

Brookhaven National Laboratory National Synchrotron Light Source		Number: LS-OPS-0035	Revision: B
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Subject: VACUUM PROCEDURES FOR BEAMLINE X6A			
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*Document must contain approved signatures for validity.

The following procedures must be followed when bleeding up different beamline sections and when returning these sections to operation (refer to Beamline Layout Drawing).

I. FRONT END (PROCEDURE TO BE PERFORMED BY NSLS VACUUM GROUP ONLY).

A. Bleed up

1. Notify the Coordinator (beeper 3456 – 5824)
2. Refer to Front End Vacuum Procedures (SLS-07.19-13-1).

B. Return to Operation

1. Notify the Coordinator (beeper 3456 – 5824)
2. Refer to Front End Vacuum Procedures (SLS-07.19-13-1).

II. SECTION BETWEEN VAT valve #1A AND WATER COOLED BE-WINDOW #1A.

A. Bleed-up

1. Notify the Coordinator (beeper 3456 – 5824)
2. Close VAT valve #1A and Front End GP valve.
3. Hook up turbo pump to this section.
4. Coordinator places yellow tag on VAT valve #1A.
5. Slowly bleed up with dry nitrogen while Coordinator monitors front end pressure.

B. Return to Operation

1. Pump to less than 2×10^{-9} Torr.
2. Notify the Coordinator (beeper 3456 – 5824).
3. Prepare for RGA scan.*
4. Open VAT valve #1A if pressure is $< 2 \times 10^{-9}$ Torr.
5. Perform RGA scan.*
6. If RGA scan or pressure reading (if no RGA is required) is satisfactory, coordinator removes yellow tag from VAT valve #1A.
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 WATER COOLED BE-WINDOW #1A AND VAT valve #2A. MONOCHROMATOR/WHITE BEAM SLITS SECTION.

A. Bleed-up

1. Notify the Coordinator (beeper 3456 – 5824)

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2. Close VAT valve #1A and VAT valve #2A.
3. Coordinator places yellow tag on VAT valve #1A.
4. Slowly bleed up with dry nitrogen while Coordinator monitors pressure between water cooled Be-window and VAT valve #2A.

B. Return to Operation

1. Pump to less than 1×10^{-7} Torr.
2. Notify the Coordinator (beeper 3456 – 5824).
3. Open VAT valve #2A if pressure is $< 1 \times 10^{-7}$ Torr downstream of water cooled Be window.
4. Open VAT valve #1A provided pressure is $< 2 \times 10^{-9}$ Torr downstream of the valve.
5. Coordinator removes yellow tag from VAT valve #1A.

IV. SECTION BETWEEN VAT valve #2A AND VAT valve #3A. MIRROR TANK SECTION.

A. Bleed-up

1. Notify the Coordinator (beeper 3456 – 5824).
2. Close VAT valve #1A.
3. Close VAT valve #2A and VAT valve #3A.
4. Coordinator places yellow tag on VAT valve #2A and #3A.
5. Slowly bleed up with dry nitrogen while Coordinator monitors pressure between VAT valve #2A and water cooled Be window.

B. Return to Operation

1. Pump to less than 1×10^{-7} Torr.
2. Notify the Coordinator (beeper 3456 – 5824).
3. Open VAT valve #2A provided pressure is $< 1 \times 10^{-7}$ Torr downstream of the valve.
4. Open VAT valve #1A provided pressure is $< 2 \times 10^{-9}$ Torr downstream of the valve.
5. Open VAT valve #3A provided pressure is $< 1 \times 10^{-7}$ Torr downstream of the valve.
6. Coordinator removes yellow tag from VAT valve #2A and #3A.

V. SECTION BETWEEN VAT valve #3A AND DOWNSTREAM BE WINDOW #2A. PHOTON SHUTTER SECTION.

A. Bleed-up

1. Notify the Coordinator (beeper 3456 – 5824).
2. Close VAT valve #1A.
3. Close VAT valve #2A and VAT valve #3A.
4. Coordinator places yellow tag on VAT valve #3A and VAT valve #2A.
5. Slowly bleed up with dry nitrogen while Coordinator monitors pressure between VAT valve #2A and VAT valve #3A.

B. Return to Operation

1. Pump to less than 1×10^{-7} Torr.
2. Notify the Coordinator (beeper 3456 – 5824).

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3. Open VAT valve #2A provided pressure is $< 1 \times 10^{-7}$ Torr downstream of the valve.
4. Open VAT valve #1A provided pressure is $< 2 \times 10^{-9}$ Torr downstream of the valve.
5. Open VAT valve #3A provided pressure is $< 1 \times 10^{-7}$ Torr downstream of the valve.
6. Coordinator removes yellow tag from VAT valve #3A and VAT valve #2A.

***NSLS Policy for RGA Scans**

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, monochromator crystals or gratings, manipulators, detectors, etc. with the following 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 to 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 valve which automatically closes in the event of a power loss or a pressure increase. Any unprotected turbo pump, upstream of a window, must either be removed from a beamline section before that section is opened to the front end or must be valved off and the valve yellow tagged by the Coordinator

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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	Dec. 03, 2001