Magnets

- Analyzed and tested Solenoid FastDAQ data after it fast dumped at 2416 A on 08/27/2018.
  - Got SOE PLC timestamps, which showed QD#2-ch2 (only VT1 connected at this channel) as the first trip.
  - Analyzed FastDAQ data for 21 voltage taps
    - Found significant voltage spikes on VT2, VT1, VT15, VT18, and VT19.
    - VT15 presented the first spikes of ~ 1V, 198 ms before the others.
    - VT15 is part of a VTs group that is connected in QD#1-ch3 and QD#2-ch4.
    - Nether QD#1-ch3 or QD#2-ch4 tripped.
  - After looking at all the voltage taps only VT15 has a spike at a reasonable time before the dump (Fast Dump switch opened).
  - At the time of VT15 spike, all other taps were quiet.
  - Tested QDs functionality by injecting voltage in Solenoid Resistor Box.
    - Injected 1, 2 V to simulate Voltage spike in VT15, VT1.
    - QD#1-ch3 and QD#2-ch4 tripped as expected.
  - Checked wiring connection and compared it to the latest version of the drawings.
    - Wiring between Resistor Box, Voltage Tap Panel, and QDs is correct and matches the drawings.
  - Checked wiring connections on cRIO ADC input modules, all connections matched drawings and also LabVIEW code channel assignment.
  - Injected pulse signal with signal generator on VT15 at the Resistor Box connector to test cRIO Notch filters.
    - Voltage signal injected: Vpp = 10 V, at 0.5, 2, 3, 5 and 10 KHz.
    - Filter reacted as expected, showing decrement in the Vpp at higher frequencies.
  - VT15 probably is not the cause of the dump as the analysis indicates duplicate and missed samples on the FastDAQ data used for voltage tap analysis.
- Fixed PTP time on cRIOs that used the PLCs as master on the Hall B subnet