LHC Construction & Installation
Progress report

Pierre Bonnal
on behalf of those involved in planning & scheduling the LHC Project

LHC MAC
2003-03-13
• Status of on-going infrastructure works
  - point by point & sector by sector
  - with respect to the installation schedule presented at LHC MAC 2002-03-15
  - consequences of delays on remaining works
• Update of the LHC installation schedule
• Conclusions
Point 1, sector 1·2, TI2 & Point 2
Civil engineering works at point 1
Civil engineering works at point I2

- Point I2 civil eng. works will end late this month
- General services over next 4 months (including the installation of the PMI2 crane)
- Setting up of the finishing facility from July’03
- Facility ready for lowering cryomagnets from December
Sector 2·3, point 3 & sector 3·4
Point 4, sector 4.5 & point 5

EST/ME & ST/HM
(CRYOMAGNET VEHICLE COMMISSIONING)
IN SECTOR 4-5

ST/EL
(GENERAL SERVICES)
IN SECTOR 4-5

ST/CV
(PIPE WORKS)
IN SECTOR 4-5

status line @ 2003-0
Cryomagnet transport vehicle tests
Civil engineering works at point 5

- RRs & UJs delayed (2 months)
  No consequence on the schedule
Point 6, sector 6.7 & point 7

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### Sector 7·8 & point 8

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<th>RR 73</th>
<th>R 74</th>
<th>UJ 76</th>
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#### Notes
- General Services in Sector 7·8
- Tunnel Floor Preparation in Sector 7·8
- ST/EL (Piping Works) in Sector 7·8
- ST/EL (Cable Pulling) in Sector 7·8
- ST/EL (Cable Pooling) in T18
- Painted Strip in T18

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Piping works in sector 7.8
TI8 & sector 8.1

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Transport vehicle for TI magnets (in TT40)
Progress status summary

- Piping work contractor resources have been focused on activities in sector 7·8, in order to cope with a handing over of this sector to the QRL contractor mid-June ’03.
- **Consequence**: piping works in sectors 2·3 and 8·1 have been delayed, as for the other sectors.
- In order to absorb these delays, the sequence of work of the sectors has been reviewed:

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Consequences

- Injection test of April ’06 is kept, but limited to T18 + sector 7·8
- Sector 1-2 (very close to PMI2) becomes the last sector to be installed
- QRL installation schedule is kept:
  - first QRL sector is to be installed from mid-June ’03
  - last QRL sector installation is still scheduled to be completed by end 2005
- Sequence of installation of insertion region equipment re-ordered
QRL commissioning

• L. Tavian presentation at LHC MAC 2002-03-15 on QRL installation mentioned that QRL commissioning would be cheaper if scheduled outside winter period (during which electricity cost is higher)

• This has been taken into account in the new schedule

• Consequence: QRL commissioning is expected to be completed by end of April ’04

• In order not to delay the installation of the first cryomagnets in sector 7·8, the feasibility of installing magnets while the QRL sector is being commissioned has been looked at, and estimated to be possible
Consequence

- First cryomagnets of sector 7·8 will be installed as of December ’03
- Last cryomagnets lowered in August ’06 (unchanged)
- Start of interconnection works in sector 7-8 put off to May ’04
- Completion of interconnection works in sector 1·2 scheduled for December ’06
- First injections in April ’07 (unchanged)

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Other changes

- Late deliveries of some civil engineering works have been *baselined*
  - delays absorbed by the rescheduling of general services in the LHC Main Ring
- General services activities TI2 & TI8 have been re-scheduled
  - injection test of TI8 put off to **September ’04**
- Some AT-ACR (cryogenics) activities have also been rescheduled: installation QUls)
  - no consequences on strategic milestones
Conclusions

• Several changes in the installation schedule since LHC MAC 2002-03-15:
  - sector installation re-ordered
  - QRL commissioning periods delayed
  - cryomagnet installation time span enlarged
  - TI8 installation (incl. tests) rescheduled

• But no consequence on strategic milestones and on the overall feasibility of the LHC installation