



Detector Support Group

Weekly Report, 2019-03-13

Summary

Hall C EPICS

- PLC tags to EPICS PVs simulated between HMS/SHMS PLC and EPICS.
 - ★ Demo version of *KEPServerEX v.4.5* installed.
 - *KEPServerEX* acts as an OPC (Open Platform Communications) server that allow the access of the PLC tags to any OPC client (e.g. *OpcIocShell*).
 - Demo version allows continuous running of OPC server for ~ 2hrs.
 - ★ Created and configured an OPC server on *KEPServerEX* to simulate identical structure and configurations of HMS and SHMS OPC servers.
 - ★ Wrote PLC code to generate random values for different data types.
 - ★ Connected *DSG-PLC* with OPC Server to allow access of PLC tags created to OPC Clients.
 - ★ Installed and configured *OpcIOCSHELL* software.
 - ★ Simulated system tested by using the following components:
 - *Dsg-hallc-2 PC*: Running OPC Server and OPC Client (*OpcIOCSHELL*)
 - *DSG-PLC* controller: Running PLC program.
 - *Linux-tleon1 PC*: Simulating EPICS and monitoring PV updates.
- Diagram generated showing an overview of communications and setup between SHMS/HMS PLC tags and EPICS PVs.
- PLC code created to monitor communication between SHMS/HMS PLC and EPICS.
 - ★ Program checks PLC watchdog fails, generates PLC heartbeat, and enables a bit to monitor status of communication.
- Demo IOC developed with a PV that increments by one second to demonstrate WEDM alarms for DSG-Hall C EPICS meeting.
- Developed backup program for EPICS fields.
 - ★ Program developed as an intermediate step between using existing Tcl/Tk backup and restore and EPICS BURT.
- Developed program to add fields to existing PV databases.
 - ★ The Python program reads in fields to add to a database, parses an existing database looking for PVs to add fields to, and then modifies database to implement fields the next time the IOC is rebooted.
 - ★ Would be used to add alarm fields to PVs from Hall C PLCs.
- Investigated existing Hall C IOCs.
 - ★ 36 PVs from PLCs are reproduced on *CryoAlarms* IOC running on *cdaq11* to allow alarm fields to be added.
 - ★ Hall C's EPICS ALH then looks at copied PVs to display alarm status.
- Ethernet/IP drivers for EPICS installed on *dsg-c-linux1*.
 - ★ Drivers allow direct communication between PLC and EPICS.
- CSV-to-CSS Python script modified to create HV screens for all HMS detectors.
 - ★ Detectors are: Hodo-1-X, Hodo-2-X, Hodo-1-Y, Hodo-2-Y, Shower Counter A, Shower Counter B, and Drift Chambers.
- Drop-down menu created for CSV-to-CSS Python script.
 - ★ Menu allows users to select which detector HV screen to display.

Hall C CAEN-SY4527 Test Station

- HV card testing in progress.
 - ★ Test starts at 0V and increases voltage to 3.5[KV] in steps of 50[V].
 - Dwell time on each step is ~ 20 seconds.
- Automation sequencing code development for automatic channel testing started.
 - ★ Code will retrieve EPICS record data from CAEN module and update shared variable for each channel.



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Hall B Solenoid

- Analyzed first time the makeup pump came on after LCW work was done on the tank.
 - Return pressure increase is much less on 03-12-19 event compared to 02-11-19 event.

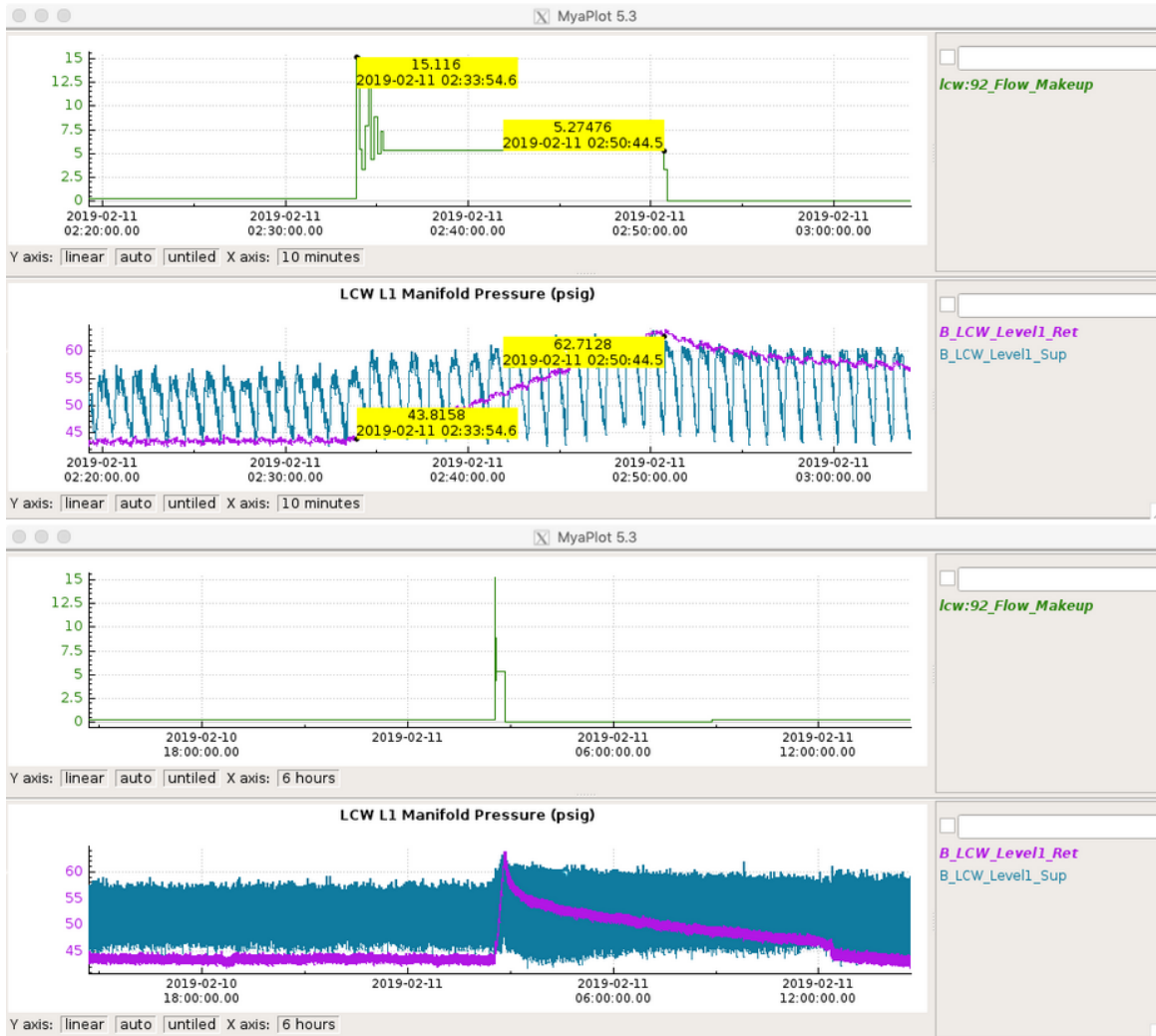


LCW return and supply values for makeup flow event, on 03-12-2019, after work done on tank.



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LCW return and supply values for makeup flow event, on 02-11-2019, before work done on tank.

HDIce

- Windows update version 1809 failure investigated.
 - ★ Several 1803 updates that were supposed to be installed before 1809 had not been installed.
 - All 1803 updates are now installed.

LTCC

- Daily flow averages for the week calculated.

Daily Flow Averages for LTCC

Sector	Liters per day	Estimated Total Kgs Used (after filling)
S3 Supply	19.45	5.25
S5 Supply	33.32	8.33
Combined Return	40.15	10.84



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RTPC

- Gas controls chassis ordered.

Accelerator Engineering Division

- Population of sixth VME FSD board completed for Machine Protection System.

cRIO Test Station

- Modified and completed fabrication of cRIO test/spare chassis.
- NI-9265 output module wired to be tested.
- Manual tests added to drop-down menu.

DSG Website

- Revision of the Drupal version of the index page completed.
- Drupal template for Adobe Dreamweaver for new website layout developed.
- New DSG Spotlight Photo page based on Drupal template developed.