Subject: VACUUM PROCEDURES FOR BEAMLINE X26C

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*Document must contain approved signatures for validity.

The following procedures must be followed when bleeding up different beam line sections and when returning these sections to operation .

I. FRONT END (PROCEDURE TO BE PERFORMED BY NSLS VACUUM GROUP ONLY)

A Bleed-Up

1. Notify the Coordinator (Beeper 5824).
2. Refer to Front End Vacuum Procedures (SLS-07.19-13-1).

B. Return to Operation

1. Notify the Coordinator (Beeper 5824).
2. Refer to Front End Vacuum Procedures (SLS-07.19-13-1).

II. SECTION BETWEEN VALVE 1C and VALVE 2C, STRAIGHT SECTION

A. Bleed-Up

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 1C and the Front-End High Vacuum Valve.
3. Hook up turbo pump to this section and isolate turbo.
4. Coordinator places Yellow Tag on Valve 1C controller and the Front-End High Vacuum Valve.
5. Slowly bleed-up with boil-off N_2 while Coordinator monitors the Front-End pressure.

B. Return to Operation

1. Pump and bake to $< 1.0 \times 10^{-8}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Prepare for RGA scan.*
4. Open Valve 1C provided pressure is $< 1.0 \times 10^{-8}$ Torr downstream of the valve.
5. Perform RGA scan.*
6. If RGA scan or pressure reading (if no RGA scan required) is satisfactory, Coordinator removes Yellow Tag from Valve 1C controller and the Front-End High Vacuum Valve.
7. Remove any unprotected turbo pump from this section or valve off the turbo pump and place a Yellow Tag on the valve.**

III. SECTION BETWEEN VALVE 2C and Be WINDOW 1C

A. Bleed-Up

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 2C and Valve 1C.
3. Hook up turbo pump to this section and isolate turbo.
4. Coordinator places Yellow Tag on Valve 2C controller and Valve 1C controller.
5. Slowly bleed-up with boil-off N_2 while Coordinator monitors the Front-End pressure.

B. Return to Operation

1. Pump and bake to $< 1.0 \times 10^{-8}$ Torr as read on P3 Controller.
2. Notify the Coordinator (Beeper 5824).

3. Prepare for RGA scan.*
4. Open Valve 2C provided pressure is < 1.0×10^{-8} Torr (as read on IG2), downstream of the valve.
5. Open Valve 1C provided pressure is < 1.0×10^{-8} Torr downstream of the valve.
6. Perform RGA scan.*
7. If RGA scan or pressure reading (if no RGA scan required) is satisfactory, Coordinator removes Yellow Tags from Valve 2C and Valve 1C.
8. Remove any unprotected turbo pump from this section or valve off the turbo pump and place a Yellow Tag on the valve.**

IV. SECTION BETWEEN Be WINDOW 1C and VALVE 3C, SLITS,MONOCHROMATOR and WHITE BEAM STOP

A. Bleed-Up

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 2C and downstream Valve 3C.
3. Coordinator places Yellow Tag on Valve 2C.
4. Slowly bleed-up with boil-off N_2 while Coordinator monitors the pressure on IG2 or P3 Controller.

B. Return to Operation

1. Pump and bake to < 8.0×10^{-8} Torr as read on IG3.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 2C provided pressure is < 1.0×10^{-8} Torr downstream of the valve, as read on IG2.
4. Open downstream Valve 3C.
5. If pressures are satisfactory, Coordinator removes Yellow Tag from Valve 2C.

V. SECTION BETWEEN VALVE 3C and VALVE 4C, MIRROR TANK

A. Bleed-Up

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 3C and downstream Valve 4C.
3. Coordinator places Yellow Tag on Valve 3C.
4. Slowly bleed-up with boil-off N_2 while Coordinator monitors the pressure on IG3.

B. Return to Operation

1. Pump and bake to < 8.0×10^{-8} Torr as read on IG4.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 3C provided pressure is < 8.0×10^{-8} Torr downstream of the valve as read on IG4.
4. Open downstream Valve 4C.
5. If pressure are satisfactory, Coordinator removes Yellow Tag from Valve 3C.

VI. SECTION BETWEEN VALVE 4C and Be WINDOW 2C, SLIT TANK and PHOTON SHUTTER

A. Bleed-Up

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 4C and Valve 3C.
3. Coordinator places Yellow Tags on Valve 4C and Valve 3C Controllers.
4. Slowly bleed-up with boil-off N_2 While Coordinator monitors pressure on IG4.

B. Return to Operation

1. Pump and bake to < 8.0×10^{-8} Torr as read on IG5.
2. Notify the Coordinator (Beeper 5824).

3. Open Valve 4C provided pressure is < 8.0 x 10^{-8} Torr downstream of the valve as read on IG5.
4. Open Valve 3C provided pressure is < 8.0 x 10^{-8} Torr downstream of the valve as read on IG4.
5. If pressures are satisfactory, Coordinator removes Yellow Tags from Valve 4C and Valve 3C Controllers.

*** NSLS POLICY FOR RGA SCANS** (24 HOUR NOTICE REQUIRED)

An RGA scan is required before returning to operation if there is a major change of hardware in the vacuum system, i.e. changing of samples, mirrors, windows, monochromator crystals or gratings, manipulators, detectors, etc., **with the following two exceptions:**

1. After UHV sample chambers have been bled up for replacing components, an RGA scan will not be required if the chamber pressure is returned to < 2×10^{-9} Torr and the Front End pressure remains < 2×10^{-9} Torr when vacuum sections upstream of the chamber are opened into the Front End.

2. If any vacuum section upstream of the bled-up section remains at a pressure of < 9×10^{-10} Torr as read using a hot-filament ion gauge, when the entire beamline is opened into the Front End, and the Front End pressure does not increase, no RGA is required.

**** NSLS TURBO PUMP POLICY**

An unprotected turbo pump is one not separated from the Front End by a beamline valve which automatically closes in the event of a power loss or a pressure increase at the turbo pump. **No unprotected turbo pump can share a contiguous vacuum with the Front End.**

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> See NSLS Quality Control Coordinator for review signatures <

REVISION TABLE		
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B	Revised to controlled document format	11/30/01