Filling Liquid Nitrogen 160-Liter Dewars
Standard Operating Procedure

1. Unlock and open gate.
2. Position 160-L Dewar such that the vent does not point towards the pedestrian sidewalk outside the DBH loading dock area or towards the 5700-L stationary Dewar.
4. Put on safety personal protective equipment: safety glasses/goggles, face shield, hearing protection, lab coat, cryo-apron, cryo-gloves, and closed-toe shoes.
5. Confirm that the by-pass valve near the T-bar connection of the transfer line is closed.
6. Connect fill hose to liquid inlet on 160-L Dewar using the T-bar connection (not too tight!).
7. Open the green outlet valve all the way, then ½-turn back to keep valve from freezing. The green outlet valve is located adjacent to the flexible metal tubing (fill hose) on the 5700-L stationary tank.
8. Open vent valve on 160-L Dewar.
9. If liquid inlet on 160-L Dewar has a round knob-type valve, open liquid inlet valve all the way, then ½-turn back to keep valve from freezing in the open position. If straight handle valve is used, open all the way; there is no danger of freezing open.
10. 160-L Dewar fills in 5-15 minutes.
11. To get an accurate gauge reading and not waste liquid nitrogen, shake the 160-L Dewar when it is close to full.
12. NOTE: the 160-L Dewar becomes full when a small volume of liquid and smoke spray out of the vent valve.

When done filling:
1. Close the outlet valve on the 5700-L stationary tank.
4. Open the by-pass valve on the transfer line to release pressure (make sure no one is standing behind valve!).
5. Open the T-bar connection at the liquid inlet on 160-L Dewar. NOTE: should the connecting nut of the flexible metal tubing (fill hose) get stuck due to freezing, apply warm water to help loosen the nut.
6. Allow fill hose to thaw, then slowly turn the T-bar and disconnect fill hose while holding on tightly to the hose. DO NOT allow fill hose to get tangled!
8. Put away all safety personal protective equipment inside the cabinet.
9. Lock gate.
EMERGENCY SHUT-OFF SECTION
If the green outlet valve, located next to flexible metal tubing (fill hose), fails to SHUT-OFF the flow of liquid nitrogen upon its complete closing, then immediately close the second green valve located underneath the stationary tank; second green valve is "EMERGENCY SHUT-OFF".
2-20-13/LL