

# Biomedical Imaging and Therapy (BMIT) Beamlines Specific Orientation (BSO)

26.11.37.4 Rev. 4

Date: 2020-June-26

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## REVISION HISTORY

| <i><b>Revision</b></i> | <i><b>Date</b></i> | <i><b>Description</b></i>                                                                                              | <i><b>Author</b></i> |
|------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------|----------------------|
| A                      | 2014-May-21        | This document combines 26.11.37.1 and 26.11.37.2 into one. Original Draft                                              | Tomasz W. Wysokinski |
| 0                      | 2014-Sept-11       | Issued for use.                                                                                                        | Tomasz W. Wysokinski |
| 0A                     | 2014-Sept-18       | Made minor updates by leaving the "Name" and "Date" areas blank. Also updated some of the wording on the form.         | Tomasz W. Wysokinski |
| 1                      | 2014-Oct-06        | Final text formatting. Issued for use.                                                                                 | Tomasz W. Wysokinski |
| 1A                     | 2017-Jul-13        | Updated content based on Systematic Approach to Training process. Updated format to current document control standard. | Denise Miller        |
| 2                      | 2017-Jul-21        | Incorporated reviewers' comments. Issued for use.                                                                      | Denise Miller        |
| 2A                     | 2019-02-12         | Updated to change references to paper permits to User Portal software                                                  | Denise Miller        |
| 3                      | 2019-02-27         | Issued for Use                                                                                                         | Denise Miller        |
| 3A                     | 2020-06-19         | Updated according to the new template (Doc 11.11.37.4)                                                                 | Sergey Gasilov       |
| 4                      | 2020-06-26         | Added changes suggested by Adam Webb and Meghan Allen<br>Issued for Use                                                | Sergey Gasilov       |



## **Beamline Specific Orientation (BSO) 05B1-1 (BMIT BM) and 05ID-2 (BMIT ID)**

### **FORM**

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#### **Notes:**

- The completed BSO form will serve as a checklist to be used when beamline staff gives the BSO to users.
- Each beamline, please use this template to generate a Beamline Specific Orientation (BSO).
- In the "Hazards and Health Safety at the Beamline" section, list all hazards that were checked in the second column of "Beamline Hazard Disclosure" form of your beamline (document "11.11.37.29 Beamline Hazard Analysis and Mitigation"), so that users are aware of the hazards in the beamline area.
- In the "Beamline Operation" section, add relevant information specific to your beamline, such as (highlighted):
  - Vacuum Safety procedure,
  - Cryogenic Safety procedure,
  - Ventilation Panel and Exhaust Port Hook up Locations,
  - Sample loading and removing procedure, etc.
- Handling certain materials, such as hydrogen fluoride (HF), requires additional training. Providing basic information during BSO does not qualify the users for handling such materials.
- The Author and one reviewer for the completed BSO shall be beamline staff (must include BR); two other reviewers are Training Specialist and HSE reviewer; the approver is the Science Manager of your department.



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*The Beamline Staff or designate will complete the eBSO for each User.*

***Each User must be instructed in the safe operation of the beamline. The training is valid for 2 years. The Beamline Scientists must make available all relevant instructions and safety documents.***

***Additional training may be required.***

### **Emergency and Safety**

- **Building Evacuation:** evacuate via the nearest safe exit and meet outside the Main Entrance on the North side of the building. The nearest exit and alternative exits are:
  - Vestibule door on NE corner of building
  - Door midway along East wall of building next to BMIT
  - Door at BMIT loading dock on East wall (emergency use only)
  - Exit door on North wall of building in front of Brockhouse
- **First Aid Kits:** Located in Lab 1112, Lab 1113 and at the Beamline Health and Safety Information Board in the entrance hallway to BMIT area. An injury report must be completed immediately if any items are used.
- **Fire Extinguishers:** CO<sub>2</sub> fire extinguishers are located:
  - In each hutch and each lab
  - At Beamline Health and Safety Information Board
  - Outside BMIT Control Room 1129
  - Outside POE-3
  - On East wall of building near exit door
- **Fire Alarm Pull Stations:** Located at each exit. Closest locations are:
  - Vestibule door on NE corner of building
  - Midway along East wall of building next to BMIT
  - At BMIT loading dock on East wall
  - Exit door on North wall of building in front of Brockhouse
- **Emergency eye wash/shower:** located in the Large Animal Lab 1113
- **Fire blanket, sharps disposal bins and biohazard disposal containers:** located in each of the labs (Lab 1112 and Lab 1113)
- **Beamline Health & Safety Information Centre**
  - SDS access information, emergency procedures and beamline contact list
  - SDS located online, submitted with permit or paper copy
  - Hazard disclosure tables are posted on the doors to various BMIT labs and rooms
- **Spill kit:** located in Lab 1113 under the sink.
- **Emergency Off Switch (EOS):** located on each wall of each hutch. EOS is used to shut down or interlock the radiation sources



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### **Emergency Contacts**

- Emergency Contact information is listed on the Beamline Health and Safety Information Centre and in each BMIT Control Room (Room 1128 and Room 1129)
- **Floor Coordinator (FC):**
  - From CLS Phone: 3639
  - From External Phone: 306-657-3639
    - Report any accidents or incidents
    - Large or dangerous chemical spill
    - Any fault lights or technical problems on the ACIS Control Panel
    - For assistance when beamline staff are unavailable
    - If appropriate, the FC will contact the Beamline Staff
- **Emergency Number** for Fire, Ambulance and Police
  - 911
- **University of Saskatchewan Protective Services**
  - From CLS Phone: 9-306-966-5555
- **Beamline Staff:** Refer to Beamline Health & Safety Information Centre
- **Health, Safety and Environment Department:**
  - From CLS Phone: 3663
  - From External Phone: 306-657-3663

### **Code of Conduct at the CLS** (Doc #0.1.1.45 for details)

- User activities shall be in compliance with the laws and regulations. Users shall exercise high academic integrity, and respect the applicable confidentiality of information.
- Users shall show respect for the dignity and diversity of other people. Any harassment and violence will not be tolerated. Users shall not be impaired by alcohol and/or drug use.



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### **Hazards and Health Safety**

- **Hazards** to be aware of include:
- Fall / trip and head hazards
- Pinch hazard from stages, shutters, doors
- High temperature (hot glue gun)
- Ladder / stair use
- Sharps / glassware
- Overhead crane
- High voltage / current
- Compressed gas
- Beryllium parts
- Lead
- Manual lifting
- Potential ergonomic issues
- Potential biological hazards (only if part of an approved permit)
- Potential chemical hazards (only if part of an approved permit)

Beamline Hazard Disclosure tables are posted on the doors to be considered by every person working at the beamline. Contact beamline staff in case a hazard presents that has not been covered there and Field Level Hazard Assessment will be performed

- **Waste Disposal:** types (liquid/solid/sharps/biohazard). Biohazard and sharps disposals located in each of the labs (Lab 1112 and Lab 1113). Consult beamline staff to dispose other types of waste: containers can be either brought to BMIT lab or another CLS lab can be used for sample preparation and waste disposal
- **Food/Drink Policy:**
- Food & drink are not allowed on surfaces being used for sample preparation
- Food & drink are not allowed in the BMIT hutches, labs, or the workshop
- Food is only allowed in the BMIT User Lounge, Room 1125
- Drinks (in covered cups) may be brought into the BMIT control rooms (Rooms 1128, 1129)
- Recognize that ergonomic factors, fatigue, and distraction may be issues.
- Users cannot escort visitors on the experimental floor. Only CLS staff can escort visitors on the floor.

### **Beamline Operation**

- **Facility Access:** All facility access trainings must be valid (Doc #8.7.1.1 for details). After hours, users can enter the CLS using the main door. Users may also enter vestibule (first door) at the BMIT or SAL entrance, and then contact the security officer in the lobby via intercom to access the building.
- **No User Access** to BMIT areas: POE-1, POE-3, SOE-1 pit, BMIT electrical room (Room 1126).
- **Beamline Use:** A valid on-line experimental permit must be in place when the beamline is in-use.
- **ACIS (Access Control Interlock System) Panel:** Understand the indicator lights and buttons
- **Beamline Enable / Disable Key:** Used in case of unsafe/unauthorized operation of the beamline as determined by the FC
- **Beamline Hutch Lock-up Training:** for beamline requiring hutch access, each user shall demonstrate the ability to lock-up the hutch, and know how to stop a lock-up.
  - Lockup Station (LUS) → Close the door → All-Clear horn → ACIS Panel indicator lights
  - Emergency Off Switch (EOS) location and use; Green Exit Button releases the magnetic locks on exit door; Door release button



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- **Manuals and Documents:** Beamline procedures and manuals can be found in control rooms and online wiki page. The beamline hazard disclosure tables are posted at the beamlines, to be considered by every person working at the beamline.
- **Computer Control:** The staff will train the users to use data acquisition and reconstruction software. Users should only operate components they have been trained on. During experiment users should use bmituser1 and bmituser2 account on BM and ID beamline respectively; bmituser3 is to reconstruct and visualize data in the BMIT PC lab after the experiment; bmitremoteuser is reserved for the remote access
- **Beamline Unattended:** If away from beamline for > 30 minutes, please fill in the contact information in "Beamline Unattended" window, accessible from your online e-Permit.
- **Sample Preparation and Handling**
  - Biological and hazardous samples must be prepared in the BMIT labs or the CLS Wet or Life Science Labs. Required PPE includes lab coat, safety glasses. This PPE is required for all work in the BMIT Labs, regardless of sample type
  - Additional PPE may be required for handling of hazardous samples
  - Non-hazardous samples preparation can be done at the beamline. PPE recommended: nitrile gloves and eye protection
  - Hot glue gun must be used with care and turned off when not in use
  - Safety glasses are required for any work in the BMIT sample preparation area (Room 1127) which might result in flying debris. Users are not permitted to use power tools without preliminary agreement with the beamline staff and good understanding of operation principles and safety
- **Vacuum/Power Issues:** Immediately contact FC and Beamline staff.
- **Data Storage and Transfer:** Raw data will be kept for a period of one year, reconstructed data for one month. Data can be copied to external USB3.0 disks during or shortly after the experiment or transferred via Globus afterwards. Please arrange data transfer with the local contact without delays.
- **Additional training** may be required for sample preparation, some beamline equipment, hazardous and biological materials, use of the labs, experiments involving live animals, data processing and visualization.
- Modifications to experimental setup, beamline equipment or instruments should never be conducted without explicit approval or assistance from beamline staff.

### Close Out

- **Housekeeping:** Users are required to keep the area clean and tidy during their time at the beamline, and clean up after themselves after beamtime is complete.
- **Samples:** Remove all samples or arrange storage/shipping with beamline staff.
- **Sign off** the experimental permit. Fill out the on-line User Feedback.
- **Publications:** Report publications on CLS website.