

MICE Operations

- ▶ Plans to September 2015
- ▶ MOM
- ▶ Run planning and prioritisation

Plans to Sept 2015

User Period	Start Date	End date
1	17/3/2015	24/4/2015
2	2/6/2015	24/7/2015
3	8/9/2015	16/10/2015
4	3/11/2015	18/12/2015
1	?	?

October 2014 – February 2015 : ISIS off

March 2015 – June 2015 : ISIS on but Step IV installation has priority

July 2015 – August 2015 : Channel commissioning

Oct 2014 – Feb 2015

- ▶ No beam available
- ▶ Installation has priority
- ▶ Tracker DAQ and Controls commissioning
- ▶ Test of control room operations
- ▶ Mock data run
- ▶ Activation run (sometime in late Feb)
- ▶ All of these are considered to be expert-only runs

Mock Data Run

- ▶ Full test of data pathway.
- ▶ All available subdetectors will be on and integrated into the DAQ
- ▶ All subdetectors will be read out as if in beam (of course we will only readout noise)
- ▶ Nominal date for test is January 21st, 2015
- ▶ The preceding week will be used to test each subdetector individually
- ▶ Subdetector, online, DAQ and computing experts are requested to be present for this week.
- ▶ Further planning will occur in November and December

Mar 2015 – June
2015



- ▶ ISIS beam available for special runs subject to installation project
e.g. Calibration, alignment, pid, beamline precommissioning
- ▶ Run requests will be made with the beam request form and runs scheduled where they can be subject to other activities in the Hall (although see next slide)
- ▶ Given uncertain schedule run requesters will have to supply their own shift personnel except for the beamline pre-commissioning period.
- ▶ Expert support will be available from the expert list.
- ▶ Subdetector groups should roster experts from March.
- ▶ BLOCs, SOCs etc will be needed (at least rostered) from March

Beamline pre-commissioning

This is the major activity during this period

Would be useful to schedule other runs (e.g. tracker alignment, TOF calibration etc) around it.

Good test of taking beam data with all detectors in which case experts for all subsystems should be available for about a week.

Will need to schedule shifters for this time as well.

June 2015 – Sep
2015



- ▶ ISIS User run period 2 has been reserved for cooling channel commissioning.
- ▶ The cooling channel commissioning team (Jaroslaw et al) is in charge of time allocation in this period.
- ▶ Shifters may be needed during this period. The full shift system will be in operation from June 2015.
- ▶ Running is nominally 24/7 depending on (i) the requirements of the commissioning team and (ii) available manpower
- ▶ Shifts in this period may be intermittent. Shifts may be cancelled or shortened. Full shift credit will be given regardless.
- ▶ The MOM, in discussion with Jaroslaw and the magnet commissioning team, will decide what shifts are needed each day.

MOM

- ▶ The MICE Operations Manager post has been in abeyance whilst ISIS has been down.
- ▶ I would like to start this up again on Jan 4th 2015
- ▶ Important to have experienced MOMs in role in Jan and start of commissioning, June.
- ▶ those who can serve the experiment by being MOM should also talk with me
- ▶ The MOM will serve for 4 weeks, with a 3 day overlap with the next MOM.
- ▶ MOMs attract shift credit for each day they act as MOM, and will be considered first for talks and posters.

Volunteer

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Step IV Run Plan

Assumptions

Target rate	0.8 Hz
# Analysable muons	100k
Muon selection efficiency	8.4%
Tracker deadtime	Single station test
Triggers per spill per V.ms	53 (Positive) 6 (Negative)
Muons per spill per V.ms	26 (Positive) 3 (Negative)

See “Planning the MICE Step IV Data Campaign” document

Running Time

Polarity	Beamloss (V.ms)	Analysable mu / spill	# Spills for 100k mu	Time (hours)
Positive	1.0	1.5	66.7k	22
	2.0	2.6	38.5k	13
	3.0	3.6	27.8k	9
	4.0	4.4	22.7k	8
Negative	1.0	0.2	500k	166
	2.0	0.4	250k	83
	3.0	0.6	167k	55
	4.0	0.8	125k	42

Data-taking plan

- We assume :
- nominal 9 (momentum/emittance) points
 - 5 β function measurements per setting
 - empty, LH2 and LiH absorbers
 - flip and solenoid mode
 - double target rate and 4 V.ms beam loss

Basic run block :

Run Type	Postive	Negative
Calibration & Monitoring	4.5 hours	4.5 hours
Physics Grid	15 days	78 days
Contingency	4 days	20 days
Total	19 days	98 days

Run period available

User Period	Start Date	End date	Days
1	17/3/2015	24/4/2015	33
2	2/6/2015	24/7/2015	54
3	8/9/2015	16/10/2015	38
4	3/11/2015	18/12/2015	45
1	?	?	33 (?)

Total available running time assuming first user run period of 2016 : 116 days

Total available running time if we only have 2015 : 83 days

Total time for 3 absorbers in flip and solenoid mode for positives only : 114 days

Example Scenario

4 β function points per setting
no negative running

User Period	Run Type	Absorber	Focus coil Mode	Run-time (days)	Total (days)
2	Commissioning			54	
3	Physics	Empty	Solenoid	17	
	LH2 Fill			2	
	Physics	LH2	Solenoid	17	36
4	Calib/Setup			7	
	Physics	LH2	Flip	17	
	Physics	Empty	Flip	17	41
1	Calib/setup			7	
	Physics	LiH	Flip	17	
	Physics	LiH	Solenoid	17	41
					118

Measurement Priorities

UK OsC and MPB will want a prioritised list of measurements / configurations we wish to run in.

- ▶ How many points at negative polarity do we need – one (momentum/emittance) point takes about 3 days.
- ▶ How many β -function measurements per (momentum, emittance) setting?
- ▶ Do we need to do the full grid at each absorber/mode setting? If not, what do we actually need?
- ▶ Do we need LiH absorber at Step IV? Wedge?
- ▶ How many triggers per point in the physics grid?
Per absorber?
- ▶ Others?

Discuss

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