

Notes from the 02/28/06 MI BPM Upgrade Meeting  
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These notes can be found in Beams docDB #1526.

Agenda as announced:

Project Announcements

All Experimenters Meeting Talk

Beam Instrumentation Workshop abstracts

Measurements in MI40 before shutdown

Rob, Peter, Bob, others.

Hardware status:

Combiner Board status, plan for final installation

Transition Board bids

Transition Board I/O status

Timing Board

Cables, crates, other.

Software status:

Front-end software

Online software

Validation

AOB

0. Project Announcements

- Bob and I have asked Rob Kutschke to give a talk at a future All Experimenters meeting. The current proposed date is April 3. Rob will report on the performance of the system and plans for installation, checkout and commissioning.

- Don't forget the Beams Instrumentation Workshop. Manfred is writing an abstract about the analog front-end of the MI BPM upgrade. The deadline for abstracts is March 15, 2006 and the workshop is May 1-4, 2006.

- House 44 was not switched back to the old system before the shutdown. There are a few things that we still want to understand about the system (see details below).

- The weekly MI BPM meeting on March 14 will be in the Cooler. Reminders will be sent out as we get closer to that date.

1. Discussion of shutdown activities.

- Peter mentioned that we should use the shutdown to make any necessary measurements that require access to the tunnel. This led to a discussion of what measurements would be useful and how we can organize

ourselves to make them. Also what our plan is or might be for hardware installation during the shutdown.

- At least two BPMs showed odd results in aperture scans. We discussed possible options for shutdown measurements leading to some understanding of the House 44 BPMs. These include injecting signals at some point (probably after the combiner boxes) and reading out close orbit measurements with no offsets applied. We would expect 0 as the reading and anything significantly different would lead to further investigation.

- There may be other useful shutdown measurements but it was agreed that we should understand house 44 first before planning on further measurements.

- There was a short discussion of when and where the BPM electronics can be installed during the shutdown. The plan was to install new while uninstalling old BPM systems. We will have Marv remind us of the physical layout in the 7 locations and how much can be done without removing old systems and any other options that we may want to pursue. We also would like to understand the BLM installation and commissioning schedule to be sure that we are not clashing with it.

- Rob showed plots from beams-doc-2177. The plots show various BPM measurements from pbar transfers that were made on Friday (partially at our request to study the BPM and to work on timing, gain, etc.).

- Rob's plots (there are many of them) show that the pbars are clearly seen in TBT and that some of the features of the sum and position are reasonable, as well as the frequency spectrum of the sum and difference signals. There are many unexplained features that do require further study. One is possible kicker noise. Another is strange dips in the sum signal. Another is a slow oscillation. Another is 22 KHz "noise".

- Rob also showed phase information that did not show any position dependence on phase, which is good. There is some question of whether the exact behavior seen was as expected but it seems there is no significant issue at this time.

## 2. Hardware status:

- Combiner Board status, plan for final installation

- Transition Board bids

- Transition Board I/O status

- Timing Board

- Cables, crates, other.

- The transition board bids are in. There has been some illness in the procurement department and that has slowed up the final award. Bakul and Bob Forster will be working on this.

- Manfred asked that the filters be added to the board at Fermilab (he will provide the labor). The assembly instructions will be changed accordingly.

- The VME backplanes should be ordered. Bakul and Bob F. will get that done.

- Stefano showed a status update. Work continues on firmware and the design of the improved board. Some purchases will be necessary to assemble the improved system.

### 3. AOB

- There was some discussion about resolution, what we now, where it is documented. Rob's note beams-doc-2157 has detailed information about closed orbit resolution. In the vertical BPMs the resolution looks to be about 2-3 microns, in the horizontal up to 12 microns. The larger horizontal resolution is likely due to beam motion.

- Combiner box installation will continue as soon as feasible with the goal of completing all installations soon. Some will wait for new quad installation.

- Dave would like to see BPM 127 investigated further. He needs to know where a problem might be (BPM pickups, cables out, other) so that he can plan what action to take during the shutdown.

### 4. Software status:

- Front-end software

- Online software

- The 500 Hz closed orbit is working now. Some changes had to be made in how the data was read out of the Echoteks to reduce the overhead.

- Bob mentioned that he would like to see house 44 kept as it is for now and probably throughout the shutdown. There may be some minor changes needed for various studies and tests.

- We had a very short discussion about possible work that can be done to prepare for the installation of the systems after the shutdown (ACNET devices, mappings, IP addresses for front-ends, etc.).