

APS Reliability, FY2003

Reliability Budget per
memo of 9/22/2003

System	Unavailability Allotment	Number of Faults	Mean Time to Beam Loss	Faults Per Day
RF	0.9%		200	0.12
Diagnostics	0.2%		800	0.03
PS	0.9%		240	0.10
Controls	0.5%		533.3	0.05
Network	0.2%		4800	0.01
Interlocks	0.3%		686	0.04
Accelerator	0.1%		2400	0.01
Beamline	0.1%		2400	0.01
Radiation	0.1%		1600	0.02
Water/ME	0.3%		480	0.05
Vacuum	0.3%		2400	0.01
S&A	0.0%		48000	0.00
Operations	0.1%		1600	0.02
Software	0.1%		1600	0.02
Soft/OAG	not specified			
Soft/OPS	not specified			
Physics	0.0%		48000	0.00
ID-FE	0.1%		4800	0.01
ID-FE/MD	not specified			
ID-FE/XFE	not specified			
Utilities	0.5%		800	0.03
Electrical - APS	0.1%		2400	0.01
Electrical - ANL	0.3%		2400	0.01
Cooling - ANL	0.1%		2400	0.01
Other	0.3%		1200	0.02
Unidentified	0.1%		1200	0.02
Total	4.8%		47.9	0.50

Data through Run 2003-2

FY 2003 Actual	Unavailability Percent	Unavailability Hours	Number of Faults	Mean Time to Beam Loss	Faults Per Day		
RF	0.44%	21.42	24	198.9	0.12	User Downtime Hours	139.4
Diagnostics	0.27%	13.36	17	280.7	0.09		
PS	0.73%	35.95	18	265.1	0.09	Scheduled Hours	4912.0
Controls	0.17%	8.33	9	530.3	0.05		
Network	0.17%	8.47	2	2386.3	0.01		
Interlocks	0.32%	15.84	16	298.3	0.08	Delivered Hours	4772.6
Accelerator	0.07%	3.20	2	2386.3	0.01		
Beamline	0.10%	5.02	5	954.5	0.03	User Availability	97.2%
Radiation	0.16%	7.62	9	530.3	0.05		
Water/ME	0.03%	1.35	1	4772.6	0.01		
Vacuum	0.00%	0.00	0		0.00		
S&A	0.00%	0.00	0		0.00		
Operations	0.10%	4.79	7	681.8	0.04		
Software	0.05%	2.42	1	4772.6	0.01		
Soft/OAG	0.05%	2.42	1	4772.6	0.01		
Soft/OPS	0.00%	0.00	0		0.00		
Physics	0.04%	2.10	0		0.00		
ID-FE	0.00%	0.00	0		0.00		
ID-FE/MD	0.00%	0.00	0		0.00		
ID-FE/XFE	0.00%	0.00	0		0.00		
Utilities	0.00%	0.00	0		0.00		
Electrical - APS	0.00%	0.00	0		0.00		
Electrical - ANL	0.00%	0.00	0		0.00		
Cooling - ANL	0.00%	0.00	0		0.00		
Other	0.52%	25.49	10	477.3	0.05		
Unidentified	0.05%	2.27	2	2386.3	0.01		
Total	2.89%	141.78	107	44.6	0.54		

APS Reliability, FY2003

Run 2002-3	Unavailability Percent	Unavailability Hours	Number of Faults	Mean Time to Beam Loss	Faults Per Day		
RF	0.11%	1.57	2	717.6	0.03	User Downtime Hours	13.7
Diagnostics	0.06%	0.87	2	717.6	0.03		
PS	0.38%	5.52	8	179.4	0.13	Scheduled Hours	1449.0
Controls	0.05%	0.68	2	717.6	0.03		
Network	0.00%	0.00	0		0.00		
Interlocks	0.03%	0.43	1	1435.3	0.02	Delivered Hours	1435.3
Accelerator	0.00%	0.00	0		0.00		
Beamline	0.03%	0.43	1	1435.3	0.02	User Availability	99.1%
Radiation	0.00%	0.00	0		0.00		
Water/ME	0.00%	0.00	0		0.00		
Vacuum	0.00%	0.00	0		0.00		
S&A	0.00%	0.00	0		0.00		
Operations	0.12%	1.70	2	717.6	0.03		
Software	0.06%	0.83	1	1435.3	0.02		
Soft/OAG	0.06%	0.83	1	1435.3	0.02		
Soft/OPS	0.00%	0.00	0		0.00		
Physics	0.06%	0.83	0		0.00		
ID-FE	0.00%	0.00	0		0.00		
ID-FE/MD	0.00%	0.00	0		0.00		
ID-FE/XFE	0.00%	0.00	0		0.00		
Utilities	0.00%	0.00	0		0.00		
Electrical - APS	0.00%	0.00	0		0.00		
Electrical - ANL	0.00%	0.00	0		0.00		
Cooling - ANL	0.00%	0.00	0		0.00		
Other	0.04%	0.63	2	717.6	0.03		
Unidentified	0.04%	0.55	0		0.00		
Total	0.94%	13.61	20	71.8	0.33		

Run 2003-1	Unavailability Percent	Unavailability Hours	Number of Faults	Mean Time to Beam Loss	Faults Per Day		
RF	0.96%	13.85	14	114.2	0.21	User Downtime Hours	48.2
Diagnostics	0.64%	9.23	8	199.9	0.12		
PS	0.67%	9.75	5	319.8	0.08	Scheduled Hours	1647.0
Controls	0.25%	3.57	5	319.8	0.08		
Network	0.00%	0.00	0		0.00		
Interlocks	0.46%	6.67	7	228.4	0.11	Delivered Hours	1598.8
Accelerator	0.08%	1.20	1	1598.8	0.02		
Beamline	0.08%	1.10	2	799.4	0.03	User Availability	97.1%
Radiation	0.30%	4.37	4	399.7	0.06		
Water/ME	0.00%	0.00	0		0.00		
Vacuum	0.00%	0.00	0		0.00		
S&A	0.00%	0.00	0		0.00		
Operations	0.17%	2.42	3	532.9	0.05		
Software	0.02%	0.32	0		0.00		
Soft/OAG	0.02%	0.32	0		0.00		
Soft/OPS	0.00%	0.00	0		0.00		
Physics	0.07%	0.95	0		0.00		
ID-FE	0.00%	0.00	0		0.00		
ID-FE/MD	0.00%	0.00	0		0.00		
ID-FE/XFE	0.00%	0.00	0		0.00		
Utilities	0.00%	0.00	0		0.00		
Electrical - APS	0.00%	0.00	0		0.00		
Electrical - ANL	0.00%	0.00	0		0.00		
Cooling - ANL	0.00%	0.00	0		0.00		
Other	0.12%	1.75	2	799.4	0.03		
Unidentified	0.08%	1.22	1	1598.8	0.02		
Total	3.43%	49.73	45	35.5	0.68		

APS Reliability, FY2003

Run 2003-2	Unavailability Percent	Unavailability Hours	Number of Faults	Mean Time to Beam Loss	Faults Per Day		
RF	0.41%	6.00	8	217.3	0.11	User Downtime Hours	77.5
Diagnostics	0.22%	3.26	7	248.4	0.10		
PS	1.43%	20.68	5	347.7	0.07	Scheduled Hours	1816.0
Controls	0.28%	4.07	2	869.2	0.03		
Network	0.58%	8.47	2	869.2	0.03		
Interlocks	0.60%	8.73	8	217.3	0.11	Delivered Hours	1738.5
Accelerator	0.14%	2.00	1	1738.5	0.01		
Beamline	0.24%	3.48	2	869.2	0.03	User Availability	95.7%
Radiation	0.22%	3.25	5	347.7	0.07		
Water/ME	0.09%	1.35	1	1738.5	0.01		
Vacuum	0.00%	0.00	0		0.00		
S&A	0.00%	0.00	0		0.00		
Operations	0.05%	0.68	2	869.2	0.03		
Software	0.09%	1.27	0		0.00		
Soft/OAG	0.09%	1.27	0		0.00		
Soft/OPS	0.00%	0.00	0		0.00		
Physics	0.02%	0.32	0		0.00		
ID-FE	0.00%	0.00	0		0.00		
ID-FE/MD	0.00%	0.00	0		0.00		
ID-FE/XFE	0.00%	0.00	0		0.00		
Utilities	0.00%	0.00	0		0.00		
Electrical - APS	0.00%	0.00	0		0.00		
Electrical - ANL	0.00%	0.00	0		0.00		
Cooling - ANL	0.00%	0.00	0		0.00		
Other	1.59%	23.11	6	289.7	0.08		
Unidentified	0.03%	0.50	1	1738.5	0.01		
Total	5.41%	78.44	42	41.4	0.58		

Updated 10/2/03