



7.U-4B.8.1

Sample Handling at the Liquids Reflectometer – BL 4B

Before using a printed copy, check the *last modified date and revision number* against the on the SNS-OPM website.

Signed archival copies are maintained by the SNS Document Control Center.

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Approved: \_\_\_\_\_ **Signature on File** \_\_\_\_\_  
Liquids Reflectometer Lead Instrument Scientist Date

Approved: \_\_\_\_\_ **Signature on File** \_\_\_\_\_  
SNS Radiological Protection Operations Date

Approved: \_\_\_\_\_ **Signature on File** \_\_\_\_\_  
NSSD ES&H/ Operations Manager Date

Approved: \_\_\_\_\_ **Signature on File** \_\_\_\_\_  
Low Q Group Leader Date

Contact:  
[J. F. Ankner](#) (Liquids Reflectometer Instrument Scientist)  
[Jennifer Kozak](#)(SNS-OPM Editor)

**SNS-OPM 7.U-4B.8.1**  
**Sample Handling at the Liquids Reflectometer- 4B**

**1. Purpose**

1.1 This procedure provides instructions on the steps required to handle samples that have been exposed to the neutron beam at the Liquids Reflectometer.

**2. Responsibilities**

2.1 The **Liquids Reflectometer Instrument Scientist** or designee is responsible for ensuring that personnel required to handle samples read, understand, and follow this procedure.

2.2 The individuals performing this procedure are responsible for reading, understanding and following this procedure, and for reporting any problems encountered while performing this procedure.

**3. Prerequisites**

3.1 SNS staff and users must read [SNS-OPM 3.A-1.5.4B.2](#), “Operation of the Liquids Reflectometer User IPPS Panel”.

3.2 Individuals handling samples while performing this procedure **must** wear safety glasses and protective gloves.

**4. Precautions**

4.1 Failure to follow or complete this procedure may result in the unintentional release of activated samples to non designated areas. This could lead up to the termination of your experiment and/or loss of beam time at the Instrument.

**5. Procedure**

<b>Step Number</b>	<b>Procedure/Actions to be performed</b>
<b>5.1</b>	Obtain a Portable Geiger Mueller Detector, provided by the Radiation Control Technician, located in the beam line 2 hallway.



**5.2**

Visually inspect the instrument and verify that the detector is within the calibration date. Ensure that the GM detector is initialed for the date that it will be used. This confirms that the detector has been source checked.



**5.3**

Turn the large black knob in the center of the meter to the bat. position. The needle should fall within the "bat. ok" range. If this does not occur, contact a RCT to receive another GM detector. (574-6588)



<p><b>5.4</b></p>	<p>Turn the large black knob in the center of the meter to the x100 position.</p> 
<p><b>5.5</b></p>	<p>Check the audio knob on the detector and make sure that it is set to the “On” position.</p> <ul style="list-style-type: none"> <li>• You should hear some ticking sounds coming from the detector.</li> <li>• If no sounds/ clicks are heard coming from the detector, contact a RCT to receive another GM detector. (865-574-6588)</li> </ul> 
<p><b>5.6</b></p>	<p>Verify that the Response knob is turned to the slow position.</p>
<p><b>5.7</b></p>	<p>Take the Portable Geiger Mueller Detector to the sample on the sample stage, and hold the head as close as possible to the sample, without touching.</p> <ul style="list-style-type: none"> <li>• If the needle says within the scale, then the sample is okay to put into the radioactive sample storage bin, located inside of the instrument cave.</li> </ul>

	 <ul style="list-style-type: none"> <li>• If the needle goes off of the scale, then call a RCT immediately to handle the radioactive sample. (865-574-6588)</li> </ul>
<p><b>5.8</b></p>	<p>To have a sample removed from the cave (released) that has been in the neutron beam at the Liquids Reflectometer instrument, you <b>must</b> contact a RCT at 865-574-6588. <b><i><u>Radiological Control Technicians are the only staff at SNS who can release potentially radioactive or radioactive samples from posted areas.</u></i></b></p>

**6. Documentation**

- None

**7. References**

- SNS-OPM 3.A-1.5.4B.2, Operation of the Liquids Reflectometer User IPPS Panel. <https://www-internal.sns.gov/operations/SNS-OPM/03-A-01-05-4B-02.pdf>
- *Liquids Reflectometer BL4B Hazard Identification and Analysis*, SNS document number 107060000-ES0001-R00.

**8. Attachments**

- NONE