WELCOME TO MICE CM35!

- Status and Goals -

Many thanks to Chris Rogers, Debbie Loader and Rose Hayes

for taking care of logistics and preparing the agenda!

and to Alan Bross for preparing the wrap up!

Aim : review where we stand with progress

1. **Schedule**

2. **Actions**

We had a MICE board marathon in the fall

31 October MICE project board (MPB)

5 November MICE-UK Oversight committee

12 November MICE Funding agency committee (FAC)

The presentations at the MICE Project Board can be found from the MICE web site as well as the report from MICE to questions asked by the board

MICE notes 394-395

In the following are a few excerpts from the Board report

NB next FAC 8 May 2013, MPB penciled on 24 April

format maybe modified or merged

Preamble

Present for the MPB:

Giorgio Apollinari (for Stuart Henderson), Fermilab
David Findlay (ex officio), RAL
Charlotte Jamieson (ex officio), Our STFC program officer
Steve Peggs (chair), leads accelerator group at ESS (Lund)
Ian Robson, STFC expert, project management
Roger Ruber, ATLAS
Bruce Strauss (ex officio), DOE
Thomas Taylor. Well known CERN retired magnet expert

The presentations were of consistently high quality, and the discussions that ensued were stimulating, direct & useful.

We thank the collaboration members who contributed to the meeting for all their hard work, careful thought, & hospitality.

Superconducting magnets - 8

RECOMMENDATIONS

1. Ensure that instrumentation and monitoring systems are in place before re-testing the spectrometer magnet.

2. Maintain the pressure to find a solution to the stray field problem – ideally one that would apply both to Step IV and to Step VI.

3. Study and resolve the best understanding possible for the HTS lead deterioration in the failures discovered in SS1, for presentation at the next MPB meeting.

Superconducting magnets - 9

4. Make a full mechanical analysis of the magnet system with the new fringe field mitigation elements, covering both steady state and transient (powering, quench, etc.) operations in a realistic environment (mechanical tolerances, relief valves sizing, etc.). At least "check off" all the root causes that contributed to recent SC magnet failures in complicated systems. Present the analysis at the next MPB meeting.

5. Initiate a small but quick QC program testing Luvata superconductor samples for the CC, as soon as possible.

6. If the first CC cryostat is assembled at Fermilab, avoid a re-learning curve by investigating different assembly solutions.

RF system:

RECOMMENDATION

1. Present a list of requirements and a design proposal for the LLRF at the next MPB meeting.

Cost & Schedule - 7

RECOMMENDATIONS

1. Link the schedules presented with the available budgets, and present at the next MPB meeting.

2. For the Step IV deliverable, clearly identify "project and schedule contingency" in the form of efforts and/or activities not essential for Step IV and that can be postponed in order to secure enough funding and manpower resources to insure the overarching goal of first data before – or immediately after – the 2014 ISIS long shutdown. Manage the project accordingly and **defend your "schedule contingency" with all your strength!**

3. Develop the low-level tasks for the few hand-shaking points between UK and U.S. schedules, and present at the next MPB meeting.

4. Upon completion of the fringe-field studies and solution, re-evaluate the schedule and cost to the experiment. Present at the next MPB.

NB next FAC 8 May 2013, MPB penciled 24 April

Management - 6

RECOMMENDATIONS

3. Determine the better method for solving the magnetic field problems in the MICE hall and agree on the way forward by January 2013.

4. Manage the activities, by proper prioritization, in such a way that the critical goal of Step IV data taking before – or immediately after – the ISIS long shutdown from August 2014 until February 2015 is not impeded by nuisances such as lack of funds at the end of a fiscal year.

we will review the situation at CM 35 in February
Going ahead with preparations
default solution = Global
while continuing design of 'return yoke' solution

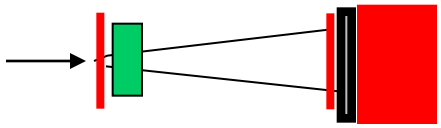
In general MPB was very supportive. They appreciate very well the relationship between stretched funding and probability of delays.

This give us plenty of home work!

Provisional MICE SCHEDULE
update: October 2012

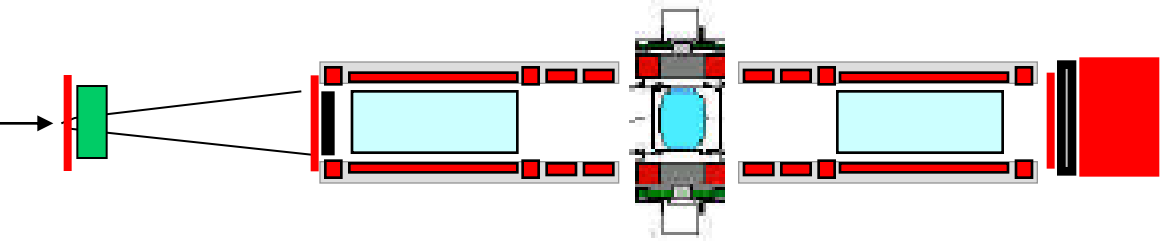
Run date:

μ



STEP I

EMR run Q1 2013



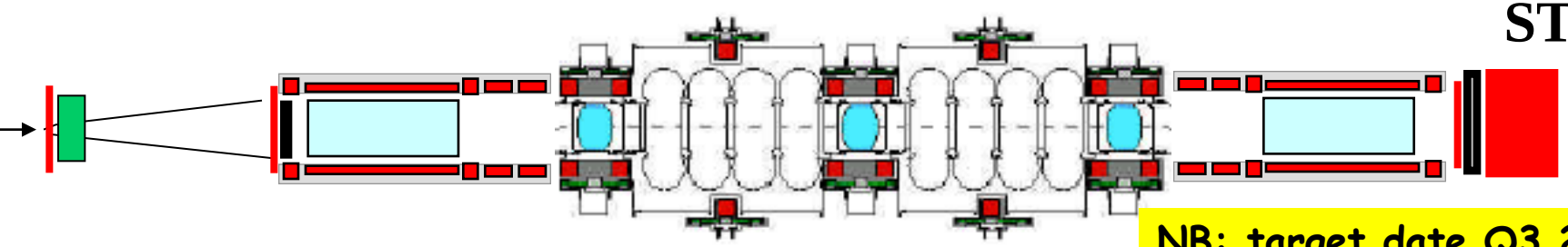
STEP IV

Q2 2014
till
Q4 2015

+ 1 year

Under construction:

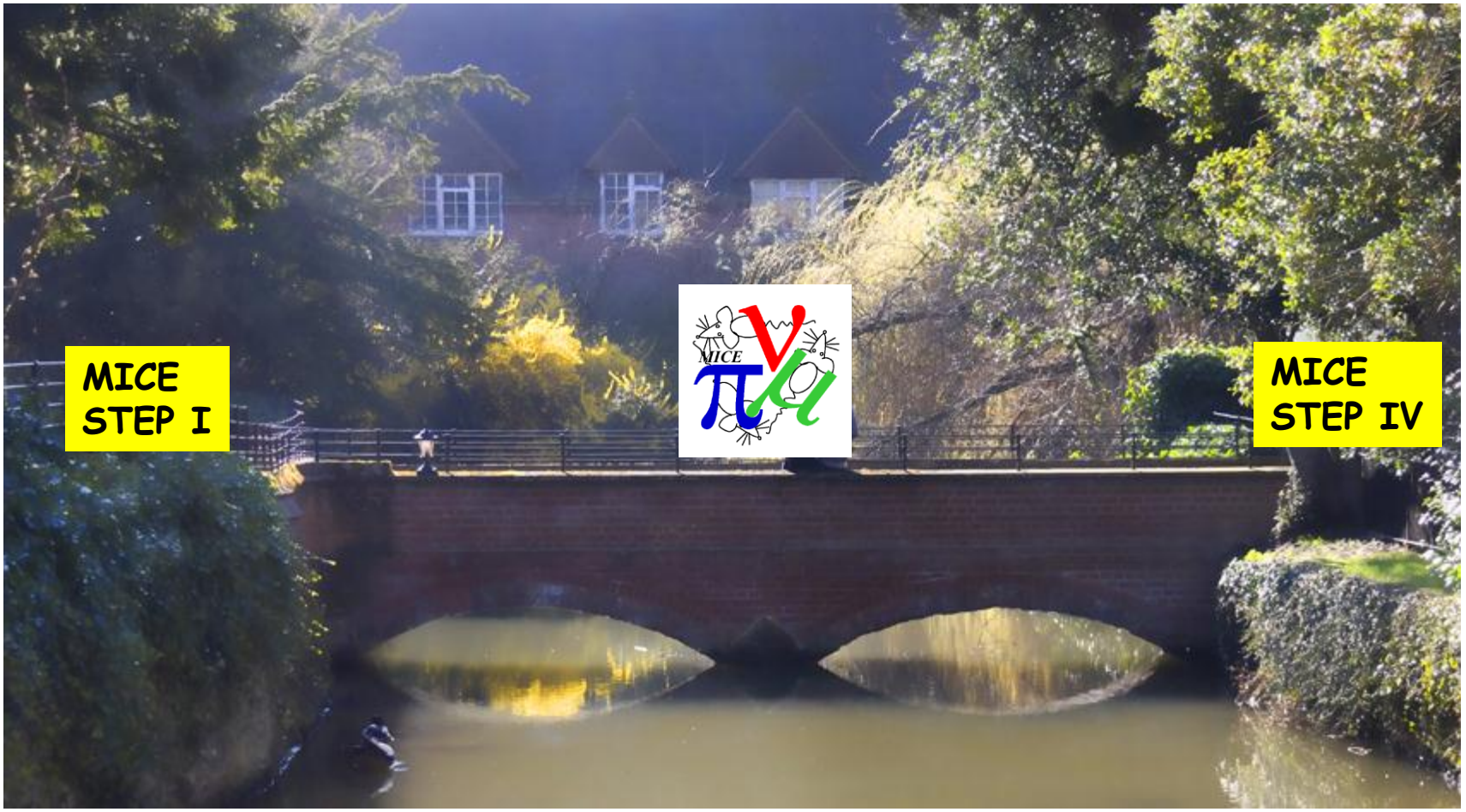
STEP VI



NB: target date Q3 2018
Step V run possible Q3 2017

+ 2 years

In the middle of the bridge at The Cosener's House:



This way, please

MICE keeping the eyes on the ball

(expected) Highlights of CM35 RAL 12-16 February

TOWARDS STEPIV:

-- SS1 ~fully trained at LBNL
-- AFC working and measured in R9
-- magnetic field protection scheme well advanced
    -- use of plant room clarified
    -- questions regarding tracker shielding solved
    -- engineering solution for Flux return solution
-- EMR complete, running on cosmics at UNIGE and preparing for shipping
-- reconstruction, analysis and online software
-- elog!

TOWARDS PUBLICATIONS

-- Emittance paper final
-- PID paper final (requires KL reconstructioon included in MAUS)
-- step IV apparatus paper started

TOWARDS STEPVI

-- test of Coupling Coil 1 underway and almost complete
-- RF group progress (2MW?)

ELOG progress

local MICE

last night activation

MICE Log - Mozilla Firefox

File Edit View History Bookmarks Tools Help

MICE Log | [1112.2518v2] ... | Your arXiv.org... | Your arXiv.org... | Lettres de mo... | Histoire Avign... | OpenProj 1.4 | Proje

rl.ac.uk https://micewww.pp.rl.ac.uk/elog/MICE+Log/

Bookmarks

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  - Particle Data Group
  - Hitoshi Murayama Ho...
- P-ECFA (24-25 Novem...

MICE Log | Test | LH2system | R9 | SS-testing

MICE Logbook, Page 1 of 45 Logged in as

New | Find | Select | Import | Config | Logout | Last day | Help

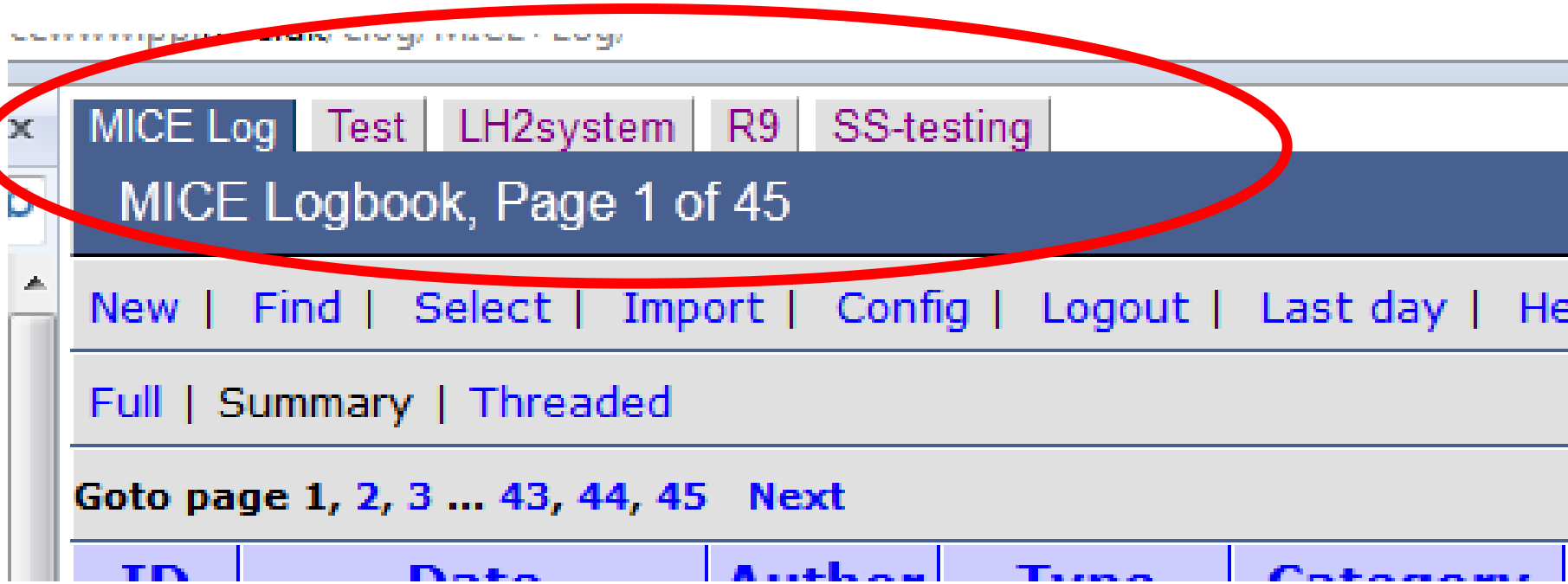
Full | Summary | Threaded -- All entries --

Goto page 1, 2, 3 ... 43, 44, 45 Next

ID	Date	Author	Type	Category	Subject	
2224	Thu 14-Feb-13 00:19	Pidcott, Celeste	Routine	Shift	Target Adjustments	
2223	Wed 13-Feb-13 15:56	Heidt, Chris	Routine	Shift	Target Adjustments	11:10 - 11:15 am Number of
2222	Wed 13-Feb-13 11:00	Heidt, Chris	Routine	Shift	Lowering Target, Activiation Run	10:30 am Started target ac
2221	Wed 13-Feb-13 10:27	Heidt, Chris	Routine	Shift	Starting 13 Feb Activation Run	
2220	Mon 04-Feb-13 17:17	D Adey	Routine	MOM daily summary	MOM daily summary 26/1/13 - 3/2/13	
2219	Wed 30-Jan-13 11:44	D Adey	Error	Hall infrastructure	PPS Issues	There have been a couple c
2218	Wed 30-Jan-13 11:33	D Adey	Routine	Target	Target test during shutdown	The target was actuated in
2217	Mon 28-Jan-13 11:09	D Adey	Routine	MOM daily summary	MOM daily summary 19/1/13 - 25/1/13	Issues: Water leaking into
2216	Fri 25-Jan-13 11:54	L. Cremaldi	Configuration Change	Detectors and DAQ	CKOV HV test	CKOV HV was enabled. All t
		L.				

Find: radar Next Previous Highlight all Match case

new! tabs for different streams of information (much better than categories)



every MICE can follow what happens in California
Pierrick, Linda and Steve V. are out there testing SS1

MICE Log | Test | LH2system | R9 | SS-testing

Spectrometer Solenoid tests - Prior to installation in MICE, Page 1 of 3 — Logged in as "Mice user"

New | Find | Select | Import | Config | Logout | Last day | Help

Summary | Threaded — -- All entries -- — -- Type -- — 43

Happy Valentine Linda!

Goto page 1, 2, 3 Next All

ID	Date	Author	Type	Sub-type	Category	Subject
43	Thu Feb 14 03:29:23 2013	L. Coney	Testing			Training Run 8 - Wed afternoon 13 Feb CA time
42	Thu Feb 14 01:19:06 2013	L. Coney	Testing			power and system test to 20A - 13 Feb afternoon CA time
41	Wed Feb 13 22:24:31 2013	L. Coney	Testing			Training Run 7 - Wed morning 13 Feb California time
40	Wed Feb 13 03:55:38 2013	L. Coney	Testing			Training Run 6 - Tuesday 12 Feb afternoon California time
39	Tue Feb 12 07:10:30 2013	J. Joseph	Upgrade		Hardware	All PS Energy Absorbers
38	Mon Feb 11 03:24:42 2013	Pierrick Hanlet	Upgrade		Software	Changes/Upgrades
37	Sun Feb 10 22:32:40 2013	Pierrick Hanlet	Issue	Problem Fixed		Mystery solved
36	Sat Feb 9 23:09:25 2013	Pierrick Hanlet	Testing			Training Run 5
35	Fri Feb 8 22:12:59 2013	Pierrick Hanlet	Testing			Training Run 4
34	Fri Feb 8 13:41:24 2013	Mark Palmer	Issue	New	Software	ELOG Config?
33	Fri Feb 8 13:39:00 2013	Pierrick Hanlet	Testing			Training Runs 2 and 3
32	Fri Feb 8 06:47:59 2013	John Joseph	Issue	Problem Fixed	Hardware	Match2 Power Supply Energy Absorbers - Diagnosis and Fix
31	Fri Feb 8 04:01:05 2013	Pierrick Hanlet	Testing			Training Runs 2 and 3
30	Thu Feb 7 06:29:37 2013	John Joseph	Issue	New	Hardware	Match2 Power Supply Energy Absorbers
29	Thu Feb 7 01:09:07 2013	Pierrick Hanlet	Testing			First training run
28	Wed Feb 6 06:11:58 2013	Steve Virostek	Routine	Other	Other	Cold mass top off
27	Wed Feb 6 06:09:33 2013	Steve Virostek	Routine	Other	General	Cooling Circuit in Steady State
26	Mon Feb 4 07:09:56 2013	Steve Virostek	Routine	Other	General	LHe cooldown and fill completed
25	Mon Feb 4 06:59:42 2013	Steve Virostek	Routine	Other	General	Ready for LHe cooldown
24	Sat Feb 2 20:55:41 2013	Pierrick Hanlet	Testing		Hardware	New heater control works!

Next Previous Highlight all Match case

Spectrometer Solenoid tests - Prior to installation in MICE

Message ID: **43** Entry time: **Thu Feb 14 03:29:23 2013**

Author:	L. Coney
Type:	Testing
Sub-type:	
Category:	
Subject:	Training Run 8 - Wed afternoon 13 Feb CA time

The magnet is cooled and filled again. We've done the pre-run checklist and are preparing f
at a training run.

16:50 - power supplies are ramping

19:00 - magnet quenched
This was a real quench that started in the E2 coil.

The magnet currents reached were:

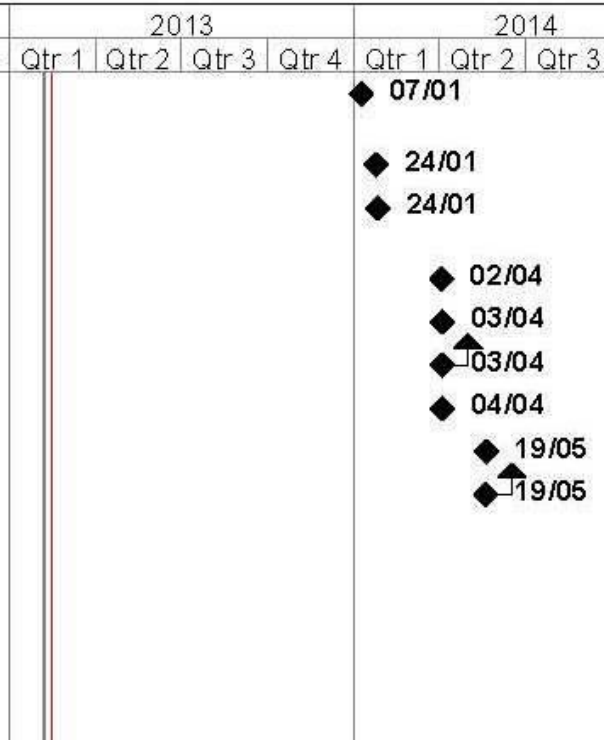
M1	M2	E1	C	E2
183	193	160.4 (-30.6)	191	170.3 (-20.7)A

Quench Propagation:
E2 - 170.3A at 0.0 sec
C - 191A at 2.65 sec
E1 - 160.4A at 5.1 sec
M2 - 193A at 8.0 sec
M1 - 183A at 11.3 sec

I have attached plots from the Quench Detection system:

MICE Schedule meeting yesterday 13Feb 2013

Task Name	Start
Spectrometer Solenoid (Upstream) magnet measured in step IV position	Tue 07/01/14
Heater/Chiller Unit Delivery to RAL	Fri 24/01/14
Spectrometer Solenoid (Downstream) magnet measured in step IV position	Fri 24/01/14
Tracker #1 Installation complete	Wed 02/04/14
Upstream Tracker & Solenoid Installation complete	Thu 03/04/14
Upstream Tracker & Solenoid Installation complete	Thu 03/04/14
Hydride Bed Delivery to RAL	Fri 04/04/14
MICE step IV installation complete	Mon 19/05/14
MICE step IV installation complete	Mon 19/05/14
Amplifier system #3 Delivered	Thu 26/11/15
Amplfier system #3 Delivered	Thu 26/11/15
Amplfier#3 installation complete	Thu 10/12/15
Amplfier#3 installation complete	Thu 10/12/15
Heater/Chiller Unit Delivery to RAL	Fri 27/05/16



MICE step IV installation complete 19 May 2014

two weeks gained wrt last time (field mapping streamlined)

this would give 2 ISIS user runs for step IV before the shut down

wonderful….

BUT schedule does not include field mitigation actions which is the ELEPHANT in the Hall. Discussion this afternoon

Magnetic field mitigation

Discussion this afternoon:

-- review the options

1- relocate equipment that needs to avoid magnetic field of *the experiment as is*
there has been great progress as far as space available is concerned →

1. **can this work for step IV ?**
2. **can this work for step VI ?**
3. **schedule implications**

2- modify experiment by implementation of a return yoke
Also great progress achieved!

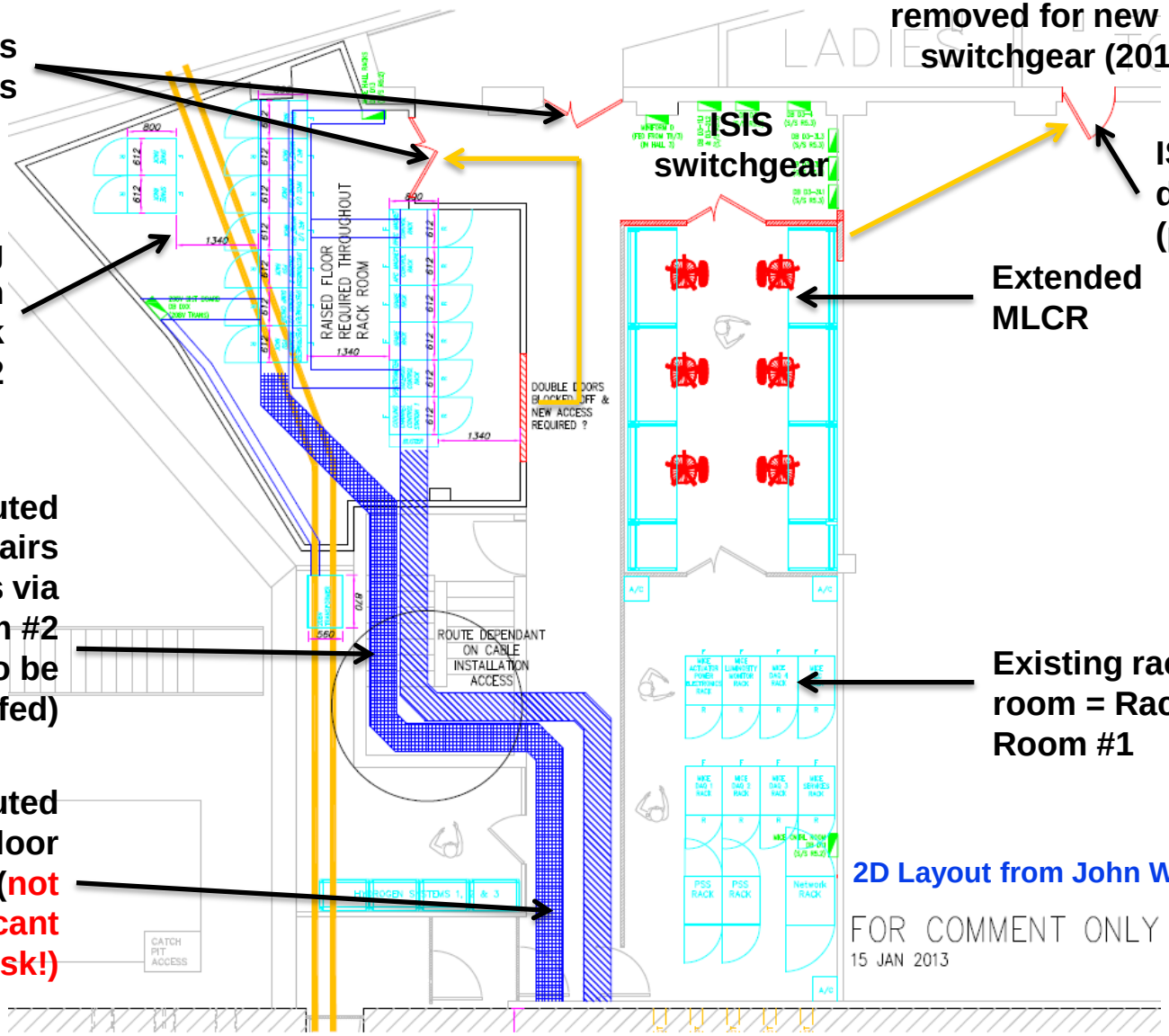
1. **do we need this for step IV ?**
2. **do we need this for step VI ?**
3. **schedule implications**

-- recommend an action course

We would like to come out of this meeting with a clear and agreed path

J. Tarrant

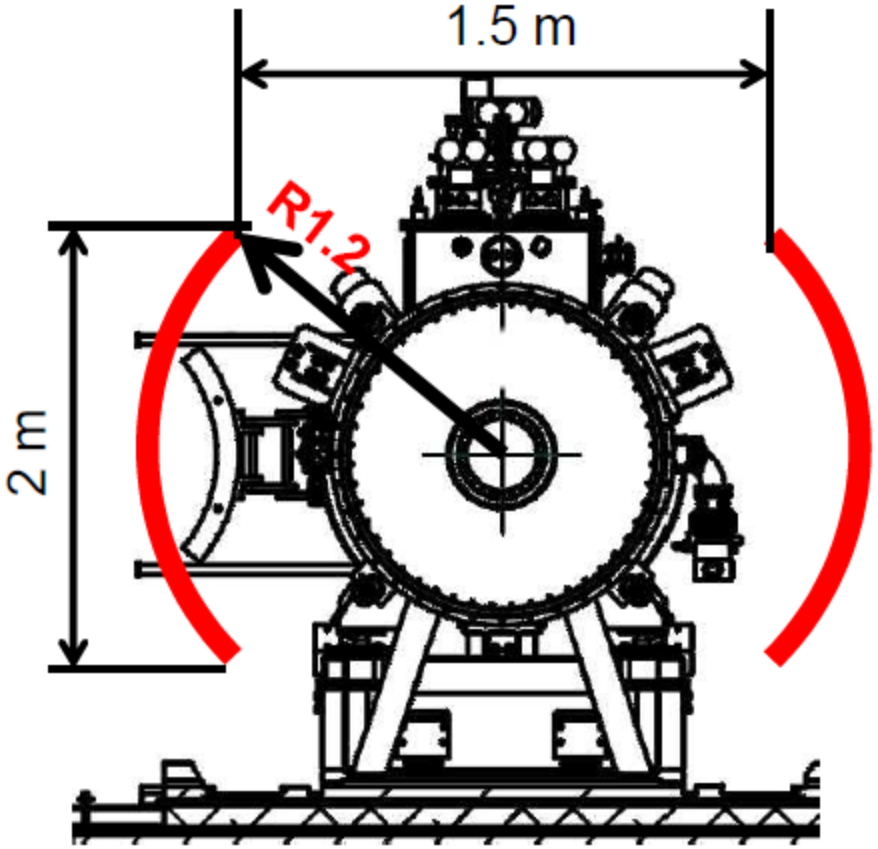
MLCR & Rack Room #2



Concept

BROOKHAVEN NATIONAL LABORATORY

- For perfect shielding: encase MICE in soft-iron cylinder
  - Not practical
- However: acceptable shielding can be obtained with "partial return yoke"
- Geometry
  - Tube of radius 1.2 m
  - wall thickness 10 cm
  - azimuthally -50..50°
  - weight: 30t



(Note: not to scale)

17 January 2013 H. Witte 19

Let's have a productive meeting!