

Brookhaven National Laboratory/ LIGHT SOURCES DIRECTORATE			
Subject:	VACUUM PROCEDURES FOR BEAMLINE X-16C		
Number:	LS-OPS-0084	Revision:	C
Effective:	09/24/2009	Page 1 of 3	
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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 1C AND Be WINDOW 1C

A. Bleed-Up

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 1C and the Front-End G.P. Valve.
3. Coordinator places Yellow Tag on Valve 1C.
4. Hook up turbo pump to this section.
5. Slowly bleed-up with boil-off N₂ while Coordinator monitors 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 1C into the Front-End provided pressure $< 2 \times 10^{-9}$ 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 Tag from Valve 1C.
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 1C AND Be WINDOW 2C, MONOCHROMATOR

A. Bleed-Up

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 1C.
3. Coordinator places Yellow Tag on Valve 1C.
4. Slowly bleed-up with N₂ while Coordinator monitors pressure upstream of Be Window 1C.

B. Return to Operation

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

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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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Document Review Frequency

3 Years

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Document Number:	LS-OPS-0084	
Subject:	VACUUM PROCEDURES FOR BEAMLINE X-16C	
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B	Initial release into Controlled Document System.	06/01/05
C	Changed to Light Source Directorate Template, changed Approver from C. Foerster to E. Hu.	09/24/09