



# *MICE CM39*

## *Step IV installation status*

- Progress with the major subsystems*

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# Progress with major subsystems



- *Spectrometer solenoids*
  - *SS2 (upstream) has been moved to MICE hall, tracker already fitted*
    - *It is fitted to the base frame but not fully bolted down*
    - *Some work to be done on leads by US team, can be done at any time, probably October*
    - *Diffuser can be fitted at any time now*
  - *SS1 (downstream) arrived in early May*
    - *Is in R9 being prepared for tracker*
    - *Bore survey this week, tracker tent can begin any time since last week*
  - *SS power cabling*
    - *Routing layout and procurement are well in hand by DL Group*
    - *Open issue with cables from turret is closed*
      - *See Ian's talk, will reposition terminal block on turret and cable to there, US team will manage cables locally on turret in October*





# Progress with major subsystems



- *AFC1*
  - *Performance limitations have been outlined elsewhere*
  - *At the moment it is the default magnet for Step IV*
  - *Field mapping planned to start Early June, mapping gear is here*
  - *Has been moved to MICE hall and is on beamline – presently understanding bellows connection*
    - *But AFC2 might be in the frame.....*
    - *Repairs at Tesla are complete, it's in R9 being connected, cooldown can begin in next week or so*
    - *If its performance is superior to that of FC1, and it can be swapped without affecting the schedule, it will be*
    - *But this decision should be taken before the absorber and hydrogen system are integrated*
- *Diffuser*
  - *Stored at Oxford, ready for delivery and use*
    - *Integration with EPICS complete*
    - *Rack/cabling/air piping configuration agreed*



# Progress with major subsystems



- *Liquid hydrogen system*
  - *Hardware*
    - *Transfer line complete*
    - *Roof and Hall installation complete*
    - *High volume N2 gas supply required – bottle packs worked but inconvenient*
    - *Nitrogen generator not practical; Oxygen contamination levels cannot be guaranteed for DESEAR rules*
    - *Could use Cryoease plant, but bottles are a fallback*
  - *Admin & safety*
    - *Liquid hydrogen working group has been re-convened, chaired by John Thomason, first meeting July 4th*
    - *HAZOP for Step IV successfully concluded by third party consultants in October 2012 – this covered the full experimental configuration for Step IV as opposed to the system test*
    - *The hydrogen team will need to be rebuilt – critical skill shortage is control engineering*



# Progress with major subsystems



- *Absorber and windows*
  - *Absorber fitting trial was a success*
  - *All the tooling worked OK*
  - *Unique indium seal design proved to work in test vessel – pressure and temperature cycled OK*
  - *We need four of the thin windows from the US – understand they're ready*
  - *Lithium Hydride absorber still beset by Admin – but we don't need it till later*
- *Vacuum system*
  - *Now a discrete work package*
  - *A fully manifolded system for Step IV*
  - *Most parts ordered*
  - *Conventional installation – see Mark's session, major items now installed, rigid pipework is next*



# Progress with major subsystems



- *Muon Beamline*
  - *Maintenance only, decay solenoid now cold and QD & PSU tests progressing well and might well be complete by now*
  - *Remotely operated proton absorber installed*
- *Detectors*
  - *EMR rack needs to be re-packaged, during October (RAL safety requirement)*
  - *TOF2 repositioned due to PRY – new bracketry required*
- *PRY*
  - *Manufacturing drawings complete*
  - *Order has been placed for US parts*
  - *UK deliverables significantly complete*
  - *It's the most important thing this year – we'll adapt to its delivery!*



# Progress with major subsystems



- *Rack Room Two*
  - *Cable trunking complete*
  - *Building alterations complete*
  - *Raised floor work about to start*
  - *Rack-family due to arrive from DL in late June*
  - *Installation begins then – this is the major electrical push*
  - *Dump circuit cooling plan has been decided – use ISIS supply*
- *West mezzanine*
  - *Structurally complete, load test completed OK*
  - *Then compressor stands can be located and cabling started*
  - *All compressor stands made*
  - *Waiting for installation drgs*
- *PPS*
  - *Maintenance only, some minor changes required due to proximity of West mezzanine*





# This week's news....



- **SS2:**
  - *Exercised on moving platform offline-online – works well, very controllable, can be pushed by one feeble person*
  - *Has been positioned in beamline at +/- 2mm level in all planes – all adjustments work nicely*
  - *Now bolted properly on frame*
- **FC1:**
  - *Mounted in frame OK, located in Z & phi OK*
  - *Have tried it in its beamline 'slot' – OK*
  - *Only 100mm clearance under South mezzanine, but OK*
  - *Rudimentary exercise with bellows, bolts and seals, looks promising, but more work needed*

