



# MICE CM31

## *Engineering and Magnet Summaries*

- *Spectrometer solenoids – S.Virostek*
- *Coupling magnets – D.Li*
- *Focus coils – A.Nichols*
- *Magnetic shielding - R.Preece*
  
- *Solid absorbers – P.Snopok*
- *Engineering integration – A.Nichols*
- *MICE Vacuum – R.Preece*
- *Liquid Hydrogen – A.Nichols*

*Andy Nichols, STFC, 30/1011*



## Spectrometer solenoids

- *Very good progress*
  - *Re-engineering well underway*
  - *MAP & MICE reviews both signed off, revised contract agreed with Wang NMR*
  - *Conductively cooled quench resistors installed and tested*
  - *Rad. shield remade from pure alum - better conductivity*
  - *Better control of MLI application*
  - *Custom MLI blankets delivered*
  - *Fabrication mods for additional CCRs complete*
  - *Injection of manpower paying off*
  - *We have a robust schedule to plan Step IV on*



## Coupling magnets

- Also going well:
  - First coil arrived in US on October 14<sup>th</sup>
  - Strong written support from FNAL management for testing there
  - Test scheduled for mid - 2012
  - Design work to integrate in FSU cryostat underway
  - Contract awarded to MIT for quench protection design
  - Cryostat drawings being arranged for review in January 2012
  - Discussions on CC delivery plan started – acceptance of that plan is a very important milestone for MICE



## Focus coils

- *First magnet nearing completion*
  - *Both sets of coils are wound*
  - *Experts agree that quality is very good*
  - *Some delays due to difficulties with outer vac vessel fabrication*
  - *Delivery slipped to end Feb 2012*
  - *Needs to be understood carefully with Tesla Engineering*



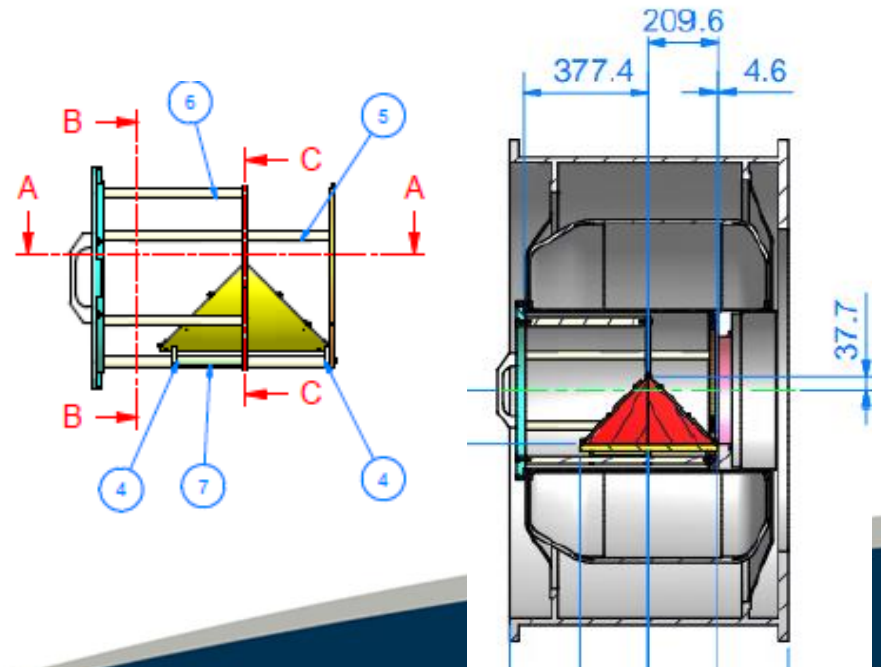
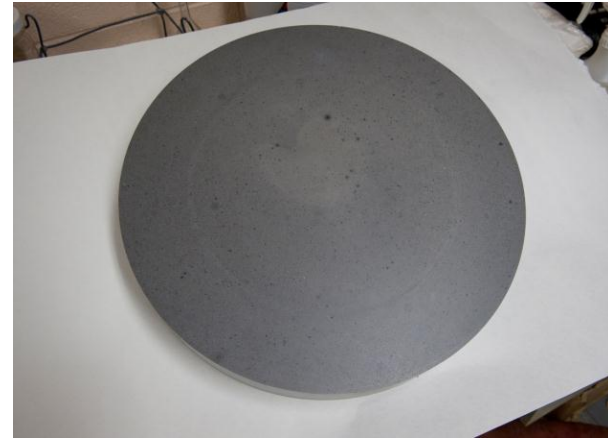
## Magnetic shielding

- *We now have an accurate VF study of field condition in MICE Hall, thanks to Mike Courthold*
  - *Purpose was to assess MICE's compliance with new UK magnetic field legislation*
  - *But realised that local equipment will be affected:*
    - *Compressors*
    - *A/C units*
    - *Pumping rigs.....and so on*
  - *Important that owners of equipment are engaged, small working group proposed:*
    - *Mike Courthold*
    - *Victoria Blackmore*
    - *Mike Zisman*
    - *Roy Preece*
  - *Will report to MICE on local shielding requirements and solutions*

## Solid absorbers

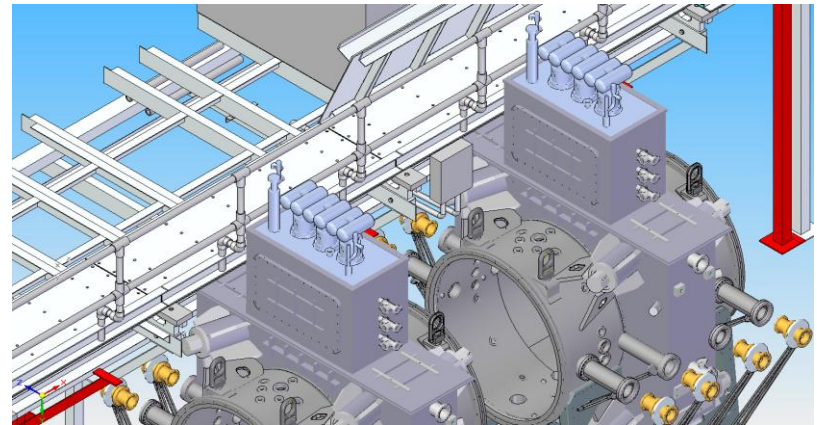
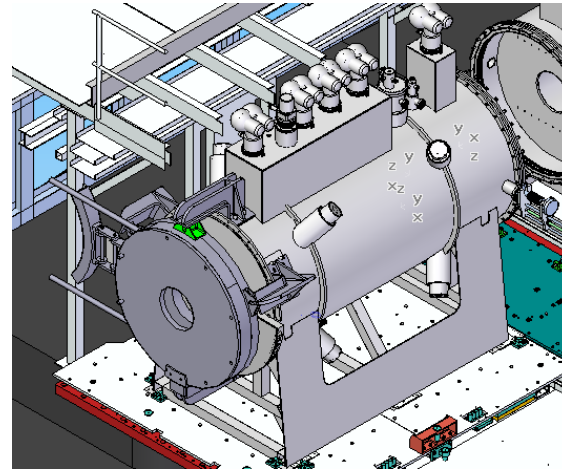
*Disc LiH absorber coated and ready to ship, transport, Y12-FNAL-RAL being negotiated*

- Wedge absorber will follow two months later*
- Support structures are designed*
- But need to double check FC safety window frame area*
- Manufacture at RAL*
- Wedge geometry is being simulated in MAUS*
- Solid absorbers looking OK for Step IV schedule*



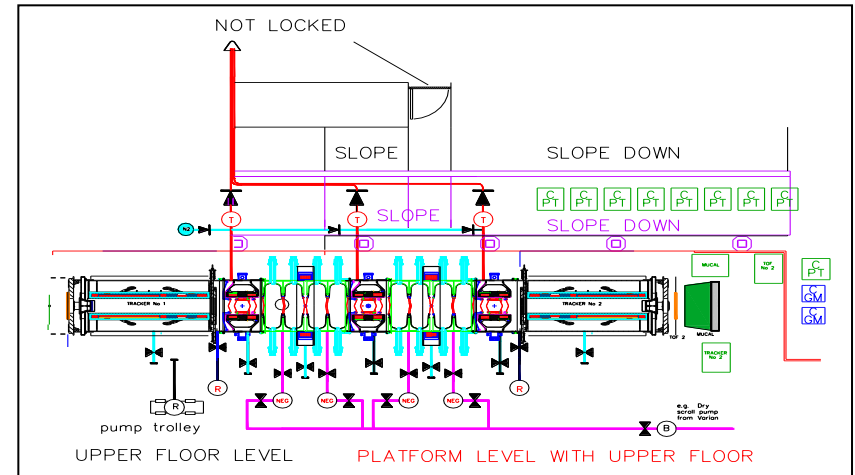
## Engineering Integration

- Since CM30, mostly focussed on South mezzanine:
  - RFCC and EMR both much larger
  - SS has more CCRs
  - Raise flooring locally
  - Modify walkways
  - Move posts
  - Re-route pipes and service trays
  - Nothing is major, but all work has to have blessing of RAL authorities
  - And most relates to Step V
  - But better to do it now
  - Space is generally very tight, what a surprise.....!



## MICE global vacuum

- *This needs to be revisited:*
  - *Manifolded and valved system, or pumping carts?*
  - *Manifolded system avoids magnetic effects on local pumps, but pipes are long*
  - *Continuous pumping while powering magnets is likely*
  - *Need to pick up study started by Matt Hills/Wing Lau*
  - *TB will be presented with a proposal showing pipe sizes and lengths, valve and component specifications*





## Liquid hydrogen system

- *Recent good progress:*
  - *Mechanical, civil and electrical work for system A is largely complete*
  - *Helium liquefaction test is done*
  - *Pre-operation review prior to Hydrogen liquefaction held on October 4<sup>th</sup>, formal report in few days*
  - *Should be doing this early next year, small slippage, but it's OK*
  - *Steve Watson has taken over from Matt Hills as Work-Package Manager*

