

RHICSPProblems6x1x01to8x7x01Version4.xls		
	Events	COMMENTS
MADC glitches	1	this was documented only once but there were plenty of times that we would see glitches on the waveforms in PMView or Snapramp that were not real and due to MADC glitches
Quench Wrong SF	4	The MCR operator used the wrong slow factor (SF) and brought the link down. Again only documented 4 times but it happened more.
QPA Control Card	5	We have a problem with what we believe to be defective transformers on the Control Card for the QPA's. We have found a replacement transformer from another manufacturer that we have been using but eventually, like after the run is over, we have to think about replacing all of them.
IGBT Driver Board	9	This is a know IGBT card problem. Wing has a new design. We have 50 in house. We are replacing the IGBT cards as they fail. Wing is ordering the rest.
Fan Fault	1	There was only one documented case of a QPA fan fault in the 1004B logbook.
Fiber optic Card	4	We had one fiber optic interface card with a stuck bit because 2 pins were soldered together, another card had an offset problem at zero, another card failed under heat and was fixed. Another card had a shorted capacitor.
P.S Status to QPA	1	Something happened with one of the new 150AMP P.S's from Suncraft in 1008B. It did not send the proper status to the QPA so the P.S. was swapped out.
Q.L.Interface Cards	4	The logbook said 4 were replaced, see 1004B logbook for more details.
P.S. Voltage Clamped	1	We had 2 Suncraft bipolar 300A that would run up fine until it got to certain voltgae and then it clamped. We gave it to Wafun and he fixed it. It was a problem on the converter board.
High Vripple or Irripple	1	We have high voltage ripple on b8-dhx that still needs to be investigated.
Not Scanning	1	When a QPAIC stops scanning we press the RESET button on the node card and that fixes it.
Heartbeat Fail	8	When the Quench Detector HeartBeat fails.
DSP HB	21	When the Quench Detector HeartBeat fails. DSP HB Same as Heartbet fail. This wa fixed by removing some diagnostic software from quench detector and reducing BW of PLL in 1004B
stuck channel	5	These are stuck channels on the Quench Detector.
Reset required	16	A reset required was for node cards, Controls FEC's and quench detectors. Sometimes occurred during power dips.
overcurrent	1	This was recorded for the Quench Switch. May have been before the contactor blew up or before the loses SCR connections were found but not sure.
Loose SCR Connection	2	Loose SCR connections were found on the Main dipole p.s. and on the Quench switch.
Gas Cooled Lead Quench	4	This was recorded in 1004B logbook, see logbook for more details.
P.S. Doesn't turn on	9	Most of these trips had to do with a Suncraft 150A p.s. we replaced the contactor. We found the on the one we removed that it was rewound by Suncraft to give them a coil that worked on 12VDC. They did not do a good job of rewinding it, the armature was rubbing against the coil and could not close. We are replacing all of teh Suncraft contactors with contactors from the manufacturer that have 12VDC coils. One trip happened on Main. See 1004B logbook for more details.
Q.R. Pro Fails	2	Problems with the software
SCR Driver Board	1	One was replaced in Quench switch.
Recycle AC power	1	The AC power was recycled to the main dipole power supply to get it to run properly.
Current Drops and trips link	2	This happened twice on main dipole, DCCT was repositioned on output circuit compartment to fix this.
FEC Comp Down	12	Controls FEC's were down more than this.
Replaced Q.D. FEC or Controls	3	1 Quench Detector Front end was replaced and 2 Controls.
voltage glitch	6	This happened at least 3 times on b8-dhx. We cured it by replacing a lot of stuff in the controls compartment of the power supply. Also happened on Main p.s.'s but was probably loose SCR connections.
Link drops on P.S. Turn ON	1	This was recorded for the Main's
AC Power Glitch	1	This was recorded for a 2000A p.s. See logbook in 1004B for more details.
P.S. Trips OFF (Time B)	6	Main P.S's tripping link. See 1004B logbook for more details. May have been Main's contactors closing shaking carsh button on OCC causing link to go down.
P.S. Oscillates	14	Most of this is y8-q7 and we are still working on this. We may have solved problem but too early to tell. This was also recorded for the Main p.s.'s
MCR Operator doesn't know tq or sext scripts	2	I think they all know now.

QPA Bad	2	One QPA had a bad crimp on a wire that went to an IGBT and I think the other one was replaced because of bad IGBT cards.
Retuning Q.D. for dipole mains	1	See 1004B logbook for more details
P.S. Server	3	When PSALL stops updating it is PS Server that dies and then we call MCR to restart it. Happened More than this many times.
Storms/Power dips	3	I think there were more than 3.
WFGMAN	1	WFGMAN dies so we call MCR.
Recycle AC power to QPA to clear Heartbeat failure	7	After a power dip the QPA's sometimes end up in a funny state and cycling the AC power to them seems to fix the problem. We are hoping to install UPS's to fix this.
P.S. Doesn't turn on	1	This was recorded once for the main quad.
P.S. trips off	10	This was all from one p.s.. Bi8-qf3, It took us a long time to figure out it was a connection that went bad on the 3u backplane. Looks like it is fixed.
Reload DSP code	3	See 1004B logbook for more details
DCCT problem	7	There was one sextupole that had a DCCT problem but re-adjusting the DCCT fixed it. There is one Suncraft p.s. that comes up with the saturation light on when you go from Off to STBY sometimes but going back to OFF fixes the problem, we should look at this sometime. The mains had a DCCT problem too. The electronics were swapped out.
reversed DC leads	2	See 1004B logbook for more details on this.
ADO comm error	1	Controls problems-more than once.
Firing Circuit/Crowbar	3	A firing circuit problem sometimes shows up as a crowbar. I have a firing circuit board that Jim Osterlund is modifying for me that I will test out when I get back from vacation so I am working on this problem. His modifications may solve the problem but there are some things he is doing that Dynapower may say are not good. I am following up with Dynapower. Enerpro is still a possible solution.
Magnet Lead Disconnected	1	When we removed magnet leads for yellow warmup for magnet problem at 11 o'clock someone left a cable off when we were supposed to put them all back on.
contactor replaced	2	This was done for a Suncraft p.s. (see other explanation) and for the quench switch
ADC card new	1	This was done on the quench detector in 1008B after the 15kV switchgear blew near 1008B causing three buildings to lose power completely.
error fault	4	This was either due to a contactor not closing or a high error on the current regulator card.
15 kV switch 1008	1	this was the big switch that killed power to 3 service buildings for the whole day.
hkps's replaced	18	Housekeeping p.s. problems
loose , broken wire	2	This was recorded for a magnet voltage tap and a 150A QPA to p.s. connection.
P.S. Control Card	5	We are still having some problems with the p.s.'s tripping off due to the OFF p.b.'s. We are adding an RS latch to the pushbuttons to prevent us from tripping off if the switches open.
Cap shorted on Ireg card	1	We had this happen only once this year and it was because someone hit the cap with a soldering iron. I think that if these caps are mounted properly they are fine. I have Gregg Heppner making a new prototype Time Constant card that will completely avoid having to solder to the sides of the caps when we have to stack them. this will greatly reduce our capacitor problems.
AC phase flt on converter board	4	All of the Suncraft p.s. coverter boards have the same problem with the 208VAC connector that the housekeeping p.s.'s have. They will all be modified during the shutdown.
Curr reg card, TC, Relays or card replaced due to high error	25	We have recently found that the high errors we are seeing in some current regulator cards is due to the gain/offset not being adjusted properly in the part of the circuit that calculates the error. The gain problem may be because not all of the resistors in the error path are 0.1% as they should be. We are still investigating this. The other problems we have are the relays, We found out about a manufacturing defect with the relays. We ordered 100 new ones and will test the cards for bad relays and replace them as we find them. Sometimes the Time Constant was not set up correctly.
AC phase flt due to Air Conditioners ground fault	8	We had 8 sextupole power supplies trip off on shorted airconditioners, 4 on one day and 4 on another day.
iso buffer card	2	We replaced 2 isolation buffer cards for the Gamma-T's. One turned out to be a shorted capacitor and the other may have also been a shorted cap.
720Hz phase locked loop	1	Bandwidth was reduced to help fix problem with quench detector DSP heartbeat failures
shorted magnet	1	One Gamma-T magnet was found to be shorted.
magnets wired backwards	2	We had 2 magnets in separate gamma-T strings that were not wired correctly.
Bad MADC card	1	Controls group replaced.
contactor not closing	2	I think this was same as PS DOES NOT TURN ON on up above.
loose k-lock connector	5	Found loose K-Lock connector, fixed.

changed threshold in q.d.	1	See 1004B logbook for more details
current glitch	1	This was recorded for a 2000A p.s. but I don't know remember too much more than that.
buffer card 4-20mA or caps shorted	8	We have found that caps short out on these boards and the FET sorts out against sockets on can holder so we are replacing U34 with longer legs so it does not short out any more. As for the caps we have had 6 short out out of about 60,000 we have in the fiels so we won't be doing anything about this since the failure rate is very low.
Bad setpoint from controls	1	Carl Had found the setpoints going to the main p.s.'s had spikes on them, he can give more details.
3u backplane re-soldered connections (error fault)	1	We had an error fault we could not clear on yo8-qd3. It turned out to be bad solder joints on wire jumpers on the back of the 3u backplane.
dhx trips due to 4-20mA to sensitive on buffer card	5	The gain of the 4-20mA output off the buffer card was changed for the dhx p.s.'s so the quench detector would not get any more nuisance trips from the dhx p.s.'s
Gas cooled Lead quench trip	4	See 1004B logbook for more details.
missing SCR pulse, reseated card, replaced card	3	This was something that had happened with the Main p.s.'s. The main p.s.'s had a few times where they were missing an SCR pulse and we would reseal or replace the firing card and the problem would go away. See 1004B logbook for more details.
Re-aligned absolute value circuit, new EPROM for Jump Card	24	this was the fix done to all 24 Gamma-T p.s.'s so we could go to a lower parking current without having the Gamma-T jump automatically at the lower curent.
MOSFET bus broken in p.s., no output current	2	We had a problem on at least 2 suncraft 150A p.s.'s where there would be no output current. Wafun found that there was a buss that was broken in the p.s. from the output MOSFETS. He said it was a soldered joint. We are putting a screw through this joint for all of the 150A Suncraft p.s.'s during the shutdown.
UPS failed	1	Wing came in one day to replace a UPS for one of the Quench Switches. See 1004B logbook for more details.
QPA to QPAIC cable loose	2	There was a loose QPA to QPAIC cable that stopped the link from coming up.
Control System loses commands	17	There were 17 documented times where the Control system would lose commands it sent to the power supplies. This has been fixed in the Quench Recovery Program.
replace cable	1	This cable was the DCCT cable Carl replaced on the Main Quad DCCT when he was having DCCT problems.
blew 15V fuses due to shorted caps on Ireg	1	We had a sextupole p.s. that blew the 15V fuses that feeds the current regulator card
loose AC connections on transformer	1	Found loose AC connections to the main p.s. rectifier transformer of one of the Main power supplies.
DCOC	2	This occurred on 2 of the dhx p.s.'s. It could have been because the DCOC setting was set too low.
MCR operator doesn't know why setpoints won't go to zero. WFG's stuck	1	I got a call one night about the correctors. The operator did not understand why the setpoints on the correctors would not go to zero. I asked him if the WFG's were at zero and they were not. They were stuck at some value so it was a controls problem.
P.S. trips to STANDBY with no fault.	1	We had a problem with yi2-qd2. A Suncraft bipolar 150A p.s. It would trip to STANDBY with no fault. Then after sitting in STANDBY we trip on an error fault because the setpoint is still there with no feedback. We swapped out the p.s. with a good one. The problem with this bad p.s. still has to be looked at. We suspect another contactor problem. Again with the windings being to big stopping the contactor from closing properly.