



Detector Support Group

Weekly Report, 2017-02-08

State of Play

Magnets

Solenoid

- Draft version of *B000000400-P003 Hall B Solenoid Pre-Power-Up Instrument Checkout Procedure* ready.

Torus

- Results of adding filter to FastDAQ cRIO discussed.
- Check of updates on Torus PLC program for Interlocks and Cooldown_Recovery started.

Gas System (KPP)

- Modifications of DC Gas piping in 96B for pressure systems compliance continuing.

HDice

- Program changes on NMR code continues.

RICH

- Penetration permit approved by Facilities Management and delivered to Hall B Mechanical.
- Gas panel reconfigured by replacing stainless steel tubing with Teflon as per DA's suggestion for pressure system compliance.
- Programming of Hardware Interlock System continuing.

Forward Tagger

- Programming of Hardware Interlock System continuing.

Detector Support Group

Weekly Report, 2017-02-08

Antonioli, Mary Ann

- Continued reviewing SVT interlocks LabVIEW code, which will be used as a basis for RICH code.
- Compiled, edited, and formatted weekly report.

Arslan, Sahin

- With Mindy, continued modifying RICH gas panel to comply with DA requirements.
 - ★ Added reducer, nylon tubing, ferrules, and new fittings.
- With Mindy, modified Gas System components in Hall B gas shed to comply with DA's requirements.



- Working on CAD wiring diagram of HDice pump cart.

Bonneau, Peter

Forward Tagger

- Worked on hardware interlock system.
 - ★ Completed interlock response subroutines for calorimeter and hodoscope.
 - ★ Developed code for timed sequential shutdown for high voltage and low voltage.
 - ★ Programmed user interface status readbacks for interlocked values.

RICH

- Worked with Mary Ann and Tyler on hardware interlock system.
 - ★ Upgraded cRIO to LabVIEW 2016.
 - ★ Upgraded development computer to LabVIEW 2016.
 - ★ Set up and tested development system with test program.
 - ★ Revised current design and path forward.
 - ★ Reviewed LabVIEW interlock program architecture with Mary Ann and Tyler.

HDice

- Developing data acquisition code for testing CAENels CT-Box external triggering option.
- Worked with Amanda on debug, test, and documentation of programs.

Magnet Systems

- Worked with Pablo and Tyler on Solenoid and Torus programs.
 - ★ Timing gaps in EPICS Fast-DAQ data are present in recorded data. The gaps are not seen in LabVIEW-transmitted data to EPICS.
- Monitored and analyzed Torus Mya data-logged signals from KPP run.



Detector Support Group

Weekly Report, 2017-02-08

- Held daily meeting on Hall D status and EPICS.
 - * The humidity level in BCAL has been increasing.
 - * FDC high voltage has been tripping during higher beam current.

Campero, Pablo

Magnets

- Wrote draft version of *B000000400-P003 Hall B Solenoid Pre-Power-Up Instrument Checkout Procedure*.
 - * Highlighted sections of document that need to be removed.
- Began to check updates on Torus PLC program for Interlocks and Cooldown_Recovery.
- Monitored Torus EPICs screen during power up for KPP.
 - * Torus was ramped up to 1900 A and was kept at that current over weekend (02/04–02/06).
 - * Negative polarity was tested at -1900 A.

RICH

- Analyzed with Tyler correct placement of drilled holes for assembly structure.
 - * Measured length between clean room walls and base corners of frame assembly structure.
 - * Measured distance between perforations in structure by using NX9.
- Monitored and analyzed daily, logbook entries and EPICs screens for Hall D.
 - * There was an insulating vacuum excursion on 02/06, most prominent in coil 4 of Solenoid. The limit is set at $5 \cdot 10^{-5}$ Torr
 - * Humidity on BCAL Upstream increased to ~11%.
- Troubleshooting RS-Logix5k V20 and V21 in DSGPLC1-PC and DSGTest1-PC.
- Installed RS-Logix Emulator5000 in DSGTest1-PC
- Updated LabVIEW 2016 in DSGTest1-PC.

Eng, Brian

Absent

Hoebel, Amanda

HDice

- Worked on NMR program changes.
 - * Added Extended Precision VI, which changes 0.01 A to 0.010 A for more precise setting and reading of ramp rates.
 - * Changed filenames to reflect magnet names.
 - * Added pop-up box that asks users to confirm magnet used; protects magnet against incorrect program settings causing unintentional depolarization.
 - * Changed “set field” VI’s to “set current.”
 - Field value cannot be used to set ramp rate due to reprogramming power supply to different field values.



Detector Support Group

Weekly Report, 2017-02-08

- Different values of gauss/amp are used depending on magnet being used.

Jacobs, George

Gas Systems

- Continued modifications of DC Gas piping in 96B toward pressure systems compliance.
- Updated DC Gas P&I diagram to reflect changes made.
- Updated DC gas system component spreadsheet for pressure system folder.
- Updated Hall B N₂ distribution system P&I diagram.
- Completed modification of RICH gas panels IAW DA requirements.
- Discussions with Dave Kashy on replacement of C₄F₁₀ gas tank in 96B.
- Discussions with Dave Kashy on N₂ and C₄F₁₀ flex line replacement running to forward carriage.
- Contacted vendor about purchasing electrical boxes for attaching capacitor and wire cords on new DC gas pumps.
- Contacted vendor about purchase of replacement placards and labels for LN₂ and LAr tanks at 96B.
- Requested quote from Manchester tanks for replacing C₄F₁₀ tank in 96B and placed PR.
- Conversations with Dave Meekins about replacing 1" SS tubing with brass and replacement of ½" SS tubing with nylon for RICH.

Leffel, Mindy

- Reconfigured **RICH** gas panel, replacing stainless steel tubing with Teflon.
- Continued labeling and organizing **HDice** photo documentation.

Gas System

- Started reorganizing gas shed.
 - * Sorting components.
 - * Cleaning workspaces.
- Replaced for **DC** system four pressure gauges located behind gas shed.

Lemon, Tyler

Magnets

- Discussed results of adding filter to FastDAQ cRIO.
 - * Determined that filter should go before cRIO ADC; has to be hardware filter.
 - * Comparators not tripping fast enough due to filters causing a response time of several minutes.
 - * Hardware solutions include:
 - Using both an iso-amp with higher output range and cRIO module with higher input range.
 - Developing electronics boards to use as filters.
- Wrote procedure to restart Torus LV cRIO if Cerenox sensors read 325 K.
 - * Procedure used on 2017-02-02 and noted in HBTORUS logbook entry 3454964.

RICH

- Discussed hardware interlock system with Mary Ann and Peter.
 - * Reviewed information needed to enable coding of interlock program.



Detector Support Group

Weekly Report, 2017-02-08

- ★ Reviewed SVT hardware interlock LabVIEW, as SVT program will be used as starting point for RICH system.

Detectors

- Monitored logbook and EPICS on a daily basis.
- ★ Noted in logbook that FDC channel hv2:c1:1n tripped off on 2017-02-17.

McMullen, Marc

- Penetration permit for **RICH** approved by Facilities Management and delivered to Hall B Mechanical.

Gas System

- HTCC is flowing CO₂ @ 6.5 Lpm during purge; moisture reading 250 ppm (down from 360 ppm last week).
- DC is flowing Ar/CO₂ @ 4.45 Lpm on sector 2 for all regions.
- LTCC is flowing N₂ @ 0.5 Lpm per sector.
- Set up new mailing list for Hall B gas systems: DSG-hallbgas@jlab.org
- Axetris MFC product evaluation: Completed P&I diagram for test set up and submitted to the design authority.
 - ★ Selected components for test.

