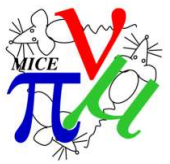
MICE Project
Progress and Planning

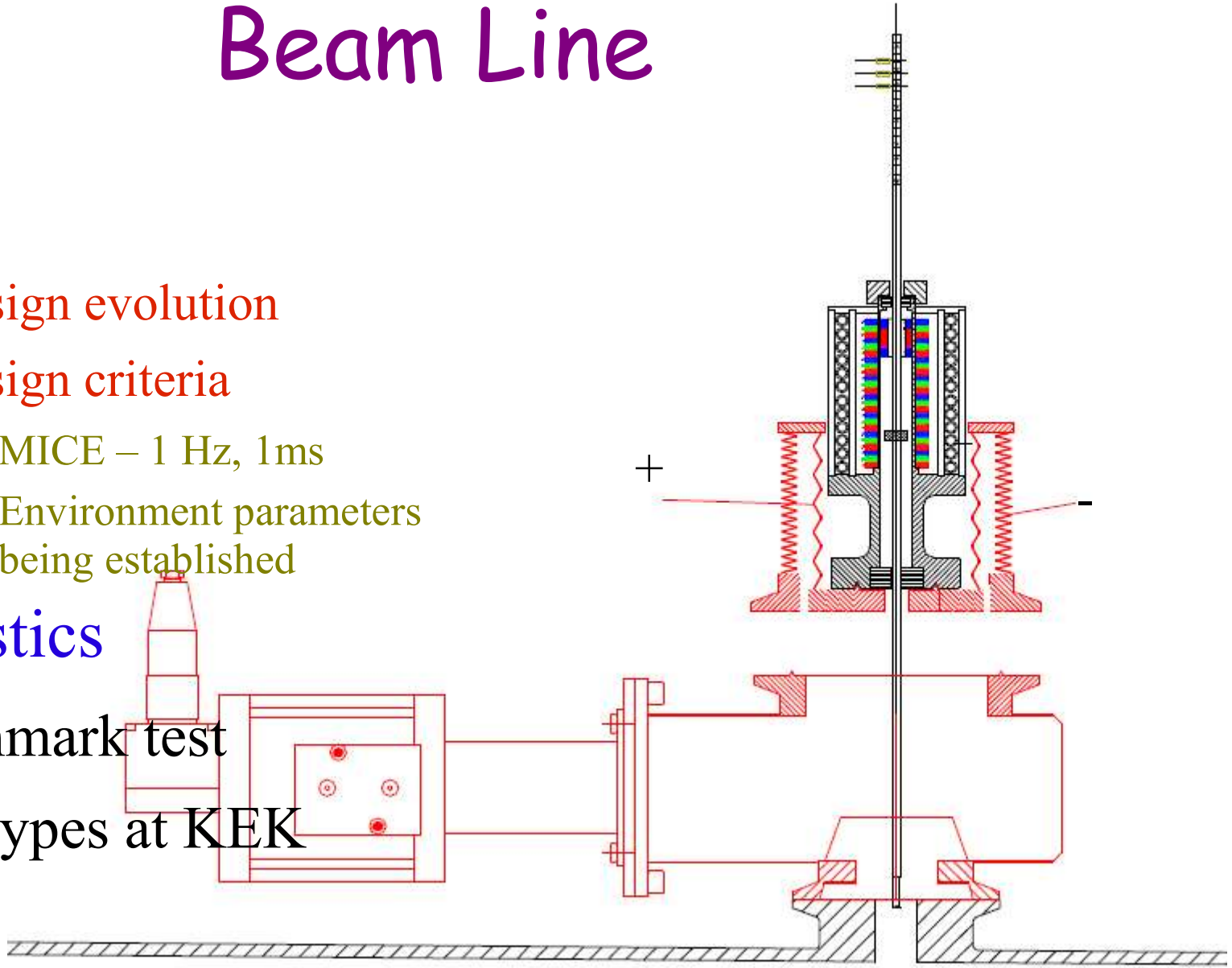


Finance & Funding Phase 1

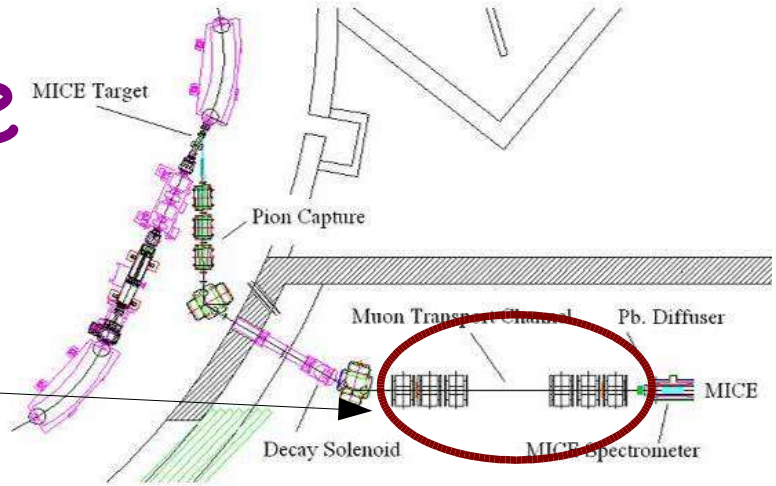
- UK position is now clear
  - Covers muon beam and tracker contribution
  - Hydrogen and Absorber R&D, RF R&D for phase 2
  - Deliver phase 1 ⇨ unlock phase 2
- Tracker
  - Solenoid – baseline plan...
    - US-MuCOOL/MICE funding plan
    - Timescale is compatible with phase 1 plans (just)
  - SciFi (US/JP/UK) - electronics is an outstanding issue
- PID
  - TOF / Cherenkov1 & 2 / EMCAL...
- DAQ discussions - Encourage detector & instr. workshop

Beam Line

- Target
  - Design evolution
  - Design criteria
    - MICE – 1 Hz, 1ms
    - Environment parameters being established
- Diagnostics
  - Benchmark test
  - Prototypes at KEK



Beam Line



- Optics
  - Being revised
- Power supplies
  - comparing with TS2 power supply procurement
- Mechanical: stands & vacuum chambers
  - Concentrated on target
  - Critical items needed in Synchrotron room
    - S7 – parts made
      - Trial build
      - Procure valve... (target group needs to decide)
    - Pion capture beam line and stands (2) prior to solenoid

Beam Line

- Controls
  - Propose VME/PC running Linux
  - EPICS based controls / graphical control ...

  } other options possible
- Services
  - Water – closed loop chillers
    - 100kW for solenoid
    - 100kW for beam line

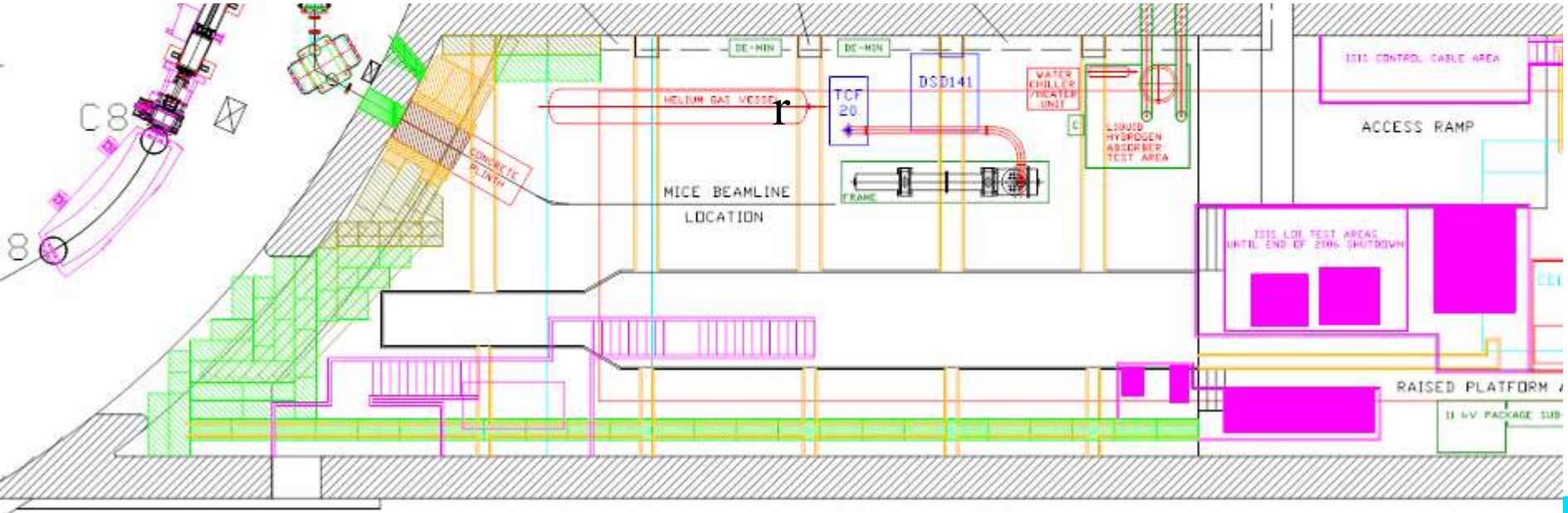
    } ⇨ air
    - 100 kW for RF (phase 2)
    - 100 kW for all other.... (phase 2)

    } ⇨ air & water
  - need to establish A/C capability

Decay Solenoid

Decay solenoid
- delivery due end summer 2005
- design of rail and stand
- basic tests in hall
  - vacuum, pipework; coils

Decay solenoid cryogenics
- delivery ~1 year
- order still to be signed*



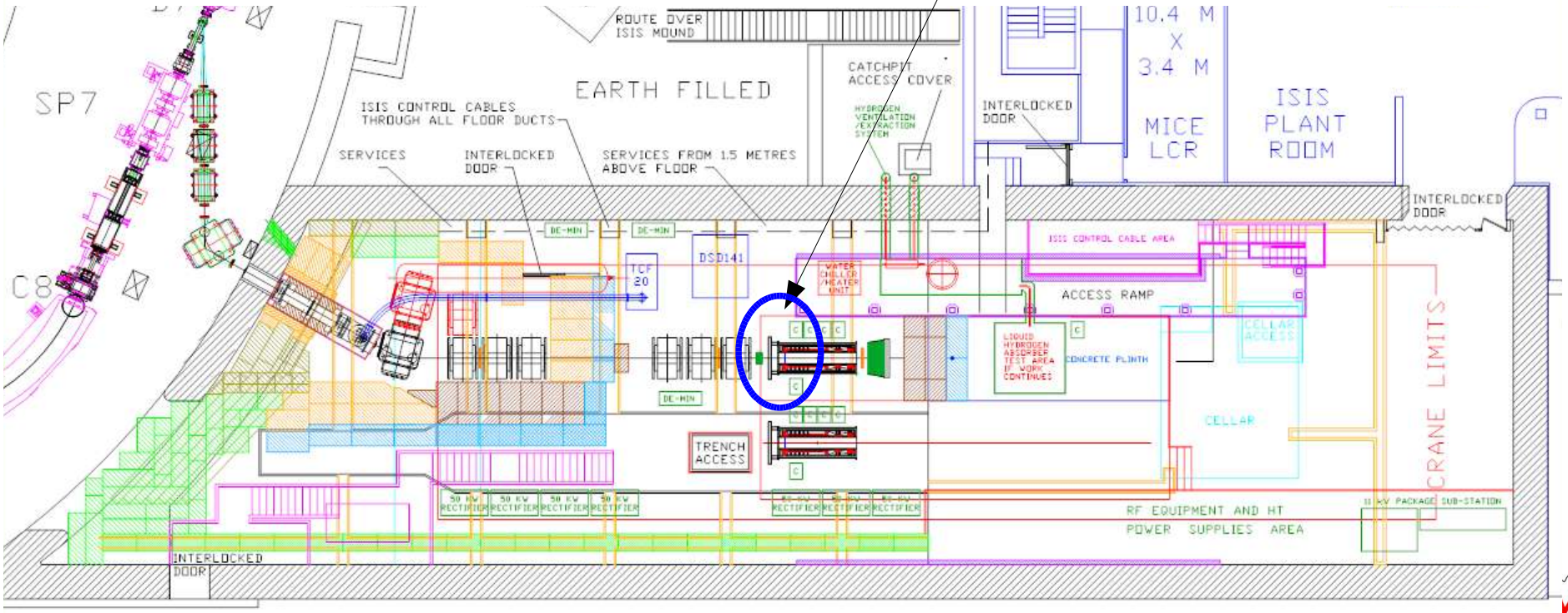
Spectrometers

- Tracker
  - On track
  - KEK tests september
- Solenoids
  - Assumed US supply (according to MuCool plan)

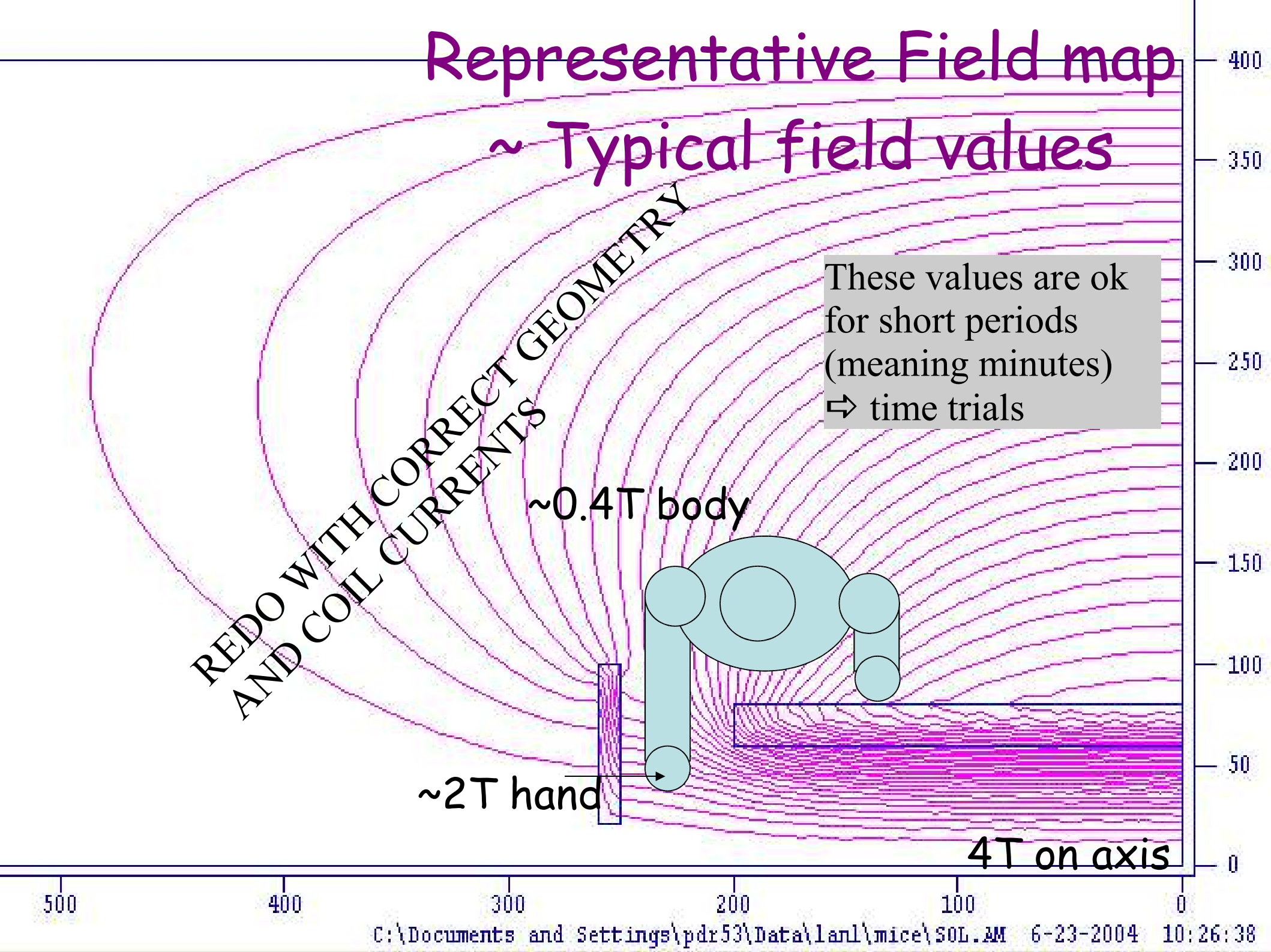
Layout

- Shielding
  - had initial discussions
  - resolution by end july

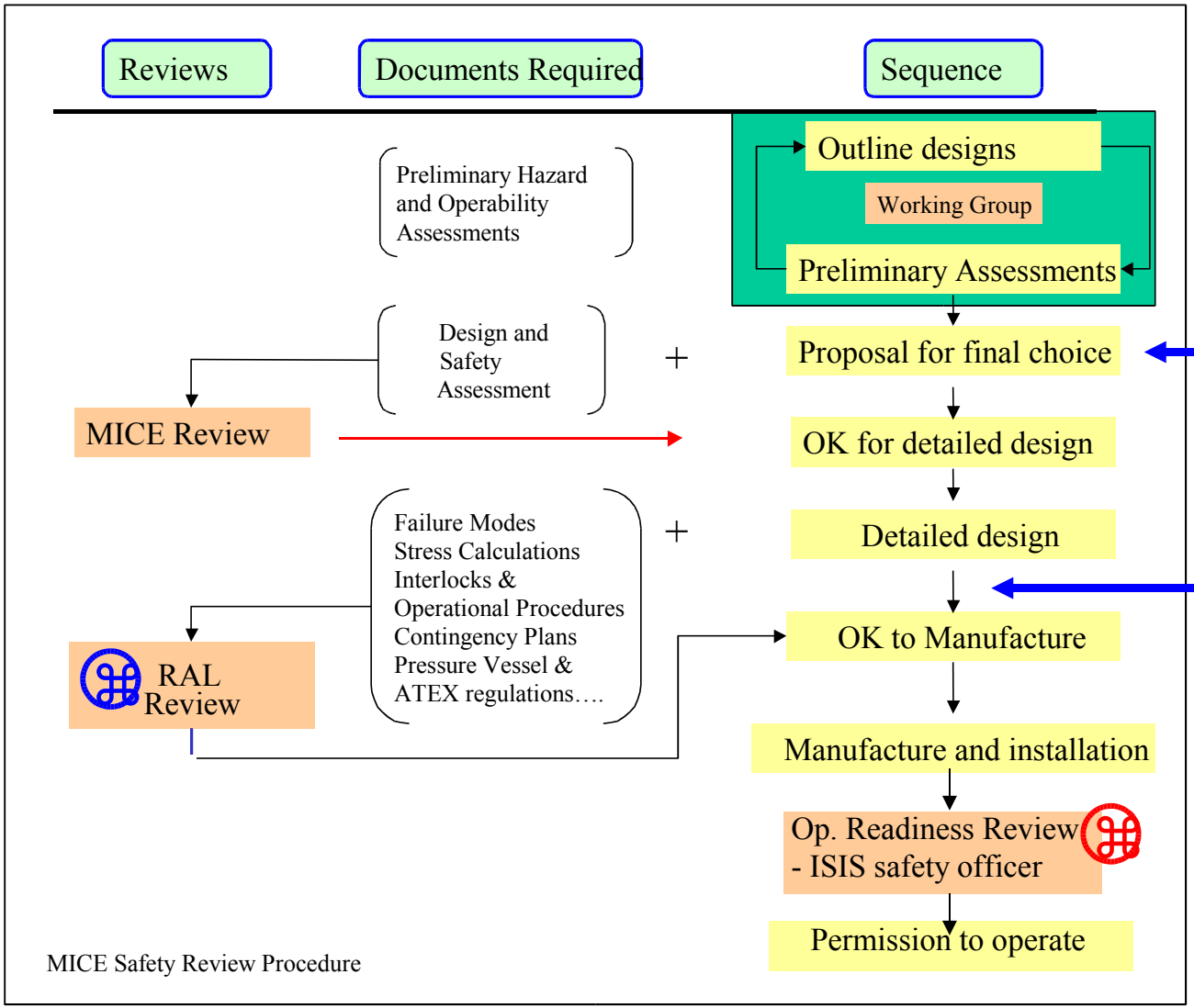
Access is an issue...
PID group...
space
magnetic fields



Representative Field map
~ Typical field values



Safety Review(s)



MICE is somewhere here!

Task List:
Target
Beam line
ToF Stations
Cherenkov Stations
Calorimeter
Spectrometers
⇨solenoid + tracker

Hall layout

R&D: Hydrogen & Absorber
R&D: RF@DL

Task time-line:

2005:

Introduce decay solenoid in hall - testing
Modifications to solenoid stand
Installation of a hydrogen test area in hall 5.2 & tests

Late 2005:

S7 swap
test target – few pulses at start-up 2007

2006:

Installation of cryo-system for decay solenoid

Shutdown 2006

install shielding
install stands etc in synchrotron

Late 2006:

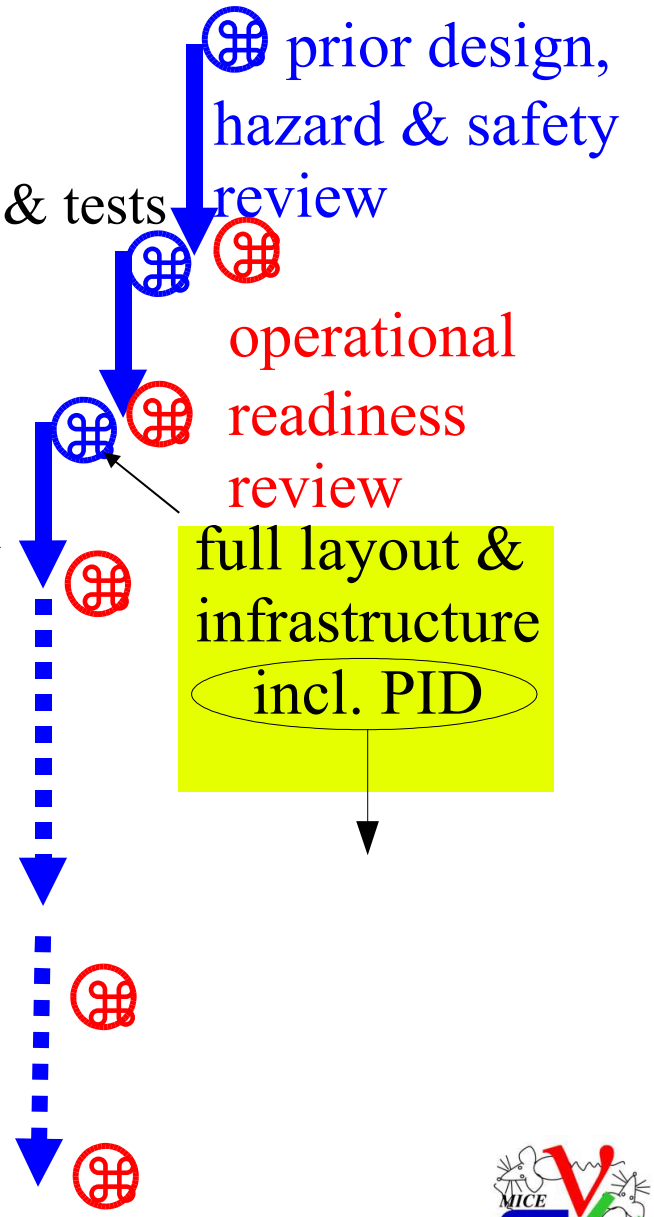
Rail system, beam line stands, b-l elements

Spring 2007:

install detectors
first beam

Late 2007:

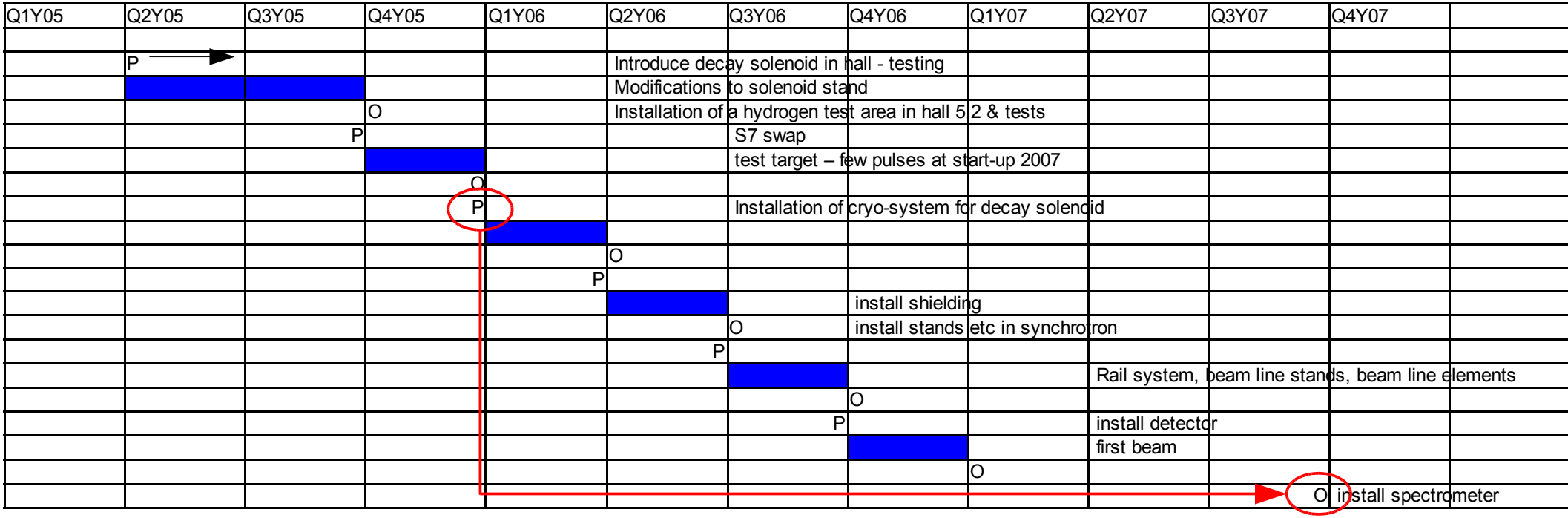
install spectrometer



Time scales

- Permissible to submit prior reviews at any time
  - Better to coordinate (groups of related things)
- Depending on scale of risk
  - reviews can be internal
    - ISIS engineer/safety group/RPA
      - e.g. Synchrotron target
      - MICE should review fit for purpose
      - ISIS will review *acceptability*
  - or reviews will be external
    - Hydrogen system – ISIS external-industrial -SNS ...
    - Three months notice
    - Bookmarked October for Hydrogen system

Jan '05



Already been caught out – because of time pressure

TOF phototubes,
Cryo for decay solenoid,
hydrogen system,

} - fast track specs past TB

- does not circumvent D&S reviews but minimises risk!

By the next CM (autumn)?

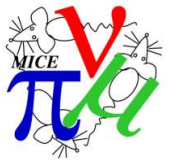
- What should we have achieved...
  - Taken delivery of & tested the decay solenoid
  - Ordered decay solenoid cryogenics
  - Installed S7
  - Be close to finalising prototype target
    - target can still be developed while MICE is running...
      - Subject to a minimum spec
  - Designed and ordered shielding
  - Start design of stands and vac chambers
  - Submitted design review for hydrogen
  - ...

...by the next CM ?

- What should we have achieved...
  - ToF progress...
  - Cherenkov progress...
  - Ecal progress...
  - Tracker progress...
    - tests completed at KEK
    - discussed VLPC electronics loan from DØ
    -
  -

...and phase 2?

- Cavities...
  - R&D in MuCool – funding dependent
- Coupling Coil...
  - funding dependent
- Absorber
  - R&D in phase 1
- Focus Coils
  - Design ok - subject to phase 2 bid[1]
- RF Power
  - R&D in phase 1 – still funding dependent[1] (phase 2)



and now for something completely different...