

# School of Engineering Subsurface Flow and Transport Laboratory (FN036)

## Local Laboratory Rules

To be read in conjunction with the School's safety handbooks, policies and guidance: [School Policies, Guidance & Resources](#)

**NO EATING OR DRINKING PERMITTED IN THE LAB**

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<b>Areas covered by this document</b>	
Subsurface Flow and Transport Laboratory	FN036

## 1. TRAINING & RISK ASSESSMENT

- All persons commencing work in the lab must undergo a formal laboratory induction in addition to the Basic Induction they received on arrival at the School.
- Records of induction and any further training must be stored in the laboratory for inspection.
- The [School Safety Handbook](#) must be read and understood prior to working in the lab.
- Risk assessment is the process of:
  - identifying where there is a significant risk (danger) in an activity and
  - determining ways to make that risk as low as reasonably practicable ([ALARP](#)).
- No work should commence in the lab until a risk assessment has been completed in conformance with School procedures as stated in the [School Safety Handbook](#).
- Projects may require more than one assessment to be written over the course of the project. These must be discussed with and submitted to the supervisor before any work is done.

## 2. PERSONAL PROTECTIVE EQUIPMENT

- Secure all long hair and loose clothing while in the lab.
- Wear sensible footwear and clothing. No sandals; shoes must be closed-toed.
- Safety glasses should be worn whenever there is a likelihood of material of any kind entering the eyes (normal spectacles are not an effective or acceptable form of eye protection).
- Gloves must be worn whenever there is a likelihood of the hand coming into contact with:
  - substances that could damage the skin,
  - toxic substances which could be absorbed through the skin (or through cuts and abrasions on the skin), OR
  - any glassware, samples, or worktops.
- Gloves should be changed regularly and not worn for unnecessary lengths of time. This reduces the risk of cross-contamination of any chemicals on your gloves throughout the lab and helps prevent dermatitis.
- Gloves and lab coats **MUST** be removed when leaving the lab unless you are transporting samples/equipment to a different lab (this should be avoided where possible).

## 3. CHEMICALS

- Many chemicals used in both maintenance and experimental work represent a significant hazard and steps to manage this must be addressed in the risk assessment. Anyone working with chemicals must ensure, before any work commences, that they:
  - understand the hazards associated with the chemicals
  - know what precautions should be taken
  - know the proper procedure for disposal of the chemicals.
  - know what they need to do if there is a spillage or uncontrolled release of a chemical. (Spill procedures should be outlined in the COSHH form.)
- The main hazards of chemicals are:
  - the toxic effects of chemicals if they enter the body
  - the corrosive effects of some chemicals if they come into contact with human tissue
  - the flammable nature of some chemicals

- the reactive nature of some chemicals – often when incompatible chemicals come together
- Solvents, acids, and poisons are stored separately. A list of some of the more widely used incompatible chemicals is kept in the **SAFETY FOLDER** in the Lab. **(This list is not all inclusive. The absence of a chemical from this list should not be taken to indicate that it is safe to mix it with any other chemical.)**
- Organic solvents and oils must NOT be disposed of down the drains. Make use of waste bottles/containers provided for this. Such bottles/containers must be labelled with its contents, date that the bottle begins to be filled, and initials of users.
- You must have read and understood the SDS of *every* chemical that is stored or used in the lab before you commence work. SDS of chemicals in the laboratory are available in the folder contained within the laboratory.

#### 4. **ELECTRICITY**

- The Estates Section is responsible for the provision and maintenance of a safe electrical supply.
- When undertaking maintenance work on electrically powered equipment, the power supply should either be isolated and padlocked off or, in the case of 13 Amp plugs, plugs should be removed from their sockets and the plug and cable returned to the equipment.
- No electrical equipment should be opened without permission of a supervisor and without having the necessary experience.
- Before use, every piece of electrical equipment should be inspected for an in date (2 years) PAT sticker. If it is missing or out-of-date, please request support from the Senior Electronics Technician.

#### 5. **COMPRESSED AIR**

- Some activities require a compressed air supply.
- **Never direct compressed air at anyone.** It has been known for people to be killed by misuse of compressed air.

#### 6. **GAS CYLINDERS**

- Corefloods often involve the use of a compressed CO<sub>2</sub> gas cylinder.
- Only School-designated gas cylinder handlers are permitted to transport gas cylinders to/from and within the laboratory and to attach/remove regulators.
- Always open valves slowly. Do not use excessive force on valves and gauges. If a cylinder valve cannot be opened readily, it should be returned to the supplier.
- After use, always shut off the gas at the cylinder valve and release the pressure in the gauges before finally shutting all valves.
- Understand the hazardous properties of the compressed gases you are using (e.g., flammability and toxicity).

#### 7. **EQUIPMENT**

FN036 contains specialised equipment, e.g.,

- ISCO pumps
- Anton Paar density meter
- automatic tube cutter
- laboratory balances, glassware
- microfluidic stations

Training will be given as necessary; consult the Lab Coordinator or your supervisor.

## 8. WORKING OUTSIDE NORMAL WORKING HOURS AND LONE WORKING

- Access to laboratory space is subject to the various School rules and reference must be made to the School Safety Handbook.

*Undergraduate students and taught postgraduate students*

- Normal working hours for UG/PGT students are 8:30 am to 16:30 Mondays to Fridays. Public holidays and University closure days are excluded.
- Working outside normal working hours is strictly forbidden.

*PGR students and research staff*

- Normal working hours for PGR students and research staff are 8:30 to 18:00 for PGR students and research staff. Public holidays and University closure days are excluded.
- Any requirement to work after 18:00 must be approved by the Lab Coordinator and the supervisor's Academic Line Manager **in writing**. The supervisor will then forward the ALM approval to the LSC, cc HoS. LSC will inform the Lab Coordinator and designated technicians for the area/lab and extend swipe card access to 20:00.
- If you are working outside normal working hours, a "buddy system" is strongly advised, whereby you contact another person at pre-agreed times to confirm your safety and wellbeing.
- If you are working outside normal working hours, consider leaving the door ajar for your safety.

## 9. SLIPS AND TRIPS

- The floor should be kept clear of objects and there should be no trailing cables. If it is absolutely necessary to have trailing cables, they should be covered with a suitable ramp or rubber cable protector.
- Any spills should be cleaned immediately and properly.

## 10. ACCIDENT / NEAR MISS REPORTING

Any accident or "near miss" must be reported as soon as possible following the incident – see <http://www.abdn.ac.uk/safety/general/accidents/>. Do not worry about multiple reports being submitted about the same incident.

The following **MUST** be reported:

- Any incident in which anyone is hurt (regardless of how minor the injury might appear at the time and regardless of whether they need medical treatment).
- Any incident in which someone could have been hurt (but in which perhaps chance or "good luck" prevented injury). These incidents are sometimes referred to as near-misses.

## 11. LIQUID NITROGEN

- The lab has a 25L liquid N<sub>2</sub> dewar. If a significant quantity is spilt, the immediate area will not contain adequate oxygen to support life. The door should be opened immediately, and the lab evacuated. Notify the Lab Coordinator, LSC, and/or one of the technicians.

## 12. DESKTOP

- The desktop in the lab is for image acquisition, not data storage. Copy and remove your raw data files onto an external HD or onto a network drive *immediately* after you complete your experiment.

## 13. GENERAL

- The lab is used for research. **You are not permitted to take photos in the lab without the permission of the Lab Coordinator.**
- **You must *not* allow friends or unauthorised users into the lab.**
- Personal belongings should not be brought into the lab. Instead, they should be kept in your office, in a locker, or on the small table outside of the lab.
- In an emergency, call University Security:
  - **3939** from internal phones.
  - **01224 27 3939** from mobiles, external phones.
- Glassware is separated into 3 classifications
  - communal
  - research – oil or oil + aqueous phases
  - research – aqueous phases

Glassware must be used only for these applications and washed according to lab procedure specific to the application.

- When the alarm sounds for more than 15 seconds, leave the building immediately through the nearest exit. Do not wander off without letting the Lab Coordinator and/or your immediate supervisor know that you have safely evacuated the building. Alarms are tested every Wednesday morning for about 10 seconds.
- Report all equipment faults, labware breakages, and possible damages to the Lab Coordinator and/or designated technicians in a timely manner so that broken items may be replaced if appropriate.
- Ventilation is controlled by Estates. If you notice that the ventilation is not on, you should leave the lab and notify the Local Safety Coordinator.
- Do not make personal calls from the lab phone.
- Do not bring in food or drinks into the lab. Also:
  - Do not eat or drink in the lab (including chewing gum).
  - Do not throw away food wrappers or drinks bottles in the lab trash cans.
- Do not use an in-ear music device in the lab.
- Broken glassware must be disposed of immediately in the broken glassware box under one of the lab benches. Notify Lab Coordinator so broken items may be replaced, if appropriate.
- All containers containing chemicals must be labelled (user initials, contents, date).

- Coreflood experiments involve gases and liquids at elevated pressure. Do not touch equipment or chemicals unless you have been authorized to do so by the Lab Coordinator or your immediate supervisor.
- Be knowledgeable about all activities taking place in the lab – not just those you are involved in – so that you can respond accordingly in case of an emergency. Similarly, you should be able to identify every user of the lab, know whom they work with, and know how they can be contacted.

### Revision Record

issue	who	date	reason for review
1		-	
2	YT	12 Jan 2022	Update School Safety Handbook link. Replace MSDS with SDS. Revision to University policy on near miss reporting.
3	YT	30 May 2022	Update School Safety Handbook link. Remove ban on mobile phone use in lab.
4	YT	18 May 2023	Updated normal working hours for consistency with other FN laboratories. Updated procedure for requesting access outside normal working hours to reflect School Executive Committee decision. Removed requirement that UG/PGT students and visitors could only be in FN036 if their immediate supervisor is physically in Fraser Noble. Additional minor edits; reformatted cover page.
5	YT	24 October 2023	Replace “decreased to an acceptable level (i.e., working out how the activity can be done safely)” with ALARP. Senior Electronics Technician specified as point of contact for PAT requirements.
6	YT	10 Nov 2023	Expand instructions for waste organic solvent disposal.
7	YT	22 May 2024	Section 1. Add requirement that risk assessments must be discussed with supervisor.