# Detector Support Group
**Weekly Report, 2018-09-12**

# Summary

## Hall C

- Swapping of modules to upgrade the HMS PLC controls to version 20 in progress.
  - Table below shows details for the modules that will be swapped.

| Quantity | Current module | Module to be Replaced |
|---|---|---|
| 2 | 1757- SRM Redundancy | 1756-RM2 Redundancy |
| 2 | 1756-CNB Controlnet | 1756-CN2 Controlnet |
| 2 | 1756- ENBT Ethernet | 1756-EN2T Ethernet |

  - Assigned new host names for HMS PLCs.
    - HMS-PLC1 and HMS-PLC2.
  - Waiting for 1756-RC1 fiber-optic cable, which connects primary redundant module to secondary redundant module, to be ordered.

## Hall B Magnets

- FastDAQ plots generated by Excel compared to tordaqGUI Analyzer.
  - The plots created in Excel and Analyzer did not match.
  - Discrepancy caused by duplicated timestamps in FastDAQ data causing data to be stitched together incorrectly on Analyzer.
    - In Excel, only VT1-DAQ timestamp which was used to plot data was automatically shifted, compensating for duplicated timestamps.
  - New "-D" option is used in Analyzer to correct duplicated timestamps on plots.
- Performed four fast dumps of magnet at 100 A to test timestamping of FastDAQ and PLC SOE modules.
  - 100 A chosen as dump current to limit cryogenic consequences.
- Replaced both QD units in use with two spare, modified QD units.
  - Faulty QD units thought to be cause of fast dumps when cause was not seen in FastDAQ data.
  - Modified QD boards had 12-turn trim pots replaced with 24-turn trim pots to limit change if pots drift over time.
  - Tuned all QD channels after installing the spares.
- After fast dump on 9/10/2018 at 11:43AM, found that all QD channels had thresholds ~40% lower than set value.
  - Voltage injector used to tune channels found to have incorrect setting.
  - Re-tuned all QD channels with voltage injector whose output was verified.
  - Threshold for QD channels for VCL increased from 100 mV to 200 mV to compensate for VCL voltage taps (VT1-DAQ and VT19-DAQ) having a 60 mV value during normal operation.

## RICH

- Compressor powered off in preparation for hurricane.

## SVT

- Debugged cable that enables output of pump relay box.
  - ✶ Cable found to have broken connector.

Broken output enable cable for SVT chiller pump's relay box.

## CRIO Test Station

- LabVIEW code debugged, issues fixed with Excel's path locations where data/results are saved.
- GPIB communication issues between Krohn-Hite and DSGCOMP2-PC debugged, problem solved by rebooting Krohn-Hite voltage calibrator.

## Antonioli, Mary Ann

Absent

## Bonneau, Peter

Absent

## Campero, Pablo

### Hall C

- Swapping of Redundant, ControlNet, and Ethernet modules to upgrade the HMS PLC controls to version 20 is in progress
  - Assigned new host names for HMS plc
    - HMS-PLC1 and HMS-PLC2
  - Waiting for 1756-RC1 fiber-optic cable to be ordered
- Edited and send Hall C PLC tasks weekly report.

### Hall B Magents

- Replaced QD#1 by spare QD modified and QD#2 units has been modified
  - 12 turns pots replaced by 25 turn
  - Opto component replaced for QD#2.
- Monitored Solenoid FastDAQ data after fast dump at full current 2416 A occurred on 9/10/2018.
  - QD#1-ch4 tripped first, this channel is used to monitor VT19_DAQ voltage tap, which is connected in on lead B.
  - FasDAQ data indicated voltage spikes of ~ 65 mV.
  - Found that thresholds for QD#1 and QD#2 were lower than the expected.
    - Voltage Calibrator DVC-350A was set wrongly during tuning of the QD#1 and QD#2.
    - Calibrator set in Hex mode rather than in Decimal mode.
- Configured, tuned and tested QD#1 and QD#2
  - Injected proper voltage in VT panel to tune each channel with its proper thresholds 200, 1500 mV
  - Set voltage thresholds and delays for all eight channels
  - Increment voltage thresholds for QD#1-ch4 and QD#2-ch2 from 100 to 200 mV.
  - Verified proper operations of QDs.

### DSG

- Worked on **cRIO Test Station.**
  - Debugged LabVIEW code, fixed issues with excels path locations where data/results are saved.
  - Debugged GPIB communication issues between Krohn Hite and DSGCOMP2-PC, problem solved by rebooting Krohn Hite voltage calibrator.

## Eng, Brian

Absent

## Hoebel, Amanda

### SVT

- Debugged cable connecting BYRA box to cRIO with Tyler.
  - BYRA box was not getting the voltage from the cRIO.
  - Problem found to be the wires came disconnected in the connector.

### Magnets

- Looked at data from several planned solenoid quenches from 100A, with Tyler, Pablo, and Brian.
- Investigated source of solenoid fast dump with Tyler, Pablo, and Brian.
  - All voltage injections found to be ~40% lower than set to for the VTs.
  - Discovered an incorrect setting on the voltage injector.

### Hall C

- Met to swap out ControlNet modules with Ethernet modules, with Pablo, Tyler, and Brian.
  - Could not swap due to not having fiber optic cable.

- Monitored EPICS and logbooks for Halls B, C, and D.
- Put together the weekly report.

## Jacobs, George

### GAS Systems

- Created RICH N2 gas system note diagrams
- Submitted PR 379788 for funding the Hall B bulk liquid N2 contract (SOTR)
- Discussions with marc about the effects of power outages, network outages, etc on gas system controls

## Leffel, Mindy

### Gas System

- Started fabricating last two MFC power chassis.
  - Installed fuse holders, fuses, LEDs, power entry modules, and D-sub connectors.
  - Wired power module.
  - Started wiring LEDs.

### SRF

- Tuner motor drive.
  - Replaced Burndy trim trio connector in cavity eight.

## Lemon, Tyler

### Hall B Solenoid

- Compared FastDAQ plots generated by Excel and tordaqGUI Analyzer.
  - Appeared to be discrepancy between plots created in Excel and Analyzer.
  - Discrepancy caused by duplicated timestamps in FastDAQ data causing data to be stitched together incorrectly on Analyzer.

        - In Excel, only VT1-DAQ timestamp was used to data was automatically shifted, compensating for duplicated timestamps.
    - Nathan Baltzell added new "-D" option to Analyzer to correct duplicated timestamps on plots.
- Performed four fast dumps of magnet from 100 A to test timestamping of FastDAQ and PLC SOE modules.
    - 100 A chosen as dump current to limit cryogenic consequences.
- Replaced both QD units in use with two spare, modified QD units.
    - Faulty QD units thought to be cause of fast dumps where cause was not seen in FastDAQ data.
    - Modified QD boards had 12-turn trim pots replaced with 24-turn trim pots to limit change if pots drift over time.
    - Tuned all QD channels after swap.
- After fast dump on 9/10/2018 at 11:43AM, found that all QD channels had thresholds ~40% lower than set value.
    - Caused by voltage injector used to tune channels being in the incorrect setting.
    - Re-tuned all QD channels with voltage injector whose output was verified.
    - Threshold for QD channels for VCL increased from 100 mV to 200 mV to compensate for VCL voltage taps (VT1-DAQ and VT19-DAQ) having a non-zero value during normal operation.

- Powered off **RICH** compressor in preparation for hurricane.
- For **SVT**, found cable that enables output of pump relay box had a broken connector.
    - Notified by Hall B that relay box output could not be enabled.
    - Verified all wiring and fuses at cRIO before finding broken connector.

Broken output enable cable for SVT chiller pump's relay box.

## Hall C

- Completed note on UPS monitoring task.

## McMullen, Marc

### Gas Controls

- Continued work on Gas Controls daily report upgrade.
  - Started modifying datalogger to change files at a specific time instead of at midnight.
    - This would allow the report to run until the open of the work day, while still changing at 24 hours.
    - Additionally, the new modifications should allow the report to append to the file if it is stopped and restarted during the file cycle (24 hours).
- Inclement weather preparations.
  - DC has been set to maintenance flow, while the mixing system has been valved off upstream of the tanks.
  - HTCC has been switch to a rotameter.
  - SVT no change.
  - MVT/FT flow reduced.
  - LTCC no gas flow.

- Made edits to the Gas Controls document.
  - Added information about the short term SVT set up which used 3 additional MFCs to supply gas to specific areas of the detector in order to provide a flow specification for the manual rotameters.
- Rearranged DC flow diagram so that it reads vertically, top to bottom in order to format properly in the document.