

# Notes from MI/RR Meeting - 22 Jan 2003

## by Bruce Brown

### Notes on 27,28 Jan 2003

#### Shutdown Progress

This meeting was devoted to progress on shutdown activities. Since the details will be outdated no matter when it is written, the issues which will be covered will be selected somewhat arbitrarily with an attempt to include comments on some of the most important activities and with some bias to things which might be correct in my notes -- BCB.

The focus of RR32 Transfer Line vacuum work was the removal of a vacuum window (found to be 3 mil titanium) and installation of massive differential pumping to protect RR vacuum from the MI vacuum. Installation is complete and leak checking is under way. Magnets have been surveyed but the beam pipe survey remains.

The bake-out system improvements plan called for installation of poly bladders in all gradient magnets. They have been installed in almost all of the ring. However, the pumps to inflate them needed oil and were run for some period without it (apparently without permanent damage). The bake-out of I:LAM10 is underway and is expected to be complete tomorrow.

Instrumentation improvements and progress include:

- New Horizontal and Vertical Schottky detectors have been installed in the Recycler
- Horizontal and Vertical flying wires have been installed in the Recycler. Survey complete except for the vertical flying wire which should be complete this afternoon. Scintillation paddles for the flying wires are not yet available.
- Application programs for the flying wire can move the motor. The rest will not be complete upon startup. John Marriner is writing software for the Schottky program.
- A new pair of microchannel plates have been installed in the MI vertical IPM.
- There are new 0.5 mm multiwires in the A1 line. The dual-paddle multiwires for the P1 line are not yet available.

The work in the tunnel has caused many RR BPM cables to be left dangling and attention to getting them all correctly reconnected is important. One effort which has created this problem is modifications of the BPM amplifiers for some BPM channels.

The RR30 section vacuum work has proceeded. The region has been broken into 3 vacuum sections and leak check is complete on each. Expect to have all of 30 sector under vacuum tomorrow. At the request of the Electron Cooling group, a test solenoid with vacuum pipe inside has been installed so that RR beam goes through the solenoid. In the RR22 region, magnets 214A&B, 801A&B, 215A and 310B have been removed, vacuum pipe removed to permit removal of stainless steel vacuum bake-out heater material (lengths 6" and up) along with accompanying mylar tape. Bake-out is proceeding for 211-215 and part of the transfer line. Proper alignment may require additional vacuum pipe supports along part of the RR700 transfer line.

In the effort to remove ss heater tape previously resistant to removal, one surprise was discovered in that 617 magnet had broken ss heater tape which was not on previous lists. Additional vacuum work in the 600 sector has probably identified the source of some vacuum 600 l/s ion pump for RF cavities. There

have been some vacuum problems at the Tevatron end of the P1 line. Also in the 600 sector concerns exist about NuMI magnet and stand placement, particularly with regard to proximity to MI Magnet Buswork.

The MI Controls Front end has been replaced by three machines which split the CAMAC control loop. The new systems are up (started changeover January 16) and appear to work but there remain likely problems with pointers to get everything (especially save/restore) to work correctly. Database entries have been made for most of the devices which have been added this shutdown.

There have been many successful cable pulls. Some problems have been experienced with some heliax pulls.

We will secure the MI tunnel to permit beam to be extracted from the Booster and sent to the MiniBooNE target so that performance of the new MP02 magnet can be verified. We are nearly on schedule at this time, perhaps one day behind. In addition to the concerns about cabling of the BPM's, we will need to do some tunnel inspection to make sure we are ready for beam.

### **Announcements of Progress Made**

Brajesh Choudhary announced that the requirements document for Recycler BPM's has been accepted. The digitizer card quote came back at \$7500/card for up to 150 cards. The final operational event before the shutdown on January 12 began was to extract pbars from the Recycler, accelerate them in the Main Injector and transfer them to the Tevatron.

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