

Brookhaven National Laboratory/National Synchrotron Light Source			
<b>Subject:</b>	<b>VACUUM PROCEDURES FOR BEAMLINE X-27C</b>		
<b>Number:</b>	LS-OPS-0098	<b>Revision:</b>	B
		<b>Effective:</b>	01/04/07
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Prepared By: L. Rong	Reviewed By: J. Klug	Approved By: S. Ehrlich	Approved By: C. Foerster

\*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 1C AND Be WINDOW 1C**

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

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 1C and the Front-End H.V. Valve.
3. Hook up turbo pump to this section and isolate turbo.
4. Coordinator places Yellow Tags on Valve 1C and the Front-End H.V. Valve.
5. Turn off IP #1 (the 20L/sec ion pump).
6. Slowly bleed up with boil-off N<sub>2</sub> while Coordinator monitors Front-End pressure.

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

1. Pump to  $< 2 \times 10^{-6}$  Torr.
2. Turn on IP #1 (20L/sec ion pump).
3. Pump to  $< 2 \times 10^{-9}$  Torr.
4. Notify the Coordinator (Beeper 5824).
5. Prepare for RGA scan.\*
6. Open Valve 1C provided pressure  $< 2 \times 10^{-9}$  Torr downstream of the valve.
7. Perform RGA scan.\*
8. If RGA scan or pressure reading (if no RGA scan required) is satisfactory, Coordinator removes Yellow Tags from Valve 1C and the Front-End H.V. Valve.
9. 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 1C AND Be WINDOW 2C**

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

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 1C.
3. Coordinator places Yellow Tag on Valve 1C.
4. Coordinator monitors pressure at IP #1 (pressure should stay  $< 6 \times 10^{-8}$  Torr).
5. Open IP #3 valve and slowly bleed-up with boil-off N<sub>2</sub> while Coordinator monitors Front-End pressure and IP #1 pressure.

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**B. Return to Operation**

1. Pump to  $< 2 \times 10^{-8}$  Torr (turbo to  $2 \times 10^{-6}$  Torr and then turn on ion pumps and isolate turbo).
2. Notify the Coordinator (Beeper 5824).
3. Check IP #1 pressure (should be  $< 2 \times 10^{-9}$  Torr).
4. Open Valve 1C into the Front-End provided pressure  $< 2 \times 10^{-9}$  Torr downstream of the valve.
5. If pressure between Be Window 1C and Be Window 2C is  $< 2 \times 10^{-8}$  Torr, Coordinator removes Yellow Tag from Valve 1C..

**\* 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	
<b>3</b>	Years

Review signatures on file with master copy of controlled document

NSLS REVISION LOG	
<b>Document Number:</b>	LS-OPS-0098
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> See NSLS Quality Control Coordinator for original revision and review signatures <

REVISION TABLE		
Rev	Description	Date
B	Initial release into Controlled Document System. Removed Sect. IIIA, step 3. Removed Section 3B, step 3, 7, and 8.	01/04/07