Brookhaven National Laboratory **National Synchrotron Light Source**	**Number:** LS-OPS-0044	**Revision: B**
	Effective: 01/31/02	**Page** 1 **of** 3

Subject: **VACUUM PROCEDURES FOR BEAMLINE X12C**							
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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 1C and Be WINDOW 1C, SLIT TANK

A. Bleed-Up
1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 1C and Front-End G.P. Valve.
3. Hook up turbo pump to this section.
4. Coordinator places Yellow Tag on Valve 1C and Front-End Valve controller.
5. Slowly bleed-up with boil-off N_2 while Coordinator monitors Front-End pressure.

B. Return to Operation
1. Bake and pump to $< 2x10^{-9}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Prepare for RGA scan.*
4. Open Valve 1C into Front-End provided pressure $< 2x10^{-9}$ 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 1C and Front-End Valve controller.
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 VALVE 2C, MONOCHROMOTOR

A. Bleed-Up
1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 1C, and downstream Valve 2C.
3. Coordinator places Yellow Tag on Valve 1C.
4. Slowly bleed-up with boil-off N_2 while Coordinator monitors Front-End pressure.

B. Return to Operation
1. Bake and pump to $< 1\text{x}10^{-8}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 1C provided pressure $< 1\text{x}10^{-8}$ Torr downstream of Be Window 1C.
4. If pressure reading is satisfactory, Coordinator removes Yellow Tag from Valve 1C.

IV.   SECTION BETWEEN VALVE 2C AND VALVE 3C, MIRROR TANK

A. Bleed-Up
1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 2C, and downstream Valve 3C.
3. Coordinator places Yellow Tag on Valve 2C.
4. Slowly bleed-up with boil-off N_2 while Coordinator monitors pressure upstream of Valve 2C.

B. Return to Operation
1. Bake and pump to $< 1\text{x}10^{-8}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 2C, and downstream Valve 3C provided pressure $< 1\text{x}10^{-8}$ Torr downstream of Valve 2C.
4. If pressure reading is satisfactory, Coordinator removes Yellow Tag from Valve 2C.

V.   SECTION BETWEEN VALVE 3C and Be WINDOW 2C, PHOTON SHUTTER/ADAPTER SLIT TANK

A. Bleed-Up
1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 3C, and Valve 2C.
3. Coordinator places Yellow Tag on Valve 3C and Valve 2C.
4. Slowly bleed-up with boil-off N_2 while Coordinator monitors pressure upstream of Valve 3C.

B. Return to Operation
1. Bake and pump to $< 1\text{x}10^{-8}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 3C and Valve 2C provided pressure is $< 1\text{x}10^{-8}$ Torr downstream of Valve 3C.
4. If pressure reading is satisfactory, Coordinator removes Yellow Tag from Valve 3C and Valve 2C.

* 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 $< 2\text{x}10^{-9}$ Torr and the Front End pressure remains $< 2\text{x}10^{-9}$ 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/REVIEW LOG	
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> See NSLS Quality Control Coordinator for review signatures <

REVISION TABLE		
Rev	**Description**	**Date**
B	Significant changes to beamline configuration	01/31/02