

PM report

General MICE status



- *MICE Hall update*
- *Schedule planning*
- *Liquid hydrogen system*
- *Focus coil delivery and acceptance and magnet integration*
- *Completion of spectrometer solenoids*
- *Coupling magnet delivery plan*

Andy Nichols, STFC, TNA meeting, 10/2/12



MICE Hall Overview



- *2012 will spent preparing for Step IV installation*
- *Stewart Greenall of TD became Hall Manager w.e.f. 4th January*
- *Concentrating on liquid hydrogen just now, see later*
- *AFC #1 moving platform is ready for use*
- *Detailed schedule planning session scheduled for 3rd February*
- *Target and decay solenoid are reliable*
- *Repositioning of A/C units required – not stressful*
- *Extensive mods to South mezzanine for EMR and CCs approved*
- *Main hall PPS finally in operation, hot off press quote from Craig Macwaters:*

'I would like to announce that on the 3rd attempt and after 7 hours of testing today that the MICE hall PPS has finally passed the fully installed functional check.

All I can say is Hallelujah! and many thanks to John Alexander, Mark Arnold, Paul Hodgson, Henry Nebrensky and Victoria Blackmore for all their help along the way.'



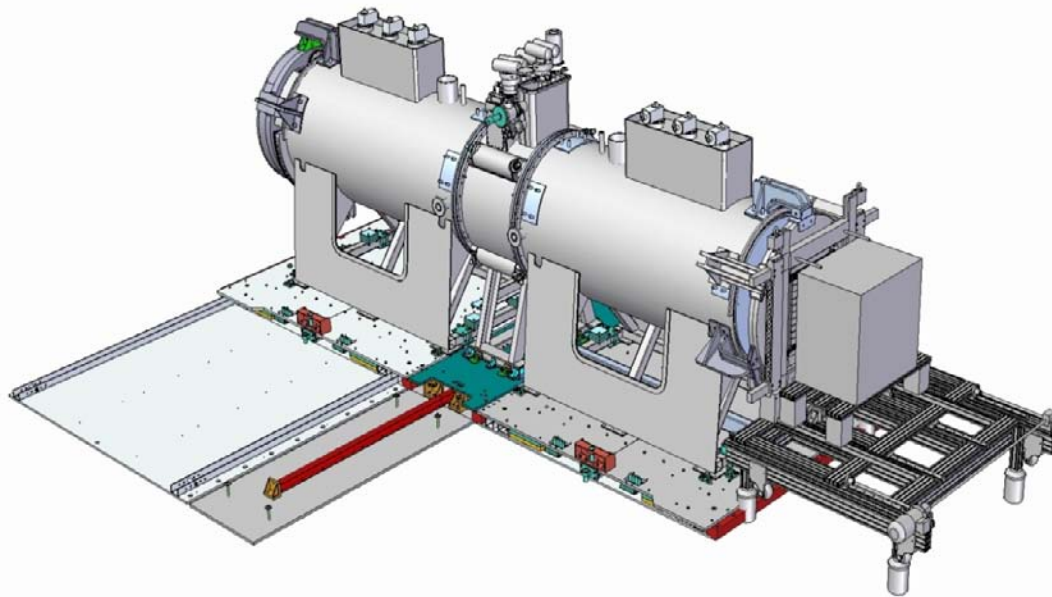
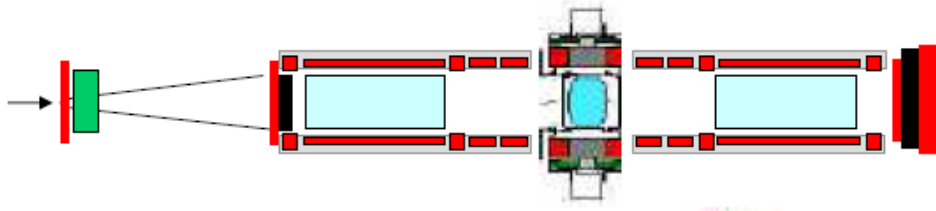
Schedule Planning



- *The MICE schedule continues to be driven by the major international deliverables*
- *But this year the slippage has slowed considerably, because of:*
 - *Realistic planning*
 - *Sensible expectations*
 - *Injection of manpower with the right skills*
- *We can still reliably predict that Step IV can be ready for use around the end of 2012*
- *But we still cannot forecast much about Step V & VI, other than:*
 - *Actively promote the CC magnet delivery plan*
 - *Support our US and Chinese colleagues in the above*
 - *Be ready with the Overall Step V & VI review by 2013*



STEP IV



Subsystem	Date
Spectrometer solenoid #1 + #2	June '12
Fibre tracker #1 + #2	Ready
Focus coil #1	Feb '12
LH ₂ system A	Apr '12
Solid absorber(s)	June '12
Liquid absorber	Ready
Diffuser	Aug '12
Virostek plate	Feb. '12
Substation upgrade	Ready
EMR installation	May '12
Radiation shutter	June '12
AFC Moving platform #1	Ready

Step IV ready...Q4, 2012

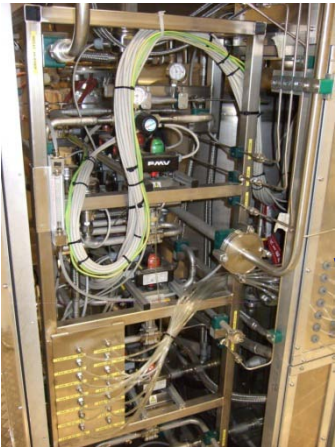
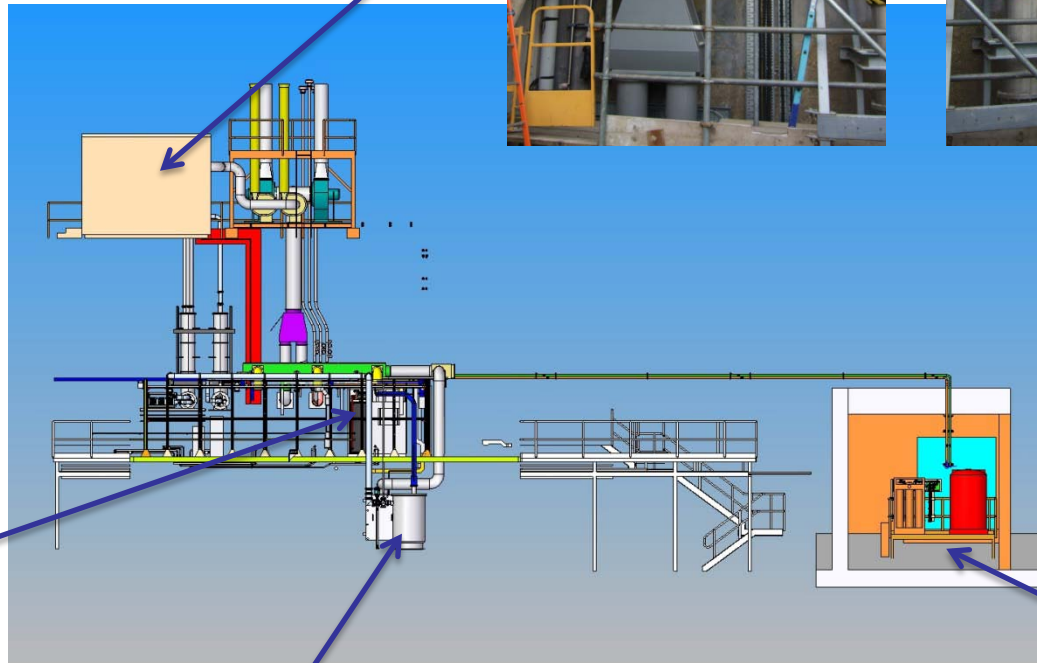
Liquid Hydrogen Delivery System



- *Matt Hills has taken a three-year career break*
- *Stephen Watson of TD has assumed LH2 project engineer role very effectively*
- *Helium test last year was complete success*
- *Pre-operation safety review held last October*
 - *Chaired by Norman McCubbin*
 - *Requested director-level responsibility – David Wark*
 - *Response submitted back to committee last week by David*
 - *Most worrying aspect was re-visit of tertiary containment, ie full nitrogen jacketting*
 - *Hope for some type of ‘green light’ very soon*
 - *In meantime, we are making a detailed countdown of mechanical and electrical tasks, most of which are done*
 - *Most of the review conclusion was procedure, training and admin – lot of work but no showstoppers*
- *We really have to be testing with hydrogen by Q2, 2012*



LH2 system, CAD and reality:



Focus coil delivery and acceptance



- Going pretty well at Tesla
- Vacuum vessel moved onto critical path last October, Tesla's borer broke down
- Contracted to MK engineering in Sittingbourne
- All other parts are made, coil sets for both magnets are potted
- When vessel goes to Tesla (End Jan), final assembly can start
- Hope to get #1 March/April
- #2 very soon after
- Magnet experts very impressed with Tesla's QA



FC acceptance



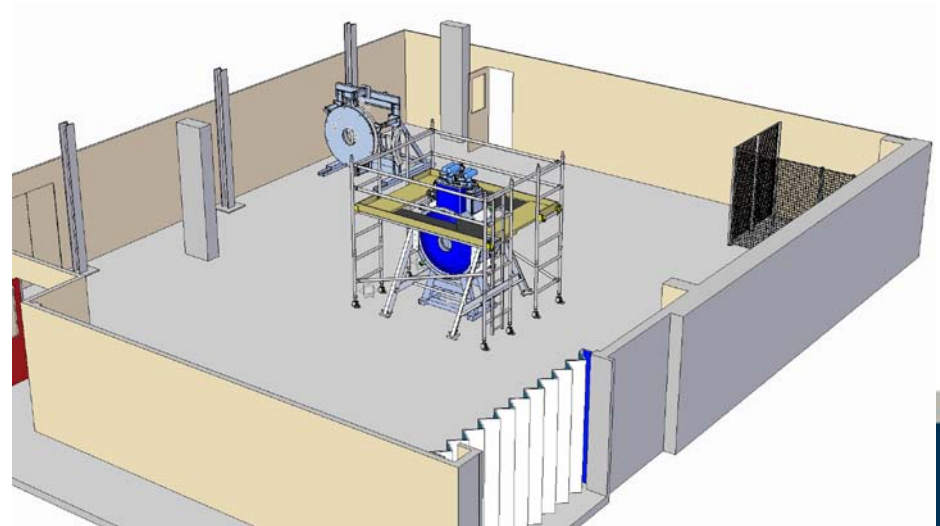
- *Firstly, this is a very nice problem to have.....!*
 - *It's likely that we receive four magnets within a few months of each other (FC*2 and SS*2), between March and October 2012*
 - *MICE phased assembly, steps II & III, might have allowed series integration in the MICE hall*
 - *But given our current step IV plan and the above, we need to work in parallel on integration and have space for storage*
 - *Space is always a difficult issue at RAL, but we managed to get our hands on building R9*
 - *The basic idea is to build a parallel magnet facility*
 - *Immediate plan is for acceptance trials of FC#1 while LH2 tests and floor building is going on in MICE hall*



FC acceptance



- *This includes:*
 - *Cooling*
 - *Powering*
 - *Absorber integration*
 - *Field mapping*
 - *And general preparation, measurement, etc*
- *Power has been laid into R9*
- *Floor is about to be restored and painted*
- *Field simulation has been made and is OK for surroundings*
- *Presently having asbestos removed from pipe insulation*



Completion of Spectrometer solenoids



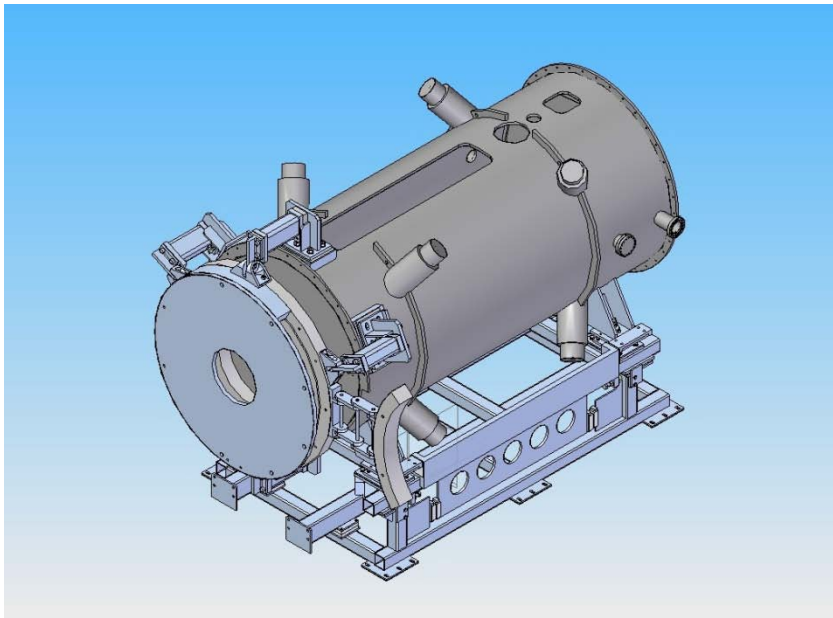
- *There is little to say, for all the right reasons!*
 - *Roy Preece of PPD and Denis Calais of LBNL have made a huge difference*
 - *Working at Wang all the time – much improved engineering discipline, understanding and communication*
 - *Magnet #1 coldmass and rad shielding are wrapped, instrumented and installed in vessel*
 - *Magnet #2 cold mass has been fitted to assembly tooling and is not far behind*
 - *Review of test and acceptance plan will be held in LBNL on 17th February*
 - *Support stand design and manufacture passed to Tim Hayler/Eddie Holtom in TD – good*
 - *Delivery date of June 2012 still looks entirely realistic*



Completion of Spectrometer solenoids



- *Eddie & Tim also working on the Virostek plate brackets and TOF cage assembly trials*

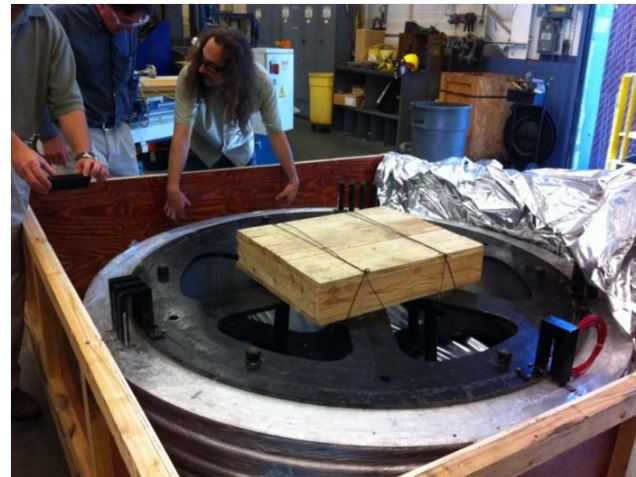


Parts scheduled for completion mid this year

Coupling magnet delivery plan



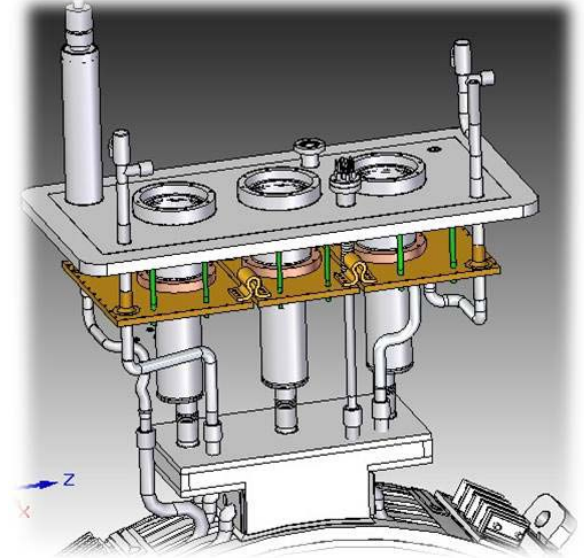
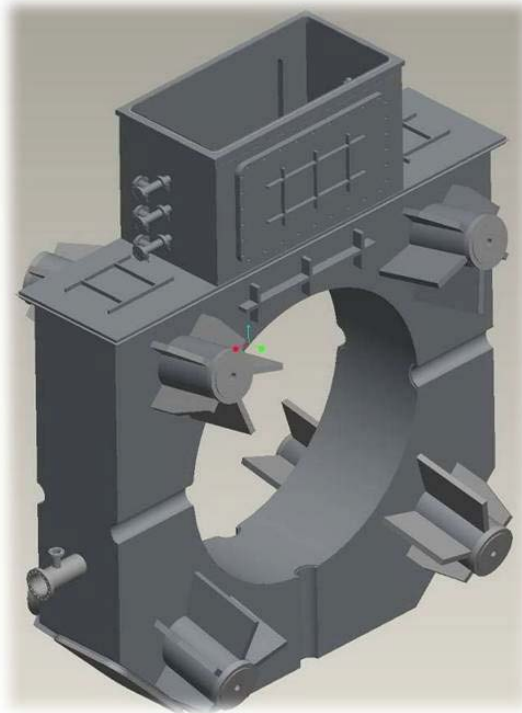
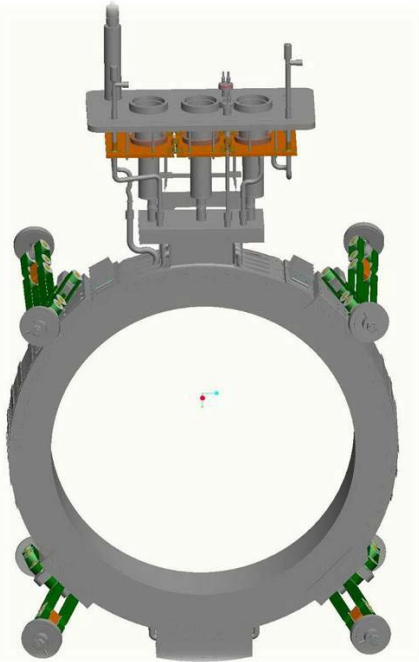
- *This remains the major worry for the project*
- *But the good news:*
 - *The first coil was completed and delivered to the US in October*
 - *Plans are well advanced for a cold test at FNAL in Summer 2012*
 - *Cryostat, cold mass, rad. shield and piping design ready for production-readiness review in LBNL during late February*
 - *Magnet delivery plan discussions are underway*



Coupling Coil delivery plan



- *This is what we will be reviewing in February:*



- *Around 300 engineering drawings have been made by SINAP in China*
- *And translated by LBNL*
- *Budget estimate for assembly from Meyer tool in US – 18 month delivery*

Working towards the delivery plan



- *Starting assumptions:*
 - *The cryostat review is a success*
 - *Qi-Xian will make all the detail parts – part of the US/China deal*
 - *The first coil cold-test goes OK*
 - *MAP decides on priorities between MuCool and MICE, remember, one of the magnets is for MuCool*
- *Progress so far*
 - *Steve Gourlay accepts the need to make a new plan*
 - *Has agreed to start discussing in more detail as adjunct to cryostat review*
 - *DL staff are working on the technical and staffing considerations of building at DL as part of a wider collaboration*
 - *Alain Blondel and Andy Nichols have visited CERN's large magnet Group, will be followed by visit also with Steve Gourlay on 7th February*



Brief facts from CERN visit



- *The MICE magnets would be considered trivial – key capability in the large magnet group is:*
 - *40+60 tonne crane capacity*
 - *24KA power supply*
 - *He fridge 1.2KW at 4.5K*
 - *10KW of LN2 pre-cooling at 80K*
 - *On site fabrication and radiography*
- *In short, the technical risks are lowered*
- *Agreed that ten staff would be needed*
- *Major reservations about ‘taking over’ somebody else’s mistakes*
- *Ideal outcome would be an arrangement between LBNL and CERN, with UK commitment within existing MICE allocation*
- *Next steps, CM32, cryostat review.....*