

# DSG Meeting Minutes – Tuesday, November 11, 2014

## Antonioli, Mary Ann:

### Hall B

- Analyzed LTCC Winston cone reflectivity test data (18 plastic and 14 large cones).
- Laid out text and graphics of SVT cable document in Adobe InDesign.
  - Began editing the document.
- Drew Hall B Tracking Detectors Safety System power supply wiring in Visio.
- Researched and ordered ferrules for Safety System wiring.

## Arslan, Sahin:

### Hall B

- Assisted with SVT module production at FNAL. Final report is attached.

## Bonneau, Peter:

### Hall B

- Reviewed with Dave the instrumentation being monitored with the Hall B Tracking Detectors' Safety System.
  - This is the backup to protect the detectors if the main control system fails or if network communication is lost.
  - The Safety System monitors cooling system, detector environment, leak detection, and gas flow.
- Retested, on the logic analyzer test station, an HFCB which failed the differential line test at FNAL.
  - The HFCB passed 1000 loops of the register/differential line test without error.
  - The board was returned to FNAL for module construction.
- Developing a logic analyzer test program to troubleshoot multiple modules with intermittent register test/differential line errors.
  - Part of the code will reside on the Linux DAQ controller, which will allow repeating user defined patterns on only the intermittently failing bits, rather than on the whole sequence of bits. The logic analyzer will have a programmed triggering sequence to capture the error.

### DSG

- Requested and made available a 20 GB directory on the shared “M” drive for DSG slow controls.
  - Created subdirectories for slow control systems for Halls B and D.
  - Provided production (currently in-use code on detectors) and development areas.

## Butler, Dave:

### Hall B

- Began writing drivers for MKS 647C gas controller for Tracking Detector Safety Systems' PAC-based Slow Controls System.
- Discussed with Peter Bonneau the SVT interlock to be implemented in the PAC system.

### **Hall D**

- Mounted a Compact Logix and Point IO PLC development system in the counting house to be used for software development for slow controls additions or improvements.
- Reviewed and signed off on revision A of FDC/CDC Gas System Oxygen Purge Procedure D000001002 P001.
  - Added references, changed order of purge in gas shed, updated Table 1.
- Proposed a safer interlock scheme to Lubmir Pentchev and Tim Whitlatch for an FDC differential pressure (DP) alarm that includes adding four additional solenoid valves to stop flow to an individual FDC package in case of DP alarm, PLC failure, network outage, NBX module failure, or flow meter failure.
  - Brian Eng provided input for possible valve placement for the interlocks.

### **Eng, Brian:**

#### **Hall B**

- Debugging lack of hits when using svt2 controller.
  - Initial results showed that no trigger was being sent to the VSCM.
  - Determined VXS crate was missing signal distribution card; now FSSR2 data is being acquired in EVIO file format.
- Took cosmic run over weekend, but power outage on Sunday cut the run short. Have since switched from module P32 to module P8 to compare module data.

#### **Hall D**

- Made PPT slides of overview of FDC PLC code.

### **Jacobs, George:**

#### **Hall B**

- QC-ed super conductor at AES in Allentown, PA, 2-8 Nov 2014.
  - Torus coil T10, and for the Solenoid – the last coil, remains to be done.
- Discussed MicroMegas gas system requirements with Stephan Aune.
- Discussed drift chamber cable routing with Paul Hanson.
- QC-ed CLAS12 R1 DC HV board soldering modifications.
- Meeting on Fire Safety and Pressure System requirements for the MicroMegas gas system with Stephan Aune, Franck Sabatie, Mac Mestayer, Brian Eng, Bert Manzlak, Dave Kausch, and Scott Conley (ESH&Q).

### **Leffel, Mindy:**

#### **Hall B**

- Finished prepping the last 10 slow controls patch panel, D-Sub cables for termination.
  - Trimmed cable jackets and insulation on contacts.
- Prepared all temperature sensors to be glued onto the slow controls patch panel HTSBs.
  - Filed excess epoxy from the cable.
- Started cutting cables for the humidity sensors to be soldered to HTSBs.
- Wrapped, labeled, and packaged 21 LTCC Winston Cones (nine plastic and twelve large).

## **Mann, Tina:**

### **Hall B**

- Aligned laser beam through pin holes.
- Performed calibration and mirror test for the week.
- Tested 19 large LTCC Winston cones (total tested 22 out of 72).

## **McMullen, Marc:**

### **Hall B**

- Completed preliminary drawing of the SVT insertion cart on space frame level 1 with measurements from the off-cart rack locations to the cart.

### **Hall D**

- Attended daily beam readiness meeting.
  - Hall D is currently performing commissioning for the detector electronics and providing accelerator division feedback on beam tuning/positioning.
  - Tracking detectors status: FDC – Got tracks (F1TDC needed tuning), CDC – Got tracks.

## **Sitnikov, Anatoly:**

### **Hall B**

- Cut and polished 92 light fibers for the laser calibration system.

## **Teachey, Robert Werth:**

### **Hall D**

- Installed barometric pressure sensor in Hall D at the FDC/CDC HV Reset PLC.
- Coded and tested the FDC/CDC HV Reset PLC with the barometric pressure sensor readback.

### **DSG**

- Checked new PC operation for the DSG Monitoring System.

## **SVT module production and status of modules**

First of all, I want to thank DSG for the opportunity and the new experience of working on SVT modules. I have learned how modules are built, stages they go through from backing structure to HFCB, before becoming a module.

During my shift I worked on 12 modules; 11 of them were completed and one needs debugging.

Completed modules are: P52, P62, P63, P64, P65, P66, P67, P68, P70, P71, P72.

Module P69 not completed, shipped to JLab; needs debugging.

Issues with the module: U3, U4 failed register tests and temperature readback (top temp. 1154.4° C).

I tried different slots in the burn-in test stand and the same problem was seen in any slots that I tried.

FNAL technician inspected wire bond issues of U4 and U3 chips, bottom and top sensors, and also the tape inside the box. U4 had debris and imperfection of wire bonds, as well as scratches on the Intermediate sensor. I have many pictures of these issues taken under a microscope. U3 did not have any noticeable issues, but still failed the register test.

Two modules P40 and P45 were built partially when I got there. They have been shipped to JLab for debugging.

There will be two separate shipments of production modules. The first shipment will contain: all empty boxes, (except 2 metal boxes), all broken cables (LV, HV, Slow control), the spy/breakout board with its cable, and modules p40, p45, p69 (in the metal boxes), p63, p64, p65, p66, p67 (in the plastic boxes).

The second shipment will contain the rest of the modules.

During my shift, SVT module production stopped from Oct. 22- Oct. 29 due to funding issues. I notified Latifa Elouadrhiri of the issue by email and phone. During this time, I monitored the modules that were in burn-in stage, inventoried the modules, replaced damaged LV, HV, Slow Control cables, and checked every day with Rick Ford about the funding status.