

HALL C PLC TASKS REPORT (05/07/2018 – 06/13/2018)

- Tests conducted to determine the performance of the local chassis when it controls two remote chassis:
 - a) Both remote chassis using Controlnet modules.
 - b) One remote chassis using Controlnet module and the other using Ethernet module.

The remote chassis for both configurations were fully loaded.

- ★ Test performed using Standalone PLC test station.
 - Standalone PLC configured to mimic current configurations for SHMS PLC system.
 - “DSG-PLC” chassis added to Standalone PLC system to get a total of three PLC chassis as follow:
 - Local chassis: populated with the controller, Ethernet module (EN2T) and Controlnet module.
 - Remote chassis #1: configured with Controlnet module and I/O modules.
 - Remote chassis #2: configured with I/O module and initially a Controlnet module and then with an Ethernet module.
- ★ Two PLC ACD files created:
 - First program configured with Controlnet network to transfer data between the local chassis and the two remote chassis.
 - Second program configured with one remote chassis using a Controlnet module and second remote chassis with Ethernet module.
- ★ Test results showed that the configuration of the system with the Ethernet module and Controlnet module works without problems.
 - Measured time to take the PLC off-line and recover communications was < 60 s.
 - CPU I/O memory performance of PLC (local) controller was not affected when an Ethernet module was used in second chassis.
- Device-Level Ring (DLR) network topology researched for PLC communication.
 - ★ Mike Fowler suggested, for security reasons, DLR network be added to SHMS I/O chassis instead of standard Ethernet/IP configuration for the Ethernet modules.
 - SHMS PLC system would have existing Ethernet/IP module in local chassis allowing remote access to the PLC, defeating the purpose of creating an isolated DLR network for security purposes.
 - 1756-EN2TR module needed for DLR network not compatible with SHMS PLC version 16 of RSLogix5000.
 - Subnets Hall C and Hall C Dev are behind the computer center’s firewall, hence secure.
- Problem found with VISA open/close connection on NMR PT2026.
 - ★ Vendor confirmed problem with hardware.
- Two SBCs ordered as an adapter to enable data transmission between NMR & PLC.
- SHMS PLC network map (version 1) generated.

- The following table shows the updated assignment and status of the PLC task for DSG members.

Hall C - PLC Task List							
Item	Description	Priority	Primary Person	Start Date	Status	Comments	Suggested Duration (days) by Hall C
1	HMS & SHMS Dipole field regulation routine	1	Pablo	14-Jun-18	Started	None	10
2	Test Ethernet vs Controlnet interface.	1	Pablo	7-Jun-18	Completed	Checked by Steve	N/A
3	New NMR communication through PLC to PSU	1	Brian	10-May-18	In Progress	Ordered two SBCs	5
4	Add spectrometer rotation electric break control	2	TBD	-	Not started	None	5
5	Add HMS Spectrometer Vacuum to controls	2	Tyler	29-May-18	Waiting	Hall C must decide which type of vacuum gauge will be used	2
6	Data Logging upgrade, install and make operational	2	TBD	-	Not started	None	20
7	Develop "on loop" current regulation routine for quad's PSU.	2	Amanda	14-Jun-18	Started	None	10
8	Tune valve responses	2	TBD	-	Not started	None	5
9	Wire UPS status to controls	2	Tyler	30-May-18	In Progress	Received UPS interface 6/12/18	2
10	Modify SHMS shutter not in place status	2	Amanda	-	Waiting	Hall C must provide wiring diagram	1
11	Alarm notification to on-call staff	3	TBD	-	Not started	None	4
12	Add HMS quadrupoles hall probe readouts to PLC	3	TBD	-	Not started	None	3
13	Add HMS shutter controls and status	3	TBD	-	Not started	None	1
14	Change SHMS LVDT I/O module from Differential to Single ended	3	TBD	-	Not started	None	4
15	End of life for Windows 7 upgrade to windows 10 (next year?)	4	TBD	-	Not started	None	10