Minutes of Meeting: Radiation Safety Committee.

Date: Thursday 18 April 1996


Subject: A1 beamline momentum = 18GeV/c positive secondaries.

A request has been made by the A1 User to increase their positive secondary beam momentum to ~ 18GeV/c. The A1 beamline begins with A2D1 bending 6 GeV/c beam left for the A2 experiment. Immediately following this magnet is A1D2 to provide the angle control for the A1 experiment (in this case, right bend of positive secondary beam). This secondary “front-end” has operated in this configuration for years but with A1 running negative beam.

Proposal:
1. Overbend A1D2 such that with A1D3/D4 set to 18GeV/c equivalent current, the AGS primary beam is dumped in the same location as before.
2. A1D3/D4 has a maximum current interlock at 105% of 18GeV/c equivalent current.
3. A1D2 has redundant “Rochester” units installed in the power supply that will interlock the beam if the power supply drops below ~ 95% of 18GeV/c equivalent current.
4. The A1 quads in the primary beam caves (A1Q1-6) remain LOTO.
5. The collimator upstream of A1D5 should be closed to minimum horizontal aperture.

Discussion and comments: This proposal should not permit the primary beam to be directed into the aperture between the A1 primary and A2 primary caves. However, a single pulse fault is a concern (were beam to be transported just as A1D2 was turning OFF). A survey of the area at 12.5GeV/c found ~ 30 mrem/hr outside the A1 secondary fenced area. What is not certain is whether this was due to the coherent 1 x 10^6 beam or ~ 1 x 10^6 scattered beam from this inter-cave aperture. A fault study must be done with the A1 and B2 downstream areas secured to check these levels.

The trajectory through the upstream A1 beamline is probably such that the limiting aperture will be A1P1 and will not permit the primary beam to be transported to the inter-cave aperture. Again, this must be verified by fault study.
**Recommendations:**

1. Install dual, redundant “Rochester” interlock devices on the A1D2 power supply; set to interlock at ~ 95% of 18GeV/c equivalent current.
2. Set the upper limit for A1D3/D4 to interlock at ~ 105% of 18GeV/c equivalent current.
3. Conduct a fault study (at as low intensity as possible) with:
   1. Collimator upstream of A1D5 closed to ~ 1mm horizontal opening.
   2. Sweep the A1 and B2 downstream areas and control access.
   3. In small steps, reduce A1D2 until the AGS primary beam is transported to the aperture between primary caves.
   4. Measure the radiation levels around the area.

**cc:**  RSC file.