Status

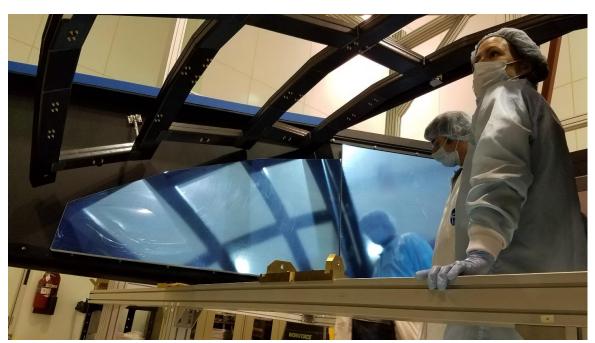## Solenoid
- Polarity reversal tested for the MPS.
  - ✶ Found that QD #1 tripped when MPS attempts to change polarity automatically from negative to positive and vice-versa.
  - ✶ Procedure to change polarity in the MPS during ramp up/down of magnet will be changed based on this test.
    - To change polarity: go to 0 A manually, turn off the power supply, wait ~ 5 mins, turn power supply on, then ramp to desired current.
- Analysis of field mapping data performed with VT analyzer and MYA archiver.

Torus
- P027- Pre-Power up Interlock checkout completed.
  - ✶ Flow switches fixed for water cooled leads.
    - Return and supply switches were not working properly, lever was not moving far enough to fully engage the switch when flow was stopped.
  - ✶ Seventeen tasks completed from list, which covers all the checks required in the abbreviated version of the P027 procedure.

RICH
- Shipment of seventeen 2-cm thick RICH aerogel tiles inspected.
- Five lateral mirrors test-fitted inside assembly structure.

Mindy Leffel and Marco Mirazita with lateral mirrors inside assembly structure.

HDIce
- Temperature and liquid level sensor control added to NMR program.
  - ✶ Program ramps down power supply and stops NMR data acquisition if the temperature limit threshold or liquid level threshold is reached.
- Hardware interface debugged for current shunt to lock-in-amplifier.
  - ✶ CT-box trigger would not start data acquisition of lock-in-amplifier.
  - ✶ Interface IC shorted internally.

FT
- Condensation sensor cable terminated on end.

SVT
- R1-4 slow control patch panel removed and replaced with smaller R1-3 patch panel.

MVT
- Cost estimate of $2,500 provided for controls cables to be extended from Hall B space frame level 3 to the hydrogen target gas pad.

LTCC
- Percentage of loss attributed to piping in sector 5 is down to 1.5%.

Gas Systems
- RICH-AirCool-supply-lines P&I diagram generated.
- Flow control orifice ordered for HTCC CO_2 supply.
- Flow control orifices ordered for MVT pre-mix back-up gas supply for the Hall B.
- HTCC gas panel modified to remove homemade component.
- MVT-FT-Hall-PreMIX P&I diagram generated.
- Two gas cylinders of 10% CO_2 in argon standard mix ordered for TCU testing.

Antonioli, Mary Ann

- On cRIO **test stand**, continued writing code to read one channel of NI-9207 module.
  - ★ Writes data to array.
  - ★ Debugged occasional incorrect precision results.
  - ★ Working on changing zero test value to 0.01 so that precision is not infinity.
  - ★ Debugging communication problems with cRIO.
- Continued editing Peter's **Note** on VME test stand.
- Began editing Pablo's **Note** on Solenoid control and monitoring.

Bonneau, Peter

Forward Tagger

- Started development of Hardware Interlock System software interface for new Greystone WD-100 water detection instrumentation for chiller coolant tubes.
  - ★ Researched hardware interface needed for connecting the new chiller digital I/O board with the Hardware Interlock System.
  - ★ FT Hardware Interlock System has been running reliably and continuously for 71 days since installed in Hall B. The problem of network & EPICS intermittent softIOC restarts (when in the EEL building) has been resolved.

HDice

- Debugged hardware interface for current shunt to lock-in-amplifier. CT-box trigger will not start data acquisition of lock-in-amplifier.
  - ★ Interface IC shorted internally.

RICH

- Worked on the installation debugging of the RICH Hardware Interlock System with Tyler.
  - ★ Installation procedure of the hardware interlock system bypass switch and temperature / humidity cabling issues were discussed.
  - ★ Debugging procedures for the reported issues with humidity sensors.
  - ★ The configuration file library sub-VIs were investigated.

Solenoid

- Performed analysis of data with VT analyzer and Mya archiver during field mapping of the Solenoid.

- Worked with Mary Ann on development of the National Instruments Compact-Rio test station.
  - ★ Debugging the automatic mode of the test program.
  - ★ The test program design architecture for ADC modules was assessed.
- Completed DSG note on The VME Test Stand Proposal.
  - ★ Paper details the hardware and software plans for the test station.

Campero, Pablo

Solenoid

- Tested polarity reversal for the Solenoid MPS.
  - ✶ Set current to positive 5 A and negative 5 A in the MPS control screen to test if the MPS reacted as expected, which means ramp to 0 A, power off the MPS, and then change the polarity automatically .
  - ✶ Found that the QD #1 tripped when MPS attempted to change polarity automatically from negative to positive and vice-versa.
  - ✶ Agreed that procedure/guidelines to change polarity in the MPS during ramp up/down of the magnet will be changed based on this final test.
    - ▪ To both cases if is required go from positive to negative polarity or the opposite first we have to go to 0 A manually, turn off the power supply, wait for ~ 5 min until we get 0 A, and then set ether positive or negative set point for the current.

Torus

- Completed P027- Pre-Power up Interlock checkout with Brian.
  - ✶ Fixed flow switches for water cooled leads.
    - ▪ After closing off the valves (water flow in leads = 0 GPM) associated with the return and supply switches, found that interlocks were not activated.
    - ▪ Opened the cover for both switches and found that the switches itself were not working properly, lever was not moving far enough to fully engage the switch when flow was stopped.
    - ▪ Tighten the screw to place the lever for the supply and return switches in the right position.
    - ▪ Verified trips on the SOE PLC module.
  - ✶ Completed seventeen tasks from the list, which covers all the checks required in the abbreviated version of the P027 procedure.

RICH

- Inspected the shipment of seventeen 2-cm thick RICH aerogel tiles.
  - ✶ Generated table with the major faults and observations found.
  - ✶ Took pictures of major faults found.
- Collaborated with Amanda to set five planar mirrors into the RICH frame.
  - ✶ Unpacked mirrors from the boxes and moved from the small clean room 121_C to clean room EEL124.
  - ✶ Assembled handle supports in the planar mirrors.
  - ✶ Fit mirrors and bolted in their final location.
  - ✶ De-assembled all mirrors and packed back into their respective box in the small clean room.

- Completed *Solenoid Controls and Instrumentation DSG Note* modifications.

Eng, Brian

RICH
- Marc confirmed with Todd Kujawa (electrical SME) that the cable Mark Taylor made for the INFN dry box is acceptable to use.

SVT
- Removed R1-4 slow control patch panel and replaced with smaller R1-3 patch panel: https://logbooks.jlab.org/entry/3485769
- Tested R2 S6 B data cable with tester, all control signals have proper termination resistors, still failing register test.

Magnets
- Tested QD unit thresholds: https://logbooks.jlab.org/entry/3485488

Solenoid
- Temperatures during fast dumps: https://logbooks.jlab.org/entry/3484660
- Tested polarity switching with Pablo, when fully ramped down (need to wait several minutes) it will work properly, otherwise always does a fast dump on QD1.
    - ✶ Found that switching polarity clears QD unit faults, originally thought could only be done in local mode on the MPS.

Torus
- Found issue with water flow switch: https://logbooks.jlab.org/entry/3485691
  Completed P027 checkout with Pablo: https://logbooks.jlab.org/entry/3485732
    - ✶ Ramped to 100 A then to -100 A (no issues).

Hoebel, Amanda
- Created histograms from TCU1 and TCU2 data.
    - ✶ TCU2 histogram shows banking on left side.

HDICE
- Added temperature and liquid level sensor control to NMR program.
    - ✶ Temperature sensor sends warning email to selected recipients if temperature is above a specified value.
    - ✶ Liquid level sensor sends warning email to selected recipients if liquid level falls below 12 cm.
        - Power supply ramps down to 1000G.
    - ✶ Liquid level sensor sends warning email if level falls farther, below specified alarm value (currently 9cm).
        - ▪ Power supply dumps field to 0G.

RICH
- Inspected 17 2-cm tiles with Pablo.
- Test-fit 5 lateral mirrors inside assembly structure with Pablo and Mindy.

Mindy and Marco Mirazita with lateral mirrors inside assembly structure.

- Updated DSG photo log on website.
- Created and edited weekly report.

Jacobs, George
- Requested quote on 200 ft. 1" OD, 200 ft. ½" OD, and 250 ft. ¼" OD nylon tubing.
- Meetings with HTCC gas DA, Matt M.
- Discussions about RICH air cooling supply lines pressure system requirements.
- Created RICH-AirCool-supply-lines P&I diagram.
- Ordered flow control orifice for HTCC CO_2 supply.
- Ordered flow control orifices for MVT pre-mix back up gas supply for the Hall B.
- Modified HTCC gas panel to remove homemade component.
- Meeting with RICH DA, Dave M, about air cooling internal piping and manifolds.
- Created MVT-FT-Hall-PreMIX P&I diagram.
HALLB
- Ordered 2 gas cylinders of 10% CO_2 in argon standard mix for TCU testing.

Leffel, Mindy
FT
- Fabricated condensation sensor cable.
  - ✦ Terminated on end, still waiting for confirmation of length.
RICH
- Worked with Dario and Marco to temporarily install lateral mirrors in detector shell.

- Worked on HTSB cables.
  - ✶ Researched cost and availability of cable.
  - ✶ Attended meeting to discuss lengths, 65' after patch panel, before panel TBD.
  - ✶ Took inventory of existing cable to determine amount to order.
  - ✶ Cut existing cable into 65' lengths.
  - ✶ Started fabrication of cables.
- NI9207 module of cRIO test stand.
  - ✶ Re-soldered connection on.D-sub connector.

Lemon, Tyler
RICH

- Debugged problem in Hardware Interlock program where configuration file is corrupted when first accessed by cRIO.
  - ✶ Configuration file stores limits set for interlocks and allows limits to load automatically on cRIO's reboot.
  - ✶ Cause of file corruption on program start yet to be found.
  - ✶ File corruption only occurs when LabVIEW program starts.
    - ▪ If new configuration file is generated after program is started, file is able to be accessed by program without any issues.
  - ✶ Added control to increase delays in subVIs that access configuration file to ensure program is able to finish writing to file before opening file again.
    - ▪ Delays do not appear to have any effect as configuration file still corrupts at start of program.
- Replaced 5V power supply in hardware interlock cRIO chassis with spare.
  - ✶ 5V power supply thought to be a source of noise in electronics' readout by INFN.
  - ✶ Swapping power supply with a spare with output confirmed to be without noise eliminates cRIO's 5V power supply as source or noise.

McMullen, Marc
DC

- Monitored the TCU plots. The TCUs have been measuring the gas standard for three weeks.
  - ✶ Continued TCU measurements of the standard.

RICH

- Discussed cooling manifold with INFN and DSG staff.
  - ✶ The cooling manifold creates a flow restriction downstream of the RICH gas panel and therefor a pressure system which must adhear to Jlab Pressure System requirements.
  - ✶ Met with a Hall B Design Authority to discuss conforming to Jlabs Pressure Systems program.
    - ▪ Organized a meeting with INFN and the DA to discuss options which will solve the issue.

- Met with GandR metals to discuss the completion of the three fabrication jobs being produced.
  - ✦ GandR is scheduled to deliver parts by 10/6.
- Ordered hardware for the three fabrications.

MVT

- Debugged the gas mixing LabView code.
- Continued adding MVT tab to the GUI.
- Provided cost estimate ($2,500) for the controls cables to be extended from Hall B space frame level 3 to the Hydrogen Target gas pad.
  - ✦ Hall B management suggest that a requisition for these cables will not be signed until the new FY.

LTCC

- Hall B has not reconnected the Sector 5 detector. Percentage of loss attributed to the piping is down to 1.5%.

	S3	S4	S5
Total | Avg	131.561	70.066	58.076
Since Dead Band Change	122.188	51.872	45.148
S3 S4 S5 Leak Thru Pipes (Liters per day)	14.192	5.267	0.673
Piping % of total detector leak	11.615	10.154	1.491