

# SLHC-PP WP6 status

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# What are our next goals

Due date (beginning of)	type	topic	status
November 2008	Milestone	Qualification of magnet components	Delay of 1 month
February 2009	Milestone	Basic magnet design	Conceptual design available
April 2009	Deliverable	Basic design of Triplet	Conceptual design report of the whole triplet being published

# Advancement status

- **Task 6.1** Design of advanced Nb-Ti superconducting quadrupole:
  - CERN conceptual design 1<sup>st</sup> iteration has been completed
  - STFC-CIEMAT: completed 1<sup>st</sup> iteration for the conceptual design of the correctors
  - CNRS: started working on the cryostat design from September
  - CEA: started working on the mechanical quadrupole analysis and model tooling from September
- **Task 6.2** Construction and testing of short models:
  - CERN: tooling design being completed
  - CEA: started tooling design
- **Task 6.3** Construction and testing of a full-scale prototype
  - Large tooling being installed

# Consequences of LHC incident in sector 3-4

Due the incident in sector 3-4 the CERN resources have been reallocated to the main LHC tasks

At the moment we have only 1 PhD student trying to keep things moving. The situation will get worse with possible stop of the installation of the tooling for long and short magnet. At least 6-8 months of delay to be expected. The re-organization taking place will not help.

# Delay status

- **Task 6.1**
  - **Delay of about 3-4 month**
    - LHC incident sector 3-4
    - Late fixation of new optic parameters
- **Task 6.2 and task 6.3:**
  - Delay of about 4-6 months respect to the planned schedule
    - Crisis of sector 3-4
    - Late fixation of optic parameter
    - Availability of CEA resources only from September

# Detailed situation I

- Qualification of magnet components:
  - SC cable: the LHC main dipole SC cable will be used, the limits imposed on the design have been derived and the cables that we will use have been selected from the available stock. **Done**
  - Chemical analyses of about 15 different type of components to identify dangerous elements prone to activation: **In progress**
  - Insulation: a full campaign to qualify a new insulation scheme is being run. This consists of
    - E-modulus measurement at R.T. of insulated and cured cable stacks. **Done**
    - E-modulus measurement at 77 K of insulated and cured cable stacks. **In progress**
    - Stress relaxation measurements of cable stacks: **tooling completed measurement to be started**
    - Dielectric measurement of stacks: **to be done**
    - Heat removal capacity from the stacks in function of applied pressure for different insulation type: **being completed**

## Detailed situation II

- Basic magnet design:
  - Low-beta quadrupoles: the conceptual design of the low- beta quadrupole has been done, it needs detail 3D magnetic design and mechanical design
  - Correctors: Concepts for the correctors design have been developed, but their translation in a real design needs the fixation of optics requirements
- Basic design of triplet:
  - The CDR as written (60-70 pages) can do the work. We would need to update the cryostat part if possible

# Manpower

institute	Man hours	Eq. man month	Projected	Agreed total
CEA	0	0	0	49 (16man-month/y)
CERN	2157	13.5	23	72 (24 man-month/y)
CIEMAT	740	4.5	8	30 (10 man-month/y)
CNRS	0	0	0	18 (6 man-month/y)
STFC	370	2.3	4	24 (8 man-month/y)
<b>total</b>	<b>3267</b>	<b>20.3</b>	<b>35</b>	<b>193 (64man-month/y)</b>

*New fellow will join the CERN group beginning of next year 100% on the WP6*