MICE: overview
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Layout of MICE hall

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Layout of MICE Hall

- Decay solenoid
- Linde refrigerator
- Downstream beamline
Beam line: target:

- Linear drive:
  - Accelerates target into beam:
  - Acceleration 80g

![Graph and Image Description]
Beam line: target

- Successful test Saturday 15Mar08
- Parasitic operation of target established
  - Significant milestone
Beam line: second target

► Agreement with ISIS:
  - Two targets, one outside the beam should always have operated three times as ofter as the target in the synchrotron

► Second target:
  - To RAL 13th February and re-assembled in R78.
    - Unusual pulse-to-pulse variation.
    - Failed after ~600 pulses.
    - One coil (of 24) found shorted to ground & burnt out.
      - Internal ground not connected in Sheffield test!
    - Spare stator installed
    - New welded seals at Daresbury last week
    - Brought back to RAL immediately (untested.)
      - All electronics now at RAL.
    - Problems still exist so has now be taken back to Sheffield for further investigation. – see talk by Andy Nichols for latest news
  - N.B. Stator currently in ISIS had done >2M pulses ok.

► Future:
  - Investigating better quality insulation (double layer?) with manufacturer.
  - Need new QA procedures for coil insulation.
  - Target plan will deliver second target to RAL 15May08
Upstream beam line:

- Q1—Q3 and D1 installed, all services connected
  - Issues:
    - Q1, Q2 power supplies damaged by water leak
      - Have been returned to Dan Fysik for repair
    - D1 power supply ‘blew’ resistors in smoothing circuit
      - Spares to arrive from Dan Fysik today
      - Re-install and check source of problem …and correct

- Solenoid in position and packed with shielding
Beam line: refrigerator

- Linde refrigerator has delivered required cooling power, but:
  - Observed temperature dependence:
    - Diurnal, ‘organ-pipe’ modes, response to external fans
  - Cause traced to compressor: the one supplied does not have sufficient air cooling and must be replaced

- Negotiating with Linde: issues:
  - Schedule:
    - Require to install transfer line in the present shutdown
  - Contractual:
    - Contract says we have to accept frig based on test with dummy load, not with solenoid
  - I believe we can negotiate a ‘middle way’
Beam line in DSA:

- D2 and Q4—Q6 installed and services connected

Issues:

- D2 on temporary water:
  - Piping now in place
- Q4—Q6:
  - Water flow rate needs to be increased
Downstream beam line

- Q7 and Q8 installed and aligned
- Q9 to be installed this week:
  - Issue: water manifold weeps, braze to be effected in MICE Hall
- Water and electrical services to be connected in present shutdown
Infrastructure: magnetic shield walls

► Walls (in purple)
  - South wall more complex
  - Design complete
  - North wall design underway

► Mezzanine (in lime green)
  - Closely coupled to walls
  - Part of Hydrogen system
  - Needs to be built together with walls

► Installation to be complete
  June/July
Infrastructure: false floor

- Need to decouple the RF project from the false floor.
  - Andy Moss (DL) 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
    - Based on a ‘worst case’ proposal for RF distribution from DL
MI CE Diffuser (Oxford)

Parts cutting goes on (~60% completed)
Stand is designed
Rolling Platforms

- Largest (1&7) for the trackers
  - In production
  - Use air skates to facilitate movement

- Remainder:
  - Design #2,3,4,5,6, ready 12th April
  - Not required until Step III and later

- Considering modest re-designed to save cost with only a small loss of functionality
  - Delivery of #2,3,4,5,6 currently scheduled for 11th July
MI CE steps

STEP I
February-May 2008

STEP II
UK PHASE I
June 2008

STEP III/III.1
UK PHASE II
August/December 2008

STEP IV
Delivery of 1st FC
--> September 2009!

STEP V
Q4 2010

STEP VI
2011?
Step 1

► Beam to end of DSA from end of present shutdown (27Mar08):
  - Instrumentation:
    - Beam monitors, beam counters, CKov, ToF0

► Beam to end of beam line (April – May):
  - Additional instrumentation:
    - ToF1 and KL
Phase II (comment)

- Phase II requires:
  - Three absorber/focus-coil modules
  - Two RF/coupling coil modules
    - See D.Li’s talk
  - Infrastructure:
    - Hydrogen delivery
    - RF power
- Positive indications on focus-coil procurement (UK responsibility)
- Planning of implementation of Phase II infrastructure has started
Conclusions:

► MICE is inching its way to first data
  ▪ Beam line essentially in place, but:
    ► Many problems:
      ▪ Water services
      ▪ Interlock issues
      ▪ PPS
    ► Problems are being solved
  ▪ MICE Operations Managers in place and making a big difference
  ▪ Planning for Phase I data taking and Phase II construction advanced and advancing
  ▪ Looking forward to emittance measurements this year