



Detector Support Group

Weekly Report, 2017-10-18

Status

Torus

- PCB board replaced in Torus Low Voltage chassis # 4.
 - * Spare was fixed after changing fuse and removing filter power capacitor.
 - * Cernox sensor data from PCB board replacement analyzed.
 - Compared acquired data with and without the capacitor in the PCB board. For all the 12 Cernox sensors found temperature differences.

RICH

- Planar mirror B2 inspected.
 - * Received and stored in EEL 121b small cleanroom.
 - * Visually, did not notice problems such as scratches, smudges, or cracks on reflective surface.
- Reflectivity of test station's reference mirror measured.
 - * Measurement used to confirm test station's ability to get the same results as before the move to cleanroom.
 - * Reference mirror's reflectivity measured ~94% as it did before the move.
- Incomplete temperature/humidity sensor cable bundles used on RICH electronic panel swapped for finished cable bundles.
 - * Humidity sensors and RTDs installed in finished cable bundles working correctly.
 - All eight RTDs read correctly.
 - Seven of eight humidity sensors read correctly; one has value indicative of an issue with sensors.
- Spherical mirrors 4 and 6 inspected.
 - * Both mirrors' reflective surfaces are better quality than when mirrors were previously at JLab.
 - * Both mirrors still had areas that looked smudged.
- Reflectivity of mirror 6 measured in two spots.
 - * Spot 1: visually good spot, reflectivity ~92%.
 - * Spot 2: smudged spot, reflectivity ~90%.
- N₂ flow rate calculated for Nitrogen purge test.
 - * Rate flow ~ 250 L/min by using N₂ cylindrical gas bottles at 15 psi.
 - * Time to fill the RICH N₂ volume ~ 10 min.
- Four 20-foot cables fabricated for humidity and temperature sensors.
- Trolley and anchor weight delivered to EEL high bay to prepare for the load test.
- Trolley's I-beam had hole in incorrect position; sent back to GandR for modification.

HDIce

- GPIB Extended Resolution VI corrected in NMR program.
 - * Tested program by computing the power supply magnetic field readouts for ten cycles.



Detector Support Group

Weekly Report, 2017-10-18

- Program modified to solve saving file issues for liquid level values after the interlocks are activated and the program stops.
 - * Pop-up box would say cannot write to location.
 - * Part of program that writes the file was deleted and rebuilt.
 - * Problem did not occur again.

SVT

- EPICS sub-VI library for Hardware Interlock System completed.
 - * Library interfaces LabVIEW user-interface to the EPICS threshold control screen.
 - * Development, test, and debug of threshold configuration file control library completed.

Gas Systems

- For the RICH:
 - * Received N₂ dewar.
 - * Ordered:
 - Bulkhead gas fittings.
 - New compressed gas piping and fittings for electronics panel.
 - Adapters for high flow N₂ test.
 - Industrial grade N₂ and ultra-high purity N₂.
- CO₂ ordered for DC.



Detector Support Group

Weekly Report, 2017-10-18

Antonioli, Mary Ann

Vacation

Bonneau, Peter

RICH

- Worked with Tyler and Mindy on the instrumentation test and debugging of the RICH Hardware Interlock System hardware.
 - ★ Investigated issues with the initialization configuration file. When developing a similar interlock system, the same failure symptoms with the initialization configuration file. These issues were resolved by turning off network buffering for the configuration file shared variables.
 - ★ Tested and debugged sensor assemblies prior to installation.
 - ★ Mounting and cabling of the temperature & humidity sensors within the detector was reviewed in preparation for installation.
 - ★ Feed-thrus for the N₂ space temperature & humidity sensors were discussed.

SVT

- SVT Hardware Interlock System
 - ★ Completed EPICS sub-VI library that interfaces the LabVIEW user interface to the EPICS threshold control screen.
 - ★ Completed development, test, and debug of threshold configuration file control library.

Campero, Pablo

Torus

- With Brian replaced PCB board in the Torus Low Voltage chassis # 4.
 - ★ Board was replaced with spare fixed after changing fuse and removing filter power capacitor.
 - ★ Analyzed Cernox sensor data took after the replacement of the PCB board
 - Compared data acquired with and without the capacitor in the PCB board, and found ~ 5[mK] difference between the min/max values took for the 12 Cernox sensors.

RICH

- Calculated N₂ flow rate for the RICH Nitrogen purge test.
 - ★ Rate flow ~ 250 [l/min] by using N₂ cylindrical gas bottles at 15 [psi].
 - ★ Time to fill the RICH N₂ volume ~ 10 [min].
- Contributed with Mindy to prepare four 20-foot cables for humidity and temperature sensors.
- Collaborated with Tyler to perform reflectivity measurements of RICH spherical mirror 6
 - ★ Set up the reflectivity test stand
 - ★ Calibrated and located mirror in the support
 - ★ Performed measurements for two spots that looked smudged
 - Reflectivity results for both spots ~ 90 %



Detector Support Group

Weekly Report, 2017-10-18

HDice

- With Amanda debugged NMR LabVIEW program.
 - * Corrected GPIB Extended Resolution command with a typo error (“/”)
 - Tested program by computing the power supply magnetic field readouts for ten cycles.
 - Problem apparently solved.
 - * Modified code to solve saving file issues for liquid level values after the interlocks are activated and the program stops.

Eng. Brian

SVT

- Investigating common mode noise (@ ~60 kHz) on the MVT when SVT is on.
 - * Narrowed down to the isolating power supplies on the V450 VME boards for slow controls.
 - * Connecting all signal returns together and connecting that to VME ground via capacitor seems to have cleaned up the noise. Still waiting on vendor to see if they have any suggestions.

RICH

- Tested flow with N₂ panel and LN₂ dewar: <https://logbooks.jlab.org/entry/3488445>
- Inspected cable feed-through panels with Marco, found the holes don't match the drawings. He will talk with Dario before any new holes are added.

Magnets

- Tested LV chassis without +12V capacitor: <https://logbooks.jlab.org/entry/3488318>
- Took Hall C walkthrough in case able to take over-head crane training

Hoebel, Amanda

Vacation

Jacobs, George

- Received fresh N₂ dewar for RICH.
- Had discussions about RICH N₂ purge supply.
- Ordered bulkhead gas fittings for RICH.
- Ordered CO₂ for DC.
- Completed Hall C safety awareness training

Leffel, Mindy

RICH

- Tested reflectivity of HTCC control mirror with Tyler.
- HTSB cables.



Detector Support Group

Weekly Report, 2017-10-18

- * Worked with Mary Ann to cut, attach heat shrink, and bundle four 65' cables.
- * Terminated both ends of two bundles, ferrules end, pins on the other.
- * Working with Pablo, cut original 50' bundles down to 20' and attached heat shrink.

Lemon, Tyler

RICH

- Inspected planar mirror B2 on arrival at JLab with Mary Ann.
 - * Mirror received and stored in EEL 121b small cleanroom.
 - * Mirror did not have any issues with reflective surface.
- Measured reflectivity of test station's reference mirror with Mindy.
 - * Used measurement to confirm test station is able to get the same results as before move to cleanroom.
 - * Reference mirror's reflectivity measured ~94% as it did before move.
- Swapped incomplete temperature/humidity sensor cable bundles in use on RICH electronic panel for finished cable bundles.
 - * Incomplete cable bundles still need connectors, disconnects, and ferrules put on.
 - * Confirmed all humidity sensors and RTDs installed in finished cable bundles are working correctly.
 - All eight RTDs read correctly.
 - Seven of eight humidity sensors read correctly; one has value indicative of an issue with sensors.
- Inspected spherical mirrors 4 and 6.
 - * Both mirrors' reflective surfaces are better quality than when mirrors were previously at JLab.
 - * Both mirrors still had areas that looked smudged.
- Measured reflectivity of mirror 6 in two spots with Pablo.
 - * Spot 1: visually good spot, reflectivity ~92%.
 - * Spot 2: smudged spot, reflectivity ~90%.

McMullen, Marc

RICH

- Contacted DA concerning high flow N₂ test.
 - * The test will use two high pressure cylinders to supply max flow (200 – 250slm) to rapidly remove humidity after installing Aerogel.
 - * The set up will be utilized during transport between the EEL and Hall B to ensure that the detector humidity stays low.
- Ordered new compressed gas piping and fittings for the electronics panel, and adapters for the high flow N₂ test.
- Order industrial grade N₂ and ultra-high purity N₂.
 - * This kit will be assembled as the second front panel installation tool.
- Delivered the trolley and anchor weight to the EEL high bay to prepare for the load test.
- Sent the trolley parts I-beam back to GandR for modification.



Detector Support Group

Weekly Report, 2017-10-18

- Contacted EHS&Q about the dry tent.
 - * The green house tent cannot be used as the dry tent, due to lack of safety documentation. (Fire rating)
 - * An alternative would be to construct a tent using PVC pipe and fire retardant plastic.
 - * Industrial hygiene approves working in the tent, provided that the tent door remains open.
 - * The fire protection engineer has provided a worksheet for guidance/approval of a temporary structure which would block personnel and equipment from the sprinkler system.

MVT

- Met with the installation engineer to discuss cable routing.
 - * Hall B technical staff will run the MFC and pressure transducer cables, DSG will terminate and install the gas controls interface.
- Ordered the network cable.