

| Brookhaven National Laboratory/ LIGHT SOURCES DIRECTORATE | | | |
|-----------------------------------------------------------|---------------------------------------------|-------------------------|--------------------|
| Subject: | VACUUM PROCEDURES FOR BEAMLINE X-17A | | |
| Number: | LS-OPS-0136 | Revision: | A |
| | | Effective: | 12/01/2010 |
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*Approval signatures on file with master copy.

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The following procedures must be followed when venting beamline and when returning the beamline to operation. Note labeling "Be window #3A" means the third Be window X17A beam passes through. Similarly "Be window #2ABC" means second Be window X17A, X17B and X17C beams pass through. 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 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 Be Window #2ABC (downstream of Xenon filter chamber) and Be Window #3A (downstream X17A monochromator)

A. Bleed-Up

1. Notify the Coordinator (Beeper 5824).
2. Turn off cold cathode guage and ion pump associated with the section to be bled-up.
3. Coordinator disables and place yellow tags on beamlines X17A, X17B and X17C.
4. Slowly bleed-up with boil-off N₂ while Coordinator monitors Front-End pressure.

B. Return to Operation

1. Pump section down using an external turbo pumping station.
2. Turn on cold cathode vacuum gauge and ion pump associated with the section.
3. Continue pumping till the pressure reading is below 10⁻⁶ Torr.
4. Notify the Coordinator (Beeper 5824) to remove yellow tags from beamlines X17A, X17B and X17C.
5. Reset user interlock.

III. Section Between Be Window #3A (downstream X17A monochromator) and Be Window #4A (End of Beamline)

A. Bleed-Up

1. Notify the Coordinator (Beeper 5824).
2. Turn off cold cathode guage and ion pump associated with the section to be bled-up.
3. Coordinator disables and place yellow tag on X17A interlock box.
4. Slowly bleed-up with boil-off N₂ while Coordinator monitors X17A monochromator pressure.

B. Return to Operation

1. Pump section down using an external turbo pumping station.
2. Turn on cold cathode vacuum gauge and ion pump associated with the section.
3. Continue pumping till the pressure reading is below 10⁻⁶ Torr.
4. Notify the Coordinator (Beeper 5824) to remove yellow tag from X17A interlock box.
5. Reset user interlock.

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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.**

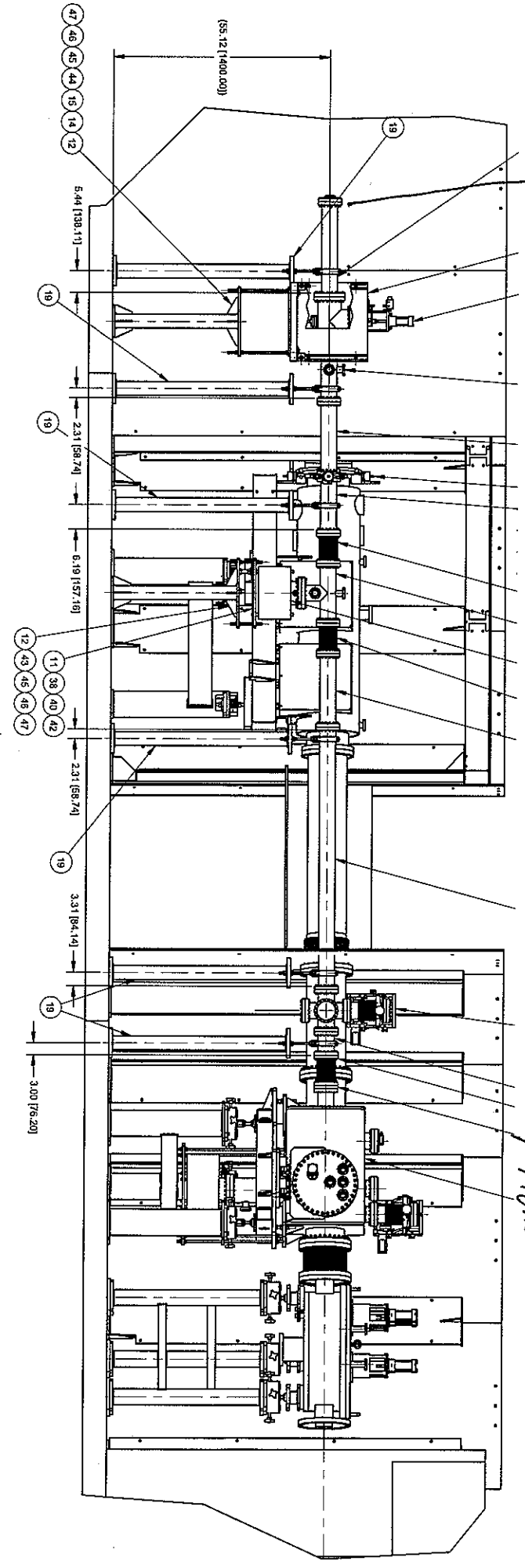
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| Document Review Frequency |
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X17A Beamline



Be Window
4A

Be Window
3A
X17A
Monochromator