

RHIC Physics Run 2002 – 2003, Daily Quench Events for the month of January 2003

2003 - HAPPY NEW YEAR!!!

Wed, Jan. 01, 2003:

Quench Event: Blue, 4b-time.A **Time of Event:** 09:49:00 (+314540)
Timing Resolver: 1st b-qpa to trip (b-qtrim-qp) **QPACtrl:** Nothing to report.
QDAlarms: Nothing to report.
DxHeaters: None fired.
Real Quench Status: Not Real

Wed, Jan. 01, 2003:

Quench Event: Yellow, 4b-time.A **Time of Event:** 09:49:08 (+3685755)
Timing Resolver: 1st y-qpa to trip (y-qtrim-qp) **QPACtrl:** Nothing to report.
QDAlarms: Nothing to report.
DxHeaters: None fired.
Real Quench Status: Not Real

Technical Notes from the Running Logs: Link pulled in preparation for Maintenance Day.

Fri, Jan. 03, 2003:

Quench Event: Yellow, 8b-ps1 **Time of Event:** 09:36:12 (+347396)
Ring Permit Fail Time: 09:36:12 (+274457) Time shows that the permit was pulled first.
QDAlarms: Y8QFQ3_VT, Int. 1, Tq= -24
DxHeaters: None fired.
Real Quench Status: 5min delay file; (Fr._J#01030855) indicates REAL at (8b-qd2) Y8QFQ3_VT
Postmortems: Indicate that the yellow main quad & dipole supplies were running at top current.
Beam Loss Monitors: High losses in Region 8 showing the following highest levels; y8-lm3.1=4580, g8-lm1=1534, g8-mlmx.2=1065 & g8-mlmx.1=1254 rads/hr.

Technical Notes from the Running Logs: 09:54:21: comment by Mei... blm y8-lm3.1 saw a large beam loss at the time of beam abort. This is due to the yellow dump since the yellow dump event occurred right before the beam abort event. Note, yellow beam was partially debunched at the time we requested a down ramp. 10:24:05 yellow quench (a real beam-driven quench) was probably also caused by these phase19frev problems, since this changes the beam sync clock relative to the bunches. This in turn creates serious problems when aborting, since the abort kicker timing relies on this being correct -- and kicks real beam into a magnet if it's wrong. We'll work on fixing this for good and real when we return to injection. [TJS, LA, Tom Hayes, et al](#)

Fri, Jan. 03, 2003:

Quench Event: Blue, 5b-ps1 **Time of Event:** 23:53:24 (+1359729)
QPACtrl: Crowbar Fault on b12-dhx-qp & b6-dhx-qp
QDAlarms: (5b-qd1) B5QDA2_A1VT, Int. 100, Tq= -23
DxHeaters: None fired.
Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: 23:59:36: comment by CM... Quench occurred at beta7 stepstone - 10seconds before the gamma-t quads start ramping.

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Sat, Jan. 04, 2003:

Quench Event: Blue, 5b-ps1 **Time of Event:** 00:53:08 (+2344891)

QPACtrl: Crowbar Fault on b6-dhx-qp

QDAlarms: (5b-qd1) B5QDA2_A1VT, Int. 100, Tq= -23

DxHeaters: None fired.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: This is the start of Ice Balls forming on various CQS Magnet trees.

Ref to: Yellow, 4b-time.A at 05:59:32 (+3799943)

Sat, Jan. 04, 2003:

Quench Event: Blue, 2b-ps1 **Time of Event:** 01:20:40 (+1080384)

QPACtrl: Crowbar Fault on b2-dhx-qp

Timing Resolver: (Group 1) 1st b2-dhx-qp, 2nd bQD QLI and 3rd bA2 QLO

QDAlarms: None to report.

DxHeaters: None fired.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: Postmortems show b2-dhx-ps current spiked to 81.06amps, voltage spiked to the rail at 9.99volts, setpoint also indicated a spike up to 43amps at -0.0265sec before T=zero. **At 01:45 MCR called** G. Ganetis and left a message. W. Louie is checking from home.

Sat, Jan. 04, 2003:

Quench Event: Blue, 5b-ps1 **Time of Event:** 01:50:08 (+353419)

QPACtrl: Crowbar Fault on b6-dhx-qp

QDAlarms: (5b-qd1) B5QDA2_A1VT, Int. 100, Tq= -23

DxHeaters: None fired.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: Ice Ball Build up. *Ref to:* Yellow, 4b-time.A at 05:59:32 (+3799943)

Sat, Jan. 04, 2003:

Quench Event: Yellow, 5b-ps1 **Time of Event:** 02:54:12 (+914360)

QPACtrl: None to report.

QDAlarms: (5b-qd1) Y4DSA5_A4VT, Int. 100, Tq= -24

DxHeaters: None fired.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: Ice Ball Build up. *Ref to:* Yellow, 4b-time.A at 05:59:32 (+3799943)

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Sat, Jan. 04, 2003:

Quench Event: Blue, 5b-ps1 **Time of Event:** 02:57:04 (+3744109)

QPACtrl: None to report.

QDAlarms: (5b-qd1) B4DSA5_A4VT, Int. 1, Tq= -24

DxHeaters: None fired.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: Ice Ball Build up. *Ref to:* Yellow, 4b-time.A at 05:59:32 (+3799943)

Sat, Jan. 04, 2003:

Quench Event: Blue, 5b-ps1 **Time of Event:** 03:43:04 (+1016729)

QPACtrl: Crowbar Faults on b12-dhx-qp & b6-dhx-qp

QDAlarms: (5b-qd1) B5QDA2_A1VT, Int. 100, Tq= -23

DxHeaters: None fired.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: Ice Ball Build up. *Ref to:* Yellow, 4b-time.A at 05:59:32 (+3799943)

Sat, Jan. 04, 2003:

Quench Event: Blue, 4b-time.A **Time of Event:** 05:58:36 (+2490695)

QPACtrl: None to report.

Timing Resolver: (Group 1) 1st QP06-R4BOFF1-b-qtrim-qp, 2nd b-BP RDY B03 and 3rd b-B1 QLI BI3

QDAlarms: None reported.

DxHeaters: None fired.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: Ice Ball Build up. *Ref to:* Yellow, 4b-time.A at 05:59:32 (+3799943)

Sat, Jan. 04, 2003:

Quench Event: Yellow, 4b-time.A **Time of Event:** 05:59:32 (+3799943)

QPACtrl: None to report.

Timing Resolver: (Group 2) 1st QP06-R4BOFF1-y-qtrim-qp and 2nd y-BP QLI YI3

QDAlarms: None reported.

DxHeaters: None fired.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: Ice Ball Build up. **17:48:42** This is a short report of what we found today after cleaning the ice balls out of the voltage taps. 18 Magnet tress had ice balls that needed to be removed. This includes removing the ice and water from the voltage taps. CAS and MCR went through and did a survey for us of where the bad ice balls were (thank you). In sector 4 there were 8 magnets that had their heaters trip off because the circuit breaker tripped off. PK found out one heater in the string of 8 had a small leakage to ground that caused the circuit breaker to trip off. The location of this broken heater is I-O4Q13, right outside alcove 5A. The heater must be replaced the next maintenance day. This heater has been removed from the circuit. A fan has been placed on this magnet tree to keep the ice build up to a minimum. The magnets in sector 4 were Q13-Q16. In sector 6 the thermostats were not working properly on the following 3 magnets, I-06DU4, o-06Q4, and o- 0605. The thermostats were bypassed so the heaters are always on. These thermostats will be replaced the next maintenance day. In sector 1 there were 3 magnets that needed their thermostats bypassed. These are I-01Q9, I-01Q10 and 1Q21. Magnet 1Q17 in sector 1 needed a fan added even though the heater was working because the pipe that feeds the liquid helium is too close to the voltage tap box. We should probably move this pipe after this run is over. There may be some others like this as well. In sector 12 there were 2 magnets that needed to have their thermostats bypassed, these were I-12Q13 and I-12Q7. In sector 11 magnet 11Q4 needed its thermostat bypassed. After the cleaning was complete Wing monitored the voltage tap signal that tripped us off in sector 4 while we did a hysteresis ramp. This signal looked much better after Rich Meyer, Gregg Heppner, Joe Drozd, Jeff Wilke and Mitch Delavergne cleaned all the voltage taps out. Thank you. We found one bad heater, 9 bad thermostats and added 2 fans. [Don](#)

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Sat, Jan. 04, 2003:

Quench Event: Yellow, 6b-ps1 **Time of Event:** 21:22:24 (+1302078)

QPACtrl: None to report.

QDAlarms: None reported.

DxHeaters: None fired.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: Postmortems show yi6-ql1-ps tripped at 145amps +0.02sec after T=zero. The odd thing about this trip is that all the supplies Iref all dropped off too except for this one. Iref remained at 145amps. May have dropped after the postmortem time allows, no other reported problems.

(Comment by Wing L.) The Y-QLI at 21:22 on January 04 was initiated by the Permit Module at 1006B and was not caused by any of power supplies or QPAICs. All 3 timing resolve's were working at that time and recorded that the QLI was initiated by the permit module without ps or QD faults. I recalled that you had asked Ed to replace the permit module in 1006B during the last maintenance period. Was the last unexplained QLI happened on the Yellow or Blue? On next Wednesday's maintenance day, we might want to do the same test as in 1004B and see if we can duplicate the similar problems that happened in 1004B.

Mon, Jan. 06, 2003:

Quench Event: Blue, 9b-ps1 **Time of Event:** 11:17:20 (+3988054)

QPACtrl: Crowbar Fault on b12-dhx-qp & b6-dhx-qp

QDAlarms: (9b-ql1) B8DSA4_A3VT, Int. 100, Tq= -24

DxHeaters: None fired.

Main Quench Protection Switches: B9DQPSW & B10DQPSW; No quench link, open contactor.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: Series of events that took place before the Quench Event.

10:51:23 OK we are at park now. Johannes switches to dAu2. We ramp now back to injection with dAu2. [Fulvia Johannes](#)

11:20:23 running a hysteresis ramp with the dAu2 ramp. Blue ring QLied [BvK](#)

11:35:01 Blue quench recovery sequence begun [tape](#)

11:35:36 The first attempt at hysteresis results in a QLI in Blue. We will try again after resetting the WFGs and activating at injection dAu2. If we quench again we will call on George to check the QPA's behavior. [Fulvia](#)

Mon, Jan. 06, 2003:

Quench Event: Blue, 9b-ps1 **Time of Event:** 12:02:56 (+2459231)

QPACtrl: Crowbar Fault on b6-dhx-qp

QDAlarms: (9b-ql1) B8DSA4_A3VT, Int. 100, Tq= -24

DxHeaters: None fired.

Main Quench Protection Switches: B9DQPSW & B10DQPSW; No quench link, open contactor.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: Quench Summary page indicated that 9b-ps1 went first with a trip time of 12:02:56 (+2446717). 11:55:54 Back at injection now. dAu2 activated. 12:19:11 Got in contact with George - he will look at the blue quench data and let know. In the meanwhile we will run quench recovery to allow injection work. [Fulvia](#) 12:43:25 George calls back: he thinks he identified the problem - a few inductance points that were not set up right and only created problems in the present configuration in blue (lower injection current). He will reset that and call us back - to start the quench recovery process. [Fulvia](#)

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Mon, Jan. 06, 2003:

Quench Event: Yellow, 9b-ps1 **Time of Event:** 12:46:16 (+1649828)

QPACtrl: Crowbar Fault on b6-dhx-qp

QDAlarms: (9b-qd1) B8DSA4_A3VT, Int. 100, Tq= -24

DxHeaters: None fired.

Main Quench Protection Switches: Y9DQPSW & Y10DQPSW; No quench link, open contactor.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: Ref to earlier Blue Quench 9b-ps1 above.

Mon, Jan. 06, 2003:

Quench Event: Blue, 11b-ps1 **Time of Event:** 13:36:24 (+1642672)

QPACtrl: Crowbar Fault on b6-dhx-qp

QDAlarms: (11b-qd1) B11DSA3_A2VT, Int. 100, Tq= -24

Main Quench Protection Switches: B9DQPSW & B10DQPSW; No quench link, open contactor.

DxHeaters: None fired.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: 14:19:06 Now there is a problem. George needs some time to diagnose the origin of quenches in Blue. In the meanwhile I would like to use the time to set up yellow injection in RHIC (as Yellow did not quench) at least in the first sextant (DX PS belong to blue....). Unfortunately the permit does not allow independent ring operation so we can't go beyond the W dump. The only way I would be to clear the quench, that in turns means ramping PS down to zero, and that would break the hysteresis in yellow. I think we should give a though about allowing (more) independent ring operations - to allow to use time efficiently. [Fulvia](#)

Mon, Jan. 06, 2003:

Quench Event: Yellow, 1b-ps1 **Time of Event:** 15:24:16 (+1160876)

QPACtrl: Crowbar Fault on b6-dhx-qp

QDAlarms: (11b-qd1) B11DSA3_A2VT, Int. 100, Tq= -24

Main Quench Protection Switches: Y9DQPSW & Y10DQPSW; No quench link, open contactor.

DxHeaters: None fired.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: 15:27:03: G. Ganetis has finished his adjustments to the quench detection system. Dave is bringing up the quench links.

Mon, Jan. 06, 2003:

Quench Event: Yellow, 5b-ps1 **Time of Event:** 15:43:08 (+938252)

QPACtrl: None to report.

QDAlarms: None reported.

Main Quench Protection Switches: Y9DQPSW & Y10DQPSW; No quench link, open contactor.

DxHeaters: None fired.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: 15:50:00: QLI recovery has failed due to a problem with cfe-5b-qd1. Controls personnel are investigating; G. Ganetis instructed us to hold off on the quench recovery.

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Mon, Jan. 06, 2003:

Quench Event: Yellow, 4b-time.A Time of Event: 17:06:52 (+997609)

QPACtrl: None to report.

QDAlarms: (4b-qd2) Y3DRD0_D0, Int. 5, Tq= -22

DxHeaters: None fired.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: 17:07:00: Yellow QLI while ramping to injection. While G. Ganetis investigates this, we are ramping Blue to high energy to check if the new QD settings work. 17:56:38: W. Louie is replacing a bad mux card in cfe-4b- qd2.

Wed, Jan. 08, 2003:

Quench Event: Blue, 10a-ps3.A Time of Event: 08:53:16 (+1832269)

Quench Event: Yellow, 10a-ps3.A Time of Event: 08:53:16 (+1833294)

QPACtrl: None to report.

QDAlarms: None to report.

DxHeaters: All 2b-ps2 heaters fired.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: Pulled for Maintenance Day.

Wed, Jan. 08, 2003:

Quench Event: Blue, 4b-time.B Time of Event: 18:07:40 (+3002005)

Quench Event: Yellow, 4b-time.B Time of Event: 18:07:56 (+88041)

Quench Event: Blue, 4b-time.B Time of Event: 18:49:28 (+3257513)

Quench Event: Yellow, 4b-time.B Time of Event: 19:22:56 (+273031)

Quench Event: Blue, 4b-time.B Time of Event: 20:24:40 (+2037297)

Quench Event: Blue, 4b-time.B Time of Event: 21:24:56 (+36082)

Quench Event: Yellow, 4b-time.B Time of Event: 21:24:56 (+1996907)

Technical Notes from the Running Logs: The seven (7) quench events listed above that occurred in the blue and yellow 4b-time.B were due to recovering from a 13.8kV power line loss that feeds building 1004B. Multiple systems required attention in addition to PS3 and PS4 Front End Computers going down. Not a good thing for our Engine Room!

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Wed, Jan. 08, 2003:

Quench Event: Blue, 1b-ps1 **Time of Event:** 22:18:00 (+3560120)

QPACtrl: None to report.

QDAlarms: None reported.

DxHeaters: None fired.

Real Quench Status: 5min delay file indicated no real quenches.

Wed, Jan. 08, 2003:

Quench Event: Yellow, 1b-ps1 **Time of Event:** 22:18:00 (+3561145)

QPACtrl: None to report.

QDAlarms: None reported.

DxHeaters: None fired.

Real Quench Status: 5min delay file indicated no real quenches.

Technical Notes from the Running Logs: Quench event due to a re-boot of Alcove 1b bucket for the sextupole magnets since they were re-tuned.

Wed, Jan. 08, 2003:

Quench Event: Blue, 10a-ps3.A **Time of Event:** 23:10:28 (+3059066)

Permit Fail Time: First to trip at (23:10:28 +3047271)

QPACtrl: b2, b4, b6, b8, bi9 and b12-dhx-qp indicated Crowbar fault.

Timing Resolver:

QDAlarms: (9b-qd1) B8DSA4_A3VT, Int. 100, Tq= -24

DxHeaters: All 2b-ps2, 12a-ps2 Fired along with 10a-ps3.A1 & B1 Fired.

Real Quench Status: 5min delay file QDQL.1042085431 indicates REAL quenches at:

(10a-qd1) B10DRDX_VT

(12a-qd1) B12DRDX_VT & B11DRDX_VT

Technical Notes from the Running Logs: Postmortems show no signs of power supply trouble.

23:45:58 the latest quench interlocks at flattop currents also triggered the D0 DCCT bug, which tripped DX heaters.

Wed, Jan. 08, 2003:

Quench Event: Yellow, 10a-ps3.A **Time of Event:** 23:10:28 (+3596166)

Permit Fail Time: Tripped first at (23:10:28 +3047271)

QPACtrl: None to report for yellow.

Timing Resolver:

QDAlarms: (10a-qd2) Y10DRD0_D0, Int.5, Tq= - 23

Real Quench Status: 5min delay file indicated no real quenches in yellow.

Technical Notes from the Running Logs: Postmortems show no signs of power supply trouble.

23:55:53: comment by TJS... George has departed; Jim in MCR reports that the last ramp was some sort of a different ramp (faster?), and that we should be able to return to injection currents and ramp normally with the dAu2 ramp once Cryo recovers from the heater trips.

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Saturday, Jan. 11, 2003:

Quench Event: Yellow, 6b-ps1 **Time of Event:** 07:31:24 (+3244885)

Timing Resolver / QPA Ctrl: y6-tq4-ps indicated first in the string, no faults listed.

QDAlarms: Nothing to report.

Main Quench Protection Switches: Y9DQPSW & Y10DQPSW; No quench link, open contactor, Remote On.

DxHeaters: None fired.

Postmortems: Show no power supply conditions that would cause the quench event. However, wfg.y05-qf2-ps.inputM (y1) and wfg2.yo5-qd1-ps.inputM (y1) show unusual signal patterns. Power Supply Iref and current not affected by these.

Qdplots: Indicate that YDMC=5043.13amps, YQMC=4609.51amps.

Real Quench Status: 5min delay file QDLD.1042288287 indicated that 4b-qd2 & 10a-qd2 never finished dumping data.

Technical Notes from the Running Logs: 11:58:22: comment by ganetis... This trip was caused by some noise coming into the quench by-pass chassis. This problem has been occurring for some time. We have checked k-lock connectors multiple times. The problem is either the cables that connect the permit module to the quench by-pass chassis or the permit module.

(Comment by Wing), The 1006B Yellow QLI was not caused by any power supplies, QPA's or Quench Detectors. I inspected K-LOC's to the permit module and to the QPAIC during the last hardware maintenance period, and they looked fine. The Bypass Chassis has the new 31us noise discrimination circuit installed. From the Timing Resolver's archive file, the time that the QLO drops to the Bypass's response was 31.5 us. That means there was no noise detected by the Bypass chassis, and the K-Loc was most likely not the problem. If they were, I would see number bigger than 31.5 us. We need to talk to Rob and see what he could set up to monitor the permit module.

(Comment by Don), Ed said the permit module interface chassis in 6b is from 1010A. He said only one connector is a LEMO but all the other ones he checked are good. I told him we are replacing the kj-lock cable but if that does not work we may want him to remove that permit module interface chassis and put all LEMO connectors in. He may not have enough LEMOS so we have to ask Bill or Brian if they can order some in case we have to do this.

Saturday, Jan. 11, 2003:

Quench Event: Yellow, 12a-ps1.A **Time of Event:** 23:32:44 (+3121946)

Permit Fail Time: Tripped first at (23:20:44 +1285916)

Timing Resolver / QPA Ctrl: Nothing unusual.

QDAlarms: (12a-qd2) Y11QDQ8_VT, Int. 5, Tq= -23

Main Quench Protection Switches: Y9DQPSW & Y10DQPSW; No quench link, open contactor, Remote On.

DxHeaters: None fired.

Postmortems: y12-q89-ps, yo12-qd3-ps and yi11-qf3-ps all show a sharp change in Iref at -0.1458seconds before T=zero.

Beam Loss Monitors: Show normal readings at time of the event.

Qdplots: Indicate that YDMC=524.79amps, YQMC=494.95amps.

Real Quench Status: 5min delay file shows no real quenches.

Technical Notes from the Running Logs: Sun, Jan 12, 09:34:34: comment by ganetis... This trip was caused by the quench detector tripping the link. y8-q89-ps had a very large current jump from -28.8 Amps to -16.4 Amps in 1.38 msec. The p.s. wfg caused this. In reviewing the post mortem plots one sees most of the quad had this wfg jump.

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Tuesday, Jan. 14, 2003:

Quench Event: Yellow, 8b-ps1 **Time of Event:** 23:04:48 (+1989501)

Permit Fail Time: Tripped first at (23:04:48 +1907992)

Timing Resolver / QPA Ctrl: Nothing unusual.

QDAlarms: (8b-qd2) Y8QFQ2_VT, Int. 1, Tq= -24
(9b-qd1) Y9DSA2_A1VT, Int. 1, Tq= -11

Main Quench Protection Switches: Y9DQPSW & Y10DQPSW; No quench link, open contactor, Remote On.
DxHeaters: None fired.

Postmortems: Indicate yo8-qd1, yo8-qf2 & yo8-qd3 current and voltage change in opposite directions prior to T=zero.

Beam Loss Monitors: High readings in sector 7, 8 and 9 indicating beam induced quench.

Qdplots: Indicate voltage taps listed in QD Alarms responding to a real magnet quench.

Real Quench Status: 5min delay file QDLD.1042603489 indicates Real Quench Event Y8QFQ2 & Y9DSA2_A1.

Technical Notes from the Running Logs: (Wed Jan 15 00:19:39) comment by ganetis... The beam permit tripped first. Then high beam loss is at y8-lm3.1 and g9-lm12 (also many other locations) this caused quench detectors to trip on Y8QFQ2_VT and Y9DSA2_A1VT. These are real magnet quenches in y8q2 and y9d12. Dirty Dump?

Wednesday, Jan. 15, 2003:

Quench Event: Blue, 4b-time.A **Time of Event:** 12:16:28 (+289859)

Timing Resolver / QPA Ctrl: QP06-R4BOFF1-b-qtrim-qp first to fail.

Quench Event: Yellow, 4b-time.A **Time of Event:** 12:17:08 (+1250916)

Timing Resolver / QPA Ctrl: QP06-R4BOFF2-y-qtrim-qp first to fail.

Technical Notes from the Running Logs: Shut down for **Maintenance Day**.

Wednesday, Jan. 15, 2003:

Quench Event: Blue, 4b-time.B **Time of Event:** 15:08:52 (+162184)

Quench Event: Yellow, 4b-time.B **Time of Event:** 15:08:52 (+1766309)

Technical Notes from the Running Logs: Maintenance work, loading of software, crash button pushed for testing of main power supplies response.

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Thursday, Jan. 16, 2003:

Quench Event: Blue, 10a-ps3.A **Time of Event:** 15:47:04 (+2654320)

Permit Fail Time: Tripped first at (15:21:40 +3733864)

Timing Resolver / QPA Ctrl: bi9-dhx-qp, Crowbar, #4 on the timing Resolver.

QDAlarms: (10a-qd1) B9QDQ8_VT, Int. 20, Tq= -23

Main Quench Protection Switches: Open contactor.

DxHeaters: Fired, all 6b-ps2 and 10a-ps3.A2 & B2.

Postmortems: Indicates that no powers supplies caused the quench event.

Beam Loss Monitors: Last beam abort was at 15:21:43.

Qdplots: Indicate BDMC=3966.20amps, BQMC=3701.83amps and began ramping down -18.792sec before T=zero.

Real Quench Status: 5min delay file QDLD.1042750026 indicates still dumping data on 1-17-03. However, when the file was viewed at real time, time of the event, (6b-qd1) B6DRDX_VT & B5DRDX_VT, (10a-qd1) B9DRDX_VT indicated a Real Quench had taken place.

Thursday, Jan. 16, 2003:

Quench Event: Yellow, 10a-ps3.A **Time of Event:** 15:47:04 (+3254970)

Permit Fail Time: Tripped first at (15:21:40 +3733864)

Timing Resolver / QPA Ctrl: Nothing unusual.

QDAlarms: (10a-qd2) Y9DRD0_D0, Int. 5, Tq= -23

(9b-qd1) Y8DSA5_A4VT, Int. 1, Tq= -23

Main Quench Protection Switches: Open contactor.

DxHeaters: Fired, all 6b-ps2 and 10a-ps3.A2 & B2.

Postmortems: Indicates that no powers supplies caused the quench event.

Beam Loss Monitors: Last beam abort was at 15:21:43.

Qdplots: Indicate YDMC=5043.13amps, YQMC=4609.85amps.

Real Quench Status: 5min delay file QDLD.1042750027 indicates still dumping data on 1-17-03. However, when the file was viewed at real time, time of the event, (6b-qd1) B6DRDX_VT & B5DRDX_VT, (10a-qd1) B9DRDX_VT indicated a Real Quench had taken place.

Technical Notes from the Running Logs: 15:15 cfe-7c-ps2 is dead. A. Marusic is working with MCR; it looks like the power supply for the fec is dead. E. Koropsak is heading to MCR to make an entry. (Gregg, There was a problem with a FEC, Al Marusic tried ramping down one ring without the other using a non-standard ramp causing the QLI in blue which caused the yellow to come down due to the coupling in the dh0's. Don)

Thursday, Jan. 16, 2003:

Quench Event: Yellow, 2b-ps1 **Time of Event:** 23:07:28 (+3538514)

Permit Fail Time: Tripped first at (15:21:40 +3733864)

Timing Resolver / QPA Ctrl: Nothing unusual.

QDAlarms: (2b-qd2) Y1QFQ2_VT, Int. 1, Tq= -24

Main Quench Protection Switches: Open contactor.

DxHeaters: None fired.

Postmortems: Indicates that the power supplies were ramping up and none at 2b had caused the quench event.

Beam Loss Monitors: Beam abort was at 23:06:08.

Qdplots: Indicate ramping from injection to store when the Yellow Quad Main Power Supply had a glitch at 3710.5amps, -0.0334seconds before T=zero.

AC Line Monitors: Phase A, B & C show oscillations of 15vac or more for Building 4B, Yellow. (23:07:28)

Real Quench Status: 5min delay file QDLD.1042776451 indicates still dumping data.

Technical Notes from the Running Logs: Fri Jan 17 00:21:34: comment by ganetis... This yellow quench link trip was caused by the quench detector at 2b-qd2. The quench detector tripped because the main quad current had a large glitch on it. You can also see it on the main p.s. voltage.

RHIC Physics Run 2002 – 2003, Daily Quench Events for the month of January 2003

Friday, Jan. 17, 2003:

Quench Event: Yellow, 8b-ps1 **Time of Event:** 18:06:40 (+3027808)

Permit Fail Time: Tripped first at (18:06:40 (+2992923))

Timing Resolver / QPA Ctrl: Nothing unusual.

QDAlarms: (8b-qd2) Y8QFQ3_VT, Int. 1, Tq= -24

Main Quench Protection Switches: Open contactor.

DxHeaters: None fired.

Postmortems: Indicates yo8-qd1, qf2 & qd3 responding to a real quench prior to T=zero.

Beam Loss Monitors: No data available for this event.

Qdplots: YDMC=5043.146amps, YQMC=4609.541amps running steady at store energy.

Y8QFQ3_VT at X= -0.03313 begins to go negative indicating a real quench

Real Quench Status: 5min delay file QDLD.1042844803 indicates Real Magnet quenches at:
(8b-qd2) Y8QFQ3_VT and (10a-qd2) Y10QFQ3_VT

Technical Notes from the Running Logs: 23:44:10: comment by ganetis... Permit tripped before quench link. Quench detector tripped in 8b. Real magnets quenched at Y8Q3 and Y10Q3. There was no BLM data. 18:16:09: comment by Mei... Somehow the blm Postmortem file for this beam-abort is empty.

Saturday, Jan. 18, 2003:

Quench Event: Yellow, 9b-ps1 **Time of Event:** 16:57:20 (+810937)

Permit Fail Time: Tripped first at (16:57:20 (+675241))

Timing Resolver / QPA Ctrl: bi9-dhx-qp crowbar.

QDAlarms: (9b-qd1) Y92DSA2_A1, Int. 1, Tq=- 23

Main Quench Protection Switches: Open contactor.

DxHeaters: None fired.

Beam Loss Monitors: Indicate high losses in section 10 from the dump station to up stream of g10-lm20 (CQS-20 magnet) around 5000 rads/hr. High losses also in sections 8 and 9 {g9-lm12 (CQS-12 magnet)}

Qdplots: YDMC=5043.134amps, YQMC=4609.227amps running steady at store energy.

Y9DSA2_A1VT at X= -0.11671 begins to go negative indicating a real quench.

Real Quench Status: 5min delay file QDLD.1042927040 indicates Real quenches at the following:
(9b-qd1) Y9DSA2_A1 VT

Saturday, Jan. 18, 2003:

Quench Event: Blue, 10a-ps3.A **Time of Event:** 16:57:20 (+736635)

Permit Fail Time: Tripped first at (16:57:20 (+675243))

Timing Resolver / QPA Ctrl: bi9-dhx-qp crowbar.

QDAlarms: (10a-qd1) B10QFQ4_6VT, Int. 1, Tq= -25
(11b-qd1) B10DSA5_A4VT, Int. 1, Tq= -12

Main Quench Protection Switches: Open contactor.

DxHeaters: None fired.

Postmortems: Power supplies did not cause this quench. However, bi9-tq6-ps Iground spiked to -5 amps +0.0292sec after the quench event, supply remained on.

Beam Loss Monitors: (see yellow 9b-ps1 above)

Qdplots: BDMC=3966.205amps, YQMC=3702.168amps running steady at store energy.

B10QFQ4_6VT at X= -0.06761 goes negative indicating a real quench.

Real Quench Status: 5min delay file QDLD.1042927040 indicates Real quenches at the following:
(10a-qd1) B10QFQ4_6VT

Technical Notes from the Running Logs: 16:57:20 Beam Abort, 10a-ps3.A dropped {Loss Monitor 1} 16:57:21 Quench Link Interlock in Blue ring, 10a-ps3.A dropped first 17:35:36: comment by Angelika... Real quench due to presence of debunched beam in the machine in which we couldn't measure anymore. 21:41:05: comment by ganetis... Quench detectors tripped quench links. Real magnets quenched at B10Q4, B10D12, and Y9D12. Permit tripped first. There are High losses in these magnet locations, in addition to many other areas.

RHIC Physics Run 2002 – 2003, Daily Quench Events for the month of January 2003

Sunday, Jan. 19, 2003:

Quench Event: Blue, 2b-ps1 **Time of Event:** 17:32:04 (+402866)

Permit Fail Time: Tripped first at (17:32:04 (+243065))

Timing Resolver / QPA Ctrl: b2-dhx-qp crowbar.

QDAlarms: (2b-qd1) B2/1DX_DX, Int. 1, Tq= -20

Main Quench Protection Switches: Open contactor.

DxHeaters: All in sector 10a-ps3, 6b-ps2 and 2b-ps2.A1 & B1 fired.

Postmortems: Indicate nothing unusual.

Beam Loss Monitors: Several locations indicating high loss beam loss. (Section 2, g2-lx, y2-lm3, b2-lm3.1 1000 to 1400 rads/hr, Section 5, b5-lm3.1 = 1550 rads/hr, section 10, g10-lm12 = 3380 rads/hr)

Qdplots: BDMC=3966.204amps, BQMC=3702.163amps running steady at store energy.

B2/1DX_DX, B2DRDX_VT & B1DRDX_VT all show oscillation starting at X= -1.5667sec from 0v to +0.9v

Real Quench Status: 5min delay file sh2_J#01191655 indicates Real quenches at:

(2b-qd1) B2DRDX_VT, (6b-qd1) B6DRDX_VT & B5DRDX_VT, (10a-qd1) B10DRDX_VT & B9DRDX_VT

Sunday, Jan. 19, 2003:

Quench Event: Yellow, 8b-ps1 **Time of Event:** 17:32:04 (+294068)

Permit Fail Time: Tripped first at (17:32:04 (+243086))

Timing Resolver / QPA Ctrl: b8-dhx-qp crowbar.

QDAlarms: (8b-qd2) Y8QFQ2_VT, Int. 1, Tq= -24

Main Quench Protection Switches: Open contactor.

DxHeaters: All in sector 10a-ps3, 6b-ps2 and 2b-ps2.A1 & B1 fired.

Postmortems: Indicate yo8-qd1, qf2 & qd3 voltage / current changes in opposite directions.

Beam Loss Monitors: (In addition to Section 8 showing high loss at g8-lm14 (CQS magnet 14) of 3000 rads/hr and multiple high losses around the dhx to q1 magnets, see blue 2b-ps1 above,)

Qdplots: YDMC=5043.132amps, YQMC=4609.224amps running steady at store energy.

Y8QFQ2_VT Integrator spikes X= -1.5sec from 0 to -1.465 volts peak.

Y8QFQ2_VT begins to drop X= -0.05sec before T=zero down to -6.602 volts.

Real Quench Status: 5min delay file sh2_J#01191655 indicates Real quenches at: (8b-qd2) Y8QFQ2_VT

Technical Notes from the Running Logs: 17:36:09 the quench link interlock while we were just watching the store.

Wolfram 17:45:49: comment by gjm... yo8-th2 had a trip on our alarm display, perhaps losses and QLI followed?

Tuesday, Jan. 21, 2003:

Quench Event: Yellow, 10a-ps3.A **Time of Event:** 14:42:44 (+2029698)

Permit Fail Time: Tripped after the event at 14:42:44 (+2029727)

Timing Resolver / QPA Ctrl: Nothing unusual.

QDAlarms: Nothing to report. (2b)

Main Quench Protection Switches: Open contactor.

DxHeaters: None fired.

Real Quench Status: 5min delay file indicates no real quenches.

Technical Notes from the Running Logs: 14:07:14 MCR reported that yo9-qf2-ps had zero iref and current as they wanted to be running at 6.75Amps. **NOTE:** This quench event caused by shutting the control bucket power for yo9-qf2-ps to off so the current regulator card could be replaced. Later back at the shop, the K2 relay was the cause not letting the setpoint through.

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Thursday, Jan. 23, 2003:

Quench Event: Yellow, 9b-ps1 **Time of Event:** 10:10:16 (+2553992)

Permit Fail Time: Tripped first at 10:10:16 (+2342425)

Timing Resolver / QPA Ctrl: Nothing unusual.

QDAlarms: (9b-qd1) Y9DSA2_A1VT, Int. 1, Tq= -23

Alarm Display: yi6-qf6-ps AC Phase Fault (also seen on Snapshot).

Main Quench Protection Switches: Open contactor.

DxHeaters: None fired.

Postmortems: No indications that the power supplies caused the quench.

Beam Loss Monitors: High losses at g9-lm12 (4645rads/hr), g9-lm20 (949.8 rads/hr)

Qdplots: YDMC=5043.129amps, YQMC=4612.338amps running steady at store energy.

Y9DSA2_A1VT begins to drop, X= -0.19783sec before T=zero.

Real Quench Status: 5min delay file QDLD.1043334018 indicates Real quenches at: (9b-qd1) Y9DSA2_A1VT

Technical Notes from the Running Logs: 11:30:30 We had looked at the amount of unbunched beam in yellow, but obviously not close enough... we thought that amount was less. At the time of the dump, there was approximately 6×10^9 unbunched ions in the yellow ring. The QLI was pulled; however, Cryo noted that they saw very little change in the temperatures, and we were able to run the quench recovery immediately. A hysteresis ramp was performed, even though we ramped blue to zero properly. (We had the time, so we did a hysteresis ramp.) [jak](#)

11:31:53: comment by ganetis... This yellow quench link trip was caused by the 9b-qd1 quench detector. The quench detector tripped because Y9DSA2_A1VT had a real quench. BLM data shows high loss at g9-lm12 > 5000. Y9D12 quenched do to high beam loss. The beam permit tripped approximately 0.2 sec before the quench. Dirty Dump ?

Friday, Jan. 24, 2003:

Quench Event: Blue, 10a-ps3.A **Time of Event:** 11:55:00 (+2460897)

Permit Fail Time: Tripped first at 11:55:00 (+2325181)

Timing Resolver / QPA Ctrl: b2, b4, b6, b8, bi9 & b12-dhx-qp Crowbar.

QDAlarms: (10a-qd1) B10QFQ4_6VT, Int. 1, Tq= -25

DxHeaters: All in sector 6b-ps2 and 12a-ps2 fired.

Postmortems: Indicate nothing unusual.

Beam Loss Monitors: Several locations indicating high loss beam loss. (g12-lm5 = 1317 rads/hr, g110-lm12 = 4859 rads/hr, g10-lm20 = 3018 rads/hr, section 6 not all data present, b5-lm3.1 = 4938 rads/hr.)

Qdplots: BDMC=3966.20amps, BQMC=3704.45amps running steady at store energy.

B10QFQ4_6VT shows voltage starting at X= -0.13317

Real Quench Status: 5min delay file QDLD.1043427302 and QDLD.1043427303 both indicate the following as Real Quenches: (6b-qd1) B6DRDX_VT & B5DRDX_VT, (10a-qd1) B10QFQ4_6VT and (12a-qd1) B12DRDX_VT & B11DRDX_VT

Friday, Jan. 24, 2003:

Quench Event: Yellow, 6b-ps1 **Time of Event:** 11:55:00 (+3038981)

Permit Fail Time: Tripped first at 11:55:00 (+2325209)

Timing Resolver / QPA Ctrl: Nothing unusual.

QDAlarms: (6b-qd2) Y6DRD0_D0, Int. 5, Tq= -23 and (12a-qd2) Y12DRD0_D0, Int. 5, Tq= -23

Main Quench Protection Switches: Open contactor.

Postmortems: Indicate nothing unusual.

Beam Loss Monitors: (See levels above)

Qdplots: YDMC=5043.13amps, YQMC=4614.36amps running steady at store energy.

Real Quench Status: (see above file)

Technical Notes from the Running Logs: (See top of page 14)

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Technical Notes from the Running Logs:

Quench Event: Blue, 10a-ps3.A **Time of Event:** 11:55:00 (+2460897)
Quench Event: Yellow, 6b-ps1 **Time of Event:** 11:55:00 (+3038981)

12:20:40 a blue RF cavity trip ended this store before I could get to do the gap cleaning. Both rings quenched and some DX heaters fired (*&^%\$#><: { _ +() } % % \$ @ ! ~ *) ... or in other words: this will take a while :([Angelika](#)

15:02:23: comment by ganetis... The blue quench link tripped because the quench detector 10a-qd1 tripped. The quench detector tripped because there was a real magnet quench on B10QF4_6VT. The beam permit tripped first. Also because this was the blue ring, some DX quench heaters fired due to the D0 DCCT problem with high current shut offs. (The fix for this will be installed on Wed.) There was high beam loss b10-lm4, g10-lm5, g10-lm6 etc. Real magnet quenches were b10q4, b5dx, b6dx, b11dx, and b12dx. another dirty dump?

15:28:06: comment by Angelika... George: yes and no. we had a blue RF cavity trip which caused blue to debunched as well as some losses. the losses pulled the permit - at the presence of a lot of debunched beam which caused the magnet to quench. did yellow have no quenched magnet? I'm asking since there also was about $6.5 \cdot 10^9$ au ions debunched in yellow. yesterday mornings quench happened with this amount of debunched beam (see picture below) and was therefore clearly above the limit of $5 \cdot 10^9$.

Saturday, Jan. 25, 2003:

Quench Event: Blue, 4b-time.B **Time of Event:** 13:25:32 (+575357)

Permit Fail Time: Tripped first at 13:25:32 (+575387)

Timing Resolver / QPA Ctrl: b2, b4, b6, b8, bi9 & b12-dhx-qp Crowbar.

QDAlarms: Blue running.

DxHeaters: All in sector 8b-ps2 and 12a-ps2 fired.

Postmortems: Indicate nothing unusual.

Beam Loss Monitors: Appeared to be a good dump.

Qdplots: BDMC=3966.20amps, BQMC=3703.80amps running steady at store energy.

Real Quench Status: 5min delay file QDL1043519132 and QDL1043519133 both indicate the following as Real Quenches: (8b-qd1) B8DRDX_VT & B7DRDX_VT, and (12a-qd1) B12DRDX_VT & B11DRDX_VT

Saturday, Jan. 25, 2003:

Quench Event: Yellow, 8b-ps1 **Time of Event:** 13:25:32 (+1149506)

Permit Fail Time: Tripped first at 13:25:32 (+575387)

Timing Resolver / QPA Ctrl: Nothing unusual for yellow.

QDAlarms: (8b-qd2) Y8DRD0_D0 Int. 5, Tq= -23 and (12a-qd2) Y12DRD0_D0 Int. 5, Tq= -23

Postmortems: Indicate nothing unusual.

Beam Loss Monitors: Appeared to be a good dump.

Qdplots: YDMC=5043.13amps, YQMC=4612.76amps running steady at store energy.

Real Quench Status: (see above file)

Technical Notes from the Running Logs: 13:25:35 Beam Abort, 4b-time.B dropped {Blue Main PS} Quench.

14:46:00: The Blue main quads will not come on; ADT shows an AC breaker open fault. C. Schultheiss was contacted and is looking into the matter online. 15:10:00: Carl is coming in to troubleshoot. He found that the auxiliary contactor in the 480vac transformer in the sub-station for the Blue main quad had failed, creating a false indication that the breaker was open. He jumped out this interlock for now.

RHIC Physics Run 2002 – 2003, Daily Quench Events for the month of January 2003

Saturday, Jan. 25, 2003:

Quench Event: Yellow, 10a-ps3.A **Time of Event:** 15:16:32 (+789665)

Permit Fail Time: Still down from previous quench event.

Timing Resolver / QPA Ctrl: yi10-dho-qp first to trip.

QDAlarms: Yellow running.

Postmortems: Indicate nothing unusual.

Beam Loss Monitors: N/A

Real Quench Status: 5min delay file indicates no real quenches.

Technical Notes from the Running Logs: Unexplained for the moment.

Saturday, Jan. 25, 2003:

Quench Event: Blue, 4b-time.B **Time of Event:** 15:20:20 (+2194219)

Permit Fail Time: Still down from previous Blue 4b-time.B, quench event.

Timing Resolver / QPA Ctrl: Nothing Unusual..

QDAlarms: Blue running.

Postmortems: Indicate nothing unusual.

Beam Loss Monitors: N/A

Real Quench Status: 5min delay file indicates no real quenches.

Technical Notes from the Running Logs: Work being finished on replacing the auxiliary contactor located in the 480vac sub-station. The contactor was cracked, limiting the distance of travel for the contacts.

Monday, Jan. 27, 2003:

Quench Event: Blue, 2b-ps1 **Time of Event:** 08:50:36 (+3360624)

Permit Fail Time: Tripped after at 08:50:36 (+3360653)

Timing Resolver / QPA Ctrl: b2, b4, b6, b8, bi9 & b12-dhx-qp Crowbar.

QDAlarms: No negative Tq values listed.

DxHeaters: All in sector 2b, 4b and 10a-ps3.A1 & B1 fired.

Postmortems: Indicate nothing unusual.

Beam Loss Monitors: Appeared to be a good dump.

Qdplots: BDMC=3966.20amps, BQMC=3703.81amps running steady at store energy.

Real Quench Status: 5min delay file: QDL.D.1043675439 indicate the following as Real Quenches:
(2b-qd1) B2DRDX_VT & B1DRDX_VT, (4b-qd1) B4DRDX_VT & B3DRDX_VT and
(10a-qd1) B10DRDX_VT

Monday, Jan. 27, 2003:

Quench Event: Yellow, 10a-ps3.A **Time of Event:** 08:50:36 (+3925346)

Permit Fail Time: Tripped first at 08:50:36 (+3360640)

Timing Resolver / QPA Ctrl: Nothing unusual for yellow.

QDAlarms: (10a-qd2) Y10DRD0_D0 Int. 5, Tq= -23

Postmortems: Indicate nothing unusual.

Beam Loss Monitors: Appeared to be a good dump.

Qdplots: YDMC=5043.14amps, YQMC=4612.77amps running steady at store energy.

Real Quench Status: (see above file)

Technical Notes from the Running Logs: A loose “D” connector located on the b2-dh0-qp was accidentally moved while placing cable in the trays for the modification to these qpa’s during the next maintenance day.

RHIC Physics Run 2002 – 2003, Daily Quench Events for the month of January 2003

Tuesday, Jan. 28, 2003:

Quench Event: Yellow, 2b-ps1 **Time of Event:** 02:34:24 (+512618)

Permit Fail Time: Tripped following at 02:34:24 (+512647)

Timing Resolver / QPA Ctrl: Nothing unusual for yellow, Yellow QD QLI first to trip.

QDAlarms: (2b-qd2) Y1QFQ2_VT Int. 1, Tq= -24

Postmortems: 1002B indicates nothing unusual, 1004B indicates an error glitch followed by a large voltage change prior to T=zero.

Beam Loss Monitors: Appeared to be a good dump.

Qdplots: Power supplies ramping to top energy when a glitch on the yellow main quad current pulled the quench detector.

Real Quench Status: Files QDL.D.1043739264 & sh1_J#01280155 indicate no real quenches.

Technical Notes from the Running Logs: Problem is within the Yellow Main Quad.

Tuesday, Jan. 28, 2003:

Quench Event: Yellow, 8b-ps1 **Time of Event:** 10:32:08 (+3509220)

Beam Permit Fail Time: Tripped first at 10:32:08 (+3356576)

Timing Resolver / QPA Ctrl: Nothing unusual for yellow, Yellow QD QLI first to trip.

QDAlarms: (8b-qd2) Y8QFQ3_VT Int. 1, Tq= -24

Postmortems: No power supplies caused the quench event, many indications of voltage and current opposition.

Beam Loss Monitors: High losses at g9-lm20=4151rads/hr, g9-lm13=2033rads/hr, g9-lm12=3791rads/hr, y8-lm3.1=3580rads/hr.

Qdplots: YMDC = 5043amps, YMQC = 4612amps.

Y8QFQ3_VT indicates voltage change prior to T=zero to a reading of -0.857volts.

Real Quench Status: File QDL.D.1043767931 indicates a real quench at Y8QFQ3.

Technical Notes from the Running Logs:

10:31:42 Blue aborts but yellow does not. So we will trigger the yellow abort 'manually' - with Leif's blessing. [Fulvia](#)
11:22:47: comment by ganetis... This yellow quench link trip was caused by the quench detector at 8b-qd2. The quench detector tripped because of a real magnet quench on Y8QFQ3_VT. The beam permit was tripped before the quench link. There was high beam loss at y8- lm3.1. y8q3 quenched due to beam loss.

11:27:33: comment by leif... these two pics from 10:31 dump, and subsequent quench. The blue dumped ok, and following command from the sequencer. The sequencer refused to dump yellow, with a message about the amount of beam in yellow (I need to understand this message, and why we could not override it through the sequencer). We looked at yellow dump ps status - was it up to voltage - and it was ok. Finally dumped by sending y_dump event manually (although I am told that it needed to be sent several times(?)). The resulting dump was messy because the timing missed the gap (see yellow pic). (not prefire, this dump commanded). The 10A_ps2 timing module may have been sick, but there should be redundancy from 10A_ps3 (?), the postmortem pet page complains that there was a rot_fid_failure, so maybe the rev tick was really missing?

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Tuesday, Jan. 28, 2003:

Quench Event: Yellow, 6b-ps1 **Time of Event:** 11:49:20 (+1300326)

Beam Permit Fail Time: Tripped at 11:49:20 (+1300355)

Timing Resolver / QPA Ctrl: Nothing unusual for yellow, Yellow QD QLI first to trip.

QDAlarms: (6b-qd2) Y5QFQ6_4VT Int. 1, Tq= -25

Postmortems: y6-q6 indicates a large current spike between -0.038 & -0.034seconds before T=zero. There were no other indications in the voltage, Iref nor the error signal that would have caused the supply to trip. This current spike is not real because if it were, the voltage would have railed to the top. Buffer card is the suspected fault.

Beam Loss Monitors: Appeared to dump properly.

Qdplots: Power supplies were ramping.

Real Quench Status: File QDLLD.1043772561 indicates no real quenches.

Technical Notes from the Running Logs:

13:11:36: comment by ganetis... yellow quench link trip caused by quench detector 6b-qd2. The quench detector trip because of a large spike on the current signal for y6-q6-ps. The other p.s. signals do not show this spike. (voltage, error, etc.) The buffer card should be replaced.

12:27:31 Don Bruno reported that a buffer card is being replaced for the y6-q6 supply. [jak](#)

Tuesday, Jan. 28, 2003:

Quench Event: Yellow, 8b-ps1 **Time of Event:** 22:02:16 (+2866310)

Beam Permit Fail Time: Tripped first at 22:02:16 (+2803601)

Timing Resolver / QPA Ctrl: y-A1 QLI first indicated.

QDAlarms: (8b-qd2) Y8QFQ2_VT Int. 1, Tq= -24

Postmortems: Power supplies did not cause this event.

Beam Loss Monitors: Several high losses in sector 9.

Qdplots:

Real Quench Status: File QDLLD.1043809338 indicates real quenches in the following:

(8b-qd2) Y8QFQ2_VT, Y8QFQ3_VT and (9b-qd1) Y9QFA2_A1VT

Technical Notes from the Running Logs:

22:13:31 Here's what happened. The blue beam was in the wrong bucket (??) so the auto cogging was off by one bucket so no collisions. However we rebucketed anyway. Then manual cogging by one bucket was no longer an option. I wanted to try to ramp down the yellow storage cavities to try to go back to cogging. The Yellow acceleration cavities had tripped off, both on a vacuum fault (???). In trying to bring the acceleration cavities back on I hit the wrong reset switches and switched off the storage cavities... hence 100% debunch. [Mike Brennan](#)

22:42:08 An attempt was made to scrape the unbunched yellow beam from the ring, but the loss monitors were pulled and a quench ensued. Cryo reported that one recooler emptied half way and that one temperature raised to 0.5 K above the running limit. The recovery time was negligible, and we recovered the quench link as soon as blue ramped to zero. [jak](#)

Wed Jan 29 00:11:00: comment by ganetis... yellow quench link tripped because of 8b-qd2 quench detector. The quench detector tripped due to real magnet quench at Y8QFQ2_VT. At least three magnets quenched at y8q2, y8q3, and an arc quad in sector 9. There was high beam loss in all these locations.

Wednesday, Jan. 29, 2003:

RHIC Physics Run 2002 – 2003, Daily Quench Events for the month of January 2003

Quench Event: Yellow, 8b-ps1 **Time of Event:** 01:33:40 (+2300923)

Beam Permit Fail Time: Tripped first at 01:33:40 (+2252423)

Timing Resolver / QPA Ctrl: y-A1 QLI first indicated.

QDAlarms: (8b-qd2) Y8QFQ2_VT Int. 1, Tq= -24 and (9b-qd1) Y9DSA2_A1VT, Int. 1, Tq= -11

Postmortems: Power supplies did not cause this event.

Beam Loss Monitors: Several high losses in sector 9. (g9-lm12 = 4645rads/hr)

Qdplots:

Real Quench Status: File QDLD.1043822022 indicates real quenches in the following:
(8b-qd2) Y8QFQ2_VT, Y8QFQ3_VT and (9b-qd1) Y9DSA2_A1VT

Technical Notes from the Running Logs: 01:33:24 (MCR) Yellow beam is bleeding out of the machine. Loss monitors show that we are whacking the yellow kicker. **Comment by ganetis...** The yellow quench link trip was caused by quench detector 8b-qd2. The quench detector tripped because of a real magnet quench at Y8QFQ2_VT. There were real magnet quenches at y8q2,y8q3, and an arc dipole magnet around y9d12. There was high beam loss at these locations. The beam permit was tripped first.

Wednesday, Jan. 29, 2003: Start of a two-day maintenance period.

Quench Event: Blue, 4b-time.A **Time of Event:** 08:11:52 (+2637402)

Quench Event: Yellow, 4b-time.A **Time of Event:** 08:12:00 (+1336900)

Thursday, Jan. 30, 2003:

Quench Event: Blue, 4b-time.B **Time of Event:** 22:58:52 (+2704183)

Beam Permit Fail Time: Tripped same time.

Timing Resolver / QPA Ctrl: Beam Permit Ready first indicated.

QDAlarms: None to report

Postmortems: Blue Main Dipole indicates a shift in voltage at -0.91 before T=zero.

Beam Loss Monitors: N/A

Qdplots: Power supplies ramping up to top energy.

Real Quench Status: Not Real.

Technical Notes from the Running Logs: **Comment by ganetis...** This blue quench link trip was caused by the blue main p.s. This was a main p.s. interlock. We think it is a PFN fault but a change to latch the indication of this fault has not been completed.

Friday, Jan. 31, 2003:

Quench Event: Yellow, 8b-ps1 **Time of Event:** 07:01:48 (+444943)

Beam Permit Fail Time: Tripped first at 07:01:48 (+401430)

Timing Resolver / QPA Ctrl: Quench Detector first indicated.

QDAlarms: (8b-qd2) Y8QFQ2_VT Int. 1, Tq= -24

Postmortems: Power supplies did not cause this event.

Beam Loss Monitors: Several high losses in sector 9.

(g9-lm20 = 4568rads/hr, g9-lm13 = 4995rads/hr, g9-lm12 = 4646rads/hr)

Qdplots: YMDC = 5043.15amps, YQMC = 4613.49amps running at store energy.

Real Quench Status: 5min Delay File: QDLD.1044014508 indicates real quenches at the following:
(8b-qd2) Y8QFQ2_VT and ((b-qd1) Y9QFA2_A1VT

Technical Notes from the Running Logs: 07:14:22: comment by TJS... It appears that the yellow abort kicker PFN1 (channel 2?) prefire, as it fired early and the yellow abort kickers fired outside of the gap. The blue abort looks clean. We had just rebucketed and were attempting to steer PHOBOS; this is probably the clearest evidence we have of yet that image currents *and* beam loss can drive an abort system prefire.

10:37:13: comment by ganetis... This yellow quench link trip was caused by 8b-qd2 quench detector. The quench detector tripped because of a real quench in Y8QFQ2_VT. The beam permit tripped first. There were real magnet quenches in y8q2 and an arc quad in sector 9 close to position 12. There were high beam losses in these locations.

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Friday, Jan. 31, 2003:

Quench Event: Blue, 11b-ps1 **Time of Event:** 22:39:24 (+1332375)

Beam Permit Fail Time: Tripped first at 22:39:24 (+1246002)

First Indicated on the Timing Resolver: b-A2 QLO

QPA Ctrl: No faults listed.

QDAlarms: (11b-qd1) B10DSA5_A4VT, Int. 1, Tq= -24

Postmortems: Power supplies did not cause this event.

Beam Loss Monitors: Several high losses in sector 10.

(g10-lm12 = 4859rads/hr, g10-lm5 = 2530rads/hr, b10-lm4 = 4975rads/hr and y10-lm4 = 4698rads/hr)

Qdplots: BMDC = 3966.21amps, BQMC = 3703.52amps running at store energy.

Real Quench Status: 5min Delay File: QDLD.1044070765 indicated no real quenches.

Qdplots show B10DSA5_A4VT (Raw) as a real quench starting at _0.083secs, drops to -1.694volts.

Technical Notes from the Running Logs:

Sat Feb 1 13:32:16: comment by ganetis... The blue quench link was tripped by 11b-qd1 quench detector. The quench detector tripped because of a real quench in B10DSA5_A4VT. The beam permit tripped first. No DX magnets quenched. High beam loss was at g10-lm12. Magnet b10-d12 quenched.

Friday, Jan. 31, 2003:

Quench Event: Yellow, 8b-ps1 **Time of Event:** 22:39:24 (+1496393)

Beam Permit Fail Time: Tripped first at 22:39:24 (+1246035)

First Indicated on the Timing Resolver: y-QD QLI

QPA Ctrl: No faults listed.

QDAlarms: (8b-qd2) Y8DRD0_D0, Int. 5, Tq= -23

Postmortems: y8-dh0-ps running at 481amps, Iref spiked down 10.38 amps at -0.133 seconds before T=zero causing a current spike of 18.43 amps at the same time. Y8-q89 indicates a Iref spike at the same time from 26.41amps to 23.01amps. At that time, the current spiked upwards of 1.14amps. This probably has nothing to do with the quench but it displays a possible future problem with the current regulator card.

Qdplots: YMDC = 5043.14amps, YQMC = 4613.17amps running at store energy.

Real Quench Status: Not Real.

Technical Notes from the Running Logs:

Sat Feb 1 13:37:54: comment by ganetis... The yellow quench link trip was caused by quench detector 8b-qd2. The quench detector tripped due to a p.s. current glitch in y8-dh0-ps. Possible regulator card problem, it should be replace at some time.

22:43:02: comment by Wolfram... We found both beams in the wrong buckets. Blue beam debunched when Mike attempted to align the bunches with the rf tick. An attempt to use Joanne's decoupling script in Yellow lead to a beam abort and QLI.