Detector Support Group
Weekly Report, 2016-07-27

Ongoing Projects

Hall B

SVT
- OSP approved.
- Instrumentation rack expected to arrive 07/29/16.
- Request for Sahin Arslan's help with replacing modules approved for September, 2016.

RICH
- DAq and electronics rack space requirement: 32 U (1U =1.75") and 17 U (for second HV crate and distribution box)
- Assembly structure being tested, expected arrival date end of October 2016.
- Walt Akers working on workflow plan, layout provided by Saptarshi Mandal.

Forward Tagger
- Discussed with Marco Battaglieri slow controls components needed for the interlock system, including for N_2 gas flow.
    - ✶ Tracker gas will be monitored and controlled by Saclay.
- LV trips being investigated.

HDIce
- OSP being generated by Xiangdong.
- Attenuator test program complete.
- Oxford's Mercury Intelligent Power Supply tested for *Set* and *Readback* precision.

Gas System
- Preparing for potential ERR in October.
- Gas safety system old but works.
- Gases to be ordered in October, 2016.

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Antonioli, Mary Ann
- More debugging of **HDice** test of attenuator B in RF Attenuation / Switching Unit.
  - ★ Test completed.
- Imported into InDesign, formatted, and began editing Pablo's **Note** on Mercury iPS test.

Arslan, Sahin
- Incorporating CMM measurements of mirror C5 of **RICH** and Ideal model in AutoCAD.
- Replaced **SVT** N_2 gas bottle and provided extra bottle.
- Helped move **DC** R1 from clean room and transferred gas bottles to gas cage.
- Replaced Ar and N_2 gas bottles for **Forward Tagger**.
- Inventoried gas bottles in gas cage.

Bonneau, Peter
- Investigating coolant flow meters with Amanda for **Forward Tagger** chiller.

HDice
- Debugged and tested NMR program code associated with calculated field data from Oxford power supply.
  - ★ Field value incorrectly displayed for certain combinations of power supply span settings.
- Writing documentation on DSG work requests status for upcoming review.
- Working with MaryAnn on LabVIEW code to be used initially for hardware testing of the RF Attenuation / Switching Unit.
  - ★ Device drivers that have been developed will be used in the re-write of NMR program.
- Working with Pablo on revision of Rotation of Target Polarization program.
  - ★ Reading equipment status using SCPI commands was investigated.
- Working with Mindy on development of National Instruments **cRio test stations**.

Campero, Pablo

HDice
- Comparing and re-writing some drivers of Mercury-iPS power supply to have same functions as Oxford iPS-120 power supply.
- Discussed with Peter implementation of Mercury iPS drivers in Rotation of Target Polarization program, using SCPI commands.
  - ★ Sent email to Oxford Support concerning missing status commands when using SCPI.

RICH
- Worked on mirror 5C measurements in AutoCAD 2015.
- Guided Sahin; showed him procedure to overlap CMM measurement data points with ideal model and project all CMM points for mirror surface onto planes generated on ideal model.

- Discussed with Amrit procedure and steps to analyze measurements in AutoCAD and generate table with coordinates for each point projected, and make best fit line using Python 3.5.

Eng, Brian

- Got administrator privileges on Windows computer in **Gas** Shed. Finished installing LabVIEW 2015, but still needs upgrades to NI software.
- Helped move **DC** R1 and redo some strain reliefs.

SVT

- OSP has been submitted, but not fully signed.
- Swapped failing UPS in EEL/124 with replacement unit.
- Rebooted cRIO for N_2 purge because failing to respond to pings, though for some reason MFC continued to flow.
- Had Wesley create team on GitHub for Hall D **PLC code**. Put four projects on GitHub so far: Solenoid, BCAL, Gas System, FCAL Dark Room.
- Contacted NBX vendor about reverting to old firmware after upgrading; confirmed it is possible, but not recommended.

Hoebel, Amanda

- Created Python program to draw planes along best-fit equations of **RICH** 5C mirror sides.
  - ✶ Best-fit lines fall on planes with average standard deviation ~0.18[mm].
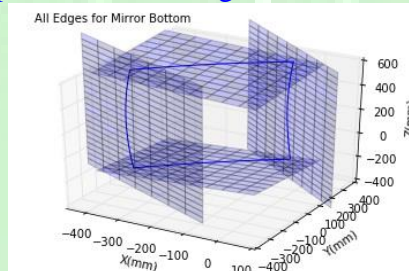
Planes fitted to best-fit lines for mirror 5C.

Forward Tagger

- Started LED and cosmic runs.
- Created parts list for interlocks.

Jacobs, George

- Updated **RICH** spreadsheet with PR numbers and costs

DC

- Decommissioned test stand in EEL rm. 125.
- Assembled HV and wire test cart and delivered to Hall B.
- Discussions with Mac procedure for finding swapped cables on detectors once they are hooked up.

3

- Discussions about transporting detectors from current locations to Hall B.
- Created DCGAS-Pressure-Safety-Interlocks diagram.
- Completed first draft of DCGAS Operators Manual.

Leffel, Mindy

- Photographed **HDice** RF switching / attenuation unit and the RF cables for review.
- National Instruments **cRIO test station**.
  - Tested and attached back-shells to five short D-sub cables.
  - Modified four longer D-sub cables, and stripped and tinned all 296 contacts.
  - Cut additional DIN rails for both test stations.
  - Attached ground wires to each station.

Lemon, Tyler

- Analyzed and plotted **RICH** mirror dimensions in Python.
  - Fit plane to Mirror C5 CMM data.
    - Debugging code fitting.
  - Projected CMM data onto plane.
  - Calculated regression lines for sides using projected points.
  - Found intersections of regression lines that represent corners of mirror.
  - Measured length of sides and diagonal for mirror.
- MPOD Test Station.
  - Completed LabVIEW SNMP communication driver library (25 VIs).
  - Began writing VI to test MPOD voltage output setting and accuracy.

McMullen, Marc

Gas System

- DC Gas
  - Writing gas controls procedures.
  - Researching gas safety system chassis.
    - Collected chassis schematics and photographs of 6 GeV chassis and added to a directory.
- RICH
  - Completed mechanical drawing of gas controls chassis to be sent to vendor for fabrication.
  - All components shown as ordered by procurement, except gas controls chassis.
- Completed walkthrough of building to evaluate test stands. Information will be forwarded to EHS department for possible safety observations. Test stands evaluated:
  - Target Group – Small Volume pressure test (PIG)
  - Forward Tagger – Detector test stand
  - HDIce NMR Polarization Flip in DSG control room
  - PMT test stand in EEL 122
  - FADC test stand in Fast Electronics

4