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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 VALVE 2B, TRANSPORT SECTION #1

A. Bleed-Up

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 1B, Valve 2B, 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_2 while Coordinator monitors the Front-End pressure at beamline upstream of Valve 1B.

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.* Open all Valves **except** Valve 1B.
3. Open Valve 1B 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 DOWNSTREAM OF VALVE 2B, TRANSPORT SECTION #2

A. Bleed-Up

1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 2B and Valve 1B.
3. Hook up turbo pump to this section.
4. Coordinator places Yellow Tag on Valve 1B and Valve 2B.
4. Slowly bleed-up with boil-off N2 while Coordinator monitors pressure between Valve 1B and Valve 2B (Transport Section #1).

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.* Open all Valves **except** Valve 2B.
4. Open Valve 2B provided pressure is $< 2 \times 10^{-9}$ Torr downstream of the valve.
5. Perform RGA scan.*
6. If RGA scan or pressure reading (no RGA scan required) is satisfactory, Coordinator removes Yellow Tag from Valve 2B and Valve 1B.
5. Remove any unprotected turbo pump from this section or valve off the turbo pump and place a

Yellow Tag on the valve.**

*** 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 $< 2\times10^{-9}$ Torr and the Front End pressure remains $< 2\times10^{-9}$ 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 $< 9\times10^{-10}$ 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	
3	Years

Review signatures on file with master copy of controlled document

LIGHT SOURCES DIRECTORATE REVISION LOG

Document Number:	LS-OPS-0152
Subject:	VACUUM PROCEDURES FOR BEAMLINE X-28B

Rev	Description	Date
B	Initial release in to the Controlled Document System. Clarification text added to Sections II and III to include secondary vacuum buffer.	04/23/2012