Summary

### Hall A – SoLID Magnet Controls
Mary Ann Antonioli, Pablo Campero, Brian Eng
- Developed and revised AutoCAD drawings for:
  - ★ Drawing # 0200 – rear instrumentation control panel
  - ★ Drawing # 0600 – vacuum, pressure, mass flow wire diagram
  - ★ Drawing # 2600 – miscellaneous instrumentation cable diagram
- Updated SoLID Drawing List spreadsheet:
  - ★ Added *remote # 2 PLC chassis* drawings
  - ★ Updated comments and added new column with group names
- Modified PLC code to read voltage taps sensors
- Installed RSLogix 5000 v20 on dsg-halla-1 for an additional SoLID PLC workstation.
- Updated firmware of 1756-ENBT Ethernet module in SoLID PLC system from version 4.008 to 6.006.
  - ★ Verified compatibility of module firmware version in a PLC redundancy system.
- Development of Cryo Control Reservoir (CCR) HMI screen in progress.
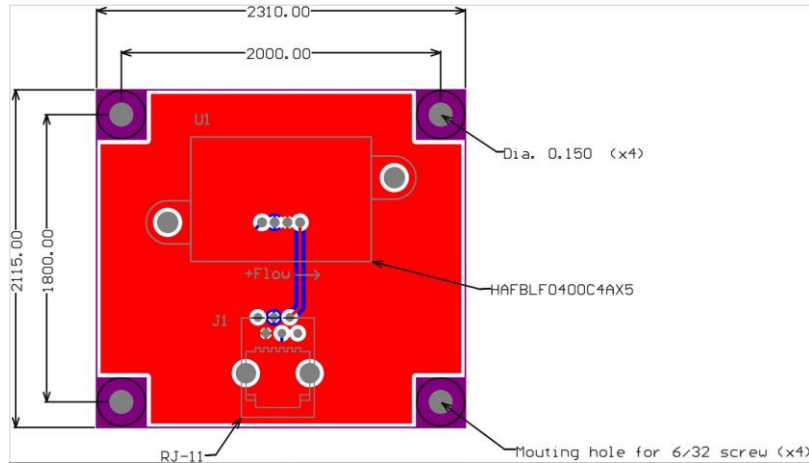 - ★ Main components, helium supply lines, and nitrogen supply lines added to screen.
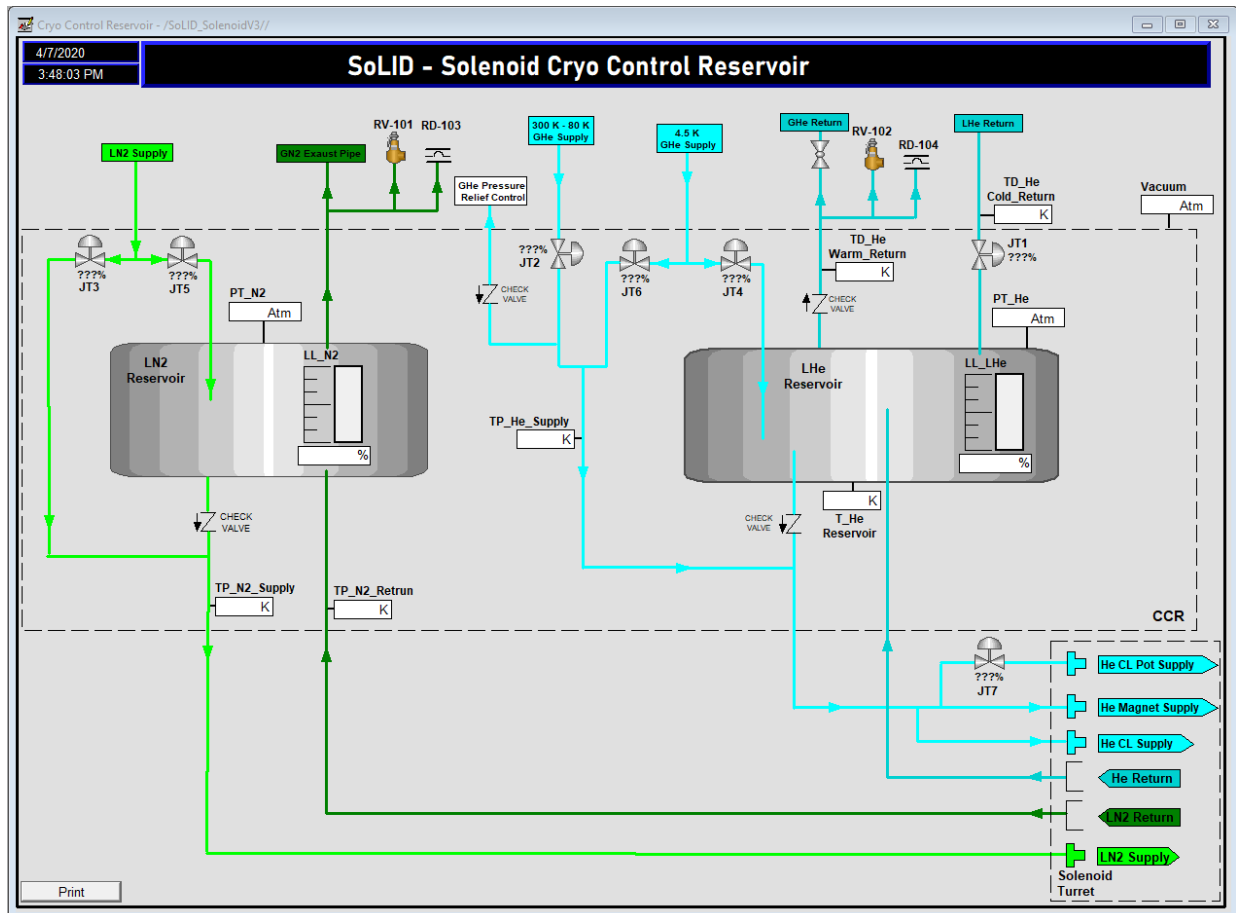
SoLID Solenoid Cryo Control Reservoir HMI screen under development

Hall A – SBS GEM Gas System
Brian Eng, Marc McMullen

- Completed schematic and initial routing of the PCB for the Honeywell Zephyr flow sensors

PCB design for Zephyr flow sensor. Units on diagram are in mil (1 mil = 0.001 inch).

Hall B – DC Gas System
Brian Eng

- Changed DC Gas Mixing during MEDCON6 code to programmatically use PSP Shared Variables instead of the bound front panel indicators/controls.
  - ★ Bound indicators/controls were losing their connecting between cRIOs.
  - ★ No issues since change on 4/1/2020

Hall C – HMI-to-CS-Studio Conversion
Mary Ann Antonioli, Aaron Brown, Pablo Campero

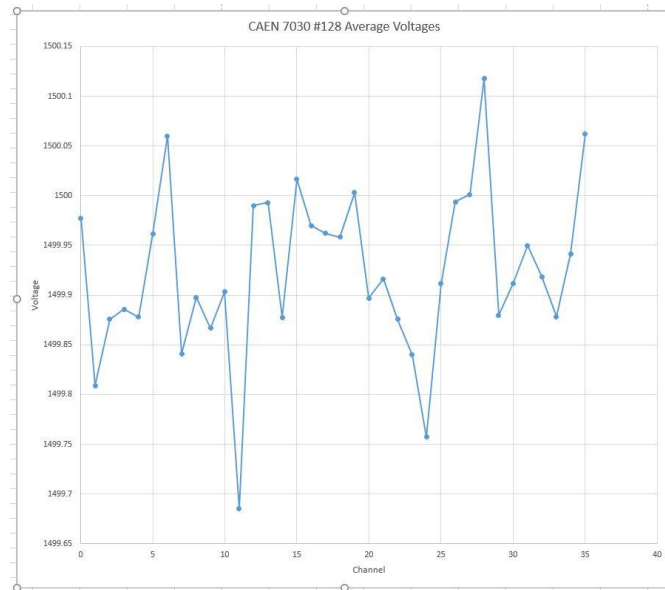- Continued conversion of HMS Heat Exchanger JT Trend screen.
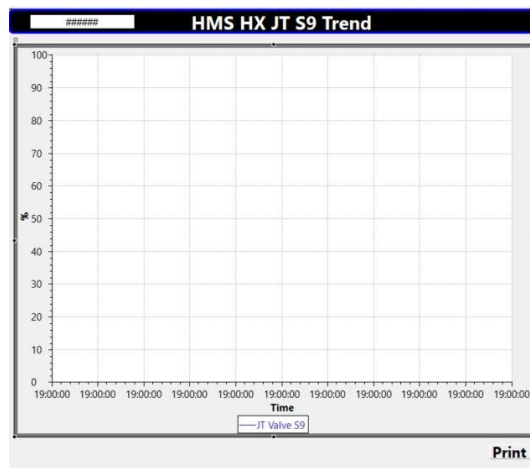
HMS Heat Exchanger JT Trend CS-Studio screen. Screen is empty because PVs are not yet in EPICS.

Hall C – CAEN HV Testing
George Jacobs

- Created plot of CAEN average voltage vs channel for Ch. 0 - Ch. 35 in Excel
  - ★ Voltage variation between channels is less than 1 V.

Average voltage for each channel in CAEN 7030 HV board #128 during stability test.

HDice – fsNMR
Peter Bonneau, Tyler Lemon

- Added ability to use background data (previous run's averaged data) as a normalization factor for comparison
  - ★ Not a true normalization, more of forcing new data to be on same scale as background data.
  - ★ Formula used (to normalize data at each frequency):
    - Normalized data = [(new data)/(background)] x (overall maximum of background)
- Investigated alternate method of acquiring data for N cycles by taking N acquisitions at each frequency, sweeping frequency once.
  - ★ Currently program sweeps frequency N times, taking one data point at each frequency.
  - ★ This method is faster than multiple complete frequency sweeps.

Engineering
Mindy Leffel, Marc McMullen

- Continued population of BPM boards.
  - ★ Ordered parts for the BPM boards.

DSG R&D – EPICS Data Logger
Aaron Brown
- Installed RStudio and R base on DSGCOMP10
- Developed code in R to query the MySQL database directly and plot the results
  - ★ Working on establishing remote connection to database to allow users to access database regardless of what machine they're logged in to

DSG R&D – MSELV Chassis
Peter Bonneau, Tyler Lemon, Marc McMullen
- RMC review underway, completed signal integrity routing check to fix all traces routed over clearance holes in the adjacent plane layer.
- Investigated Raspberry Pi as controller for chassis in two configurations:
  - ★ Independent controller: Raspberry Pi is only controller in chassis communicating to DACs and ADCs.
    - Not enough GPIO pins to give each necessary signal its own IO pin.
    - Looking into whether DAC or ADC sync signals or clock signals could be assigned to same Raspberry Pi GPIO pin to reduce number of pins needed.
  - ★ Dual controller: Raspberry Pi works with DE0-Nano and performs excitation calculations and PLC communications.
    - Raspberry Pi would replace LV-cRIO in current chassis readout chain.

DSG Website
Aaron Brown, Pablo Campero, Brian Eng, Tyler Lemon
- Redesigning layout of DSG website in progress
  - ★ Added Technical Documentation section to include Drawings for SoLID
- Attended Drupal training