

<b>Brookhaven National Laboratory National Synchrotron Light Source</b>		<b>Number:</b> LS-OPS-0055	<b>Revision:</b> C
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<b>Subject: VACUUM PROCEDURES FOR BEAMLINE U-9B</b>			
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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 (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 EITHER CaF<sub>2</sub> WINDOW 1 or SiO<sub>2</sub> WINDOW 2**

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

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 1B and F.E. VAT Valve.
3. Hook up turbo pump to this section and isolate turbo.
4. Coordinator places Yellow Tag on Valve 1B and the Front End VAT Valve.
5. Slowly bleed-up with boil-off N<sub>2</sub> while Coordinator monitors front end pressure.

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

1. Bake and pump to  $<2.0 \times 10^{-9}$  Torr.
2. Notify the Coordinator (Beeper 5824).
3. Prepare for RGA scan. \*
4. Open Valve 1B into front end provided pressure  $<2.0 \times 10^{-9}$  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 VAT 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. MONOCHROMATORS**

#### **A. Removal of Vacuum Monochromator, downstream of Window 1**

**There are no Vacuum requirements for this Monochromator.**

1. Notify the Coordinator (Beeper 5824).

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2. U-9B User/Staff caps Window 1 and puts Mirror into an intermediate position to direct white light away from the window.
3. Coordinator places Yellow Tag on U-9 Front-End Controller.

**B. Return to Operation of Vacuum Monochromator, downstream of Window 1**

1. Notify the Coordinator (Beeper 5824).
2. Coordinator verifies the Vacuum Monochromator is in place, cap is removed from Window 1.
3. Coordinator removes Yellow Tag from U-9B Front-End Controller.

**C. Removal of Air Monochromator, downstream of Window 2**

**There are no Vacuum requirements for this Monochromator.**

1. Notify the Coordinator (Beeper 5824).
2. U-9B User/Staff caps Window 2 and puts Mirror into an intermediate position to direct white light away from the window.
3. Coordinator places Yellow Tag on U-9 Front-End Controller.

**D. Return to Operation of Air Monochromator, downstream of Window 2**

1. Notify the Coordinator (Beeper 5824).
2. Coordinator verifies the Air Monochromator is in place, cap is removed from Window 2.
3. Coordinator removes Yellow Tag from U-9B Front-End Controller.

**\* 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.**

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

Review signatures on file with master copy of controlled document

<b>NSLS REVISION LOG</b>	
<b>Document Number:</b>	
<b>Subject:</b>	VACUUM PROCEDURES FOR BEAMLINE U-9B

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

<b>REVISION TABLE</b>		
<b>Rev</b>	<b>Description</b>	<b>Date</b>
C	Change in Section III- Vacuum Monochromator now operates in 1 ATM Nitrogen.	12/11/05