

### Summary

#### Hall C

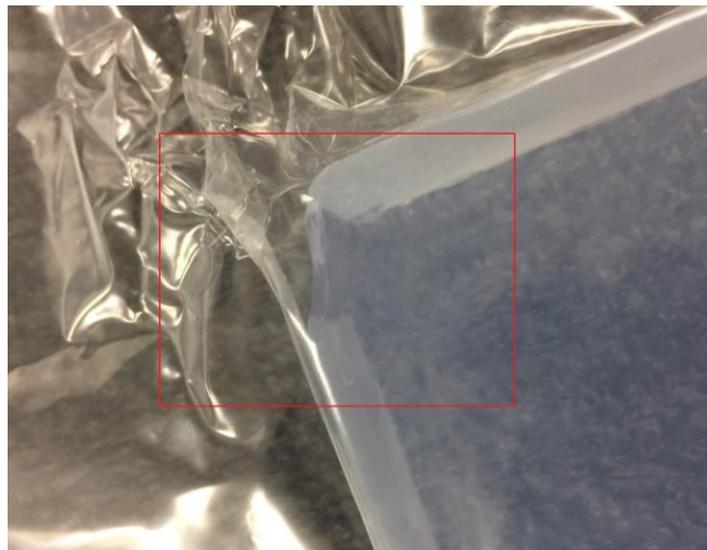
- NMR unit testing continued.
  - ★ Code added to update DSG-PLC with field and lock status.
- UPS monitoring routines revised.
  - ★ Reset for delay timer added.
    - Resets timer when interlock fault clears.
  - ★ Logic changed for fault reset.

#### Hall B Magnets

- Solenoid magnet had fast dump on 8/27/2018.
  - ★ Found that delay thresholds on QD#2-ch2 and QD-ch3 were set to 0 ms instead of 999 ms.
  - ★ Solenoid ramped to and held at 500A from 8/31/2018 to 09/04/2018.
    - Scopes were connected to QD#1-ch4 and QD#2-ch2 to monitor voltage spikes.
    - Video camera installed for online monitoring of scopes.
    - No spikes observed.
  - ★ Test conducted to write larger PV arrays from cRIO.
    - Will be implemented in NI code in order to lower the rate for the FastDAQ data array from 5 Hz to 1 Hz.
    - Will make it easier to automatically correct timing jitter.

#### RICH

- Wiring diagrams completed for N2 cRIO and EP cRIO hardware interlock chassis.
- Inspected 15 3-cm aerogel tiles and stored in drybox in DSG small cleanroom.
  - ★ As with previous shipments: all tiles had minor chips or dents on their edges and some had larger chips/dents on their edges.
  - ★ Tiles completed aerogel order for first RICH sector.
    - These tiles were not manufactured in time to install in RICH, but were still delivered to JLab, as per the manufacturing contract.



Chip on corner of aerogel tile (boxed in red). Chip is ~2 cm in size and is largest fault observed in shipment.



# Detector Support Group

## Weekly Report, 2018-09-05

### Hall D

- Solenoid magnet had fast dump on 8/30/18.
  - \* PXI clock found to be ~30s faster than PLC, and Mya/EPICS data was ~30s slower than PLC.

### Hall B Gas System Controls

- Second MFC power chassis completed.

### DSG

- RSLogix5000 license added to “Cadlm2” server.
- Computer Center upgraded DSGCOMP2 computer to Windows 10.
  - \* LabVIEW Real Time 2017 and GPIB drivers installed for cRIO Test Station.



# Detector Support Group

## Weekly Report, 2018-09-05

### Antonioli, Mary Ann

#### cRIO test station

- Tested code for manual test of module 9205 in  $\pm 0.2$  V ranges, using Krohn-Hite power supply.
  - ★ Debugged and increased wait time.
  - ★ To fix sleep problem of test computer, computer center updated to Windows 10.
  - ★ Downloaded LabVIEW and cRIO, GPIB, and VISA drivers to the computer.
- Formatted and made first edit of RTPC gas supply Note.

### Bonneau, Peter

Absent

### Campero, Pablo

#### Hall B Magnets

- Followed Solenoid magnet after fast dump occurred on 8/27/2018.
  - ★ Found that delay thresholds on QD#2-ch2 and QD-ch3 were not recorded on its memory and have 0 ms delay thresholds.
    - Changed delay thresholds to 999 ms
    - Ensured that time delay thresholds were recorded on QDs.
  - ★ Ramped Solenoid to 500 [A] and kept at this current since 8/31/2018 to 09/04/2018.
    - Connected scopes to QD#1-ch4 and QD#2-ch2.
    - Scopes configured to monitor voltage spikes if any during the solenoid power up at 500 A.
    - Monitored Solenoid at 500 [A] during mentioned period; there was not fast dump.
    - Installed video camera to monitor both scopes online.
  - ★ Updated DSG spreadsheet used to follow up all solenoid fast dumps
    - Added date, fast dump number and root file name.
- Added RSLogix5000 license to “Cadlm2”server.
- Edited and compile DSG weekly report.
- Worked on cRIO Test Station set up
  - ★ Installed LabVIEW Real Time 2017 and GPIB drivers on DSGCOMP2 computer after computer was upgraded to windows 10.
  - ★ Ran test LabVIEW to test communications with Krohn Hite voltage source.

### Eng, Brian

#### Hall B Magnets

- After dump on 8/31 found that the delay for QD #2 were all set to 0 ms instead of 999 ms: <https://logbooks.jlab.org/entry/3593201>
- Left solenoid at 500A over weekend, no issues.



# Detector Support Group

## Weekly Report, 2018-09-05

- Tested writing to larger PV arrays from cRIO, needed to modify NI code to increase the EPICS PV array size, but works fine. This is to lower the rate for the FastDAQ data array from 5 Hz to 1 Hz to make any timing jitter easier to automatically correct.

### Hall C

- Continued testing NMR unit with actual field, added code to update DSG PLC in EEL/121C with field and lock status. Added additional code to handle losing a lock since reading the field doesn't return an error, but doesn't give a number either. Waiting for HMS Dipole to be ramped again for more testing.

### Hall D

- Solenoid dumped on 8/30: no issues with the PXI. Still need to verify that timestamps are okay though. PXI clock is ~30 sec faster than should be, but Mya/EPICS data is ~30 sec slower.

## Hoebel, Amanda

### HDIce

- Gathered and placed all documentation and code into the main HDIce folder on the O: drive.

### Magnets

- Attended meeting to discuss solenoid quench data.

### Hall C

- Modified current loop regulation program to reflect changes suggested by Mike.
  - \* Made loop regulation a separate routine.
    - Re-wrote code to choose between I\_Target and I\_MOL in ladder logic as opposed to function block diagram with previously existing code.
- Monitored EPICS and logbooks for Halls B, C, and D.
- Worked on Keithley and Krohn-Hite simulator programs in Python.

## Jacobs, George

### GAS Systems

- RTPC gas system note diagrams and details.

## Leffel, Mindy

### Gas System

- Completed second MFC power chassis.
  - \* Finished wiring components and attached handles.
  - \* Assessed completed chassis with Amrit, Marc, Tyler, Pablo, and Amanda.

## Lemon, Tyler

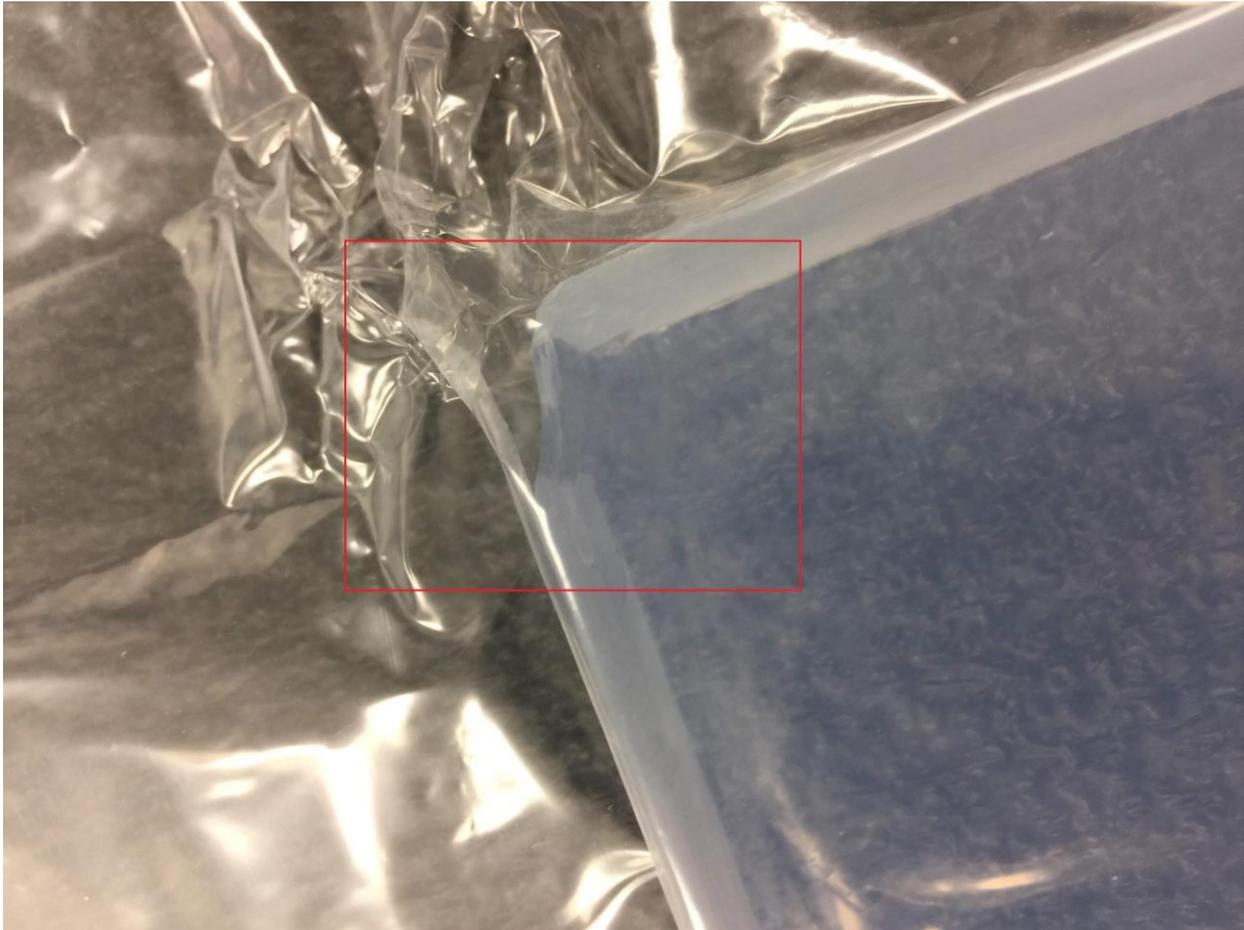
### RICH

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## Detector Support Group

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- Inspected 15 3-cm aerogel tiles and stored in drybox in DSG small cleanroom.
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#### Hall B Solenoid

- Checked wiring and connections of QD circuits with Pablo, Brian, and Amanda.
  - \* Checks verified that loose connections did not cause fast dump on August 30.
- During checks, noted that QD2's delay times had all been reset to zero milliseconds.
  - \* 0 ms delay times likely culprit of fast dump as any noise spike, regardless of duration, would trip QD if delay time is 0 ms.
  - \* Re-set and saved QD2 delay times to 999 ms for all channels.

#### Hall C

- Revised UPS monitoring routines to meet recommendations from Hall C.
  - \* Added reset for delay timer and changed logic for fault reset.

### McMullen, Marc

#### Gas Controls

- Continued work on Gas Controls daily report upgrade.
  - ★ Worked on chart display.
  - ★ Added property nodes to match the excel file time to the chart time axis maximum.
  - ★ Started work on automated excel file time retrieval.
    - This function will return the latest file update time to the scaling property nodes, which will keep the display chart time length updated during data upload.
    - This feature is needed when the data logger has been halted within the standard 24 hour run (the data logs end at midnight where a new file begins).
- Went over the internal wiring of the MFC power chassis with the DSG team.
  - ★ The second box has been assemble by M. Leffel.
  - ★ Concerns were raised about the chassis size and heat load produced by the two 24V supplies.
  - ★ A check of the operational prototype confirms that it is not warm to the touch and has been operating to capacity (7 MFCs) for more than 30 days in the gas shed.
- LTCC gas system tanks have been installed.
  - ★ These two 240 gallon tanks have repurposed from the DC pressure controls system.
  - ★ The LTCC will use them to store and supply used C4F10, which will be pumped from the hall to the gas shed when the sector pressure exceeds the exhaust pressure set point on the Omega process controller.

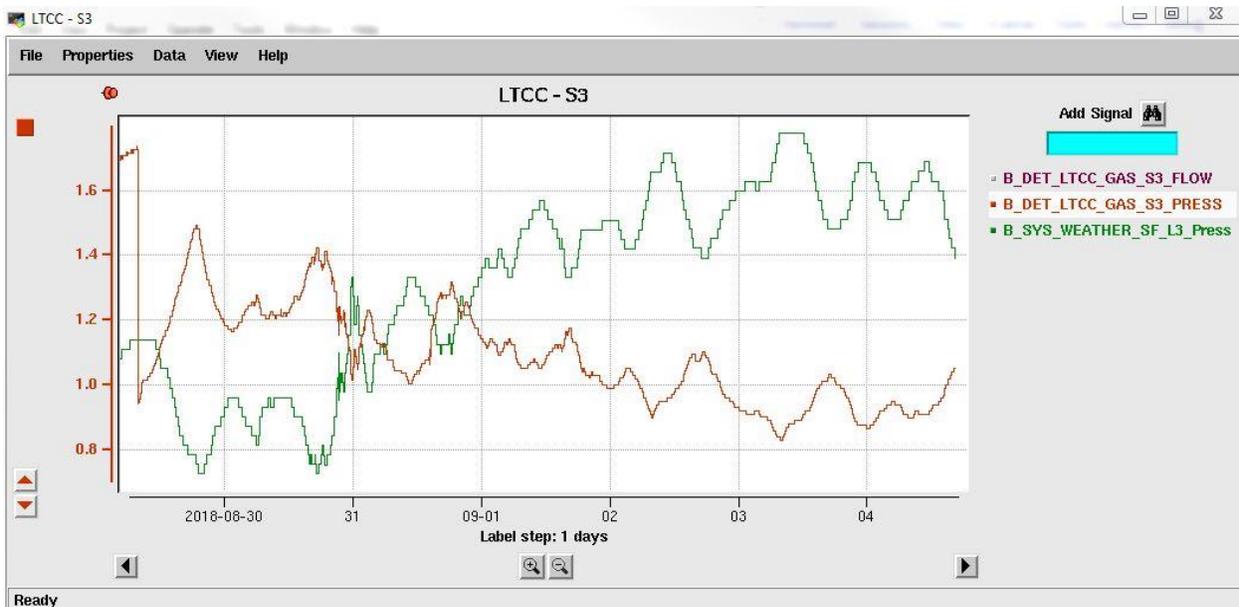


Figure 1 LTCC S3 pressure has been relatively stable. No obvious leaks are detected from charting the pressure.