

<b>UNIS COLD LAB documentation</b>		Version nr.: 3	Introduced date: 23.03.2012	
Revision nr: 1	Revision date: 28.06.2016	Document type: Safety Instructions		
Made by: Jessica Birkeland		Document code: HSE-LAB-005		
Approved by: Gerd Irene Sigernes		Page 1 of 4		

# Cold Lab Guidelines and Regulations

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## 1. Introduction to the cold lab facilities

The purpose of this document is to ensure that all persons follow the same rules and procedures in the UNIS laboratories. You are obliged to work as per the guidelines given below.

UNIS is equipped with three cold laboratories for measurements or experiments to be held under cold temperature. Many people use these facilities for various purposes and varying lengths of time. It is therefore necessary to state the regulations and guidelines of these labs. In this document you will find the routines and regulations concerning the three cold labs, the computer room to controlling the cold labs, and safety instructions.

Please read the text carefully and make sure that you understand everything before you begin your work. Do not hesitate to ask if you have any questions or suggestions regarding our routines and safety protocols.

Any questions may be directed to the Lab leader, AT staff engineer, or the maintenance technician.

One cold lab is smaller and located on the ground floor in the old building. It has a simple temperature control system outside the lab on the wall. The other two cold labs are larger and have more advanced functions. These are located on the second floor in the lab hallway of the new building. The temperature in these is controlled by a probe located at middle height in the room and can be set in two modes:

- a. constant temperature
- b. sliding temperature

The computer controlling the cold lab system is located in room C218 and displays the room temperature at three levels (bottom, middle and top). The other computer controls one of the instruments in the cold lab.

There are several stationary instruments in the cold labs:

1. a water tank
2. a ruban saw (SO 3100 Bondsag Scheie)
3. a compression device (Knekkis)

The instruction manuals for these instruments are found on the common server located under Lab – Instruction manuals, or you can ask for a copy from the AT staff engineer or lab leader.

There are also hoses and some other common equipment and tools found in the cupboards in the cold labs, return these to their stored location after use, and make sure they are rinsed and dried after use and before storing them again.

## 2. General Information

### Access

You are to read and sign the Safety Instructions for Laboratory Use at UNIS ( [http://www.unis.no/wp-content/uploads/2015/09/Safety-instructions-lab\\_2009.pdf](http://www.unis.no/wp-content/uploads/2015/09/Safety-instructions-lab_2009.pdf) ) and meet with the lab leader in order to

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gain access to the UNIS labs. This document is for you to keep and refer to throughout your lab work. A checklist accompanies your HSE documentation and is used when you begin and end your work in the UNIS labs. This checklist needs to be done with lab personnel before and after your lab work. Before gaining access to the computer room you need to receive training from an experienced user. The cold lab climate conditions can be adjusted by yourself but you first need to get an introduction to the program DESIGO from an experienced user.

Before work begins the HSE lab paper work needs to be filled in along with a risk assessment and standard operating procedure (SOP) if one does not already exist at UNIS. If a standard operating procedure and risk analysis for the work you plan to do does not already exist we will require you to make one and hand it in to the lab leader. A template for this can be received from the AT staff engineer or the lab leader. If an SOP for your planned work is already available make sure to ask for one from the AT staff engineer or the lab leader before beginning your work.

### **3. Laboratory Safety**

#### **General safety**

It is very important to know the safety procedures and how to work appropriately in a laboratory to protect yourself and others from dangerous situations. Please remind each other to be safe and “stop the work” if you are uncertain.

Eating and drinking is strictly forbidden in all of the labs at UNIS, no food, drinks, water bottles or coffee cups should be brought in any of the labs; the labs are shared by many, and even though you may not be working with chemicals someone else could be. It is therefore very important to not bring any food or drink into any of the labs, nor the computer room/chemical storage C218.

The cold conditions in the cold labs require that you be dressed appropriately when working there. It is advised to use the blue working suits or scooter suits from logistics, and warm shoes/boots, remember to return them to logistics when you are finished your lab work. It is not allowed to work in any lab without shoes. Safety goggles and protective gloves must be used while operating equipment, particularly saws and Knekkis; these can be found in the box labelled with Protective equipment, in the entrance room between the two labs. If the personal protective equipment cannot be found, contact the lab leader or AT staff engineer to help locate this equipment, do not work without them.

Some cleaning supplies, fire extinguishers and emergency equipment, such as a fire blanket, are also found in the entrance room. There is an emergency shower and eye washing station located in the teaching lab, as well as a first aid station located outside the cold labs. Make note of the location of the emergency equipment before beginning your work in the labs.

If you plan to work alone in the labs with no other persons present, it is important that you work with the ‘work alone alarm’. This is for your safety and is given out by the lab leader. Make sure to notify the lab leader in your HSE paperwork if you plan to work alone.

Never use oxygen consuming/ exhaust producing devices such as engines, in the closed cold lab facilities. The ventilation in these rooms is not sufficient to ensure safe breathing conditions with such activities.

There is a red emergency button located next to the door in both cold labs. When pressed, this will sound an alarm in the lab hallway. This alarm should be used in emergency situations, if you are unable to get yourself out of the lab and/or you require emergency assistance.

More information on Lab safety, and fire and accident protocols is found in the Safety Instructions for UNIS labs.

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#### 4. Use of the cold laboratories

Both salt water and freshwater can be used for filling the water tanks in the cold labs. The Sea water lab, room C210, has a faucet on the wall to the left upon entering which gives sea water filtered straight from the fjord, use the coiled yellow hose already attached. The sink in C210 located to the right upon entering can also be used for freshwater. It is of utmost importance that you are respectful of the labs and any work/experiments that take place there; do not touch or move anything but the sink and faucets. You must make sure that the hose is well attached to the faucet so that there will be no leaks; use either a tight fitting hose (a specific hose for this purpose is found coiled and put away in the cold lab cupboards), or attach a hose clamp to ensure a good seal. Monitor the hose for a minute to ensure there are no leaks. Be sure to keep these hoses in the labs, and return them to their storage cupboard.

Due to the low temperature and the presence of salt and water in the cold labs, there can be a great amount of wearing on the equipment; rust and moisture greatly impact the lifetime of instruments. It is therefore very important that the equipment, benches, and floors are cleaned after every use. Your work place needs to be secured before leaving (no leakages, instruments that do not need to be kept on are turned off, and any ongoing work is labelled with your name, date, and contact information). All ongoing projects (even if very temporary) must be labeled; all samples and equipment that are being used need to be labeled with date, contents, and a name. Samples which are inadequately labelled may be thrown away without warning.

There are many groups who use the cold labs and all for different purposes, it is therefore very important that the following rules and guidelines are respected by all:

1. The labs must be booked in advance; all necessary paperwork (HSE and SOPs) is to be filled in prior to beginning work. Lab bookings are made by the Lab leader, Gerd Irene Sigernes.
2. Make sure any parallel experiments will not be affected by any temperature changes. Check the lab bookings with the Lab leader to contact those whom may also be working in the cold labs at the same time.
3. The use of the cold labs is for research and course work only.
4. Only samples being used for the current experiments are to be kept in the cold labs. The rest must be stored in a storage room (walk-in fridge and freezer in the logistics department or old building). These are working cold labs, not storage rooms.
5. The saws are only to be used for ice samples, and must be cleaned afterwards to prevent rust.
6. Do not leave behind any instruments with batteries such as camera, thermometer, drill, conductivity meter, balance, etc. in the labs. They will be damaged from long exposure to the cold.
7. Do not leave any metal in contact with the floors or tables; this will leave rust marks.
8. Rinse instruments with fresh water after having used them with salt water or saltwater ice. Clear the instruments for ice and salt after every use.
9. Do not leave any ice on the floor. This is a hazard for the next user, be sure to melt it or leave it in a safe location to melt.
10. Clean the water tank out entirely with fresh water after use. Do not leave the bottom full of water; it will rust.
11. The lab user must not leave the water tanks unattended when they are being filled, so to avoid spills and water leakages.
12. If facing problems with the compressors, get assistance from the maintenance technician.
13. If maintenance is needed, DO NOT switch OFF or ON the laboratory before contacting the maintenance technician. This may cause more problems!
14. If facing problems with the computer program, DO NOT SWITCH OFF the computer! Get assistance.

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All electrical equipment should be first checked before use to ensure there are no cracks in wires, or other defects that could cause damage or injury. If any instruments are defective please report it to the AT Staff Engineer or the Lab leader and the instrument should be taken out of operation.

### **5. Use of the Computer Room, C218**

There are two computers to the cold labs, one for controlling the conditions in the cold labs and the other for controlling the Knekkis instrument. There is a phone located in this room to be used for communication with those working inside the lab; it is especially important to use while working with the Knekkis. Communicate with those working with the instrument inside the lab while you are controlling the instrument from the computer, you are then able to let them know what the instrument has been programmed to do and whether they should stand back for their safety.

This room is also the chemical storage room for other UNIS labs. You are not to touch any of the chemicals inside this room, and be aware that there are very flammable substances located here as well as other toxins and irritants. It is therefore of utmost importance that you do not go through any of the cupboards, or fume hood, and you do not bring any food, drink, or ignition sources into this room. Be sure to always lock this door when you are finished working with the computers, and do not leave it open/unlocked if you are leaving the room unattended.

#### **Phone numbers**

Maintenance technician, Morten Andreassen	room C101	7902 6499
Lab leader, Gerd Irene Sigernes	room C141	7902 3364