

Memo

date: April 4, 2011

to: RSC

from: D. Beavis 

subject: FY11 9 GeV Injection of RHIC

Gold beam of 9 GeV per nucleon are planned to be provided to RHIC for several weeks of physics stores with 18 GeV collisions. This energy is marginally lower than the typical gold injection energy. This option was considered in the planning^{1,2,3} of the FY10 operations at low energy. The scope of this FY11 run clearly fits within the analysis conducted last year.

Monitoring during the low energy operations was conducted external to the AtR and RHIC shields using TLDs. The results⁴ are well below BNL and DOE limits. The TLD, TK363, with the highest reading is located inside a locked-fenced area over a collimator.

Removable soil samples were placed specifically for the low energy run to supplement the samples that have been placed for full energy operations in the accelerator tunnels. The results⁵ for the low energy run indicate that all areas are within the limits provided by the BNL SMBS Subject area on accelerators. The BNL limit for Na²² in the SBMS is 20 pico-Curies per liter of groundwater, however the limit was raised to 100 pico-Curies per liter for C-AD activities as allowed by the SBMS. Without this requested increase the FY10 run would have exceed the BNL limits. The losses in FY11 are expected to be lower than the losses in FY10 due to the increase in beam energy. It is therefore expected that soil activation will not be an issue for the proposed 9 GeV operations of several weeks.

It is recommended that the 9 GeV operations proceed without special conditions or monitoring.

References

1. T. Satogata, "[Low Energy AtR Beam Loss Experiences](#)", Sept. 1, 2009.
2. D. Beavis memos in [RSC file](#) and posted online for low energy operations.
3. RSC Minutes, [Sept. 30, 2009](#), [Oct. 14, 2009](#), [Jan. 20, 2010](#), and [Feb. 19, 2010](#).
4. P. Bergh, [New TLDs placed on berm](#), March 31, 2011
5. M. VanEssendelft, "[Soil Sample Results 2010](#)", April 4, 2011