HALL C PLC TASKS REPORT (11/15/2018 – 11/21/2018)

- Finalized Current Loop PLC program.
- Started work on converting Python/SBC code to LabVIEW/cRIO.
  - ✶ Found a potential bug with the Ethernet/IP driver for LabVIEW
  - ✶ Unable to access individual DINT bits for controlling relay channels.
    - ▪ Filed support ticket with NI, which has already been escalated to R&D.
- Calculated memory size needed in Controllogix 1756-L62 PLC controller to implement array to carriage data from 1756-IF4FXOF2F/A module at its max speed of 3.33 KHz
  - ✶ PLC I/O memory increments ~ 0.40 % (equivalent to 1936 bytes) when a 1756-IF4FXOF2F/A module is added to PLC chassis.
  - ✶ No problems adding this type of modules should be ok.
  - ✶ To keep the data in the PLC User memory for ten minutes after and before a quench event, it requires:
    - ▪ Array with a size of $4*10^6$ elements, which represents ~ 16 MB in terms of User PLC memory.
    - ▪ The max size allowed for the creation of an array by RSLogix5000 is 2 MB.
    - ▪ Since PLC ControlLogix L62 has a total of 4 MB User memory, holding an array of 16 MB size is not possible, even if array to handle input data is divided.
    - ▪ Currently available HMS PLC User memory is ~ 2.1 MB (50.37 %).
    - ▪ Currently available SHMS PLC User memory is ~ 1.53 MB (36.66%).
- Upgrading 1756-IF4FXOF2F/A firmware from 1.4 to 3.5 in progress.
  - ✶ Communication issues with the module; contacted Rockwell support.
  - ✶ Verified that 1756-IF4FXOF2F series A used in the Standalone PLC test stand has a 3.5 firmware running with no issues.