


A.J. Stevens

Minutes of meeting: Radiation Safety Committee, sub-committee

Date: Friday, April 23, 1999

Present: L. Ahrens, D. Beavis, A. Etkin, S. Peggs, A. Stevens

Subj: Restricting Beam Loss Beneath Uncontrolled Areas in Commissioning Run

This meeting was a follow-up to the full RSC meeting on 04/21/99 and consisted primarily of a discussion of the issue of beam loss below uncontrolled areas of the collider berm during the commissioning run.

The Operational Safety Limit for the commissioning run is the loss beneath an uncontrolled area of the berm of the equivalent of 20 bunches of 5×10^8 Au ions at 10.4 GeV/u in an hour. Stevens estimates that this produces 1.15 mrem on the "typical" spot on top of the berm. The sub-committee is of the opinion that this number is small enough that one can design up to this loss without leaving any additional safety margin. On the other hand, it would not be prudent to design up to the legal limit of 5 mrem in an hour. The sub-committee therefore asks that procedure(s) be in place prior to commissioning that limit loss under an uncontrolled area to the equivalent of 20 Au bunches with 5×10^8 ions per bunch during the process of establishing closed orbits, instead of the 10 bunches previously mentioned, but does not believe that the process of trying to increase the OSL should be initiated.

It was noted that the simplest possible procedure would be an administrative limit such that the loss position is irrelevant. For example, an administrative limit of 30 single Au bunches per hour with an average intensity of less than 3.33×10^8 ions per bunch would automatically satisfy the OSL limit, without regard to loss position.

The expectation of those present at this meeting is that this simplest procedure would be overly restrictive, since many of the regions where difficulty in establishing closed orbits is expected correspond to regions of the berm which are controlled. In general, an optimal strategy would seem to involve periodic recording of loss points/patterns when the position of loss is known, and reverting to the simplest procedure when the loss position is not known. Two potential "tools" were mentioned that might aid in developing a specific procedure. L. Ahrens stated that software will be available which monitors AtR current transformers; even a crude calibration might be used to integrate injected beam in some amount of time, rather than counting pulses. D. Beavis suggested that setting up conditions which would force beam loss under a controlled area in the "next IR" might be useful for establishing a closed orbit sextant by sextant.

A. Stevens agreed to provide S. Peggs a "map" of controlled locations on the berm. S. Peggs is responsible for developing a specific written plan.

S. Peggs mentioned that more than one line of authority seems to exist in developing formal training procedures. The sub-committee believes that such a situation may well lead to confusion, but notes that RHIC project management is clarifying lines of responsibility in this regard.

Distribution:

- L. Ahrens
- D. Beavis
- A. Etkin
- S. Peggs
- A. Stevens

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