

APS Reliability, FY99

Reliability Budget
per memo of 2/22/1998

System	Unavailability Allotment	Number of Faults	Mean Time to Beam Loss	Faults Per Day
RF	1.0%		200	0.12
Diagnostics	0.2%		800	0.03
PS	1.0%		200	0.12
Controls	0.2%		800	0.03
Water/ME	0.8%		320	0.08
Vacuum	0.3%		1600	0.02
S&A	0.0%		10000	0.00
Operations	0.1%		1600	0.02
OAG	0.1%		1600	0.02
Physics	0.0%		10000	0.00
Beamlines	0.1%		800	0.03
Other	0.2%		800	0.03
Intentional Refill	1.0%			
Total	5.0%		49.8	0.48

FY 1999	Unavailability Percent	Unavailability Hours	Number of Faults	Mean Time to Beam Loss	Faults Per Day		
RF	1.67%	84.18	45	105.95	0.23	User Downtime Hours	285.97
Diagnostics	0.10%	4.96	4	1191.92	0.02		
PS	1.40%	70.77	53	89.96	0.27	Scheduled Hours	5053.65
Controls	0.52%	26.48	25	190.71	0.13		
Water/ME	0.24%	12.14	10	476.77	0.05	Delivered Hours	4767.68
Vacuum	0.01%	0.72	0		0.00		
S&A	0.00%	0.00	0		0.00	User Availability	94.3%
Operations	0.08%	4.19	3	1589.23	0.02		
OAG	0.01%	0.50	0		0.00		
Physics	0.05%	2.57	1	4767.68	0.01		
Beamlines	0.44%	22.15	16	297.98	0.08		
Other	0.88%	44.64	19	250.93	0.10		
Intentional Refill	0.39%	19.72					
Total	5.80%	293.02	176	27.09	0.89		

Run 1998-5	Unavailability Percent	Unavailability Hours	Number of Faults	Mean Time to Beam Loss	Faults Per Day		
RF	6.02%	65.84	20	49.37	0.49	User Downtime Hours	106.25
Diagnostics	0.20%	2.18	2	493.68	0.05		
PS	1.59%	17.37	17	58.08	0.41	Scheduled Hours	1093.60
Controls	0.47%	5.17	2	493.68	0.05		
Water/ME	0.05%	0.50	1	987.35	0.02	Delivered Hours	987.35
Vacuum	0.07%	0.72	0				
S&A	0.00%	0.00	0			User Availability	90.3%
Operations	0.10%	1.10	1	987.35	0.02		
OAG	0.05%	0.50	0				
Physics	0.00%	0.00	0				
Beamlines	0.85%	9.35	3	329.12	0.07		
Other	0.35%	3.78	3	329.12	0.07		
Intentional Refill	0.58%	6.35					
Total	10.32%	112.86	49	20.15	1.19		

Run 1999-1	Unavailability Percent	Unavailability Hours	Number of Faults	Mean Time to Beam Loss	Faults Per Day		
RF	0.70%	6.81	10	92.36	0.26	User Downtime Hours	53.1
Diagnostics	0.00%	0.00	0				
PS	2.00%	19.58	10	92.36	0.26	Scheduled Hours	976.65
Controls	0.61%	5.95	7	131.94	0.18		
Water/ME	0.44%	4.27	3	307.85	0.08	Delivered Hours	923.55
Vacuum	0.00%	0.00	0				
S&A	0.00%	0.00	0			User Availability	94.6%
Operations	0.21%	2.05	1	923.55	0.03		
OAG	0.00%	0.00	0				
Physics	0.00%	0.00	0				
Beamlines	0.05%	0.48	1	923.55	0.03		
Other	0.63%	6.13	3	307.85	0.08		
Intentional Refill	0.80%	7.85					
Total	5.44%	53.12	35	26.39	0.91		

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Run 1999-2	Unavailability Percent	Unavailability Hours	Number of Faults	Mean Time to Beam Loss	Faults Per Day		
RF	0.34%	2.85	3	265.00	0.09	User Downtime Hours	36.27
Diagnostics	0.25%	2.05	2	397.50	0.06		
PS	1.26%	10.47	7	113.57	0.21	Scheduled Hours	831.26
Controls	0.45%	3.70	1	794.99	0.03		
Water/ME	0.10%	0.80	1	794.99	0.03	Delivered Hours	794.99
Vacuum	0.00%	0.00	0				
S&A	0.00%	0.00	0			User Availability	95.6%
Operations	0.03%	0.27	0				
OAG	0.00%	0.00	0				
Physics	0.31%	2.57	1	794.99	0.03		
Beamlines	0.62%	5.12	2	397.50	0.06		
Other	0.46%	3.85	2	397.50	0.06		
Intentional Refill	0.58%	4.83	0				
Total	4.39%	36.51	19	41.84	0.57		
Run 1999-3	Unavailability Percent	Unavailability Hours	Number of Faults	Mean Time to Beam Loss	Faults Per Day		
RF	0.52%	4.30	8	100.70	0.24	User Downtime Hours	26.44
Diagnostics	0.09%	0.73	0				
PS	1.11%	9.22	7	115.09	0.21	Scheduled Hours	832.06
Controls	0.62%	5.13	3	268.54	0.09		
Water/ME	0.13%	1.12	1	805.62	0.03	Delivered Hours	805.62
Vacuum	0.00%	0.00	0				
S&A	0.00%	0.00	0			User Availability	96.8%
Operations	0.09%	0.77	1	805.62	0.03		
OAG	0.00%	0.00	0				
Physics	0.00%	0.00	0				
Beamlines	0.18%	1.48	4	201.41	0.12		
Other	0.38%	3.18	7	115.09	0.21		
Intentional Refill	0.08%	0.69	0				
Total	3.20%	26.62	31	25.99	0.92		
Run 1999-4	Unavailability Percent	Unavailability Hours	Number of Faults	Mean Time to Beam Loss	Faults Per Day		
RF	0.33%	4.38	4	314.04	0.08	User Downtime Hours	63.91
Diagnostics	0.00%	0.00	0				
PS	1.07%	14.13	12	104.68	0.23	Scheduled Hours	1320.08
Controls	0.49%	6.53	12	104.68	0.23		
Water/ME	0.41%	5.45	4	314.04	0.08	Delivered Hours	1256.17
Vacuum	0.00%	0.00	0				
S&A	0.00%	0.00	0			User Availability	95.2%
Operations	0.00%	0.00	0				
OAG	0.00%	0.00	0				
Physics	0.00%	0.00	0				
Beamlines	0.43%	5.72	6	209.36	0.11		
Other	2.10%	27.70	4	314.04	0.08		
Intentional Refill	0.00%	0.00	0				
Total	4.84%	63.91	42	29.91	0.80		