

## MICE Experiment Management Office

8<sup>th</sup> April 2015; 14:00 GMT

**Present:** S. Boyd, A. Bross, V. Blackmore, J. Cobb, P.M. Hanlet, K. Long, R. Preece, D. Rajaram,  
C. Rogers, M. Palmer

**Apologies:** D. Adams, A. Nichols

### Notes

#### 1. Introduction: KL

#### 2. Minutes and actions: All

Comments from PMH to be included: mis-spelling of “arguably”. Also, need to stick to one abbreviation for solenoids (i.e. SSU).

- **SB:** Ensure that the Serbs and Chinese have correct list of collaborators in CHEESE.  
**Stands.** SB still needs to check.
- **KL:** Continue to work with sleeping partners to ensure full shift pool.  
**Stands.** No additional progress since last time. Keep action to keep pressure on!
- **SB:** Seek to establish Detector Oncall Call.  
**Superceded:** Treat as agenda item.
- **DR:** Work with AD to define a timeline to get the MAUS speed-up done.  
**Stands:** DR and AD will work together next week. The tracker unpacker issue is not resolved. Some data with the new tracker DAQ has been taken. So, this could be used for debugging. P. Kyberd needs to work with Y. Kharadzhov.
- **PMH:** Make a plan for maintaining the online-computing “estate” and resolving ongoing issues with P. Franchini with a view to freeing PMH time for control-system development. **Done.** Issues addressed between PMH and PF. Machines and s/w will be built by PF. Some issues to do with s/w updating to be addressed.

#### 3. Report/actions from MIPO: PMH

MIPO discussed which absorbed should be used in the first instance. Decision to use LiH has been made. Decision can be reviewed when LH2 project has advanced sufficiently.

The alignment of channel was also discussed. It is not possible to inject small currents before the magnets are cold. MIPO agreed on the need for a meeting with S. Virostek to understand the manufacturing constraints.

The interference between one of the PRY cross bars with the FC turret was also discussed. It is possible that the south-side plate can be exchanged with the north-side plate. This will resolve the interference as the cross-bar is not placed centrally on the plate.

The preparations for last-weeks review was also discussed.

#### 4. Progressing magnetic-alignment actions: KL, RP

(a) Organise survey of mating flanges and warm bore;

ABr noted that survey work is ongoing in the Hall. We were not clear whether this was related to the magnet end flange. **RP** will check.

- (b) Can we put current through the magnet, even only at 100 mA. Can we measure field pattern using small current?

No; not possible to inject current before magnet is cold.

- (c) Get discussion meeting with builders regarding tolerances;

This is now urgent. VB will make a Doodle. Require S. Virostek, J. Cobb, V. Blackmore and MIPO/MEMO.

- (d) Hall probes in a pattern at u/s and d/s solenoid;

Long discussion of what is/is not useful or possible. **We agreed:**

- **VB, JC:** will specify magnetic measurement along a vertical line passing through the centre of the magnet at the position of the belows.
- **RP** with S. Virostek will look at how to stand-off forces between SS and FC when full-channel training takes place.
- **RP:** with S. Virostek will also define Hall-probe positioning system.
- Remedial magnetic-field measurements must be carried out such that the work does not impact the magnet-training schedule.

- (e) The plan we execute if we dont know better;

- Align SSU to FC;
- Specify bespoke belows or align of SSD to FC.

- (f) JC/VB: continue to review analysis to find mistakes;

- (g) Check effect and which mis-alignments are the worst;

**Agreed:** CR will organise a simulation to estimate the precision with which the magnetic axis can be determined from data.

- (h) Compare with alternative analysis made by Maria.

**ABr** will talk with Maria to understand the status of her magnetic-field analysis.

## 5. Planning for commissioning and operations: SB

- Status of operations for the last weekend in 2014/03

Last w/e taught us that experts on call are essential. The issue with the DAQ caused ~ 10 hours of dead time. Additional problems with a readout board and decay-solenoid alarms caused additional dead time. **Agreed** to compile a history of the reasons why data had been lost.

Second lesson is that it is essential to have more discipline in when changes can be made to the DAQ system can be made and how they are validated. A corollary is that the “roll-back” system must be robust. Need to develop more robust expert cover agreement. CR reminded us of the policy that was agreed for online cover. The DAQ and CAM systems each have “single-point failures” in the expertise is concentrated in very few individuals. SB and KL will consult to see how best to address these issues.

The run plan for the coming weekend will be the same as that prepared for last week. Shakedown operation will take place on Wednesday, Thursday and Friday evenings. On Wednesday, the time needs to be shared with tracker commissioning.

- Planning for 2015/01

- Progress on revision of run plan for Step IV;

Document prepared by CR. Agreed that KL and CR will finalise and post as a MICE Note.

- Revision of shift analysis;

Agreed that SB would update options analysis. KL will circulate and call a special EB at which to decide a single option to recommend to the CB.

For the June running we agreed to running a single 8-hour shift (22:00–06:00), plus a single “floating supporter”. Need to bring experts in at 21:00 to make sure we are ready for data taking.

Agreed to keep Hall locked and searched except for access for (for example) Dewars. To cover each end of the shift we agreed that we require an assistant for the MOM.

- On-call (Detector, BLOC, . . .)

SB will encourage HN to make a roster for the BLOC. Detector expert still needs discussion.

- Status of documentation and liaison with ISIS;

No update.

- Next “general” MICE/ISIS operations meeting.

SB will discuss with D. Adams when such a meeting would be valuable.

#### 6. S/w&C progress against milestones: DR

Need to recalibrate TOF following changes to the online system. Online processing suffered from some subtle issues over the weekend. These need to be trapped by improved error reporting. Run Control did not always enter the start-of-run comment into the record. This occurred because of the need to enter a carriage return at the end of the entry of the comment. Processing is automatic, but, GRID proxy presently needs to be updated by hand. The proxy renewal can be automated.

#### 7. C&M progress against milestones: PMH

- Progress against milestones.

The detector IOC is now operational. Some issues to do with individual controllers still need to be resolved. The state machine has also been completed and integrated into Run Control.

The issue to do with the with start-of-run comment being added to Run Control using a carriage return requires to be addressed. PMH is considering how to address this.

The biggest issue with Run Control is an instability. Presently Run Control needs to be restarted for each new run. It seems that this is related to the EPICS “forward link” feature. This is exploited when setting up a run. However, when coming back to start a new run the forward links get processed at initialisation rather than when starting the run. PMH is seeking a solution.

Devices that have been excluded from Run Control are now ignored by the alarm handler too.

Documentation is being prepared with SG. It will be presented to the system experts for agreement. This will form a functional specification for the system.

With DL experts, PMH is commissioning the vacuum-control system so that it will be ready for magnet pump-down.

The devices that monitor the limit switches on the beam stop failed. Modules will be exchanged. Need to be aware of this issue as the same modules are used on the proton absorber.

Power is off in RR2 to allow the connection of the second UPS.

#### 8. Status of Step I publications: VB

- EMR beam-test paper:

EMR note has been passed to the wise persons (ABr and L. Tortora). VB will set up a meeting with the wise people in two weeks. In parallel, VB will work with FD to turn the analysis note into a paper. Require also to store the data set and to make sure final plots are prepared using a specific version of MAUS.

- Pion-contamination paper:

Updated results will be presented to the analysis meeting on Thursday.

#### 9. Preparations for analysis at Step IV: CR

Two analysis (CR, and R. Bayes) have been made on the data sets from the physics block challenge. This week at the analysis meeting, R. Ryne will present histransfer matrix approach. H. Witte will present his analysis of the translation from the FEA-generated magnetic fields to the fields obtained from the idealised coils.

Physics shift for this weekend not assigned. CR will take it if he is unable to fill it.

Open issue on the MICE Muon Beam and MICE Step IV channel settings. KL and CR will identify a way forward at the start of next week.

10. **DONM**

5<sup>th</sup> May 2015; 14:00

11. **AoB**

None.

## Summary of actions

- **SB:** Ensure that the Serbs and Chinese have correct list of collaborators in CHEESE.
- **KL:** Continue to work with sleeping partners to ensure full shift pool.
- **DR:** Work with AD to define a timeline to get the MAUS speed-up done.
- **RP:** Check whether measurement of end-flange position of SSD has been done.
- **VB, JC:** Make doodle for meeting with magnet engineers to discuss magnetic alignment issues. **VB, JC:** will specify magnetic measurement along a vertical line passing through the centre of the magnet at the position of the belows.
- **RP** with S. Virostek will look at how to stand-off forces between SS and FC when full-channel training takes place.
- **RP:** with S. Virostek will also define Hall-probe positioning system.
- **CR:** Organise a simulation to estimate the precision with which the magnetic axis can be determined from data.
- **ABr:** Touch base with Maria to ask about the status of here analysis so of the magnetic-field data.
- **KL, CR:** Finalise and post June run plan.
- **SB, KL:** Prepare special EB meeting to decide shift-option to present to CB.