

Minutes, 2/28/05 Tevatron BPM Upgrade Meeting
Stephen Wolbers

This set of minutes, and all future minutes, are or will be deposited in the Beams Document Database as document number 792.

The agenda as announced consisted of:

- Diagnostic signals, non-uniformity, possible modifications.
- Performance of A3, B3, C3
- Plan for D3, E3, ...
- AOB

1. Diagnostic signals, non-uniformity, possible modifications.

- Vince, Ken and Bill reported on their efforts to produce more uniform 53 MHz diagnostic signals in the BPM electronics. Some measurements were shown (in Echotek units) of channel variations on single channels and across many channels. The channel-to-channel variation is within about 10% when an extra filter board is plugged into the crate. However, without this additional load the variation can be as high as 50%, even with the 26 MHz, 4 phase backplane signals and the changes to filter board firmware.

- The next steps are to consider changing the VME driver on the timing card and to add load to the backplane. This will be done soon and the project awaits a proposal for firmware and hardware changes that can produce more uniform (10% variations) of the diagnostic signal across the crate.

- We decided to hold all installation until this problem is better understood and a solution is known.

- Marv Olson and Bob Webber have discussed the modes of operation of the diagnostics. The system has a great deal of flexibility but a simple set of tests should be established that will give the project and the operators of this system the information they need to debug it.

2. Performance of A3, B3, C3

- Mike Martens: All the houses were rebooted Friday with new software that included survey offsets. A3 is running at 500 Hz, B3 and C3 at 100 Hz (closed orbit). All the BPMs passed diagnostics tests on

Saturday's store. The offsets were applied. Mike sent a note to Tevatron and operations describing the new BPMs.

- There is a change to the way the system reports first turn and closed orbit at injection compared to the old system. This may require a change to the software to get us through the period where we have a mix of old and new BPM hardware and software.

- Mike then showed some data comparing A3, B3 and C3 before and after the offsets were applied and also before and after C3 was installed with the new BPM electronics. C3 has shifts in position that look to be too large and badly behaved compared to the old system. Mike will continue to study this effect.

- Rob Kutschke: Rob has been looking at recent data. He sees outliers in the A3 data which looks like it is related to a phase problem or drift in the clock. Jim mentioned that the Graychip may not be resetting properly (a known problem) but he is not sure why this is so. Though the position errors are correlated with the 500 Hz closed orbit readout of A3 it is not known if it is caused by it.

- Rob also showed some nice data of turn by turn measurements showing clearly that some channels were not yet timed in, which turns out to be the case.

- Jim Steimel: Jim pointed out that C3 diagnostics front-end program was not working properly for him. Needs to be debugged.

- Jim now has all the IP addresses for all the BPM locations.

4. AOB.

- We will meet on Wednesday March 2 at 11:00.