



Beamline Status and Plans



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Motivation

The experimental phase of MICE at RAL looks to be coming to an end. Aim of this talk is to describe how the MICE Muon Beamline is likely to be left, and document what would be needed to get it going again (whether by MICE or by others) in the near-term.

Final decisions will be made elsewhere, but soon!

(The long-term outlook, I'm afraid, involves a skip...)

On a personal note, my contract will also end which implies a lot of things to finish off and clear away, and not only on the MICE Muon Beamline. This means that any handover of expertise arising will need to be focussed on the next couple of months.



Decay Solenoid

The DS is presently behaving itself, and will be gently shut down after the User Cycle.

I will attempt to back up and clone the Linde Control PC (a pre-2008 desktop) before that is powered off.

Re-use:

- If the Coldbox is left off then there should be at least another User-Cycle of running before it needs servicing (we will cancel the support contract and emergency cover would cease around April).
- The Compressor must be run monthly to keep the bearings lubricated - yes, *those* bearings.
- The new Linde Control PC will need the WinCC-to-EPICS translation layer and soft-IOC.



ISIS Target

Installed S-series S1.9 into ISIS in Dec. 2014:

- 7.6M successful pulses; expect 10M+
- Stable running at 30 deg.C
- Allowed to take 3.5V loss at 64/50 Hz
- Starting to show age - 2 BPS trips in the past month
- Concern about continuing losses in readout fibres
 - Changed gains in HW and swapped fibres
 - Sudden degradation of Index channel last cycle
 - Caused by mechanical and possibly also radiation damage
- Have spare backbone fibres and patch fibres at MLCR end



R78 Target

Used for validation of **S3.x** before installing into ISIS

- The R78 Target Controller failed in the summer and was replaced by an old unit from Sheffield.
- We have run S3 but would be tripping ISIS off for 10 minutes every hour... we believe this is because the replacement controller has obsolete firmware.
- Also have *not* certified the present S3 mechanism
- Remote possibility that we can try to upgrade the controller and show that S3 runs for an extended period, but MICE has lost the needed expertise.



The Targets

Shutdown:

- The ISIS target will initially be left as-is (to “cool down”).
- The R78 test stand will be dismantled; will attempt to keep *known* good parts for spares: VME crate, laser boxes, control PC. Scrap the rest - this is may well include S3, the controller and the triangular main frame.

Re-use:

- Would need to re-splice fibre tails in synch, or re-work that entire optics block; also MM slices in ISIS may need reworking (recoater).
- Will need valid PPS Functional tests (Jan.) and BPS re-certification (April)
- Will need to install the SL6 control PC in MLCR.



PA / BS / Diffuser

Pneumatic Proton Absorbers and Diffuser are both operating correctly at present.

The Beamstop is presently operational, though it seems to take longer to open each time...

After January it will need a LOLER inspection and certificate; we may just do that anyway if we still have a service/inspection in hand.



Conventional Magnets

Magnets and PSUs are OK. Need to change carrier board in the VME Control Crate and check the Magnet-On Lamp Status Panel circuits.

There are leaks in the Trench Water circuit; and we will possibly drain the Loading-Bay Chiller circuit to stop it freezing.

I would like to make a final set of Earth-leakage measurements in the New Year, and also a final check on radiation damage to the polarity sensors.

I think it would also be wise to have a final geometry survey of everything (magnets, detectors, etc.).

Re-use: fix water, VME crate, lamps; new POMPOMs PSU...