CH/DOC/93/14

ANU Running

Responsibilities for March 1994

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Responsibilities for March 1994 Preparations

Duties agreed at the Charissa meeting on 17 November 1993, regarding preparations for the second period of ANU running (numbering as at the meeting):

1. **Lemo cables:** extra T–pieces, barrels, etc., and cables required. Also, Lemo to BNC converters. For cables, recommend 1.5m $\times$ 50, 2m $\times$ 20, 0.5m $\times$ 50, 0.25m $\times$ 50. BNC cables: recommend 1m $\times$ 20, 2m $\times$ 20. BRF,PHR

2. **BNC pulser:** one is needed, but cost ~£6K. York have ex-NSF unit that can be borrowed for ANU running periods. DLW

   Birmingham have one that can be fixed to be a spare. BRF

3. **Additional amplifiers and preamps:**

   There are 32 amplifiers in the prototype system; available for the next running period. WDMR,RAH

   There are 18 preamplifiers in the box delivered to DLW by WDMR for the new module. These can be put in a new mounting box if needed. To run 4 strip detectors, 32 preamp channels require to be made in York for March 1994. They should be produced in boxes of 16 or 32. DLW

4. **Spare IC's for preamps:** kit of spares for preamps to be prepared and sent. WDMR

5. **Strip detector distribution boxes:**

   To be redesigned using shielded ribbon cables and laying out with a new PCB. Merotec connectors were suggested. Offset resistors to be increased from 500Ω to 1KΩ, and IC resistors could be employed. NMC,MF

6. **Software to set and read ADC thresholds in CAMAC:**
   To be documented. SJAH

7. **Screwdrivers and small wrenches required:** purchase on arrival.

8. **Trigger interfaces:** power supply spares (IC's) required. $\boxed{\text{WDMR}}$

9. Considered together with 1.

10. **TSCA's and TAC's:** these had proved useful last time, when alternative position signal obtained by LE vs. Xover timing).

    When required, take from existing stocks at York (rather than purchase). $\boxed{\text{DLW}}$

    Another 2 TAC's and 3 TSCA's to come from Birmingham. $\boxed{\text{NMC}}$

11. **Earth isolation for cables:** the feedthrough flange was not properly isolated for the recent running, but the problem was now fixed.

12. **Spare disk drive:** needed for ANU as replacement for unservicable unit. Already ordered by SJAH.

13. **Possibility of writing two tapes simultaneously:** this was discussed. VP described a way in which control of tapes using X-windows and Eurogam tape-writing software could be used to do this. VP to liaise with SJAH. $\boxed{\text{VP}}$

14. deleted.

15. **Collimator shroud:** desirable to avoid focussing beam past the collimator.

    NMC suggested a tube design. WDMR suggested a simple shield.

    Collimation system for final running period to be documented, together with summary of guidelines for setting up the beamline. $\boxed{\text{MF}}$

16. **Exabyte tapes:** there are 20 left and more are needed. VP remarked that Exabyte or Sony QM tapes were the only ones acceptable. $\boxed{\text{BRF,PHR}}$

17. **Lecroy-type Multiplicity Boxes:**

    These units are no longer available commercially as NIM modules. WDMR reported that two more of these units were required. It was understood that J. Lisle at Manchester should have details of similar units made there, and it should be possible to obtain PCB artwork and arrange construction. $\boxed{\text{JSL}}$

18. **Data acquisition capacity:** the recent running with strip detectors had reached the limit of the present installation, viz. 80 adc's and 40 tdc's (three strip detectors with one interleaved).

    It was agreed that 32 extra adc channels, 16 tdc channels and a new trigger unit would be desirable, subject to the considerations below.

    Extra adc's could be purchased through Birmingham to reach the new target of 128 adc channels. The trigger panel at Birmingham could also be repaired.

    A small group was set up to investigate possible increase in the number of channels beyond 128, and should liaise with T. Davinson (Edinburgh). They should report to BRF. $\boxed{\text{SJAH,VP,RAH}}$

A modified system (increased channels) would require testing at the ANU in February 1994, prior to the next running period.

19. **Gas detector timing:**

    In recent running, 3 μs shaping had been used for gas energy signals.

    Timing last time was done with TFA/CFD T–d in to amplifier input, but Oxford preamps were designed for 1KΩ or similar, certainly not 100Ω. WDMR suggested that Oxford amplifiers would be suitable if the gain was increased, and would also provide a timing pick-off. This solution would have the advantage that it could be carried over to the new array. $\boxed{\text{WNC}}$

20. **Charissa account at the ANU:** needs topping up. The replacement disk (item 12, $2.6K) and transport costs for equipment were debited against this account. $\boxed{\text{BRF}}$

21. **Hybrid bodies:** more could be built. It was agreed to build two more, to allow testing at each institution. $\boxed{\text{NMC/WNC}}$

    The existing extra body should be vacuum tested. $\boxed{\text{NMC}}$

22. **Detector mounts:** NMC demonstrated, to popular acclaim, his new apparatus for positioning mounting blocks accurately to within 0.1 mm.

    For the next run, it must be checked that mounts are available for three hybrids or three strip detectors. $\boxed{\text{RPW}}$

23. **Vacsorb problems:** it was argued that the turnaround time on chamber access could be limited by vacsorb bakeout times, if two openings were required in one shift. There was also some concern over unreliable operation of one vacsorb unit. The installation of a turbopump from Birmingham on the line could be investigated. $\boxed{\text{RPW}}$

24. **Letting up detectors:** WNC pointed out that the present system was bound to lead to windows experiencing pressure differentials in the wrong direction, during letting-up. This was likely to lead to premature failure of windows and the system should be improved. $\boxed{\text{WNC}}$

25. **Fortran sorting code:** this had been used successfully for the strip detector running, but needed to be documented properly. $\boxed{\text{SJAH}}$

26. **Grid wires:** WNC reminded people that the loss of efficiency due to the grid wires was very significant, and that modifications to the design were desirable. WDMR pointed out that wires could be mounted horizontally to avoid distorting angular distribution measurements, which WNC warned were severely distorted.

    It was agreed that the tests originally planned for September 1993 were now a priority for the next beamtime.

27. **Scheduling of running periods:**
WNC indicated that experimenters should be given time to recover between runs, in addition to the changeover day, ideally. It also seemed sensible to extend the stays of students beyond the actual beam time in order to facilitate data copying, tidying up, collation of information etc., and to even out conflicting demands on their time during experiments.

It was agreed that this would be discussed in more detail when scheduling the next running period.

W.N. Catford 30 November 1993