

Spokesman's update

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- **Operations and analysis**
- **Towards Step IV**
- **Preparation for RLSR, MPB and FAC**
- **Next VCs**

Spokesman's update

Update:

Decay solenoid:

- Leak in high-pressure He circuit:
 - Traced to seal on compressor-shaft bearing.
 - Bearing to be replaced by HPC next week;
- Then require to:
 - Clean He;
 - Check that leak is indeed fixed.
- Then can begin cool-down:
 - Goal is that DKsol will be cold after Easter
 - Running in period 04—06 April 2014 will be without DKsol
- Once solenoid is cold:
 - Test new quench detector
 - Install and commission new power supply

Tracker:

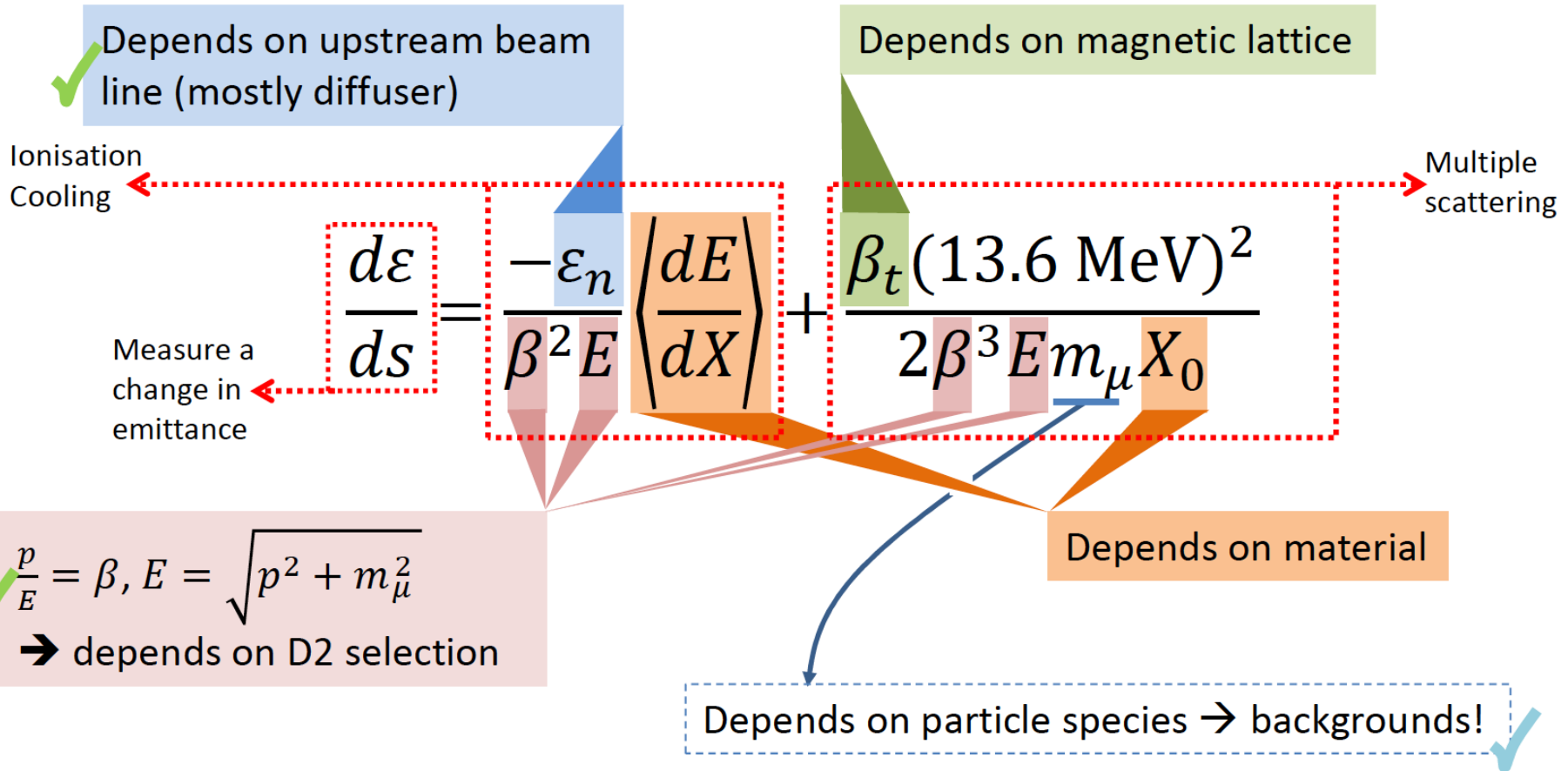
- Preparations for installation of tracker in R9 now advanced:
 - He window (re)installed;
 - Patch-panel mounted;
 - Alignment jig used to determine position of feet and anti-rotation device
 - Light-tight tent erected;
 - Hall probes and LEDs ready to be fitted;
- Installation will start 24Mar14:
 - If no unforeseen issues, will complete next wk



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Operations and analysis:

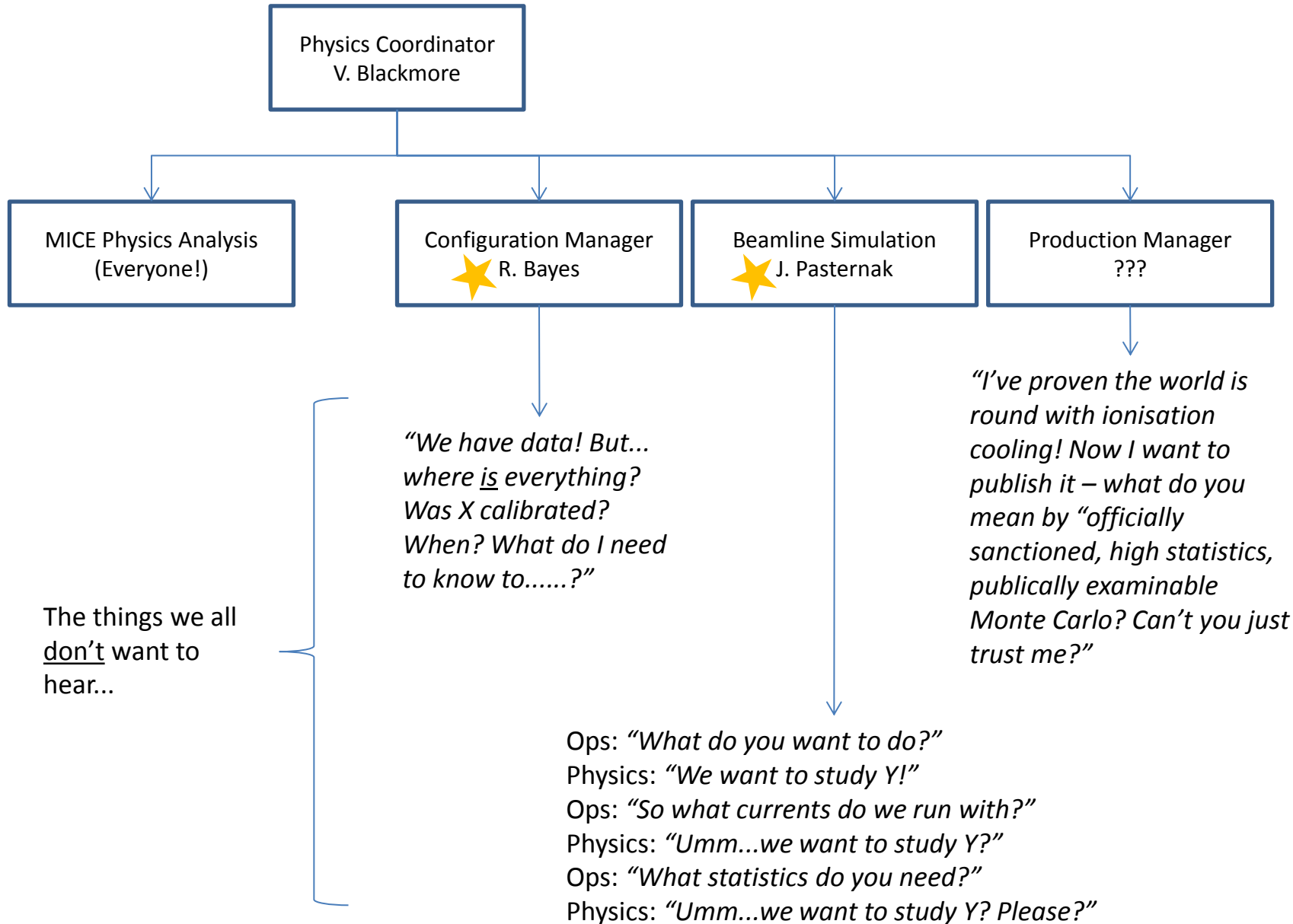
Victoria's vision for Step IV:



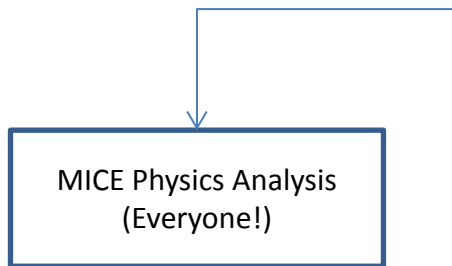
- **Physics planning:**

- **Full and definitive exploration of the ionisation cooling equation**
 - **Proof that we can predict it**
 - **Proof that we can measure it**

Analysis Status:



Analysis Status:



Next meeting is Thursday 27th March at 3pm GMT
(i.e. still 3pm at RAL)

Anyone who wants to get involved should raise their voice at an analysis meeting. There are many, many analyses that we **know** we need to do, and probably some that we've not realised yet!

Step I:

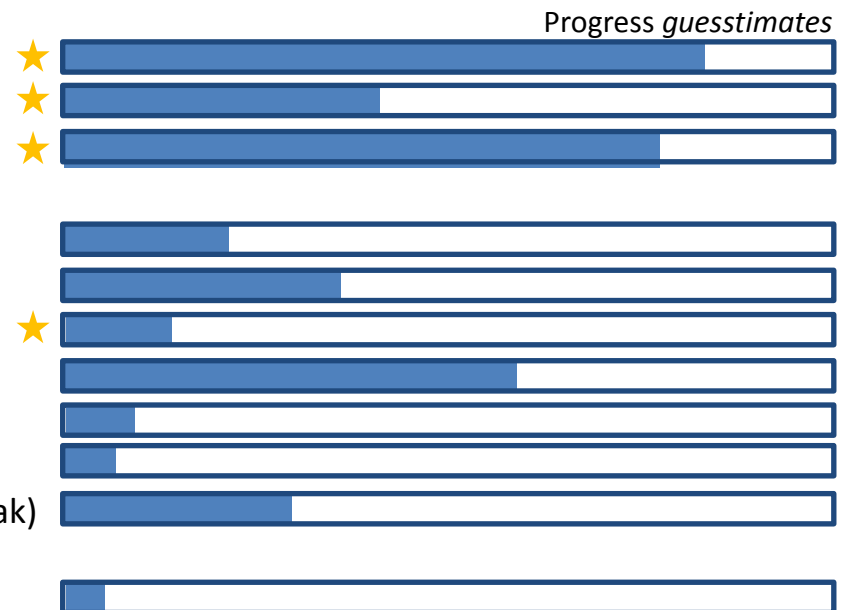
- Pion contamination (Orestano, Nugent)
- EMR analysis (Drielsma, Asfandiyarov)
- G4BL Step I comparison

Towards Step IV:

- Tracker alignment (Uchida)
- Tracker reconstruction in analysis (Dobbs, *(Pidcott)*)
- Field maps (Blackmore, Leonova)
- Multiple scattering (Carlisle, Santos → ?)
- dE/dx (Snopok, Kaplan)
- Polarisation (Middleton)
- Reduced current FC1 in Step IV (Lagrange, Hunt, Pasternak)

Towards Step V/VI:

- Decision point 2016
- Speirs, Blackmore, ???



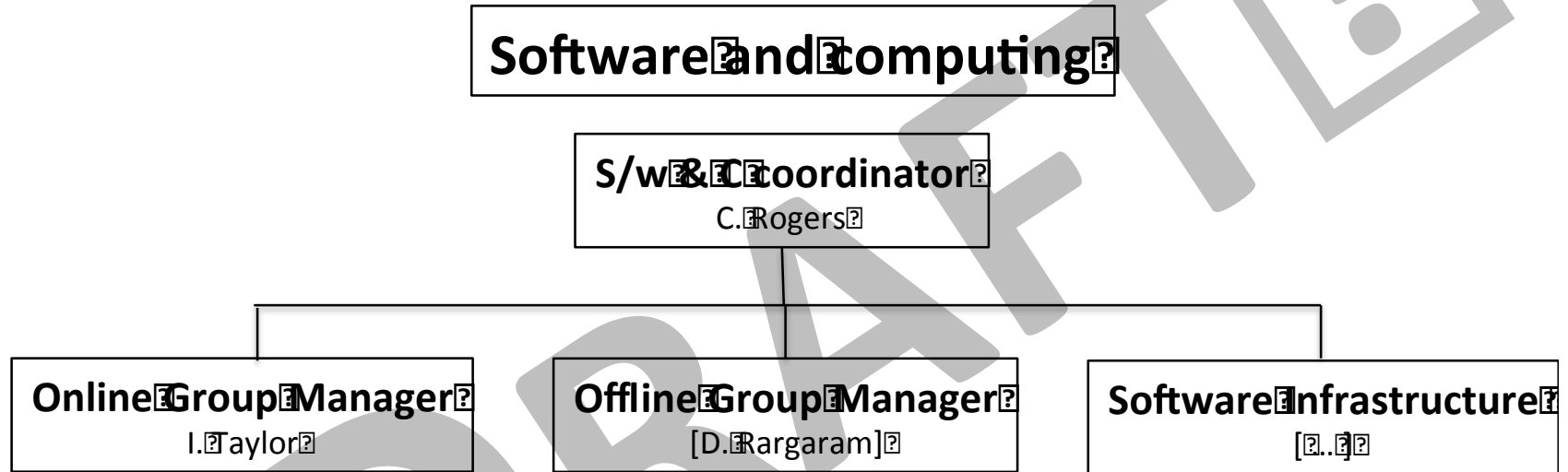
★ Not just Monte Carlo! There is data here.

Thought for the day:

Physics analysis isn't like a pot. Instead it boils **when** you watch it.
c.f. "A watched pot never boils."

Software and computing activity:

Version: [?], Date: 13th January 2014; Revision: [?]



- **Online Group Manager:**

- **Ian Taylor has taken a new job effective ~May14**

- **My best wishes to Ian;**

- **MICE needs a new Online Group Manager ...**



- Installation of prototype FPGA-based trigger last week
 - Power supply failure on the KL/TOF crate
 - Hardware failure on the FPGA board
 - Will make another attempt with spare board
 - Likely after April run
- Investigating hardware failures in MLCR
 - Micestore RAID controller
 - micecserv hard drive (more later)

Controls and Monitoring



- FC controls failure
 - Took FC off for ~ 2 weeks
 - Multiple failures of management, systems and procedures
 - Some were known problems, some unknown
- Regard as a serious problem
- Note in preparation outlining the issues and a plan for their resolution

Infrastructure



- Networking issues at RAL
 - Major firewall upgrade
 - RAL networking rack room refurbishment
 - About 2 hours of down time in last few days



- Version 0.8.2 released
 - Global PID framework
 - Updated KL geometry
 - First revision of KL MC digitizer
 - Added detector-survey fits to geometry

Operations:

- See Steve Boyd's talk ...
- Some points from me:
 - Working on defining operations teams;
 - E.g. MICE Muon Beam:
 - Systems:
 - » Target
 - » Conventional magnets
 - » Decay solenoid
 - » Proton absorber
 - » Beam stop
 - » Diffuser
 - Identifying contact for each system
 - Working through the other items at Step IV
 - Running and preparations for running:
 - Activation run in period 04—06 March 2014
 - Expert-only activity; principle objective: double target-dip rate
 - Steve Boyd defining:
 - » Activities during run;
 - » Required preparation
 - » Required personnel
 - Please support him and make sure requests go to Steve to allow proper planning

Operations:

Putative field-off run Summer 2014:

- Have been carrying the possibility of carrying out a field-off run in the last ISIS User run of 2014 (Jul/Aug)
 - Estimates of likelihood of carrying this out vary, but, none are very large
 - Benefits would be substantial
- Priority is clear: Step IV
 - Field-off run can only happen if it does not impact Step IV
- Presently, schedule shows delivery of PRY is in direct conflict with the proposed run
 - It has been argued that:
 - It may be possible to advance the procurement such that the PRY does not interfere with the run; and that
 - Within the short term (and certainly before the end of Mar14) it will be clear whether this *HAS NOT* been achieved
- The CB agreed the following:
 - Decision point 31Mar14:
 - If it has not been possible to advance the procurement such that the probability that the run can go ahead is sufficient to give reasonable confidence that the run can go ahead;
 - Then the run will be cancelled

From closing remarks; CM38

- Will stick to the decision point 31Mar14:
 - But, looks increasingly likely that it will not be possible to carry out the field-off run in summer 2014

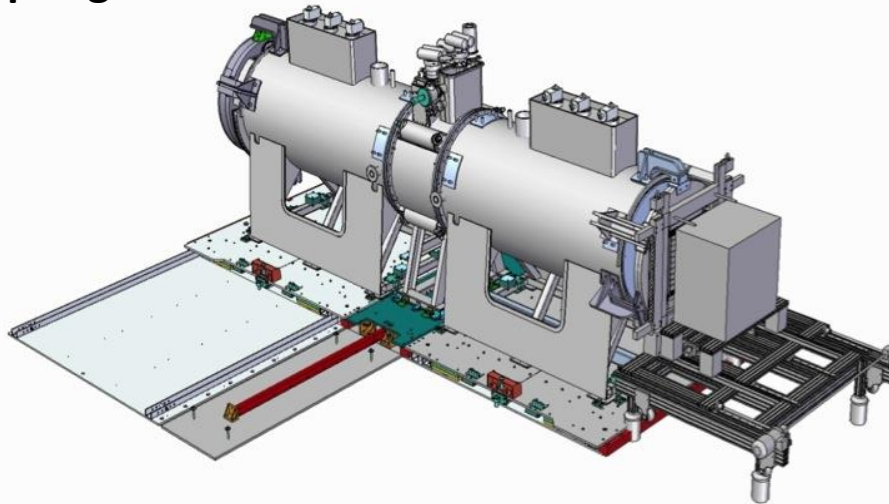
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Towards Step IV

Step IV:



Spring '15



Sub-system	Responsibility
Spectrometer solenoid #1	US
Spectrometer solenoid #2	US
Fibre tracker #1 + #2	Japan, UK, US
Focus coil #1	UK
LH ₂ system A	UK
Lithium hydride	US
LH ₂ absorber	Japan
Diffuser	UK
Virostek plate & TOF cage assy	UK, US
Substation upgrade	UK
EMR	Geneva
(Radiation shutter	UK)
AFC Moving platform #1	UK
SS platforms Installation	UK
Partial Return Yoke	UK, US

Schedule shows Step IV construction complete s.t. running may start Spring 2015

– This is the priority;

• Must make every effort to:

- Preserve construction project schedule;
- Devise and implement S/w&C, Operations and Physics effort to match

- Refit of FC#1 complete.
- Cool-down and training underway.
- Close to being able to develop operations plan for Step IV

Spokesman's update

Preparations for RLSR, MPB, FAC

- **29th April 2014:**
 - **Summary document in preparation**
 - **Deadline for contributions 04Apr14**

March 18, 2014 Draft 0 MIPO 2014(01)

Resource Loaded Schedule for MICE to Step VI

1 Actions and recommendations

1. **Complete the first action from the previous meeting. While the Panel appreciates the work to date it feels there is a need for more coherence between the two sides, especially the embedding of risk-contingency into schedule.**
See section 3.
2. **Produce a coherent single project plan that takes into account anticipated delays due to risk (and the R&D risks) by the next meeting.**
See section 3.
3. **Produce a single, coherent financial report for the project taking into account the schedule above by the next meeting.**
See section 4.
4. **Ensure that all work packages are adequately integrated into the overall cost and schedule.**
See section 4.
5. **Encourage, through the Project Engineer, the project to develop more rigorous integration protocols across the project, such as acceptance criteria, to minimise schedule delays.**
Paragraph from A. Nichols.
6. **Ensure a first cut estimate of the Step V and VI partial return yoke concept is folded into the UK funding requirements.**
See section 4.
7. **Following the good work done on establishing the criteria for the successful conclusion of Step IV, the project now needs to focus on looking at how to decide for Step V versus Step VI as it no longer looks like going to V and then VI sequentially is the most optimum option (this is not critical at this point but that decision point and the science trade-offs needs to be continually borne in mind by the project and the funding agencies).**
The status of the collaborations's analysis of the scientific benefit of Steps V and VI are presented in the report to the MPB []. The incremental cost, schedule implications and risk analysis are presented in sections 3, 4 and 5 respectively.

2 Introduction

This document presents an overview of the information prepared for the Resource Loaded Schedule Review that will take place at the Rutherford Appleton Laboratory (RAL) on the 29th of April 2014. Detailed information can be found for the MICE-UK project at:

<http://www.eng.dl.ac.uk/secure/mice/Costs%20&%20Schedules/>

For the MICE-US project, detailed information can be found at:

<https://>

3 Schedule

3.1 Step IV

Lead authors: Bross, Grant

3.2 Step V

Lead authors: Bross, Grant

Section needs to include analysis of various assumptions on procurement of the coupling coil required at Step V. The schedule and cost will be effected by the use of the "MTA" coil etc.

3.3 Step VI

Lead authors: Bross, Grant

As for the preceding section, discussion needs to be included on the impact of the various options for providing the coupling coil for step VI.

4 Cost

Lead authors: Bross, Grant

5 Risk

Lead authors: Bross, Grant

- **30th April 2014:**
 - **Summary document in preparation**
 - **Deadline for contributions 04Apr14**

March 19, 2014 Draft 1 EB 2014(01)

MICE report to the MICE Project Board

1 Actions and recommendations

1. **Document a set of modes for the magnets at each acceptance test and each Step (IV, V and VI) as installed such that a consistent set of conditions is used across all simulations, and present at next meeting.**
Document to be drafted by AN.
2. **Clearly document the nominal operating point (or maximum operating point), and the design point for each coil, such that the magnet performance during a test is clearly compared to the target value. ...Present documentation at next meeting.**
Document to be drafted by AN.
3. **Document the acceptance criteria and establish the acceptance test plans for each coil, independent of whether the interface is a vendor or a collaborator, before testing begins. At minimum this will assist with the required tests completed before shipment.**
Document to be drafted by AN.
4. **Present quench training results of the Focus Coil 2, CC1 cold mass and SS1 to the Board as soon as the data become available.**
The status of the focus-coil task is presented in section ?? of this report.
5. **Explore magnetic shielding solutions for Steps V and VI, together with implications for the general layout of the hall, and present findings at the next meeting.**
The status of consideration of teh partial return yoke required at Steps V and VI is presented in section ?? of this report.
6. **Develop plans for an integrated RF system test at RAL—including RF power amplifier, prototype LLRF and a MICE cavity—and present at the next meeting.**
The status of the RF-power task, including the system test, is presented in section ?? of this report.
7. **Develop a plan to select the method for muon transit RF phase determination perhaps using such an integrated RF system test and present at the next meeting.**
The status of the design of the system required to determine the phase at which a muon traverses the cavity module is presented in section ?? of this report.
8. **Present a status report on the MICE simulation, online and offline analysis capabilities and show results of the end-to-end Monte Carlo simulations, including tracking and reconstruction, in support of the Step IV, V and VI physics goals at the next meeting.**
The international project team notes the Board's request and will take the necessary steps. Progress will be reported at the Board's next meeting.
9. **Fully define the responsibilities and personnel for MICE operations and maintenance support, taking into account shared responsibilities with ISIS where appropriate and efficient, at the next meeting.**
The organisation of the operation and analysis projects and the proposed relationship with the ISIS Operations Group is presented in section ?? of this report.

2 Status of the construction project

2.1 Instrumentation

Subsection lead: P. Soler
Indicative page limit: 4

2.1.1 Tracker module

Spectrometer solenoids

Lead authors: S. Virostek
Indicative page limit: 2

Tracker

Lead authors: D. Adey, M. Uchida
Indicative page limit: 1

Particle identification

Lead authors: R. Tsenov
Indicative page limit: 1

2.2 Cooling cell

Subsection lead: J. Pasternak
Indicative page limit: 6

Absorber/focus-coil module

Lead authors: S. Watson, T. Bradshaw, J. Cobb
Indicative page limit: 2

RF/coupling-coil module

Lead authors: D. li
Indicative page limit: 3

RF power

Lead authors: K. Ronald, T. Stanley
Indicative page limit: 1

2.3 Integration

Subsection lead: A. Nichols
Indicative page limit: 6

Mitigation of stray magnetic field

Lead authors: J. Tarrant
Indicative page limit: 2

Vacuum system

Lead authors: M. Tucker
Indicative page limit: 1

Mechanical integration

Lead authors: J. Tarrant
Indicative page limit: 1

Electrical integration

Lead authors: S. Griffiths
Indicative page limit: 1

Services

Lead authors: J. Govans
Indicative page limit: 1

3 Status of the operations and analysis

3.1 Analysis

Subsection lead: V. Blackmore
Indicative page limit: 5

3.1.1 Overview

Lead author: V. Blackmore
Indicative page limit: 1

3.1.2 Step IV at reduced focus-coil current

Lead author: J. Pasternak
Indicative page limit: 2

3.1.3 Steps V and VI

Lead author: V. Blackmore, D. Spiers
Indicative page limit: 2

3.2 Software and computing

Subsection lead: C. Rogers
Indicative page limit: 4

3.2.1 Overview

Lead author: P. Hanlet
Indicative page limit: 1

3.2.2 Online

Lead author: I. Taylor
Indicative page limit: 2

3.2.3 Controls

Lead author: P. Hanlet
Indicative page limit: 2

3.2.4 MAUS

Lead author: D. Rajaram
Indicative page limit: 2

3.3 Operations

Subsection lead: S. Boyd
Indicative page limit: 4

RLSR, MPB-7 & FAC outline agendas – April 29 to May 2, 2014

RLSR/MPB:

Day 1	Tuesday April 29	CR4 in R1 at RAL	Start	Duration
9:00	RLSR closed session – introduction			
9:45	RLSR presentations & questions			
	Introduction and overview	K. Long (Imperial/STFC)	9:45	00:15
	Status of the MICE construction project	R. Preece (STFC)	10:00	00:30
	Status of integration of Step IV	A. Nichols (STFC)	10:30	00:30
	Status of MICE-UK work packages	A. Grant (STFC)	11:00	00:30
	Status of MICE-US work packages	A. Bross (FNAL)	11:30	00:30
	Status of the PRY project	J. Tarrant (STFC)	12:00	00:30
	Discussion/contingency		12:30	00:15
12:45	RLSR closed session – critical findings			
13:30	Lunch			
14:00	Data taking, simulation & reconstruction			
	Software and computing overview	C. Rogers (STFC)	14:00	00:30
	Data taking and online	I. Taylor (Warwick)	14:30	00:30
	Simulation and reconstruction	D. Rajaram (IIT)	15:00	00:30
	Status of the physics analysis	V. Blackmore (Oxford)	15:30	00:30
16:00	Closed session, report writing			
17:30	Adjourn			
	Organised dinner			
Day 2	Wednesday April 30	CR4 in R1 at RAL		
9:00	SC magnets & RF			
	Status of the focus coil project	T. Bradshaw/J. Cobb (?)	9:00	00:30
	Status of the spectrometer solenoid project	S. Virostek(?)	9:30	00:30
	Status of the coupling-coil project	?	10:00	00:30
	Status of the cavity and RFCC integration projects	D. Li(?)	10:30	00:30
	Status of the RF-power distribution project	K. Ronald (Strathclyde)	11:00	00:30
11:30	SC magnets & RF closed session			
12:30	Lunch			
13:00	Commissioning, operations & controls			
	Operations project overview	S. Boyd (Warwick)	13:00	00:30
	Magnet commissioning at Step IV	J. Pasternak	13:30	00:30
	Controls and monitoring	P. Hanlet (FNAL)	14:00	00:30
	Discussion/contingency		14:30	00:30
15:00	Closed session, report writing			
17:00	Close-out with MICE management			
17:30	Adjourn			
Day 3	Thursday May 1	FAC		
AM	Open session			
	Presentation title 1	Name (Institute)		
PM	Closed session			
	RLSR & MPB reports	Robson & Peggs		
	Adjourn			

Spokesman's update

Proposal for next VCs

Proposal for next VCs

- 2014, season #2:
 - [20th March]
 - 10th April
 - 15th May