



Detector Support Group

Weekly Report, 2018-01-10

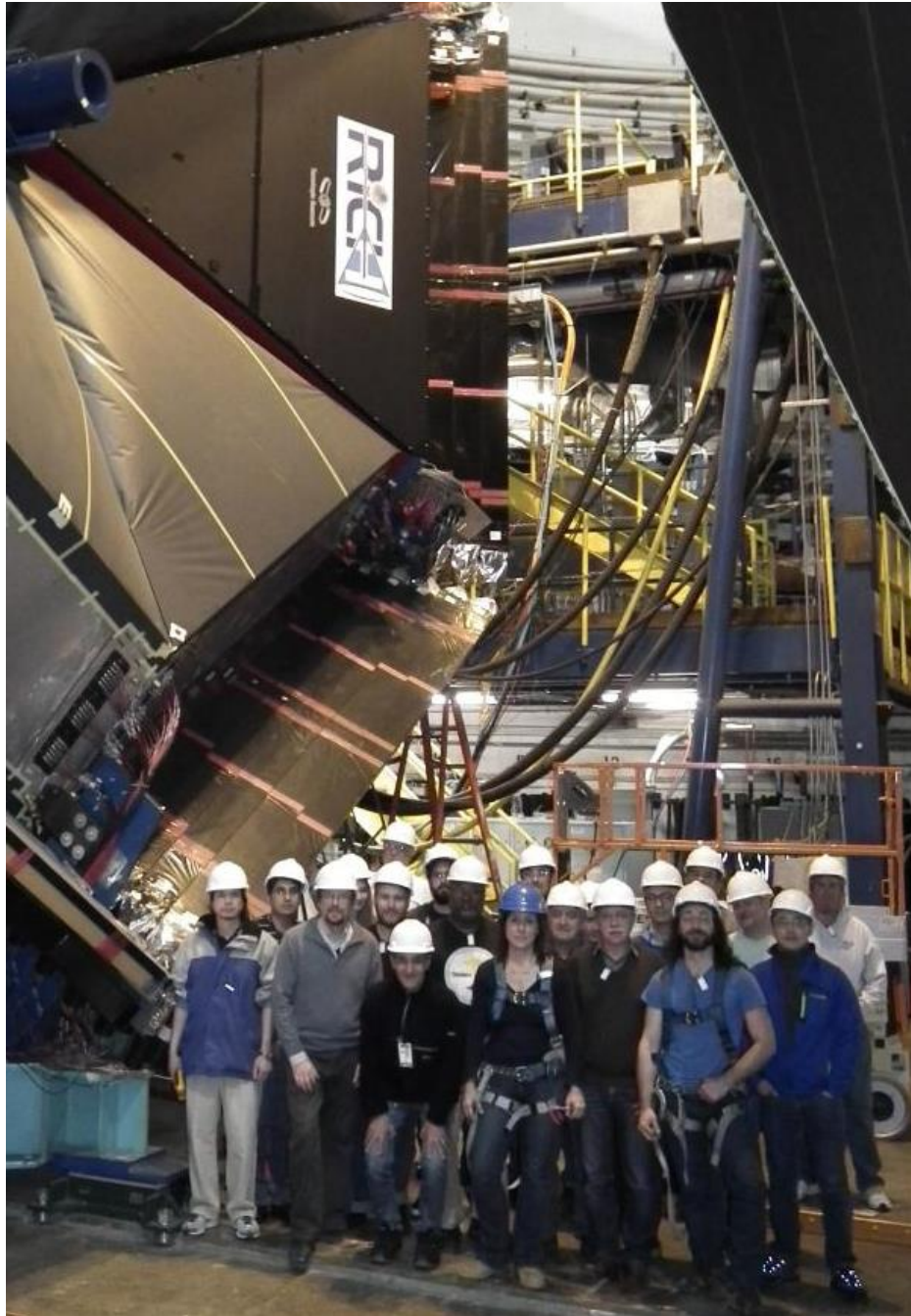
Summary

RICH

- RICH nitrogen volume and electronic panel sections sealed with electrical tape.
- Humidity readouts monitored during the shutdown period on daily basis.
 - * Humidity was stable at under ~3%
 - * Supply nitrogen flow rate averaged ~12.7 slm.
- Broken wire on humidity sensor cable repaired.
- HV and signal cables pulled to RICH from instrumentation racks.
- Drain line for compressor ran on Forward Carriage.
- Nitrogen, Air, and moisture transducer cables ran from valve panels on Forward Carriage - Top Deck to Forward Carriage - Level 3.
- Man lift operated for RICH installation tasks.
 - * Rotated patch panels.
 - * Connected sensor cables, HV, LV, interlock, sensor, and LED distribution cables.
- Hardware interlock cRIOs prepared for move to Hall B.
 - * IP address change requested for Hall B.
 - RICHCRIO: 129.57.160.213
 - RICHCRIO1EP: 129.57.160.214
 - * Sensor cables organized and bundled.
- EPICS PVs not updating for N2 cRIO after move to Hall B debugged.
 - * EPICS client library in LabVIEW project re-created to fix error where variables were not aliased to the correct EPICS PVs.
- N2 cRIO and EP cRIO installed in Hall B on Forward Carriage – Level 3.
- Interlock cable bundles rerouted for N2 cRIO and EP cRIO.
 - * Cables rerouted under floor grating, detangled, and sorted.
- UPS installed for hardware interlock system.
 - * N2 cRIO, EP cRIO, and Gas Chassis connected to UPS as critical loads.
 - * H2O transducer readout box connected to UPS as noncritical load.
 - * Monitoring for UPS status in development.
- Test of air-cooling system in Hall B performed.
 - * Able to provide maximum of ~600 L/min per output on panel, providing a maximum total ~1200 L/min.

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DSG and RICH collaborators in front of RICH installed on Forward Carriage.



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HDice

- On RF Box 1:
 - * Terminal block screwed to base
 - * Attenuators re-oriented on panel
 - * Attenuator grounds de-soldered
 - * New grounds for attenuator soldered.
- NMR LabVIEW programming and instrumentation debugged, tested, and documented.
 - * Upgrade work on RF box #1 is underway.
 - * Setup started of test station for Rack #1 hardware and software development in DSG control room.
 - * Current transducer head mounted on Oxford power supply shorting cable for acquisition mode testing.
 - * Work plan developed for 2018 in progress.

SVT

- Failure of region 3 sector 11 HFCE temperature sensors caused by bad connection at patch panel.
 - * Reconnecting sensors at patch panel fixed failure.
- Heat exchanger to be added to nitrogen supply to cool modules in attempt to lower modules' current.
- New DSG cRIO development system reconfigured to test and debug interlock program upgrades to before deployment on the Hall B SVT cRIO.
- Development completed of CS-Studio EPICS slow controls user interface.

MVT

- Response received from MKS on Viton vs. Kalrez.
 - * No specifics given, but Kalrez recommended as preferred seal.

Magnet

- Support schedule for Spring 2018 engineering and physics runs generated.
 - * DSG to provide off hours support, rotating personnel on a weekly basis.

cRIO Test Stand

- Program that tests ADC module's gain error tested, debugged, and added to both manual mode and automatic mode programs.



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Antonioli, Mary Ann

- On HDice RF Box 1:
 - * Screwed terminal block to base
 - * Re-oriented attenuators on panel
 - * De-soldered attenuator grounds
 - * Soldered new grounds for attenuator.
- Generated magnet support schedule in Excel.
- Worked on cRIO test stand code.
 - * Tested and debugged gain error test.
 - Added test to manual mode.
 - Revised code to allow running in automatic mode.
 - * Added two pop-up messages to inform user of test status.

Bonneau, Peter

HDice

- Worked with Amanda, Pablo, Mary Ann, and Mindy on the debug, test, and documentation of the NMR LabVIEW programming and instrumentation.
 - * Upgrade work on RF box #1 is underway.
 - * Started setup of test station for Rack #1 hardware and software development in DSG control room.
 - * Mounted current transducer head on Oxford power supply shorting cable for acquisition mode testing.
 - * Development of work plan for 2018 in progress.

SVT

- SVT Hardware Interlock System
 - * Worked with Pablo on completion of the SVT interlock upgrades.
 - * Reconfigured the new DSG cRIO development system to test and debug the upgrades to the interlock program before deployment on the Hall B SVT cRIO.
 - * Completed development of CS-Studio EPICS slow controls user interface.

RICH

- Worked with Tyler regarding installation planning for RICH Hardware Interlock System.
 - * Discusses installation of UPS and monitoring of status signals.
- Loaded and configured system software on the new DSG development cRIO processor.
 - * Worked with Mindy on cRIO hardware setup and power distribution of the mounting chassis.
- Worked with Pablo and Mary Ann on development of the cRIO test station.
 - * Discussed next steps in the development of the test interface to Excel.



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Campero, Pablo

RICH

- Sealed RICH nitrogen volume and electronic panel sections.
 - * Used electrical tape to seal joints in the outlet lines of the electronic panel and nitrogen volume.
 - * Inserted foam between the outlet lines and the HV cables to reduce the leaks through cable tray.
- Swapped Nitrogen Dewar cylinders to supply nitrogen to the RICH.
 - * Dewar tanks swapped on 12/22/2017.
 - * Connected four Dewar tanks in parallel to supply nitrogen at 15 [slm].
- Monitored humidity readouts during the shutdown period on daily basis.
 - * Humidity stable and under ~3%
 - * Supply nitrogen flow rate average ~ 12.7 [slm].
- Collaborated with the installation of the RICH hardware interlock electronics.
 - * Installed RICH EP cRIO control systems
 - * Ran cables for humidity and temperature sensors from the control rack to the RICH.
 - * Installed temperature and humidity sensor in N2 cRIO.
 - * Installed H2O transducer readout box.
 - * Installed UPS backup power supply for all interlock control devices.

Eng. Brian

SVT

- Debugged high R3 S11 HFCB temperature reading (~50 °C).
 - * Fixed by disconnecting and reconnecting cable on patch panel.
- Zeroed chiller's outlet flow meter to fix issue where flow meter read flow when chiller was off.
 - * <https://logbooks.jlab.org/entry/3510110>

MVT

- Met with Bob Miller to discuss options to maintain temperature of Isobutane lines and MFCs.
- Tested removed Isobutane MFC in EEL/125 with argon and nitrogen.
 - * MFC still leaks ~50 sccm of argon and ~70 sccm of nitrogen.
 - * Leak decreased to ~30 sccm nitrogen after many of cycles of opening and closing the valve when connected to nitrogen source
 - LabVIEW VI written to perform this operation to let run overnight.
- Mix 1 MFC seems to behave normally with argon after a purge

RICH

- Moved detector & equipment from EEL to Hall B
- Debugged N2 cRIO not updating EPICS PVs after move to Hall B
- Routed the compressor drain line with Marc
- Made cable bundles for valve panel and ran them to interface chassis



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DC

- Changed code on gas mixing to allow parameters to be changed via shared variables.
- Raised rate at which the mixing tank fills.
 - * <https://logbooks.jlab.org/entry/3509682>
- Took training: GEN034, SAF116kd, SAF801kd

Hoebel, Amanda

RICH

- Assisted in moving detector to Hall B.
- Ran sensor cables along forward carriage with Tyler, Pablo, and Mindy.
- Installed cRIO in forward carriage rack with Tyler and Pablo.
- Took GEN034 training.

Jacobs, George

RICH

- Installed replacement filter on RICH N2 valve panel
- Connected RICH air-cooling valve panel to RICH detector and air compressor.
- Relocated RICH N2 gas bubbler and dressed nitrogen lines.
- Completed GEN34, Annual Security Awareness

Leffel, Mindy

RICH

- Worked with Mark T. and Chris C. pulling HV and signal cables.
- Repaired broken wire on humidity sensor cable.
- Worked with Tyler, Pablo, and Amanda installing sensor cables.
 - * Rerouted under floor grating, detangled, and sorted.
- Man lift operation for RICH installation tasks.
 - * Worked with Sandro rotating patch panels and connecting sensor cables.
 - * Worked with Matteo connecting HV, LV, interlock, sensor, and LED distribution cables.



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Lemon, Tyler

RICH

- Prepared detector for transport to Hall B.
- Prepared hardware interlock cRIOs for move to Hall B.
 - ★ Requested IP address change for Hall B.
 - RICHCRIO: 129.57.160.213
 - RICHCRIOSEP: 129.57.160.214
 - ★ Organized and bundled sensor cables for move to Hall B.
- Installed N2 cRIO and EP cRIO in Hall B with Mindy, Pablo, and Amanda.
 - ★ N2 cRIO moved to temporary location on floor of Hall B on January 5, 2018 to allow monitoring of humidity before RICH was installed on Forward Carriage (FC).
 - N2 cRIO moved to rack on FC level 3 when RICH installed on FC.
 - ★ EP cRIO moved to Hall B on January 8, 2018.
 - Cables routed on FC and to RICH.
 - ★ Both N2 cRIO and EP cRIO running in Hall B.
- Rerouted interlock cable bundle for N2 cRIO with Pablo and Amanda.
 - ★ Cable routed incorrectly in front of instrumentation in rack.
 - ★ Rerouting required unwiring wire in cable bundle from cRIO and moving cables to the correct location.
- Installed UPS for hardware interlock system with Pablo and Amanda.
 - ★ UPS installed in rack above cRIOs.
 - ★ N2 cRIO, EP cRIO, and Gas Chassis connected to UPS as critical loads.
 - ★ H2O transducer readout box connected to UPS as noncritical load.
 - ★ Monitoring for UPS status in development.
- Verified interlock sensors are working correctly.
 - ★ All temperature sensors, flow meters, pressure transducers, and moisture transducers work correctly.
 - ★ 3 of 32 humidity sensors appear to have problems.
 - EP humidity sensors #3, #4, and #15.
 - EP humidity #3/#4 on same board measuring humidity outside of electronic panel on back of detector.
 - EP humidity #15 measures ambient humidity in cRIO's rack.
- Performed test of air-cooling system in Hall B with INFN collaborators.
 - ★ Able to provide maximum of ~600 L/min per output on panel, providing a maximum total ~1200 L/min.

McMullen, Marc

MVT

- Received response from MKS on Viton vs. Kalrez.
 - ★ No specifics were given but Kalrez recommended as preferred seal.
- Discussed status of mixing system with MVT staff.
 - ★ MVT staff concurred with the DSG's suggestion that mixing system needs to be modified to allow for proper climate control of the C4H10.
 - ★ MVT staff is testing the mixing system with all 3 gases using Mix.

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RICH

- Worked with DSG, INFN, and Hall B staff to move the RICH to Hall B, install, and connect to services.
 - * Ran N2, Air, and moisture cables.
 - * Ran drain line for compressors.



Nitrogen panel on top deck of Forward Carriage. Nitrogen flow set to ~20 L/min for each output, providing a total flow to RICH of ~40 L/min.



Air-cooling tank and panel on top deck of Forward Carriage.