INEEL
Idaho National Engineering and Environmental Laboratory
BECHTEL BWXT IDAHO, LLC

P.O. Box 1625
2525 North Fremont Ave.
Idaho Falls, Idaho 83415
(208) 526-0111

FAX TRAMSMITTAL

Date: 1/13/00

To: GLENN KELLEY **Phone:** 301-415-1075

Company: NRC **Fax:** 301-415-5577

From: SOLI KHERICHA **Phone:** 208-526-9254

Fax Number: (208)526-2930

Number of pages INCLUDING Cover page 12

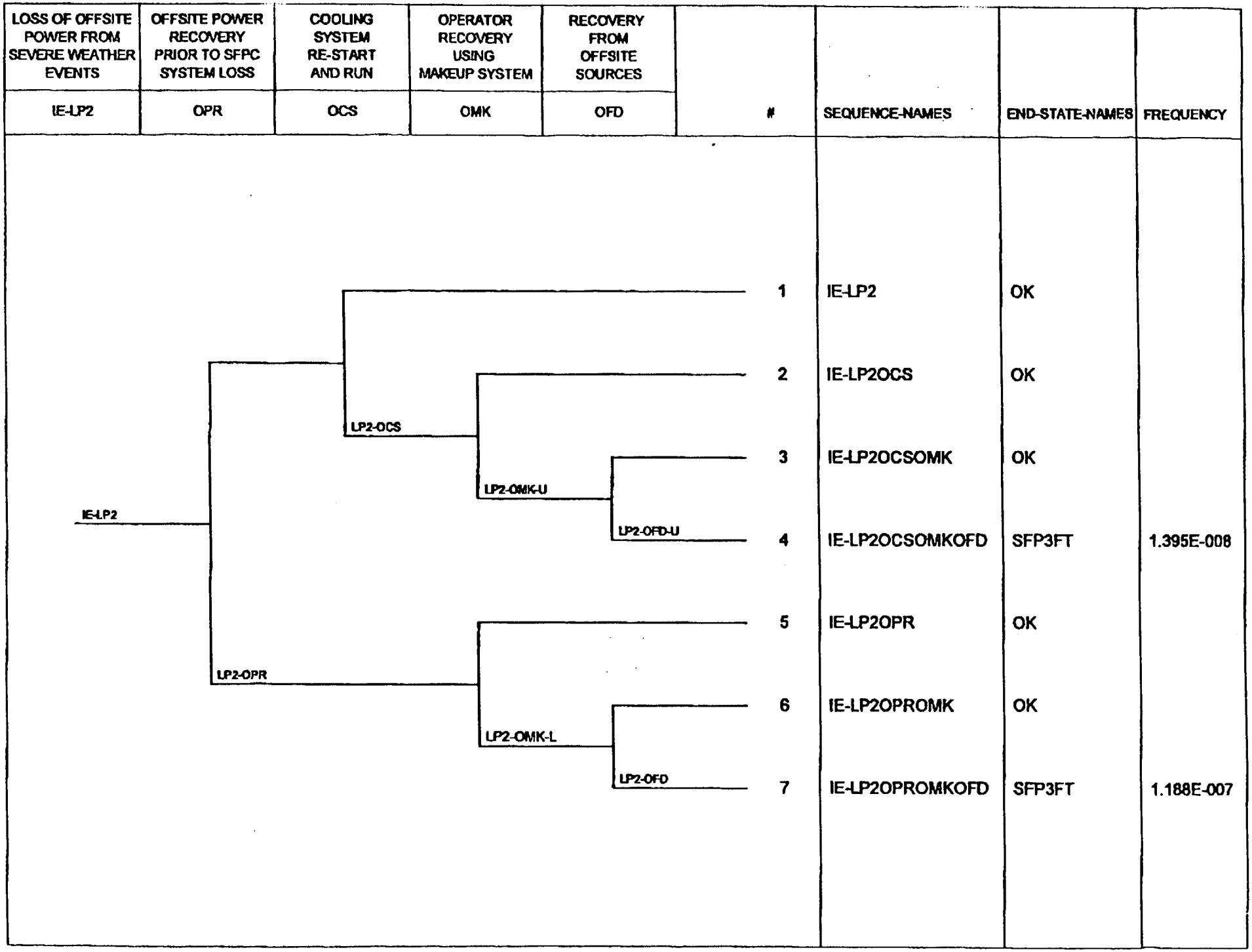
NOTE/MESSAGE

LOSP (Severe Weather)
FT, FT, CUTSETS

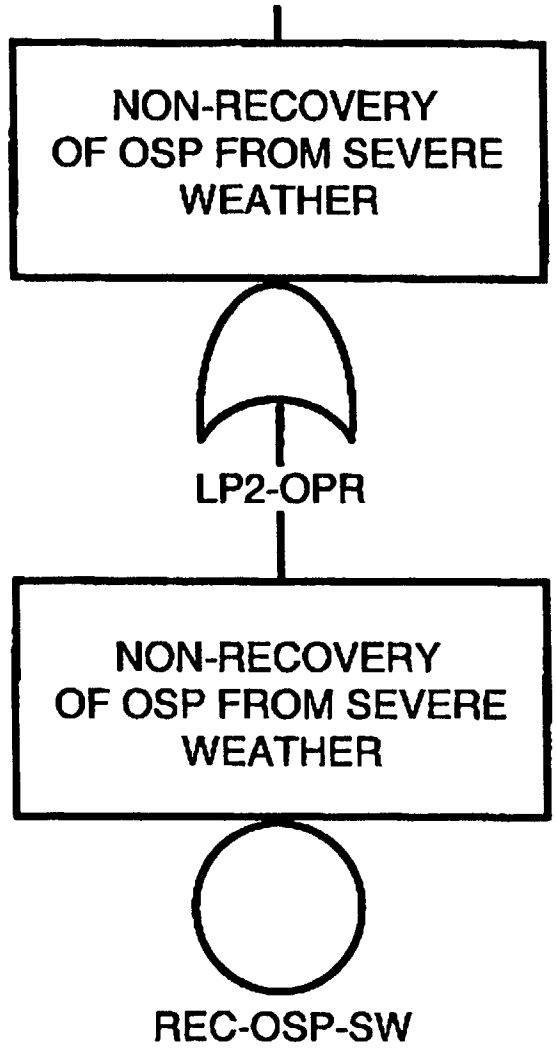
FOR GARETH Info.
IE freq. P. 22, Table 3-11, NUREG/CR-5496
I used the freq you suggested.

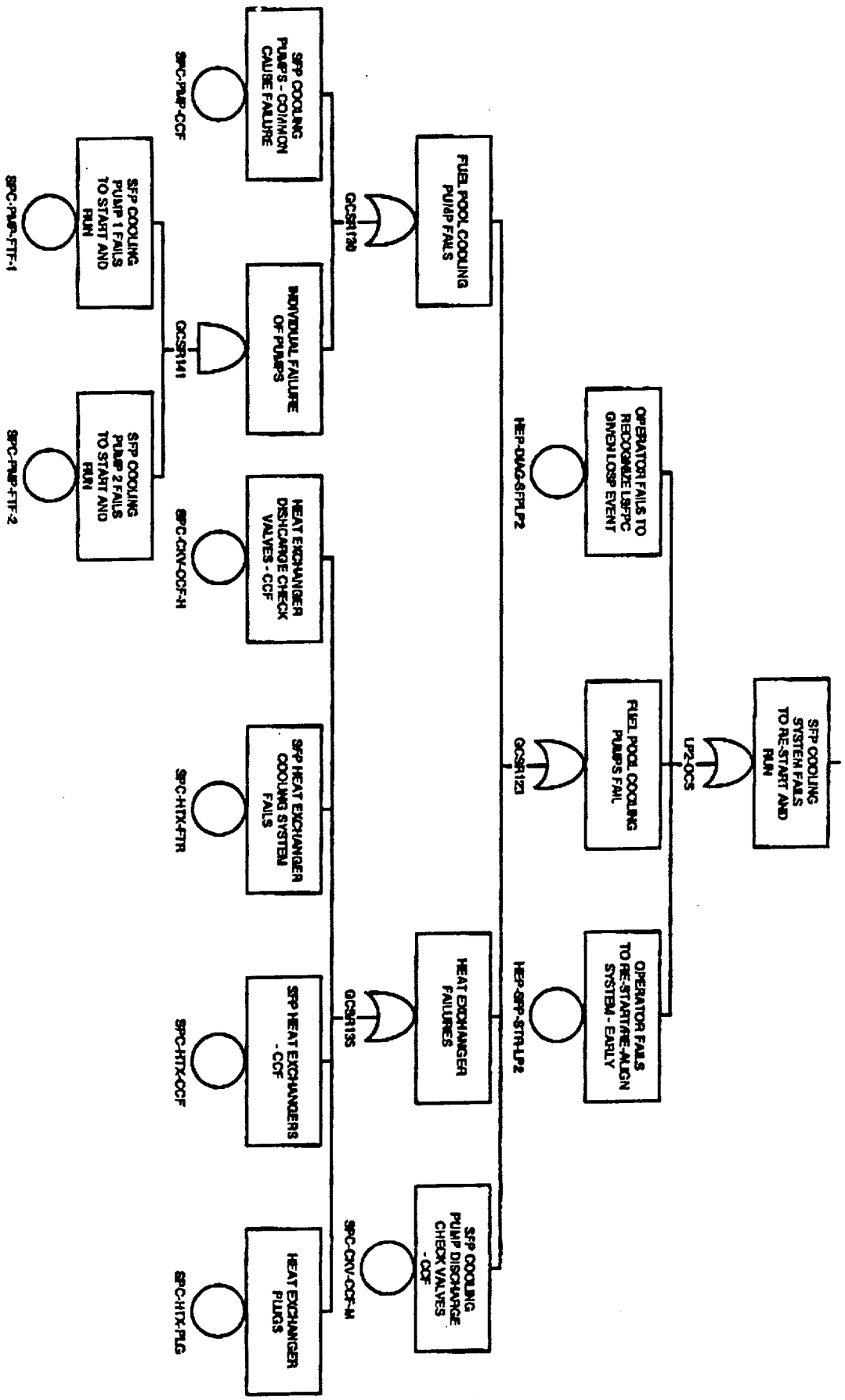
NOTE: This facsimile may contain COMPANY PRIVATE information intended only for the use of the specific individual or entity named above. If you or your employer are not the intended recipient, you are hereby notified that any unauthorized dissemination or copying of this facsimile or the information contained in it is strictly prohibited. If you have received this facsimile in error, please immediately notify the person named above at once by telephone and return the original facsimile to me at the above address via the U.S. Postal Service. Thank you.

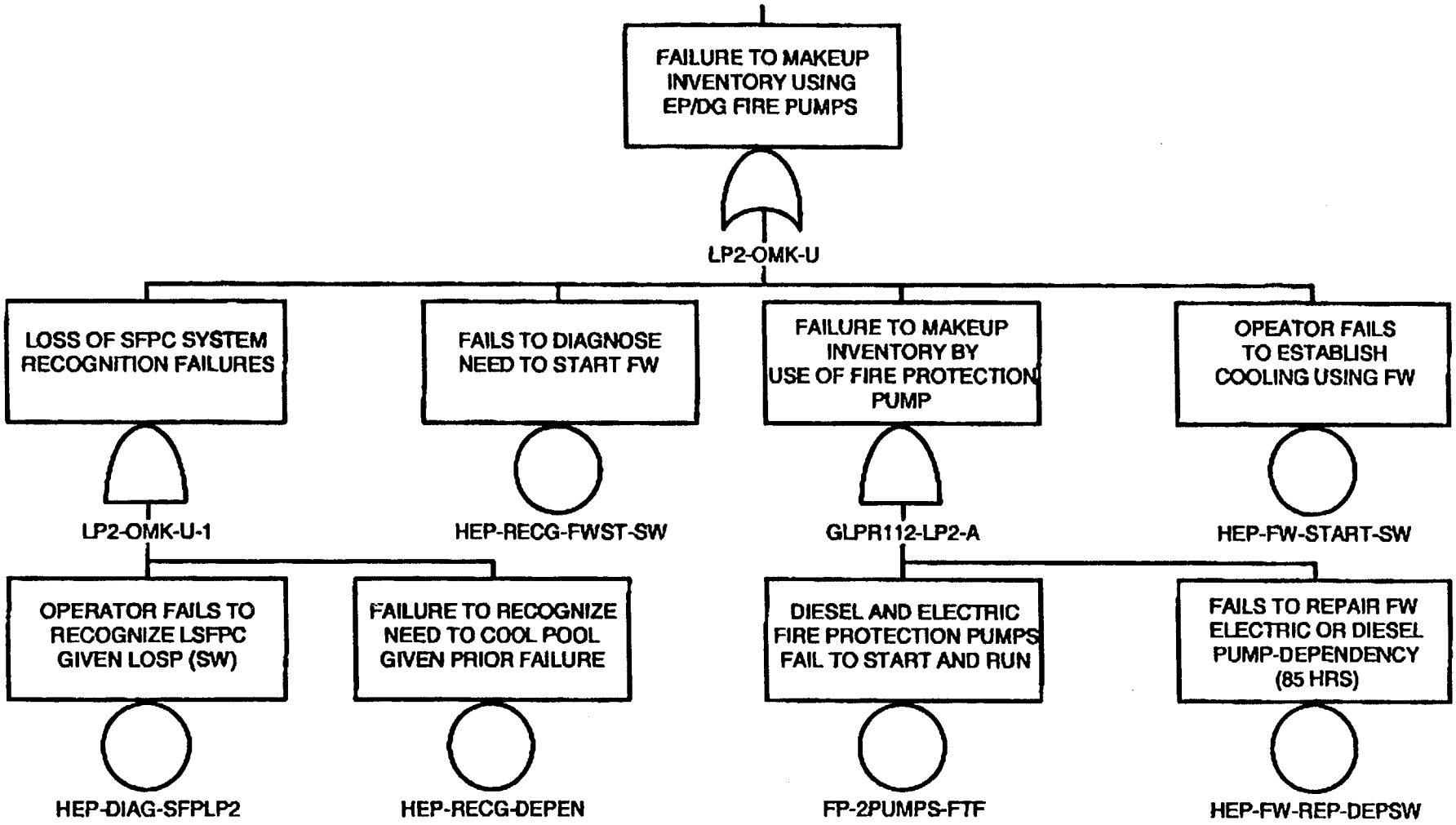
P.O. Box 1625, Idaho Falls, ID 83415-3860
For OVERNIGHT: 2525 N. Fremont Ave., Idaho Falls, ID 83415-3860

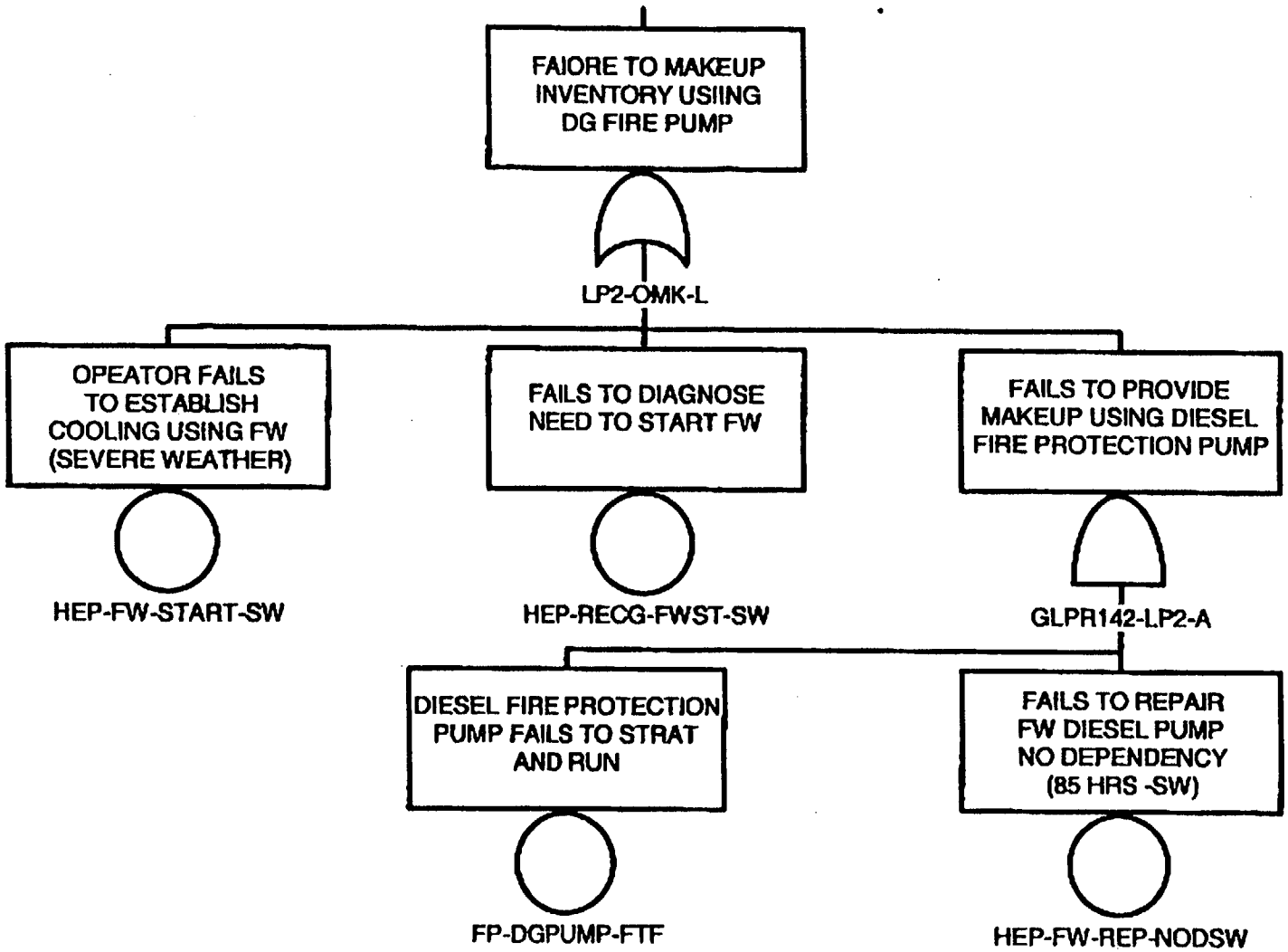


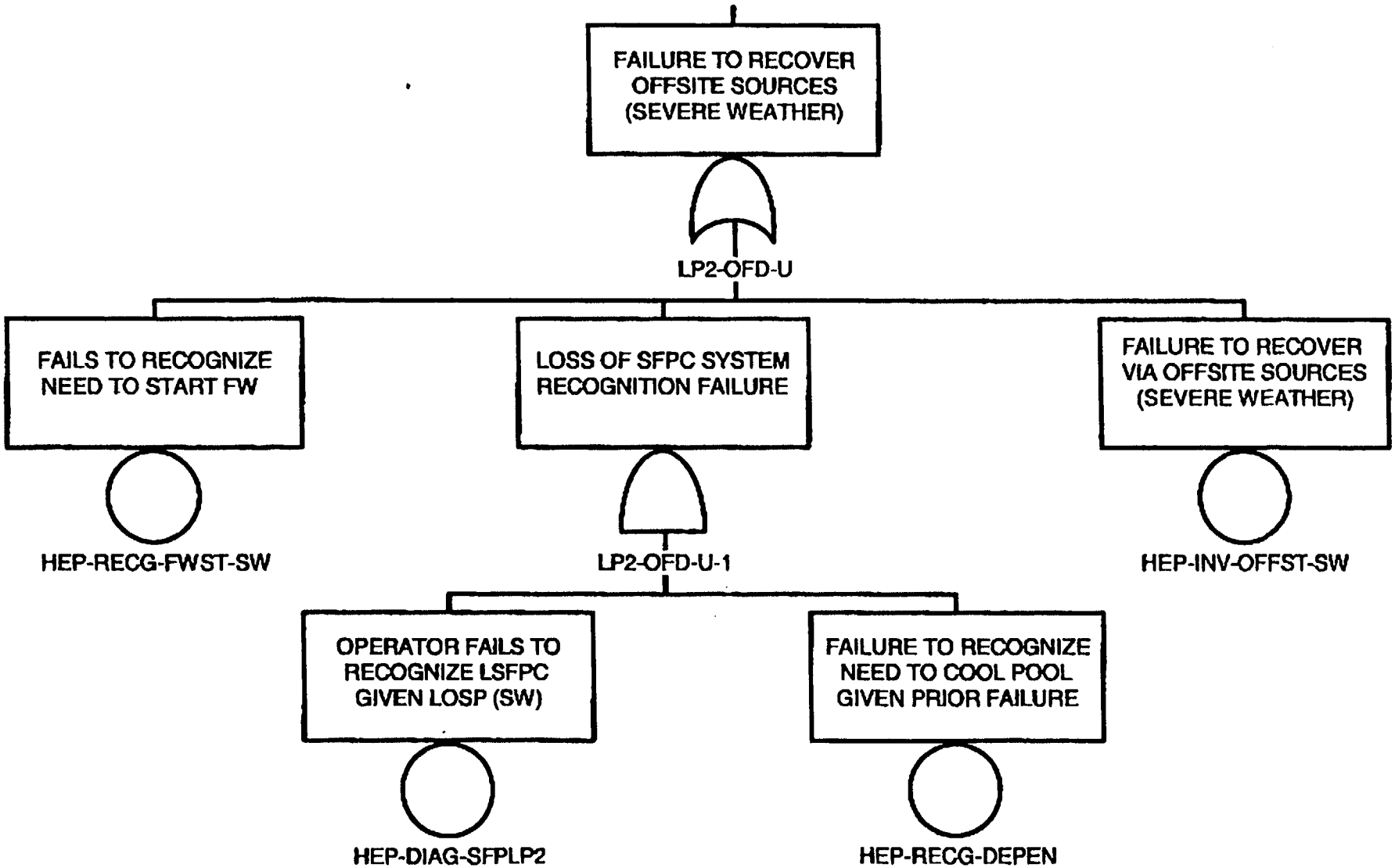
#	SEQUENCE-NAMES	END-STATE-NAMES	FREQUENCY
1	IE-LP2	OK	
2	IE-LP2OCS	OK	
3	IE-LP2OCSOMK	OK	
4	IE-LP2OCSOMKOFD	SFP3FT	1.395E-008
5	IE-LP2OPR	OK	
6	IE-LP2OPROMK	OK	
7	IE-LP2OPROMKOFD	SFP3FT	1.188E-007

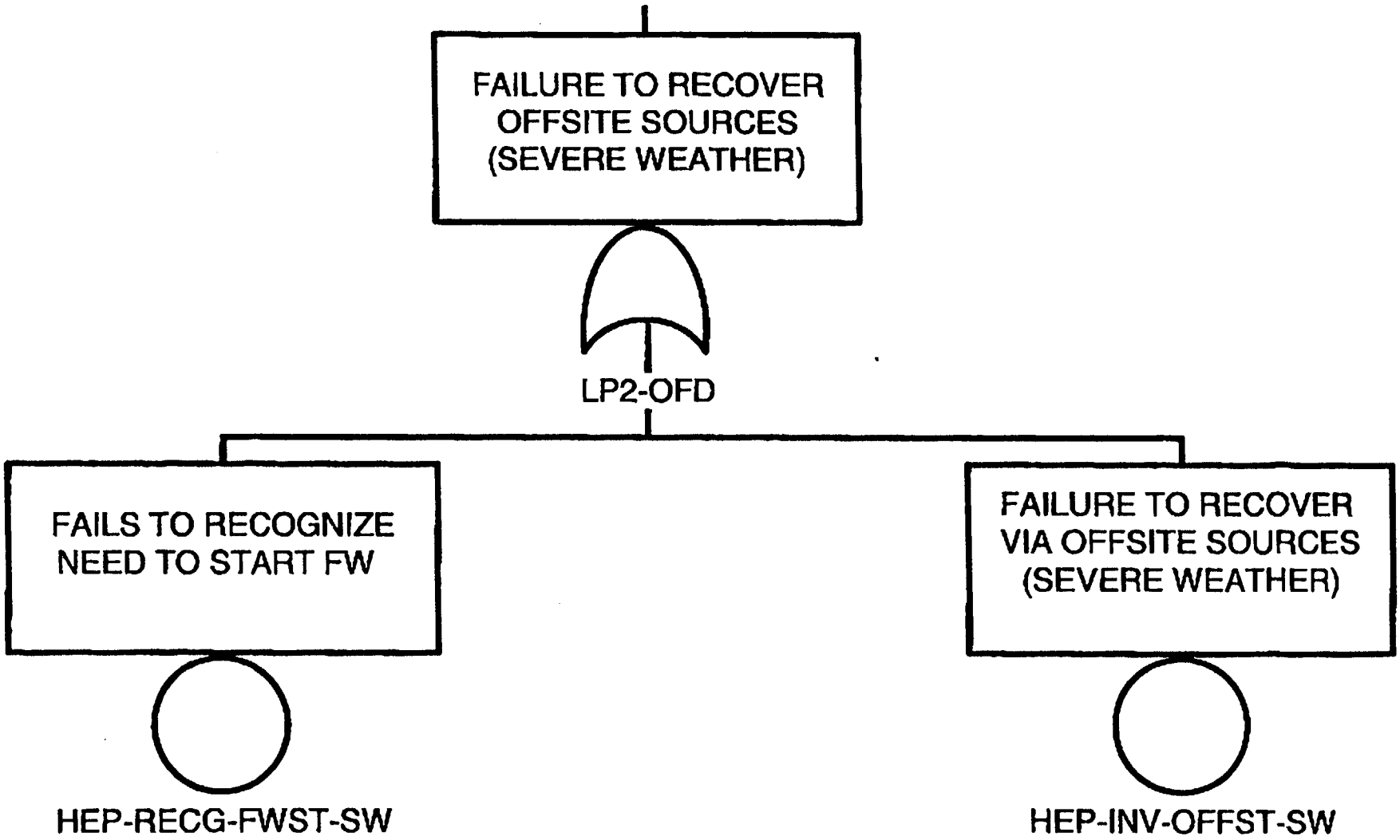

NON-RECOVERY
OF OSP FROM SEVERE
WEATHER
LP2-OPR
NON-RECOVERY
OF OSP FROM SEVERE
WEATHER
REC-OSP-SW


SFP COOLING SYSTEM FAILS TO RE-START AND RUN
LP2-OCS
OPERATOR FAILS TO RECOGNIZE LSFPC GIVEN LOSP EVENT
HEP-DIAG-SFPLP2
FUEL POOL COOLING PUMPS FAIL
GCSR123
OPERATOR FAILS TO RE-START/RE-ALIGN SYSTEM - EARLY
HEP-SFP-STR-LP2
FUEL POOL COOLING PUMP FAILS
GCSR130
INDIVIDUAL FAILURE OF PUMPS
GCSR141
SFP COOLING PUMP 1 FAILS TO START AND RUN
SFP COOLING PUMP 2 FAILS TO START AND RUN
SFP COOLING PUMPS - COMMON CAUSE FAILURE
SPC-PMP-CCF
SPC-PMP-FTF-1
SPC-PMP-FTF-2
HEAT EXCHANGER FAILURES
GCSR135
HEAT EXCHANGER DISCHARGE CHECK VALVES - CCF
SPC-CKV-CCF-H
SFP COOLING PUMP DISCHARGE CHECK VALVES - CCF
SPC-CKV-CCF-M
SFP HEAT EXCHANGER COOLING SYSTEM FAILS
SPC-HTX-FTR
SFP HEAT EXCHANGERS - CCF
SPC-HTX-CCF
HEAT EXCHANGER PLUGS
SPC-HTX-PLG


FAILURE TO MAKEUP INVENTORY USING EP/DG FIRE PUMPS
LP2-OMK-U
LOSS OF SFPC SYSTEM RECOGNITION FAILURES
FAILS TO DIAGNOSE NEED TO START FW
FAILURE TO MAKEUP INVENTORY BY USE OF FIRE PROTECTION PUMP
OPEATOR FAILS TO ESTABLISH COOLING USING FW
LP2-OMK-U-1
HEP-RECG-FWST-SW
GLPR112-LP2-A
HEP-FW-START-SW
OPERATOR FAILS TO RECOGNIZE LSFPC GIVEN LOSP (SW)
FAILURE TO RECOGNIZE NEED TO COOL POOL GIVEN PRIOR FAILURE
DIESEL AND ELECTRIC FIRE PROTECTION PUMPS FAIL TO START AND RUN
FAILS TO REPAIR FW ELECTRIC OR DIESEL PUMP-DEPENDENCY (85 HRS)
HEP-DIAG-SFPLP2
HEP-RECG-DEPEN
FP-2PUMPS-FTF
HEP-FW-REP-DEPSW


FAIORE TO MAKEUP INVENTORY USIING DG FIRE PUMP
LP2-OMK-L
OPEATOR FAILS TO ESTABLISH COOLING USING FW (SEVERE WEATHER)
HEP-FW-START-SW
FAILS TO DIAGNOSE NEED TO START FW
HEP-RECG-FWST-SW
FAILS TO PROVIDE MAKEUP USING DIESEL FIRE PROTECTION PUMP
GLPR142-LP2-A
DIESEL FIRE PROTECTION PUMP FAILS TO STRAT AND RUN
FP-DGPUMP-FTF
FAILS TO REPAIR FW DIESEL PUMP NO DEPENDENCY (85 HRS -SW)
HEP-FW-REP-NODSW


FAILURE TO RECOVER OFFSITE SOURCES (SEVERE WEATHER)
LP2-OFD-U
FAILS TO RECOGNIZE NEED TO START FW
HEP-RECG-FWST-SW
LOSS OF SFPC SYSTEM RECOGNITION FAILURE
LP2-OFD-U-1
FAILURE TO RECOVER VIA OFFSITE SOURCES (SEVERE WEATHER)
HEP-INV-OFFST-SW
OPERATOR FAILS TO RECOGNIZE LSFPC GIVEN LOSP (SW)
HEP-DIAG-SFPLP2
FAILURE TO RECOGNIZE NEED TO COOL POOL GIVEN PRIOR FAILURE
HEP-RECG-DEPEN


FAILURE TO RECOVER OFFSITE SOURCES (SEVERE WEATHER)
LP2-OFD
FAILS TO RECOGNIZE NEED TO START FW
FAILURE TO RECOVER VIA OFFSITE SOURCES (SEVERE WEATHER)
HEP-RECG-FWST-SW
HEP-INV-OFFST-SW

SEQUENCE CUT SETS (QUANTIFICATION) REPORT

Family : NRC-SFP
Analysis : RANDOM
Case : CURRENT

Sequence : 7
Event Tree : IE-LP2
Init. Event : IE-LP2

Mincut Upper Bound : 1.188E-007

Cut No.	% Total	% Cut Set	Prob/ Freq.	CURRENT CUT SETS
1	66.7	66.7	7.9E-008	FP-DGPUMP-FTF, HEP-FW-REP-NODSW, HEP-INV-OFFST-SW, REC-OSP-SW
2	85.2	18.5	2.2E-008	HEP-RECG-FWST-SW, REC-OSP-SW
3	100.0	14.8	1.8E-008	HEP-FW-START-SW, HEP-INV-OFFST-SW, REC-OSP-SW

JAN 13 '00 03:48PM SSSSSSSSSSSSSS P.9/12

BASIC EVENTS PROBABILITY REPORT

Family: NRC-SFP

Case: CURRENT

Event Number	Primary Name	Calc Type	Mean Probability	Lamda	Tau
1	FP-2PUMPS-FTF	1	6.700E-004	+0.000E+000	+0.000E+000
2	FP-DGPUMP-FTF	1	1.800E-001	+0.000E+000	+0.000E+000
3	HEP-DIAG-SFPLP2	1	2.000E-005	+0.000E+000	+0.000E+000
4	HEP-FW-REP-DEPSW	1	7.000E-002	+0.000E+000	+0.000E+000
5	HEP-FW-REP-NODSW	1	2.500E-002	+0.000E+000	+0.000E+000
6	HEP-FW-START-SW	1	1.000E-003	+0.000E+000	+0.000E+000
7	HEP-INV-OFFST-SW	1	8.000E-002	+0.000E+000	+0.000E+000
8	HEP-RECG-DEPEN	1	5.000E-002	+0.000E+000	+0.000E+000
9	HEP-RECG-FWST-SW	1	1.000E-004	+0.000E+000	+0.000E+000
10	HEP-SFP-STR-LP2	1	5.000E-004	+0.000E+000	+0.000E+000
11	IE-LP2	1	1.100E-002	+0.000E+000	+0.000E+000
12	REC-OSP-SW	1	2.000E-002	+0.000E+000	+0.000E+000
13	SPC-CKV-CCF-H	1	1.900E-005	+0.000E+000	+0.000E+000
14	SPC-CKV-CCF-M	1	3.200E-005	+0.000E+000	+0.000E+000
15	SPC-HTX-CCF	1	1.900E-005	+0.000E+000	+0.000E+000
16	SPC-HTX-FTR	1	2.400E-004	+0.000E+000	+0.000E+000
17	SPC-HTX-PLG	1	2.200E-005	+0.000E+000	+0.000E+000
18	SPC-PMP-CCF	1	5.900E-004	+0.000E+000	+0.000E+000
19	SPC-PMP-FTF-1	1	3.900E-003	+0.000E+000	+0.000E+000
20	SPC-PMP-FTF-2	1	3.900E-003	+0.000E+000	+0.000E+000

JAN 13 '00 03:48PM SSSSSSSSSSSSSS P.10/12

SEQUENCE CUT SETS (QUANTIFICATION) REPORT

Family : NRC-SFP
Analysis : RANDOM
Case : CURRENT

Sequence : 4
Event Tree : IE-LP2
Init. Event : IE-LP2

Mincut Upper Bound : 1.395E-008

Cut No.	% Total	% Cut Set	Prob/ Freq.	CURRENT CUT SETS
1	78.9	78.9	1.1E-008	HEP-DIAG-SFPLP2, HEP-RECG-DEPEN
2	83.5	4.7	6.5E-010	HEP-RECG-FWST-SW, SPC-PMP-CCF
3	87.5	3.9	5.5E-010	HEP-RECG-FWST-SW, HEP-SFP-STR-LP2
4	91.2	3.7	5.2E-010	HEP-FW-START-SW, HEP-INV-OFFST-SW, SPC-PMP-CCF
5	94.3	3.2	4.4E-010	HEP-FW-START-SW, HEP-INV-OFFST-SW, HEP-SFP-STR-LP2
6	96.2	1.9	2.6E-010	HEP-RECG-FWST-SW, SPC-HTX-FTR
7	97.7	1.5	2.1E-010	HEP-FW-START-SW, HEP-INV-OFFST-SW, SPC-HTX-FTR
8	98.0	0.3	3.5E-011	HEP-RECG-FWST-SW, SPC-CKV-CCF-M
9	98.2	0.2	2.8E-011	HEP-FW-START-SW, HEP-INV-OFFST-SW, SPC-CKV-CCF-M
10	98.4	0.2	2.4E-011	FP-2PUMPS-FTF, HEP-FW-REP-DEPSW, HEP-INV-OFFST-SW, SPC-PMP-CCF
11	98.5	0.2	2.4E-011	HEP-RECG-FWST-SW, SPC-HTX-PLG
12	98.7	0.2	2.2E-011	HEP-DIAG-SFPLP2, HEP-RECG-FWST-SW
13	98.8	0.2	2.1E-011	HEP-RECG-FWST-SW, SPC-CKV-CCF-H
14	99.0	0.2	2.1E-011	HEP-RECG-FWST-SW, SPC-HTX-CCF
15	99.1	0.2	2.1E-011	FP-2PUMPS-FTF, HEP-FW-REP-DEPSW, HEP-INV-OFFST-SW, HEP-SFP-STR-LP2
16	99.3	0.1	1.9E-011	HEP-FW-START-SW, HEP-INV-OFFST-SW, SPC-HTX-PLG
17	99.4	0.1	1.8E-011	HEP-DIAG-SFPLP2, HEP-FW-START-SW, HEP-INV-OFFST-SW
18	99.5	0.1	1.7E-011	HEP-RECG-FWST-SW, SPC-PMP-FTF-1, SPC-PMP-FTF-2
19	99.6	0.1	1.7E-011	HEP-FW-START-SW, HEP-INV-OFFST-SW, SPC-CKV-CCF-H
20	99.8	0.1	1.7E-011	HEP-FW-START-SW, HEP-INV-OFFST-SW, SPC-HTX-CCF
21	99.9	0.1	1.3E-011	HEP-FW-START-SW, HEP-INV-OFFST-SW, SPC-PMP-FTF-1, SPC-PMP-FTF-2
22	99.9	0.1	9.9E-012	FP-2PUMPS-FTF, HEP-FW-REP-DEPSW, HEP-INV-OFFST-SW, SPC-HTX-FTR
23	99.9	0.0	1.3E-012	FP-2PUMPS-FTF, HEP-FW-REP-DEPSW, HEP-INV-OFFST-SW, SPC-CKV-CCF-M
24	100.0	0.0	9.1E-013	FP-2PUMPS-FTF, HEP-FW-REP-DEPSW, HEP-INV-OFFST-SW, SPC-HTX-PLG
25	100.0	0.0	8.3E-013	FP-2PUMPS-FTF, HEP-DIAG-SFPLP2, HEP-FW-REP-DEPSW, HEP-INV-OFFST-SW
26	100.0	0.0	7.8E-013	FP-2PUMPS-FTF, HEP-FW-REP-DEPSW, HEP-INV-OFFST-SW, SPC-CKV-CCF-H
27	100.0	0.0	7.8E-013	FP-2PUMPS-FTF, HEP-FW-REP-DEPSW, HEP-INV-OFFST-SW, SPC-HTX-CCF
28	100.0	0.0	6.3E-013	FP-2PUMPS-FTF, HEP-FW-REP-DEPSW,

JAN 13 '00 03:49PM SSSSSSSSSSSSSS P.11/12

SEQUENCE CUT SETS (QUANTIFICATION) REPORT

Family : NRC-SFP
Analysis : RANDOM
Case : CURRENT

Sequence : 4
Event Tree : IE-LP2
Init. Event : IE-LP2

Mincut Upper Bound : 1.395E-008

Cut No.	% Total	% Cut Set	Prob/ Freq.	CURRENT CUT SETS
				HEP-INV-OFFST-SW, SPC-PMP-FTF-1, SPC-PMP-FTF-2

JAN 13 '00 03:49PM SSSSSSSSSSSSSS P.12/12