Thursday 20 April 1995

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RLR.

Minutes of Meeting: Radiation Safety Committee, sub-committee.

Date: Thursday 20 April 1995

Present: L.Ahrens, I.H.Chiang, A.Etkin, K.Reece, W.Sims, A.Stillman

Subject(s): Integrating NMC's.

The use of integrating NMC units to control the maximum beam intensity of secondary and heavy ion beams has been reviewed and approved by the Radiation Safety Committee.

Three separate procedures were provided to this RSC sub-committee by A. Stillman and are listed below. Some changes were requested by the sub-committee and when these are completed, the final versions will replace the existing AGS OPM Procedures with a copy of each also to the RSC files.

1. **A Test Procedure for NMC Initialization**: used for the initial set-up of an NMC unit, [integrating electronics, photomultiplier tube, scintillator and filter].

1. Even though the calibration is done using a radioactive source, at the present time no correlation is implied between this integrated dose calibration and an "in-beam" dose for a given response of the NMC unit. It is important to demonstrate the linearity of the unit response and the slope of each range.
2. As referenced in "Preliminaries, item #7", the data obtained from Appendix B - "Initializing the Integrating Circuitry", must be kept with the NMC unit.
3. All relevant calibration data must be kept with the associated NMC unit.

2. **9.1.14 Procedure for Establishing NMC Response in a Beamline**: to be used with an NMC unit that has completed the initial calibration process.

1. Paragraph 5.4 will be modified to explain that the associated chart indicates the unit meter reading only.
2. Paragraph 5.6 will be modified as follows;

"5.6 Repeat steps 5.1 and 5.3 until a minimum of a factor of 2 times (and to a factor of 10 if possible) the operating limit stated on the associated beamline check-off list is reached, with a minimum of two intensity points per decade." [Reference to a factor of 100 will be omitted].

3. **4.29 Procedure for NMC Commissioning and Re-check**: used to document the NMC unit functions properly in a beamline. This entire procedure will be reviewed by I.H.Chiang and A.Stillman for content and the revision forwarded to this sub-committee.

1. Paragraph 5.1 will be modified to read, "Initial beamline set-up".
2. Paragraph 5.1.10 will be modified to read, "... just above full scale. Release the OP-TEST switch when completed."
3. Paragraphs 5.1.14 and 5.2.10 will be modified as follows;

   "5.1.14/5.2.10 THIS STEP DONE BY HEALTH PHYSICS AS PART OF BEAM COMMISSIONING (refer to AGS OPM 9.1.14). Hold down the Calibrate switch and adjust the Threshold Pot to the beam intensity, as specified by the beamline liaison physicist, with the beam ON."
4. Paragraph 5.2.4 will be modified to read, " ... switch to test position."
5. Paragraph 5.3 will be re-considered to possibly request that the voltage output of the unit be recorded "throughout the run" at the same beamline intensity; not a monthly re-check.

Other recommendations:

1. If any part of the Integrating NMC unit is replaced, the entire unit should be removed and be re-calibrated (bench tested) for a "few point" verification of the unit response.

2. Spare parts (tubes, filters, etc.) will be purchased for each unit and "bench tested" to define differences in calibration with the "in-place" unit.

3. An integrating NMC unit must be "field tested" and the response compared to that of the present NMC units. E900 in the C5 beamline will be operating for a brief test in May. The liaison physicist (H. Brown) has agreed to use one "old type" NMC unit and one Integrating NMC unit in this beamline during this test. The "in-place" calibration/response will be documented for both units at the beginning and the end of the run.

cc: RSC
RSC file.