

Palo Verde Unit 2 - June 14, 2004 Loss of Offsite Power Event - June 24, 2004 (8:04AM)

Event-Related Facts	Assumptions	Model Changes	Questions/Notes/Sensitivity
1 EDG "A" failed to start	Not recoverable due to circuitry failure in the exciter circuit	<ul style="list-style-type: none"> <li>EPS-DGN-FS-DGA = True</li> <li>EPS-DGN-FS-DGA = True</li> </ul>	N. Must set FTR event to true to calculate CCF
2 Charging pump "E" failed to start	Not recoverable due to air binding - operator have to bleed pump	<ul style="list-style-type: none"> <li>CVC-MDP-FS-CHE = True</li> <li>CVC-MDP-FR-CHE = True</li> </ul>	
3 Power restored to Unit 2 in 2 hrs 15 mins	Mission times for EDG and TDAFW pump = 2.5 hrs	<ul style="list-style-type: none"> <li>EPS-DGN-FR-FTRM mission time = 2.0</li> <li>AFW-TDP-FR-A mission time = 2.5 hrs</li> </ul>	N. EDG FTR-medium basic event applies to the time range of 0.5 to 14 hrs
4 Offsite power available from Dever line shortly after event initiation	Recovery of power to first vital bus possible within one hour following a postulated SBO	See below	<p>Q. Can power to vital bus be recovered within 60 min?</p> <p>Q. What are the steps/actions needed for recovery?</p> <p>S. Do sensitivity analysis for offsite power recovery within 30 minutes for all three basic event below</p>
	<p>Recovery of power during a postulated SBO and AFW failure:</p> <ul style="list-style-type: none"> <li>Time available = time required (time to core uncover is 1 hr)</li> <li>Stress = extreme (core uncover imminent if operator fails)</li> <li>Complexity = moderate (communications and coordination required outside control room)</li> <li>All other performance shaping factors are nominal</li> </ul>	<p>OEP-XHE-NOREC-ST = 0.1  <math>(10 \times 5 \times 2 \times 1e-3 = 0.1)</math></p>	<p>S. Do sensitivity analysis for offsite power recovery within 30 minutes (<math>P = 0.01</math> with Time Available = nominal or <math>\times 1</math>)</p>

Start

Run

High

5 RCP seals are the KSB type where the licensee claims not to fail during loss of seal cooling/injection (about 17 gpm leak)	SPAR uses the CE RCP seal LOCA model, which is under review by NRC	None	S. Do sensitivity analysis using conservative seal LOCA model
6 No EDG recovery credited	SPAR does not credit nominal EDG recovery	None	S. Does not affect dominate sequences

Draft Preliminary Results - June 25, 2004 (9:49AM)

Run cases	5 %tile	Mean	95 %tile
<b>Unit 2:</b>			
1. Best estimate: EDG "A" FTS, CVC "E" FTS, power recoverable w/i 1 hr	4E-5	2E-4	6E-4
2. Sensitivity A1: Offsite power recovery to first vital bus w/i 30 min + <b>extreme</b> stress		1E-4	
3. Sensitivity A2: Offsite power recovery to first vital bus w/i 30 min + <b>high</b> stress		1E-4	
4. Sensitivity B1: No RCP seal LOCA possible (P=0.0)		2E-4	
5. Sensitivity B2: Assume Rhodes RCP seal LOCA possible (P=0.2)		7E-4	
6. Sensitivity C: Credit nominal AFW pump recovery (from NUREG/CR-5500, Vol 1)		2E-2	
7. Sensitivity D: Offsite power recovery to first vital bus w/i 1 hr + <b>high</b> stress		2E-4	
<b>Unit 1:</b>			
8. Best estimate: Offsite power recoverable w/i 1 hr + no complications	5E-6	3E-5	8E-5
<b>Unit 3:</b>			
9. Best estimate: Offsite power recoverable w/i 1 hr + no complications	5E-6	3E-5	8E-5