MOM Report

MICE Collaboration Meeting – RAL

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July 7, 2010

- This report only covers current user run
- Lots of preparation before present MOM came on-site
- Smooth transition thanks to on-the-job training and continued advice and feedback from previous MOM (Chris Rogers) and beamline expert (Marco Apollonio)

Safety first

- Slight edits to a couple of documents with Willie
- Need some revision to sync our procedures and paperwork
- New procedure for hall lockup overnight (Chris Rogers) cut down on startup time
- Main door doesn't inspire confidence
- Keys, keys and more keys!
- All to be fixed with PPS installation during shutdown

Crew

- Trainees
  - Participate in operations in preparation for future shifts
- Shifters
  - 2 per day, 08:00-16:00 and 12:00-20:00
  - run the experiment, monitor the data, train future shifters
- BLOC
  - present at the beginning and end of day
  - operates target and beam blocker
  - on-call for advice and target adjustments
- MOM
  - present at the beginning and end of day, during any controlled access
  - submit beam requests to ISIS, prepare and execute run plan for MICE
  - coordinate access to hall, perform daily equipment check
  - fill out paperwork, juggle keys
  - improvise as needed
  - on-call 24 x 7

Crew

Week	BLOC	Shift	Training
Jun 21	Paul Smith	Chris Rogers David Forrest Vassil Verguilov	Rob Fletcher
Jun 28	Henry Nebrensky	David Adey Matt LittleField	Summer Blot Timothy Carlisle
Jul 5	Paul Smith	Androula Alekou Paul Hodgson Vassil Verguilov	

Week 1 (Jun 21-25, Runs 2083-2167)

- About 2.5 days of beam, various problems with ISIS
- 200 MeV/c 6π settings, Q3 off
- Followed run plan from previous MOM
- Magnet current scans (Q5, Q4, Q12, DS)
- Wandering beam $\rightarrow$ many target adjustments
- Beam loss display lost for a while (off by x2 or 0)
- New scaler monitor application developed (Vassil Verguilov)
- Beamline stable: scaler ratios same at the nominal settings run to run and day to day
- Nominal beamline settings appear to be near optimal

Week 2 (Jun 28-Jul 2, Runs 2170-2251)

- About 3.5 days of beam
- Controls software upgrade (James Leaver)
- Configdb setup tested (David Forrest)
- Q3 power supply replaced with loaner unit from ISIS, operational after some trouble with water connections and controls
- ISIS beam at 50Hz from Tuesday
- Loss limit raised to 2V (+ 1hr/day at 3V) from Thursday
- Finished DS scan with Q12 doublet optics (Q3 off)
- Scan Q123, DS, Q456, Q78
- Sample emittance matrix at nominal settings
  - 200 MeV - 6π
  - 140 MeV - 10π
  - 240 MeV - 10π

Week 3 (Jul 5-7, Runs 2252-2274)

- About 1 day of beam
- Filled in rest of the momentum-emittance matrix
  - 200MeV-10π
  - 140MeV-6π
  - 240MeV-3π
  - 200MeV-3π
  - 140MeV-3π

Issues and MOM wishlist

- Some ISIS downtime (expected during start-up)
- Asked to dial down loss or stop actuating target at times during problems with ISIS beam
- Random network outages preventing uploads to website
- MICE students denied access to site
- Need monitor for scalers on the wall next to beam loss display
- Single (or two) application(s) for shifters to launch/monitor
- Network printer in MLCR would help
- Some way to juggle the tiny keys more efficiently

Outlook

- MICE now regularly taking useful data
- Operational procedures mostly streamlined
- Beamline stable, most detectors working well
- Have data ($\geq$ 2k pulses, $>$ 10k triggers) for every momentum-emittance combination with negative beam
- Need to sort out site access issues NOW, this is UNACCEPTABLE
- We should be using more beam hours, last chance for data for quite a while
  - weekends
  - 16 hrs/day with 3 shifters and 2 BLOCs (or MOM as BLOC?)
- More people should be looking at the data and providing feedback within a day