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<p><b>Brookhaven National Laboratory</b> <b>National Synchrotron Light Source II</b> Work Instruction</p>	<p>Doc No.: NSLSII-7ID-WIN-009 Effective Date: 18APR2019 Review Frequency: 5 yrs Version No.: 1</p>
<p>Title: Operation of the LARIAT1 Sample Loadlock at 7-ID-1</p>	

Prepared By:

4/18/2019

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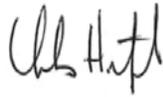
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## 1 WORK SCOPE

This work instruction provides instructions for the operation of the sample loadlock connected to the LARIAT1 Experimental Station.

This work instruction will enable users and staff to safely use the sample loadlock on the LARIAT1 Experimental Station, including venting and pumping down the loadlock chamber, as well as opening and closing the manual gate valve GV29F, which isolates the loadlock chamber from the Main chamber.

## 2 PREREQUISITES

- 2.1 Only authorized and trained users and staff shall perform this work.
- 2.2 Authorized, trained users and staff shall follow NSLSII-VAC-PRC-007, *Beamline Vacuum System Venting* for venting and pumping down the loadlock chamber.

## 3 PRECAUTIONS/WARNINGS

- 3.1 Do not leave gas venting operations unattended.
- 3.2 If main chamber pressure, at any point in operation of the loadlock, rises above  $1 \times 10^{-7}$  Torr, abort venting process and begin pumping down the loadlock.

## 4 INSTRUCTIONS

### 4.1 LARIAT1 Loadlock Venting

- 4.1.1 Ensure that the sample manipulator is completely retracted into the loadlock vessel AND the gate valve isolating the loadlock from the main chamber is not obstructed from closing.
- 4.1.2 Close OR verify closed the Experimental Station upstream gate valve GV29B and downstream gate valve GV30 AND manually close the gate valve GV29F.
- 4.1.3 Ensure that the valves are sealed.

<p style="text-align: center;"><b>Brookhaven National Laboratory</b> <b>National Synchrotron Light Source II</b> Work Instruction</p>	<p>Doc No.: NSLSII-7ID-WIN-009 Effective Date: 18APR2019 Review Frequency: 5 yrs Version No.: 1</p>
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- 4.1.4 Isolate the loadlock pumping system AND the ion gauge by manually closing gate valve GV29G.
- 4.1.5 Ensure that the valve is sealed.
- 4.1.6 Vent the loadlock chamber in accordance with NSLSII-VAC-PRC-007, *Beamline Vacuum System Venting*, monitoring the vacuum level in the main chamber.
- 4.1.7 ONCE the loadlock reaches atmospheric pressure and the main chamber pressure remains below  $1 \times 10^{-7}$  Torr, THEN gate valves GV29B and GV30 may be re-opened.

## **4.2 LARIAT1 Loadlock Pump-down**

- 4.2.1 Pump-down using the loadlock pumping system.
- 4.2.2 Ensure the loadlock chamber vacuum achieves less than  $5 \times 10^{-7}$  Torr pressure.

## **4.3 Sample Introduction Using the LARIAT1 Loadlock**

- 4.3.1 Check the following:
  - the sample manipulator is fully retracted
  - the manual gate valve GV29F is fully closed and sealed
  - sample bar is fully secured on manipulator
  - the position of the manipulator to ensure that it DOES NOT hit the magnet pole piece when lowered
  - the loadlock is pumped down and vacuum is less than  $5 \times 10^{-7}$  Torr
- 4.3.2 Open gate valve GV29F AND ensure the indicator shows fully open.
- 4.3.3 WHEN gate valve GV29F is completely open, THEN the sample manipulator may now be translated down the main chamber and up again in the loadlock chamber.

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### VERSION HISTORY

VERSION	SECTION(S)	PAGE #	DATE	LIST OF REVIEWERS	DESCRIPTION
1	All	All	18APR2019	R. Todd	First Issue.

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<p>Title: <b>Operation of the MICROCAL Sample Loadlock at 7-ID-1</b></p>	

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## 1 WORK SCOPE

This work instruction provides instructions for the operation of the sample loadlock connected to the MICROCAL Experimental Station.

This work instruction will enable users and staff to safely use the sample loadlock on the MICROCAL Experimental Station, including venting, pumping down the loadlock chamber, as well as opening and closing the manual gate valve GV29C which isolates the Loadlock chamber from the Main chamber.

## 2 PREREQUISITES

- 2.1 Only authorized and trained users and staff shall perform this work.
- 2.2 Authorized, trained users and staff shall follow NSLSII-VAC-PRC-007, *Beamline Vacuum System Venting* for venting and pumping down the loadlock chamber.

## 3 PRECAUTIONS/WARNINGS

- 3.1 Do not leave gas venting operations unattended.
- 3.2 If main chamber pressure, at any point in operation of the loadlock, rises above  $1 \times 10^{-7}$  Torr, abort venting process and begin pumping down the loadlock.

## 4 INSTRUCTIONS

### 4.1 MICROCAL Loadlock Venting

- 4.1.1 Ensure that the sample manipulator is completely retracted into the loadlock vessel AND the gate valve isolating the loadlock from the main chamber is not obstructed from closing.
- 4.1.2 Close OR verify that the Experimental Station upstream gate valve GV29B and downstream gate valve GV30 are closed AND manually close the gate valve GV29C.

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- 4.1.3 Ensure that the valves are sealed.
- 4.1.4 Isolate the loadlock pumping system AND the ion gauge by manually closing gate valve GV29E.
- 4.1.5 Ensure that the valve is sealed.
- 4.1.6 Vent the loadlock chamber in accordance with NSLSII-VAC-PRC-007, *Beamline Vacuum System Venting*, monitoring the vacuum level in the main chamber.
- 4.1.7 ONCE the loadlock reaches atmospheric pressure and the main chamber pressure remains below  $1 \times 10^{-7}$  Torr, THEN gate valves GV29B and GV30 may be reopened.

## 4.2 MICROCAL Loadlock Pump-down

- 4.2.1 Pump-down using the loadlock pumping system.
- 4.2.2 Ensure the loadlock chamber vacuum achieves less than  $5 \times 10^{-7}$  Torr pressure.

## 4.3 Sample Introduction Using the MICROCAL Loadlock

- 4.3.1 Check the following:
  - the sample manipulator is fully retracted
  - the manual gate valve GV29C is fully closed and is sealed
  - sample bar is fully secured on manipulator
  - the position of the manipulator to ensure that it DOES NOT hit anything in the Main chamber when lowered
  - the loadlock is pumped down and vacuum is less than  $5 \times 10^{-7}$  Torr
- 4.3.2 Open gate valve GV29C AND ensure the indicator shows fully open.
- 4.3.3 WHEN gate valve GV29C is completely open, THEN the sample manipulator may now be translated down the main chamber and up again in the loadlock chamber.

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