

Brookhaven National Laboratory/ LIGHT SOURCES DIRECTORATE			
<b>Subject:</b>	<b>VACUUM PROCEDURES FOR BEAMLINE X-27B</b>		
<b>Number:</b>	LS-OPS-0151	<b>Revision:</b>	B
		<b>Effective:</b>	02/28/2012
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\*Approval signatures on file with master copy.

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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 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 and seal Valve 1B and the Front-End High Vacuum Valve.
3. Hook up turbo pump to this section.
4. Coordinator places Yellow Tags on Valve 1B and the Front- End High Vacuum Valve.
5. Slowly bleed-up with boil-off N<sub>2</sub> while Coordinator monitors the Front-End pressure.

### **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 1B into the Front-End provided pressure is  $< 2 \times 10^{-9}$  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 Tags from Valve 1B 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 Be WINDOW 1B AND Be WINDOW 2B**

### **A. Bleed-Up**

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 1B.
3. Coordinator places Yellow Tag on Valve 1B.
4. Slowly bleed-up with boil-off N<sub>2</sub> while Coordinator monitors the Front-End pressure.

### **B. Return to Operation**

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

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**\* 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.**

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<b>Document Review Frequency</b>
<b>3</b> Years

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<b>LIGHT SOURCES DIRECTORATE REVISION LOG</b>		
<b>Document Number:</b>	LS-OPS-0151	
<b>Subject:</b>	VACUUM PROCEDURES FOR BEAMLINE X-27B	
<b>Rev</b>	<b>Description</b>	<b>Date</b>
B	Initial release in to the Controlled Document System. Clarification text added to Section II to include secondary vacuum buffer.	02/28/2012