THE UNIVERSITY OF BRITISH COLUMBIA
NORMAN B. KEEVIL Institute of Mining Engineering

tel: 604 822 2540 fax: 604 822 5599 517, 6350 Stores Road, Vancouver, BC V6T 1Z4 www.mining.ubc.ca

NBK Institute Laboratory Access Protocols

To be reviewed annually
May 2022

The Norman B. Keevil Institute of Mining Engineering (NBK) strives to provide a safe and efficient workplace within all of our laboratory facilities. Safety is our number one priority above ***ALL*** other commitments.

All users of NBK laboratory facilities – regardless of position or status in the department *(including those from outside of the department)* will be informed of and follow all laboratory safety protocols set out in this document.

General NBK Laboratory Access Protocols

The Manager, Safety and Research Facilities (the Manager) is responsible for safety and activities in all NBK laboratory facilities. Use of equipment for research projects, equipment installation, modification, or repairs must be scheduled in consultation with the Manager.

At the direction of the Manager, laboratory technicians in the Coal and Mineral Processing Lab (CMP) and Frank Forward (FF) buildings are responsible for safety and activities in those buildings.

The laboratory technicians are responsible for overseeing, implementing and enforcing safety protocols associated with laboratory activities.

All users of our lab facilities must follow the items below:

1. Register and complete all safety training requirements from the Canvas MINE SAFETY ONLINE WORKSHOP: https://canvas.ubc.ca/enroll/EGWKHH

2. Attend a general safety orientation or view the recording on Canvas (offered at start of each term).

3. Complete a Site Specific Orientation for each lab or area which they will be working in with one of the laboratory technicians, the Manager or the Faculty Supervisor of the specific lab area.

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4. Be familiar with the location and operation of laboratory safety equipment and procedures, including, but not limited to: automated external defibrillators (AEDs), fire alarms, safety showers, eye wash stations, fire extinguishers, emergency exits and muster points. (See: Building Emergency Response Plans - BERP)

5. Receive training on equipment **before** starting to use it.

6. Wear appropriate clothing. (long pants, shirts with sleeves, shoes with closed toes that cover the entire foot).

7. Secure long hair, loose clothing and jewelry.

8. Wear appropriate Personal Protective Equipment (PPE). The minimum requirement includes safety glasses/goggles and lab coat/coveralls. For laboratory work using dust generating equipment or toxic chemicals, appropriate dust masks and respiratory devices must be used. Respiratory masks must be properly fitted and fit-tested annually or documentation must be provided. When required, lab workers must wear CSA approved steel toe footwear.

9. Do not wear disposable gloves or work gloves in common spaces of the NBK facilities (hallways, corridors, offices, kitchens, etc.). Gloves must be removed before exiting the labs or entering common spaces.

10. Do not wear devices that completely obscure hearing.

11. Wear hearing protection while working around loud machinery or processes. Earbuds and noise cancelling headphones are not approved hearing protection.

12. Avoid bringing and/or storing food and drink in the lab.

13. Work only during normal working hours (Monday to Friday - except holidays- from 8 AM to 6 PM) and do not work alone in the lab facility without the permission of your supervisor and a documented check in plan. (see: Working Alone Permission form and procedure on Canvas).

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14. Maintain good housekeeping practices by keeping the work area and walkways clear of clutter and obstructions, promptly cleaning up spills and cleaning up the area at the end of the operation day; for areas with ongoing experimental work, a New Hazard Assessment Form should be completed and posted in the area. Experimental work in multi-user areas needs to be cleaned up/ removed every day.

15. Report all accidents, incidents and near-misses to your supervisor, the designated supervisor or the Manager. (See: CAIRS reporting at srs.ubc.ca)

16. Label all chemicals decanted into new containers accurately with the date, contents and your name on an NBK/WHMIS approved workplace label. Contact lab technicians for assistance if required.

17. Label all samples in the NBK facilities with NBK approved sample labels. Contact lab technicians for assistance if required. (All samples including, but not limited to, samples in buckets, barrels or bags)

18. Segregate and dispose of hazardous wastes according to regulations. Contact lab technicians for assistance if required.

19. Refuse unsafe work.

20. No smoking is allowed inside or within 6 meters from any NBK buildings; this includes the Coal and Mineral Processing Building and the Frank Forward building.

Responsibilities of Faculty, Instructors and Research Supervisors

1. Faculty, Instructors and/or research supervisors are responsible for ensuring research students, teaching assistants and other paid students under their supervision complete the department Safety Training Requirements on the Canvas MINE SAFETY ONLINE WORKSHOP.

2. Faculty, Instructors and/or research supervisors must inform research students, teaching assistants, and other paid students under their supervision to attend the Departmental Safety Orientation offered at the start of each term or review the recording of the presentation.

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3. Faculty and/or Instructors are responsible for ensuring that teaching assistants under their supervision, are provided with a safety orientation to the lab area they will be teaching in.

4. Faculty and research supervisors who wish to have students under their supervision use equipment in a laboratory must inform the laboratory technician and, if requested, provide Standard Operating Procedures (SOP) for the equipment and experimental procedures they intend to use. Graduate students are required to be trained on the safe use of the equipment and procedures before using the equipment. The faculty or research supervisor is required to make a training request from one of the laboratory technicians. Any training should be documented.

5. Faculty, research supervisors, and lab technicians are responsible for ensuring their students and other researchers are aware of the NBK Laboratory Access Protocols, as well as ensuring that all appropriate procedures noted in the Lab Protocols are followed.

6. Faculty and/or Instructors are responsible for ensuring Teaching Assistants (TA) conduct a safety orientation at the start of each laboratory session (5-10 min presentation on safety hazards relevant to each lab), as well as communicating to their Teaching Assistants that written lab instructions are to be provided to the relevant lab technicians at least 24 hours before the start of the lab.

7. Faculty and research supervisors who are doing research with materials or chemicals that may be brought/ delivered to the lab must ensure the Material (Ore) Assessment Form is filled in **before** materials or chemical supplies are delivered to the laboratory. They have a duty to ensure any hazardous materials shipped to the department have the appropriate safety controls in place to protect all workers. They are responsible for any costs related to storing or disposing of the materials.

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Policy for Undergraduate Students

1. Undergraduate students are not allowed, under any circumstances, to work unsupervised during their lab classes. Teaching Assistants are to be present at all scheduled lab times; special arrangements are to be made if the work is performed outside of regular/ scheduled lab hours. This special arrangement has to be communicated with the Manager and either an appropriate lab technician or a Local Safety Team member.

2. Undergraduate students are required to follow all general lab protocols.

Responsibilities of Graduate Students

1. All graduate students working in the lab area are required to complete safety training on the Canvas MINE SAFETY ONLINE WORKSHOP and attend or view a recording of the departmental Safety Orientation session (compulsory).

2. All graduate students working in the lab area are required to complete a Site Specific Orientation for each area they will be working in with the laboratory technician, the Manager or the Faculty Supervisor of the specific area before starting work.

3. Graduate students are required to be trained on the safe use of the equipment and procedures before using the equipment. The Supervisor is required to make a training request from one of the laboratory technicians. Any training should be documented.

4. In the case of continuous work carried out by the graduate student there is no requirement for retraining*, however if the work has been discontinued for more than 6 months, the returning student needs to be retrained or their records need to be updated after the return to work. The updating is also required if there are any changes to the project in terms of using different chemicals or machinery.
   * Note: SRS Chemical Safety Training certificate is only valid for 5 years and must be renewed before expiration date.

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5. All graduate students who are doing research with materials or chemicals that may be brought/delivered to the lab must ensure the Material (Ore) Assessment Form is filled in completely **before** materials or chemical supplies are delivered to the laboratory.

6. All graduate students working in the laboratory are required to complete a New Hazard Assessment Form. The form includes a list of equipment, safety plan, waste handling safety plan and environmental plan. The graduate student/ researcher is required to fill in the form and upload it to Canvas. A copy must be submitted to the laboratory technician in charge of the lab in which the research activities will be carried out and another copy should be kept with the researcher's supervisor.

7. Random inspections will be carried out once a month to ensure and enforce compliance with the policies.

Responsibilities of Teaching Assistants

1. Teaching Assistants are required to complete safety training on the Canvas MINE SAFETY ONLINE WORKSHOP and attend or view a recording of the departmental Safety Orientation session (compulsory).

2. Teaching Assistants are required to provide a Safety Orientation for their students. It is expected that this orientation be held during the first scheduled laboratory session/ class.

3. Teaching Assistants are required to communicate general and specific safety hazards before the start of each lab class. This orientation session should not be longer than 5-10 minutes and should identify specific hazards and assessment of relevant risks (SDS, hazards related to the material handled during the particular laboratory session as well as material disposal after the class ends).

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4. Teaching Assistants are responsible for leaving the lab area clean. It is recommended that this responsibility should be enforced through an appropriate grading system.

5. Teaching Assistants are responsible for providing written laboratory instructions to the relevant laboratory technicians at least 24 hours before the start of the laboratory session.

6. Laboratory inspections will be carried out routinely to ensure compliance to the policies for undergraduate laboratory classes.

Policy for Outside Clients and External to UBC Projects

1. Outside (non-UBC) clients need to complete the departmental safety training (with yearly renewal). Including:
    a. Register and complete safety training from the Canvas MINE SAFETY ONLINE WORKSHOP: **https://canvas.ubc.ca/enroll/EGWKHH**
    b. Attend a general safety orientation or view the recording on Canvas.
    c. Complete a Site Specific Orientation for each lab area which they will be working in with one of the laboratory technicians, the Manager or the Faculty Supervisor of the specific lab area.
    d. If Safety Training has not been received, please arrange with your supervisor or contact the Local Safety Team Co-Chairs at safety@mining.ubc.ca.

2. Outside (non-UBC) clients need to present their liability insurance to the Local Safety Team Co-Chairs (safety@mining.ubc.ca) and the Department Administrator (Joanna.ho@ubc.ca).

3. Outside (non-UBC) clients are required to communicate the scope of the work and schedule with the technical staff, the Manager or the Faculty Supervisor of the specific area before they arrive to perform the work on the NBK-UBC premises.

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4. Visitors who are invited by the Faculty or Staff are required to comply with the NBK-UBC Safety regulations as outlined in: https://mining.ubc.ca/safety/.

5. Faculty or Staff hosting visitors to NBK lab facilities need to notify the Manager and relevant lab technician or Faculty Supervisor of the specific area. Graduate students or postdocs must notify their Supervisor and the Manager if they would like to invite visitors to NBK lab facilities.

6. Faculty or Staff hosting visitors need to communicate in advance the clothing and footwear requirements for visiting the NBK lab facilities. They also need to ensure visitors wear appropriate PPE during the visit. Lab coats/coveralls, hearing protection, hard hats and eye protection should be arranged in advance. Visitors can also bring their own PPE.