Changes made to MOR97 to produce MOR99

Appendix A to the 1997 Summary Document indicates the changes made to the IPE model to obtain the 1997 model ("MOR97"). Changes made to MOR97 to obtain the current model of record, "MOR99" are exhaustively listed in RNP-F/PSA-001, Rev. 1. The following changes are probably the most significant ones:

Addition of a partial loss of feedwater initiating event.

Changes to CVCS system model to reflect (1.) change in operating practice, (now maintain 2 charging pumps in service) and (2.) update success criteria to 3 of 3 charging pumps for certain sequences.

Change SG PORV success criteria to 2/3 for some sequences.

Change small LOCA event trees to include "SDGX" seqeunces (small LOCA + failure of CST makeup + failure of depressurization and SD cooling + recirculation failure).

Change MLOCA event trees to remove high head recirculation requirement.

Updated initiating event frequencies.

ELEMENT	GRADE	A-level or B-level F&Os	No. A	No. B	No. C	No. D
IE	3	IE-01 for use of old data sources.	0	2	2	0
		IE-04 for potential underestimate of LOCA frequencies from neglecting small break IEs.				
AS	3C	AS-01 for S1 sequence inconcistent with procedural and analytical bases.	0	3	4	0
		AS-05 for RCP Seal LOCA issues.				
		AS-10 for S1 LOCA success criteria questionable.				
TH	3C	TH-01 for LOCA break sizes. See IE	0	4	2	0
		TH-02 for traceability of success criteria to analytical bases.				
		TH-04 for use of success criteria innapropriate for MAAP (ie., not conservative enough).				
		TH-05 for MAAP analysis not consistent with scenario.				
SY	3	SY-05 for lack of system engineer review of PSA model changes.	0	5	5	1
		SY-09 for lack of documentation of verification of PSA inputs and results.				
		SY-10 for lack of basis for assumptions.				
		SY-11 for lack of basis for refill of the RWST.				
		SY-12 for missing basis for recovery of MOVs SI-862A and B.				
DA	3C	DA-02 for Bayesian update technique w/r/t moment matching producing optimistic results.	0	8	2	0
		DA-03 for lack of recent update with plant data.				
		DA-04 for inconsistent application of failure rates.				
		DA-05 for use of suspect failure rate data.				
		DA-06 for use of old common cause factor data rather than current info.				
		DA-08 for use of unverified spreadsheet to do the data update and no independent review.				
		DA-09 for use of Bayesian update with assumed lognormal distribution, not consistent w/ industry guidance.				
		DA-10 for not modeling blocking of pressurizer PORV or S/G PORV.				
HR	3	HR-03 for screening values used for risk-significant HEPs	0	1	2	0
DE	3	None	0	0	1	
ST	3	None	0	0	0	0
QU	3C	QU-02 for no recovery value for stuck open PORV.	1	5	3	0
		QU-03 for AC power recovery for FTR events.				

ELEMENT	GRADE	A-level or B-level F&Os	No. A	No. B	No. C	No. D
		QU-04 for inconsistencies in non-recovery AC curves (see IE notebook and sheet RCPL15.xls)				
		QU-05 for lack of uncertainty analysis for results.				
		QU-06 A-level for truncation at too high a level.				
		QU-09 for missing basis for timing of HRA				
L2	3	L2-03 for inclusion of Level 2 phenomenon that should be reassessed with current info.	0	2	3	1
		L2-08 for lack of guidance/definition for LERF.				
MU	3	None	0	0	1	0
		TOTALS:	1	30	25	2

RNP Nuclear Plant PSA Peer Certification Status as of 9/03/02											
	IE	AS	TH	SY	DA	HR	DE	ST	QU	L2	MU
Grade[1] (total)	3	3©	3©	3	3©	3	3	3	3©	3	3
A[2] (1)	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/1	0/0	0/0
B[2] (30)	0/2	0/3	0/4	0/5	0/8	0/1	0/0	0/0	0/5	0/2	0/0
C (25)	2	4	2	5	2	2	1	0	3	3	1
D (2)	1	0	0	1	0	0	0	0	0	1	0
S (2)	0	0	0	0	0	1	0	0	0	1	0
PSA Quality Impact on Risk-Informed Applications											
SDP			X[3]						X[3]		
(a)(4)											
RI-ISI	X	X			X	X			X		
RI-IST		X			X	X			X		
RI-ILRT Extension		X		X	X	X		X	X		
Power Uprate[4]											
License Renewal		X		X	X	X			X	X	
RI-AOT											
Risk based TS		X		X	X	X			X		
3.0.4 flexibility in mode restraints		X			X	X					
CLIIP 3.0.3											
TS end states											
Graded QA		X			X	X			X		

IE	Initiating Events	DE	Dependencies
AS	Accident Sequence Evaluation (Event Trees)	ST	Structural Capability
TH	Thermal Hydraulic Analysis	QU	Quantification/Results Interpretation
SY	System Analysis (Fault Trees)	L2	Containment Performance Analysis
DA	Data Analysis	MU	Maintenance and Update Process
HR	Human Reliability Analysis		

Notes:

1. © denotes "Conditional" grade
2. Indicate # closed/# total for A and B findings & observations
3. SDP has increasingly resulted in NRC questions regarding model bases & assumptions.
4. Power uprate submittal complete