

## Radiation

## Safety

## Committee

Minutes of Radiation Safety Committee of August 23, 2000

### Polarized Proton Commissioning in RHIC

Present: D. Phillips, J.W. Glenn, I.-H. Chiang, A. Stevens, A. Etkin, N. Tsoupas, T. Roser, W. Mackay, R. Karol, W. VanAsselt, N. Williams and D. Beavis

**Motivation:** The meeting was called to consider new information on the maximum possible beam with polarized protons and discuss possible faults in the vicinity of Thompson road.

T. Roser (attachment 1) and J. Alessi (attachment 2) provided the committee with details about the maximum possible beam intensity (at present) from the polarized proton source.

Based on the present limitations of a microwave tube, a decrease in the pulse width from 600 micro-seconds to 300 microseconds, and a maximum transmission of 75% **the committee approved using the maximum possible beam for this year as  $7 \cdot 10^{11}$  protons per pulse**. This is a factor of 4.3 smaller than used in the previous meeting. The decrease in pulse width is controlled by code and the engineer allowed to change it will sign the check-off sheet that he will not change this limit for the polarized proton operations to RHIC. **(CK-atr-Polarized protons-2000)**

It is noted that the maximum beam accelerated to full energy in the AGS this year has been  $2 \cdot 10^{10}$  per pulse.

The potential levels over the RHIC Injection arcs for the fault intensities discussed in the previous minutes had several errors. The correct numbers are listed below assuming  $3 \cdot 10^{12}$  polarized protons per 3 second cycle (the DBA is based on a 2 second cycle with the high intensity proton source):

Fault	dose/cycle	dose/hour
DBA	39 mrem	70 rem/hr
1	0.07 mrem	84 mrem/hr
2	2.1 mrem	2.5 rem/hr
3	0.41 mrem	500 mrem/hr
4	11 mrem	14 rem/hr

Using the new upper limit of  $7 \cdot 10^{11}$  polarized protons per 3 second cycle the new fault levels are:

Fault	dose/cycle	dose/hour
DBA	39 mrem	70 rem/hr
1	0.07 mrem	84 mrem/hr
2	2.1 mrem	580 rem/hr
3	0.41 mrem	500 mrem/hr
4	2.5 mrem	3.3 rem/hr

It should be noted that the above dose rates assume 1200 AGS cycles per hour (faults 1-4). Routine operations are substantially below this number.

A concern exists that the present chipmunks are not adequate to eliminate the very unlikely chance of a full intensity fault. This may also be a concern for heavy ions operations. The committee will meet tomorrow to assess this concern. In addition, details for reducing the possible intensity excursions and the potential for beam faults will be discussed.

Issue date of July 14, 2000 meeting minutes was incorrect.

Attachments:

- 1) E-mail from T. Roser to D. Beavis, August 22, 2000
- 2) E-mail from J. Alessi to D. Beavis, August 22, 2000