



3.A-3.5.2.1

Procedure for Entry to the Backscattering Spectrometer Restricted Sample Area

Before using a printed copy, check the *last modified date and revision number* against the **OFFICIAL COPY** 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** \_\_\_\_\_  
 Neutron Scattering Science Group Leader Date

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

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

Contacts: [E. Mamontov](#) (Lead Instrument Scientist – Backscattering Spectrometer)  
[J. Kozak](#) (SNS-OPM Editor)

## SNS-OPM 3.A-3.5.2.1

### Procedure for Entry to the Backscattering Spectrometer Restricted Sample Area

#### 1. Purpose

- 1.1 This procedure provides instructions on how to enter the Restricted Sample Area (RSA) on the Backscattering Spectrometer (See Figure 1). It primarily involves the use of the IPPS “User Panel” – see [SNS-OPM 3.A-1.5.2.2](#), “Procedure for Operation of the Backscattering Spectrometer User IPPS Panel” for a more detailed description of the panel. There are two access doors to this area and this procedure describes the use of both of these doors. Normal personnel access is through the Personnel Access Door, having the stairway to the lower elevation of this area. The Equipment Access Door provides a means for placing equipment into the RSA and is not intended for routine personnel access.



Figure 1. RSA on the Backscattering Spectrometer

#### 2. Responsibilities

- 2.1 The **Backscattering Spectrometer Lead Instrument Scientist** or designee is responsible for ensuring that personnel requiring unescorted entry to the RSA on the Backscattering Spectrometer read, understand, and follow this procedure.

#### 3. Prerequisites

- 3.1 SNS staff and users should read [SNS-OPM 3.A-1.5.2.2](#), Procedure for Operation of the Backscattering Spectrometer User IPPS Panel.
- 3.2 Staff must meet the qualification of Radiation Worker I; users must successfully complete the training “Radiological Worker Training for Neutron Scattering Users at the High Flux Isotope Reactor (HFIR) and Spallation Neutron Source (SNS)”.

#### 4. Precautions

##### 4.1 **Shutter indicator**

When the neutron beam is open (primary and secondary shutters opened) the RSA could have elevated radiation levels. This procedure includes closure of the secondary shutter which will remove this hazard. The secondary shutter must be verified closed (the display panel above the User panel must display “SECD-CLSD”) and the green “Access” light must be lit prior to attempting to enter the RSA. The primary shutter may be in either the closed or open condition.

##### 4.2 **Look for hazards**

In normal operation, specific sample hazards such as chemical hazards and operating equipment associated with the sample environment will frequently be located within the RSA. Unless familiar with the equipment, avoid the immediate vicinity of the equipment. Read and obey all signage.

#### 5. Procedure

**Section 5.1 below describes use of the Personnel Access Door immediately adjacent to the User IPPS Panel.**

**Section 5.2 below describes use of the Equipment Access Door directly across from the Personnel Access Door.**

##### **5.1 Access to the RSA via the Personnel Access Door.**

<b>Step Number</b>	<b>Procedure/Actions to be performed</b>
<b>5.1.1</b>	<b>Assess</b> Look through the fence defining the boundary of the RSA for any unusual conditions that are present. Be particularly aware of any temporary signage or postings identifying infrequent hazards that may be present in the area such as chemical hazards associated with a sample or hazards associated with a particular piece of sample environment equipment.

<p><b>5.1.2</b></p>	<p><b>Close Shutter</b></p> <p>If the secondary shutter is in the OPEN condition (RED status light lit), press the GREEN (CLOSED) button on the front of the User IPPS panel. Within 10 seconds the secondary shutter should close, the Sample Area status light should turn from RED (BEAM PERMIT) to GREEN (ACCESS), the Secondary Shutter status light should turn from RED (OPEN) to GREEN (CLOSED) and the display panel should indicate “BEAM OFF” and “SECD-CLSD” (See Figure 2). Note the primary shutter may be either open or closed.</p> <div> </div> <p style="text-align: center;">Figure 2. User panel readied for RSA access</p>
<p><b>5.1.3</b></p>	<p><b>Release Ia Key</b></p> <p>press the BLACK “PRESS TO SECURE” button, rotate the Ia key to the “KEY FREE” position and remove the Ia key from the User IPPS panel.</p> <div> </div> <p style="text-align: center;">Figure 3. Ia key trapped in the User panel</p>

<p><b>5.1.4</b></p>	<p><b>Exchange Key</b>  Insert and rotate the Ia key in its location in the key exchange station directly adjacent to the User IPPS panel and the Personnel Access Door.</p>  <p>Figure 4. Key exchange station: trapped Ia key releases Ib key for door lock</p>
<p><b>5.1.5</b></p>	<p><b>Open Door</b>  Remove one Ib key from the key exchange station, insert it into the Personnel Door Ib key location, rotate the key (See Figure 4), and open the door.</p>
<p><b>5.1.6</b></p>	<p><b>Watch the Safety System Indicators</b>  If at any time you see or hear unexpected behavior from the safety system indicators (stack lights, magenta beacon, etc), exit and contact the Lead Instrument Scientist (or designee) or Instrument Hall Coordinator. Emergency numbers are posted next to the exit and phones.</p> <p>Step 5.2.2 of the following procedure shows both the green stack light that indicates permissible access (See Figure 5) and instructions for how you may open the equipment door to trip the safety system in case the Personnel door is closed while you are inside.</p>

**5.2 Access to the RSA via the Equipment Access Door.**

<p><b>Step Number</b></p>	<p><b>Procedure/Actions to be performed</b></p>
<p><b>5.2.1</b></p>	<p><b>Enter RSA</b>  Follow the procedure above to access the RSA via the Personnel Access Door. Entry through this door is required in order to open the equipment door.</p>

<p><b>5.2.2</b></p>	<p><b>Unlatch Door</b></p> <p>On the interior of the Equipment Access Door (See Figures 5, 6):</p> <ul style="list-style-type: none"> <li>• pull out and hold the 1 inch black button securing the latch next to the door,</li> <li>• slide the door latch to the right, (you may now release the button)</li> <li>• push or pull open the door.</li> </ul> <p>Equipment may now be placed in the RSA.</p> <div style="display: flex; justify-content: space-around;">   </div> <p style="text-align: center;">Figure 5. Equipment Access Door      Figure 6. Door latch with open instruction</p>
<p><b>5.2.3</b></p>	<p><b>Close Door</b></p> <p>When finished with work, make sure to close the Equipment Access Door:</p> <ul style="list-style-type: none"> <li>• align the door latch with the red IPPS receptacle,</li> <li>• slide the latch to the left into the receptacle until it is secured.</li> </ul> <p>The normal state of this door is closed and locked.</p>

**6. Documentation**

- NONE

**7. References**

- SNS-OPM 3.A-1.5.2.2, Procedure for Operation of the Backscattering Spectrometer User IPPS Panel.  
<https://neutrons.ornl.gov/x/operations/SNS-OPM/03-A-01-05-02-02.pdf>
- *Backscattering Spectrometer BL2 Hazard Identification and Analysis*, SNS document number 107040100-ES0001-R00.  
(in ProjectWise at <https://shawnee.ornl.gov/WEL/index.html>)

**8. Attachments**

- NONE