

Mode Change to FEH (Checklist)

Lead tech (**red color**)

Support tech (**blue color**)

STEP 01: Confirm the duty tech has completed the Mode change checklist in the BLA, and has removed LOCKS: K3-6, K3-7, the blue CC lock, and inserted the keys into the drift pipe locks.

STEP 02: Confirm that there is sufficient Nitrogen in LN Dewar for venting and purging. Replace with fresh LN dewar otherwise. Safety tip: wear safety shoes for this task.

STEP 03: Gather materials needed before proceeding: clean nitrile gloves (for use only on open pipe sections), UHV aluminum foil (laid out in 10" squares to cover tube ends), plastic mallets for settling EVAC chain clamps, standard set of hex (Allen) keys for opening pipe clamshells.

STEP 04: Click the "XPP Home" icon (or type XPPHOME in any terminal window) on the hutch Linux computer to launch the main control panel. Click on the Vacuum/Techscreen button, then select Tech Control (Fig 1) to open the vacuum system control panel (Fig 2).

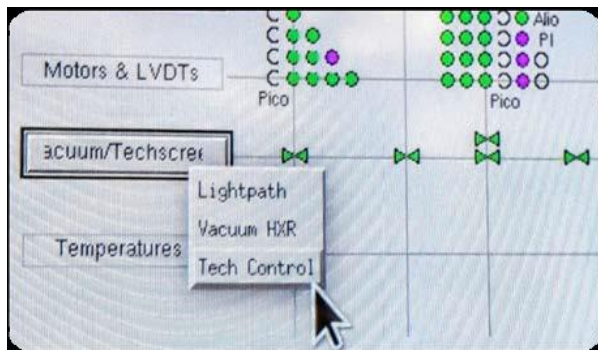


Fig 1

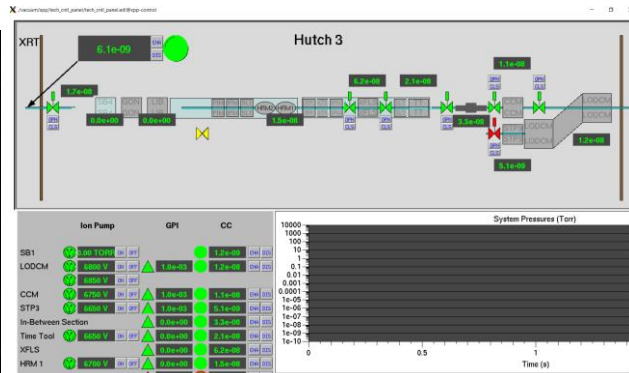


fig 2

STEP 05:

Using the XPP Beamline Schematic (printout or pdf) for reference, configure the XPP vacuum system in the following order:

STEP 06: Close VGV 1, VGV 2, VGV 3 (VGV 1=Before CCM, VGV2 & VGV3= In-between)

STEP 07: Turn off PIP 1 and ion gauges in the DVD and in-between sections.

DVD SECTION

STEP 08: Move Water Dump back to original position (North-most position).

STEP 09: Pump down (with the roughing pump only) PTP 3.

1. Ensure RAV valves leading to other beamline sections are closed

2. Open roughing pump RAV (on cross), rough pump up to turbo, then proceed to open manual valve
3. Close rough pump, and begin venting with N2

STEP 10: Once DVD section is vented, proceed to remove all chain clamps from EVAC flanges

****NOTE:** Green signal lights indicate when vented sections are at atmospheric pressure.

STEP 11: Use clean gloves to separate the EVAC flanges and cover ends with UHV aluminum foil.

STEP 12: Using at minimum 4 persons, move section 2 beampipe to original position (~12in more downstream)

STEP 13: Re-attach section 2 beampipe to DVD section

1. Ensure to align attached support stand to original locations
2. Ensure locks are in place, BUT not locked

STEP 14: Using at minimum 4 persons, move section 2 beampipe to original position (~12in more downstream)

UPSTREAM SECTION

STEP 15: Pump down (with the roughing pump only) PTP 1.

1. Ensure RAV valves leading to other beamline sections are closed
2. Open roughing pump RAV (on cross), rough pump up to turbo, then proceed to open valve to in-between section
3. Close rough pump, and begin venting with N2

STEP 16: Once DVD and In-between section are vented, proceed to remove all chain clamps from EVAC flanges

1. Use clean gloves to separate the EVAC flanges and cover ends with UHV aluminum foil.

STEP 17: Remove protective covers from SB2/3 tracks, set aside.

STEP 18: Loosen and raise SB2/3 north linear-slide locking screws.

STEP 19: Using at minimum 4 persons, utilize the hand crank, translate SB2/3 to its north-most position

1. Spot the translation. Verify cables and other components are not in the way
2. Lock the SB2/3 north linear-slide locking screws securely.
3. Replace liner-slide covers on the south side of SB2/3.

STEP 20: Close BOTH vent valves. Start rough pumping through VG5 (DVD manifold roughing pump valve)

STEP 21: Start PTP 1 AND PTP 3. After ~10 minutes, turn on the CCGs at in-between and DVD sections.

STEP 22: When the pressure for FEH beampipe is $<5E-6$, turn on PIP 1.

STEP 23: When pressure of the xpp beampipe section is $<5E-7$, open VGV2 and VGV 3.

STEP 24: When pressure of the FEH beampipe section is $<5E-7$, close manual VGV 5.

STEP 25: Power down and PTP 3 and vent with N2 at this time.

STEP 26: Shut off N2 being supplied to beamline and at the LN dewar.

Lead tech: Inform the duty tech that "Mode change to XPP" is complete. Update ServiceNow ticket.