

## Notes from MI/RR Meeting - 10 March 2003 by Bruce Brown Notes on 24 March 2003

### Shekhar Mishra -- Planning for the CKM Experiment

Shekhar reported that he had had a meeting in the morning with physicists from the CKM experiment. A couple of them joined us to discuss new demands on the Main Injector with a goal of exploring what we can know in time for a P5 (HEP Planning) Committee review on March 26. The experiment has Phase I approval from the Lab based on a request for 120 GeV slow spill from a debunched proton beam of  $5E12$ /second with 6 batches. With delays in LHC and NuMI schedules, there is interest in running CKM in alternative modes. For example, delivering their spill only every few MI cycles but with up to a six second flattop at 120 GeV on their cycle. What about kicking out some beam for NuMI while preserving beam for CKM slow spill. Some issues were discussed and questions assigned:

- Debunching -- Ioanis Korbanis -- To achieve an rf duty factor of 90% of that for a DC beam, can we achieve the required debunching with a manipulation similar to that for coalescing? How much time is required? What dp/p will result? How do we define this goal properly? [Have assumed 100 ms for planning so far.]
- Long Flattop -- Dave Capista and Craig Moore -- Can the magnets and power supplies (including correctors) support a six second flattop in the Main Injector? In the beamlines? Check with Peter Prieto about the QXR system.
- NuMI Kicker -- Alberto Marchionni -- The present design for the NuMI kicker has a very long fall time which makes it unsuitable for operation which leaves beam in the machine. What sort of new kicker can be considered and what modes of machine operation would it support. [It is not apparent that this option will get serious consideration.]
- Resonant Extraction -- Dave Johnson -- Can we control extraction rate such that a good macro duty factor can be achieved for a 6 second spill? What about losses and septa? Do we need septa only in the 500 sector or is the electrostatic septa in the 300 sector useful to reduce losses or to put them in a location where their impact can be reduced with shielding? What fraction of the beam will we expect to lose?
- Ground Water Activation -- Chandra Bhat -- Given the expected loss rate, what are the ground water activation issues for  $5E12$ /sec beam delivered to CKM? Does an electrostatic septum at 300 affect the answers?

### Recycler -- Dan Broemmelsiek

The RR22 transfer line BPM's have been timed in. Will try to do calibration of Schottke detectors vs. scrapers during the week. The new box to provide emittance monitor outputs continuously will be available next week. Vacuum in the worst areas near the flying wire boxes is still  $1E-8$  but getting better. Vacuum group is examining the removed flying wire components at E4R. Before they can have results they will have to fire the TSP's, turn off the turbo's, and turn on the ion pumps. Clearly there is some hydrocarbon involved. Expect and answer by end of the week. In order to protect the Shottke electronics, we will put an alarm on the 621 losses. [Losses had been bad because someone stepped on the beam pipe -- now fixed.] Shekhar asked for a tight limit -- choose 1 volt on the LM621.

### Other Discussions

Bill Foster provided a brief update on the MI Damping system upgrades. Brajesh Choudhary informed us that the response of the MI BPM review committee has been provided from Mike Martens. It was suggested that the Tevatron requirements be compiled so that compatible systems can be created. He also announced that the PO for the RR BPM electronics cards has reached the vendor.