

Radiation

Safety Minutes of Radiation Safety Committee of November 20, 2008

Committee

Subject: Proposed modifications to the U line and Thompson Road

Present: D. Beavis, R. Karol, K. Yip, L. Ahrens, P. Bergh, W. MacKay, K. Brown, J.W. Glenn, E. Lessard, and H. Kahnhauser

The committee reviewed proposals for changes to the protection of the thin section of the U line berm and for the section of Thompson Road that crosses over the RHIC injection arcs.

Thin Section of the U Line Shield

The committee reviewed the proposed changes¹ for the U/W beam line and endorsed most of the recommendations. The committee approved:

1. Removal of the five chipmunks. **(Ck-Fy2009-U-547)**
2. Placing a well defined beam termination in the U line spur where the UGE2 chipmunk is sensitive to beam hitting it. **(Ck-Fy2009-U-548)**
3. Introduce an alarm program that is sensitive to losses on the order of 30% or better of the operational beam for RHIC. **(Ck-Fy2009-U-549)**
4. Place several monitor TLDs along the beamline in the uncontrolled area. **(Ck-Fy2009-U-550)**

The committee would like to have data provided on the dose history of the UGE2 chipmunk and have an explicit dose estimated at the door for the labyrinth. Part of this would be the analysis of whether the chipmunk should have the interlock level lowered to 2.5 mrem/hr to reduce potential dose to the adjacent uncontrolled area. It was noted that the UGE2 chipmunk is more sensitivity to beam faults than the berm chipmunks, the removal of the berm chipmunks can proceed without the analysis completed. The committee wants to assure that the uncontrolled areas have a much protection and as little potential dose as possible. **(Ck-Fy2009-U-551)**

A fault study should be conducted if it can be performed with a minimum number of pulses to avoid soil activation for the beam line section upstream of WD1 to check the sensitivity of UGE2 to upstream scrapping. **(Ck-Fy2009-U-552)**

Chronic low dose rates should be considered relative to the policy that dose rates above 50 microrem per hour are typically posted as Controlled Areas as per BNL policy. The committee chair will contact RCD to see if this is an appropriate limit to apply to the areas under

consideration, as the committee chair believes it is not reasonable. If this policy is enforced for these areas and measurements indicate that a chronic dose rate of the order 50 microrem exists, then a Controlled Area buffer zone must be considered near the thin berm section. **(Ck-Fy2009-U-553)**

Any intended high intensity testing in the AGS will require review of the risk of beam extracted to the U line. **(Ck-Fy2009-AGS-554)**

A sub-committee can review the unresolved details of these changes when they are available.

Thompson Road over the RHIC Injection Arcs

The committee reviewed the options proposed² for changes of the protection of Thompson Road where it crosses over the RHIC injection arcs. The road being open to traffic during operations provides benefit for the operations support staff. However, this is a public road and there is concern of the consequences if any members of the public were to receive dose in this area. The committee would like to see more details before recommending action on the possible changes.

The committee would like to examine the dose histories for the chipmunks at Thompson Road. There is a strong desire that all four chipmunks remain in the area even if they are removed from the interlocks if the road remains open. They could provide real-time information on the potential dose that anyone could have received if they were on the road.

Should a monitor program be considered or the chipmunks fail a course of action needs to be considered such as close the road off and make it a Controlled Area until the problem is resolved.

The TLD monitor data from this area is typically of the order of 3-5 mrem/year. It is not clear what the background and sensitivity levels are. It is recommended that a few more monitor TLDs be placed over the arcs near Thompson Road. **(Ck-Fy2009-RHIC-555)**

It was also recommended that the chipmunks should be moved closer to the road to provide more protection/monitoring of the road area. **(Ck-Fy2009-RHIC-556)**

References

1. [D. Beavis memorandum, "Proposed Changes for the U/W line", Nov. 14, 2008.](#)
2. [D. Beavis memorandum, "Proposed Changes to the Radiation Protection of Thompson Road", Nov. 18, 2008.](#)

CC: RSC
Present
P. Ingrassia
R. Atkins
RSC Minutes file
RSC U line file
RSC RHIC file