



# Beamline Status



Update since February 2015

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## Last year (CM41)

MDR: All working as expected, except niggle with 15mm PA slab (& BS Hose).

Since: Q4 issue - won't ramp past 40A.

Short term: Hardware ready for training sessions, avoid certain settings of quads and PA.

BUT MLCR/ops not ready: whiteboards/documentation/ALH/networking etc.

Medium Term: DS servicing scheduled around Inactivation Run, target fibre replacement in May shutdown.

Unknowns are Q4 and fragility of target, and delivery of new DS Fridge control PC.

New target mechanism and 700 MeV ISIS running, so MUST confirm timing - request for early March.

Showstopper for March running is lack of trained BLOCs and very few volunteers. Piggyback training on early March run.



## Target - 1

Medium Term: ... target fibre replacement in May shutdown...

New target mechanism and 700 MeV ISIS running, so MUST confirm timing - request for early March.

### Installed S-series into ISIS in Dec. 2014:

- 2M successful pulses; expect 5M+
- Stable running at 30 deg.C
- Allowed to take 2V loss at 64/50 Hz
- Regular beam-bump tuning sessions
- Concern about continuing losses in readout fibres
  - Fibres now fully enclosed and soak tested
  - Many fibre ends have new connector spliced on
  - Enclosed patch panels to allow swapping fibres
  - Loopback monitoring to restart after BPS test



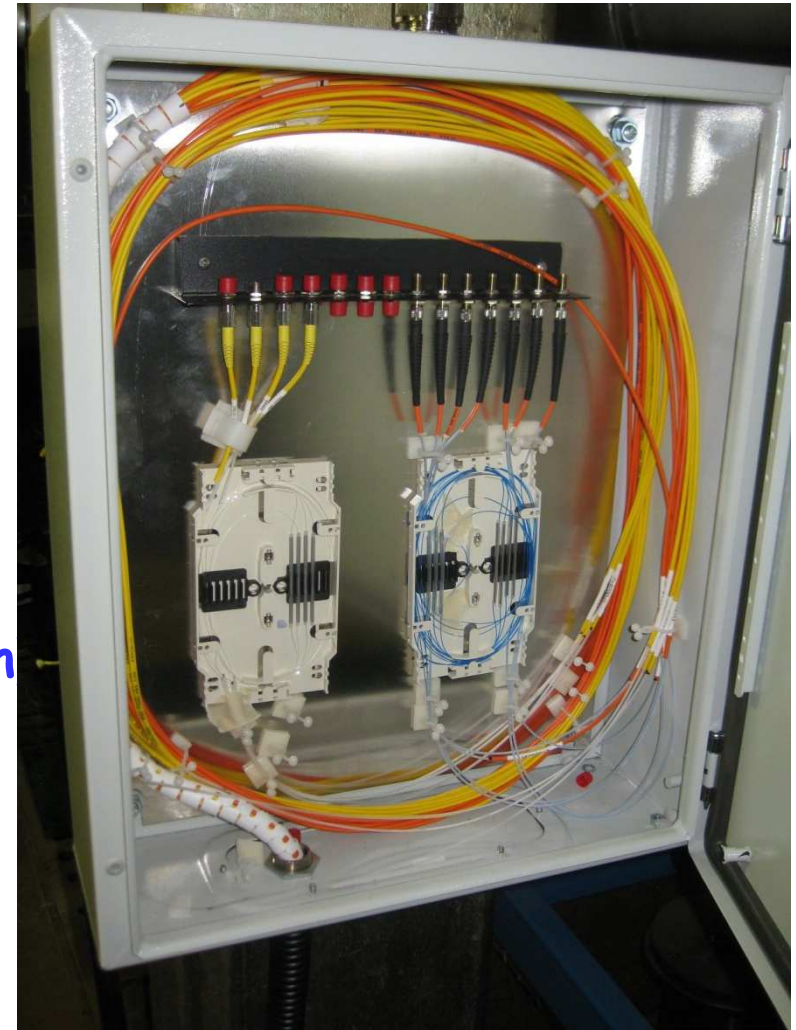
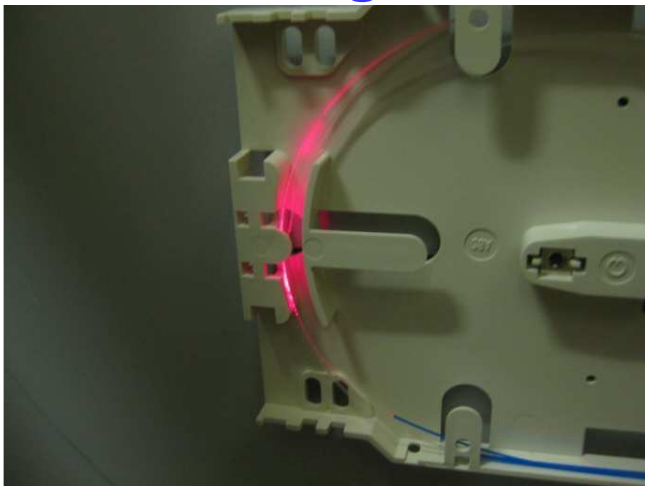
## Target - 2

Overnight "standby" regime implemented with shifters stopping and waking target

**Shifter training is mandatory!**

Spare target mechanisms to be prepared.

R78 target - 5M actuations (again)





## Conventional Magnets - 1

Currents now set via Run Control and overnight  
"standby" regime agreed

Q4 issue - won't ramp past 40A.

- Q4 MPS regulator board replaced
  - stable at current but needs tuning
- Q789 exposed conductors now covered over
- Q8 water leak fixed
- Q9 Magnet-On lamp repaired
- Polarity sensor radiation damage tests completed



## Conventional Magnets - 2

- Known issue with limited cooling water flow
  - downstream quads restricted to 315A
- Request from MIPO to flush magnets
  - D2, Q4 & Q5 done; inconclusive
- Q6 water leak from damaged internal hose
  - inaccessible until we can remove DSA roof





## Decay Solenoid - 1

Medium Term: DS servicing scheduled around  
Inactivation Run...

Unknowns are ... delivery of new DS Fridge  
control PC.

**Compressor and main fridge serviced separately *last*  
February and March.**

- **Control valve actuator (in DSA) failed in spring**
  - **replaced; may need adjustment to fix instability**
- **Lost remote control over current (Sept.)**
  - **faulty voltage isolator identified and replaced**



## Decay Solenoid - 2

Compressor and main fridge serviced separately *last* February and March.

- "Over-temperature" PSU trips
  - Catastrophic PSU failure in October
  - PSU now returned from vendor
  - Solid-state breakers replaced with conventional
  - Operational for past month
- Compressor and main fridge serviced separately in January.
- Overnight "standby" regime in place
- Linde Control PC upgrade has stalled because of an issue with the software licence (& PSU distraction)





## PA / BS

MDR: All working as expected, except niggle with 15mm PA slab (& BS Hose).

### Proton Absorbers:

Flow restrictor valves added to air lines: smoothed out slamming on the downward movements to prevent the limit switches getting battered

Reported issues last run not reproducible

### Beamstop:

Pressure hose replaced in second circuit; now have a failover system working again

Overnight "standby" regime agreed, reducing need for restraint frame insertion and removal



## Safety and Beamline Preparation

We have got permission to streamline the beamline start-up/shutdown (“standby”) by:

- allowing shifters to wake up target
- keeping the conventional magnet supplies continuously powered in remote mode
- leaving out the the beamstop mechanical restraint between shifts

Overt assumption that equipment is only driven from the MLCR, whence people know what is going on in the Hall!

Reduce need for on-site BLOC cover and Controlled Entries.



## BLOC roster

Showstopper for March running is lack of trained BLOCs and very few volunteers. Piggyback training on early March run.

Remains a potential showstopper for summer running - nearly had to cancel several shifts already.

Estimate a pool of 5 schedulable BLOCs (and some reserves) - have 2. Just don't have the local, experienced people. Recent trainees replacing leavers - no net gain.

Proposed next training cycle:

- ISIS & DSA: (one half-day in) 7th-9th June
- Beamline etc.: (another half-day in) 7th-9th June
- Target/beambump (one half-day in) 28th-30th June



## Future work:

- Cleanup of R78 target controls (DL)
- Linde Control PC upgrade
- Installation of pressure transducer to monitor high pressure/purity compressed air state from outside MICE Hall
- Extended list in MICEmine #1788
- Chilled water changes - **BIG**.  
(I don't know what they are yet though)