

Trouble Reports taken from Physics Logs and MCR Logs 9-24 thru 9-30-01

Monday 9-24-01

09:51:51- Quench Link Interlock in Blue ring, 12a-ps1.A dropped first
qpa faults: b12-dhx-qp crow, qpa alarms: B12wQFQ&_VT tq= -23,
post mortems didn't show anything unusual.

11:03:18- Quench Link Interlock in Yellow ring, 5b-ps1 dropped first
qpa faults: b6-dhx-qp crow, qpa alarms: Y4DSA4_A3VT tq= -23,
this occurred while bringing up the links after tuning of sextupoles, see Wing.

13:08:41- Quench Link Interlock in Blue ring, 11b-ps1 dropped first
qpa faults: b12-dhx-qp crow, qpa alarms: B10DSA5_A4VT tq= -24 and Aux 4b-
qd1 @ 12:32:57 B4TQ6_VT

1308: Blue QLI while dumping beam; it appears the Blue abort kicker did not fire properly. L. Ahrens is looking into possible timing problems. Cryo reports it will be 30-45 minutes before we can ramp, although it is permissible to bring the link up and set magnets to park.

Power Supplies bo10-th12, bo7-th6, bo7-qs3, and bo7-th12 were found to have tripped and were reset remotely. bi12-qgt tripped and was reset after consulting D. Bruno.

A "reset" command was issued to cfe-7c-ps1 to clear a "no heartbeat" indication and to ensure that the 7c WFG's were operating normally.

18:37:20- bi12-qgt went off, cannot be switched on, call D. Bruno.

18:57:12- Don reminded us that we should be bringing bi12-qgt on at zero setpoint. Voila. The supply is now on without a fault indication.

19:11:36 comment by...CM -- Beams are again lost at transition, because gamma_t power supplies are not ramped but jumped. We still do not understand this behavior. When we send the event manually, everything is fine. Try to reach Jorg.

2020: Machine Setup. A 6 bunch hysteresis ramp has worked. Jorg found the MADC controller 0 in the 7c-ps1 FEC to be reporting an MADC error. He was able to clear the error, although the gamma-tr information is acquired from controller 1.

20:22:20 comment by...jorg -- he reached me... I did two things: 1) fixed the madc. The madc group 0 for 7c-ps1 showed status "madc error". the gt power supplies use group 1. i stopped and started group 0. 2) I swapped the armMadc and armWFG commands in armJump.tcl. now the wfgs are set first and will work even if the program dies setting up the madcs.

2104: Again, both RHIC beams are lost at transition. Jorg is investigating

20:26:42- cfe-7c-ps1 shows up with no heartbeat. This is also the FEC that houses the gamma-t MADC that was hosed.

Tuesday 9-25-01

06:55 Blue QLI while cleaning up the unbunched beam. 8b-ps1 pulled the permit. Cryogenic control room confirms of no unusual occurrences.

06:54:04- Quench Link Interlock in Blue ring, 8b-ps1 dropped first
qpa faults: b8-dhx-qp crow, qpa alarms: no neg tq's but an aux 3b-qd1 @
06:39:29 BO3-SXD-VT, post mortems:

08:39:54- Cryo interlocks clear.

09:38:04- Beam Abort, 10a-ps3.A dropped {Loss Monitor 1} MCR intentionally dumped the beams, which caused the loss monitor to pull the permit. Why does this even happen with six bunches? [CM](#)

22:33:10 comment by...Angelika -- Drop in collision rates when bi1-th11 trips off.

22:26: Physics and SEB off. Machine Setup. 10a-blm1 pulled the permit link. No losses were seen on the PostMortem plots in 10 o'clock before the abort event. Mode switchover has begun.

Wednesday 9-26-01

03:30 yo5-th20 corrector has tripped with the fault 'PSCtrlNotOn.' The coincidence rates for RHIC experiments have gone down. The corrector does not turn on.

04:00 MCR was able to increase the rates by 50% with steering around the corrector. All the RHIC experiments are informed of the situation.

04:15 The engineer for the corrector power supply, W. Eng, is contacted at home.

04:30 W. Eng informs that a technician has to go into the ring and turn the power supply on locally to figure out the problem. All the RHIC experiments were informed of the situation, and agreed to keep the current store. The power supply should be repaired during the day time.

BTA power supply QV5 tripped once today and was reset locally. bi1-th11, bo3-sxd, and bi4-qgt tripped and were reset remotely.

04:50:11- yo5-th20 tripped off with the fault 'PSCtrlNotOn.' The engineer for the power supply was contacted, and he suggested that a tech shall go into the ring to investigate. So, we tried to compensate with a 3-bump steering, but the coincidence rates were still very low. So we turn off the corrector power supplies in 5b-ps2 (yo4-th16, yo4-th18, yo4-th20, yo5-th16, yo5-th18 & yo5-th20), and the rates increased by 50%. Then all the experiments, but PHENIX wanted to keep the store.

05:34:14- Beam Abort, 10a-ps3.A dropped {Loss Monitor 1}

05:50:39- Beam Abort, 10a-ps3.A dropped Yellow Quench

05:50:40- Quench Link Interlock in Yellow ring, 10a-ps3.A dropped first while ramping from park to injection.

Qpa faults: none, qpa alarms: Y10QDBU9_VT tq= -22,
post mortoms looked okay.

06:11:19- Beam Abort, 10a-ps3.A dropped Yellow Quench

06:11:20- Quench Link Interlock in Yellow ring, 10a-ps3.A dropped first
qpa faults: none, qpa alarms: Y10QDBU9_VT tq= -22 post mortems: yi10-qd6-
ps spike appeared down on wfg2 output m, but this doesn't look like the cause.

06:55 Beam can not be injected into the Yellow ring due to a fault in yo9-th13. The fault is "unrecognized opcode or modifier." The engineer, W. Eng, was contacted again. He tells that the fault is a controls failure.

RHIC sextupole power supply bo3-sxd tripped and was reset remotely. CAS reset problems with C2Q9 and C6Q3.

Thursday 9-27-01

03:10 All the beam was lost due to the loss maintainer permit 10a-ps3.A.

09:23:49 comment by...gjm -- is there something wrong with bo7-sxf? kind of wobbly up the ramp.

09:44:21 comment by...Johannes -- There sure seems to be a problem with bo7-sxf-ps

09:48:38 comment by...Johannes -- bo7-sxd-ps is also wiggly, all others are smooth.

(We didn't receive any phone calls on them and I believe the next few comments are related to a problem with controls)

- 11:19:43 comment by...Johannes -- Bill Venegas is going to look into this .

-11:28:48 comment by...Johannes -- This has been happening for a while, data for fills < 1000 are not on line anymore (they are on tape), so I can not check that easily. Clifford is bringing back some data)

Friday 9-28-01

00:20 cfe-9a-ps3 has an Unrecognized opcode or modifier fault. MCR tried a AC Rest for 9A PLC, but was unsuccessful. J. Morris was called at home, and is investigating from home. He asked MCR to do a reset for the cfe. As soon as cfe-9a-ps3 is reset, bi8-qgt and y08-qgt trip. J. Morris is called at home to inform of the situation, he recognized that the cfe alarms were false.

(I put this in the log because I'm not sure if we keep track of this. This sounds like a controls problem)

RHIC maintenance from 6:00am -2:00pm.

Gregg, Joe, Mitch and Jeff came in early to modify all the Sextupole firing circuit cards, isolating them from ground in Alcoves 1B, 3B, 7B, 9B, 11B. (5B was done at an earlier date)

06:20 RHIC power supply personnel are making controlled accesses into several alcoves.

06:33:45- Quench Link Interlock in Yellow ring, 2b-ps1 dropped first.

Qpa faults: none, qpa faults: no data, post mortems: yo1-qd1-ps iref dropped before t=zero.

09:29:28- Quench Link Interlock in Blue ring, 12a-ps1.A dropped first.

Qpa faults: b12-dhx-qp crow, qpa alarms: B12QFQ4_6VT tq= -24 (there were three aux trip alarms but the times did not match this of the quench, talked to Carl and he thinks they didn't reset from earlier) post mortems: okay

11:02:18- George found out that b12-q6-ps magnet lead has a resistive term and has to be kept < 100 amps, which stops up from doing the beta3 stepstone. Now usign the ramp20 'plan-B' ramp (only tune/chrom stones) at slowfactor 3 -- Fri Sep 28 11:07:22 comment by...Johannes -- The slow=3 ramp worked, the b12-q6-ps goes to 95 amps, perhaps we should go to b* = 1 immediately and the current in this one will be lower!

13:16:16- The WFG for bo7-sxf/d-ps was replaced by Bill Venegas. Hopefully that fixes the oscillation problem on the iref & current. -- Fri Sep 28 13:47:56 comment by...Johannes -- bo7-sxf/d-ps ripple not fixed, but no QLI 14:49:27- Ran ramp20 with proper sext. settings. All is happy. Ramp ready for beam. 1953: Roger has restored 2a-bcm1 by issuing another FEC reset command. At the same time, cfe-4b-rtdl has gone down. Contacting J. Morris and G. Ganetis. 2031: 4b-rtdl is running again after issuing a reset and a soft reboot. This has initially caused a Blue Quench Link interlock.

2045: Yellow Quench Link interlock after ramping back to park.

2118: Both Quench Links are up. Contacting D. Bruno about difficulties turning on bo6-tq5 and tq6, which have tripped. Several different scripts were attempted. Don was able to turn them on with the TqOn script.

20:22:20- Quench Link Interlock in Blue ring, 12a-ps1.A dropped first

20:39:00- Quench Link Interlock in Yellow ring, 1b-ps1 dropped first

22:24:02- Quench Link Interlock in Yellow ring, 3b-ps1 dropped first while ramping through transition, starting from 3b-ps1.

22:51:48- Quench Link Interlock in Yellow ring, 2b-ps1 dropped first

23:18:17- Quench Link Interlock in Yellow ring, 12a-ps1.A dropped first

W. Louie is investigating from home after three QuenchRecovery attempts failed.

2355: Machine Setup. At W. Louie's direction, we will do two hysteresis ramps. No definitive cause has been found for the QLI's so far.

Saturday 9-29-01

0851 -- Blue quench link interlock during the ramp originating from 4b-time.A. No cause of the QLI was determined.

01:22:53- Wing has given us the machine after two hysteresis ramps, one more slowly done than the other. No explanation for our multiple quench links after the one quench

08:51:01- Quench Link Interlock in Blue ring, 4b-time.A dropped first

08:55:08 comment by...TJS -- Also interesting: this QLI has nothing to do with beam, since all beam was out of the machine at this time. Since this is 4b-time.A, it's the main power supplies. Tune settings from the above ramp settings aren't doing anything extreme in this area though.

08:56:12 comment by...TJS -- Oops, Jenn informs me that time.B is the mains, not timeA. She and St Nick are evaluating the QLI. According to Andy and CCR, DX heaters are okay.

09:31:28 comment by...TJS -- No sextupoles tripped on this ramp, though the blue QLI was pulled before sextupoles reached max values in that ring.

11:12:19- yo8-th12-ps has tripped off while awaiting tandem. PLC control in psall and pet does not work, and the power supply is clearly off. Andy is trying a PLC reset in 9A to see if we can regain control. comment by...TJS -- PLC reset does not help. We'll steer around this corrector for the next ramp.

11:22:59- Beam Abort, 4b-time.A dropped Blue Quench

11:22:59- Quench Link Interlock in Blue ring, 4b-time.A dropped first

1130 -- Attempted a ramp utilizing ramp20, while waiting for beam from Tandem. A blue QLI originating from 4b-time.A occurred during the ramp again.

13:17:10 comment by...TJS -- yo8-th12 is still off for this store.

16:38:10- Talk to George about Blue QLIs during beta*=2m ramps earlier today. He suggests that we try another ramp without beam -- both of these quenches were in the b3-q8 magnet *lead*, not in any magnet. No indication of losses creating this, but it was not seen during ramp testing yesterday. Even odder, in both cases the subsequent ramps went to higher current on this lead without a quench -- it looks like a real lead quench, possibly induced by some odd interaction between cryo and the current ramp. More investigation is necessary. He suggests that we perform another test of ramp20 with no beam, to confirm that this effect reproduces without any beam in the machine.

1951: QLI in Blue, then Yellow; both originated from 4b-time.A. Multiple power supplies in both rings show current reference signals dropping out prior to the QLI event. bi4-qf9 shows an intermittent node card fault.

19:52:00- Beam Abort, 4b-time.A dropped Blue Quench

19:52:01- Quench Link Interlock in Blue ring, 4b-time.A dropped first

19:52:02- Quench Link Interlock in Yellow ring, 10a-ps3.A dropped first

19:54:06- Quench in both blue and yellow at storage

20:11:10 comment by...jak -- The current reference for the blue-qtrim, bi4-qf9, bo3-qf8, b4-q89 supplies dropped to zero before the link was pulled.

21:37:17- Node card on bi4-qi9 does not reset. The node card in the rack with bi4-qi9 has no heartbeat, and the reset button does not restore the blinking light; after consulting with W. Louie we are attempting to cycle AC power to the node card. The node card revived briefly but now shows the same failure symptoms. Contacted J. Wilke who came in and replaced it. He found later that the 5volt power supply was failing after running for awhile. A known problem that will be looked into later.

23:54:27- Quench Link Interlock in Blue ring, 4b-time.A dropped first

23:55:47- Quench Link Interlock in Yellow ring, 4b-time.A dropped first

Sunday 9-30-01

01:10:23- Beam Abort, 12a-ps1.A dropped Yellow Quench

01:10:24- Quench Link Interlock in Yellow ring, 12a-ps1.A dropped first

01:25:14- Beam Abort, 12a-ps1.A dropped Yellow Quench

01:25:14- Quench Link Interlock in Yellow ring, 12a-ps1.A dropped first

01:52:02- Beam Abort, 12a-ps1.A dropped Yellow Quench

01:52:03- Quench Link Interlock in Yellow ring, 12a-ps1.A dropped first

02:09:57- Beam Abort, 12a-ps1.A dropped Yellow Quench

02:09:58- Quench Link Interlock in Yellow ring, 12a-ps1.A dropped first

02:58:55- Beam Abort, 12a-ps1.A dropped Yellow Quench

02:58:56- Quench Link Interlock in Yellow ring, 12a-ps1.A dropped first

03:58:27 comment by...gjm -- It seems y12-q89 has a problem, tripping off as soon as it is turned on.

04:10:11- Beam Abort, 12a-ps1.A dropped Yellow Quench

04:10:11- Quench Link Interlock in Yellow ring, 12a-ps1.A dropped first

04:12:03- R. Zapasek is talking CAS through replacing current regulator card for

y12-q89. (0515: Ron is in to help with troubleshooting y12-q89. 0614: G. Ganetis examined the problem from home and believes an AC contactor is the problem with y12-q89. Ron is preparing to swap out the 300A supply, and M. De La Verge will come in to assist.)

05:43:43- Beam Abort, 12a-ps1.A dropped Yellow Quench

05:43:44- Quench Link Interlock in Yellow ring, 12a-ps1.A dropped first

0700 -- R. Zapasek, M. De La Verge, F. Scheifele, and J. Meier are replacing the y12-q89 supply. After replacing it the spare unit appears to not be functioning properly. It will be replaced with another spare.

0924 -- The yellow quench recovery script will not run completely. G. Ganetis was contacted. He is investigating from home.

09:47:08- Beam Abort, 4b-time.A dropped Yellow Quench

09:47:08- Quench Link Interlock in Yellow ring, 4b-time.A dropped first

1000 -- The yellow main dipole supply is indicating an 8176.987 Amp readback. cfe-4a-ps2 was rebooted and reset. After the reset, the readback was zero. C. Schultheiss was contacted and came in and reported that the procedure for turning on the yellow main supplies had not been followed, after the mains were unlocked.

11:08:54- Beam Abort, 10a-ps3.A dropped Yellow Quench

11:08:55- Quench Link Interlock in Yellow ring, 10a-ps3.A dropped first

Yellow quench link interlock. The yo9-dh0 supply showed a momentary drop in the current reference on the post mortem plots.

11:27:51- Beam Abort, 2b-ps1 dropped Yellow Quench

11:27:52- Quench Link Interlock in Yellow ring, 2b-ps1 dropped first

1128 -- Yellow quench link interlock while running the quench recovery script. G. Ganetis called and reported that the y2-dh0 supply indicated an error signal and would not turn on. He is investigating from home. After further investigation, C. Schultheiss and J. Wilke were contacted and are coming in. D. Bruno is also investigating the problem with y2-dh0 from home.

13:21:16- C. Schultheiss and J. Wilke are working on the y2-dh0 PS. the connections and the relays in the slow start circuit were checked. The controller card had a faulty Standby switch and was replaced.

13:24:46- Quench Link Interlock in Yellow ring, 2b-ps1 dropped first

14:24:18- Beam Abort, 10a-ps3.A dropped Yellow Quench

14:24:18- Quench Link Interlock in Blue ring, 7b-ps1 dropped first

14:24:19- Quench Link Interlock in Yellow ring, 10a-ps3.A dropped first

C. Schultheiss requested that the RHIC is ramped to injection. Before any command was sent, both links went down. The post mortem plots show voltage ripples for many of the supplies, throughout the ring. Apparently a power glitch had occurred.

1500 -- The sextupoles in the 7B alcove have tripped. The yi7-sxd and the yi7-sxf supplies indicate a quench state and will not reset. C. Schultheiss reported that there are three stuck channels for the 7B sextupole quench detector. G. Ganetis is investigating from home. G. Ganetis is reloading software for the quench detector.

15:27:45- Beam Abort, 7b-ps1 dropped Blue Quench

15:27:45- Quench Link Interlock in Blue ring, 7b-ps1 dropped first

15:27:46- Quench Link Interlock in Yellow ring, 10a-ps3.A dropped first

15:35:36- **Shift Summary:** Major power supply problems throughout the shift, no beam at all. At beginning of shift y12-q89 PS was repaired. Later on the status of the main PS could not be determined. Then the y2-dh0 PS needed repair. Frequent quenches throughout the shift. According to Carl, a large part of the quench detection software needs to be reloaded, which needs several hours. This work just started at shift end.

16:27:54- Beam Abort, 10a-ps3.A dropped Yellow Quench

16:27:55- Quench Link Interlock in Yellow ring, 10a-ps3.A dropped first

The yellow quench link was pulled when ramping to injection. The post mortem plots for the yo9-dh0 supply showed the same drop in the current reference as it did after the QLI at 1109. C. Schultheiss and R. Bonati are investigating and reported that a current regulator card has been replaced for the yo9-dh0 supply. The quench link is being recovered.