10	0.06	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			LBA10AA002PFC_D-23	CCF to Close Main Steam Isolation Valves
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
135	1.088E-10	0.06	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			QKA20GH001_FR	SCWS, Train 2 Chiller Unit QKA20GH001, Fails to Run
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
136	1.088E-10	0.06	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			SAC02/QKA20 PM2	Normal SAC02/QKA20 Train Unavailable due to Preventive Maintenance
137	1.076E-10	0.06	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			KAA20AP001EFS_B-ALL	CCF of CCWS Pumps 2 and 3 to Start (Standby)
			LHSI PM1	LHSI Train 1 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
138	1.067E-10	0.06	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PED10AN001EFR_D-ALL	CCF to Run Normally Running Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
139	1.067E-10	0.06	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PED10AN002EFR_D-ALL	CCF to Run Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
140	1.024E-10	0.06	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			JNG10AA006MEC3	LHSI, LHSI CL1 Discharge Manual CHECK Valve JNG10AA006, Left in Wrong Position
			JNG20AA006MEC3	LHSI, LHSI CL2 Discharge Manual CHECK Valve JNG20AA006, Left in Wrong Position
			LHSI PM3	LHSI Train 3 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
141	1.019E-10	0.06	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01AN001EFR_D-24	CCF to Run Normal Air Supply Fans
142	1.019E-10	0.06	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC31AN001EFR_D-24	CCF to Run Normal Air Exhaust Fans
143	1.019E-10	0.06	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC31AN001EFR_D-14	CCF to Run Normal Air Exhaust Fans
144	1.019E-10	0.06	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01AN001EFR_D-13	CCF to Run Normal Air Supply Fans
145	1.019E-10	0.06	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01AN001EFR_D-14	CCF to Run Normal Air Supply Fans
146	1.019E-10	0.06	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC31AN001EFR_D-13	CCF to Run Normal Air Exhaust Fans
147	9.531E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB01NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LF20NS	Digital input module fails (non-self monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
148	9.531E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB03NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LF20NS	Digital input module fails (non-self monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
149	9.531E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB03NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LF20NS	Digital input module fails (non-self monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
150	9.531E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LF20NS	Digital input module fails (non-self monitored)
			CLF24EQ002LB03NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
151	9.531E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LF20NS	Digital input module fails (non-self monitored)
			CLE24EQ002LB01NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
152	9.531E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB01NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LF20NS	Digital input module fails (non-self monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
153	9.531E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB02NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LF20NS	Digital input module fails (non-self monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
154	9.531E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LF20NS	Digital input module fails (non-self monitored)
			CLF24EQ002LB01NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
155	9.531E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LF20NS	Digital input module fails (non-self monitored)
			CLF24EQ002LB02NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
156	9.531E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LF20NS	Digital input module fails (non-self monitored)
			CLE24EQ002LB02NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
157	9.531E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LF20NS	Digital input module fails (non-self monitored)
			CLE24EQ002LB03NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
158	9.531E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB02NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LF20NS	Digital input module fails (non-self monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
159	9.500E-11	0.05	IE FIRE-PZR	Initiator - Fire in the Pressurizer Compartment With Spurious Opening of 1 PSRV
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
160	9.393E-11	0.05	IE FIRE-PZR	Initiator - Fire in the Pressurizer Compartment With Spurious Opening of 1 PSRV
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
161	9.382E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			JNG10AA006MEC3	LHSI, LHSI CL1 Discharge Manual CHECK Valve JNG10AA006, Left in Wrong Position
			PEB20AP001EFS	ESWS, Train 2 Motor Driven Pump PEB20AP001, Fails to Start on Demand
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
162	9.364E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BTD01_BATST	ELEC, 250V 1E 2-hr Battery 31BTD01, Fails on Demand
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
163	9.296E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			JNG10AA006MEC3	LHSI, LHSI CL1 Discharge Manual CHECK Valve JNG10AA006, Left in Wrong Position
			PED20AN002EFS	UHS, Cooling Tower Train 2 Cooling Fan PED20AN002, Fails to Start on Demand
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
164	9.296E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			JNG20AA006MEC3	LHSI, LHSI CL2 Discharge Manual CHECK Valve JNG20AA006, Left in Wrong Position
			PED10AN002EFS	UHS, Cooling Tower Train 1 Cooling Fan PED10AN002, Fails to Start on Demand
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
165	9.296E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			JNG30AA006MEC3	LHSI, LHSI CL3 Discharge Manual CHECK Valve JNG30AA006, Left in Wrong Position
			PED10AN002EFS	UHS, Cooling Tower Train 1 Cooling Fan PED10AN002, Fails to Start on Demand
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
166	9.252E-11	0.05	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC02/QKA20 PM2	Normal SAC02/QKA20 Train Unavailable due to Preventive Maintenance
167	9.062E-11	0.05	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC01AN001EFR	SAC, Normal Air Supply Fan SAC01AN001, Fails to Run
168	9.062E-11	0.05	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC31AN001EFR	SAC, Normal Air Exhaust Fan SAC31AN001, Fails to Run
169	8.704E-11	0.05	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40AP107EEL	SCWS, Train 4 Motor Driven Safety Chiller Pump QKA40AP107, External Leakage
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
170	8.704E-11	0.05	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			KAB30AA191SPO	CCWS, CCWS CH1 RCP1/2 TB Return Safety Valve KAB30AA191, Premature Opening
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
171	8.704E-11	0.05	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA30AP107EEL	SCWS, Train 3 Motor Driven Safety Chiller Pump QKA30AP107, External Leakage
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
172	8.704E-11	0.05	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EEL	SCWS, Train 1 Motor Driven Safety Chiller Pump QKA10AP107, External Leakage
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
173	8.704E-11	0.05	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA20AP107EEL	SCWS, Train 2 Motor Driven Safety Chiller Pump QKA20AP107, External Leakage
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
174	8.704E-11	0.05	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			KAB10AA192SPO	CCWS, CCWS CH1 Return Safety Valve KAB10AA192, Premature Opening
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
175	8.704E-11	0.05	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			KAB20AA192SPO	CCWS, CCWS CH2 Return Safety Valve KAB20AA192, Premature Opening
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
176	8.704E-11	0.05	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			KAB70AA191SPO	CCWS, CVCS HP Cooler 2 Return Safety Valve KAB60AA191, Premature Opening
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
177	8.704E-11	0.05	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			KAB20AA193SPO	CCWS, FPCS Train 2 Cooling Header Safety Valve KAB20AA193, Premature Opening
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
178	8.704E-11	0.05	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40AP107EEL	SCWS, Train 4 Motor Driven Safety Chiller Pump QKA40AP107, External Leakage
			SAC02/QKA20 PM2	Normal SAC02/QKA20 Train Unavailable due to Preventive Maintenance
179	8.704E-11	0.05	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			KAB10AA193SPO	CCWS, FPCS Train 1 Cooling Header Safety Valve KAB10AA193, Premature Opening
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
180	8.704E-11	0.05	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			KAB30AA192SPO	CCWS, CCWS CH2 RCP3/4 TB Return Safety Valve KAB30AA192, Premature Opening
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
181	8.704E-11	0.05	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EEL	SCWS, Train 1 Motor Driven Safety Chiller Pump QKA10AP107, External Leakage
			SAC03/QKA30 PM3	Normal SAC03/QKA30 Train Unavailable due to Preventive Maintenance
182	8.704E-11	0.05	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			KAB60AA191SPO	CCWS, CVCS HP Cooler 1 Return Safety Valve KAB60AA191, Premature Opening
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
183	8.506E-11	0.05	IE FIRE-PZR	Initiator - Fire in the Pressurizer Compartment With Spurious Opening of 1 PSRV
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves
184	8.432E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PED10AN002EFS_D-12	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
185	8.432E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PED10AN002EFS_D-13	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
186	8.073E-11	0.05	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			KAA20AP001EFS_B-ALL	CCF of CCWS Pumps 2 and 3 to Start (Standby)
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
187	8.011E-11	0.05	IE FIRE-PZR	Initiator - Fire in the Pressurizer Compartment With Spurious Opening of 1 PSRV
			MSRIVSOOFO_P-ALL	CCF to Open Main Steam Relief Isolation Solenoid Pilot Valves
188	7.680E-11	0.04	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			JNG10AA006MEC3	LHSI, LHSI CL1 Discharge Manual CHECK Valve JNG10AA006, Left in Wrong Position
			JNG20AA006MEC3	LHSI, LHSI CL2 Discharge Manual CHECK Valve JNG20AA006, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			SAC03/QKA30 PM3	Normal SAC03/QKA30 Train Unavailable due to Preventive Maintenance
189	7.680E-11	0.04	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			EDG PM1	EDG Train 1 Unavailable due to Preventive Maintenance
			LOOP24+REC	Loss Of Offsite Power During Mission Time and Failure of Recovery Within 1 Hour
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
190	7.526E-11	0.04	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			LAS11AP001EFR_D-34	CCF of EFWS Pumps to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
191	7.526E-11	0.04	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			LAS11AP001EFR_D-12	CCF of EFWS Pumps to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
192	7.378E-11	0.04	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			JNG10AP001EFS_D-ALL	CCF of LHSI Pumps to Start
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
193	7.249E-11	0.04	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			SAC01AN001EFR	SAC, Normal Air Supply Fan SAC01AN001, Fails to Run
			SAC05 PM1	Maintenance SAC Safety System Train 5 Unavailable due to Preventive Maintenance
194	7.249E-11	0.04	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			SAC05 PM1	Maintenance SAC Safety System Train 5 Unavailable due to Preventive Maintenance
			SAC31AN001EFR	SAC, Normal Air Exhaust Fan SAC31AN001, Fails to Run
195	7.160E-11	0.04	IE FIRE-SAB14-DC	Initiator - Fire in the DC Cabinets Room of Safeguard Building 1 (or 4) - I&C Rooms Included
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
196	7.110E-11	0.04	IE FIRE-TB	Initiator - Fire in the Turbine Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01AN001EFR_D-ALL	CCF to Run Normal Air Supply Fans
197	7.110E-11	0.04	IE FIRE-TB	Initiator - Fire in the Turbine Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC31AN001EFR_D-ALL	CCF to Run Normal Air Exhaust Fans
198	7.036E-11	0.04	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			PEB10AP001EFS	ESWS, Train 1 Motor Driven Pump PEB10AP001, Fails to Start on Demand
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
199	6.936E-11	0.04	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
			PED10AN002EFR_D-ALL	CCF to Run Standby Cooling Tower Fans
200	6.936E-11	0.04	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
			PED10AN001EFR_D-ALL	CCF to Run Normally Running Cooling Tower Fans

Minimal Cutsets

Top Event probability Q = 6.135E-08

No.	Prob.	%	Event	Description
1	3.200E-08	52.16	IE FLD-ANN ALL	Initiator - Flood in the RB Annulus (Contained)
			PROB ANNULUS	Probability that the Annulus connection boxes will withstand a contained Flood
2	2.262E-09	3.69	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
3	5.723E-10	0.93	IE FLD-TB	Initiator - Flood in the Turbine Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC31AN001EFR_D-ALL	CCF to Run Normal Air Exhaust Fans
4	5.723E-10	0.93	IE FLD-TB	Initiator - Flood in the Turbine Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01AN001EFR_D-ALL	CCF to Run Normal Air Supply Fans
5	5.460E-10	0.89	IE FLD-EFW	Initiator - EFW Pipe Break
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
6	4.072E-10	0.66	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			LOOPCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to a Controlled Shutdown
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
7	2.750E-10	0.45	IE FLD-TB	Initiator - Flood in the Turbine Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFR_D-ALL	CCF of SCWS Pumps to Run
8	1.868E-10	0.30	IE FLD-TB	Initiator - Flood in the Turbine Building
			LAS11AP001EFS_D-ALL	CCF of EFWS Pumps to Start
			OPE-FB-90M	Operator Fails to Initiate Feed & Bleed for Transient
9	1.620E-10	0.26	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
10	1.620E-10	0.26	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
11	1.620E-10	0.26	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
12	1.620E-10	0.26	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
13	1.589E-10	0.26	IE FLD-TB	Initiator - Flood in the Turbine Building
			LAS11AP001EFR_D-ALL	CCF of EFWS Pumps to Run
			OPE-FB-90M	Operator Fails to Initiate Feed & Bleed for Transient
14	1.535E-10	0.25	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
15	1.535E-10	0.25	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
16	1.535E-10	0.25	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
17	1.535E-10	0.25	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
18	1.260E-10	0.21	IE FLD-EFW	Initiator - EFW Pipe Break
			LOOPCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to a Controlled Shutdown
			OPE-FB-90M	Operator Fails to Initiate Feed & Bleed for Transient

No.	Prob.	%	Event	Description
19	1.193E-10	0.19	IE FLD-TB	Initiator - Flood in the Turbine Building
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Start
20	1.123E-10	0.18	IE FLD-TB	Initiator - Flood in the Turbine Building
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
21	1.123E-10	0.18	IE FLD-TB	Initiator - Flood in the Turbine Building
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
22	1.086E-10	0.18	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			LOOP24+REC	Loss Of Offsite Power During Mission Time and Failure of Recovery Within 1 Hour
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
23	9.828E-11	0.16	IE FLD-EFW	Initiator - EFW Pipe Break
			LOOPCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to a Controlled Shutdown
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
24	9.828E-11	0.16	IE FLD-EFW	Initiator - EFW Pipe Break
			LOOPCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to a Controlled Shutdown
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
25	8.933E-11	0.15	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
26	8.933E-11	0.15	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
27	8.933E-11	0.15	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
28	8.933E-11	0.15	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
29	8.250E-11	0.13	IE FLD-TB	Initiator - Flood in the Turbine Building
			CL-PS-A-SWCCF	SW CCF of Protection System diversity group A
			OPE-FB-90M	Operator Fails to Initiate Feed & Bleed for Transient
30	7.478E-11	0.12	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
31	7.478E-11	0.12	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
32	7.478E-11	0.12	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
33	7.478E-11	0.12	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
34	6.576E-11	0.11	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			LOOPCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to a Controlled Shutdown
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand

No.	Prob.	%	Event	Description
35	5.259E-11	0.09	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
36	4.823E-11	0.08	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JNG13AA005CFO_D-123	CCF to Open LHSI/MHSI Common Injection Check Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
37	4.823E-11	0.08	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JNG13AA005CFO_D-123	CCF to Open LHSI/MHSI Common Injection Check Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
38	4.823E-11	0.08	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JNG13AA005CFO_D-123	CCF to Open LHSI/MHSI Common Injection Check Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
39	4.823E-11	0.08	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JNG13AA005CFO_D-123	CCF to Open LHSI/MHSI Common Injection Check Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
40	4.650E-11	0.08	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			PED10AN002EFS_D-123	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
41	4.650E-11	0.08	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			PED10AN002EFS_D-123	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
42	4.650E-11	0.08	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			PED10AN002EFS_D-123	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
43	4.650E-11	0.08	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			PED10AN002EFS_D-123	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
44	4.509E-11	0.07	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30 SSSF	Mechanical Failure of the Stand Still Seal for RCP3
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
45	4.509E-11	0.07	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40 SSSF	Mechanical Failure of the Stand Still Seal for RCP4
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
46	4.272E-11	0.07	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40 SSSF	Mechanical Failure of the Stand Still Seal for RCP4
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
47	4.272E-11	0.07	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30 SSSF	Mechanical Failure of the Stand Still Seal for RCP3
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
48	3.910E-11	0.06	IE FLD-EFW	Initiator - EFW Pipe Break
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
49	3.910E-11	0.06	IE FLD-EFW	Initiator - EFW Pipe Break
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
50	3.910E-11	0.06	IE FLD-EFW	Initiator - EFW Pipe Break
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
51	3.910E-11	0.06	IE FLD-EFW	Initiator - EFW Pipe Break
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
52	3.704E-11	0.06	IE FLD-EFW	Initiator - EFW Pipe Break
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
53	3.704E-11	0.06	IE FLD-EFW	Initiator - EFW Pipe Break
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
54	3.704E-11	0.06	IE FLD-EFW	Initiator - EFW Pipe Break
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
55	3.704E-11	0.06	IE FLD-EFW	Initiator - EFW Pipe Break
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
56	3.639E-11	0.06	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			KAA12AA005EFO_D-123	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
57	3.639E-11	0.06	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			KAA12AA005EFO_D-123	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
58	3.639E-11	0.06	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			KAA12AA005EFO_D-123	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
59	3.639E-11	0.06	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			KAA12AA005EFO_D-123	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
60	3.406E-11	0.06	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
61	3.406E-11	0.06	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
62	3.406E-11	0.06	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
63	3.406E-11	0.06	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
64	3.406E-11	0.06	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
65	3.406E-11	0.06	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
66	3.406E-11	0.06	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
67	3.406E-11	0.06	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
68	3.360E-11	0.05	IE FLD-EFW	Initiator - EFW Pipe Break
			LOOP24+REC	Loss Of Offsite Power During Mission Time and Failure of Recovery Within 1 Hour
			OPE-FB-90M	Operator Fails to Initiate Feed & Bleed for Transient
69	2.800E-11	0.05	IE FLD-EFW	Initiator - EFW Pipe Break
			OPE-FB-90M	Operator Fails to Initiate Feed & Bleed for Transient
			OPF-EFW-1H	Operator Fails to Isolate Leaking EFW Tank and Initiate DWS Make-up
			PAS	Proccess Automation System (PAS) Fails (Estimate)
70	2.683E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC02/QKA20 PM2	Normal SAC02/QKA20 Train Unavailable due to Preventive Maintenance
71	2.628E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC01AN001EFR	SAC, Normal Air Supply Fan SAC01AN001, Fails to Run
72	2.628E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC31AN001EFR	SAC, Normal Air Exhaust Fan SAC31AN001, Fails to Run
73	2.621E-11	0.04	IE FLD-EFW	Initiator - EFW Pipe Break
			LOOP24+REC	Loss Of Offsite Power During Mission Time and Failure of Recovery Within 1 Hour
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
74	2.621E-11	0.04	IE FLD-EFW	Initiator - EFW Pipe Break
			LOOP24+REC	Loss Of Offsite Power During Mission Time and Failure of Recovery Within 1 Hour
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
75	2.591E-11	0.04	IE FLD-EFW	Initiator - EFW Pipe Break
			LOOPCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to a Controlled Shutdown
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
76	2.486E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30 SSSF	Mechanical Failure of the Stand Still Seal for RCP3
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
77	2.486E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40 SSSF	Mechanical Failure of the Stand Still Seal for RCP4
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
78	2.395E-11	0.04	IE FLD-EFW	Initiator - EFW Pipe Break
			LOOPCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to a Controlled Shutdown
			XKA10_____DFR_D-123	CCF of EDGs to Run
79	2.297E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND20AA003MEC3	MHSI, MHSI Pump 20 Discharge MANUAL Check Valve JND20AA003, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
80	2.297E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
81	2.297E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND30AA003MEC3	MHSI, MHSI Pump 30 Discharge MANUAL Check Valve JND30AA003, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
82	2.297E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND20AA003MEC3	MHSI, MHSI Pump 20 Discharge MANUAL Check Valve JND20AA003, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
83	2.297E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
84	2.297E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
85	2.297E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
86	2.297E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND20AA003MEC3	MHSI, MHSI Pump 20 Discharge MANUAL Check Valve JND20AA003, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
87	2.297E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
88	2.297E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND20AA003MEC3	MHSI, MHSI Pump 20 Discharge MANUAL Check Valve JND20AA003, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
89	2.297E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
90	2.297E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND30AA003MEC3	MHSI, MHSI Pump 30 Discharge MANUAL Check Valve JND30AA003, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
91	2.297E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
92	2.297E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND30AA003MEC3	MHSI, MHSI Pump 30 Discharge MANUAL Check Valve JND30AA003, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
93	2.297E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND30AA003MEC3	MHSI, MHSI Pump 30 Discharge MANUAL Check Valve JND30AA003, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
94	2.297E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
95	2.271E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			MHSI PM2	MHSI Train 2 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
96	2.271E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
97	2.271E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			MHSI PM2	MHSI Train 2 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
98	2.271E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
99	2.271E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			MHSI PM3	MHSI Train 3 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
100	2.271E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			MHSI PM3	MHSI Train 3 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
101	2.271E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
102	2.271E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			MHSI PM3	MHSI Train 3 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
103	2.271E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
104	2.271E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			MHSI PM3	MHSI Train 3 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
105	2.271E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			MHSI PM2	MHSI Train 2 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
106	2.271E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			MHSI PM2	MHSI Train 2 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
107	2.254E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA018OFO	RCP Seal, RCP3 Nitrogen Supply Solenoid Valve JEB30AA018, Fails to Open on Demand
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
108	2.254E-11	0.04	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA018OFO	RCP Seal, RCP4 Nitrogen Supply Solenoid Valve JEB40AA018, Fails to Open on Demand
			JND10AP001EFR_D-123	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
109	2.202E-11	0.04	IE FLD-TB	Initiator - Flood in the Turbine Building
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			QKA10GH001_FR_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Run
110	2.184E-11	0.04	IE FLD-EFW	Initiator - EFW Pipe Break
			OPF-EFW-1H	Operator Fails to Isolate Leaking EFW Tank and Initiate DWS Make-up
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
111	2.156E-11	0.04	IE FLD-EFW	Initiator - EFW Pipe Break
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
112	2.156E-11	0.04	IE FLD-EFW	Initiator - EFW Pipe Break
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
113	2.156E-11	0.04	IE FLD-EFW	Initiator - EFW Pipe Break
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
114	2.156E-11	0.04	IE FLD-EFW	Initiator - EFW Pipe Break
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
115	2.136E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA018OFO	RCP Seal, RCP3 Nitrogen Supply Solenoid Valve JEB30AA018, Fails to Open on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
116	2.136E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA018OFO	RCP Seal, RCP4 Nitrogen Supply Solenoid Valve JEB40AA018, Fails to Open on Demand
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
117	2.081E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30 SSSF	Mechanical Failure of the Stand Still Seal for RCP3
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
118	2.081E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40 SSSF	Mechanical Failure of the Stand Still Seal for RCP4
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
119	2.049E-11	0.03	IE FLD-TB	Initiator - Flood in the Turbine Building
			EFWS PM4	EFWS Train 4 Unavailable due to Preventive Maintenance
			LAS11AP001EFR_D-123	CCF of EFWS Pumps to Run
			OPE-FB-90M	Operator Fails to Initiate Feed & Bleed for Transient
120	2.049E-11	0.03	IE FLD-TB	Initiator - Flood in the Turbine Building
			EFWS PM1	EFWS Train 1 Unavailable due to Preventive Maintenance
			LAS11AP001EFR_D-234	CCF of EFWS Pumps to Run
			OPE-FB-90M	Operator Fails to Initiate Feed & Bleed for Transient
121	2.049E-11	0.03	IE FLD-TB	Initiator - Flood in the Turbine Building
			EFWS PM2	EFWS Train 2 Unavailable due to Preventive Maintenance
			LAS11AP001EFR_D-134	CCF of EFWS Pumps to Run
			OPE-FB-90M	Operator Fails to Initiate Feed & Bleed for Transient
122	2.049E-11	0.03	IE FLD-TB	Initiator - Flood in the Turbine Building
			EFWS PM3	EFWS Train 3 Unavailable due to Preventive Maintenance
			LAS11AP001EFR_D-124	CCF of EFWS Pumps to Run
			OPE-FB-90M	Operator Fails to Initiate Feed & Bleed for Transient

No.	Prob.	%	Event	Description
123	2.018E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
124	2.018E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
125	2.018E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
126	2.018E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
127	1.947E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			LBA13AA001PFO_D-ALL	CCF to Open Main Steam Relief Isolation Valves
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
128	1.947E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			LBA13AA001PFO_D-ALL	CCF to Open Main Steam Relief Isolation Valves
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
129	1.947E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			LBA13AA001PFO_D-ALL	CCF to Open Main Steam Relief Isolation Valves
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
130	1.947E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			LBA13AA001PFO_D-ALL	CCF to Open Main Steam Relief Isolation Valves
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
131	1.866E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AP001EFS_D-ALL	CCF of MHSI Pumps to Start
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
132	1.866E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AP001EFS_D-ALL	CCF of MHSI Pumps to Start
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
133	1.866E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AP001EFS_D-ALL	CCF of MHSI Pumps to Start
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
134	1.866E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AP001EFS_D-ALL	CCF of MHSI Pumps to Start
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
135	1.813E-11	0.03	IE FLD-TB	Initiator - Flood in the Turbine Building
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
136	1.810E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC02/QKA20 PM2	Normal SAC02/QKA20 Train Unavailable due to Preventive Maintenance
137	1.807E-11	0.03	IE FLD-TB	Initiator - Flood in the Turbine Building
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
138	1.806E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
139	1.806E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
140	1.806E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
141	1.806E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
142	1.805E-11	0.03	IE FLD-EFW	Initiator - EFW Pipe Break
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
143	1.805E-11	0.03	IE FLD-EFW	Initiator - EFW Pipe Break
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
144	1.805E-11	0.03	IE FLD-EFW	Initiator - EFW Pipe Break
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
145	1.805E-11	0.03	IE FLD-EFW	Initiator - EFW Pipe Break
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
146	1.790E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			QKA10AP107EFR	SCWS, Train 1 Motor Driven Safety Chiller Pump QKA10AP107, Fails to Run

No.	Prob.	%	Event	Description
147	1.779E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AP001EFS_D-123	CCF of MHSI Pumps to Start
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
148	1.779E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AP001EFS_D-123	CCF of MHSI Pumps to Start
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
149	1.779E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AP001EFS_D-123	CCF of MHSI Pumps to Start
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
150	1.779E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AP001EFS_D-123	CCF of MHSI Pumps to Start
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
151	1.764E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-RCP-10M	Operator Fails to Trip RCPs on a Loss of Seal Injection
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC02/QKA20 PM2	Normal SAC02/QKA20 Train Unavailable due to Preventive Maintenance
152	1.754E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			LOOP24+REC	Loss Of Offsite Power During Mission Time and Failure of Recovery Within 1 Hour
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
153	1.740E-11	0.03	IE FLD-TB	Initiator - Flood in the Turbine Building
			BTD01_BAT__ST_D-ALL	CCF of Safety Related Batteries on Demand
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
154	1.717E-11	0.03	IE FLD-TB	Initiator - Flood in the Turbine Building
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Run

No.	Prob.	%	Event	Description
155	1.616E-11	0.03	IE FLD-TB	Initiator - Flood in the Turbine Building
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FR	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Run
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
156	1.616E-11	0.03	IE FLD-TB	Initiator - Flood in the Turbine Building
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
157	1.593E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			LHSI PM1	LHSI Train 1 Unavailable due to Preventive Maintenance
			PEB20AP001EFS_B-ALL	CCF of ESWS Pumps 2 and 3 to Start (Standby)
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
158	1.593E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			PEB20AP001EFS_B-ALL	CCF of ESWS Pumps 2 and 3 to Start (Standby)
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
159	1.593E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			LHSI PM1	LHSI Train 1 Unavailable due to Preventive Maintenance
			PEB20AP001EFS_B-ALL	CCF of ESWS Pumps 2 and 3 to Start (Standby)
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
160	1.593E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			LHSI PM1	LHSI Train 1 Unavailable due to Preventive Maintenance
			PEB20AP001EFS_B-ALL	CCF of ESWS Pumps 2 and 3 to Start (Standby)
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
161	1.593E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			PEB20AP001EFS_B-ALL	CCF of ESWS Pumps 2 and 3 to Start (Standby)
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
162	1.593E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			PEB20AP001EFS_B-ALL	CCF of ESWS Pumps 2 and 3 to Start (Standby)
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
163	1.593E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			LHSI PM1	LHSI Train 1 Unavailable due to Preventive Maintenance
			PEB20AP001EFS_B-ALL	CCF of ESWS Pumps 2 and 3 to Start (Standby)
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
164	1.593E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			PEB20AP001EFS_B-ALL	CCF of ESWS Pumps 2 and 3 to Start (Standby)
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
165	1.587E-11	0.03	IE FLD-EFW	Initiator - EFW Pipe Break
			LOOPCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to a Controlled Shutdown
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
166	1.587E-11	0.03	IE FLD-EFW	Initiator - EFW Pipe Break
			LOOPCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to a Controlled Shutdown
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
167	1.550E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND20AA003MEC3	MHSI, MHSI Pump 20 Discharge MANUAL Check Valve JND20AA003, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
168	1.550E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND20AA003MEC3	MHSI, MHSI Pump 20 Discharge MANUAL Check Valve JND20AA003, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
169	1.550E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND30AA003MEC3	MHSI, MHSI Pump 30 Discharge MANUAL Check Valve JND30AA003, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
170	1.550E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JNG10AA006MEC3	LHSI, LHSI CL1 Discharge Manual CHECK Valve JNG10AA006, Left in Wrong Position
			JNG20AA006MEC3	LHSI, LHSI CL2 Discharge Manual CHECK Valve JNG20AA006, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
171	1.550E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JNG10AA006MEC3	LHSI, LHSI CL1 Discharge Manual CHECK Valve JNG10AA006, Left in Wrong Position
			JNG20AA006MEC3	LHSI, LHSI CL2 Discharge Manual CHECK Valve JNG20AA006, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
172	1.550E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND20AA003MEC3	MHSI, MHSI Pump 20 Discharge MANUAL Check Valve JND20AA003, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
173	1.550E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND30AA003MEC3	MHSI, MHSI Pump 30 Discharge MANUAL Check Valve JND30AA003, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
174	1.550E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND30AA003MEC3	MHSI, MHSI Pump 30 Discharge MANUAL Check Valve JND30AA003, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
175	1.550E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JNG10AA006MEC3	LHSI, LHSI CL1 Discharge Manual CHECK Valve JNG10AA006, Left in Wrong Position
			JNG20AA006MEC3	LHSI, LHSI CL2 Discharge Manual CHECK Valve JNG20AA006, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
176	1.550E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JNG10AA006MEC3	LHSI, LHSI CL1 Discharge Manual CHECK Valve JNG10AA006, Left in Wrong Position
			JNG20AA006MEC3	LHSI, LHSI CL2 Discharge Manual CHECK Valve JNG20AA006, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
177	1.550E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND30AA003MEC3	MHSI, MHSI Pump 30 Discharge MANUAL Check Valve JND30AA003, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
178	1.550E-11	0.03	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND20AA003MEC3	MHSI, MHSI Pump 20 Discharge MANUAL Check Valve JND20AA003, Left in Wrong Position
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
179	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND20AA003MEC3	MHSI, MHSI Pump 20 Discharge MANUAL Check Valve JND20AA003, Left in Wrong Position
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
180	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			MHSI PM2	MHSI Train 2 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
181	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND20AA003MEC3	MHSI, MHSI Pump 20 Discharge MANUAL Check Valve JND20AA003, Left in Wrong Position
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
182	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			JND30AA003MEC3	MHSI, MHSI Pump 30 Discharge MANUAL Check Valve JND30AA003, Left in Wrong Position
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
183	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND30AA003MEC3	MHSI, MHSI Pump 30 Discharge MANUAL Check Valve JND30AA003, Left in Wrong Position
			MHSI PM2	MHSI Train 2 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
184	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND20AA003MEC3	MHSI, MHSI Pump 20 Discharge MANUAL Check Valve JND20AA003, Left in Wrong Position
			MHSI PM3	MHSI Train 3 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
185	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND20AA003MEC3	MHSI, MHSI Pump 20 Discharge MANUAL Check Valve JND20AA003, Left in Wrong Position
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
186	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND30AA003MEC3	MHSI, MHSI Pump 30 Discharge MANUAL Check Valve JND30AA003, Left in Wrong Position
			MHSI PM2	MHSI Train 2 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
187	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			MHSI PM3	MHSI Train 3 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
188	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND20AA003MEC3	MHSI, MHSI Pump 20 Discharge MANUAL Check Valve JND20AA003, Left in Wrong Position
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
189	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			MHSI PM3	MHSI Train 3 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
190	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			MHSI PM3	MHSI Train 3 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
191	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			JND30AA003MEC3	MHSI, MHSI Pump 30 Discharge MANUAL Check Valve JND30AA003, Left in Wrong Position
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
192	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			JND30AA003MEC3	MHSI, MHSI Pump 30 Discharge MANUAL Check Valve JND30AA003, Left in Wrong Position
			MHSI PM1	MHSI Train 1 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
193	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND30AA003MEC3	MHSI, MHSI Pump 30 Discharge MANUAL Check Valve JND30AA003, Left in Wrong Position
			MHSI PM2	MHSI Train 2 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
194	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND20AA003MEC3	MHSI, MHSI Pump 20 Discharge MANUAL Check Valve JND20AA003, Left in Wrong Position
			MHSI PM3	MHSI Train 3 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
195	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			MHSI PM2	MHSI Train 2 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
196	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND20AA003MEC3	MHSI, MHSI Pump 20 Discharge MANUAL Check Valve JND20AA003, Left in Wrong Position
			MHSI PM3	MHSI Train 3 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
197	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND20AP001EFR	MHSI, MHSI Train 2 Motor Driven Pump JND20AP001, Fails to Run
			MHSI PM3	MHSI Train 3 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
198	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			JND10AP001EFR	MHSI, MHSI Train 1 Motor Driven Pump JND10AP001, Fails to Run
			JND20AA003MEC3	MHSI, MHSI Pump 20 Discharge MANUAL Check Valve JND20AA003, Left in Wrong Position
			MHSI PM3	MHSI Train 3 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
199	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			MHSI PM2	MHSI Train 2 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
200	1.532E-11	0.02	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			JND10AA003MEC3	MHSI, MHSI Pump 10 Discharge MANUAL Check Valve JND10AA003, Left in Wrong Position
			JND30AP001EFR	MHSI, MHSI Train 3 Motor Driven Pump JND30AP001, Fails to Run
			MHSI PM2	MHSI Train 2 Unavailable due to Preventive Maintenance
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

Minimal Cutsets

Top Event frequency F = 5.770E-08

No.	Freq.	%	Event	Description
1	3.388E-09	5.87	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			KBA14AA004EFC_B-ALL	CCF to Close CVCS Low Pressure Reducing Station MOVs
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
2	3.388E-09	5.87	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			KBA14AA004EFC_B-ALL	CCF to Close CVCS Low Pressure Reducing Station MOVs
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
3	2.461E-09	4.26	IE SD RHR CBD	Initiator - RHR in Power State CBd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
4	1.891E-09	3.28	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
5	1.891E-09	3.28	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
6	1.845E-09	3.20	IE SD RHR CBU	Initiator - RHR in Power State CBu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
7	1.845E-09	3.20	IE SD RHR CAD	Initiator - RHR in Power State CAd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run

No.	Freq.	%	Event	Description
8	1.230E-09	2.13	IE SD RHR CAU	Initiator - RHR in Power State CAu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
9	6.502E-10	1.13	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
10	6.502E-10	1.13	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
11	6.446E-10	1.12	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
12	6.446E-10	1.12	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG30AA192SPO	LHSI, LHSI/RHR Train 30 Overpressure Protection Safety Valve JNG30AA192, Premature Opening
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
13	6.446E-10	1.12	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
14	6.446E-10	1.12	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB

No.	Freq.	%	Event	Description
15	6.446E-10	1.12	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNA30AA191SPO	RHR, LHSI Train 3 Safety Valve JNA30AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
16	6.446E-10	1.12	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
17	5.500E-10	0.95	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
			PAS	Proccess Automation System (PAS) Fails (Estimate)
18	5.500E-10	0.95	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
			PAS	Proccess Automation System (PAS) Fails (Estimate)
19	4.835E-10	0.84	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
20	4.835E-10	0.84	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
21	4.835E-10	0.84	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
22	4.835E-10	0.84	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D

No.	Freq.	%	Event	Description
23	4.835E-10	0.84	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
24	4.835E-10	0.84	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
25	4.835E-10	0.84	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
26	4.835E-10	0.84	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
27	3.432E-10	0.59	IE SD RHR ISLOCA E	RHR ISLOCA During Shutdown State E
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR2 PIPE BRK	Pipe Break in RHR Train 2
28	3.432E-10	0.59	IE SD RHR ISLOCA E	RHR ISLOCA During Shutdown State E
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR1 PIPE BRK	Pipe Break in RHR Train 1
29	3.285E-10	0.57	IE SD RHR CBD	Initiator - RHR in Power State CBd
			PEB10AP001EFS_D-ALL	CCF of the ESWS Pumps to Start
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
30	2.758E-10	0.48	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			KBA14AA004EFC_B-ALL	CCF to Close CVCS Low Pressure Reducing Station MOVs

No.	Freq.	%	Event	Description
31	2.758E-10	0.48	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			KBA14AA004EFC_B-ALL	CCF to Close CVCS Low Pressure Reducing Station MOVs
32	2.623E-10	0.45	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			SA-ESWS UHS4 SBO	Failure of SA-ESWS/UHS4 in SBO Conditions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
33	2.464E-10	0.43	IE SD RHR CAD	Initiator - RHR in Power State CAd
			PEB10AP001EFS_D-ALL	CCF of the ESWS Pumps to Start
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
34	2.464E-10	0.43	IE SD RHR CBU	Initiator - RHR in Power State CBu
			PEB10AP001EFS_D-ALL	CCF of the ESWS Pumps to Start
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
35	2.005E-10	0.35	IE SD RHR CBD	Initiator - RHR in Power State CBd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFS	ELEC, SBO Diesel Generator XKA50, Fails to Start on Demand
36	1.968E-10	0.34	IE SD RHR CAD	Initiator - RHR in Power State CAd
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			SA-ESWS UHS4 SBO	Failure of SA-ESWS/UHS4 in SBO Conditions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
37	1.968E-10	0.34	IE SD RHR CBU	Initiator - RHR in Power State CBu
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			SA-ESWS UHS4 SBO	Failure of SA-ESWS/UHS4 in SBO Conditions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour

No.	Freq.	%	Event	Description
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
38	1.891E-10	0.33	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
			PAS	Proccess Automation System (PAS) Fails (Estimate)
39	1.891E-10	0.33	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
			PAS	Proccess Automation System (PAS) Fails (Estimate)
40	1.844E-10	0.32	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			KBA14AA004PANS	CVCS, LP Reducing Iso MOV KBA14AA004, PAC A Priority Module (Type AV42) Fails (Non-Self-Monitored)
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
41	1.844E-10	0.32	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			KBA14AA004PANS	CVCS, LP Reducing Iso MOV KBA14AA004, PAC A Priority Module (Type AV42) Fails (Non-Self-Monitored)
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
42	1.669E-10	0.29	IE SD RHR CBD	Initiator - RHR in Power State CBd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFS_D-ALL	CCF of EDGs to Start
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
43	1.642E-10	0.28	IE SD RHR CAU	Initiator - RHR in Power State CAu
			PEB10AP001EFS_D-ALL	CCF of the ESWS Pumps to Start
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
44	1.612E-10	0.28	IE SD LOCA DD	Initiator - LOCA During Shutdown State Dd
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
45	1.612E-10	0.28	IE SD LOCA DD	Initiator - LOCA During Shutdown State Dd
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D

No.	Freq.	%	Event	Description
46	1.612E-10	0.28	IE SD LOCA DD	Initiator - LOCA During Shutdown State Dd
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
47	1.612E-10	0.28	IE SD LOCA DD	Initiator - LOCA During Shutdown State Dd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG30AA192SPO	LHSI, LHSI/RHR Train 30 Overpressure Protection Safety Valve JNG30AA192, Premature Opening
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
48	1.612E-10	0.28	IE SD LOCA DD	Initiator - LOCA During Shutdown State Dd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
49	1.539E-10	0.27	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
50	1.539E-10	0.27	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
51	1.504E-10	0.26	IE SD RHR CBU	Initiator - RHR in Power State CBu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFS	ELEC, SBO Diesel Generator XKA50, Fails to Start on Demand
52	1.504E-10	0.26	IE SD RHR CAD	Initiator - RHR in Power State CAd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFS	ELEC, SBO Diesel Generator XKA50, Fails to Start on Demand
53	1.477E-10	0.26	IE SD LOCA E	Initiator - LOCA During Shutdown State E
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			SLOCA24	Small LOCA - 24 Hour

No.	Freq.	%	Event	Description
54	1.427E-10	0.25	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
55	1.312E-10	0.23	IE SD RHR CAU	Initiator - RHR in Power State CAu
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			SA-ESWS UHS4 SBO	Failure of SA-ESWS/UHS4 in SBO Conditions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
56	1.289E-10	0.22	IE SD RHR CBD	Initiator - RHR in Power State CBd
			BTD01_BAT__ST_D-ALL	CCF of Safety Related Batteries on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
57	1.252E-10	0.22	IE SD RHR CAD	Initiator - RHR in Power State CAd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFS_D-ALL	CCF of EDGs to Start
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
58	1.252E-10	0.22	IE SD RHR CBU	Initiator - RHR in Power State CBu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFS_D-ALL	CCF of EDGs to Start
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
59	1.074E-10	0.19	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JND20AA003CIR	MHSI, MHSI Pump 20 Discharge Manual CHECK Valve JND20AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
60	1.074E-10	0.19	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JND30AA003CIR	MHSI, MHSI Pump 30 Discharge Manual CHECK Valve JND30AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB

No.	Freq.	%	Event	Description
61	1.074E-10	0.19	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JND10AA003CIR	MHSI, MHSI Pump 10 Discharge Manual CHECK Valve JND10AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
62	1.070E-10	0.19	IE SD RHR CBU	Initiator - RHR in Power State CBu
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
63	1.070E-10	0.19	IE SD RHR CAD	Initiator - RHR in Power State CAd
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
64	1.013E-10	0.18	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run
65	1.004E-10	0.17	IE SD RHR DU	Initiator - RHR in Power State Du
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
66	1.003E-10	0.17	IE SD RHR CAU	Initiator - RHR in Power State CAu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFS	ELEC, SBO Diesel Generator XKA50, Fails to Start on Demand

No.	Freq.	%	Event	Description
67	9.665E-11	0.17	IE SD RHR CAD	Initiator - RHR in Power State CAd
			BTD01_BAT__ST_D -ALL	CCF of Safety Related Batteries on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
68	9.665E-11	0.17	IE SD RHR DU	Initiator - RHR in Power State Du
			BTD01_BAT__ST_D -ALL	CCF of Safety Related Batteries on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
69	9.665E-11	0.17	IE SD RHR CBU	Initiator - RHR in Power State CBu
			BTD01_BAT__ST_D -ALL	CCF of Safety Related Batteries on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
70	8.346E-11	0.14	IE SD RHR CAU	Initiator - RHR in Power State CAu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFS_D -ALL	CCF of EDGs to Start
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
71	8.137E-11	0.14	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JNK10AT001SPG_P -ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
72	8.137E-11	0.14	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNA30AA191SPO	RHR, LHSI Train 3 Safety Valve JNA30AA191, Premature Opening
			JNK10AT001SPG_P -ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
73	8.137E-11	0.14	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			JNK10AT001SPG_P -ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
74	8.137E-11	0.14	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG30AA192SPO	LHSI, LHSI/RHR Train 30 Overpressure Protection Safety Valve JNG30AA192, Premature Opening
			JNK10AT001SPG_P -ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB

No.	Freq.	%	Event	Description
75	8.137E-11	0.14	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
76	8.137E-11	0.14	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
77	8.058E-11	0.14	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JND20AA003CIR	MHSI, MHSI Pump 20 Discharge Manual CHECK Valve JND20AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
78	8.058E-11	0.14	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JND10AA003CIR	MHSI, MHSI Pump 10 Discharge Manual CHECK Valve JND10AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
79	8.058E-11	0.14	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JND20AA003CIR	MHSI, MHSI Pump 20 Discharge Manual CHECK Valve JND20AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
80	8.058E-11	0.14	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JND10AA003CIR	MHSI, MHSI Pump 10 Discharge Manual CHECK Valve JND10AA003, Internal Rupture
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
81	8.004E-11	0.14	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC01AN001EFR_D-ALL	CCF to Run Normal Air Supply Fans

No.	Freq.	%	Event	Description
82	8.004E-11	0.14	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC31AN001EFR_D-ALL	CCF to Run Normal Air Exhaust Fans
83	7.599E-11	0.13	IE SD RHR CBU	Initiator - RHR in Power State CBu
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run
84	7.599E-11	0.13	IE SD RHR CAD	Initiator - RHR in Power State CAd
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run
85	7.521E-11	0.13	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA004EOP	LHSI, LHSI Train 2 to Tangential Miniflow Motor Operated CV JNG20AA004, Fails to Remain Closed (SO)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
86	7.521E-11	0.13	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG30AA003EOP	LHSI, LHSI Trn 3 to Radial Miniflow Motor Operated Check Vlv JNG30AA003, Fails to Remain Closed (SO)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
87	7.521E-11	0.13	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG30AA001EOP	LHSI, LHSI Pump 30 Suction from IRWST MOV JNG30AA001, Fails to Remain Closed (SO)
			OPF-ISOIRWSTFD-CB	Operator Fails to Isolate RHR Suction to IRWST (Valve JNGX0AA001) in CB

No.	Freq.	%	Event	Description
88	7.521E-11	0.13	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG30AA004EOP	LHSI, LHSI Train 3 to Tangential Miniflow Motor Operated CV JNG30AA004, Fails to Remain Closed (SO)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
89	7.521E-11	0.13	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG10AA003EOP	LHSI, LHSI Trn 1 to Radial Miniflow Motor Operated Check Vlv JNG10AA003, Fails to Remain Closed (SO)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
90	7.521E-11	0.13	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA001EOP	LHSI, LHSI Pump 20 Suction from IRWST MOV JNG20AA001, Fails to Remain Closed (SO)
			OPF-ISOIRWSTFD-CB	Operator Fails to Isolate RHR Suction to IRWST (Valve JNGX0AA001) in CB
91	7.521E-11	0.13	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG10AA001EOP	LHSI, LHSI Pump 10 Suction from IRWST MOV JNG10AA001, Fails to Remain Closed (SO)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISOIRWSTFD-CB	Operator Fails to Isolate RHR Suction to IRWST (Valve JNGX0AA001) in CB
92	7.521E-11	0.13	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG10AA004EOP	LHSI, LHSI Trn 1 to Radial Miniflow Motor Operated Check Vlv JNG10AA004, Fails to Remain Closed (SO)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
93	7.521E-11	0.13	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA003EOP	LHSI, LHSI Trn 2 to Radial Miniflow Motor Operated Check Vlv JNG20AA003, Fails to Remain Closed (SO)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
94	7.136E-11	0.12	IE SD RHR CAU	Initiator - RHR in Power State CAu
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run

No.	Freq.	%	Event	Description
95	7.114E-11	0.12	IE SD RHR CBD	Initiator - RHR in Power State CBd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D -ALL	CCF of EDGs to Run
			XKA50_____DFR_B -ALL	CCF of SBO DGs to Run
96	6.864E-11	0.12	IE SD RHR ISLOCA CBD	RHR ISLOCA During Shutdown State CBd
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR3 PIPE BRK	Pipe Break in RHR Train 3
97	6.864E-11	0.12	IE SD RHR ISLOCA CBD	RHR ISLOCA During Shutdown State CBd
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR1 PIPE BRK	Pipe Break in RHR Train 1
98	6.864E-11	0.12	IE SD RHR ISLOCA CBD	RHR ISLOCA During Shutdown State CBd
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR2 PIPE BRK	Pipe Break in RHR Train 2
99	6.444E-11	0.11	IE SD RHR CAU	Initiator - RHR in Power State CAu
			BTD01_BAT__ST_D -ALL	CCF of Safety Related Batteries on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
100	6.341E-11	0.11	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			KBA14AA106PBNS	CVCS, CVCS LP Redu Stn MOV KBA14AA106, PAC B Priority Module (Type PC10) Fails (Non-Self-Monitored)
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
101	6.341E-11	0.11	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			KBA14AA106PBNS	CVCS, CVCS LP Redu Stn MOV KBA14AA106, PAC B Priority Module (Type PC10) Fails (Non-Self-Monitored)
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station

No.	Freq.	%	Event	Description
102	6.341E-11	0.11	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			KBA14AA004PANS	CVCS, LP Reducing Iso MOV KBA14AA004, PAC A Priority Module (Type AV42) Fails (Non-Self-Monitored)
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
103	6.341E-11	0.11	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			KBA14AA004PANS	CVCS, LP Reducing Iso MOV KBA14AA004, PAC A Priority Module (Type AV42) Fails (Non-Self-Monitored)
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
			OPE-ISOCSLPRS	Operator Fails to Isolate the CVCS Low Pressure Reducing Station
104	6.265E-11	0.11	IE SD RHR CBD	Initiator - RHR in Power State CBd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-134	CCF of EDGs to Run
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
105	6.265E-11	0.11	IE SD RHR CBD	Initiator - RHR in Power State CBd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-124	CCF of EDGs to Run
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
106	6.265E-11	0.11	IE SD RHR CBD	Initiator - RHR in Power State CBd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR	ELEC, Emergency Diesel Generator XKA10, Fails to Run
			XKA10_____DFR_D-234	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
107	6.265E-11	0.11	IE SD RHR CBD	Initiator - RHR in Power State CBd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-123	CCF of EDGs to Run
			XKA40_____DFR	ELEC, Emergency Diesel Generator XKA40, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
108	6.103E-11	0.11	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB

No.	Freq.	%	Event	Description
109	6.103E-11	0.11	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
110	6.103E-11	0.11	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
111	6.103E-11	0.11	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNA10AA191SPO	RHR, LHSI Train 1 Safety Valve JNA10AA191, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
112	6.103E-11	0.11	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
113	6.103E-11	0.11	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNA20AA191SPO	RHR, LHSI Train 2 Safety Valve JNA20AA191, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
114	6.103E-11	0.11	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNG20AA192SPO	LHSI, LHSI/RHR Train 20 Overpressure Protection Safety Valve JNG20AA192, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
115	6.103E-11	0.11	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNG10AA192SPO	LHSI, LHSI/RHR Train 10 Overpressure Protection Safety Valve JNG10AA192, Premature Opening
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D

No.	Freq.	%	Event	Description
116	6.003E-11	0.10	IE SD RHR CAD	Initiator - RHR in Power State CAd
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC31AN001EFR_D-ALL	CCF to Run Normal Air Exhaust Fans
117	6.003E-11	0.10	IE SD RHR CBU	Initiator - RHR in Power State CBu
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC01AN001EFR_D-ALL	CCF to Run Normal Air Supply Fans
118	6.003E-11	0.10	IE SD RHR CBU	Initiator - RHR in Power State CBu
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC31AN001EFR_D-ALL	CCF to Run Normal Air Exhaust Fans
119	6.003E-11	0.10	IE SD RHR DU	Initiator - RHR in Power State Du
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC31AN001EFR_D-ALL	CCF to Run Normal Air Exhaust Fans
120	6.003E-11	0.10	IE SD RHR DU	Initiator - RHR in Power State Du
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC01AN001EFR_D-ALL	CCF to Run Normal Air Supply Fans
121	6.003E-11	0.10	IE SD RHR CAD	Initiator - RHR in Power State CAd
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC01AN001EFR_D-ALL	CCF to Run Normal Air Supply Fans
122	5.640E-11	0.10	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNG10AA001EOP	LHSI, LHSI Pump 10 Suction from IRWST MOV JNG10AA001, Fails to Remain Closed (SO)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISOIRWSTFD-D	Operator Fails to Isolate RHR Suction to IRWST (Valve JNGX0AA001) in D

No.	Freq.	%	Event	Description
123	5.640E-11	0.10	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA003EOP	LHSI, LHSI Trn 2 to Radial Miniflow Motor Operated Check Vlv JNG20AA003, Fails to Remain Closed (SO)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
124	5.640E-11	0.10	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNG10AA004EOP	LHSI, LHSI Trn 1 to Radial Miniflow Motor Operated Check Vlv JNG10AA004, Fails to Remain Closed (SO)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
125	5.640E-11	0.10	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA003EOP	LHSI, LHSI Trn 2 to Radial Miniflow Motor Operated Check Vlv JNG20AA003, Fails to Remain Closed (SO)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
126	5.640E-11	0.10	IE SD LOCA CAD	Initiator - LOCA During Shutdown State CAd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA001EOP	LHSI, LHSI Pump 20 Suction from IRWST MOV JNG20AA001, Fails to Remain Closed (SO)
			OPF-ISOIRWSTFD-CA	Operator Fails to Isolate RHR Suction to IRWST (Valve JNGX0AA001) in CA
127	5.640E-11	0.10	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA001EOP	LHSI, LHSI Pump 20 Suction from IRWST MOV JNG20AA001, Fails to Remain Closed (SO)
			OPF-ISOIRWSTFD-D	Operator Fails to Isolate RHR Suction to IRWST (Valve JNGX0AA001) in D
128	5.640E-11	0.10	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA001EOP	LHSI, LHSI Pump 20 Suction from IRWST MOV JNG20AA001, Fails to Remain Closed (SO)
			OPF-ISOIRWSTFD-CB	Operator Fails to Isolate RHR Suction to IRWST (Valve JNGX0AA001) in CB
129	5.640E-11	0.10	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNG10AA003EOP	LHSI, LHSI Trn 1 to Radial Miniflow Motor Operated Check Vlv JNG10AA003, Fails to Remain Closed (SO)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D

No.	Freq.	%	Event	Description
130	5.640E-11	0.10	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNG10AA004EOP	LHSI, LHSI Trn 1 to Radial Miniflow Motor Operated Check Vlv JNG10AA004, Fails to Remain Closed (SO)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
131	5.640E-11	0.10	IE SD LOCA CAD	Initiator - LOCA During Shutdown State CAd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG30AA001EOP	LHSI, LHSI Pump 30 Suction from IRWST MOV JNG30AA001, Fails to Remain Closed (SO)
			OPF-ISOIRWSTFD-CA	Operator Fails to Isolate RHR Suction to IRWST (Valve JNGX0AA001) in CA
132	5.640E-11	0.10	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNG10AA003EOP	LHSI, LHSI Trn 1 to Radial Miniflow Motor Operated Check Vlv JNG10AA003, Fails to Remain Closed (SO)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
133	5.640E-11	0.10	IE SD LOCA DU	Initiator - LOCA During Shutdown State Du
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA004EOP	LHSI, LHSI Train 2 to Tangential Miniflow Motor Operated CV JNG20AA004, Fails to Remain Closed (SO)
			OPF-ISORHRFD-D	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State D
134	5.640E-11	0.10	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA004EOP	LHSI, LHSI Train 2 to Tangential Miniflow Motor Operated CV JNG20AA004, Fails to Remain Closed (SO)
			OPF-ISORHRFD-CB	Operator Fails to Isolate RHR Flow Diversion (LOCA) in State CB
135	5.640E-11	0.10	IE SD LOCA CBU	Initiator - LOCA During Shutdown State CBu
			JNG10AA001EOP	LHSI, LHSI Pump 10 Suction from IRWST MOV JNG10AA001, Fails to Remain Closed (SO)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISOIRWSTFD-CB	Operator Fails to Isolate RHR Suction to IRWST (Valve JNGX0AA001) in CB
136	5.640E-11	0.10	IE SD LOCA CAD	Initiator - LOCA During Shutdown State CAd
			JNG10AA001EOP	LHSI, LHSI Pump 10 Suction from IRWST MOV JNG10AA001, Fails to Remain Closed (SO)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISOIRWSTFD-CA	Operator Fails to Isolate RHR Suction to IRWST (Valve JNGX0AA001) in CA

No.	Freq.	%	Event	Description
137	5.372E-11	0.09	IE SD RHR CBD	Initiator - RHR in Power State CBd
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			SA-ESWS UHS4 SBO	Failure of SA-ESWS/UHS4 in SBO Conditions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
138	5.336E-11	0.09	IE SD RHR CBU	Initiator - RHR in Power State CBu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR_B-ALL	CCF of SBO DGs to Run
139	5.336E-11	0.09	IE SD RHR DU	Initiator - RHR in Power State Du
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR_B-ALL	CCF of SBO DGs to Run
140	5.336E-11	0.09	IE SD RHR CAD	Initiator - RHR in Power State CAd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR_B-ALL	CCF of SBO DGs to Run
141	5.292E-11	0.09	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
142	5.292E-11	0.09	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			KBA14AA004EFC	CVCS, Low Pressure Reducing Station Isolation MOV KBA14AA004, Fails to Close on Demand
			KBA14AA106EFC	CVCS, CVCS Low Power Reducing Station MOV KBA14AA106, Fails to Close on Demand
143	5.148E-11	0.09	IE SD RHR ISLOCA CBU	RHR ISLOCA During Shutdown State CBu
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR1 PIPE BRK	Pipe Break in RHR Train 1

No.	Freq.	%	Event	Description
144	5.148E-11	0.09	IE SD RHR ISLOCA CAD	RHR ISLOCA During Shutdown State CAd 2
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR1 PIPE BRK	Pipe Break in RHR Train 1
145	5.148E-11	0.09	IE SD RHR ISLOCA DU	RHR ISLOCA During Shutdown State Du
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR1 PIPE BRK	Pipe Break in RHR Train 1
146	5.148E-11	0.09	IE SD RHR ISLOCA CAD	RHR ISLOCA During Shutdown State CAd 2
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR4 PIPE BRK	Pipe Break in RHR Train 4
147	5.148E-11	0.09	IE SD RHR ISLOCA CAD	RHR ISLOCA During Shutdown State CAd 2
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR3 PIPE BRK	Pipe Break in RHR Train 3
148	5.148E-11	0.09	IE SD RHR ISLOCA DU	RHR ISLOCA During Shutdown State Du
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR2 PIPE BRK	Pipe Break in RHR Train 2
149	5.148E-11	0.09	IE SD RHR ISLOCA CAD	RHR ISLOCA During Shutdown State CAd 2
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR2 PIPE BRK	Pipe Break in RHR Train 2
150	5.148E-11	0.09	IE SD RHR ISLOCA CBU	RHR ISLOCA During Shutdown State CBu
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR2 PIPE BRK	Pipe Break in RHR Train 2

No.	Freq.	%	Event	Description
151	5.066E-11	0.09	IE SD RHR CAU	Initiator - RHR in Power State CAu
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-234	CCF of EDGs to Run
152	4.977E-11	0.09	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC31AN001EFR_D-123	CCF to Run Normal Air Exhaust Fans
153	4.977E-11	0.09	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC01AN001EFR_D-123	CCF to Run Normal Air Supply Fans
154	4.699E-11	0.08	IE SD RHR CBU	Initiator - RHR in Power State CBu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-123	CCF of EDGs to Run
			XKA40_____DFR	ELEC, Emergency Diesel Generator XKA40, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
155	4.699E-11	0.08	IE SD RHR CAD	Initiator - RHR in Power State CAd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-123	CCF of EDGs to Run
			XKA40_____DFR	ELEC, Emergency Diesel Generator XKA40, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
156	4.699E-11	0.08	IE SD RHR CAD	Initiator - RHR in Power State CAd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR	ELEC, Emergency Diesel Generator XKA10, Fails to Run
			XKA10_____DFR_D-234	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run

No.	Freq.	%	Event	Description
157	4.699E-11	0.08	IE SD RHR CBU	Initiator - RHR in Power State CBu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-134	CCF of EDGs to Run
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
158	4.699E-11	0.08	IE SD RHR CBU	Initiator - RHR in Power State CBu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-124	CCF of EDGs to Run
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
159	4.699E-11	0.08	IE SD RHR CBU	Initiator - RHR in Power State CBu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR	ELEC, Emergency Diesel Generator XKA10, Fails to Run
			XKA10_____DFR_D-234	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
160	4.699E-11	0.08	IE SD RHR CAD	Initiator - RHR in Power State CAd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-134	CCF of EDGs to Run
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
161	4.699E-11	0.08	IE SD RHR CAD	Initiator - RHR in Power State CAd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-124	CCF of EDGs to Run
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
162	4.477E-11	0.08	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
			PAS	Proccess Automation System (PAS) Fails (Estimate)
163	4.477E-11	0.08	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ULD	Operator Fails to Stop Draindown at Mid-Loop
			PAS	Proccess Automation System (PAS) Fails (Estimate)

No.	Freq.	%		Event	Description
164	4.068E-11	0.07		IE SD RHR DU	Initiator - RHR in Power State Du
				JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
				SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
				XKA40_____DFR	ELEC, Emergency Diesel Generator XKA40, Fails to Run
165	4.029E-11	0.07		IE SD RHR CAD	Initiator - RHR in Power State CAd
				LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
				SA-ESWS UHS4 SBO	Failure of SA-ESWS/UHS4 in SBO Conditions
				SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
				XKA10_____DFR_D-ALL	CCF of EDGs to Run
166	4.029E-11	0.07		IE SD RHR CBU	Initiator - RHR in Power State CBu
				LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
				SA-ESWS UHS4 SBO	Failure of SA-ESWS/UHS4 in SBO Conditions
				SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
				XKA10_____DFR_D-ALL	CCF of EDGs to Run
167	4.002E-11	0.07		IE SD RHR CAU	Initiator - RHR in Power State CAu
				OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
				OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
				SAC01AN001EFR_D-ALL	CCF to Run Normal Air Supply Fans
168	4.002E-11	0.07		IE SD RHR CAU	Initiator - RHR in Power State CAu
				OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
				OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
				SAC31AN001EFR_D-ALL	CCF to Run Normal Air Exhaust Fans
169	3.846E-11	0.07		IE SD RHR CBD	Initiator - RHR in Power State CBd
				OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
				OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
				QKA10AP107EFR_D-ALL	CCF of SCWS Pumps to Run
170	3.809E-11	0.07		IE SD RHR DU	Initiator - RHR in Power State Du
			1.270E-07	KAA10AP001EFRSD-ALL	CCF of the CCWS Pumps to Run
				OPF-LHSIRHR-DU	Operator Fails to Start LHSI Pump in DU, given a loss of RHR

No.	Freq.	%	Event	Description
171	3.777E-11	0.07	IE SD RHR ISLOCA E	RHR ISLOCA During Shutdown State E
			JNA10AA001EFC	RHR, LHSI Pump 10 Hot Leg Isolation MOV JNA10AA001, Fails to Close on Demand
			JNA10AA002EFC	RHR, LHSI Pump 10 Hot Leg Isolation MOV JNA10AA002, Fails to Close on Demand
			RHR TR1 PIPE BRK	Pipe Break in RHR Train 1
172	3.777E-11	0.07	IE SD RHR ISLOCA E	RHR ISLOCA During Shutdown State E
			JNA20AA001EFC	RHR, LHSI Pump 20 Hot Leg Isolation MOV JNA20AA001, Fails to Close on Demand
			JNA20AA002EFC	RHR, LHSI Pump 20 Hot Leg Isolation MOV JNA20AA002, Fails to Close on Demand
			RHR TR2 PIPE BRK	Pipe Break in RHR Train 2
173	3.760E-11	0.07	IE SD LOCA CAU	Initiator - LOCA During Shutdown State CAu
			JNG10AA001EOP	LHSI, LHSI Pump 10 Suction from IRWST MOV JNG10AA001, Fails to Remain Closed (SO)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			OPF-ISOIRWSTFD-CA	Operator Fails to Isolate RHR Suction to IRWST (Valve JNGX0AA001) in CA
174	3.760E-11	0.07	IE SD LOCA CAU	Initiator - LOCA During Shutdown State CAu
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			JNG20AA001EOP	LHSI, LHSI Pump 20 Suction from IRWST MOV JNG20AA001, Fails to Remain Closed (SO)
			OPF-ISOIRWSTFD-CA	Operator Fails to Isolate RHR Suction to IRWST (Valve JNGX0AA001) in CA
175	3.733E-11	0.06	IE SD RHR CBU	Initiator - RHR in Power State CBu
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC01AN001EFR_D-123	CCF to Run Normal Air Supply Fans
176	3.733E-11	0.06	IE SD RHR CBU	Initiator - RHR in Power State CBu
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			SAC31AN001EFR_D-123	CCF to Run Normal Air Exhaust Fans

No.	Freq.	%	Event	Description
177	3.557E-11	0.06	IE SD RHR CAU	Initiator - RHR in Power State CAu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR_B-ALL	CCF of SBO DGs to Run
178	3.502E-11	0.06	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPF-XTDIVSBO-2H	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During SBO Considitions
			PEB10AP001EFS_D-ALL	CCF of the ESWS Pumps to Start
			SA-ESWS UHS4 SBO	Failure of SA-ESWS/UHS4 in SBO Conditions
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
179	3.484E-11	0.06	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			QKA10AP107EFR_D-123	CCF of SCWS Pumps to Run
180	3.481E-11	0.06	IE SD ULD CBD D	Initiator - Uncontrolled Level Drop in Shutdown State CBd (Demand)
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			KBA14AA004EFC_B-ALL	CCF to Close CVCS Low Pressure Reducing Station MOVs
181	3.481E-11	0.06	IE SD ULD DU D	Initiator - Uncontrolled Level Drop in Shutdown State Du (Demand)
			JNK10AT001SPG_P-ALL	CCF of IRWST Sump Strainers - Plugged
			KBA14AA004EFC_B-ALL	CCF to Close CVCS Low Pressure Reducing Station MOVs
182	3.432E-11	0.06	IE SD RHR ISLOCA CAU	RHR ISLOCA During Shutdown State CAu
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR1 PIPE BRK	Pipe Break in RHR Train 1
183	3.432E-11	0.06	IE SD RHR ISLOCA CAU	RHR ISLOCA During Shutdown State CAu
			OPF-ISORHRBRK	Operator Fails to Isolate RHR Pipe Break
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			RHR TR2 PIPE BRK	Pipe Break in RHR Train 2

No.	Freq.	%	Event	Description
184	3.387E-11	0.06	IE SD RHR CBD	Initiator - RHR in Power State CBd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_1BDABFO_D-ALL	CCF to Close EDG Supply Breakers
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
185	3.387E-11	0.06	IE SD RHR CBD	Initiator - RHR in Power State CBd
			BDT01_BDA_BFO_D-ALL	CCF to Open Normal Supply 6.9kV Circuit Breakers from Aux. Xfrm to Safety Related SWGRs
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
186	3.387E-11	0.06	IE SD RHR CBD	Initiator - RHR in Power State CBd
			BDT02_BDA_BFO_D-ALL	CCF to Open Backup Supply 6.9kV Circuit Breakers from Aux. Xfrm to Safety Related SWGRs
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
187	3.346E-11	0.06	IE SD RHR DD	Initiator - RHR in Power State Dd
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
188	3.222E-11	0.06	IE SD RHR DD	Initiator - RHR in Power State Dd
			BTD01_BAT__ST_D-ALL	CCF of Safety Related Batteries on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
189	3.192E-11	0.06	IE SD RHR DU	Initiator - RHR in Power State Du
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			JNG10AP001EFR_D-ALL	CCF of LHSI Pumps to Run
190	3.166E-11	0.05	IE SD RHR CBD	Initiator - RHR in Power State CBd
			OPF-XTLDSBO-2H	Operator Fails to Connect and Load SBO DGs to Div 1 and 4
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run

No.	Freq.	%	Event	Description
191	3.133E-11	0.05	IE SD RHR CAU	Initiator - RHR in Power State CAu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-123	CCF of EDGs to Run
			XKA40_____DFR	ELEC, Emergency Diesel Generator XKA40, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
192	3.133E-11	0.05	IE SD RHR CAU	Initiator - RHR in Power State CAu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-134	CCF of EDGs to Run
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
193	3.133E-11	0.05	IE SD RHR CAU	Initiator - RHR in Power State CAu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-124	CCF of EDGs to Run
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
194	3.133E-11	0.05	IE SD RHR CAU	Initiator - RHR in Power State CAu
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR	ELEC, Emergency Diesel Generator XKA10, Fails to Run
			XKA10_____DFR_D-234	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
195	2.955E-11	0.05	IE SD LOCA CBD	Initiator - LOCA During Shutdown State CBd
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves (SIS First Isolation Valves)
			SLOCA24	Small LOCA - 24 Hour
196	2.953E-11	0.05	IE SD RHR CBD	Initiator - RHR in Power State CBd
			31BTB01_BATST	ELEC, 250V Non 1E 12-hr Battery 31BTB01, Fails on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
197	2.941E-11	0.05	IE SD RHR CBD	Initiator - RHR in Power State CBd
			31BTD01_BATST	ELEC, 250V 1E 2-hr Battery 31BTD01, Fails on Demand
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run

No.	Freq.	%	Event	Description
198	2.922E-11	0.05	IE SD RHR CBD	Initiator - RHR in Power State CBd
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			SD LOOP24+REC	Loss Of Offsite Power During Shutdown and Failure of Recovery Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
199	2.885E-11	0.05	IE SD RHR CAD	Initiator - RHR in Power State CAd
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			QKA10AP107EFR_D-ALL	CCF of SCWS Pumps to Run
200	2.885E-11	0.05	IE SD RHR DU	Initiator - RHR in Power State Du
			OPD-SAC2H/SAC1H	Dependency (MED) Between OAs for Starting HVAC Maintenance Trains Recovering Room Cooling Locally
			OPF-SAC-1H	Operator Fails to Start Maintenance HVAC Trains After Failure of Normal SAC Safety Train
			QKA10AP107EFR_D-ALL	CCF of SCWS Pumps to Run

Minimal Cutsets

Top Event probability Q = 5.264E-07

No.	Prob.	%	Event	Description
1	3.200E-08	6.08	IE FLD-ANN ALL	Initiator - Flood in the RB Annulus (Contained)
			PROB ANNULUS	Probability that the Annulus connection boxes will withstand a contained Flood
2	2.626E-08	4.99	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours
3	2.520E-08	4.79	IE FIRE-MCR	Initiator - Fire in the Main Control Room
			OPE-MCR-RSS-90M	Operator Fails to Transfer to the RSS in 90 Mins Given A MCR Fire
4	1.220E-08	2.32	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Start
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
5	1.148E-08	2.18	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
6	1.148E-08	2.18	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
7	7.800E-09	1.48	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
8	6.822E-09	1.30	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JND10AP001EFR_D-ALL	CCF of MHSI Pumps to Run
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
9	6.659E-09	1.26	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			LBA13AA001PFO_D-ALL	CCF to Open Main Steam Relief Isolation Valves
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
10	6.178E-09	1.17	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JNG13AA005CFO_D-ALL	CCF to Open LHSI/MHSI Common Injection Check Valves
11	6.133E-09	1.17	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BRA_____RFR	ELEC, 480V AC to 24V DC Rectifier for MCC 32BRA Control Power, Fails to Run
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
12	6.133E-09	1.17	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BRA_____RFR	ELEC, 480V AC to 24V DC Rectifier for MCC 31BRA Control Power, Fails to Run
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
13	5.594E-09	1.06	IE LOOP	Initiator - Loss Of Offsite Power
			BTD01_BAT__ST_D-ALL	CCF of Safety Related Batteries on Demand
14	5.000E-09	0.95	IE SLBI	Initiator - Steam Break Inside Containment
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
15	4.320E-09	0.82	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
16	3.936E-09	0.75	IE SGTR	Initiator - Steam Generator Tube Rupture
			LBA40AA002PFC	MSS, Train 4 Main Steam Isolation Valve LBA40AA002, Fails to Close on Demand
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours
17	3.932E-09	0.75	IE LOMFW	Initiator - Total Loss of Main Feedwater
			STUCK ROD	Stuck Control Rods

No.	Prob.	%	Event	Description
18	3.388E-09	0.64	IE SGTR	Initiator - Steam Generator Tube Rupture
			LBA43AA101EFC	MSS, Train 4 MSRCV LBA43AA101, Fails to Close on Demand
			OPD-RHR4H/SGTR 1H	Dependency (MED) Between Operator Actions for Stabilizing SGTR and Initiating RHR
			OPF-SGTR-1H	Operator Fails to Isolate SGTR and Initiate Cooldown
19	3.325E-09	0.63	IE LOC	Initiator - Loss of Main Condenser (Includes MSIV Closure etc.)
			STUCK ROD	Stuck Control Rods
20	2.880E-09	0.55	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			EDG PM2	EDG Train 2 Unavailable due to Preventive Maintenance
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
21	2.808E-09	0.53	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
22	2.715E-09	0.52	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS_ B-ALL	CCF of the Air Cooled SCWS Chiller Units to Start
23	2.555E-09	0.49	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
24	2.555E-09	0.49	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
25	2.269E-09	0.43	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			MSRIVSCPFO_P-A LL	CCF to Open Main Steam Relief Isolation Pneumatic Pilot Valves
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA

No.	Prob.	%	Event	Description
26	2.262E-09	0.43	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
27	2.083E-09	0.40	IE LBOP	Initiator - Loss of Balance of Plant - Closed Loop Cooling Water or Aux Cooling Water
			STUCK ROD	Stuck Control Rods
28	1.983E-09	0.38	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
29	1.854E-09	0.35	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
30	1.848E-09	0.35	IE LOOP	Initiator - Loss Of Offsite Power
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
31	1.756E-09	0.33	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
32	1.652E-09	0.31	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
33	1.652E-09	0.31	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FR	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
34	1.540E-09	0.29	IE LOOP	Initiator - Loss Of Offsite Power
			34BTD01_BATST	ELEC, 250V 1E 2-hr Battery 34BTD01, Fails on Demand
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
35	1.540E-09	0.29	IE LOOP	Initiator - Loss Of Offsite Power
			31BTD01_BATST	ELEC, 250V 1E 2-hr Battery 31BTD01, Fails on Demand
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
36	1.485E-09	0.28	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			LBA13AA001PFO_D -ALL	CCF to Open Main Steam Relief Isolation Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
37	1.359E-09	0.26	IE LOOP	Initiator - Loss Of Offsite Power
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SBODG8 PM4	SBO-DG Train 4 Unavailable due to Preventive Maintenance
			XKA10_____DFR_D -ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
38	1.359E-09	0.26	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM4	EFWS Train 4 Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D -ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
39	1.359E-09	0.26	IE LOOP	Initiator - Loss Of Offsite Power
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SBODG5 PM1	SBO-DG Train 1 Unavailable due to Preventive Maintenance
			XKA10_____DFR_D -ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
40	1.359E-09	0.26	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM1	EFWS Train 1 Unavailable due to Preventive Maintenance
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D -ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run

No.	Prob.	%	Event	Description
41	1.222E-09	0.23	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			SAHR PM4	SAHR Train Unavailable due to Preventive Maintenance
42	1.212E-09	0.23	IE IND SGTR	Initiator - Induced Steam Generator Tube Rupture
			OPE-RHR-4H	Operator Fails to Initiate RHR Within 4 Hours
43	1.023E-09	0.19	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			SAHR PM4	SAHR Train Unavailable due to Preventive Maintenance
44	9.820E-10	0.19	IE LOOP	Initiator - Loss Of Offsite Power
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR_B-ALL	CCF of SBO DGs to Run
45	9.600E-10	0.18	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BDB_____OFL	ELEC, 6.9kV SWGR 31BDB, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
46	9.600E-10	0.18	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BDB_____OFL	ELEC, 6.9kV SWGR 32BDB, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
47	9.600E-10	0.18	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BMT02___TFL	ELEC, 6.9kV-480V Transformer 32BMT02, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
48	9.600E-10	0.18	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BMB_____OFL	ELEC, 480V Load Center 32BMB, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
49	9.600E-10	0.18	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BDA_____OFL	ELEC, 6.9kV Switchgear 31BDA, Fails During Operation
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
50	9.600E-10	0.18	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BMB_____OFL	ELEC, 480V Load Center 31BMB, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
51	9.600E-10	0.18	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BDC_____OFL	ELEC, 6.9kV SWGR 31BDC, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
52	9.600E-10	0.18	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BRA_____OFL	ELEC, 480V MCC 32BRA, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
53	9.600E-10	0.18	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BRA_____OFL	ELEC, 480V MCC 31BRA, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
54	9.600E-10	0.18	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			31BMT02___TFL	ELEC, 6.9kV-480V Transformer 31BMT02, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTIE BC	Operator Fails to Align Backup Battery Charger to BUC Bus
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
55	9.600E-10	0.18	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			BRW32BUW33OFL	ELEC, 24V DC I&C Power Rack 32BRW32/32BUW33, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
56	9.600E-10	0.18	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			BRW10BUW11OFL	ELEC, 24V DC I&C Power Rack 31BRW10/31BUW11, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
57	9.116E-10	0.17	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFS	SCWS, Train 1 Motor Driven Safety Chiller Pump QKA10AP107, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
58	9.116E-10	0.17	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40AP107EFS	SCWS, Train 4 Motor Driven Safety Chiller Pump QKA40AP107, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
59	8.970E-10	0.17	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
60	8.970E-10	0.17	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CL-PS-B-SWCCF	SW CCF of Protection System diversity group B
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
61	8.963E-10	0.17	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Run
62	8.854E-10	0.17	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
63	8.810E-10	0.17	IE LBOP	Initiator - Loss of Balance of Plant - Closed Loop Cooling Water or Aux Cooling Water
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC31AN001EFR_D-ALL	CCF to Run Normal Air Exhaust Fans
64	8.810E-10	0.17	IE LBOP	Initiator - Loss of Balance of Plant - Closed Loop Cooling Water or Aux Cooling Water
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01AN001EFR_D-ALL	CCF to Run Normal Air Supply Fans
65	8.433E-10	0.16	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
66	8.433E-10	0.16	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			SAC03/QKA30 PM3	Normal SAC03/QKA30 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
67	8.433E-10	0.16	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FR	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Run
			SAC02/QKA20 PM2	Normal SAC02/QKA20 Train Unavailable due to Preventive Maintenance
68	8.433E-10	0.16	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA30GH001_FR	SCWS, Train 3 Chiller Unit QKA30GH001, Fails to Run
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
69	8.433E-10	0.16	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FR	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Run
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
70	8.433E-10	0.16	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA20GH001_FR	SCWS, Train 2 Chiller Unit QKA20GH001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
71	8.294E-10	0.16	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JND10AP001EFS_D-ALL	CCF of MHSI Pumps to Start
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
72	8.256E-10	0.16	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC34AN001EFR	SAC, Normal Air Exhaust Fan SAC34AN001, Fails to Run
73	8.256E-10	0.16	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC04AN001EFR	SAC, Normal Air Supply Fan SAC04AN001, Fails to Run
74	8.256E-10	0.16	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			SAC31AN001EFR	SAC, Normal Air Exhaust Fan SAC31AN001, Fails to Run

No.	Prob.	%	Event	Description
75	8.256E-10	0.16	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01AN001EFR	SAC, Normal Air Supply Fan SAC01AN001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
76	7.943E-10	0.15	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001PANS	SCWS, Train 4 Chiller Unit QKA40GH001, PAC A Priority Module (Type AV42) Fails (Non-Self-Monitored)
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
77	7.943E-10	0.15	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001PANS	SCWS, Train 1 Chiller Unit QKA10GH001, PAC A Priority Module (Type AV42) Fails (Non-Self-Monitored)
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
78	7.856E-10	0.15	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
79	7.856E-10	0.15	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
80	7.798E-10	0.15	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			JNK10AT001SPG_P -ALL	CCF of IRWST Sump Strainers - Plugged

No.	Prob.	%	Event	Description
81	7.747E-10	0.15	IE LOOP	Initiator - Loss Of Offsite Power
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
82	7.747E-10	0.15	IE LOOP	Initiator - Loss Of Offsite Power
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
83	7.564E-10	0.14	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			MSRIVSOOFO_P-ALL	CCF to Open Main Steam Relief Isolation Solenoid Pilot Valves
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
84	7.519E-10	0.14	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
85	7.412E-10	0.14	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
86	7.052E-10	0.13	IE FIRE-PZR	Initiator - Fire in the Pressurizer Compartment With Spurious Opening of 1 PSRV
			LBA13AA001PFO_D-ALL	CCF to Open Main Steam Relief Isolation Valves
87	6.948E-10	0.13	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			LBA13AA001PFO_D-124	CCF to Open Main Steam Relief Isolation Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
88	6.774E-10	0.13	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
			STUCK ROD	Stuck Control Rods

No.	Prob.	%	Event	Description
89	6.723E-10	0.13	IE SLBI	Initiator - Steam Break Inside Containment
			SG4 PRES CCF-ALL	CCF of SG4 pressure sensors
90	6.297E-10	0.12	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			LBA10AA002PFC	MSS, Train 1 Main Steam Isolation Valve LBA10AA002, Fails to Close on Demand
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
91	6.297E-10	0.12	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			LBA20AA002PFC	MSS, Train 2 Main Steam Isolation Valve LBA20AA002, Fails to Close on Demand
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
92	6.074E-10	0.12	IE LOOP	Initiator - Loss Of Offsite Power
			CL-TXS-OSCCF	SW CCF of TXS operating system or multiple diversity groups
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
93	5.760E-10	0.11	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			LOOP24+REC	Loss Of Offsite Power During Mission Time and Failure of Recovery Within 1 Hour
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
94	5.760E-10	0.11	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			EDG PM1	EDG Train 1 Unavailable due to Preventive Maintenance
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
95	5.755E-10	0.11	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			KAA12AA005EFO_D-ALL	CCF to Open CCWS to LHSI HTX Cooling MOV
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room

No.	Prob.	%	Event	Description
96	5.736E-10	0.11	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
97	5.723E-10	0.11	IE FLD-TB	Initiator - Flood in the Turbine Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01AN001EFR_D-ALL	CCF to Run Normal Air Supply Fans
98	5.723E-10	0.11	IE FLD-TB	Initiator - Flood in the Turbine Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC31AN001EFR_D-ALL	CCF to Run Normal Air Exhaust Fans
99	5.622E-10	0.11	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFR	SCWS, Train 1 Motor Driven Safety Chiller Pump QKA10AP107, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
100	5.622E-10	0.11	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40AP107EFR	SCWS, Train 4 Motor Driven Safety Chiller Pump QKA40AP107, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
101	5.460E-10	0.10	IE FLD-EFW	Initiator - EFW Pipe Break
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			PAS	Proccess Automation System (PAS) Fails (Estimate)
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
102	5.358E-10	0.10	IE SLBO	Initiator - Steam Break Downstream of MSIV
			LBA10AA002PFC_D-ALL	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
103	5.237E-10	0.10	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			EDG PM2	EDG Train 2 Unavailable due to Preventive Maintenance
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run

No.	Prob.	%	Event	Description
104	5.237E-10	0.10	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			EDG PM3	EDG Train 3 Unavailable due to Preventive Maintenance
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
105	5.059E-10	0.10	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			MSRIVSCPFO_P-ALL	CCF to Open Main Steam Relief Isolation Pneumatic Pilot Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
106	5.016E-10	0.10	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC34AN001EFS	SAC, Normal Air Exhaust Fan SAC34AN001, Fails to Start on Demand
107	5.016E-10	0.10	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			SAC31AN001EFS	SAC, Normal Air Exhaust Fan SAC31AN001, Fails to Start on Demand
108	5.016E-10	0.10	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC04AN001EFS	SAC, Normal Air Supply Fan SAC04AN001, Fails to Start on Demand
109	5.016E-10	0.10	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01AN001EFS	SAC, Normal Air Supply Fan SAC01AN001, Fails to Start on Demand
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
110	4.979E-10	0.09	IE SLBO	Initiator - Steam Break Downstream of MSIV
			LBA10AA002PFC_D-134	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)

No.	Prob.	%	Event	Description
111	4.979E-10	0.09	IE SLBO	Initiator - Steam Break Downstream of MSIV
			LBA10AA002PFC_D-123	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
112	4.979E-10	0.09	IE SLBO	Initiator - Steam Break Downstream of MSIV
			LBA10AA002PFC_D-234	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
113	4.979E-10	0.09	IE SLBO	Initiator - Steam Break Downstream of MSIV
			LBA10AA002PFC_D-124	CCF to Close Main Steam Isolation Valves
			OPF-EBS-30M	Operator Fails to Manually Actuate EBS (SLB & ATWS)
114	4.818E-10	0.09	IE FIRE-MS-VR	Initiator - Fire in One of Two MF/MS Valve Rooms With Spurious Opening of 1 MSRIV
			MSIV TR3 ISO-FIRE	MSIV 3 Fails to Isolate Due to Fire in MS/FW Valve Room
			MSIV TR4 ISO-FIRE	MSIV 4 Fails to Isolate Due to Fire in MS/FW Valve Room
			PED10AN002EFS_D-ALL	CCF to Start Standby Cooling Tower Fans
115	4.800E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			32BDA_____OFL	ELEC, 6.9kV SWGR 32BDA, Fails During Operation
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
116	4.780E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			JNG13AA005CFO_D-123	CCF to Open LHSI/MHSI Common Injection Check Valves
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
117	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB02NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB02NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
118	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB01NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB02NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
119	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB03NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB01NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
120	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB02NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB03NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
121	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB03NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB03NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
122	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB01NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB03NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
123	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB03NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB01NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
124	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB03NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB03NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
125	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB01NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB02NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
126	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB01NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB01NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
127	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB03NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB02NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
128	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB03NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB02NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
129	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB02NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB02NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
130	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB01NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB03NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling

No.	Prob.	%	Event	Description
131	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB01NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB01NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
132	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB02NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB01NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
133	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLF24EQ001LB02NS	Digital output module fails (non-self-monitored)
			CLF24EQ002LB01NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
134	4.697E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CLE24EQ001LB02NS	Digital output module fails (non-self-monitored)
			CLE24EQ002LB03NS	Digital output module fails (non-self-monitored)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
135	4.609E-10	0.09	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			PED10AN002EFS_D-123	CCF to Start Standby Cooling Tower Fans
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
136	4.535E-10	0.09	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
137	4.321E-10	0.08	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CCWS/ESWS PM3	CCWS/ESWS Train 3 Pump Unavailable due to Preventive Maintenance
			JND10AP001EFR_D-124	CCF of MHSI Pumps to Run
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA

No.	Prob.	%	Event	Description
138	4.321E-10	0.08	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			CCWS/ESWS PM2	CCWS/ESWS Train 2 Pump Unavailable due to Preventive Maintenance
			JND10AP001EFR_D-134	CCF of MHSI Pumps to Run
			OPE-FCD-40M	Operator Fails to Initiate Fast Cooldown for SLOCA
139	4.234E-10	0.08	IE LBOP	Initiator - Loss of Balance of Plant - Closed Loop Cooling Water or Aux Cooling Water
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10AP107EFR_D-ALL	CCF of SCWS Pumps to Run
140	4.215E-10	0.08	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM4	EFWS Train 4 Unavailable due to Preventive Maintenance
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
141	4.215E-10	0.08	IE LOOP	Initiator - Loss Of Offsite Power
			EFWS PM1	EFWS Train 1 Unavailable due to Preventive Maintenance
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
142	4.214E-10	0.08	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC02/QKA20 PM2	Normal SAC02/QKA20 Train Unavailable due to Preventive Maintenance
			SAC34AN001EFR	SAC, Normal Air Exhaust Fan SAC34AN001, Fails to Run
143	4.214E-10	0.08	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC03/QKA30 PM3	Normal SAC03/QKA30 Train Unavailable due to Preventive Maintenance
			SAC31AN001EFR	SAC, Normal Air Exhaust Fan SAC31AN001, Fails to Run
144	4.214E-10	0.08	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC04AN001EFR	SAC, Normal Air Supply Fan SAC04AN001, Fails to Run
145	4.214E-10	0.08	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			SAC31AN001EFR	SAC, Normal Air Exhaust Fan SAC31AN001, Fails to Run

No.	Prob.	%	Event	Description
146	4.214E-10	0.08	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
			SAC32AN001EFR	SAC, Normal Air Exhaust Fan SAC32AN001, Fails to Run
147	4.214E-10	0.08	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC03AN001EFR	SAC, Normal Air Supply Fan SAC03AN001, Fails to Run
148	4.214E-10	0.08	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC02/QKA20 PM2	Normal SAC02/QKA20 Train Unavailable due to Preventive Maintenance
			SAC04AN001EFR	SAC, Normal Air Supply Fan SAC04AN001, Fails to Run
149	4.214E-10	0.08	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC34AN001EFR	SAC, Normal Air Exhaust Fan SAC34AN001, Fails to Run
150	4.214E-10	0.08	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
			SAC33AN001EFR	SAC, Normal Air Exhaust Fan SAC33AN001, Fails to Run
151	4.214E-10	0.08	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01AN001EFR	SAC, Normal Air Supply Fan SAC01AN001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
152	4.214E-10	0.08	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC02AN001EFR	SAC, Normal Air Supply Fan SAC02AN001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
153	4.214E-10	0.08	IE FIRE-SWGR	Initiator - Fire in the Switchgear Building
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01AN001EFR	SAC, Normal Air Supply Fan SAC01AN001, Fails to Run
			SAC03/QKA30 PM3	Normal SAC03/QKA30 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
154	4.180E-10	0.08	IE SLBI	Initiator - Steam Break Inside Containment
			SG4 PRES CCF-123	CCF of SG4 pressure sensors
155	4.180E-10	0.08	IE SLBI	Initiator - Steam Break Inside Containment
			SG4 PRES CCF-124	CCF of SG4 pressure sensors
156	4.180E-10	0.08	IE SLBI	Initiator - Steam Break Inside Containment
			SG4 PRES CCF-134	CCF of SG4 pressure sensors
157	4.180E-10	0.08	IE SLBI	Initiator - Steam Break Inside Containment
			SG4 PRES CCF-234	CCF of SG4 pressure sensors
158	4.126E-10	0.08	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
159	4.112E-10	0.08	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
160	4.072E-10	0.08	IE FLD-SAB14 FB	Initiator - Flood in Safeguard Building 1 or 4 (Pump Room) Including Fuel Building
			LOOPCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to a Controlled Shutdown
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
161	4.034E-10	0.08	IE LOOP	Initiator - Loss Of Offsite Power
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
162	4.034E-10	0.08	IE LOOP	Initiator - Loss Of Offsite Power
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run

No.	Prob.	%	Event	Description
163	3.966E-10	0.08	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTLDSBO-NSC	Operator Fails to Connect and Load SBO DGs to Div 1 or 4 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			XKA10_____DFR	ELEC, Emergency Diesel Generator XKA10, Fails to Run
164	3.959E-10	0.08	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			BTD01_BAT__ST_D-ALL	CCF of Safety Related Batteries on Demand
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
165	3.908E-10	0.07	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Run
166	3.840E-10	0.07	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			EDG PM2	EDG Train 2 Unavailable due to Preventive Maintenance
			LOOP24+REC	Loss Of Offsite Power During Mission Time and Failure of Recovery Within 1 Hour
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
167	3.746E-10	0.07	IE LOOP	Initiator - Loss Of Offsite Power
			OPF-XTLDSBO-2H	Operator Fails to Connect and Load SBO DGs to Div 1 and 4
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
168	3.744E-10	0.07	IE FIRE-SAB-MECH	Initiator - Fire in the Pump Room of Any Safeguard Building
			LOOP24+REC	Loss Of Offsite Power During Mission Time and Failure of Recovery Within 1 Hour
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
169	3.677E-10	0.07	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FR	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Run
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
170	3.677E-10	0.07	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FR	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Run
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
171	3.632E-10	0.07	IE LOOP	Initiator - Loss Of Offsite Power
			31BNB01___RFR	ELEC, 480V AC to 24V DC Rectifier for MCC 31BNB01 Control Power, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
172	3.632E-10	0.07	IE LOOP	Initiator - Loss Of Offsite Power
			34BNB01___RFR	ELEC, 480V AC to 24V DC Rectifier for MCC 34BNB01 Control Power, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
173	3.620E-10	0.07	IE LOOP	Initiator - Loss Of Offsite Power
			JEB10AA010EFC	RCP, RCP1 Leakoff Isolation MOV JEB10AA010, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
174	3.620E-10	0.07	IE LOOP	Initiator - Loss Of Offsite Power
			JEB30AA010EFC	RCP, RCP3 Leakoff Isolation MOV JEB30AA010, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
175	3.620E-10	0.07	IE LOOP	Initiator - Loss Of Offsite Power
			JEB10AA020EFC	RCP Seal, RCP1 Seal Nitrogen Venting Isolation MOV JEB10AA020, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run

No.	Prob.	%	Event	Description
176	3.620E-10	0.07	IE LOOP	Initiator - Loss Of Offsite Power
			JEB20AA020EFC	RCP Seal, RCP2 Seal Nitrogen Venting Isolation MOV JEB20AA020, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
177	3.620E-10	0.07	IE LOOP	Initiator - Loss Of Offsite Power
			JEB40AA010EFC	RCP, RCP4 Leakoff Isolation MOV JEB40AA010, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
178	3.620E-10	0.07	IE LOOP	Initiator - Loss Of Offsite Power
			JEB40AA020EFC	RCP Seal, RCP4 Seal Nitrogen Venting Isolation MOV JEB40AA020, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
179	3.620E-10	0.07	IE LOOP	Initiator - Loss Of Offsite Power
			JEB30AA020EFC	RCP Seal, RCP3 Seal Nitrogen Venting Isolation MOV JEB30AA020, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
180	3.620E-10	0.07	IE LOOP	Initiator - Loss Of Offsite Power
			JEB20AA010EFC	RCP, RCP2 Leakoff Isolation MOV JEB20AA010, Fails to Close on Demand
			OPE-FCD-40MSBO	Operator Fails to Initiate Fast Cooldown for RCP During SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			REC OSP 1HR	Failure to Recover Offsite Power Within 1 Hour
			XKA10_____DFR_D-ALL	CCF of EDGs to Run

No.	Prob.	%	Event	Description
181	3.607E-10	0.07	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			CVCS VCT	CVCS Switchover to IRWST May Not Be Required
			KAA12AA005EFO_D-123	CCF to Open CCWS to LHSI HTX Cooling MOV
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
182	3.606E-10	0.07	IE SLOCA	Initiator - Small LOCA (0.6 to 3-Inch Diameter)
			LOOPCONL+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for LOCA IEs
			OPE-FB-40M	Operator Fails to Initiate Feed & Bleed for SLOCA
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			XKA20_____DFR	ELEC, Emergency Diesel Generator XKA20, Fails to Run
			XKA30_____DFR	ELEC, Emergency Diesel Generator XKA30, Fails to Run
183	3.518E-10	0.07	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PEB20AP001EFS	ESWS, Train 2 Motor Driven Pump PEB20AP001, Fails to Start on Demand
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
184	3.467E-10	0.07	IE LOMFW	Initiator - Total Loss of Main Feedwater
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS_B-ALL	CCF of the Air Cooled SCWS Chiller Units to Start
185	3.428E-10	0.07	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			31BTD01_BATST	ELEC, 250V 1E 2-hr Battery 31BTD01, Fails on Demand
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
186	3.428E-10	0.07	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			34BTD01_BATST	ELEC, 250V 1E 2-hr Battery 34BTD01, Fails on Demand
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
187	3.342E-10	0.06	IE SLBI	Initiator - Steam Break Inside Containment
			APU4 CCF NS-ALL	CCF of APU-4 Protection System Computer Processors (Non-Self-Monitored)

No.	Prob.	%	Event	Description
188	3.342E-10	0.06	IE SLBI	Initiator - Steam Break Inside Containment
			ALU-B CCF NS-ALL	CCF of ALU-B Protection System Computer Processors (Non-Self-Monitored)
189	3.341E-10	0.06	IE LOOP	Initiator - Loss Of Offsite Power
			LAS11AP001EFR	EFWS, Train 1 Motor Driven Pump LAS11AP001, Fails to Run
			LAS21AP001EFR	EFWS, Train 2 Motor Driven Pump LAS21AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
190	3.341E-10	0.06	IE LOOP	Initiator - Loss Of Offsite Power
			LAS31AP001EFR	EFWS, Train 3 Motor Driven Pump LAS31AP001, Fails to Run
			LAS41AP001EFR	EFWS, Train 4 Motor Driven Pump LAS41AP001, Fails to Run
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			REC OSP 2HR	Failure to Recover Offsite Power Within 2 Hours
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance
191	3.326E-10	0.06	IE LOMFW	Initiator - Total Loss of Main Feedwater
			CF LOMFW/SSS	Common Factor LOMFW/SSS
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC31AN001EFR_D-ALL	CCF to Run Normal Air Exhaust Fans
192	3.326E-10	0.06	IE LOMFW	Initiator - Total Loss of Main Feedwater
			CF LOMFW/SSS	Common Factor LOMFW/SSS
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			SAC01AN001EFR_D-ALL	CCF to Run Normal Air Supply Fans
193	3.262E-10	0.06	IE LOMFW	Initiator - Total Loss of Main Feedwater
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA10GH001_FS	SCWS, Train 1 Chiller Unit QKA10GH001, Fails to Start on Demand
			SAC04/QKA40 PM4	Normal SAC04/QKA40 Train Unavailable due to Preventive Maintenance
194	3.262E-10	0.06	IE LOMFW	Initiator - Total Loss of Main Feedwater
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			OPF-SAC-2H	Operator Fails to Recover Room Cooling Locally
			QKA40GH001_FS	SCWS, Train 4 Chiller Unit QKA40GH001, Fails to Start on Demand
			SAC01/QKA10 PM1	Normal SAC01/QKA10 Train Unavailable due to Preventive Maintenance

No.	Prob.	%	Event	Description
195	3.182E-10	0.06	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			OPF-XTDIV-NSC	Operator Fails to Xtie Division 1 to Division 2 or Division 4 to Divison 3 During Non-SBO Conditions
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			XKA20_____DFS	ELEC, Emergency Diesel Generator XKA20, Fails to Start on Demand
196	3.133E-10	0.06	IE FIRE-SAB14-AC	Initiator - Fire in Switchgear Room of Safeguard Building 1 (or 4)
			EDG PM1	EDG Train 1 Unavailable due to Preventive Maintenance
			LOOPFCSD+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for Fire IEs Leading to a Controlled Shutdn
			PROB SEAL LOCA	Probability of Seal LOCA Occurring Given a Loss of Seal Cooling
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
197	3.024E-10	0.06	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			EFWS PM4	EFWS Train 4 Unavailable due to Preventive Maintenance
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run
198	3.024E-10	0.06	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			EFWS PM1	EFWS Train 1 Unavailable due to Preventive Maintenance
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
199	3.024E-10	0.06	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			SBODG5 PM1	SBO-DG Train 1 Unavailable due to Preventive Maintenance
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA80_____DFR	ELEC, SBO Diesel Generator XKA80, Fails to Run
200	3.024E-10	0.06	IE GT	Initiator - General Transient (Includes Turbine Trip and Reactor Trip)
			LOOPCON+REC	Consequential LOOP and Failure of Recovery Within 1 Hour for IEs Leading to Auto Scram
			SBODG8 PM4	SBO-DG Train 4 Unavailable due to Preventive Maintenance
			XKA10_____DFR_D-ALL	CCF of EDGs to Run
			XKA50_____DFR	ELEC, SBO Diesel Generator XKA50, Fails to Run

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- Group 23 represents cutsets resulting from an SLBO, followed by a CCF to close MSIVs resulting in all four SGs uncontrolled blowdown, and with operator failure to initiate EBS and control reactivity.

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- The important CDF sequences for internal events are presented in Table 19.1-127—U.S. EPR Important Sequences – Level 1 Internal Events. The "important" CDF sequences are defined as those sequences with a sequence frequency greater than one percent of total at-power CDF, as presented in Section 19.1.8.1. For each sequence, Table 19.1-127 gives corresponding event tree, sequence number, event tree sequence identifier, the sequence frequency, and a brief description. It also connects the sequence to the corresponding cutset group in Table 19.1-7, which gives a more detailed description of the sequences.

19.1.4.1.2.4 Significant SSC, Operator Actions and Common Cause Events

Table 19.1-8—U.S. EPR Risk-Significant Equipment based on FV Importance - Level 1 Internal Events through Table 19.1-11—U.S. EPR Risk-Significant Human Actions based on RAW Importance - Level 1 Internal Events shows the important contributors to the internal CDF. Importance is based on the Fussell-Vesely (FV) importance measure (FV ≥0.005), or the risk achievement worth (RAW) importance measure (RAW ≥2).

- Table 19.1-8 shows the risk-significant structures, systems and components (SSC) based on the FV importance measure. The components with the highest FV are the EDG trains and air chiller unit trains. The most important SSC can be explained by a high LOOP contribution to the total CDF and by an importance of the HVAC system in the SB 1 and SB 4 (the location of the running CCW pumps).

- Table 19.1-9—U.S. EPR Risk-Significant Equipment based on RAW Importance - Level 1 Internal Events shows the risk-significant SSC based on the RAW importance measure. The two most important events are the EFW storage tanks and 250V DC buses. Their high RAW rank can be explained by their high reliability and by a high consequence of their failures. A failure (a leak) of an EFW tank, if not isolated, would disable all EFW; failure of the Division 4 DC Bus would disable all Division 4 after a LOOP, and would also disable fault isolations in this division (all breaks are assumed to occur in Division 4)

- Table 19.1-10—U.S. EPR Risk-Significant Human Actions based on FV Importance - Level 1 Internal Events shows the risk-significant human actions based on FV importance. The most important operator action based on the FV is the operator failure to recover room cooling locally given the loss of ventilation. This importance illustrates the importance of the HVAC system. This action, that follows any failure of ventilation to the SBs, shows in cutsets that contribute 43 percent to the total CDF.

- Table 19.1-11—U.S. EPR Risk-Significant Human Actions based on RAW Importance - Level 1 Internal Events shows the risk-significant human actions based on RAW importance. The most important human action based on RAW is, again, the operator failure to recover room cooling locally given the loss of

specific failure pattern 1 above, a loss of Divisions 1 and 4, associated with the running CCW trains, could, if not recovered in time, lead to a loss of two additional safety divisions. All EFW and the possibility to perform feed-and-bleed will be lost, leading to core damage.

Group 5 represents a sequence with a loss of all feedwater and an operator failure to initiate feed and bleed. A flood in the TB disables the MFW and the SSS, followed by an independent CCF of the EFW pumps to start.

Groups 6, 8, 9 and 10 represent the RCP seal LOCA sequences following a flood in the SB 1 or SB 4 including the FB. As explained in flood-specific failure pattern 1 above, a flood in SB 1 or SB 4 results directly in a loss of CCW CH2 and consequently in a loss of seal cooling to two RCPs (the seal injection is disabled because of the flood propagation to the FB, which hosts the CVCS). A failure to isolate seals for one of those two RCPs leads to a seal LOCA with an assumed probability of 0.2. The mechanism by which mitigation of the seal LOCA is failed differs slightly between these groups. It involves either a failure of long-term cooling of the IRWST by the LHSI heat exchanger (the SAHRS is unavailable due to the flood), or failure of MHSI to inject. In Table 19.1-41, which accounts for the top 100 cutsets, seal LOCA sequences contribute to 6.4 percent of the flooding CDF. Overall, a consequential seal LOCA accounts for about 30 percent of the flooding CDF.

Groups 7 and 12 represent sequences when floods caused by pipe breaks in the EFWS result in a complete loss of feedwater. Since the four EFW tanks are connected and are required for a successful core cooling during a 24-hour mission time, a break in any of the trains has the potential to drain the full inventory unless the operator isolates the break and initiates makeup with the demineralized water system (DWS). The DWS is a non-safety system that relies on offsite power. Therefore, a consequential LOOP following the flooding event will fail the makeup. Since it also fails the MFWS and the SSS, all feedwater is lost. Failure of feed-and-bleed, either due to an operator failure to initiate the action (Group 7) or due to a failure of required systems (Group 12, a CCF of all EDGs to run), results in core damage.

Group 11 represents a single cutset that combines a flood in SB 4, with independent failures of HVAC to Division 2, MHSI pump Division 1, and PAS (disables MFW and SSS). This leads to a failure of three divisions (2, 3 and 4), a failure of MSRTs because of electrical dependencies (see Section 19.1.4.1.1.3), and only one EFW train being available when two are needed to remove decay heat through MSSVs. Feed and bleed fails because the only available MHSI pump fails independently.

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The important CDF sequences for internal floods are presented in Table 19.1-128—U.S. EPR Important Sequences – Level 1 Flooding Events. The "important" CDF sequences are defined as those sequences with a sequence frequency greater than one percent of total at-power CDF, as presented in Section 19.1.8.1. For each sequence,

Table 19.1-127—U.S. EPR Important Sequences – Level 1 Internal Events
Sheet 1 of 3

Event Tree	Seq. Num	RS Sequence ID	Seq. Freq (1/yr)	Description	Corresponding Cutsets	
					Table Number	Group Number
LOOP	14	LOOP-REC LOOP-EFW-PBL	8.58E-08	A LOOP event, no recovery of OSP in 2 hours; followed by failures of EFW system and pressure relief for feed and bleed function (dominated by HVAC related failures).	19.1-7	1, 2
GT	15	GT-MFW-SSS-EFW-PBL	2.02E-08	A plant trip with a consequential LOOP (no recovery) and subsequent MFW and SSS failures, followed by failures of EFW system and pressure relief for feed and bleed function (dominated by HVAC related failures).	19.1-7	18, 19
SLOCA	17	SLOCA-SSS-EFW-OP FB	1.95E-08	An SLOCA event with failures of SSS and EFW systems (dominated by a failure of PCD function); followed by an operator failure to initiate F&B.	19.1-7	9, 10
SLOCA	34	SLOCA-MHSI-OP FCD	1.73E-08	An SLOCA event with a failure of all MHSI system, followed by an operator failure to initiate FCD.	19.1-7	8
LOOP	45	LOOP-EDG-REC LOOP-SBO	1.66E-08	A LOOP event, no recovery of OSP in 2 hours; with a failure of all EDGs and both SBO DGs leading to a total blackout.	19.1-7	4
LOOP	44	LOOP-EDG-REC LOOP-EFW	1.12E-08	A LOOP event, no recovery of OSP in 2 hours; with a failure of all EDGs (SBO conditions), followed by a EFW system failure (F&B is not possible in SBO conditions).	19.1-7	5, 6
SLBI	40	SLBI-MSIV ISO(3)-FW ISO	1.04E-08	An SLBI event, followed by a failure of all MS/FW isolation (dominated by common cause software failure of protection system group B).	19.1-7	15

Table 19.1-127—U.S. EPR Important Sequences – Level 1 Internal Events
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Event Tree	Seq. Num	RS Sequence ID	Seq. Freq (1/yr)	Description	Corresponding Cutsets	
					Table Number	Group Number
SGTR	18	SGTR-SG ISO-OP RHR	9.72E-09	An SGTR event with a failure to isolate the faulted SG and operator failure to depressurize RCS and initiate RHR.	19.1-7	16
ATWS	12	ATWS-PSR	9.36E-09	An ATWS event, pressure relief was not credited for ATWS events w/o MFW	19.1-7	17
LOOP	53	LOOP-EDG-RCP LOCA-REC LOOP-OP FCD	7.24E-09	A LOOP event, no recovery of OSP in 2 hours, with a failure of all EDGs (SBO conditions), followed by a seal LOCA and operator failure to initiate a FCD (MHSI not available in SBO conditions).	19.1-7	7
GT	14	GT-MFW-SSS-EFW-MHSI 01	6.78E-09	A plant trip with a consequential LOOP (no recovery) and subsequent MFW and SSS failures, followed by failures of EFW and MHSI system (MHSI is failing a feed and bleed function).	19.1-7	20, 21
SLBI	17	SLBI-FW ISO-EFW	6.78E-09	An SLBI event, followed by a failure of FW isolation and EFW (F&B not credited)		
SLBI	30	SLBI-MSIV ISO-FW ISO-EFW	6.49E-09	An SLBI event, followed by a failure of one MS line and FW isolation (2 SG blowing down) and EFW failure (F&B not credited)		
LOOP	11	LOOP-REC LOOP-EFW-LHSI-SAHR	6.39E-09	A LOOP event, no recovery of OSP in 2 hours, with failure of EFW, feed and bleed fails by lack of long term heat removal (no LHSI or SAHRS)		

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Table 19.1-127—U.S. EPR Important Sequences – Level 1 Internal Events
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Event Tree	Seq. Num	RS Sequence ID	Seq. Freq (1/yr)	Description	Corresponding Cutsets	
					Table Number	Group Number
SLOCA	20	SLOCA-MHSI-ACC	6.24E-09	An SLOCA event, with a failure of MHSI system and accumulators (dominated by a failure to open MHSI/ACC/LHSI common discharge check valves).	19.1-7	11
LOOP	56	LOOP-EDG-I&C	5.63E-09	A LOOP event where a loss of all 1E 2hr batteries prevents starting of EDGs and results in loss of all instrumentation. Given that no instrumentation is available, OSP recoveries or SBO DGs (controlled from 12-hour batteries) are not credited.	19.1-7	3
LOOP	30	LOOP-RCP LOCA-REC LOOP-EFW-OP FB	5.48E-09	A LOOP event, no recovery of OSP in 2 hours, followed by an RCP LOCA, a failure of EFW and an operator failure to initiate feed and bleed.		
LOOP	29	LOOP-RCP LOCA-REC LOOP-EFW-PBL	5.38E-09	A LOOP event, no recovery of OSP in 2 hours, followed by an RCP LOCA, and failures of EFW system and pressure relief for feed and bleed function.		
LOOP	52	LOOP-EDG-RCP LOCA-REC LOOP-EFW	5.31E-09	A LOOP event, no recovery of OSP in 2 hours, with a failure of all EDGs (SBO conditions), followed by an RCP LOCA, and a failure of EFW		

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