**List of cables and plumbing needed for polarized 3He target reference cell and cooling jets in Hall C.**

**Updated 29-Oct-2019**

I am requesting that the following items be purchased, fabricated and installed for the upcoming A1n/d2n experiment in Hall C.

T. Averett, 29-Oct-2019

Reference Cell System Cables Needed to Fabricate

1. A power strip is needed in the back of the reference cell rack to plug all devices in
2. There are analog outputs from the baratron gauges in the rack that need to be read into the datastream. I don’t have a cable or know where these signals need to go.
3. A cable is needed from the Hall C reference cell control panel to the remote panel in the counting house. Jack knows of this cable. It is 25D on each end.
4. Two BNC video cables from reference cell rack to counting house for video monitors (needed) to observe gauges on rack.

Reference Cell Plumbing Need to Fabricate

1. 50-100 psi air, ¼” tube, to reference cell rack and gas panel at pivot for pneumatic valve control.
2. ½” copper tube from reference cell rack to gas panel at pivot for reference cell gases: H2, N2, vacuum. Swage compression fittings
3. 1/8” copper tube from gas panel at pivot to reference cell at target ladder. Swage compression fittings.
4. UHP 5.0 N2 and H2 gas bottles needed at front of reference cell rack. Size of H2 bottle specified by Steve Lassiter. Regulators exist or are on order. Plumbing from bottles to rack by ¼” tubing, Swage compression.
5. Tubing from 3He bottle regulator to gas panel at pivot. 1/4” copper tubing, Swage compression fittings.
6. Is tubing needed from gas vent on back of reference cell rack to vent stack? Not needed in the past.
7. Vacuum/pressure gauge needs to be replaced at baratron pressure box near pivot.

Cooling Jets System Cables Needed to Fabricate

1. Two cables from flowmeter to reference cell rack (Chuck Mahlon working on this)
2. There are analog outputs from the flow meter gauge in the rack that needs to be read into the datastream. I don’t have a cable or know where this signal needs to go.

Cooling Jets Plumbing Need to Fabricate

1. Two ½” gas line of N2 to flowmeters and valves, then to gas manifold at target pivot. Flowmeter has ½” VCR fittings.
2. Two MKS flowmeters calibrated of for N2.
3. 1/8” copper tubes needed to run from manifold to target chamber and upstream and down stream beam windows. Estimate 12+ tubes. Swage compression fittings needed on one or both ends.

Cables that exist to be installed

1. Reference cell rack to gas panel at pivot-cable
2. Reference cell rack to Baratron box at pivot-cable
3. Reference cell rack to FSD for cooling jet flow-cable