Detector Support Group
Weekly Report, 2019-01-16

Summary

Hall C EPICS

- Precompiled versions of CS-Studio containing plug-ins investigated.
  - ✦ Versions include plug-ins for CSS-BOY and CSS-BEAST Alarm handler.
  - ✦ Precompiled versions will be used as a development platform.
  - ✦ For final system, a custom CSS version will be compiled that contains all plug-ins and configurations needed for Hall C.
- *tcl2css* (used to generate HV screens) and *csv2edl* (used to generate WEDM screens) Python programs updated.
  - ✦ *tcl2css* reverted to version that removes separate files for OPI widget templates and custom functions, removing unneeded dependencies and potential error sources.
  - ✦ Code added to *csv2edl* that allows input parameter to be either a .CSV file or directory of .CSV's.

Hall C PLC

- Updated HMS PLC system for compatibility with RSLogix5000 version 20.
  - ✦ Replaced old modules/firmware with new modules/firmware compatible with version 20.
  - ✦ Successfully tested automatic switch to secondary chassis upon primary chassis failure.
  - ✦ HMS PLC system now able to be run from Windows 10.

Module Type	Old Model	New Model	Module Firmware Used
Controller	1756-L62	*Not replaced*	20.058
ControlNet	1756-CNB	1756-CN2	25.005
Ethernet	1756-ENBT	1756-EN2T	11.001
Redundancy	1756-SRM	1756-RM2	20.009

Table of module and firmware changes required to update HMS PLC system to RSLogix5000 version 20. PLC controllers did not need to be replaced to be able to update system.

HDice

- Documentation developed for upcoming review.
  - ✦ NMR program flow chart revised.
  - ✦ Operator's manual for NMR system with synchronous mode option under development.

SVT

- Software and hardware interlock system tripped on January 15, 2019 due to drop in cooling system pressure.

Hall B Magnets

- Pre-power up interlock and instrumentation checklists on hold while magnet group and DC power group are resolving problems with Danfysik control board.

RICH

- N_2 automatic backup manifold successfully tested.
  - ✦ Manifold is ready for installation by Hall B Engineering.
- Information and photos gathered on EEL 121b small cleanroom and EEL 124 big cleanroom for RICH collaborators.

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LTCC

- Installation of solenoid power chassis completed.
- Controls software system tests underway on S5 using N_2.
  - System fills sector if sector's pressure drops below ~1.9 IWC.
  - Pumps used to exhaust system if sector pressure exceeds ~2.5 IWC.
    - A single pump draws ~11 psi, resulting in ~7 lpm exhaust rate.
  - Verified functionality of interlocks for buffer tank pressure, pump output pressure, and C_4F_{10} supply pressure.
- Development of additional code started to eliminate solenoid chatter using a deadband.
  - During testing, found that after supplying or returning gas, the system tends to have chatter at the solenoids and pumps.

Hall A HCAL

- Fourteen cable bundles transported from ESB to Test Lab.
- Labels removed from 24 cables.
- 304 cables tested, labeled, and bundled (16 cables per bundle).
- Total cables complete: 704.

cRIO Test Station

- Development started for cRIO module 9215 manual-mode tests.
  - Tests include samples, mean, accuracy and standard deviation, differential nonlinearity, dynamic range, and gain.

DSG

- Two notes edited and posted to DSG website.
  - 2019-01 *Software Development and Test Results for CompactRIO Module 9205*
  - 2019-02 *Analysis of Hall B Solenoid Load Cells' Readings during Fast Dumps*
- DSG Technical Documentation directories and index pages added to DSG website.