

University of Notre Dame

Safety Program

*Department of Civil & Environmental Engineering & Earth Sciences
Fitzpatrick Hall, Cushing Hall, Stinson Remick Hall*

Department chairman: Joannes Westerink 156 Fitzpatrick Hall

*Department Safety Coordinator: Tina Mitchell
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Approvals:

Local Area Safety Committee: March 2013

Risk Management and Safety (RMS): March 2013

Safety Emergency Contacts:

Emergency Assistance: 911 or 1-5555 (631-5555)

Hazardous/Radioactive Material Spill: RM&S @ 1-5037 (631-5037)

Urgent Maintenance Requests:

(after hours) – campus security 1-5555

(during business hours) – Jerry Cappert:

Email: cappert.1@nd.edu

Office: 1-8336

Cell: 574-238-6606



Civil & Environmental Engineering & Earth Sciences Safety Program

1. Executive Summary

1.1. The goal of the Laboratory Integrated Safety Plan (LISP) is to create a culture of safety at the University of Notre Dame. This Safety Program is an extension of the LISP but specific to this department. While it has been attempted to address all known safety concerns within department, due to the nature of research, it is impossible to identify all hazards. While this program promotes a safe working environment, individuals ultimately hold responsibility for their own safety.

2. Purpose & Scope

2.1. This document describes CEEES specific safety program. It is intended to supplement The University of Notre Dame's [Risk Management and Safety \(RMS\) Department's health, safety and environmental policies and procedures](#).

3. Responsibilities (Additional responsibilities are defined in the [Laboratory Integrated Safety Plan](#))

3.1. Department heads:

- 3.1.1. Embrace a culture of safety and establish and demonstrate an expectation that all personnel will follow policies and procedures to ensure safety. Appoints a Safety Coordinator (SC).
- 3.1.2. Establish and maintain a Local Safety Committee (LSC). This includes appointing both a SC and a LSC.
- 3.1.3. Enable enforcement of rules and regulations, and take prompt, effective corrective action when necessary.
- 3.1.4. Provide assistance to RMS and the LSC when situations arise that threaten the safety of investigators and other personnel in the department.
- 3.1.5. Takes prompt, effective corrective action when necessary.
- 3.1.6. Identify resources needed to address risk mitigation efforts that exceed the ability of the laboratory.

3.2. Safety Coordinator (SC)

- 3.2.1. Main point of contact for the Local Safety Committee (LSC).
- 3.2.2. Chairs the LSC unless the Department Chair designates an alternative.

- 3.2.3. Coordinates the LSC meetings and ensure meeting minutes are taken.
 - 3.2.4. Acts as an intermediary between RMS, laboratory personnel, and the Department Chair, or his/her designee to facilitate solutions to noncompliance issues.
 - 3.2.5. Ensures reporting of injuries, accidents, and exposures to RMS, assists in investigating, and works with RMS and laboratory to mitigate future risk.
 - 3.2.6. Reports at least annually to the Department Chair, or his/her designee the current status of laboratory safety validations; injury, accident, and exposure incidents; and existing gaps in laboratory safety practices, resources, and infrastructure.
- 3.3. Local Safety Committee (LSC):
- 3.3.1. Serves as a conduit between RMS and research personnel.
 - 3.3.2. Ensures that information is communicated both ways and personnel have undergone required training, and training is documented.
 - 3.3.3. Maintains and reviews this Program annually.
 - 3.3.4. Serves as the main point of contact for environmental, health and safety activities and provides key personnel with information related to the Laboratory ISP and ensures that laboratories undergo the validation process.
 - 3.3.5. Determines when specific laboratories are required to develop a Laboratory Safety Protocol as required in the [LISP](#).
 - 3.3.6. Meets regularly at least quarterly.
- 3.4. Principal Investigators (PI)
- 3.4.1. Ensures that a Laboratory Contact is identified and their responsibilities are clearly communicated. Though the PI/Supervisor or instructor may serve as the Principal Laboratory Contact, he or she may also designate other senior personnel such as technicians, post-doctoral associates, or graduate students to fill this role.
 - 3.4.2. Ensures the laboratory is validated through the Joint Assessment process.
 - 3.4.3. Ensures that all personnel working in the laboratory have their training needs identified and receive the required training. Ensure training records are maintained.
 - 3.4.4. Informs all employees and students that environmental, health, and safety are priorities and informs them about these policies, rules, regulations and procedures, as well as their specific responsibilities.
 - 3.4.5. Develops a Laboratory Safety Protocol if required by this Safety Program. The PI may task another individual within the laboratory

to construct the Laboratory Safety Protocol though the PI is responsible for ensuring the task is satisfactorily completed.

- 3.4.6. Identifies hazards within the laboratory and implements practices to mitigate risk.
 - 3.4.7. Sets expectations and requires that safety equipment, devices, personal protective equipment (PPE) are provided and maintained, and are properly used by all individuals present in the laboratory, including personnel from other laboratories.
 - 3.4.8. Takes prompt corrective action when unsafe conditions, practices or equipment are reported, observed, or when identified during Joint Assessments, self-assessments, or unannounced assessments.
 - 3.4.9. Promptly reports work-related injuries, illnesses, accidents, and exposures to hazardous agents to RMS and the Safety Coordinator. Collaborates with RMS to investigate incidents and implement means to mitigate risk if needed.
 - 3.4.10. Provides financial support for environmental, health, and safety improvements or request assistance from the next higher level of supervision.
- 3.5. Principal Laboratory Contacts
- 3.5.1. Designated point of contact for RMS and personnel working within the laboratory for safety issues.
 - 3.5.2. Schedules Joint Assessments and works to resolve any issues identified during the Assessment.
- 3.6. Unit or Department Members – Adhere to this Program and all [University safety policies](#).
- 3.7. Visitors (Researchers and Others) – Adhere to this Program.

4. Laboratory Specific Protocol Requirements

- 4.1. In cases where there are unique hazards a laboratory may be required to develop a Laboratory Safety Protocol. The following provides guidance for the LSC to require a laboratory to develop a laboratory specific protocol.
- 4.2. If a lab has any of the hazards identified below the PI shall develop a Laboratory Safety Protocol specific to those hazards.
 - 4.2.1. Sealed, non-sealed or machine produced radiation
 - 4.2.2. Laboratory is Bio-safety level (BSL) 2 or 3.
 - 4.2.3. Use of controlled substances
 - 4.2.4. Use of Lasers rated 3b or 4
 - 4.2.5. Conducts entry into confined spaces

- 4.2.6. Performs maintenance on equipment – may require lockout / tagout
 - 4.2.7. Experiments involving exposed electrodes with voltages above 50V
 - 4.2.8. Others hazards as identified by the LSC or Risk Management and Safety.
- 4.3. The Laboratory Safety Protocol should clearly describe the hazard, the training required to inform and protect personnel from the hazard, the equipment used with the hazard, and processes that shall be followed to mitigate risk to personnel.

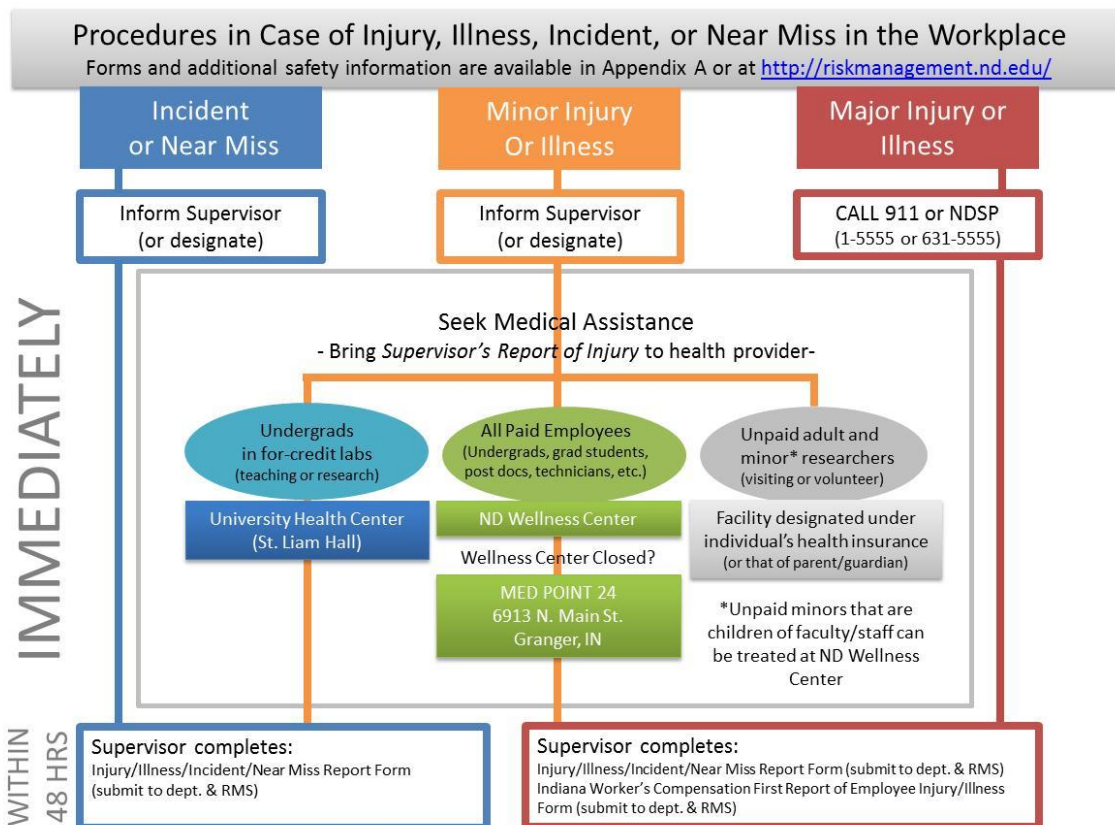
5. General Laboratory Safety Requirements

5.1. Laboratory Postings

- 5.1.1. Emergency contact information and relevant hazard warnings (e.g. biohazards, radioactive materials) shall be posted on the outside of the door leading into the laboratory. A “blue” emergency contact information card is the standard. This is required for all labs and is required on the main laboratory door. Copies can be obtained through RMS (1-5037) or on the [RMS Website](#).

5.2. Emergency Response

- 5.2.1. Injury and Illnesses shall be reported following the process outlined below.



- 5.2.2. All fires, explosions, large spills of dangerous chemicals, release of toxic materials, etc., shall be immediately reported to the NDFD via the emergency number (911 or 631-5555) and the faculty member in charge and to all other persons who might be affected in the immediate area.
 - 5.2.3. Each laboratory shall designate an assembly location outside of the building in the event of a building evacuation. This shall be documented and communicated to all personnel.
 - 5.2.3.1. During an evacuation personnel shall immediately exit the laboratory, meet at this location and take a headcount if possible. If it is known that someone is missing or lab personnel are not sure, report this information to the NDFD when they arrive.
 - 5.2.4. Each laboratory shall designate a severe weather shelter-in-place location. If the location is not in the basement, contact the ND fire Department or the Risk Management and Safety Department for assistance. The shelter-in-place location shall be communicated to all personnel working in the laboratory and be documented.
- 5.3. Keep the laboratory locked at all times when unoccupied.
 - 5.4. Personal Protective Equipment (PPE):

- 5.4.1. All workers shall consult with their faculty / supervisor regarding the specific PPE requirements for the laboratory.
- 5.4.2. A PPE assessment shall be completed for each laboratory. All personnel working in the laboratory are required to sign the [PPE Certification Form](#). A copy of the signed Form shall be maintained for record retention.
 - 5.4.2.1. Specific PPE may be necessary for operations in the lab such as working with dry ice, liquid nitrogen or hazardous chemicals. Ensure the proper glove and other protection is identified.
 - 5.4.2.2. A chemical PPE compatibility chart is available on the [RMS Web site](#).
- 5.4.3. Minimum PPE requirements for working in laboratories while handling hazardous materials include safety glasses (ANSI Z87), protective gloves, and lab coat or apron. Closed toed shoes and long pants are required at all times while in the laboratory. If necessary, keep spare shoes and pants to change.
 - 5.4.3.1. Individuals who require corrective (prescription) eyeglasses shall wear approved safety glasses (ANSI Z87) or approved chemical splash goggles (ANSI Z87) over the corrective eyeglasses. The safety glasses or goggles shall fit comfortably over the corrective eyeglasses.
 - 5.4.3.2. Prescription safety glasses are permitted. Individuals desiring ANSI approved prescription safety eyeglasses must first seek approval from their supervisor then contact RMS at 1-5037. RMS will provide a voucher to Eyemart Express (215 E. University Dr., Granger, IN). The cost of the prescription safety glasses (up to \$65) will be charged back to the department.
- 5.4.4. It is recommended that contact lenses not be worn where chemical vapors are present. If contact lens are needed in situations where vapors or chemical splash may be present chemical splash goggles shall be worn.
- 5.4.5. PPE shall be properly cleaned. Lab coats shall not be laundered at home but at a designated laundry service such as the Notre Dame's laundry service (St. Michael's Laundry).
- 5.4.6. Contaminated PPE shall not be worn outside of the laboratory. Gloves and contaminated lab coats shall be removed prior to leaving the laboratory.
- 5.4.7. All laboratory personnel shall be informed of the location of the eyewash station, safety shower, fire extinguisher, and first aid kit.
- 5.4.8. Maintenance workers and/or technicians must be informed of the increased hazards present in a particular lab. Be sure to note the special circumstances on the work request form so that the proper personal protective equipment can be worn (examples: biological, lasers, radiation, etc).

5.5. Eating and Drinking – Eating and drinking is prohibited in laboratories where chemical, biological, or radiological hazards are present.

5.6. Refrigerators / Freezers

- 5.6.1. Storage of food and drinks shall be in a designated location. Refrigerators used for human food shall be designated for that purpose.
- 5.6.2. All refrigerators and freezers used for chemical or other non-human consumable food shall be labeled “No food or drink”. Refer to the [RMS web site](#) for labels.
- 5.6.3. Flammables requiring refrigeration shall be stored in refrigerators designated for flammable storage.

5.7. Housekeeping Requirements

- 5.7.1. All laboratories are required to maintain housekeeping to ensure safety of personnel working in the lab. This includes but is not limited to:
 - 5.7.1.1. Maintain clearance to all exits and safety equipment, e.g., fire extinguishers, eyewash stations, safety showers, e-stops, sprinkler heads, etc.
 - 5.7.1.2. Keep clutter in lab hoods to a minimum to maintain proper air flow.
 - 5.7.1.3. Keep aisle ways clear. At a minimum, objects shall not be stored in the aisle way that reduces the width to less than 36” in high traffic areas or high hazard areas and 28” in other low traffic areas or low hazard areas.
 - 5.7.1.4. Maintain walkways so they are free of liquids or other slip/trip hazards.
- 5.7.2. Housekeeping shall be maintained on a daily basis when the lab is in use.
- 5.7.3. Sharps shall be stored in approved sharps containers and never be left uncovered while not in use.

5.8. Electrical Safety

- 5.8.1. Extension cords shall not be used in place of permanent wiring. If an extension cord is necessary for greater than 90 days contact facilities to install permanent wiring.
- 5.8.2. Do not daisy chain extension cords together.
- 5.8.3. Use power strips for only low current equipment. Do not overload or plug a power strip into an extension cord.

6. Training Requirements

6.1. General Requirements – General Lab Safety training is required for all personnel working in the lab – faculty, post docs, visiting



faculty/scholars/students, graduate and undergraduate students. It is the responsibility of the worker to complete online lab safety refresher training on an annual basis. Refresher training can be completed online through the [RMS Web site](#).

- 6.2. It is up to the discretion of PI's to allow untrained personnel to shadow a trained person up until the designated training date.
- 6.3. Lab Specific Requirements – Each laboratory PI shall ensure that training is maintained for each person working in the laboratory.
- 6.4. Training records must be maintained for personnel. Records shall include the name of the training course and date it was completed. The records can be hard copies or electronic. All training must be documented centrally, once a training record management system is in place, or locally within the laboratory. Documentation should be available when requested by the LSC or RMS.
- 6.5. Instructors, Teaching Assistants, etc. who oversee an undergraduate teaching lab as part of a class must take training. Undergrads are not required to attend a training session. The lab instructor is responsible for imparting the necessary safety knowledge to his/her students.
- 6.6. Minors – Minors are prohibited from working alone in any Notre Dame laboratory and shall be attended by senior personnel such as technicians, post-doctoral associates, or graduate students at all times. Minors working in laboratories are required to complete forms in Appendix A.
- 6.7. REU's, RET's, and paid undergraduates are covered as University personnel and must complete training.
- 6.8. PAID – Non-UND undergraduates or laboratory workers over the age of 18 that are not participating in REU or RET program must be hired by UND prior to beginning work and must complete training.
- 6.9. UNPAID – Non-UND volunteers over the age of 18 must complete a volunteer waiver, release & indemnification agreement.

7. Communication Process

- 7.1. The department's communication process for safety information includes:
 - 7.1.1. Emails, meetings and info in BOX

8. Radiation/Laser Safety

- 8.1. Laser Requirements for Class 3B and Class 4 units:
 - 8.1.1. Initial training is required for all users.
 - 8.1.2. Baseline eye exams are required for Class 3B and Class 4 users.
 - 8.1.3. A Laser Safety Manual is required in every laser lab.
 - 8.1.4. Written SOP's are required for each unit.
 - 8.1.5. PPE shall include eyewear of appropriate optical density as indicated in the manufacturer's manual or contact RMS for guidance.
 - 8.1.6. Appropriate signage is required at the entrance to the Laser Hazard Zone. A lighted warning sign is required for Class 4 laser open beam units.

- 8.2. Radioactive Source Requirements
 - 8.2.1. All users of radioactive materials and all users of radiation producing machines shall attend initial Radiation Safety Training and take either on-line or in-person [refresher training annually](#).
 - 8.2.2. Anyone entering a radioactive materials laboratory more than twice a week shall attend initial training and take [refresher training annually](#).
 - 8.2.3. The Radiation Safety Manual shall be present in the laboratory.
 - 8.2.4. Inventory of radioactive materials is due annually.

 - 8.2.5. Proper signage (Radioactive Materials, Radiation Producing Machine, No Food Allowed, etc.) shall be posted on the lab door.
 - 8.2.6. Material storage areas (e.g., refrigerators) shall be posted with Radioactive Material signs. Contact RMS at 1-5037 if a sign is needed.
 - 8.2.7. Notice to Employees: The NRC Form 3 for materials, ISDH Board Form X for machines shall be posted. Contact RMS at 1-5037 for support.
 - 8.2.8. Surveys for contamination shall be conducted at least once a month in labs using non-sealed radioactive material.
 - 8.2.9. Proper monitoring equipment shall be present when applicable. This includes survey meters (Geiger-Counters) and film badges where higher energy beta and all gamma emitters are present. Survey meters shall be calibrated annually, contact RMS at 1-5037 if calibration is required.
 - 8.2.10. Film badges shall be used by all users of higher energy beta and all gamma emitters, as well as most radiation producing machines, unless RMS determines otherwise.

9. Biological Safety

- 9.1. All users of biological hazards or infectious materials shall attend initial BSL 1-2 training and take [on-line refresher training](#) annually or contact RMS for large group training options.
- 9.2. All personnel working with blood, unfixed human tissue, or other bloodborne pathogens shall complete annual Bloodborne Pathogen (BBP) training.
- 9.3. Inventory of biological strains are due annually. The inventory should be posted in the area of storage.
- 9.4. Mandatory submission of protocol application – PI's proposing research/academic activities involving microorganisms (including exempt and non-exempt rDNA activities) and biological toxins must complete the University's Biosafety Protocol Application form and submit it to Office of Research for review and approval prior to initiation of the activity.
- 9.5. Food and drink is prohibited in BSL 1 and 2 laboratories.
- 9.6. All equipment used with or to store biohazardous materials shall be labeled with a biohazard label.
- 9.7. Proper signage (biohazard symbol and emergency contact information, etc.) shall be posted on lab door.
- 9.8. Material storage areas and equipment used with biohazardous materials (e.g., refrigerators, centrifuges) shall be posted with biohazard sign.
- 9.9. Laboratory specific biohazard manual shall be available in each BSL-2 laboratory.
- 9.10. Appropriate furniture (sturdy, easily cleaned, non-upholstered, etc.) shall be utilized.
- 9.11. Work surfaces shall be decontaminated immediately after spill and when daily work is completed.
- 9.12. Sharps shall be handled properly, e.g., do not recap needles and all sharps shall be disposed in the proper sharps container.
- 9.13. The laboratory shall be locked when no one is present or within eyesight of the laboratory.
- 9.14. All biosafety cabinets shall be certified annually.

9.15. All biological waste (except sharps and sharps containers) must be rendered innocuous through autoclaving or treatment with bleach (5% sodium hypochlorite solution) prior to being discarded as regular trash. Place autoclave bag in black trash bag prior to disposal. Custodians will not handle “biohazard” bags.

10. **Chemical Safety** – Additional chemical safety requirements can be found in the [Chemical Hygiene Plan](#).

10.1. General

- 10.1.1. All chemical reactions are to be carried out in a fume hood or appropriate apparatus. Hood sashes should be opened only to the minimum extent necessary when work is being conducted in them.
- 10.1.2. Do not work alone if the process is hazardous.
- 10.1.3. A carrier shall be used when transporting chemicals.
- 10.1.4. When transporting high hazard chemicals or samples from one lab to another within close proximity, remove the glove from one hand to open required doors while keeping the other hand gloved to transport.
- 10.1.5. ALWAYS remove glove before answering phone.
- 10.1.6. All spills shall be cleaned up immediately and the spill area shall be properly decontaminated. A spill kit shall be available to the laboratory. The kit should include: dust pan / broom, trash bags, gloves, absorbents (solvents: kitty litter or pads, acids/bases: sodium bicarbonate; HF: specialized commercial kit)
- 10.1.7. Transfer from drums only when both drum and safety can are grounded and bonded.
- 10.1.8. Care shall be taken when using hotplates to heat flammable liquids. Many hotplate models are not intrinsically safe. Vapors can travel under the plate and ignite. Use heating mantles whenever possible.

10.2. Chemical Storage

- 10.2.1. Incompatibles shall not be stored together. A list of incompatible chemicals is located on the [RMS Web Page](#).
- 10.2.2. Unlabeled chemicals shall not be placed back into storage until labeled with contents and hazards.
- 10.2.3. Open containers shall be sealed prior to placing in storage.
- 10.2.4. Leaking containers shall be repackaged or removed from storage.

10.3. Hazard Communication

- 10.3.1. A chemical inventory shall be maintained of all chemicals used in the laboratory. The chemical inventory can be electronic. The inventory shall be updated at least annually. The inventory shall

contain at a minimum the chemical name and its quantity at the time of the inventory.

- 10.3.2. All stock solutions and secondary containers shall be labeled with the chemical name and hazard (flammable, corrosive, etc.). Labels are available on the [RMS web site](#).
- 10.3.3. (M)SDS shall be available to all lab personnel ([electronic link to MSDS](#) site or hard copies).

10.4. Gas Cylinders

- 10.4.1. Gas cylinders shall be moved using a gas cylinder cart. The cylinder shall not be used when on the cart or stored on the cart.
- 10.4.2. Gas cylinders shall be secured with appropriate chain or bench mount strap.
- 10.4.3. Only an appropriate regulator shall be used.
- 10.4.4. Experiments involving odorous, lachrymatory, vesicant, toxic, corrosive or otherwise obnoxious substances must be carried out in a well-ventilated hood (NOT ON THE BENCHTOP)
- 10.4.5. Gases are delivered to the loading dock between Fitzpatrick and Cushing. Promptly take gas cylinders to the respective labs. The loading dock is not a storage facility.

10.5. [Unattended Operations information](#) (operation, hazard(s), emergency contact information) shall be posted outside the lab each night the operation is active.

- 10.5.1. When a disruption in the utilities may result in a hazardous situation or if hazardous materials are involved utilities (gas and electric) shall be shut off or properly disconnected overnight unless the Unattended Operations sign has been completed and posted. Sign is available on the [RMS web site](#).

11. Laboratory Safety Equipment

- 11.1. Eyewash stations shall be inspected and flow tested monthly by lab personnel. The inspection shall be documented on a card kept next to the eyewash station.
- 11.2. Fire extinguishers are maintained and inspected monthly by the security group and annually by the ND Fire Department. If a fire extinguisher is in need of repair or inspection contact the NDFD.
- 11.3. Safety showers are flow tested annually by the facilities group.
- 11.4. Laboratory Ventilation Hoods (Fume Hoods)
 - 11.4.1. Ensure the hood is working properly, use a telltale (e.g., tissue) to ensure there is air flow. If there is any indication that it is not functioning do not use the hood and contact facilities for repair.

- 11.4.2. Ensure the hood is within its annual certification. If it is beyond its date, do not use and contact RMS for testing.
- 11.4.3. Keep hoods free of unnecessary clutter.
- 11.4.4. Keep hoods closed when not in use.

11.5. Powered equipment

- 11.5.1. All equipment shall be properly guarded to protect personnel from moving parts, e.g., vacuum pump belts.

12. Laboratory Waste (Refer to the [RMS Web](#) site for further information)

12.1. Broken Glass and Sharps

- 12.1.1. Broken glass shall be promptly collected and placed in appropriate cardboard containers for disposal. Broken glass is picked up by janitorial personnel not RMS.
- 12.1.2. Sharps shall be disposed of in appropriate containers.
- 12.1.3. Sharps containers are available from the VWR stockroom in Jordan Hall (1-9968).
- 12.1.4. Sharps containers shall have the PI name, lab/room number, and department information written on them in marker BEFORE RMS arrives to the lab. Do NOT use Chemical Discard Tags. The lid shall be completely fastened, all safety tabs engaged and nothing protruding from the lid.

12.2. Chemical Waste – Preparing for pickup by RMS

- 12.2.1. RMS provides 2.5 and 5 gallon carboys for solvent wastes and 5 gallon buckets for solid chemical wastes (ethidium bromide, silica gel, contaminated weigh boats, filter paper, etc.). Contact RMS at 1-5037.
- 12.2.2. Chemical Liquid and Solid Waste: All liquid chemical waste containers require a Chemical Discard Tag properly completed and attached to the container BEFORE RMS arrives to the lab. The container shall be leak/spill proof with an approved lid (parafilm, plastic wrap, aluminum foil, etc., are not approved lids).
- 12.2.3. Chemical Discard Tags: Chemical Discard Tags shall be completed with the following information:
 - Department Name
 - Room/lab number
 - Enter non-abbreviated, non-trade name chemical description
 - Percentage of each chemical, make sure it totals to 100%
 - Quantity in grams or liters
 - Signature of the person filling out the tag
 - The PI name printed legibly
- 12.2.4. Tags have a peel off adhesive backing to attach them to containers. Tags shall be placed on the container so container

labeling is not covered. If the tag wraps completely around the container and/or itself, loop a rubber band or a piece of wire through the hole on the left side of the tag to attach it to the container. The top white “office” copy and carbon sheets shall remain on the container. The middle yellow “professor” copy is the lab’s copy for tracking waste totals. RMS personnel will remove the carbon sheets, top white, and middle yellow copies when the waste is picked up. The yellow copy will be left in the lab’s designated chemical waste area.

- 12.2.5. Waste pickup schedule: Fitzpatrick and Cushing Hall is the 3rd Wednesday of each month; Stinson –Remick Hall is the 4th Thursday of each month. Contact RM&S at 1-5037 for labels, containers and unscheduled pickups.

12.3. Radioactive Waste

- 12.3.1. All radioactive liquid and solid waste containers shall have radioactive symbols, the orange sticker (corresponding to the respective paperwork) attached and the paperwork properly completed BEFORE RMS arrives. If the waste is in a bag, it shall be closed so nothing can spill. If the waste is in a carboy the lid shall be tightly secured.
- 12.3.2. Radioactive Waste Pickup Form – The following information is required:
- Authorized user last name printed legibly
 - Department Name
 - Name of person completing the form printed legibly
 - Phone number
 - Number of waste containers for the corresponding waste category
 - Radionuclide(s), their activities, and units of activity circled
 - Amount of solutes in grams, solvents in %/vol, type of cocktail, or percentage of glass, metal, paper, plastic
 - Numbered orange sticker corresponding to form’s pickup number
- 12.3.3. The Radioactive Waste Pickup form has a pickup number in the upper right corner and orange stickers with that respective pickup number printed on them. Orange stickers shall be attached to radioactive waste containers listed on the respective Radioactive Waste Pickup form.

12.4. Bio-hazardous Waste

- 12.4.1. Autoclave the waste if possible.
- 12.4.2. Material for RMS pick up shall have the biohazard label attached if not autoclaved.

13. Highbay

13.1 Highbay rules are posted as you enter and must be followed at all times. Wear appropriate PPE (safety glasses, ear plugs, hard hats) when working with structural materials. Operators or users of crane, scaffolding and confined entry must go through RM&S training. Undergraduate students are not allowed to operate or use.

14. Laboratory Field (Off-Campus) Work

- 14.1. A template for field or off-campus research is available on the [RMS web site](#).
- 14.2. The PI in charge must designate a safety officer. This individual shall inform the team of required or recommended safety equipment. These items may include first aid kits, fire extinguishers, flashlights, 2-way radios, cell phones, and discuss area hazards and weather reports with the host entity for additional requirements. This individual shall gather emergency information from the team members, and inform the team of emergency plans, escape routes, local emergency contacts, etc. All University laboratory safety policies shall be extended to field experiments where applicable.
- 14.3. Personal protection is required. Field experiments may expose the researchers with hazards not normally associated with lab experiments. Chemical usage will require standard safety PPE along with chemical spill kits and portable eye wash stations. Areas where falling debris may be present may require hard hats, steel-toed shoes or boots. Be aware that safety equipment may not be located in the general area of the experiment, thus making everyone on the team responsible for others in an emergency situation. Special first aid training may be required. Do not operate machinery without proper training. Operation of field equipment should be done in groups of no less than two if possible. Individuals with medical conditions should bring along any medication and may need to inform others how to administer such medicine if required (i.e. insulin, epinephrine, etc.) Be aware that wilderness first-aid and survival skills will be different for each area.
- 14.4. Field researchers must be aware of the possible environmental impacts of their experiments and avoid causing adverse situations. Local vegetation and animal habitats must be respected and preserved. A plan for waste management must be in place for the duration of the experiment. Any contamination to the environment must be communicated to the proper individuals for clean-up. The designated safety officer shall be aware of any local ordinances regarding environmental concerns and communicate this information to the team. Be aware of hunting seasons that may affect the testing area. Exposure to poisonous plants, wild animals, extreme temperatures, contaminated water, and other air/water/food borne diseases are possible.
- 14.5. Special considerations for international travel may be required. Passports, travel and/or work VISAs may be required. Immunizations are required for some areas, and some areas require government



credentials to visit. The Centers for Disease Control and Prevention should be contacted to find out specific travel restrictions and advice. Areas may also be associated with potential hazards from military conflict or political unrest. Foreign language and cultural training should be considered.

References/Links:

University of Notre Dame Risk Management and Safety

<http://riskmanagement.nd.edu/training/>

The Centers for Disease Control and Prevention

<http://www.cdc.gov/>

<http://wwwnc.cdc.gov/travel>

Safety Guidelines for Mineral Exploration in Western Canada

http://www.unbc.ca/sites/default/files/assets/safety/safety_manual_2008.pdf

World Health Organization. International Travel and Health

<http://www.who.int/ith/en/>

Safety Guidelines for Field Researchers - Office of Environment, Health & Safety


University of California, Berkeley

<http://www.ehs.berkeley.edu/images/ehs/pubs/fieldresearchsfty.pdf>

UND Field Research Safety Plan

http://riskmanagement.nd.edu/assets/108106/field_research_safety_plan_draft.docx

Appendix A – Forms

Forms for Minors	 Forms for Minors Working in Labs.pdf
Other RMS Forms: Controlled Substances, DEA, International Travel, Radiation, Workers' Compensation (Injury), PPE, Waste Pick-up	http://riskmanagement.nd.edu/forms/