Brookhaven National Laboratory/National Synchrotron Light Source						
Subject:	**VACUUM PROCEDURES FOR BEAMLINE X-16B**					
Number:	LS-OPS-0090	**Revision:**	B	**Effective:**	03/14/2006	**Page** 1 **of** 2

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*Approval signatures on file with master copy.

The following procedures must be followed when bleeding up different beam line sections and when returning these sections to operation (refer to Beam Line 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 1B AND Be WINDOW 1B

A. Bleed-Up
1. Notify the Coordinator (Beeper 5824).
2. Close Valve 1B and Front-End H. V. Valve.
3. Coordinator places Yellow Tag on Valve 1B and the Front End H. V. Valve.
4. Hook up turbo pump to this section.
5. Slowly bleed up with boil-off N_2 while Coordinator monitors the Front-End pressure.

B. Return to Operation
1. Pump to $< 2 \times 10^{-9}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Prepare for RGA scan.*
4. Open Valve 1B if 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 1B and the Front End H. V. 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 Be WINDOW 1B AND VALVE 2B, MIRROR TANK

A. Bleed-Up
1. Notify the Coordinator (Beeper 5824).
2. Close Valve 1B, (and downstream Valve 2B).
3. Coordinator places Yellow Tag on Valve 1B.
4. Slowly bleed-up with boil-off N_2 while Coordinator monitors pressure between Be Window 1B and Valve 1B.

B. Return to Operation
1. Pump to $< 1 \times 10^{-3}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 2B provided pressure $< 1 \times 10^{-3}$ Torr upstream of valve.
4. Open Valve 1B provided pressure $< 2 \times 10^{-9}$ Torr downstream of valve.
5. If pressure is satisfactory, Coordinator removes Yellow Tag from Valve 1B.

IV. SECTION BETWEEN VALVE 2B AND VALVE 3B

A. Bleed-Up
1. Notify the Coordinator (Beeper 5824).
2. Close Valve 2B, (and downstream Valve 3B).
3. Coordinator places Yellow Tag on Valve 2B.
4. Slowly bleed-up with boil-off N_2 while Coordinator monitors pressure between Valve 2B and Be Window 1B.

B. Return to Operation
1. Pump to $< 1 \times 10^{-3}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 3B provided pressure $< 1 \times 10^{-3}$ Torr upstream of valve.
4. Open Valve 2B provided pressure $< 1 \times 10^{-8}$ Torr between Be Window 1B and Valve 2B.
5. If pressure is satisfactory, Coordinator removes Yellow Tag from Valve 2B.

V. SECTION BETWEEN VALVE 3B AND Be WINDOW 2B, MONOCHROMATOR

A. Bleed-Up
1. Notify the Coordinator (Beeper 5824).
2. Close Valve 3B and Valve 2B.
3. Coordinator places Yellow Tag on Valve 3B.
4. Slowly bleed-up with boil-off N_2 while Coordinator monitors pressure between Valve 3B and Valve 2B.

B. Return to Operation
1. Pump to $< 1 \times 10^{-3}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 3B provided pressure $< 1 \times 10^{-8}$ Torr downstream of valve.
4. If pressure is satisfactory, Coordinator removes Yellow Tag from Valve 3B.

* 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.**

Document Review Frequency

3 Years

Review signatures on file
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NSLS REVISION LOG

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> See NSLS Quality Control Coordinator for original revision and review signatures <

REVISION TABLE

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B	INITIAL RELEASE INTO CONTROLLED DOCUMENT SYSTEM.	03/14/2006