

Brookhaven National Laboratory/National Synchrotron Light Source			
Subject:	VACUUM PROCEDURES FOR BEAMLINE X-13B		
Number:	LS-OPS-0083	Revision:	B
		Effective:	06/29/05
			Page 1 of 3
Prepared By: S. Hulbert	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 V1 AND VALVE V2B, M0 MIRROR CHAMBER

A. Bleed-Up

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve V1 and the Front-End Valve.
3. Hook up turbo pump to this section and isolate turbo.
4. Coordinator places Yellow Tags on Valve V1 and the Front-End Valve.
5. Slowly bleed up with boil-off N₂ while Coordinator monitors The 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 V1 into the Front-End provided pressure $< 2.0 \times 10^{-9}$ 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 V1 and the Front-End 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 VALVE V2B AND Be WINDOW, DOWNSTREAM OF M0 MIRROR CHAMBER

A. Bleed-Up

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valves V2A, V2B, and Valve V1.
3. Hook up turbo pump to this section and isolate turbo.
4. Coordinator places Yellow Tags on Valves V2A, V2B, and Valve V1.
5. Slowly bleed-up with boil-off N₂ while Coordinator monitors the pressure in the M0 Mirror Chamber.

Subject:	VACUUM PROCEDURES FOR BEAMLINE X-13B		
Number:	LS-OPS-0083	Revision:	B
		Effective:	06/29/05
			Page 2 of 3

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 V2B into the M0 Mirror Chamber provided the pressure $< 2.0 \times 10^{-9}$ Torr downstream of the valve.
5. Open Valve V1 into the Front-End provided the pressure $< 2.0 \times 10^{-9}$ Torr downstream of the valve.
6. Perform RGA scan.*
7. If RGA scan or pressure reading (if no RGA scan required) is satisfactory, Coordinator removes Yellow Tags from Valves V2A, V2B, and Valve V1.
8. Remove any unprotected turbo pump from this section or valve off the turbo pump and place a Yellow Tag on the valve.**

IV. SECTION BETWEEN Be WINDOW AND VALVE V3B, MONOCHROMATOR TANK**A. Bleed-Up**

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve V2B.
3. Coordinator places Yellow Tag on Valve V2B.
4. Slowly bleed up with boil-off N₂ while Coordinator monitors the pressure in M0 Mirror Chamber.

B. Return to Operation

1. Pump to $< 2.0 \times 10^{-6}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve V2B into the M0 Mirror Chamber provided the pressure $< 2.0 \times 10^{-9}$ Torr downstream of the valve.
4. Coordinator removes Yellow Tag from Valve V2B.

V. SECTION BETWEEN VALVE V3B AND FINAL Be WINDOW, BEAMLINE SHUTTER SECTION**A. Bleed-Up**

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve V3B.
3. Coordinator places Yellow Tag on Valve V3B.
4. Slowly bleed up with boil-off N₂ while Coordinator monitors the pressure in Monochromator Tank.

B. Return to Operation

1. Pump to $< 2.0 \times 10^{-6}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve V3B into the Monochromator Tank provided the pressure $< 2.0 \times 10^{-6}$ Torr downstream of the valve.
4. Coordinator removes Yellow Tag from Valve V3B.

*** 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:**

Subject:	VACUUM PROCEDURES FOR BEAMLINE X-13B					
Number:	LS-OPS-0083	Revision:	B	Effective:	06/29/05	Page 3 of 3

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 & PERIODIC REVIEW LOG	
Document Number:	LS-OPS-0083
Subject:	VACUUM PROCEDURES FOR BEAMLIN X13B

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

REVISION TABLE		
Rev	Description	Date
B	ADDITION OF TAGGING VALVE V2A IN SECT. IIIA AND REMOVING TAG IN SECT. IIIB ADDITION OF SECT. IV. INITIAL RELEASE INTO CONTROLLED DOCUMENT SYSTEM.	06/29/05

PERIODIC REVIEW TABLE			Document Review Frequency
Complete this table to record the completion of periodic reviews for an existing controlled document. A successful periodic review will reveal the existing document is current, correct, and does not require any revision/change.			3 YRS.
Rev	Date	Reviewed By (Print):	Signature: