

# Collimator Design Meetings

## Minutes of the meeting 46 (22/10/2004)

**Present:** Aberle, Bertarelli, Calatroni, Decorvet, Hänni, Kadi, Losito, Mayer, Perret

**Minutes # 45:** No comments were given on previous minutes.

### REPORT ON LSS5 TEST OUTCOME AND RESULTS

1. Oliver reported on the preliminary results of the tests at LSS 5 (Functional tests), which were successfully concluded. Tests were carried out with a 270 GeV beam.
  - a. The control of the geometric position was correctly achieved with a very good resolution (10-20  $\mu\text{m}$ )
  - b. Very small gaps were obtained (down to 1 mm with limited intensity)
  - c. Particle beams were correctly intercepted (down to  $2.5 \sigma$ )
  - d. BLM signals were conform to what one could expect.
  - e. Some physical phenomena need more careful analysis. In particular, after a single collimator jaw intercepted the beam tail on one side, it was observed a particle repopulation of the beam batch with a distribution different from what expected.
  - f. Temperature sensors on jaws and water pipes seemed to react properly, though results must still be studied in detail

### REPORT ON COOLING CIRCUIT PRESSURE TEST

1. A pressure test of the cooling circuit was performed on the 21<sup>st</sup> of October at the presence of a Safety Commission delegate to check a cooling circuit equivalent to those installed in the TT40 collimator and gain a confidence margin on the possible pressure spike in the water during the robustness test. The circuit pipe was heat treated prior to the test with a plateau of 5 hours at  $\sim 800^\circ\text{C}$  to simulate the two brazing cycles. The pipe survived without neither leak nor permanent deformation a hydraulic pressure of 115 bar. The test was stopped because test set-up equipment reached its limit.

Since this test proved that a safety margin of more than 2 exists with respect to maximum expected pressure (<50 bar), project engineers recommended to perform the robustness test regularly with circulating water.

### AOB

1. Manfred reported on the water plug-in status. Some quick connections to be checked for the water plug-in were ordered. Unfortunately, as all water quick connections, these have polymeric seals which have to be radiation qualified. As an alternative, Manfred will also order some "classic" connections to be installed far from the most radioactive area; as a drawback, this system will be more complex to install and hindering for the handling.
2. Roger informed that all drawings of different collimator supports will not be ready by December 2004.
3. A decision is pending on collimator shielding. This might pose a problem to cabling.
4. Manfred reported on his visit to Tatsuno. His impression was positive and the company seems to have the capability and the will to produce C/C jaw in the quantity and quality required.

### ACTION LIST to be followed up:

Divisional request for motors MS	#31	Oliver, Fabrice, Stefano
Heat transfer – final report	#31	Sergio
"plug-in" position control unit	#32	Roger, Fabrice
Drilling holes after phase one – grooves in tunnel floor	#33	Oliver
Contact fingers – model for tests top and side	#34	Sergio, Roger

Play between motor spindle and jaw	#34	Roger
Non-symmetric heating of vacuum flanges	#34	Vasilis, Oliver, Miguel, Rathjen
"Remote control" collimator exchange	#35	Keith, Roger
Radiation issues – heat evacuation, air duct, space, shielding		Ralph
Electrical plug-in	#36	Oliver, Fabrice, Roger
Preparation of all raw-material list and order	#40	Oliver, Raymond
Detailed information on electrical plug-in and sensors ( <b>URGENT</b> )	#45	Fabrice, Roberto
Detailed information on water plug-in ( <b>URGENT</b> )	#45	Manfred
Presentation on jaw material ( <b>URGENT</b> )	#45	Alessandro