Brookhaven National Laboratory National Synchrotron Light Source				Number: LS-OPS-0065	Revision: A
				Effective: 12/22/03	Page 1 of 2
Subject: VACUUM PROCEDURES FOR BEAMLINE X29					
Prepared By:	M. Sullivan	**Reviewed By:**	J. Klug	**Approved By:** S. Ehrlich	**Approved By:** C. Foerster

*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).

Note 1: Inside the Monochromator there are two sectioning valves that only work in one direction and that is to prevent a bleed up into the mirror tank and into primary aperture when venting the monochromator. There is no intent that they will ever act as a real sectioning valve in the beamline. We will use the valves to keep rough vacuum in the upstream and downstream sections when bleeding up the monochromator.

II Section between UHV Vat Valve1 and Beryllium Window

A. Bleed up

1. Notify the Coordinator (Beeper 5824)
2. Close and seal NSLS UHV front end valve
3. Close and seal UHV Vat Valve 1
4. Coordinator places Yellow tag on UHV Vat valve 1
5. Hook up turbo pump and Nitrogen bleed to this section and slowly bleed up this section with Boil –Off N2 while the coordinator monitors Front-End Vacuum.

B. Return to operation

1. Pump to $< 2x10^{-9}$ Torr
2. Pump section Beryllium window to exit window to $< 1X10^{-3}$ Torr
3. Notify the Coordinator (Beeper 5824)
4. Prepare for RGA scan *
5. Open UHV Vat Valve 1
6. Perform RGA scan
7. If RGA scan or pressure reading (if no RGA scan required) is satisfactory. Coordinator remakes Yellow Tag from UHV Vat Valve controller 1
8. Remove any unprotected turbo pumps from this section and place a Yellow tag valve.

III. Section between Beryllium window and Exit window

A. Bleed up

1.Notify the Coordinator (Beeper 5824)
2.Close and seal UHV Vat Valve 1
3.Coordinator places Yellow tag on UHV Vat valve 1 Controller
4. Hook up Nitrogen bleed to this section and slowly bleed up this section with Boil –Off N2 while the coordinator monitors Vacuum between beryllium window and UHV Vat valve

B. Return to Operation

1. Pump to <1 x 10^{-3} torr
2. Notify the Coordinator (Beeper 5824)
3. Open UHV Vat valve 1 provider pressure between valve 1 and beryllium window is < 1x10^{-9} torr and beamline pressure is < 1x10^{-3} torr
4. If pressure is satisfactory, coordinator removes yellow tag from UHV Vat valve 1 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 < 2×10^{-9} Torr and the Front End pressure remains < 2×10^{-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 < 9×10^{-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**
A	New Beamline. Initial release into controlled document system.	12/22/03