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# 1 10/02 08:00 To 10/03 06:13 22.23 | Under investigation | 0.00
# 2 10/03 06:47 To 10/03 12:15 5.46 | S38 RF Cav. Vac. [RF] | 0.57 Investigation, refill
adj [.5hr-AOP] | 2.59 2nd trip, recovery[2.1hr-RF],P0 fdbk
# 3 10/03 14:50 To 10/03 18:54 4.06 | S38 RF Cav Vac. [RF] | 1.75 2nd cav trip, slowed-down recovery
[RF]
# 4 10/03 20:39 To 10/04 08:55 12.27 | RF4 SCR H2O flt[RF] | 1.13 Investigation, slower recovery, refill
# 5 10/04 10:03 To 10/07 11:35 73.53 | S38 RF Cav. Vac. [RF] | 1.90 Investigation, then refilled slowly
# 6 10/07 13:29 To 10/08 07:59 18.51 | Int Dump: End of Period | 0.00
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# 7 10/09 08:00 To 10/10 05:05 21.08 | 33A:Q2 P.S. flt.[PS] | 0.00
recovered | 2.34 Called in P.S. techs, swapped supplies,
# 8 10/10 07:25 To 10/12 08:52 49.44 | PW pump 40B glitch[MOM] | 1.21 Investigated, conditioned supplies,
refilled
# 9 10/12 10:04 To 10/13 05:49 19.75 | Adj. P0 feedback[AOP] | 0.07 Refilled to 102mA
# 10 10/13 05:53 To 10/15 07:59 50.10 | Int Dump: End of Period | 0.00
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# 11 10/16 08:00 To 10/22 08:00 144.00 | Int Dump: End of Period | 0.00
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# 12 10/23 08:00 To 10/26 17:35 81.59 | Failed bnch removal[AOP] | 0.00
# 13 10/26 18:06 To 10/29 07:59 61.89 | Int Dump: End of Period | 0.52 Refilled
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# 14 10/31 08:00 To 11/05 08:00 120.99 | Int Dump: End of Period | 0.01
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# 15 11/06 08:00 To 11/09 16:21 80.36 | S13B:Q5 I lost[PS] | 0.00
2.2hr.PS,0.5hr.CTL | 2.70 Swapped supply, fixed OC problem
# 16 11/09 19:03 To 11/11 01:04 30.02 | RF4 trip {RF} | 4.09 Bypassed runer lmt.,OC
problem,3.7hr.RF,0.4hr.CTL
# 17 11/11 05:10 To 11/12 07:59 26.82 | Int Dump: End of Period | 0.00
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# 18 11/13 08:00 To 11/21 07:59 192.00 | Int Dump: End of Period | 0.00
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# 19 11/23 08:00 To 11/25 22:53 62.88 | Power event [OTH] | 0.00
0.55 Investigation, refill

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# 20	11/25 23:26	To	11/28 23:42	72.28	Unexplained [Unkown]	0.52 Investigation, refill
# 21	11/29 00:14	To	12/03 07:59	103.76	Int Dump: End of Period	0.00
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# 23	12/04 10:04	To	12/07 16:19	78.25	33ID EPS trip [SI]	2.07 Beamline offline, recovery, refill
# 24	12/07 17:02	To	12/10 07:59	62.95	Int Dump: End of Period	0.00
-----						
# 25	12/11 11:07	To	12/11 13:26	2.33	S38,C2 vacuum [RF]	3.12 Slow recovery, 2 more losses, blanked cavity
# 27	12/11 18:42	To	12/13 02:27	31.75	S11B:Q3 P.S. I=0 [PS]	5.26 P.S. group swapped supply, conditioned, refill
# 28	12/13 05:59	To	12/17 07:59	98.01	Int Dump: End of Period	0.00

#### Top-Up Mode Statistics

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 Target Current Range +/- 2.0, Minimum Injector Downtime = 8.0 minutes

#### Total

Current in Range during Scheduled Topup Time 94.60 %  
 Current in Range during Delivered Beam Time 97.50 %  
 Injector Availability 97.33 %

#### Period Beginning 10/02/2018 08:00

Current in Range 92.58 %  
 Injector Availability 92.40 %  
 Out of Range at: 10/04/2018 01:18:08 to 10/04/2018 01:19:04 : 0.93 minutes  
 Injector downtime: 10/04/2018 01:10:08 to 10/04/2018 01:18:08 : 8.00 minutes (est)  
 Out of Range at: 10/06/2018 05:48:32 to 10/06/2018 12:41:12 : 412.67 minutes  
 Injector downtime: 10/06/2018 05:43:36 to 10/06/2018 12:40:08 : 416.53 minutes  
 Out of Range at: 10/07/2018 05:48:56 to 10/07/2018 09:00:40 : 191.73 minutes  
 Injector downtime: 10/07/2018 05:44:00 to 10/07/2018 08:59:44 : 195.73 minutes

#### Period Beginning 10/09/2018 08:00

Current in Range 93.63 %  
 Injector Availability 93.36 %  
 Out of Range at: 10/09/2018 09:12:32 to 10/09/2018 09:35:20 : 22.80 minutes  
 Injector downtime: 10/09/2018 09:07:36 to 10/09/2018 09:35:16 : 27.67 minutes  
 Out of Range at: 10/09/2018 23:38:16 to 10/10/2018 00:13:12 : 34.93 minutes  
 Injector downtime: 10/09/2018 23:33:20 to 10/10/2018 00:10:48 : 37.47 minutes  
 Out of Range at: 10/11/2018 02:02:08 to 10/11/2018 09:01:12 : 419.07 minutes  
 Injector downtime: 10/11/2018 01:57:12 to 10/11/2018 09:00:16 : 423.07 minutes  
 Out of Range at: 10/12/2018 10:04:40 to 10/12/2018 10:09:44 : 5.07 minutes  
 Injector downtime: 10/12/2018 09:56:40 to 10/12/2018 10:04:40 : 8.00 minutes (est)  
 Out of Range at: 10/13/2018 05:54:00 to 10/13/2018 05:56:16 : 2.27 minutes  
 Injector downtime: 10/13/2018 05:46:00 to 10/13/2018 05:54:00 : 8.00 minutes (est)

Out of Range at: 10/14/2018 13:31:12 to 10/14/2018 14:23:28 : 52.27 minutes  
Injector downtime: 10/14/2018 13:26:16 to 10/14/2018 14:21:12 : 54.93 minutes

Period Beginning 10/16/2018 08:00

Current in Range 98.54 %  
Injector Availability 98.29 %  
Out of Range at: 10/19/2018 09:36:40 to 10/19/2018 10:23:44 : 47.07 minutes  
Injector downtime: 10/19/2018 09:31:44 to 10/19/2018 10:23:40 : 51.93 minutes  
Out of Range at: 10/19/2018 13:32:56 to 10/19/2018 13:46:24 : 13.47 minutes  
Injector downtime: 10/19/2018 13:28:00 to 10/19/2018 13:44:08 : 16.13 minutes  
Out of Range at: 10/19/2018 17:45:52 to 10/19/2018 18:16:00 : 30.13 minutes  
Injector downtime: 10/19/2018 17:40:56 to 10/19/2018 18:15:56 : 35.00 minutes  
Out of Range at: 10/20/2018 12:45:44 to 10/20/2018 12:57:12 : 11.47 minutes  
Injector downtime: 10/20/2018 12:40:48 to 10/20/2018 12:57:08 : 16.33 minutes  
Out of Range at: 10/20/2018 19:33:20 to 10/20/2018 19:57:04 : 23.73 minutes  
Injector downtime: 10/20/2018 19:28:24 to 10/20/2018 19:57:00 : 28.60 minutes

Period Beginning 10/23/2018 08:00

Current in Range 99.83 %  
Injector Availability 99.77 %  
Out of Range at: 10/23/2018 22:24:48 to 10/23/2018 22:39:36 : 14.80 minutes  
Injector downtime: 10/23/2018 22:19:52 to 10/23/2018 22:39:32 : 19.67 minutes

Period Beginning 10/31/2018 08:00

Current in Range 99.35 %  
Injector Availability 99.22 %  
Out of Range at: 10/31/2018 08:06:56 to 10/31/2018 08:22:00 : 15.07 minutes  
Injector downtime: 10/31/2018 08:02:00 to 10/31/2018 08:21:56 : 19.93 minutes  
Out of Range at: 11/02/2018 10:53:04 to 11/02/2018 11:25:12 : 32.13 minutes  
Injector downtime: 11/02/2018 10:48:08 to 11/02/2018 11:25:08 : 37.00 minutes

Period Beginning 11/06/2018 08:00

Current in Range 97.18 %  
Injector Availability 96.94 %  
Out of Range at: 11/06/2018 08:00:16 to 11/06/2018 08:04:08 : 3.87 minutes  
Injector downtime: 11/06/2018 07:52:16 to 11/06/2018 08:00:16 : 8.00 minutes (est)  
Out of Range at: 11/08/2018 13:45:04 to 11/08/2018 14:22:24 : 37.33 minutes  
Injector downtime: 11/08/2018 13:40:08 to 11/08/2018 14:21:12 : 41.07 minutes  
Out of Range at: 11/09/2018 01:09:28 to 11/09/2018 03:23:36 : 134.13 minutes  
Injector downtime: 11/09/2018 01:04:32 to 11/09/2018 03:22:32 : 138.00 minutes  
Out of Range at: 11/10/2018 08:31:36 to 11/10/2018 09:01:12 : 29.60 minutes  
Injector downtime: 11/10/2018 08:26:40 to 11/10/2018 09:00:00 : 33.33 minutes  
Out of Range at: 11/11/2018 23:48:56 to 11/12/2018 00:16:32 : 27.60 minutes  
Injector downtime: 11/11/2018 23:44:00 to 11/12/2018 00:15:20 : 31.33 minutes

Period Beginning 12/04/2018 08:00

Current in Range 99.54 %  
Injector Availability 99.37 %

Out of Range at: 12/09/2018 02:30:16 to 12/09/2018 02:40:16 : 10.00 minutes  
Injector downtime: 12/09/2018 02:25:20 to 12/09/2018 02:40:12 : 14.87 minutes  
Out of Range at: 12/09/2018 22:09:12 to 12/09/2018 22:23:36 : 14.40 minutes  
Injector downtime: 12/09/2018 22:04:16 to 12/09/2018 22:23:32 : 19.27 minutes  
Out of Range at: 12/10/2018 00:58:32 to 12/10/2018 01:13:04 : 14.53 minutes  
Injector downtime: 12/10/2018 00:53:36 to 12/10/2018 01:13:00 : 19.40 minutes

Period Beginning 12/11/2018 08:00

Current in Range 99.47 %  
Injector Availability 99.41 %  
Out of Range at: 12/14/2018 07:38:24 to 12/14/2018 08:20:16 : 41.87 minutes  
Injector downtime: 12/14/2018 07:33:28 to 12/14/2018 08:20:12 : 46.73 minutes