# Detector Support Group

**Weekly Report, 2017-03-01**

# State of Play

## Magnets

Solenoid

- cRIO setup to test and simulate issues with serial communications between cRIO and LV chassis being developed.
- Solenoid PLC instrumentation test procedure completed.
  - ✶ Wiring of Crio module rechecked, since wrong wiring, previously, had burnt/fused a connector of a relay module.
    - Additional multiple wiring errors found and corrected, during the commissioning of Solenoid service tower instrumentation.
    - Output signals for PV valve on PLC output modules changed to address wiring change.
- *PV_Array Filler* PLC routine modified.
  - ✶ Tag names for process variables required for cooldown parameters updated.
  - ✶ Screen for Solenoid cooldown parameters checked, displays correct variables.
- Temperature sensors, pressure transducers, differential pressure transducers, and electric and pneumatic valves on Solenoid Service Tower (SST) tested.
  - ✶ **Planned tests completed before close of *12CBIC on 02/28/2017.***
- Updated *Instrumentation Test PLC-EPICS Plan_V3* spreadsheet with all instrumentation and sensors tested by February 28th, 2017

Torus

- Added indicators to LV cRIO program for more information when 325 K error occurs.

## Gas System (KPP)

- Additional fittings for **DC** gas relief valve installation ordered.
- MKS 647B modified to operate with higher flow controllers for **DC** testing.
- Manual valve added for **MVT** Ar supply in gas shed.

## HDice

- Zero calibration code integrated into CT-Box DAq program.
  - ✶ Debugging data file generation.

## SVT

- Connecting chiller and MPOD interlock cables completed.
- HFCB temperatures and LV, prior to power-up, tested.
- $N_2$ purge system setup and reconnected.

## RICH

- First draft of Interlock System note completed.
- Compressor ports investigated for possible use with interlock system.
  - ✶ The compressors have multiple communication ports including Ethernet, RS 485, and CAN.
- Humidity temperature sensor boards (HTSB) being fabricated.

- Assembly structure being erected.

Brian, Sahin, George, and Mindy lifting right side of assembly structure to fasten it to anchored base plates.

**FT**

- Developed, tested, and debugged subVIs for writing and reading threshold configuration file. SubVIs will also be used in SVT and RICH interlock systems.
- Added temperature and humidity sensors to chassis for development of sub-routines for these sensors.

## Antonioli, Mary Ann

- Worked on drawing Amanda's flowchart sketches for **HDice** FRS program in Visio; completed overall flowchart and five subroutines.

**RICH**

- Completed first draft of interlock system Note.
- Continued LabVIEW program for hardware interlock system.
  - ✶ Worked on code that checks for readings beyond set limits and then required action is taken.

- Compiled, edited, and formatted weekly report.

## Arslan, Sahin

- Disassembled DC **gas** solenoid valve panel.
- Contributed to assembly of **RICH** structure.

## Bonneau, Peter

**Forward Tagger**

- Continued development of HV and LV interlock control and monitoring.
- Developed, tested, and debugged subVIs for writing and reading threshold configuration file. SubVIs will also be used in SVT and RICH interlock systems.
- Added temperature and humidity sensors to chassis for development of sub-routines for these sensors.

**RICH**

- Discussed with Mary Ann and Tyler LabVIEW subroutine that processes control interlock actions of the system
- Investigating compressor ports for possible use with interlock system.
  - ✶ The compressors have multiple communication ports including Ethernet, RS 485, and CAN.

**HDice**

- Integrated zero calibration code into CT-Box DAq program.
  - ✶ Debugging data file generation.
- Discussed with Amanda architecture for current shunt/lock-in amplifier test program.

**Magnet Systems**

- Developing cRIO setup to test and simulate issues with serial communications between cRIO and LV chassis.
- Contributed to the completion of the Solenoid PLC instrumentation test procedure.
  - ✶ Recommended to Pablo that wiring be checked, since wrong wiring, previously, had burnt a relay module.
    - ▪ Additional wiring errors were found by Pablo, during the commissioning of Solenoid service tower instrumentation.

- Held daily meeting on Hall D status and EPICS controls monitoring.
  - ✶ The humidity level in the BCAL is high in upstream modules 1 and 25 and in downstream module 1.

## Campero, Pablo

### Solenoid

- Modified *PV_Array Filler* PLC routine.
  - Updated tag names for process variables required for cooldown parameters.
  - Verified that the screen for Solenoid cooldown parameters is currently displaying correct variables.
- Tested with Tyler and Amanda, temperature sensors, pressure transducers, differential pressure transducers, and electric and pneumatic valves on Solenoid Service Tower (SST).
  - Followed *Instrumentation Test PLC-EPICS Plan.*
  - Tests planned to be completed before close of *12CBIC* were completed.
  - Changed output signals for PV valve on PLC output modules.
- Updated *Instrumentation Test PLC-EPICS Plan_V3* spreadsheet with all instrumentation and sensors tested by February 28th

### RICH

- Contributed to assembly of RICH structure.
  - Assembled lateral parts and feet for structure.
  - Unpacked Box 4 and inventoried parts.

- Monitored and analyzed logbook entries and EPICs screens for Hall D daily.
  - Noticed on 2/23 that humidity in BCAL at module 25 was about 18%.

- Installed VME-USB drivers on computer DSPLC1.
  - Read VM-USB User manual.
  - Began to check LabVIEW programs using this VME test station.

## Eng, Brian

- Contributed to assembly of **RICH** structure in EEL 124.

### SVT

- Finished connecting chiller and MPOD interlock cables. Tested HFCB temperatures and LV prior to power-up.
- Re-connected and set up $N_2$ purge for SVT.

## Hoebel, Amanda

- Contributed to assembly of **RICH** structure.

### HDice

- Sketched Rotation of Target Polarization flow chart.
- Discussed CT-Box oscilloscope VI with Peter.

### Magnet

- Conducted Solenoid check list with Pablo.
  - Checked sensor wiring of differential pressure transducer valves and heaters.
  - Measured current and voltage of sensors at terminal blocks.
  - Compared PLC sensor values with EPICS values.

## Jacobs, George

- Contributed to assembly of **RICH** structure.

**GAS Systems**

- Ordered additional fittings for **DC** gas relief valve installation.
- Discussions with Dave Kashy concerning Hall B pressure systems.
- DC gas solenoid valve panel rebuild in progress.
- Added manual valve for MVT Ar supply in gas shed.
- Switched to Ar and $CO_2$ dewars for temporary DC gas supply.
- Modified MKS 647B to operate with higher flow controllers for DC testing.

## Leffel, Mindy

**RICH**

- Contributed to assembly of structure.
- Continued working on humidity temperature sensor boards (HTSB)
  - ✶ Glued temperature sensors and soldered humidity sensors to five boards.

## Lemon, Tyler

**RICH**

- Constructed RICH assembly structure..

**Torus**

- Added indicators to LV cRIO program for more information when 325 K error occurs.
  - ✶ Indicators monitor hexadecimal currents written to LV Chassis, hexadecimal voltages read to LV Chassis, and LabVIEW calculated resistance used to interpolate Cerenox temperature.
  - ✶ Two sets of indicators: one shows instantaneous value, other set latches on value when 325 K error occurs.

**Solenoid**

- Performed SST instrumentation checks with Pablo and Amanda.
  - ✶ Checked electro-valves and pneumatic valves installed in SST.
  - ✶ For each valve, checked wiring diagram, power source, functionality, and read-back via PLC and EPICS.
- Changed LV Chassis 2 configuration table in LV cRIO program to match updated instrumentation list.
  - ✶ LV Chassis ports for new Hall sensors moved.
  - ✶ Updated LV cRIO program for new read/write addresses of Hall sensors.

- Monitored logbook and EPICS on daily basis.

## McMullen, Marc

- Continued work on changing variables of **gas system** project to network variables.
- Worked with DSG on building **RICH** assembly structure.