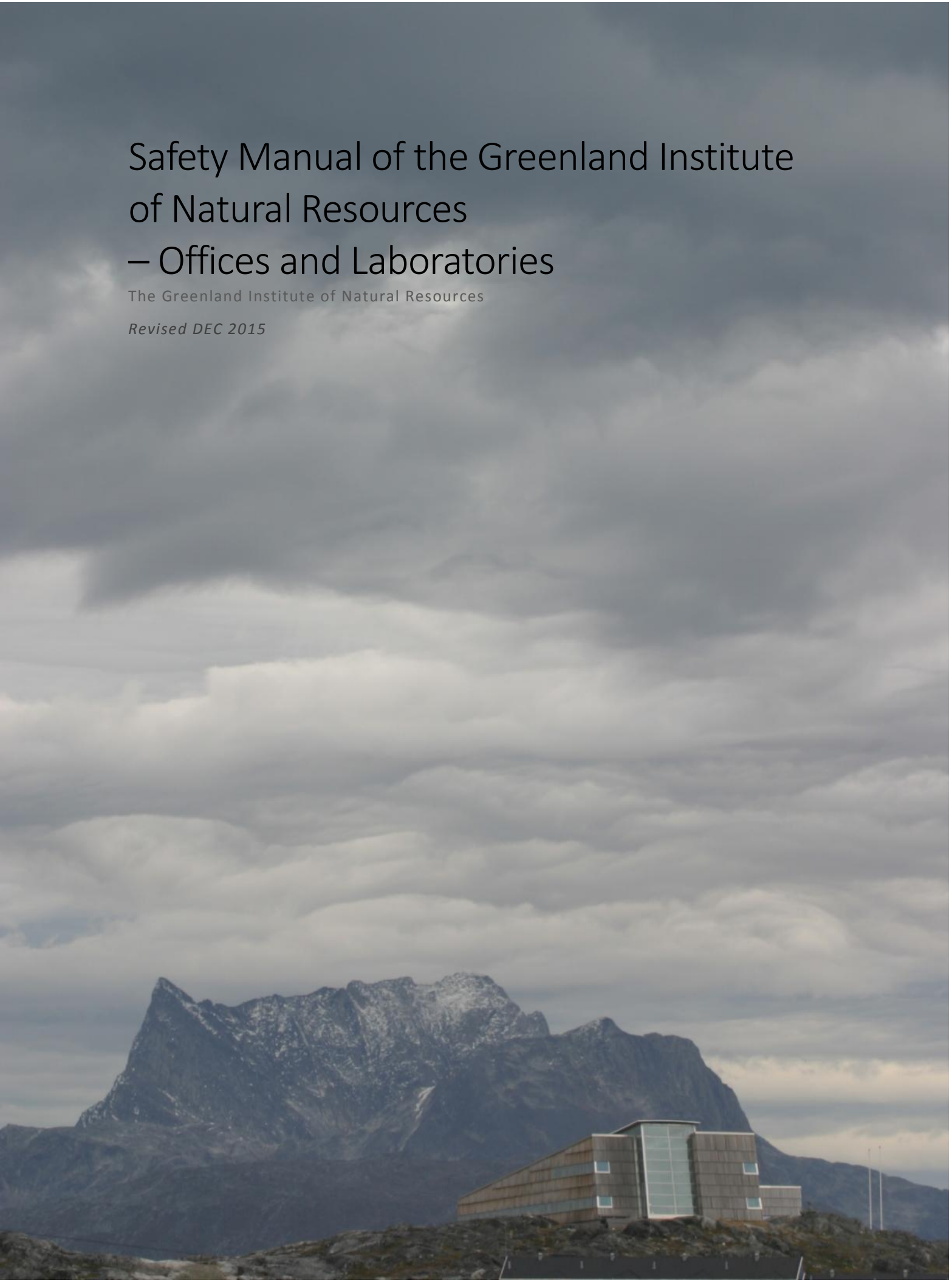
Safety Manual of the Greenland Institute of Natural Resources – Offices and Laboratories

The Greenland Institute of Natural Resources

Revised DEC 2015



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Preface

All work at the Greenland Institute of Natural Resources (GN) shall be conducted in the safest and healthiest manner possible. The safety regulations of the Greenland Institute of Natural Resources shall ensure

- that no one is injured.
- that no one suffers from long-term, work-related ailments.
- that no one is subjected to physical pressure than impinges upon their health and well-being.

It goes without saying that management is responsible for the parameters of general safety at the institute, but you are also expected to demonstrate due consideration for safety in connection with your work assignments.

To ensure the ideal parameters for you, the institute has compiled two manuals that you must read. This manual concerns all work that is conducted on the premises of the Greenland Institute of Natural Resources. Another manual focuses on fieldwork.

NOTE!

All staff members are required to familiarize themselves with the safety procedures that are described in this manual, including the Safety Manual for Fieldwork (if this is relevant), and follow the written guidelines.

This manual takes a practical approach and will give you an overview of the following points:

- Organization of the Safety Committee/Safety Group (SiU) at GN
- Safety at the Greenland Institute of Natural Resources
    - Repetitive strain at work
    - The physical working environment
    - Safety in the laboratory
    - Hazardous waste and waste management
    - Office safety
    - Pregnancy
    - Indoor environment
    - First aid kit
    - Fire safety
- Workplace risk assessment
- Work-related injuries

In the legislation folder, which is kept at the reception, you can see the current work environment laws for Greenland. The legislation folder contains the Work Environment Act along with selected associated legal provisions:

- The provision on work performance
- The provision for Greenland on materials and substances
- The provision for Greenland on rest breaks and time off work
- The provision for Greenland on technical devices
- The provision for Greenland on work organization, etc.
- The provision for Greenland on reporting work-related injuries

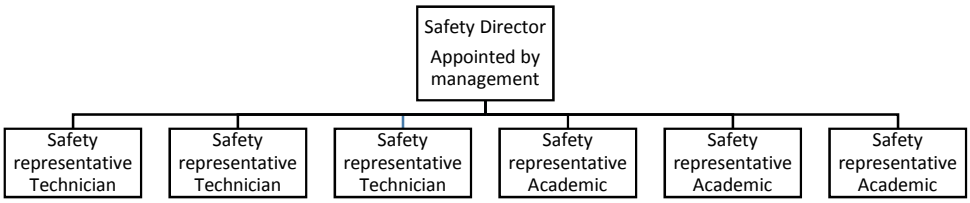
If you have a question on safety, please contact your safety representative, who will take up the question with the SiU. If there is no representative from your own department, you are of course welcome to contact any member of the safety committee.

The latest edition of this manual can be found here:

- F:\13 GN Politikker\13 Sikkerhed i huset og i laboratorier.

Safety committee regulations

Companies with more than 20 employees must have a safety committee. GN's safety committee (SiU) consists of 7 members: a safety director (appointed by management) and 6 safety representatives (see diagram below). SiU members must complete the occupational safety and health program's compulsory safety training course (37 hours).



Members are normally elected for a two-year period, which applies to both the safety director and the safety representatives. A trade union representative is perfectly qualified to be elected as a safety representative.

If no employee representative is present at the workplace, one of the current department heads serves as the safety representative.

The Safety Committee can supplement itself ad hoc at individual meetings with additional members of the staff that the committee deems capable of making an objective contribution to the work of the SiU.

In compliance with the instructions of the Occupational Safety and Health Authority's publication *Safety Groups and Safety Representatives*, safety representatives must sign up for an occupational safety and health program no later than four weeks after they assume their duties as either a safety director or safety representative in a safety group. The occupational safety and health program must be completed no later than eight months after assuming these duties if the individual concerned has not completed a prior occupational safety and health program.

Committee work

The safety committee shall plan and coordinate work environment initiatives and work to resolve safety and health problems in individual departments or department areas. The individual safety representatives cooperate in relevant contexts – e.g. in solving problems that involve a number of departments, or areas, that are connected.

The committee holds meetings on a quarterly basis. Minutes are taken of each meeting, and the minutes are posted on the bulletin board.

The SiU can also cooperate beyond the boundaries of the institute, first and foremost with the Occupational Safety and Health Authority, which is responsible for instructing companies and institutions on how best to comply with the Work Environment Act. The Occupational Safety and Health Authority has the right to conduct inspections of companies and institutions.

Safety in the laboratory

Before you begin working in the laboratories of the Greenland Institute of Natural Resources, you must acquaint yourself with the guidelines listed below. Furthermore, you must be given a tour of the laboratory by a safety representative or lab technician to bring you up to speed on where safety equipment is located.

As a user of the laboratories you are obliged to

NOTE!

- familiarize yourself with the relevant instructions for the work that you will carry out.
- read the relevant safety data sheets (SDS/MSDS/LBV) that apply before the work begins.
- plan your work accordingly.

This will inform you of the risks that can be associated with your work, what precautionary steps must be taken, what protective gear you must wear and how you must handle and dispose of waste.

Laboratory technicians will also be happy to help you with instructions. If you have the slightest doubt, ask questions and never start working with something that you don't feel safe or comfortable with.

The material safety data sheets (MSDS) can be found in the laboratory office. Likewise, they can be found on the F drive: F:\62 Professorat\GCRC_common files\Sikkerhed.

- Do not run or make sudden movements in the laboratory.
- Be aware of where other individuals are.
- Food and beverages may not be consumed or kept in the laboratories.
- Think not only of your own safety but of others as well!

Information on chemicals

When GN receives a new substance – and thus a new data safety sheet – the person in charge of the laboratory must immediately ensure

- that it is listed in the chemical registry.
- that everyone who works with the substance is well informed.
- that information is gathered on how hazardous the substance is and how it should be handled.

According to Danish law, data safety sheets shall be included with every delivery of substances and materials. It is the supplier's duty to ensure that all directions for use are written in readily understandable language (i.e. Danish) and that they cover the 16 points that are prescribed by law. This is all the information that is required to handle the substance so that it presents the least possible risk for users and the environment.

Registration of substances

The Occupational Safety and Health Authority provides the following approach to registering substances:

1. Assign an *internal number* to each of the selected substances and materials.
    a. Only purchase and use substances and materials that have an internal number.
2. Note the internal number on the packaging and on data safety sheets.
3. Note the trade name that stands on the packaging. Other names can be noted in a separate field.

4. Note where the substance or material is purchased (dealer, producer, supplier)
5. Write the date on the supplier's *directions for use*.
    a. The date can help to determine whether the directions for use are up to date.
6. Indicate how the substance or material is concretely *used*, e.g. for what process.
7. Indicate the estimated amount of *consumption*, e.g. per year – check off/tick off how often the substance or material is used.
    a. If the substance or material is no longer used, write down when it went out of use.
8. Indicate the *price* per unit at the last delivery.
9. Make note of information on *health risks*.
    a. If the contents are classified as hazardous, it must be correctly marked with hazard symbols, R and S phrases (or the new GHS/CLP pictograms and H and P phrases).
10. Note any possible *substitutions*.
11. Collect all of the data safety sheets in a *ring binder* in numerical order or in a *database*.

Handling chemicals

- Pour the appropriate amount of chemicals to be used for an analysis in a beaker or similar receptacle.
    - You must never use a pipette or dropper directly from the storage receptacle/bottle, since you risk contaminating the reagent.
- Only clinically clean spatulas or spoons may be used in chemical receptacles.
- Chemicals may not be poured back into the receptacles but instead should be disposed of in a safe and sound manner.

Working with hazardous materials

There must be a data safety sheet on all hazardous materials.

The law states that a chemical substance or material is hazardous if it

- is classified and has warning labels in accordance with the Environmental Ministry's regulations.
- is included with an exposure level in the Occupational Safety and Health Authority's list of hazardous substances and materials.
- can entail a risk due to its physical, chemical or toxicological characteristics and the manner in which it is used or stored at the workplace.

NOTE! You must always use protective gear and safety equipment as described in the MSDS/APB.

Precautionary measures when working with hazardous materials

Extremely dangerous work should not be carried out if you are completely alone in the building. If you do not feel comfortable carrying out a task alone, ask for help.

If you are working alone in a laboratory or a building, give some thought to the dangerous situations that could arise in connection with this work. Have a colleague "keep an eye on you" and intervene if an accident should occur.

Work-related injuries with hazardous substances should be prevented according to the following principles:

- Hazardous substances must be replaced with less hazardous substances as long as the chemical effect does not deviate significantly from the original substance (substitution).
- You must work with closed systems wherever possible.
- There must be effective local exhaust ventilation.
- You must ensure that there is good general ventilation.

You can see on the substance's packaging how it is classified and how it should be labeled. You can also find information on this in the MSDS/APB. If you have any doubts about how substances and reagents should be labeled, ask a laboratory technician for help.

Equipment and clothing

Work that involves noxious substances, acids, bases and radioactive materials must always be done under a **fume hood:**

1. Ensure that the hood is extracting air properly before the work begins.
2. Keep the window pushed down as far as the work allows and always below face level.
3. Always leave the fume hood with a lowered window.

Contact lenses should not be worn in the laboratory because chemicals can adhere to the inner surface of the lens and possibly cause the lens to stick to the eye. If you use contact lenses during laboratory work, you should notify the other staff members of this. Contact lenses must be removed before rinsing eyes.

Only use **gloves** where it is required and always select the right type. If you are wearing gloves, you may not touch equipment that others use without gloves (cupboards, door handles, etc.). **Hands** must be washed with soap and water when you have finished working with hazardous substances and before you leave the laboratory.

Glassware and other objects that are used for samples and analysis work must, at a minimum, be clearly marked with the following information:

- Contents
- Date
- Your initials

Corrosive substances

Diverse chemical substances and liquids have a corrosive effect on skin and mucous membranes. The damage to tissues highly resembles what occurs when an individual is burned. If caustic agents are not removed, they will penetrate deeper into the skin.

With **acidic burns** the body forms scabs that prevent deeper layers of tissue from being damaged.

Note!

Corrosive bases do not cause wounds, but instead create water-soluble products that cause the caustic agents to penetrate deeper into the skin. If you do not continue to flush the eyes with water for a long time, there is a risk that the cornea will be damaged.

It is important that the injured area is immediately washed with copious amounts of water and that you continue to rinse with water at a temperature that feels comfortable. Rinsing should be completed before the injured individual is transferred to an ambulance. Showers for flushing with water have been placed in/near the laboratories. Familiarize yourself with the locations of these rinsing stations.

Eye-rinsing bottles

An eye rinser filled with a sterile, 0.9% sodium chloride solution must be in place at all laboratory sinks.

- If you get acid or base in your eyes, rinse them thoroughly with a 0.9% sodium chloride solution.
- Due to the risk of bacterial growth, all bottles that have been used must be thrown away, even if they are not completely empty.
- If you use an eye-rinsing bottle, it is your responsibility to replace it as quickly as possible. A new bottle can be acquired from the caretaker/janitor or your safety representative.

Hazardous waste and waste management

Toxic or hazardous waste from GN's laboratories must be collected and delivered to the waste collection authorities in Nuuk (where the incinerator is located), who will ensure that it is transported to I/S RenoNord in Aalborg, Denmark. Consult with the institute's laboratory technicians before you dispose of hazardous waste!

Sort the waste into the waste groups according to the following criteria:

- Table 1 and Table 2at the end of the section.
- Mark canisters and containers with **labels** that include the waste group and UN number.
    - Labels can be found in the waste management folder in the waste depot.
    - Templates for the waste labels can be found here: F:\Fælles\Sikkerhedsudvalg\Affald.
- It is essential to determine the pH value of waste that is marked as **B waste**.
    - Use a pH test strip.
    - Mark on the label whether the waste is acid, neutral or base.
- Radioactive waste:
    - Liquid waste with radioactive isotopes must be solidified with plaster to transform it into solid waste before it is sent off.
    - Scintillation vials with radioactive waste are packed standing upright in a drum with inert packing material, e.g. vermiculite or Perligran, and are thus viewed as solid waste.
    - A laminated information sheet with a description of the contents is attached to the lids of all drums with radioactive waste. Laminated information sheets can be found in the waste management folder in the waste depot.
        - Templates for the information sheets can be found here: F:\Fælles\Sikkerhedsudvalg\Affald\Indlæg fast radioaktivt Z.docx

Guests who produce hazardous waste must be aware of how GN sorts and disposes of such substances and materials. As a rule, they must personally ensure that the waste is disposed of correctly, unless another arrangement has been made with the institute's laboratory technicians.

If you have questions about hazardous waste, ask one of the institute's laboratory technicians. You are also welcome to contact the Sermersooq Municipality's Facility and Environment Administration at kommuneqarfik@sermersooq.gl or I/S RenoNord at farligtaffald@renonord.dk.

Table 1. Liquid waste

Description	Waste group	Comments
Ammonium (new and old)	B	
Nitrite	B	
Silicate	B	
Oxygen (Winkler)	B	
NOx	B	
Chlorophyll a (ethanol)	C	
Phosphate	H	
DIC	K	Contains $HgCl_2$
TA	K	Contains $HgCl_2$
Formalin	X	Carcinogenic
Isotope waste	Z	Is made solid with plaster

Table 2. Solid waste

Description	Waste group	Comments
Laboratory waste containing mercury	K	Used gloves, empty packaging, pipette tips, thermometers, etc.
Laboratory waste	Z	Used gloves, empty packaging, pipette tips, etc.
Radioactive laboratory waste	Z	Scintillation vials, gloves, ^{14}C vials, pipette tips, etc.

Office workplaces, screen work

All aspects of the work must be planned and organized so it can be conducted in the safest and healthiest manner possible. People often forget that office work can be just as strenuous as hard physical labor. There are a wide range of conditions that can cause the work to become "hazardous to your health."

Working posture

It is important to be aware of how you sit when you work at a desk. Your working posture in front of a computer can be hard on your body in many ways:

Neck and **shoulders** are especially strained when you

- sit with raised arms, for example, by having your chair adjusted too low, forcing you to lift your arms to use the keyboard. Ensure that your chair is adjusted correctly (you may want to contact the SiU for assistance).
- maintain an immobile head position, which is often the result of sitting too long in front of a computer screen. This can give you a stiff neck. You may decide to take small breaks with brief physical exercises.

The **lower back** is strained because of

- leaning forward, torsion, leaning to the side and leaning backwards.
- a position that is maintained for a long time, or a movement that is repeated often while lifting.
- sedentary work. When you sit for a long time at a desk, you often tend to slouch – either because you gradually lean forward or because you have to read something on a piece of paper that is lying next to you.
    - Turn your chair instead of twisting in the lumbar region.

- Be aware of your posture when you sit for a long time in front of your screen and use the height adjustable desk to vary your working posture during the course of the day.

Hands and **arms** are strained because of

- frequently repeated movements.
- using a great amount of strength.
- extreme movements.
- Repetitive strain injuries, such as working with a computer mouse. In recent years, there have been a number of work-related injuries caused by repetitive movements involving fine motor skills. If repeated every day, this can lead to prolonged injuries from strain on muscles and tendons, so it is important to be aware of your body's signals. If you begin to feel pain or discomfort sitting in a certain position, contact the SiU, which will help you find a solution.

Good advice

- Use a number of different working postures and vary your position, for instance, between sitting and standing.
- Organize the work so it is varied (not too much time in the same position).
- Take appropriate breaks.
- Ensure that your office chair can be adjusted depending on work functions and sitting positions.
- Use a table top/desk that has a size that matches the task at hand.
- Ensure full support for your feet on the floor.
- Adjust the individual workplace to the person who is working there, in accordance with his/her size and proportions.

Repetitive strain at work

Repetitive strain at work is *work that has a physical, sensory and/or psychosocial impact that remains constant for a prolonged period.* This can occur at GN during prolonged laboratory work or longer periods of screen work.

Repetitive strain at work can be detrimental because groups of muscles experience tension or pressure over a prolonged period of time, which has a negative impact on joints, the blood supply, nerves and tissue. This often causes pain in the neck, shoulders, arms and hands, but can also affect every part of the body. Repetitive strain at work can also produce physical symptoms in the form of stress, fatigue and reduced vitality.

It can be difficult to change uniform, repetitively strenuous or monotonous work. It is important that all areas that are prone to repetitive strain at work compile a workplace risk assessment (WRA), which will clarify how to ensure that individual staff members experience the least possible amount of strain.

The physical working environment

Performing a job helps to shape an individual's sense of identity. The workplace is also of particularly great social importance for employees in Greenland. It is thus important that the workplace functions smoothly on a personal, professional and social level.

It can be difficult to see where problems may arise in the physical working environment because it is rarely possible to point to a single source of a problem. To make matters

worse, the issue is often fraught with taboos. People often don't talk much about problems, and they are often not expressed until after a prolonged period of mounting frustrations.

It is thus important to be aware that each individual employee, manager, staff member and safety organization plays a key role in the prevention of physical problems in the work environment.

Note! If you are experiencing problems, you can contact a safety representative and draw attention to the issue.

Prevention

The best prevention is

- when the workplace has a culture that makes it possible to talk openly together and give and take constructive criticism.
- when individuals have influence on their own work and on major decisions.
- when there are staff performance reviews and open discussions at staff meetings, where both managers and staff members take part.
- when there is a strong social network that can absorb and process both work-related and personal problems.
- when the safety committee/safety groups identify and tackle areas where there can be a risk of problems related to the physical working environment.
- when management and staff members work to rectify problems and minimize the risk of a poor physical working environment.

Indoor environment

The indoor climate of the workplace can be adversely affected by drafts, cold, excessive heat, poor ventilation and dry air. Exposure to these factors can lead to headaches, fatigue and irritation of the eyes and mucous membranes, etc.

The only person who can judge whether the indoor climate is suitable or not is you. So to help the safety organization ensure that you have a good working environment, you should let people know if you have problems. It is very likely that the issue can be rectified.

Work-related injuries

A work-related injury is an umbrella term for accidents, short-term detrimental impacts, sudden injuries from lifting and occupational diseases that occur or emerge at work. An injury can only be recognized as a work-related injury if it occurs due to work or the conditions under which work is carried out.

Anyone can report a work-related injury. However, it is GN’s duty to report a presumed work-related injury. The report must be submitted as soon as possible after the work-related injury has occurred. In the event of a fatality, this report must be submitted within 48 hours. If the injury does not involve a fatality, the paperwork must be filled out within one year of the incident to avoid exceeding the statute of limitations.

If you want to report a work-related injury, you have to fill out a report form. This can be acquired by contacting the administration, which can also be helpful with filling it out. The report must be signed by both the employer and the injured party.

If this concerns a recognized work-related injury, the following payments may apply:

- Sick-leave benefits from the first day of absence due to the work-related injury
- Compensation for permanent injury or disability
- Compensation for loss of ability to work
- Compensation for surviving relatives
- Payment for medical treatment and physical therapy, including transport to medical treatment
- Payment for prostheses, glasses and similar assistive devices that have been damaged as a result of work, or that the work-related injury have made necessary.

GN's administration can provide information on precise rules and payments.

Pregnancy

If you become pregnant, you should be particularly aware of your work environment and how this can affect not only you, but also your fetus.

Remember to inform your department head and coworkers about your pregnancy as early as possible so that any particularly strenuous and less suitable tasks can be distributed among your colleagues.

Speak as early as possible with your physician or midwife about your work and working environment.

GN has no general guidelines for what you may or may not do at work when you are pregnant. Physically strenuous work in the field and work with certain chemicals is not appropriate when you are pregnant, but it is also up to you to object if you do not feel comfortable with the work that you are performing, and ask your physician or midwife for advice if you have any doubts about the extent to which a task can be detrimental to you or your fetus.

In connection with your pregnancy we recommend that you:

- consult with the laboratory technicians at the institute before you work with chemicals in the laboratories.
- do not embark on expeditions or fieldwork while you are pregnant.
- talk with both your physician/midwife and your department head about your work assignments and, if necessary, have your duties restructured so the work is less strenuous for you.

On the following websites you can find more information (in Danish) about what you should be particularly aware of in your work environment when you are pregnant:

- Pregnancy and work
  - http://www.gravidmedjob.dk/sideindhold.asp?sideid=290&sprogid=1
- Occupational Safety and Health Authority - pregnant and nursing women in the work environment
  - http://arbejdstilsynet.dk/da/regler/at-vejledninger/g/a-1-8-gravides-og-ammendes-arbejdsmiljoe.aspx
- The industry's Work Environment Council
  - www.i-bar.dk
- A guide on pregnancy and working in laboratories
  - http://www.i-bar.dk/vejledningermm/graviditetspolitik-i-laboratoriet

First aid kits

First aid kits are located at the following locations at GN:

- The kitchen
- The reception desk
- The laboratories
- The repair shop
- The biologist station

Furthermore, the maps on the following pages of this manual show you where safety and fire extinguishing equipment is located at the institute. Your safety representative can also take you on a tour so you can see where the equipment is kept.

Fire

The fire alarm is a continuous, long tone that is emitted with high intensity. This shrill, piercing sound cannot be mistaken for anything else! Find out where the nearest exit is.

If the fire alarm goes off at the institute:

1. **Leave the building immediately.**
2. Take your jacket along, but leave everything else.
3. **Seek out the closest exit.** The closest exit is clearly marked with green signs.
4. Proceed to the parking area between the main building and the annex. If this cannot be done, gather in the parking area in front of Ilisimatusarfik.

An overview of GN's fire extinguishing equipment can be found on pages 15 and 16.

Workplace risk assessment

One of the main tasks of the SiU is to ensure that a workplace risk assessment (WRA) is compiled for all working areas. Such a workplace risk assessment must include the following:

- Identification of the working conditions
- Description and assessment of the working conditions
- Prioritization and implementation of a plan of action
- Guidelines for following up on the plan of action

A WRA is compiled as a cooperative effort by management and staff members to develop a safe and healthy work environment at the workplace. The prime objective of the WRA is to identify possible problems in the work environment of a company and propose concrete suggestions for improvements. The work can be conducted with the help of checklists, interviews and/or dialogues. This involves describing and evaluating possible risks at work. Likewise, initiatives are taken to minimize the risk of new problems. This leads to the compilation of what is known as a plan of action, which outlines how the problems are to be tackled. It describes (1) what the problem is, (2) what should be done and (3) who is responsible for making sure that it is done. There must also be a follow-up on the plan of action to see that deadlines for solutions are respected.

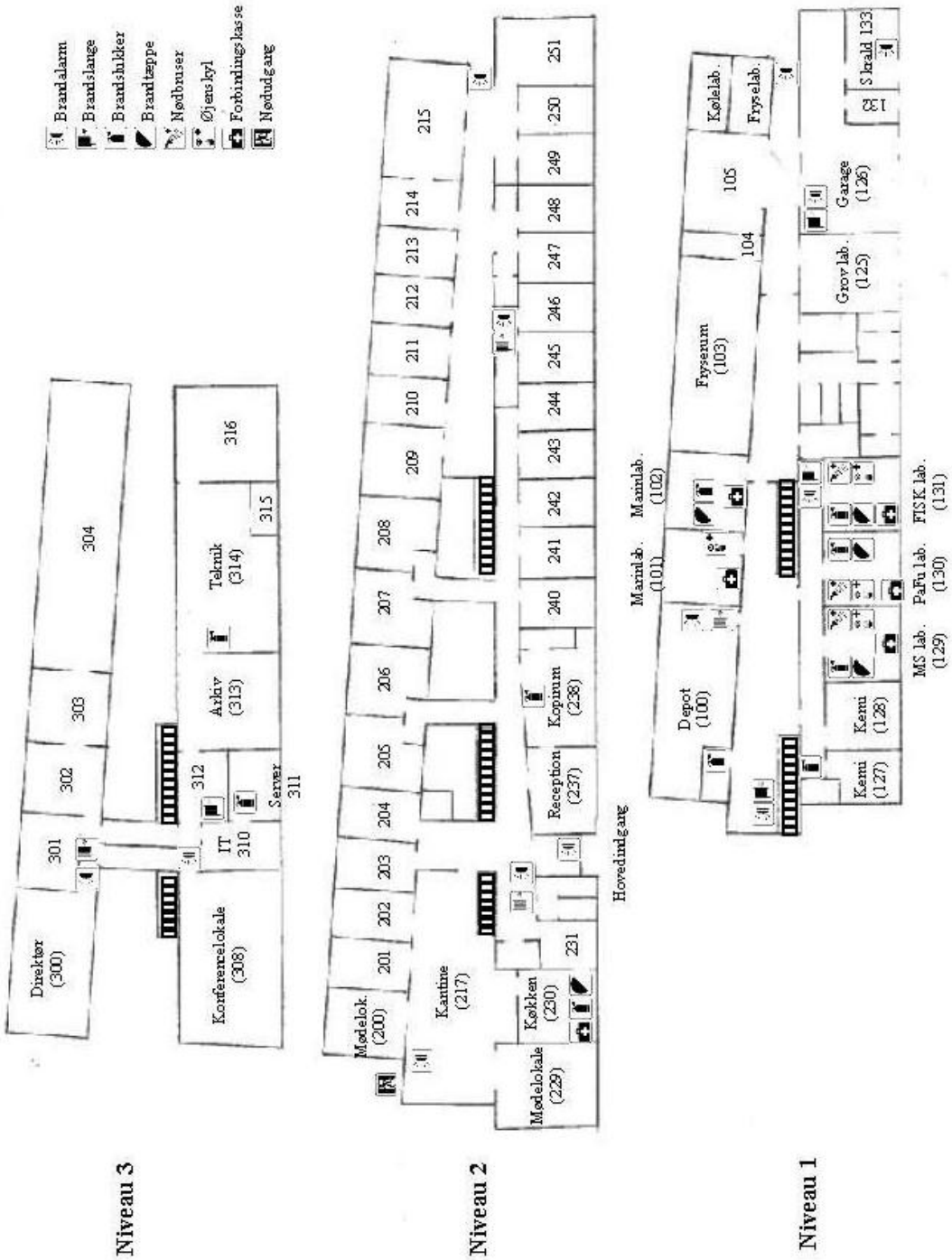
According to the law (the Work Environment Act of September 7, 2010), companies with employees must draw up a written WRA. The WRA must be revised at least once every three years, or when there are significant changes to the work processes or methods that can affect the work environment.

Any methods deemed appropriate may be used to draw up a workplace risk assessment (but it must be in written form). There must be a WRA for offices, laboratories and all locations and venues where work is carried out. The WRA must take into account the diverse tasks that are carried out on the premises.

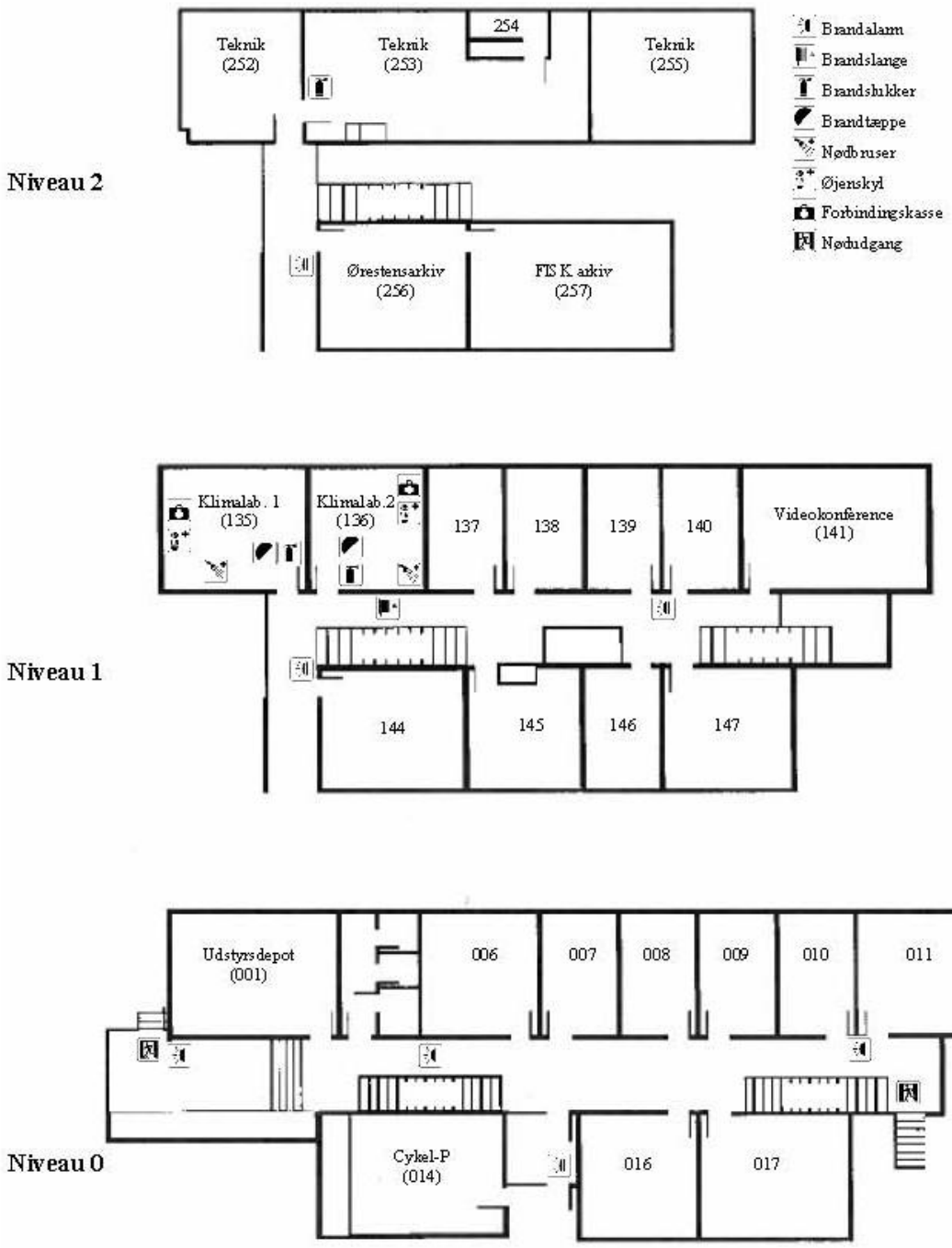
A workplace risk assessment alone is nevertheless not enough to ensure that work is carried out in a completely safe and healthy manner. Daily work should also be planned and organized in accordance with the individual tasks at hand. This is particularly necessary when there are changing workplaces and work areas, or where different people take turns at the same workplace. The workplace, work processes and working conditions are constantly subject to changes. Accordingly, it is important that you as, a staff member, constantly inform the SiU of particular work areas/tasks where it may be necessary to reevaluate the originally compiled WRA.

The current WRA can be found here: F:\Fælles\Sikkerhedsudvalg\2012 APV GN

Map of the main building



Map of the extensions



Confirmation

I, the undersigned, hereby confirm that I have received and read the "Safety Manual of the Greenland Institute of Natural Resources – Offices and Laboratories ". I recognize the requirement that I must familiarize myself with the rules and adhere to them. Furthermore, I will follow the instructions given by field leaders, project managers and other superiors at the GN.

Place / date: _____

Name (block letters): _____

Signature: _____

Next of kin (write legibly):

Name: _____

Address: _____

Phone: _____

This confirmation is to be returned to your safety representative.