**Meeting notes for the meeting on 4/13/21 regarding the valve controls through the MCM for target filling in Cryoview2:**

There will be a register that Cryoview2 will write to indicating it is requesting control or relinquishing control of valves 1, 2, &3 for target filling. When the user pushes the start button, the request for control will be sent. When the filling sequence is finished, the request to relinquish control will be sent.

There will be a register that Cryoview2 will listen to where the MCM will indicate whether or not Cryoview2 currently has control of valves 1, 2, &3.

There is currently a register that Cryoview2 will read to get the current status of all valves (open or closed).

**The steps taken by Cryoview2 when the user presses the “Start” button are as follows:**

1. Set temps to starting temps
2. Set the exchange gas pressure
3. Send request for control over valves 1, 2, &3
4. Read from the register that indicates if Cryoview2 has control every X seconds until control is granted
5. Purge sequence (detailed later)
6. Fill sequence (detailed later)
7. Send request to relinquish control over valves 1, 2, &3

**Purge sequence:**

1. Check for temps to be at starting temp

When at temp:

1. Puff DT gas into target \*
   1. Open valve 2
   2. Close valve 2
   3. Open valve 1
   4. Close valve 1
2. Wait XX minutes
3. Open valves 1 & 3
4. Wait XX minutes
5. Close valves 1 & 3
6. Repeat steps 2-6 X times

\* If round 1 monitor exchange gas pressure for leaks. If there is a leak detected, the MCM will immediately retake control over all valves and the filling process will be aborted.

**Fill Sequence:**

1. Set temps to fill starting temps

When at temp:

1. Open valves 1 & 2
2. Adjust temps to get the correct fill level\*\*
   1. Take image to get current fill level
   2. Adjust temp if not at fill level
   3. Repeat until at the correct fill level
3. Form ice plug
4. Measure final fill level
5. If not at the correct final fill level
   1. Adjust target fill level (the level to hit before forming the ice plug, not the final fill level)
   2. Repeat steps 3-5
6. Close valves 1 & 2

\*\* Do not adjust the temperature below 19.7K