

# APS Reliability, FY98

Reliability Budget  
per memo of 1/8/1998

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
Beamlines	0.1%		800	0.03
Other	0.2%		800	0.03
Intentional Refill	1.0%			
<b>Total</b>	<b>5.0%</b>		<b>49.75</b>	<b>0.48</b>

FY 1998	Unavailability Percent	Unavailability Hours	Number of Faults	Mean Time to Beam Loss	Faults Per Day		
RF	1.69%	75.34	44	94.6	0.25	User Downtime Hours	302.48
Diagnostics	0.20%	8.98	6	693.9	0.03		
PS	1.93%	86.33	35	119.0	0.20	Scheduled Hours	4465.80
Controls	0.27%	12.03	8	520.4	0.05		
Water/ME	0.18%	8.18	5	832.7	0.03	Delivered Hours	4163.29
Vacuum	0.02%	0.83	1	4163.3	0.01		
S&A	0.03%	1.47	1	4163.3	0.01	User Availability	93.2%
Operations	0.16%	7.03	2	2081.6	0.01		
OAG	0.11%	4.91	0	0.0	0.00		
Beamlines	0.43%	19.03	9	462.6	0.05		
Other	0.79%	35.22	13	320.3	0.07		
Intentional Refill	1.38%	61.72					
<b>Total</b>	<b>7.19%</b>	<b>321.07</b>	<b>124</b>	<b>33.58</b>	<b>0.71</b>		

Run 1997-7	Unavailability Percent	Unavailability Hours	Number of Faults	Mean Time to Beam Loss	Faults Per Day		
RF	2.08%	15.40	7	99.7	0.24	User Downtime Hours	43.6
Diagnostics	0.00%	0.00	0	0.0			
PS	1.47%	10.90	5	139.6	0.17	Scheduled Hours	741.84
Controls	0.15%	1.10	2	349.1	0.07		
Water/ME	0.55%	4.10	1	698.2	0.03	Delivered Hours	698.24
Vacuum	0.00%	0.00	0	0.0			
S&A	0.00%	0.00	0	0.0		User Availability	94.1%
Operations	0.04%	0.30	0	0.0			
OAG	0.00%	0.00	0	0.0			
Beamlines	0.26%	1.90	0	0.0			
Other	0.20%	1.50	2	349.1	0.07		
Intentional Refill	1.79%	13.30					
<b>Total</b>	<b>6.54%</b>	<b>48.50</b>	<b>17</b>	<b>41.07</b>	<b>0.58</b>		

Run 1998-1	Unavailability Percent	Unavailability Hours	Number of Faults	Mean Time to Beam Loss	Faults Per Day		
RF	1.65%	11.63	6	106.8	0.22	User Downtime Hours	62.5
Diagnostics	0.51%	3.58	2	320.3	0.07		
PS	1.91%	13.43	2	320.3	0.07	Scheduled Hours	703.10
Controls	0.84%	5.88	3	213.5	0.11		
Water/ME	0.00%	0.00	0	0.0		Delivered Hours	640.6
Vacuum	0.12%	0.83	1	640.6	0.04		
S&A	0.21%	1.47	1	640.6	0.04	User Availability	91.1%
Operations	0.39%	2.72	1	640.6	0.04		
OAG	0.27%	1.87	0	0.0			
Beamlines	0.82%	5.79	3	213.5	0.11		
Other	1.23%	8.63	2	320.3	0.07		
Intentional Refill	1.79%	12.59					
<b>Total</b>	<b>9.73%</b>	<b>68.42</b>	<b>21</b>	<b>30.50</b>	<b>0.79</b>		

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System	Unavailability Allotment	Unavailability Hours	Number of Faults	Mean Time to Beam Loss	Faults Per Day		
<b>Run 1998-2</b>	<b>Unavailability Percent</b>	<b>Unavailability Hours</b>	<b>Number of Faults</b>	<b>Mean Time to Beam Loss</b>	<b>Faults Per Day</b>		
RF	1.49%	10.62	7	93.8	0.26	User Downtime Hours	58.10
Diagnostics	0.41%	2.93	1	656.4	0.04		
PS	1.29%	9.25	8	82.1	0.29	Scheduled Hours	714.50
Controls	0.19%	1.38	0	0.0			
Water/ME	0.57%	4.08	4	164.1	0.15	Delivered Hours	656.44
Vacuum	0.00%	0.00	0	0.0			
S&A	0.00%	0.00	0	0.0		User Availability	91.9%
Operations	0.36%	2.60	0	0.0			
OAG	0.12%	0.87	0	0.0			
Beamlines	1.19%	8.47	5	131.3	0.18		
Other	0.53%	3.82	2	328.2	0.07		
Intentional Refill	2.27%	16.23					
<b>Total</b>	<b>8.43%</b>	<b>60.25</b>	<b>27</b>	<b>24.32</b>	<b>0.99</b>		
<b>Run 1998-3</b>	<b>Unavailability Percent</b>	<b>Unavailability Hours</b>	<b>Number of Faults</b>	<b>Mean Time to Beam Loss</b>	<b>Faults Per Day</b>		
RF	2.29%	26.38	15	72.7	0.33	User Downtime Hours	63.10
Diagnostics	0.14%	1.67	1	1091.1	0.02		
PS	1.55%	17.87	6	181.9	0.13	Scheduled Hours	1154.20
Controls	0.09%	1.02	1	1091.1	0.02		
Water/ME	0.00%	0.00	0	0.0		Delivered Hours	1091.11
Vacuum	0.00%	0.00	0	0.0			
S&A	0.00%	0.00	0	0.0		User Availability	94.5%
Operations	0.06%	0.72	1	1091.1	0.02		
OAG	0.12%	1.42	0	0.0			
Beamlines	0.12%	1.37	1	1091.1	0.02		
Other	0.53%	6.10	3	363.7	0.07		
Intentional Refill	0.81%	9.30	0				
<b>Total</b>	<b>5.71%</b>	<b>65.85</b>	<b>28</b>	<b>38.96</b>	<b>0.62</b>		
<b>Run 1998-4</b>	<b>Unavailability Percent</b>	<b>Unavailability Hours</b>	<b>Number of Faults</b>	<b>Mean Time to Beam Loss</b>	<b>Faults Per Day</b>		
RF	0.98%	11.31	9	119.7	0.20	User Downtime Hours	75.30
Diagnostics	0.07%	0.80	2	538.5	0.04		
PS	3.02%	34.88	14	76.9	0.31	Scheduled Hours	1152.20
Controls	0.23%	2.65	2	538.5	0.04		
Water/ME	0.00%	0.00	0	0.0		Delivered Hours	1076.9
Vacuum	0.00%	0.00	0	0.0			
S&A	0.00%	0.00	0	0.0		User Availability	93.5%
Operations	0.06%	0.69	0	0.0			
OAG	0.06%	0.75	0	0.0			
Beamlines	0.13%	1.50	0	0.0			
Other	1.31%	15.17	4	269.2	0.09		
Intentional Refill	0.89%	10.30	0				
<b>Total</b>	<b>6.77%</b>	<b>78.05</b>	<b>31</b>	<b>34.74</b>	<b>0.69</b>		