Brookhaven National Laboratory/National Synchrotron Light Source				
Subject:	**VACUUM PROCEDURES FOR BEAMLINE X-18A**			
Number: LS-OPS-0114	**Revision:** B		**Effective:** 03/13/08	**Page** 1 **of** 3

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The following procedures must be followed when bleeding up different beamline sections and when returning these sections to operation (refer to Beamline Layout Drawing).

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 1A AND Be WINDOW 1A

A. **Bleed-Up**
1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 1A and Frond End GP Valve.
3. Hook up turbo pump to this section.
4. Coordinator places yellow tag on Valve 1A.
5. Slowly bleed up with boil-off N_2 while Coordinator monitors front end pressure.
6. Front End GP Valve may be reopened if X18B requires beam and front end pressure has not risen during bleed-up.

B. **Return to Operation**
1. Bake and pump to $< 2 \times 10^{-9}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Prepare for RGA scan.
4. Open Valve 1A into front end provided pressure $< 2 \times 10^{-9}$ Torr downstream of 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 1A.
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 Be WINDOW 1A AND VALVE 2A

A. **Bleed-Up**
1. Notify the Coordinator (Beeper 5824).
2. Close Valve 1A.
3. Coordinator places yellow tag on Valve 1A.
4. Slowly bleed up with boil-off N_2 while Coordinator monitors pressure upstream of Be Window 1A.

B. **Return to Operation**
1. Pump to $< 1 \times 10^{-6}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 1A provided pressure $< 2 \times 10^{-9}$ Torr between Valve 1A and Be Window 1A.
4. If pressure reading is satisfactory, Coordinator removes yellow tag from Valve 1A.

IV. SECTION BETWEEN Be WINDOW 1A AND VALVE 2A

    A. **Bleed-Up**
1. Notify the Coordinator (Beeper 5824).
2. Close Valve 1A.
3. Coordinator places yellow tag on Valve 1A.
4. Slowly bleed up with boil-off N_2 while Coordinator monitors pressure upstream of Be Window 1A.

    B. **Return to Operation**
1. Pump to $< 1\times10^{-6}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 1A provided pressure $< 2\times10^{-9}$ Torr between Valve 1A and Be Window 1A.
4. If pressure reading is satisfactory, Coordinator removes yellow tag from Valve 1A.

V. SECTION BETWEEN VALVE 3A AND VALVE 4A

    A. **Bleed-Up**
1. Notify the Coordinator (Beeper 5824).
2. Close Valve 3A.
3. Coordinator places yellow tag on Valve 3A
4. Slowly bleed up with boil-off N_2 while Coordinator monitors pressure upstream of Valve 3A.

    B. **Return to Operation**
1. Pump to $< 1\times10^{-6}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 3A provided pressure $< 2\times10^{-6}$ Torr downstream of valve.
4. If pressure reading is satisfactory, Coordinator removes yellow tag from Valve 3A.

VI. SECTION BETWEEN VALVE 4A AND Be WINDOW 2A

    A. **Bleed-Up**
1. Notify the Coordinator (Beeper 5824).
2. Close Valve 4A.
3. Coordinator places yellow tag on Valve 4A
4. Slowly bleed up with boil-off N_2 while Coordinator monitors pressure upstream of Valve 4A.

    B. **Return to Operation**
1. Pump to $< 1\times10^{-6}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 4A provided pressure $< 2\times10^{-6}$ Torr downstream of valve.
4. If pressure reading is satisfactory, Coordinator removes yellow tag from Valve 4A.

VII. SECTION BETWEEN VALVE 4A AND Be WINDOW 2A

    A. **Bleed-Up**
1. Notify the Coordinator (Beeper 5824).
2. Close Valve 4A.
3. Coordinator places yellow tag on Valve 4A
4. Slowly bleed up with boil-off N_2 while Coordinator monitors pressure upstream of Valve 4A.

    B. **Return to Operation**

        1.   Pump to $< 1 \times 10^{-6}$ Torr.

        2.   Notify the Coordinator (Beeper 5824).

        3.   Open Valve 4A provided pressure $< 2 \times 10^{-6}$ Torr downstream of valve.

        4.   If pressure reading is satisfactory, Coordinator removes yellow tag from Valve 4A.

* 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 $< 2 \times 10^{-9}$ Torr and the Front End pressure remains $< 2 \times 10^{-9}$ 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 $< 9 \times 10^{-10}$ 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.**

NSLS REVISION LOG

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Rev	Description	Date
B	INITIAL RELEASE INTO THE CONTROLLED DOCUMENT SYSTEM.	03/13/08