

General (Stefan/Kin)

- Kin: There is a serious leak in a valve box at 4 o'clock. It may take a long time to repair.

Current Priority Items (PC)

- Preparation for Wednesday's maintenance day.

Work Control Coordinators (Chris/Joel)

Chris

- During today's RA, SEPD electronics box infrastructure was installed, braided cooling lines were run, Synflex lines were run.
- Tomorrow we will install SEPD Electronics box, connect cooling lines
- Tomorrow cooling lines will be pressure tested with Peter Hamblen, Mike Lenz, and coordinated with the Water Group

Joel

- Waiting for parts for South AC
- Joel-EEI for sEPD Electronic boxes are completed and approved.
- No IR HVAC work next week (no parts)
- RR HVAC preventive maintenance work is scheduled for next week

Plan of the Day (Stefan/PC/all—to be revisited at end of meeting)

- HCal Cosmics running, include INTT if the cooling conditions met
 - No cosmics data with EMCAL from now until ADC racks will have been reprogrammed
- TPC/TPOT off for TPC thermal studies- Cooling and LV are off
- MVTX DAQ read out work.

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Evening (Nathan)

- Beam was dumped just before the beginning of the shift after CAD completed the collimator tests. They immediately went into Controlled Access. CA was lifted at 18:36. We took cosmic data somewhat successfully. Lots of hanging because of seb busies. There was a particularly bad hot tower in the OHCAL that would make the waveform distribution look quite bad. And it would persist through a generic_setup.sh.
- Fill 34072 with physics declared at 21:18. We contacted Cameron and sent notice on Mattermost for others to take a look. Itaru had just come back to 1008. MDB rate started around 12.6 kHz raw and 1.4 kHz scaled. Immediately seb06 would hang every run and we took it out of the big partition. Then issues began. Fortunately Hugo, Dan, and Jaebeom were around to lend a hand.
- A db issue started around the time things were being worked on. The run number table and then grafana started having intermittent issues. Grafana shows that the available root disk space on the db server has gone to essentially zero. Then seb's started to show up in the rc_status in a failed state. Martin was called early in this process.
- The MVTX group could turn on their detector once the beam emittance gets down to about 0.8 mm*mrad in yellow, which currently has the highest emittance. At that point we

should call MCR to see if they have collimator settings or need to wait until the emittance is down to 0.6 mm* μ rad. But this was moot when the beam was lost at 23:03.

- Martin called and said the daq db is corrupted and he cannot recover. The backup is not able to come up either. That explains some of the db issues that we were seeing. But we can continue to take data. But we have to manually type the run number. And were running cosmics at the end of shift.
- INTT group is here. If beam will come back they can stay to keep working on their timing scan. Otherwise they will open up the timing window and they can be run in the Big Partition.

Night (Joey)

- 00:56 fill 34074 begins; ZDC rate 10 kHz, dump scheduled for 08:56
- New failure mode in SEB machines: rcdAQ completely crashes, and does so silently. RCDAQ automatically restarts. Observed for SEB14, SEB17, SEB18. SEB18 failed in this way in run 24756. Started shortly after db issues began; unsure if related. Does not always happen. Only happened early in the night.
- Some (random) SEB machines continue to hang at event 131073 consistently - corresponds to 10 0000 0000 0000 0001 in binary.
 - Similar failures at 524289 (binary 1000 0000 0000 0000 0001)
 - 1048577 (binary 1 0000 0000 0000 0000 0001)
 - Particularly likely to be seb02 or seb07, but can appear in any machine randomly
- Error of type
"/home/sphnxbuild/pro_installation/CentOS/digitizer_plugin/jseb2Controller.cc 19f polling, read_end: f51c0 WritePointer: f5140" appears multiple times in rcdAQ logs. Appears to be non-fatal error, as some runs end normally after this error appears
- Need clarification from subsystems about whether to continue running with dropped SEBs (or how many dropped SEBs requires a restart).
- MVTX team left shortly into shift (no beam). Collimation study postponed after call from Kin Yip and call to MCR, as there were no experts on the call list for beam, and none in sPHENIX control room to run MVTX.
- Added INTT to big partition at ~4:45 per instructions from INTT experts
- Removed INTT around 6:00 due to power cycle - unable to turn off channels which are supposed to be off from GUI in control room
- If we attempt to open an online monitoring plot which is for a detector which is not in use, the GUI crashes
- ~5:50 AM noticed problem with EMCAL peak position plot - seems to be almost uniformly distributed. This failure mode gets worse with time. Called Anthony Hodges for timing instructions per standing orders for EMCAL, no obvious solution; Anthony will discuss with Tim. See EMCAL ELOG 349
- ~7:00 Brought MBD rate to roughly same as ZDC rate after suggestion from Stefan to re-initialize trigger.

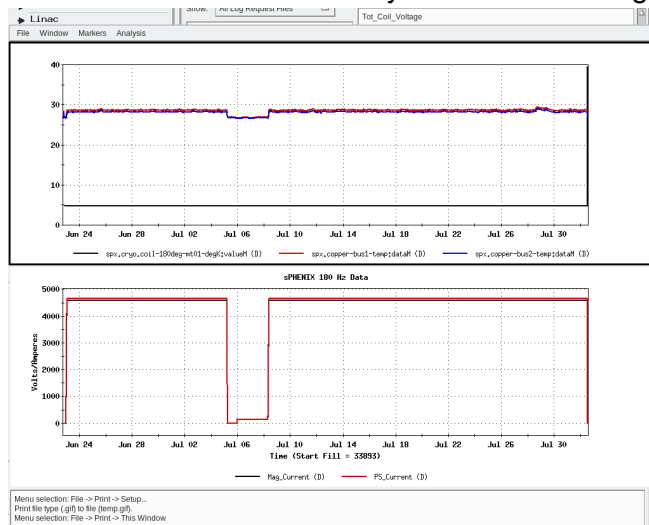
Day (Tristan)

- Inherited fill 34074 from owl shift.
- Collimator test for MVTX canceled because of vertical emittance, cooling was not working.

- Beam dump at 9:35, preparing for $\beta^* = 5$ meter test
- INTT group came in around 10:20 to work on low voltage
- 2 attempts at 12x12 with increased beta*, both aborted during setup. Switching to 111x111 with increased beta*.
- 111x111 injected and ramped to stable conditions, started MVTX measurements and took GL1+MBD+ZDC+sEPD data
- During this, at 12:32 a beam abort was fired due to blue quench interlock
- Detectors were ramped to a safe state, no trips were observed
- MCR called and asked us to ramp down our magnet, see Kin's update for details
- Currently detectors are in safe state and taking HCal cosmics
- TPC studies ongoing as well

Magnet (Kin)

- Unfortunately, RHIC Cryo problem brought down the sPHENIX Magnet at 13:10. The Cryo Control tried to call me to bring down the magnet but the "Cryo-Interlock" caused the Magnet to fast-discharge before I could do anything.
 - Before this, the Magnet has been on since July 8, and actually since June 23 (as we only brought down the Magnet for 3 days before July 5 Maintenance Day).
 - (By the way, the sPHENIX Magnet can be run using RHIC ring with He from 6 o'clock to 12 o'clock. We may run sPHENIX Magnet if necessary.)



MBD (Mickey, Lameck)

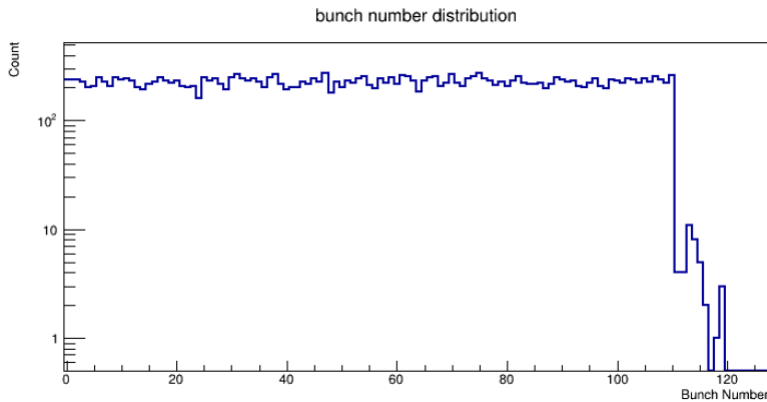
- Nothing to report

Trigger (Dan)

- Nothing new today.

GTM/GL1 (Martin/Dan/John K)

- We had initially adjusted the fiducial tick the wrong way. John fixed it, and it's correct now:



DAQ (Martin/John H/Dan)

- I brought down and corrupted the 1008 database yesterday in an attempt to prevent some cache file from overflowing a disk. We will end up with some data lost. Work in progress.
- Dan and company will use the downtime to flash new firmware on the remaining EmCal ADC boards (2 racks done, 6 to go). That is in preparation for the upcoming “dense-packed” data (14 bit ADC values packed into 16bit variables instead of 32bit), and eventually the zero-suppressed data.
- I would like to keep seb06 now out of the BP and on gtm1 so I can work on improving the now-thoroughly discussed “getting stuck” modes without coordinating with the shift crew.

MVTX (Cameron)

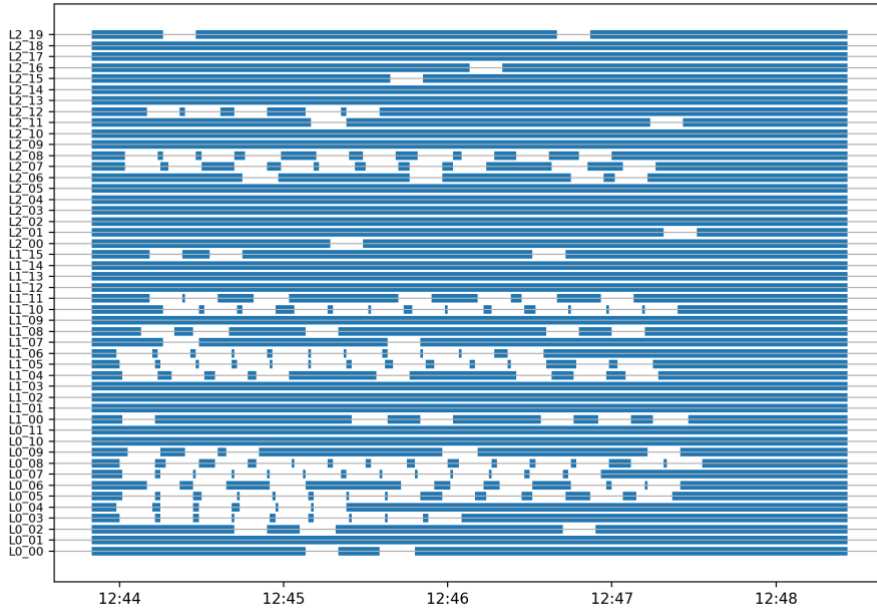
- MVTX group came in last night for pre-collimation tests
 - We successfully ran the MVTX auto-recovery by force sending start-of-continuous commands with beam and an emittance of about 1.6 to 1.3 mm.mrad in the yellow beam but we couldn't send data to the bufferbox. Auto-recovery looked quite isotropic
 - Michael, Yasser and I discussed on the phone and looked at some MVTX settings then were able to take data AND send it to the buffer box

```
-rwxr--r-- 1 phnxrc sphenix3 16K Jul 31 23:50 mvtx_mvtx-flx2-00023074-0000.evt
-rwxr--r-- 1 phnxrc sphenix3 20G Aug 1 00:19 mvtx_mvtx-flx3-00023075-0000.evt
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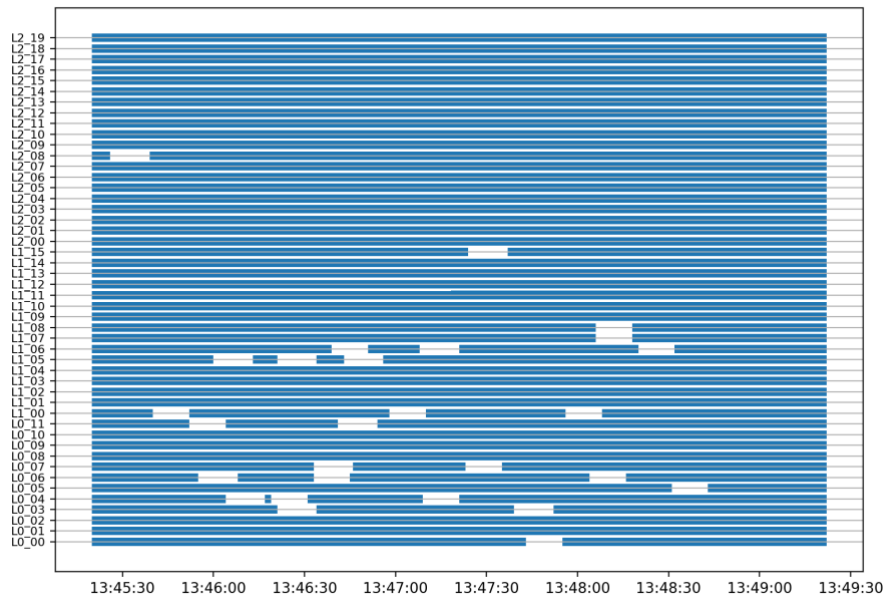
- Beam was lost just after 11pm so we decided to postpone collimator movement until the next day
- I came in this morning and retested our auto-recovery procedure successfully. The emittance was too high for collimator tests (1.2 mm.mrad at the end of fill compared to 0.6 mm.mrad for collimator test)
- We ran the auto-recovery process during the large beta star fill and took data by sending our own SOC. The number of auto-recoveries seems lower than before yellow-beam only collimation but higher than after yellow-beam only collimation
- On data taking. We sent data to the buffer box when sending our own SOC and WinCC, we did not send data to the buffer box when using the GTM to send the SOC and using

WinCC. We sent data to the buffer box using python scripts and have a data set where the GTM was supposed to send SOC but we need to analyse the data packets to see if the BCO is really there

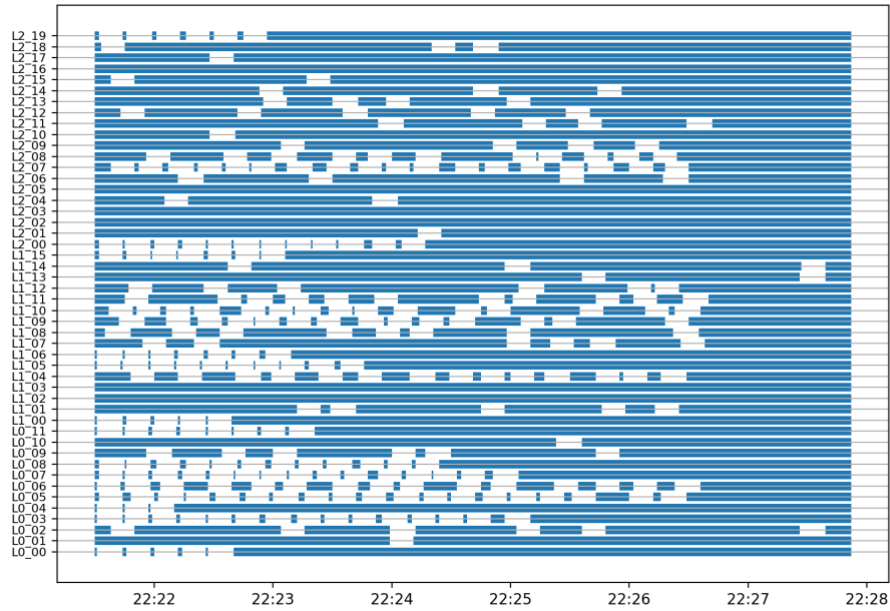
Yellow beam only, before collimation



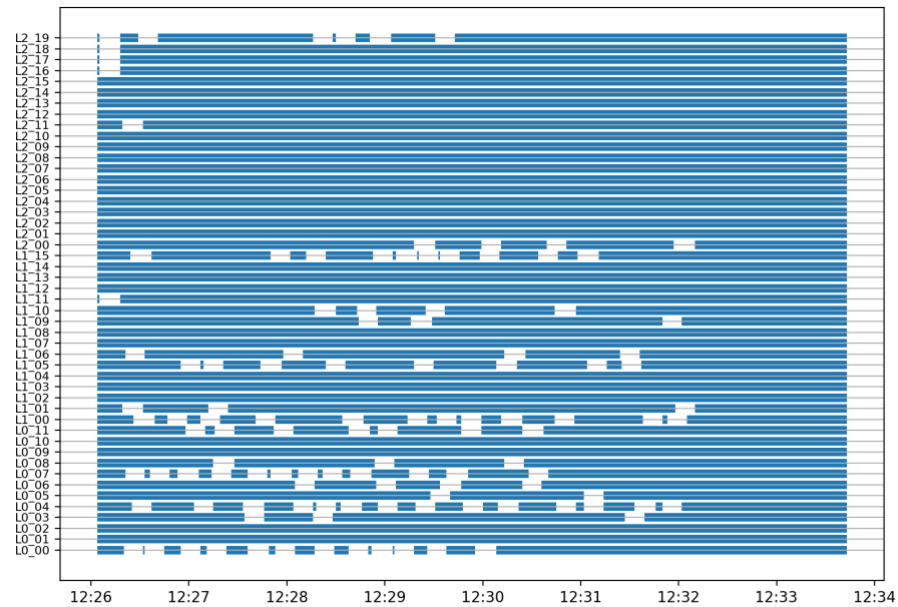
Yellow beam only, after collimation



Collisions, normal beta star

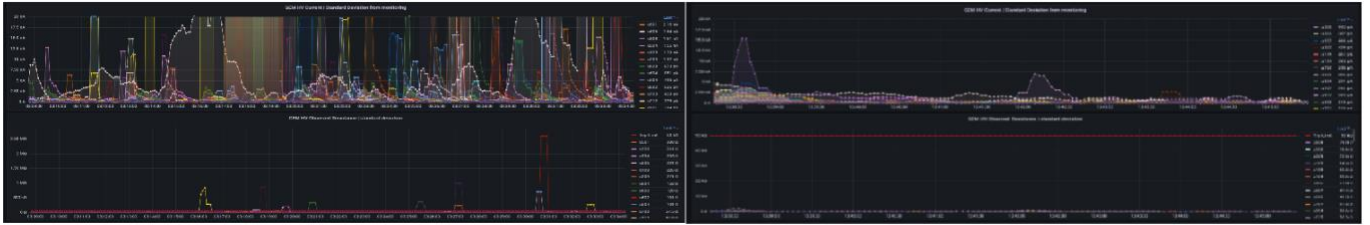


Collisions, large beta star



TPC (Tom Hemmick, Jin, Takao, Evgeny, Charles, Ross, Nick, Luke, Bob, John K., David)

- Weekend running very fruitful:
 - Cosmics and laser runs
- Yesterday 07/31:
 - Rob Pisani shutdown cooling to FEEs
 - FEEs have been off since
- Today 08/01:
 - Started diffuse laser test w/o FEEs
 - Interesting results:
 - **07/30 Owl shift test (cosmics)** / **08/01 day shift test:**



- In the above plot, the 07/30 shift shows (top) lots of changes in current, as represented by jumps in the standard deviation of the current to the gems (per channel), and (bottom) effective resistance of the gem stack, with excursions above the red line showing trips. In the right plot, with field off, on a higher-pressure day, the current (similar scale) deviations are much smaller, and the effective resistance is much smaller, nowhere near the trip level (red line, different scale).
- Pressure clearly increased between now and then (also B-field went down today)



- What we learned today:
 - After turning off B field - still seeing minimal pulse in GEM currents
 - This indicates B field is NOT responsible for reduced QE
- Spark Monitor Card Testing:
 - Started this afternoon (Nick, Luke, Takao, David)
 - We have 82 boards for testing, so far more than 95% yield. Very likely to get 72 boards tested fine by tonight.
- Tomorrow 08/02:
 - TPC group access during maintenance day
 - Install spark monitor (Takao + Jin/Charles/Evgeny)
 - Place spare laser diffusers near beamline (Bob + Charles)
 - Rob restores FEE cooling
 - 0 field magnet test indeterminate - doing this already today ...

HCal (Emma)

- Currently looking into timing difference between east and west side of HCal for data from cosmics trigger

EMCal ()

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TPOT (Hugo)

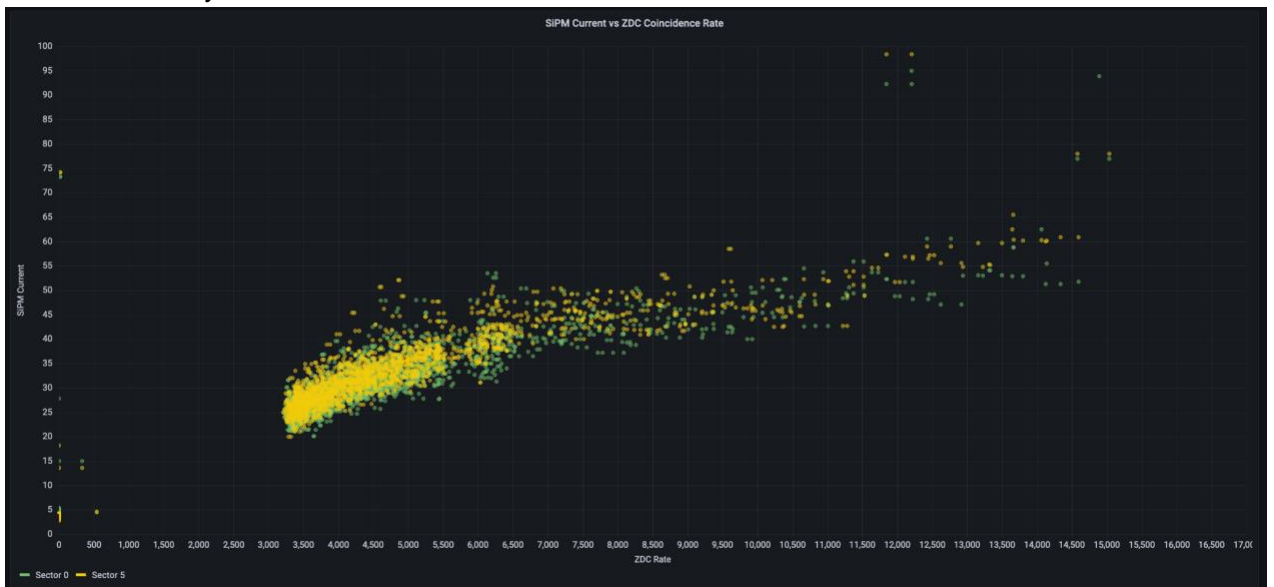
- TPOT LV are OFF. Nothing to report .

INTT (Genki/Rachid)

- INTT successfully timed-in. We changed the timing by 3 BCO. The timing window is larger than the smallest (i.e. the finest) setting by +/- 1 BCO to confirm that all hits are in the expected region. The timing scan was done smoothly.
- Early this morning (since the beginning of the timing scan), we had issues with the LV of RC6 and RC7. Raul reprogrammed Felix of the INTT3 (RC6/7), currents are back to normal. The INTT detector is in the hands of the shift leader for regular operation.
- INTT Felix rack in the rack room is very hot causing power trip of felix machines. We need to implement air cooling go into the rack.

sEPD(Tristan/Rosi)

- South side electronics install tomorrow
- Slow controls grafana page started, will finalize and write instructions for shift crew over the next few days



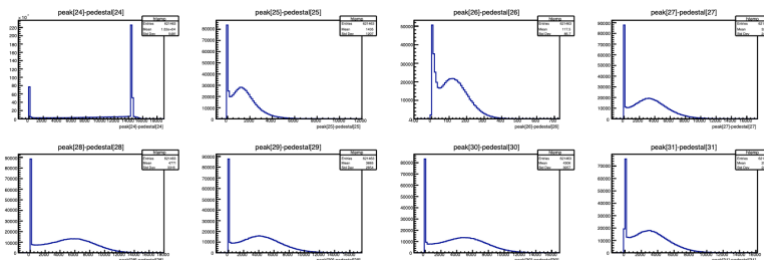
- SiPM Current vs ZDC Coincidence Rate

Gas/Cooling ()

- Plan is to turn the CDU 300 back on in the morning.. Purge the TPC and TPOT and restore nominal flow to both systems. This could take several hours, so will need to start early morning.

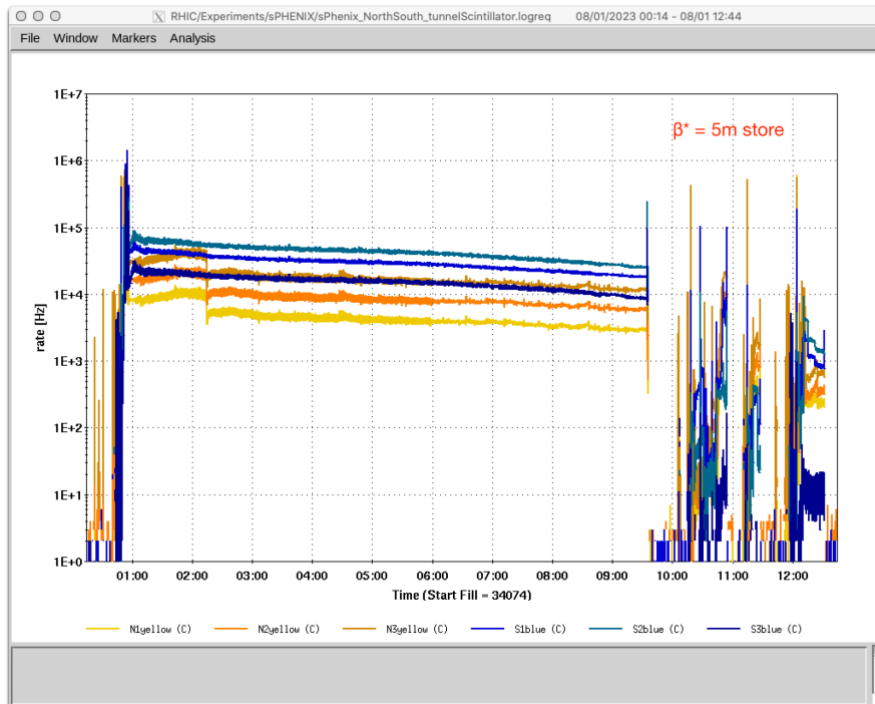
ZDC (John H/Peter)

- (John H.) Flipped polarity of SMD cables—much better!
- Rest of cables terminated in 1008B



Background Counters (John)

- During $\beta^*=5\text{m}$ running much lower at Q1-2-3



Online Monitoring (Chris)

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