

QLI – Power Supply / Diagnostic Reports for 11-12 thru 11-18-2001

MONDAY Nov 12

0130: The RHIC magnets will not ramp due to a 11 o'clock WFG error. An 11 o'clock Sequencer FEC reset was issued. All of the RHIC **alcove power supply FEC's were reset** tonight, along with cfe-7w-ps2, and cfe-4a-rfy2. The Master Watch was restarted.

Monday: 11-12, Beam Abort 10a-ps3.A, **QLI in Yellow ring, 10a-ps3.A** (Actual Time 08:18:08 +893328)

QPA Faults none, yellow off
QD Alarms no negative tq's
DX Heaters did not fire
QdRealQuench none listed
Postmortems show nothing unusual
Qdplots YDMC at 473amps then suddenly drops off
Quench Status not Real
Reason: sitting at Injection, no suspected causes as of now.

Monday: 11-12, **QLI in Blue ring, 1b-ps1** (Actual Time 08:34:12 +2952920)

QPA Faults none, blue and yellow off
QD Alarms (1b-qd1) B1DSA3_A2VT tq-24
DX Heaters did not fire
QdRealQuench none listed
Postmortems show nothing unusual
Qdplots BDMC sitting at 473amps then drops off.
Quench Status not Real
Reason: as per George's notes, ramp to zero from Injection at SF3, wrong ramp rate

12:49:42 one of the gamma-t quads did not fire and the blue tune walked down to 0.16 passing through the 0.2 resonance (comment by...dejan) One of the power supplies: **bo2-qgt-ps** did not ramp. (Power supply was either not turned on or could be a possible control card failure, if this continues, then tunnel access is required to replace it)

TUESDAY Nov 13

00:58:50- J. Delong came in at 2324 on Monday to fix an AGS/RHIC synchro problem. A few minutes before he arrived, we lost a 480V breaker in 1006B. Both PASS and Cryo use this breaker and are quickly running out of UPS power. Electricians are coming in to repair the breaker. While the Cryo Control Room could now attempt to turn on the circulating pumps at the 6 o'clock valve box, they will wait until daytime so that more Cryo personnel are available to help the recovery. They are also soliciting help from the Vacuum Group in turning valve box vacuum pumps back on.[Jim](#)

0530: Scheduled Maintenance:

The STAR, PHENIX, and 12 o'clock IR's have been placed on Restricted Access.

The following Quenches occurred during the Maintenance period which lasted all day, work was being done along with software updates.

11:02:03- Quench Link Interlock in Yellow ring, 4b-time.B dropped first
11:19:54- Quench Link Interlock in Blue ring, 4b-time.B dropped first
13:56:01- Quench Link Interlock in Yellow ring, 3b-ps1 dropped first
15:06:48- Quench Link Interlock in Yellow ring, 1b-ps1 dropped first
15:26:28- Quench Link Interlock in Blue ring, 4b-time.B dropped first
15:57:40- Quench Link Interlock in Yellow ring, 4b-time.A dropped first
16:05:07- Quench Link Interlock in Blue ring, 4b-time.B dropped first
16:47:59- Quench Link Interlock in Yellow ring, 3b-ps1 dropped first
16:48:00- Quench Link Interlock in Blue ring, 3b-ps1 dropped first
11:02:03- Quench Link Interlock in Yellow ring, 4b-time.B dropped first

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Maintenance Quenches Continued:

11:19:54- Quench Link Interlock in Blue ring, 4b-time.B dropped first

13:56:01- Quench Link Interlock in Yellow ring, 3b-ps1 dropped first

15:06:48- Quench Link Interlock in Yellow ring, 1b-ps1 dropped first

15:26:28- Quench Link Interlock in Blue ring, 4b-time.B dropped first

15:57:40- Quench Link Interlock in Yellow ring, 4b-time.A dropped first

16:05:07- Quench Link Interlock in Blue ring, 4b-time.B dropped first

16:47:59- Quench Link Interlock in Yellow ring, 3b-ps1 dropped first

16:48:00- Quench Link Interlock in Blue ring, 3b-ps1 dropped first

WEDNESDAY Nov 14 We're back on!!!

Wednesday: 11-14, Beam Abort 7b-ps1, **QLI in Yellow ring, 7b-ps1** (Actual Time 04:14:04 +132676)

QPA Faults none, yellow off

QD Alarms (7b-qd1) Y6DSA5_A4VT tq-23, (3 others also have negative tq's)

DX Heaters indicate only 4b shows the set state (ON)

QdRealQuench none listed

Postmortems show nothing unusual

Qdplots show sitting at maximum current, signs of v-taps above dropping to zero prior to T=0

Quench Status not Real

BLM look normal indicating a good dump at 10.

Reason, unexplained at the time, possible yellow main dipole buss ground current, suspect a possible ice ball, will continue to monitor (see Carl)

Wednesday: 11-14, Beam Abort (09:34:40) 8b-ps1 dropped, **QLI Yellow ring, 10a-ps3.A** (Actual Time 09:40:24 +905472)

QPA Faults none yellow off

QD Alarms no negative tq's

DX Heaters indicate only 4b shows the set state (ON)

QdRealQuench none listed

Postmortems show nothing unusual ydmain at 475amps.

Qdplots indicate sitting at injection

Quench Status not Real

BLM N/A

Reason: unexplained at the moment.

Wednesday: 11-14, **QLI in Yellow ring, 10a-ps3.A** (Actual Time 10:12:40 +1630359)

QPA Faults none, yellow off

QD Alarms none listed (RUNNING)

DX Heaters indicate only 4b shows the set state (ON)

QdRealQuench none listed (RUNNING)

Postmortems show all near zero current, difficult to read.

Qdplots show ydmain & qmain at 50amps, (Park)

Quench Status not Real

Reason: no indication, possible failed during recovery script or beginning to look like another loose k-lock connector.

11:36:11 comment by...Johannes -- **yi10-dh0-ps** current, and error signal. During the quadratic part of the ramp there is an error on the order of 0.15Amps when the second derivative is non-zero. (SEE BARSHOW Nov 14 at 11:16:33)

11:38:49 comment by...Johannes -- **yi10-dh0-ps**, same data as above, but with the synthetic error signals showing. The brown fuzz shows that the non-smooth error is already in the iref (i.e. its in the DAC part). The powersupply is trying to follow these irregularities and breaks into oscillations (see error signal on previous plot) doing that. (SEE BARSHOW Nov 14 at 11:16:33)

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THURSDAY Nov 15

Thursdsday: 11-15, Beam Abort 10a-ps3.A, **QLI in Blue ring, 10a-ps3.A** (Actual Time 10:56:12 +3820337)

QPA Faults none, blue off

QD Alarms tripped, no negative tq's.

DX Heaters did not fire, only indicate 4b set state is (ON)

QdRealQuench none listed

Postmortems show bo10-qd1-ps and bo10-qb6-ps tripped at the same time, approx -0.1275sec before T=0

Qdplots indicate sitting at injection

Beam Loss Monitors indicated high in several especially b10-1m3.5-dmp, approx 43,000 rads/hr. Asked George about this and he said that this indicated a good dump that's why there is no neg tq's and nothing on the QdRealQuench page.

Quench Status not Real

Reason: Possible AC failure in the rack that contains bo10-qd1 and bo10-qb6. Will continue to monitor.

FRIDAY Nov 16

No troubles to report, all is well!

SATURDAY Nov 17

Saturday: 11-17, Beam Abort 9b-ps1 dropped, **QLI in Yellow ring, 9b-ps1** (Actual Time 07:18:12 +2811211)

QPA Faults bi9-dhx-qp CROW, blue and yellow off.

QD Alarms (9b-qd1) Y8DSA5_A4VT, tq-23 [all others tripped and also contain negative tq's]

DX Heaters all fired at 4b

QdRealQuench (4b-qd1) B4DRDX_VT and B3DRDX_VT

Postmortems show yellow dipole main current drops from 5060 to 4757amps at -0.033sec.

Qdplots indicate voltage taps listed above dropped -0.017sec before T=0 .

Beam Loss Monitors

Quench Status **REAL QUENCH**

Reason: George's notes: Yellow Main Dipole Power Supply dropped off, then the YDMC current decay was disturbed, like before we move the dump resistor cable in the OCC. Power supply was sitting at Top Energy of 5046amps.

Saturday: 11-17, Beam Abort, **QLI in Blue ring, 4b-time.A** (Actual Time 07:18:16 +1458257)

QPA Faults b4-dhx-qp CROW, blue and yellow off

QD Alarms (4b-qd1) B4DRDO_DO, tq-22 [also: (6b-qd1) B6DRDO_DO, tq-23 and (8b-qd1) B8DRDO_DO, tq-23]

DX Heaters all fired in 4b

QdRealQuench (4b-qd1) B4DRDX_VT and B3DRDX_VT

Postmortems show that the b4-dho-ps upon tripping off after T=0 that the current spikes down from +90 to -90amps rebounds to positive of zero then drops to -450amps before returning to zero. The Error goes to full +10volts then to -10volts lagging behind the current.

Qdplots indicate ring at top energy

Beam Loss Monitors

Quench Status **REAL QUENCH**

Reason: quenched right after yellow, possible cross talk. The YDMC dropped off -2.67 sec but the BDMC continued on until T=0. {George's Notes: trip was caused by the YDMC being bad and the DO - QD routine would not work.}

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SUNDAY Nov 18

13:01:16-The last store ended at 12:15. Pete Cameron and Carl Schultheiss get the machine for one hour for the PLL work. The coincidence rates from the last ramp were not very impressive. We looked at data but could not find any significant emittance growth. But we think that the transition loss will be further reduced if we raise the Octupole strength. So, we raised the Octupole strengths in stone g24 from -4 to -4.2. [SA](#)

Sunday: 11-18, Beam Abort 4b-time.A, **QLI in Blue ring, 4b-time.A** (Actual Time 14:27:00 +28553206)

QPA Faults blue off, no faults

QD Alarms all tripped, no negative tq's

DX Heaters none fired

QdRealQuench none listed

Postmortems show Main Blue Quad Trim current not following the Iref (-4), Iref goes to zero at -0.011sec

Qdplots N/A

Beam Loss Monitors N/A

Quench Status not real

Reason: Work being done to the PLL, P. Cameron and C. Schultheiss needed more time. They tried to close the real time tune correction loop. It was unsuccessful, and pulled the Blue quench link. However, C. Schultheiss was able to acquire data that will be used in the future. The studies are over. The MCR is recovering the QLI.

21:38:37 MCR comment by...A. Meyer -- Confirmed that **yi3-octd** has not been following ramps since the 1349 ramp on Nov 11 (fillno 01724). We attempted to manually ramp the supply and confirmed that its output is stuck at zero. (Possibly that the power supply was off or that the off push button is starting to fail. If this continues to be a problem, then tunnel access is needed to further investigate)