News from the 2018 run

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Target

Loss of polarisation:

1. Power-glitch: He3 root pump stopped
   - Temperature increased to 1K
   - React within 7 min but still too late
   - Rare phenomenon but action to protect from power-glitch could be investigated

2. Delta PS died: No dipole
   - NO MSS error
   - NO alarm from DCS
   - Now DCS alarm also on the current in dipole and solenoid

3. Polarity switch temperature alarm: Slow discharge (see next slide)
   - → Remove temporarily the sides of the racks

4. Cooling tower shutdown due to water leak (see next slide)

Possible correlation between ② and ③, under investigation no answer yet.

Christophe connected two temperature probes (2 m and 5 m) from the racks to monitor temperature environment for EP-EPC
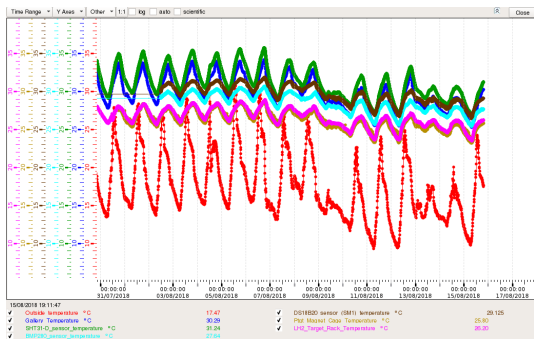
Nominal conditions: 25 °C

According to Yves Thurel, the system is not designed to "stand" such environment.

The extra degrees were sufficient to trigger the temperature alarm of the polarity switch.

Temperature can go up to 28 ± 1 °C

Planned actions

- During TS2 (rather UA9)
  - Minor labelling already scheduled couple of month ago
  - Protection of the bus bars
  - Improved cooling of the rack

- During LS2
  - Cooling from the false floor to be discussed between Aziz (EN-CV), Yves (EP-EPC) and us
  - Define space for PSU, polarity switch spares

Question from EP-EPC: Do we need polarity switches?

Cooling tower shutdown

Massive water leak found in the gallery under Heisenberg road next to 888

$\rightarrow$ Cooling tower switched OFF

$\rightarrow$ Cryo compressor OFF: No more ^{4}He delivery

Impact on COMPASS:

- No more AC in pump room
- Diffusion pump stopped $\rightarrow$ switched to tap water
- Recover ^{3}He and stop root pump
- Reduce ^{4}He consumption to its minimum, warm up the target

$\rightarrow$ ^{4}He Dewar life: $\approx$ 30h

Cooling tower shutdown (II)

Action taken:

- LHe Dewar delivery in emergency: contact Johan Bremer cryolab Meyrin
- Preparation of the platform on top of the absorber: great support from Johannes Bernhard and Michael Jeckel
- Identify man power in case of emergency target platform installation

Conclusion:

- Cooling tower operational earlier than expected
- Cryo operational earlier than expected
- We need to identify a solution to survive longer in case of similar problems happen again

Temperature issues

- Filled the hole in the wall between pump room and 888 (EN-CV)
- Installation of extra fans in pump room to improve the air flow (COMPASS)
- Temporary AC unit installation mid of July in BMS barrack (EN-CV)
  $\rightarrow$ Quote to be received for the installation of a future one
- Extra fan under ST03 HV crate installed (COMPASS)
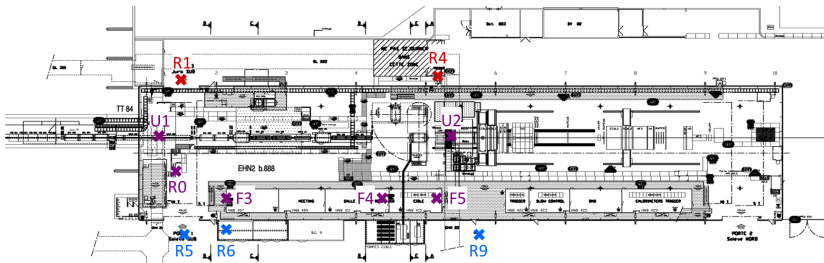- Installation of 1 fan and 1 air blower to avoid ice accumulation on the target feeding turret (COMPASS)

To be considered for the future:

- Replacement of old AC units in 888 (used as air blower)
- Backup chiller for the target room

Radiation protection: survey

Instruments:

- Wendi-2 (Thermo FHT 762): extended range rem counter for neutron dose rate
- IG5 (Centronic) Ar- and H-filled ionisation chamber for mixed field mainly γ / μ and high energy charged particles / n / γ, respectively

Statistical uncertainties $\approx 15\%$

Pos.	Wendi-2	IG5		Limit
		Ar	H	
R0	11.2	2.4	14.9	15.0
R1	9.2	2.5	13.3	
R4	44.8	6.6	41.1	
R5	4.2	0.6	4.3	2.5
R6	2.4	0.4	2.4	2.5
R9	2.6	0.3	2.2	2.5
F3	9.3	1.8	11.2	15.0
F4	7.8	1.2	6.4	15.0
F5	6.2	0.9	5.4	15.0
U1	0.3	-	-	15.0
U2	5.6	-	-	-

Supervised   Non-designated   Not classified
✗   ✗   ✗

U: underground, R: Ground floor, F: First floor

Radiation protection: action

- Close gallery access door with a padlock to prevent access to Jura side
- Reinforce shielding on Saleve side near the CEDARs with additional concrete blocks
- Repeat measurements on critical locations

Radiation level
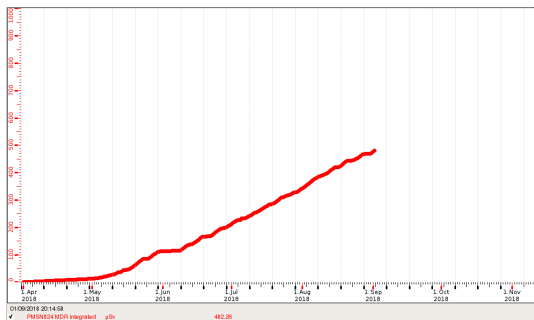
Trend as expected
Limits should not be exceeded

<u>SEU?</u>
Not preventing data taking

- Network switch stuck: ≈ 16

Requiring power cycle of VME (down time): 2018 (2017, 2016)

- config_server lost: ≈ 140 (52, 91)
- VME errors $\rightarrow$ "TCS not programmable": ≈ 31 (13, 15)

(part of them can be induced by a power-cycling)

Power supply failures/status (may not be complete)

Affected detectors   Spare status

- PLC2 (RICH, GEM, MWPC, ST)   very old, would probably need modification
- DC05 LV   2 ch. PS & some cards from broken module
- ST03 LV   1 spare & one to be brought to Wiener
- pccofe37   unknown, can be brought to Wiener
- pccofe13   taken from FI55, maybe one in Torino workshop
- PMM03 LV   1 in E-pool, 1 in Wiener
- MW1 HV A734N card   deprecated but spare from trigger groups
- MM/DC HV SY1527 crate   0 in E-pool, 1 in Marcin's office
- ST03 HV   currently 0, ordered 1 PS to ISEG
                             waiting for a quote to replace everything
- Trigger SY527 HV crate   ch. moved to SY1527 and SY4527 crates. spare OK
- ECAL LV   E-pool?

Also many self reboot of crates, especially DC00/04/05 HV SY1527 crate

DAQ and front-end

DAQ:
- Running smoothly
- Deployment of X-point switch ongoing and rather successful
- Fast start of the run implemented (3-spill-synchronisation done with artificial spill structure)

Front-end:
- DC04: suspicious cards   lot of cards available
- MWPCs: connectors?   further modifications?
- RW: connectors? Gesica?   spare situation?
- PMM: Fuse/firmware issue/broken ADC   1 spare, more?
- GEM: firmware issues   re-flash & some ADC spare cards available

Magnet status

No major failure

- SM1:
  $\approx$5 intervention by a piquet

- SM2:
  NMR Tesla-metre broke down
  sent for repair to Metrolab
  Operating with borrowed one from ISOLDE thanks to Gerhard

- M2 Beam line
  No major problems, except for water leak on TRIM03 ($\approx$ 4h) fixed by Philip
  Schwarz (TE-MSC-MNC)
  Regular inspection of the part accessible to COMPASS

Activities to be scheduled from 2018 observations

Does not include modifications of the setup for 2021 run.

- In clean area
  - CAMERA   from end of September
  - Rich Wall   to be scheduled
  - DC05   to be scheduled

- In 888
  - DC04: Exchange of connectors, internal cables, inspections of F1 cards (several were found with missing components)
  - RICH investigation of the bottom Jura faulty PMT

Who is going to refill the material Dewars with LN2 during Winter shutdown and especially during Christmas break?