FETS Meeting:

RAL, R1, CR2 – 4th June 2014

Present: J. Pozimski, A. Letchford, P. Savage, M. Dudman, S. Lawrie, S. Alsari, M. Aslaninejad, J. Back, M. Clarke-Gayther, S. Gibson, A. Bosco

Apologies: P. Posocco, K. Kruchinin, A. Kurup, G. Boorman, S. Jolly, C. Plostinar, D. Faircloth, J. Taylor, R. Edgecock, C. Gabor

Circulation: FETS Webpage

Next meeting date: 2nd July 2014 – Warwick

Administration

1. Spending has not all been allocated to date but current spend predictions put FETS on budget. It was proposed to request an extension of FETS, therefore accurate spending will need to be known, along with any potential spend the extension will incur. A proposal should be submitted by September 2014.
2. It was thought that effort should be made to try and estimate the spending required for the chopper. An educated guess could be made with a contingency. It is still unclear who will build the chopper models. The minutes have been uploaded to the webpage. Initial problems uploading documents have now been resolved.
3. J. Pozimski informed the group that the Gantt chart file cannot be uploaded. M. Dudman was asked to see if it was possible to upload a PDF version.
4. The OsC meeting is next week and it was felt that FETS is in a good position. A proposal for at least a one year extension will be put forward at this meeting.
5. It was acknowledged that A. Letchford had sent an email to everyone outlining the procedure for radiation badges and access to R8. It is each individual's responsibility to ensure the system of work is followed.
6. A potential future of FETS could be the production of isotopes for medical applications. This could be externally funded by EPSRC, thereby filling the gap created by the closure of the Canadian designed reactor. The Proton Accelerator Alliance (PAA) should be used as a platform to discuss the issues. Without a future application of FETs it will be difficult for ISIS to commit financially. It was felt that Research and Development should be considered, not just using FET's purely as a user facility.
7. A. Letchford will be putting together a presentation for the OsC committee. It was requested people send him information on the work packages so that it may be included.

RFQ (P. Savage)

1. There has been a small delay in machining section two. The last major vane is to be completed in a few days. A meeting will be arranged at NAB with a view to inspection and an RF test.
2. It is likely that the frequency test will be completed before the simulated results.

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

1. The quote for the three extra blocks needed has not been received yet. Once received the order will be placed through Oracle.
2. An evaluation will take place to define if the FET's will have to be designated as a CDM area. At the very least, restricted access will be required during the shielding build.
3. A build date will be decided based on the delivery date of the blocks. A portable crane will need to be hired to reach the position of the north wall, which will be built first.
4. R8 will need to be cleared to enable the crane to be set up. This will also mean the repositioning of the electrical control cabinets.

RF (S. Alsari)

1. The amplifiers need to be tested to ensure they are delivering the outlined specification.
2. The ESS dummy load will need to be set up and connected to the amplifiers via the directional coupler.
3. The tests results are required for a paper being submitted to IPAC, therefore the suggested test dates are Friday 6th and / or Monday 9th June 2014.
4. Power supply for the final location of the RF power supplies will need to be arranged as there is currently no provision.

Ion Source and LEBT (S. Lawrie)

1. C. Gabor and D. Faircloth have been conducting tests and documenting results for J. Back. Getting beam on centre is proving difficult.
2. It is hard to predict beam position with all three solenoids on, so tests will be conducted powering up solenoid one, then two then three to align beam.

LEBT (J. Back)

1. J. Back gave a presentation showing the results of the emittance scans at 11A. The beam is not aligned vertically although it has good orientation. It is not proving easy to get the beam centred in both planes.
2. Transmission should improve when connected to the RFQ due to its positional location.
3. Results at 15A were not as good.
4. The current will be increased in solenoid three which will have the effect of rotating the beam. The maximum current is 245A which is restricted by the cables.
5. C. Gabor is performing tests, increasing the current in solenoid two.
6. It was noted that the results could be misleading using the optimum RMS ellipse.

MEBT

MQP (S. Lawrie)

1. The test schedule has been planned by the manufacturer. They have requested that an alignment nest be sent to them to enable the confirmation of the magnetic centre. A. Hooper will be asked to supply one.

Engineering (P. Savage)

Cavity

1. C. Evans, in the technology group, is progressing the cavity design. He is looking into:
    - The weld details due to the tight space created by dimensional restrictions.
    - Material choice and cost analysis due to welding / corrosion issues.
    - Establishing contact with another plating company to get another opinion for plating options. This will necessitate a deadline change from December 2014 to March 2015.
    - Assessing B. Drums cavity design to learn from the processes used.
    - Reviewing the cavity design in the next four to six weeks.

Dumps

1. There has not been any significant progress to report.
2. There is concern about the amount of interlocks that would be required to run different beam powers into dissimilar dump designs (cone or flat).

Vacuum Manifold

1. The vacuum manifold is close to being ready to send out for detailing by a contractor.

Chopper (M. C. Gaythe)

1. Close inspection of the N type high frequency feed through from K. J. Lesker has revealed they are not matched. There are other suppliers of similar fittings but increased costs per fitting mean quotes will be required.
2. It was noted that ISIS had incurred similar issues procuring fitting and had resolved it by manufacturing their own. This may be a cheaper option.
3. One off fittings from various suppliers could be purchased and tested in house.
4. The NC type fitting is an older design which has been superseded by the TNC. This could also be investigated as it may offer a solution.
5. An LMR co-axial cable will be used in conjunction with the feed through.
6. It was suggested to contact the company Allectra to see what they could offer.
7. The electrodes in the chopper two design are being scaled in order to fit into the available space.

Beam Diagnostics

BPM

1. The body of the BPM has been redesigned to incorporate positioning of two survey nests. They are currently in manufacture.

Laser Diagnostic CERN (A. Bosco)

1. The fibre and laser box has been repositioned on the beam line at CERN.
2. Damage has been seen on the fibre. It appears to have been caused by the peak power and not the average power as originally thought.
3. A fibre end cap, spliced to the input of the fibre offers a new connection option. It was recommended this be used in the FETS set up.
4. Efficiency was measured at 35A with no noticeable effects seen.
5. Testing will commence in the next week on the laser set up. Beam is expected in four weeks.
6. It was noted the loan agreement with CERN has expired, however testing would continue.

Laser Diagnostic RAL (A. Bosco)

1. No Update.

Diagnostic for RFQ commissioning

1. No Update.

AOB

1. There was a discussion to evaluate if a thermal camera would be a useful purchase to aid the commissioning of the chopper in its initial stages. It was stated that gamma radiation would destroy certain makes of cameras. M. C. Gaythe will look into the specifications of the cameras and other options available to ensure they are radiation hardened. A CCD camera would not be suitable.

Actions:

1. M. Dudman to look at uploading a PDF of Gantt chart.
2. Work package holders to send A. Letchford updates to include in his OsC presentation.
3. P. Savage to arrange the next meeting at NAB to discuss the RFQ progression.
4. M. Dudman and P. Savage to arrange set up and power supply to enable RF tests to be conducted.
5. S. Lawrie to arrange delivery of nest to magnet manufacturer.
6. M. C. Gaythe to look into feed through connector options.