Hall & Beamline Installation

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MICE Collaboration Meeting, 10-13th Feb 2008

Summary Of Progress

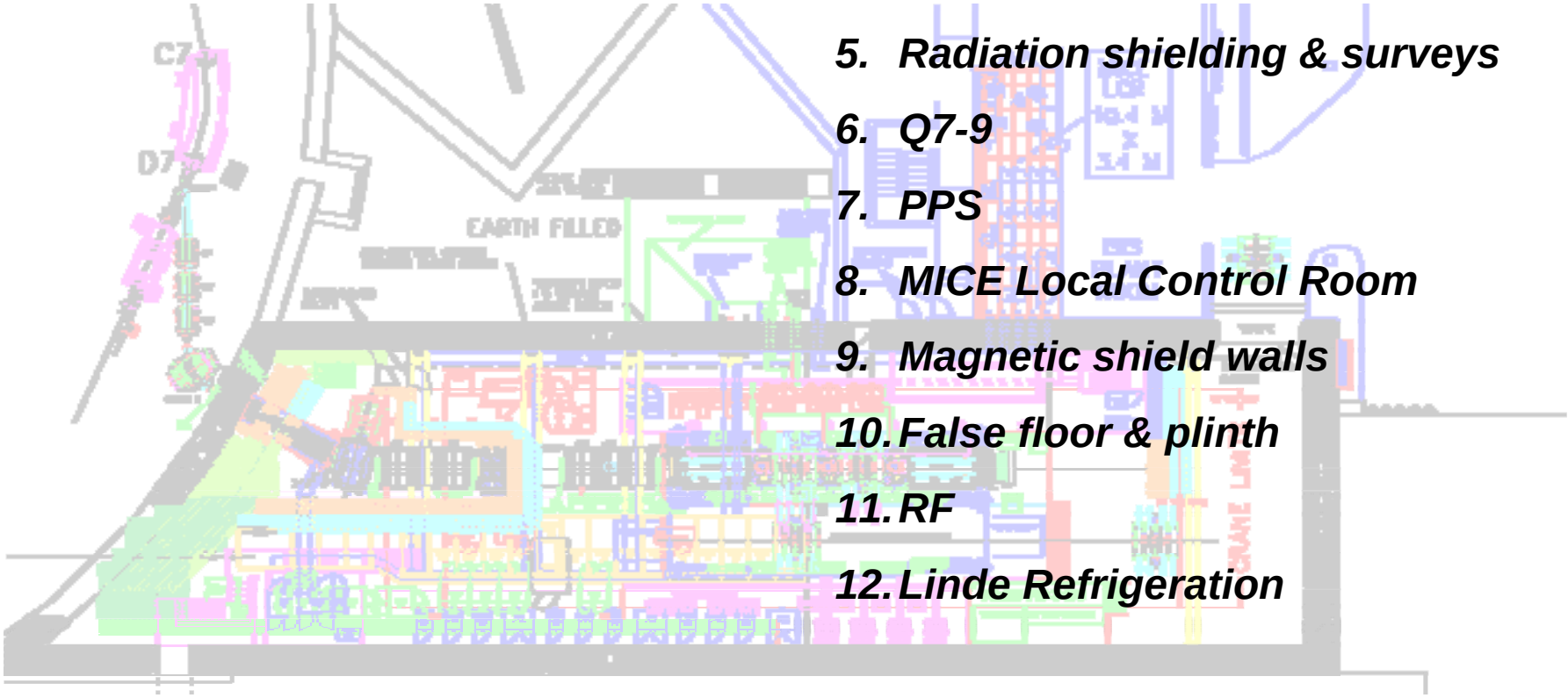
Much progress has been made since we last met:

- *In particular the mechanical installation has gone very well indeed*
- *The Christmas shutdown was completed on time*
- *A well co-ordinated and managed engineering team has emerged quickly*
- *Relationship with ISIS is working well*
- *In parallel the infrastructure project has reached the 'end of the beginning'*

But of course there are still some things to try our patience:

- *Problems with the Linde LHe plant*
- *Minor mechanical hiccups that become serious delays*
- *We are now in a regime where our DSA access is dependent on ISIS running schedule*

1. *Upstream beamline*
2. *Decay solenoid*
3. *D2 and Q4-6*
4. *DSA*
5. *Radiation shielding & surveys*
6. *Q7-9*
7. *PPS*
8. *MICE Local Control Room*
9. *Magnetic shield walls*
10. *False floor & plinth*
11. *RF*
12. *Linde Refrigeration*



Beamline

- **Upstream beamline**
  - Q1,2,3 , D1 all connected to water & power & interlocks
  - Actual BPMs are not installed (not ready)
    - Untested scintillating tile devices were installed. Too much crosstalk!
    - Probably wouldn't discriminate between ISIS background and MICE beam
  - Stainless steel filler plates required for Decay Solenoid
    - 4 weeks to manufacture, install next short shutdown (in synchrotron)
- **Decay Solenoid**
  - Progress now dependent on problems with Linde plant (more later)
    - Defective turbines gone back to Linde, due back in ~1 week
    - Re-commissioning will resume then, about another week
    - Access to DSA needed (e.g. to erect scaffolding)
    - Then we have to reconnect transfer line to solenoid, again access to DSA essential – short shutdown in March?

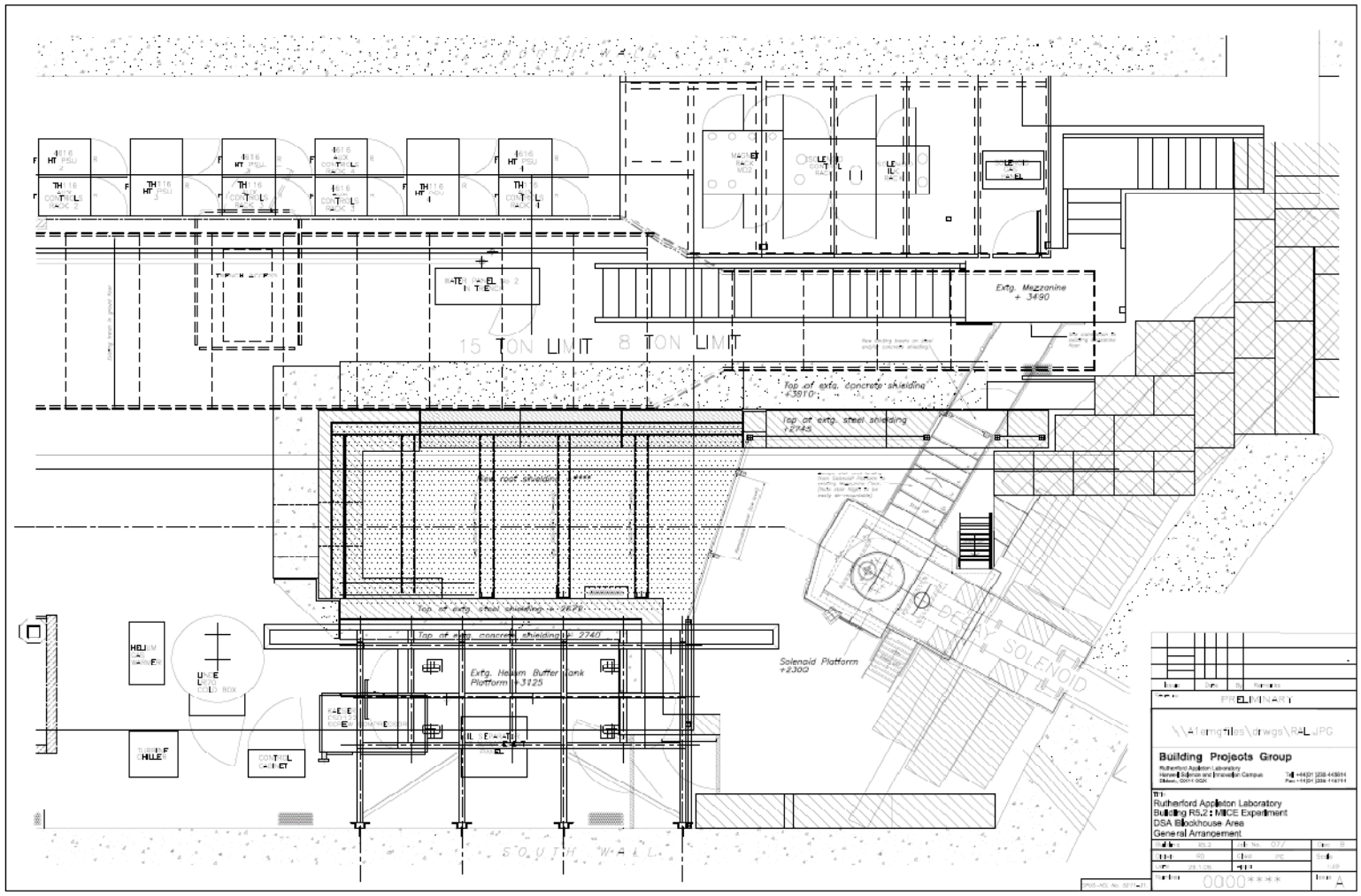
Beamline

- **DSA, D2, Q4,5,6, Cerenkov & ToF**
  - D2 is connected to power & temporary water
  - Q4,5,6 are connected to power and polarity OK (No water yet)
    - DSA access barred & flanges not ready.
  - Cerenkovs ready at RAL – awaiting ToF0
  - The Cerenkov stand arrived in time.
    - 150mm too low despite being reviewed.
    - No solved but parts are here……Need access to DSA of course…
  - ToF0 counters under test with cosmics in Italy
    - Not enough PMTs – on order.
  - ToF1 will be tested afterwards – PMTs arrive end March
    - Support platform for TOF1 under construction
  - ToF2 start assembly probably mid April-May

Beamline & PPS

- ***Q7, 8, 9***
  - Q7 – essentially complete
    - needs klixons fitting, then water/power test in R6
  - Q8 – **(known as the oddball)** – being stripped down
    - new tubing required, then test as above
    - Girder box needs modification (Steve York at DL)
    - Mirror plates are horizontally joined, new holes need drilling
  - Q9 – only manifolding refurbishment outstanding (mostly done)
    - One month's work remaining :Magnets mounted by 8th March
    - Water & power connections will be done then
- **PPS**
  - PPS in the DSA.
    - Final design review for the fence, roof and fire escape to be held 15/2/08
    - Work to be carried out in the May shutdown
  - PPS racks are complete and in position in MLCR
    - a small number of wiring modifications remain to be done
  - Majority of PPS hardware needed for DSA installation has been purchased
    - Installation of PPS hardware and wiring between it and the PPS racks has commenced
    - Need to define timescales (end of February?)
    - Drawings detailing wiring from the racks to Hall equipment remain to be done
    - Need final Hall search route to be agreed between ISIS and MICE (ongoing)

DSA, radiation safety and PPS



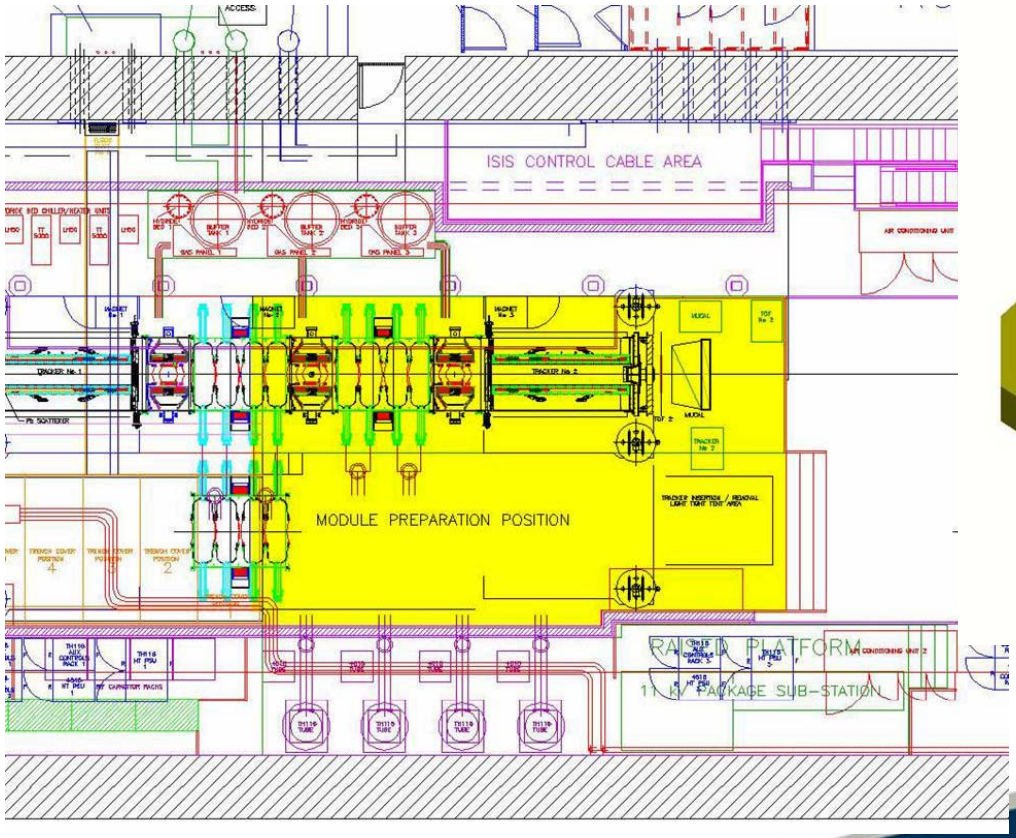
Search Plan is emerging……

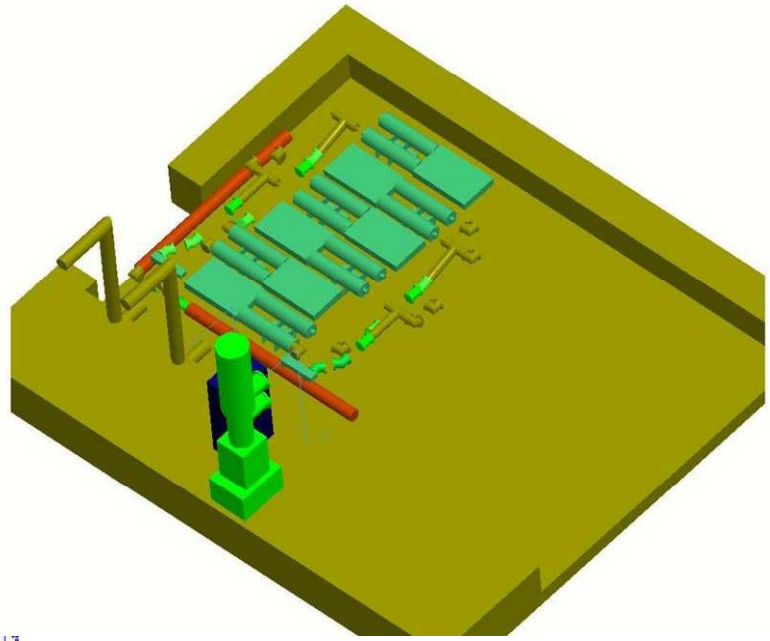
MICE Local control room

- Internal Wiring network and power
  - network cables installed
  - power sockets, lights etc, powered
- Power distribution to racks, almost there
- Air conditioning units installed
  - bring your own electric fire!
- Furniture ordered. 1-2 weeks
  - But chairs need testing!
- Network rack in place
  - network cables still outstanding.
- PPS tested and in rack.
  - Cables being run towards DSA Installation in the DSA needs access

False floor & RF

- **RF Project and the false floor**
  - Need to decouple the RF project from the false floor.
  - Andy Moss has agreed to lead the RF work and produce a costed plan for the remaining RF project
    - There is just enough space layout of the RF components under the false floor
    - False floor provisional design review 15th Feb





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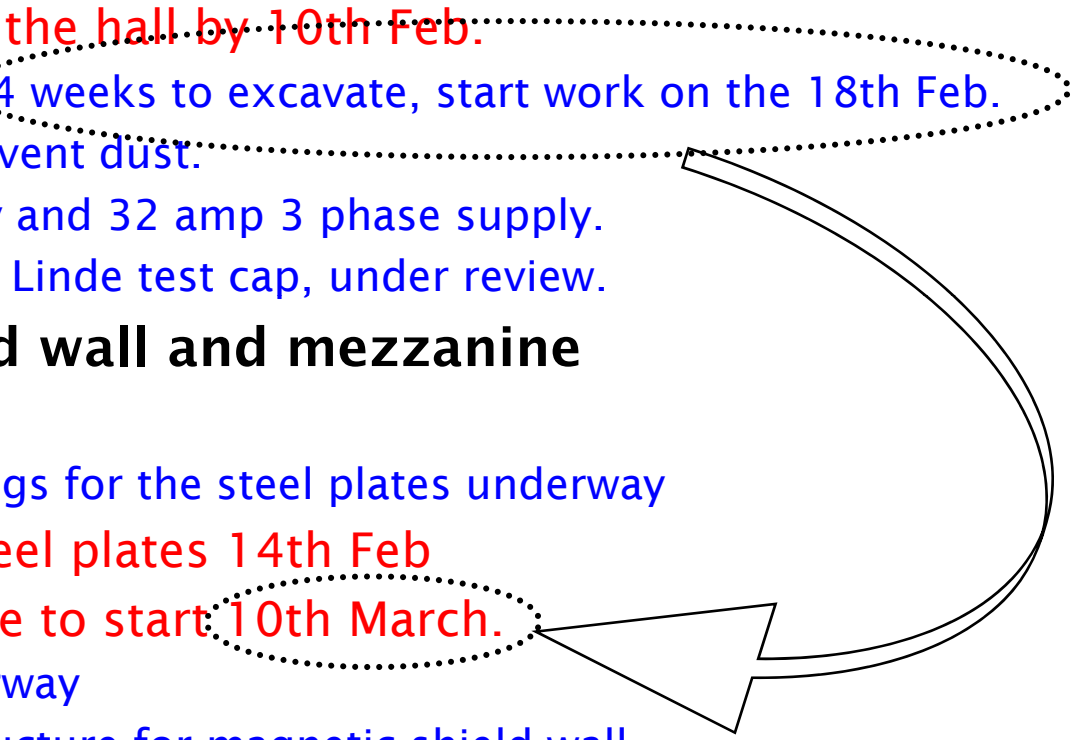
*Concrete plinth & Magnetic shield **walls***

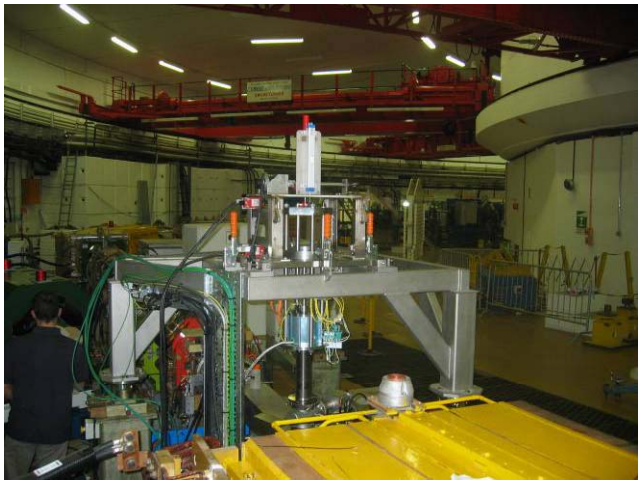
- **Removal of the concrete ramp**
  - Representation of MICE beam line and the concrete area to be removed laid out in the hall by 10th Feb.
    - Contractors need 4 weeks to excavate, start work on the 18th Feb.
    - Area tented to prevent dust.
    - Need water supply and 32 amp 3 phase supply.
    - May need to move Linde test cap, under review.
- **South magnetic shield wall and mezzanine**
  - Design agreed
    - Installation drawings for the steel plates underway
  - Tenders back for steel plates 14th Feb
  - Installation work due to start 10th March.
    - Alter existing stairway
    - Install support structure for magnetic shield wall
    - Install steel plates on support structure
    - Construct new south wall mezzanine
      - ***Painting and fire proofing***



Magnetic shield walls, AC, Rolling platforms & Roof

- **North magnetic shield wall and mezzanine**
  - PDR on 22nd Feb
    - Depending on the capacity of the installation company(ies), installation will be in parallel or series with the south wall.
- **Air conditioning**
  - Agreed AC layout at last
    - Tender process started for the AC units, delivery expected 31/3/08
    - Install AC units, ducting &10 fans on the roof
    - Install pipe runs from units to fans.
    - Electrical installation, commission and test AC units.
- **Rolling platforms**
  - 1 and 7 tracker platforms out for manufacture, delivery 1st March.
  - Design #2,3,4,5,6, ready 12th April
    - Possible case for single tender
  - Delivery of #2,3,4,5,6 11th July
- **MICE hall roof**
  - Need a layout drawing of the roof & check the roofs structural rating
    - Fence between MICE roof and Injection Hall roof (1m or 1.8m)
    - Fence around the entire perimeter or hand rails
    - Permanent stairway access to roof

Current status



Current status

Linde refrigeration

- Specification 66W @ 4K (56 + 10)
  - In November about 51W + 10W
    - Managed to cool decay solenoid to ~20K
      - ***Ran out of time, not cooling***
    - Problem 'traced' to lack of insulators
  - Jan 08 about 47W + 10W
    - Problem now believed to be turbines
      - ***Evidence of carbon / graphite dust***
      - ***Bearing failure?***
    - Turbines due back in ~1 week
  - Have we been seeing gradual decline in performance for several months?
  - Is this the end of the problem?
  - The programmes are very close!
    - Linde commissioning
    - Running beam – DSA access
    - South magnetic shield wall
    - Plinth removal
    - False floor and RF project
    - Completion of downstream beamline
    - Start of Phase II

Have to be careful not to fall over each other