FETS Meeting: 12th November 2014

RAL, CR13, R68

Present: A. Letchford, J. Pozimski, P. Savage, M. Dudman, S. Lawrie, M. Aslaninejad, J. Back, S. Gibson, A. Kurup, M. Clarke-Gayther, D. Faircloth R. Edgecock, S. Alsari,

Apologies: P. Posocco, G. Boorman, S. Jolly, J. Taylor, K. Kruchinin, C. Plostinar, T. Davenne, A. Bosco

Circulation: FETS Webpage

Next meeting date: 17th December 2014 – RAL

Administration

OsC

1. A light touch review will be organised to look at the proposal for the extension. The contact for this Rachel
2. OsC report was due to be submitted on Thursday 12th November but has been extended until Monday 17th November. All documents should be sent to A. Letchford who will edit them.
3. The committee has asked for a tour of R8 on the day of the meeting.

Finances

1. Finances are currently within budget for this financial year which includes the re-bunching cavities.

FETS Schedule (S. Gibson)

1. S. Gibson gave a presentation showing overview of the schedule and milestones to summer 2016. The schedule is very tight and any slippage will have a large impact later on.
2. The requirements of the chopper have been detailed and look realistic.
3. The dipole design would benefit from a review, especially the magnetic and yoke design. It may be possible to ask the manufacturer to do this but will incur extra cost, which budget may not cover. A separate meeting, to discuss specifications and avoid the previous issues with the tender process, should be held.

Beam Diagnostics

BPM

1. The student at RHUL is looking at the system with a view to testing the BPM and the test rig has now been modified.
2. G. Boorman has requested the simulated results from A. Letchford and will compare this to the actual results before giving the group an update at the next FETS meeting.

ESS

1. It was discussed how FETS would / could contribute to the ESS. The ESS accelerator is well defined so any input would be minimal.
2. Contribution to beam diagnostics is possible as they require 15 BPM monitors and development / diagnostic work around the vacuum window which is yet to be defined.
3. It is thought that the ESS has assigned their BPM design to another group for political reasons.
4. A meeting scheduled for the 3rd December should be attended by a FETS member if possible.

Laser Diagnostic CERN (S. Gibson)

1. S. Gibson gave a presentation showing the simulations at 12 MeV compared to actual results. Initial findings are encouraging in size, position and angle of beam.
2. There is a possible issue with asymmetry which could be due to interpolation. There is also an arbitrary offset between beam and laser.
3. The next visit to CERN is planned at the end of November.
4. The results at CERN should be used by FETS to decide where we strip, either before or in the dipole. This will have a large effect on the dipole schedule / design / concept and the beam dump design / setup.
5. It may be possible to manufacture the dipole vessel with three ports and retain the option to measure before the dipole.

Laser Diagnostic Simulation (A. Kurup)

1. The MEBT simulations are currently being updated.
2. 3D field maps are being implemented into GPT with the aim of having the data available for the next FETS meeting.
3. The latest plots should be added to the OsC document.

MEBT

MQP

1. The quads are nearly complete. The first electrical tests are due in the next couple of weeks.

Chopper beam dump

1. C. Evans, C. Densham and T. Davenne will look at the design as a work package.
2. M. Aslaninejad and P. Savage will check the GPT data and modify the CAD model prior to handing over as part of this work package.
3. There is potential for a third beam dump.

Engineering (P. Savage)

1. The vacuum manifold and MEBT frames have been detailed. The next stage is to obtain quotes.
2. P. Savage will concentrate on the vessel design.

3. P. Savage informed the group of the quotes to manufacture the cavities. One quote of £100K and another of £62K have been received so far.

Chopper

1. M. C. Gayther has generated a task list which will be circulated. He will also indicate his thoughts on timescales. He has focussed on producing designs for both prototypes from conceptual design to partially finished engineering drawings. It is hoped from these drawings quotes will be obtained.
2. A meeting should be arranged to progress this work package.
3. M. C. Gayther has indicated that he will push back his intended leaving date to April 2015.

Ion Source and LEBT (S. Lawrie)

1. VESPA is now running at 100 mA (was 60 mA)
2. Initial source is showing good results.

Shielding / Infrastructure / RF (M. Dudman, A. Letchford, S. Alsari)

1. The shielding has been erected as far as possible before the removal of tangs is required. This will take place in the next couple of weeks.
2. The next build phase will be during the weeks starting 17th and 24th November.
3. A meeting with P. Wright will be scheduled to discuss the cable entry requirements. This information will be fed to ESSO. S. Murphy is the ESSO contact with M. Perkins liaising from the FETS group.
4. The placement of electrical cabinets should be thought of at this stage with provision for shielding, on the external walls, should it be required on completion of the survey.
5. D. Zakhar to progress the design of the roof for quotation purposes. It was decided to move the keystone to a more central position to make use of crane access to the beam line. A survey of the actual build will be compared against the design to ensure the roof sections will fit. The design must satisfy both P. Wright and ESSO in terms of shielding and cable requirements.
6. Once the labyrinth has been built the ion source cage will have to be modified to create a second exit route. M. Dudman will discuss the design of the ion source door with the ion source group.
7. The RF full power set up including waveguide, water cooling and dummy load leg assembly is complete. The flow heads need to be fitted and wired before testing can commence. A. Letchford and S. Alsari will arrange a suitable date for the tests.
8. The RF coupler position has been relocated to section three, port three, to enable entry through one complete roof section.

RFQ (P. Savage)

1. P. Savage and D. Wilsher have noticed errors in section two. At this stage the CMM machine is being recalibrated to eliminate that as the source.
2. It was discussed if the inspection process could be shortened by relying on inspection reports generated by the CMM machine at NAB.

3. P. Savage showed a 3D pdf to the group highlighting the area set aside for the electronics racks. It generated thought and discussion about what is required.

AOB

1. A. Letchford gave a presentation showing the RFQ tuning process. In quadrupole mode:
    - Simulations confirm manufactured part.
    - Tuners to be added to mode, frequency raised to 324 MHz to see if field tilt introduced by possible range of tuning / flattening.
    - Once confirmed, dipole mode will be investigated.

Actions:

1. G. Boorman to give BPM results at the next meeting.
2. A representative of FETS should attend the ESS meeting scheduled for the 3rd December.
3. A. Karup to implement the 3D field maps into GPT and present the data at the next FETS meeting.
4. A. Karup to add latest plots to the OsC document.
5. P. Savage to obtain quotes for the MEBT vacuum manifold.
6. M. C. Gaythe to generate and circulate task list and help organise a meeting to discuss the chopper work package.
7. M. Dudman to organise the ion source cage modifications.
8. M. Dudman to finish shielding build and organise the removal of the tangs.
9. M. Dudman and A. Hooper to organise the survey of the shielding layout.
10. D. Zakhar to progress the roof block design.
11. P. Savage to investigate errors in section two.