Hall A Dynapower MPS PLC Upgrade

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March 27, 2019
Left & Right Arm - Dipole PLC

- Allen-Bradley SLC 500
- Used to monitor interlock circuits and control power supply switches
- PLC has had faults that needed physical access to recover
- Controller lifecycle status has been discontinued
  - No longer in production as of Jan 2017
Replacement System Options - DSG Note 2019-13

Prices from March 2019 for single complete system

• Allen-Bradley ControlLogix - ~$14400
  • Cost prohibitive

• National Instruments CompactRIO - ~$6000
  • Different programming environment
  • Module channels don’t always match existing system
    • cRIO only has 16-ch instead of the 8-ch used currently (need to change wiring)

• Allen-Bradley CompactLogix - ~$4300
  • Nearly all existing modules have direct replacement
    • 1746-OG16 to 1769-OG16
Current Status

- Two complete systems (for Left and Right Arm) plus one spare of each type have been ordered
  - Due late March 2019

- Converted existing code from RSLogix 500 to Studio 5000
  - No functional changes to the logic

- Developing plans for tests to be performed before and after PLC replacement
  - Need to verify system behaves the same