Detector Support Group

We choose to do these things "not because they are easy, but because they are hard".

Weekly Report, 2022-07-06

Summary

Hall A – GEM

Brian Eng, George Jacobs, and Marc McMullen

- Updated bashrc file (startup script that contains the configurations for a Linux terminal session) on SBS Raspberry Pi with the variables needed to run on the Hall A subnet

Hall A – GEn-II

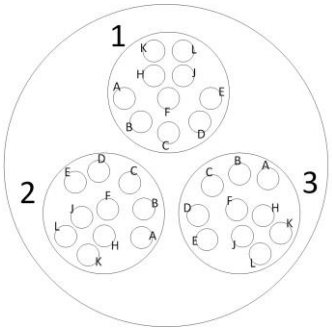
Mindy Leffel

- Terminated, tested, and labeled 60 RG59 SHV cables – 280 of 400 complete

Hall A – SoLID

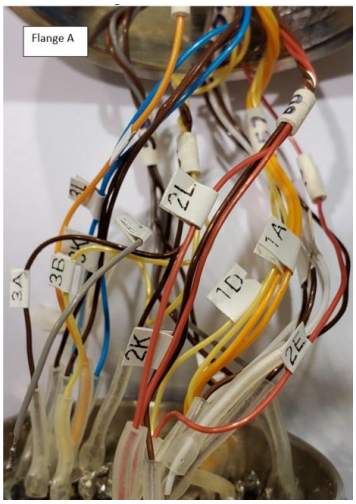
Pablo Campero, Mindy Leffel, and Marc McMullen

- Using AutoCAD, generated graphical representation of turret connector
- Generated, using Visio, drawing of turret connector to use as a template



Visio drawing of turret connector

- Labeled wires in turret flange A



Labeled wires of the SoLID Magnet turret – flange A

Hall B – RICH-II

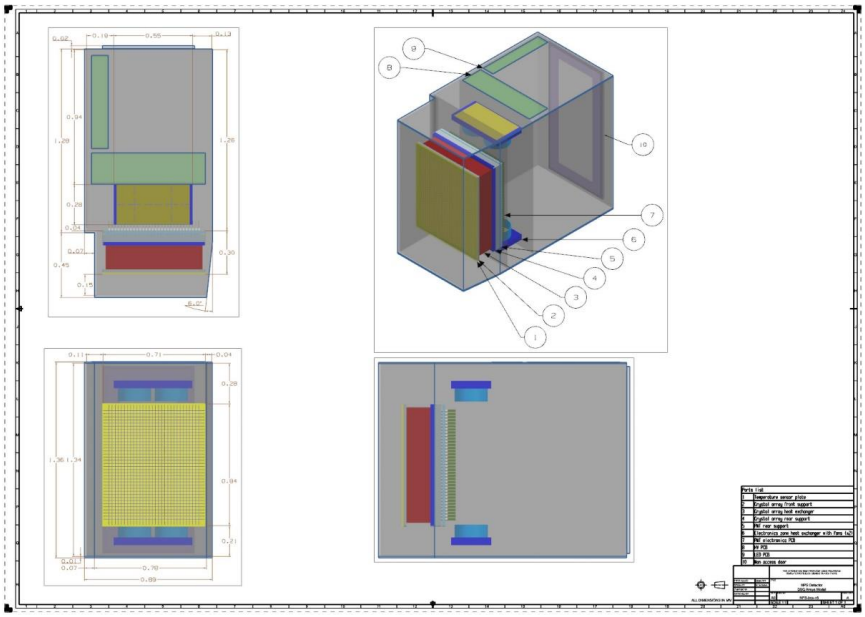
Mary Ann Antonioli, Peter Bonneau, Pablo Campero, Brian Eng, George Jacobs, Tyler Lemon, and Marc McMullen

- Updated hardware interlock systems' CSS-BOY screens
  - ✶ Screens updated for both sectors so their naming reflects the sector in which they are installed – "RICH Sector 4" for the old RICH, "RICH Sector 1" for the new
  - ✶ Reorganized RICH Sector 1 screens to be more similar to RICH Sector 4 screens
  - ✶ Reworked interlock systems' summary screen to have one section for RICH Sector 1 and one section for RICH Sector 4
    - Boolean OR logic used for RICH Sector 4 temperature and humidity interlocks since those signals come from two different cRIOs

Hall C – NPS

Mary Ann Antonioli, Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, George Jacobs, Mindy Leffel, Tyler Lemon, and Marc McMullen

- Established serial communication with smaller of the two NPS chillers
  - ✶ Upgraded cRIO firmware and installed packages to enable serial communication
- Developing Ansys Fluent thermal simulations which include heat exchangers' heat removal effects by adding rotation to the fans in a perfectly isolated detector enclosure
  - ✶ Modified geometry to include only one of the four fans in the model
  - ✶ Rotated fan, but still having issues with the interaction between the heat exchanger and electronics volume
  - ✶ Working with Ansys technical support to resolve issues
- Modified NPS model by removing all parts of crystal and PMT to reduce processing load during thermal analysis
  - ✶ Completed third angle projection drawing of the NPS model



Third angle projection drawing of NPS detector model

Hall D – JEF

Aaron Brown, George Jacobs, and Mindy Leffel

- Wrapped three crystals with ESR foil and Tedlar

Hall D – WEDM

Tyler Lemon

- Debugged goniometer radiation status message; Boolean logic in WEDM used for indicator was incorrect

DSG R&D – EPICS Alarm System

Peter Bonneau

- Rebuild and debugging of Phoebus to version 4.6.10 from source code
  - ✶ Updated to Apache Maven 3.8.6 – Maven is the project management tool used to build Phoebus from source code
  - ✶ Configuration of Kafka for the alarm system; wrote new Kafka message stream configuration files based on latest Phoebus alarm system parameters

DSG R&D – Single-Pair Ethernet

Tyler Lemon and Marc McMullen

- Attended web seminar on single-pair Ethernet (SPE) to evaluate potential uses to support Physics division detectors
  - ✶ SPE uses one set of twisted pair wires rather than the four standard Ethernet (less wires, smaller cable); can work over distances of 1 km
  - ✶ SPE requires devices at both ends of circuit to write/read from SPE connection
  - ✶ Not as helpful as initially thought since there will need to be a device on the "remote" end to read/write to the SPE chip – device on remote end must *still* be radiation hard or able to withstand the environment in which the device is placed