

Operations

- ▶ Commissioning Plan
- ▶ Operations Preparation
- ▶ Run planning and prioritisation

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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 unavailable

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 / early March)

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
- ▶ Nominal date for test is January 21st, 2015
- ▶ The preceding week will be used to test each subdetector individually

Mar – June 2015

- ▶ Taking delivery of and installing the PRY is the focus in the period.
- ▶ Subject to the installation schedule, some running to test the system in with no magnetic field but with beam may be possible.

June 2015 – Sep
2015

- ▶ ISIS User run period 2 has been reserved for beam line and cooling channel commissioning.
- ▶ The cooling channel commissioning team (J. Pasternak) is in charge of runtime 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

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Operations Preparation

- ▶ MICE Operations Manager
- ▶ Shift Allocation and Tracking
- ▶ Shift Training
- ▶ Documentation review

MOM

- ▶ The MICE Operations Manager post has been in abeyance whilst ISIS has been down.
- ▶ Will start this up again on Jan 4th 2015
- ▶ Important to have experienced MOMs in role in Jan, start of commissioning, June, and start of “standard” data taking, September.
- ▶ MOMs being recruited for 2015 now

Shifts

- ▶ Shift policy has been endorsed by Collaboration
- ▶ Regular shifts will begin in the June commissioning run
- ▶ Will be managed by Paul Kyberd using the new MICE shift allocation tool
- ▶ Tool will be rolled out in December for general use by January.

Shift tool : CHEESE



[For Collaborators \(private\)](#)

The MICE Collaboration

[Institutions](#) [Collaborators](#) [Publications](#)

Institutions in the MICE Collaboration



CHEESE is based on Glaucus, created for MINERvA by [Nathaniel Tagg](#). Adapted for use by MICE by [Jan Greis](#)

Administered by Paul Kyberd
Maintained by Jan Greis

Functionality

- ▶ Shift calendar and sign-up
- ▶ List of open shifts with sign-up
- ▶ List of shifts for a given day and the following 2 weeks with contact details for all shifters on duty during the time
- ▶ List of shifts taken by institution
- ▶ List of shifts taken by name
- ▶ Shift swapping
- ▶ Email notification of up-coming shifts
- ▶ Institution and Collaborator list
- ▶ User profile that is maintained by the user
- ▶ Find user by contents of “Current activities” and “Past activities”
- ▶ Training status and tracking

Shifter Training

- ▶ Day-to-day operations will be trained during the required shadow shifts
- ▶ Will require dedicated training sessions for PPS and in-Hall activities.
- ▶ Use Collaboration Meetings as training anchors for non-UK Collaborators. Next one is late February
- ▶ Training procedure was defined in the July 2013 run and worked reasonably well. Will need refinement as the details of STEP IV become known.
- ▶ We can extend the same training programme to ISIS personnel. Training plan requirements will be developed and discussed at meetings between MICE and ISIS starting on Dec 1st.

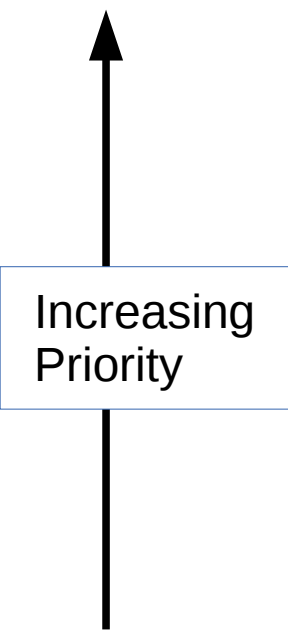
Documentation Review

- ▶ In preparation for operations, and to provide appropriate documentation to ISIS personnel, MICE has started a documentation review.
 - ▶ Complete, and abridged, operating manuals for equipment
 - ▶ Troubleshooting lists
 - ▶ Emergency shutdown procedures
 - ▶ Expert and owner contact details

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Step IV Priorities



Input Emittance mm mrad	Momentum MeV/c	Beta function mm	# Muons / scan	Label
6π	200	SCAN (9)	20,000	Scan 1
6π	SCAN (9)	420	20,000	Scan 2
SCAN (3)	200	420	100,000	Scan 3
SCAN (3)	SCAN (3)	SCAN (3)	100,000	Grid
SCAN (3)	SCAN (3)	SCAN (3)	50,000	Grid
SCAN (3)	SCAN (3)	SCAN (3)	25,000	Grid

Run 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 :

- 3 scans and full physics grid
- 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	5 hours	5 hours
Scan 1	15 hours	0 hours
Scan 2	15 hours	0 hours
Scan 3	1 day	0 hours
Physics Grid	10 days	2.5 days
Contingency	3 days	0.5 days
Total	15 days	3 days

Available run period

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 : **108 days**

Baseline Run Plan

User Period	Run Type	Absorber	Focus coil Mode	Run-time (days)	Total (days)
2	Commissioning			54	
3	Physics	Empty	Solenoid	18	
	LH2 Fill			2	
	Physics	LH2	Solenoid	18	38
4	Calib/Setup			7	
	Physics	Empty	Flip	18	
	LH2 Fill			2	
	Physics	LH2	Flip	18	45
1	Calib/setup			7	
	Physics	LiH	Flip	18	
	Physics	LiH	Solenoid	18	43
					126

Assumes a 3 shift / 7 day operating mode

Summary

- ▶ The magnet & channel commissioning plan has been defined
- ▶ Operations planning is moving ahead.
- ▶ A preliminary run plan that is capable of taking the data to meet the physics goals of STEP IV has been defined, along with a measurement prioritisation plan.
- ▶ With the shutdown well advanced, we now need to expand our focus on ISIS/MICE co-ordination

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 "MICE Step IV Commissioning" document