

**UNIVERSITY OF NOTRE DAME
RADIATION LABORATORY**

SAFETY PROGRAM

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Mission Statement

The Notre Dame Radiation Laboratory (NDRL) is committed to conducting research in cooperative agreement with the United States Department of Energy (DOE) in an environment that insures the health and safety of our faculty, staff, students and visitors. To that end, the NDRL Safety Committee shall:

- Promote the safety validation of all laboratories by conducting systemic reviews of joint assessment reports and provide assistance to resolve outstanding issues identified during the Joint Assessment.
- Evaluate injuries and incident reports as necessary, and provide recommendations to the unit leader to prevent similar incidents.
- Promote safety through the development and periodic updating of a comprehensive department safety plan.
- Inform and educate faculty, staff, students and visitors regarding health and safety issues, new standards, and research findings.

Responsibility

Per the ***Health and Safety Policy of the University of Notre Dame (issued January 11, 2012)***, safety is everyone's responsibility. All members of the University community should be thoroughly familiar with their safety responsibilities, strive to follow safety practices at all times, act proactively to prevent accidents and injuries, communicate hazards to supervisors, and be prepared for emergencies that may occur in the workplace or on campus. The major responsibilities each party has in connection with the Health and Safety Policy are as follows:

President

1. Assume overall responsibility for the implementation of the Health and Safety Policy at all facilities under University control.

Provost, Executive Vice-President, Vice-Presidents and Deans

1. Responsible for implementing and enforcing this policy in all facilities and operations within their respective jurisdictions.
2. Demonstrate leadership and commitment to safety.

Department Chairs and Directors

1. Communicate and implement the Health and Safety Policy and its requirements to faculty, staff and students.

2. Charge those individuals under their management with the authority to implement appropriate health and safety policies, practices and programs and to take corrective actions when necessary.
3. Implement and communicate procedures that direct all department personnel, including but not limited to principle investigators, supervisors, regular and temporary employees, visiting professors and students to obtain required safety training before they work with hazardous chemicals, biohazardous agents, radiation, or other physical/mechanical hazards in their working environments. Documentation for the completion of all training requirements shall be maintained by department chairs, directors, or designee(s) as appropriate.
4. Determine that health and safety program needs (e.g. training, protective equipment and corrective measures including noncompliance items identified in safety audits) have adequate funding.
5. Assign a responsible individual to serve as the Department Safety Coordinator and establish a Department or Building Safety Committee, and provide them with appropriate time and resources to administer their responsibilities. The Department Safety Coordinator, in consultation with Risk Management and Safety, may determine that the size of the department or the nature of the risks typically encountered, are such that an active safety program can be implemented without appointment of a Safety Committee.
6. Assign a Department Training Officer to conduct time critical safety training, if warranted.

Faculty, Principle Investigators, Supervisors

1. Implement the University's Health and Safety Policy and all other applicable University health and safety practices and programs.
2. Require all staff members and students under their direction to obtain and maintain required safety training prior to initiating work for which that training is applicable.
3. Ensure that workplaces, laboratories, and equipment under their direction are safe, well-maintained, and in compliance with the Health and Safety Policy and other applicable University Health and Safety practices and programs.
4. Meet all safety needs for units/departments (e.g. engineering controls, training, personal protective equipment and corrective measures for noncompliance items identified in safety audits).
5. In a research setting, assign a laboratory safety coordinator to assist in implementing the Health and Safety Policy, if the size of the research group or activities warrants the need.
6. Establish Standard Operating Procedures (SOPs) when required for specific research involving high hazard chemicals (e.g. T-butyl lithium), radiation or biohazardous agents and train all lab personnel on lab specific SOPs and high hazards.

Department or Building Safety Committee

1. Promote safety at the department level and provide a forum for departmental participation in the overall University Health and Safety program.

2. Act as the conduit for information exchange between employees and Department leadership or Risk Management and Safety regarding unsafe acts or conditions, or new safety initiatives.
3. Ensure that work related injuries and illnesses and unsafe acts and conditions are properly and timely reported, investigated when appropriate, and findings reviewed with Risk Management and Safety.
4. Assign a contact to work with appropriate campus departments to coordinate fire drills, first aid and CPR training, emergency action training and other general safety training for the Department/Building.

Department Safety Coordinator

1. Serve on the Department or Building Safety Committee (where applicable) and assume additional responsibilities as assigned.
2. Assume the same responsibilities as the Department or Building Safety Committee when Risk Management and Safety determines that a committee is not required in order to implement a safety program for the unit.
3. Act as the advocate for safety within the Department.
4. Assist in implementing the University's Health and Safety Policy within the Department by encouraging and making employees and researchers aware of the required safety training, safety practices and compliance responsibilities with respect to applicable safety regulations.
5. Check annually or more frequently the First Aid Kits in the departments or labs and replenish supplies.
6. Maintain records and investigative documents related to injuries, illnesses and unsafe acts and conditions reported within the department.

Research Group Safety Coordinator

1. Act as the advocate for safety within the Research Group.
2. Assist in implementing the University's Health and Safety Policy within the Group by encouraging and making laboratory personnel aware of the required safety training, safety practices and compliance responsibilities with respect to applicable safety regulations.

Risk Management and Safety Department (RMS)

1. Advise the University community of its responsibilities regarding the Health and Safety Policy.
2. Prepare documents and guidelines for programs to ensure individual and University compliance with relevant environmental health and safety laws, regulations, policies and guidelines.
3. Recommend programs and actions for compliance.
4. Consult with external entities and regulatory agencies on behalf of the University.

5. Develop and maintain effective programs including safety training for occupational health, hazardous materials management, radiation safety, general safety, workshop and studio safety, accident and fire prevention, biological safety, and disaster preparedness and emergency response.
6. Conduct Train-the-Trainer training for department safety training officers so that they may provide training as needed in between the regularly scheduled safety classes offered by Risk Management and Safety.
7. Provide guidance and technical assistance to supervisors and managers in colleges, schools, departments and other work units to identify, evaluate and correct safety hazards.
8. Review standard operating procedures (SOPs) for the safe use of high hazard chemicals, radiological and biological substances and class IIIB or IV lasers.
9. Conduct investigations of employee, student and visitor accidents and injuries and initiate corrective actions if warranted. Assist safety committee representatives with investigations if requested.
10. Monitor compliance with health and safety statutes and regulations and University health and safety policies, programs and guidelines.
11. Note instances of noncompliance and recommend improvements; submit these to the appropriate vice presidents, deans, directors, department heads and principal investigators who are responsible for schools, divisions, departments, laboratories and service units.
12. Manage hazardous waste disposal services.
13. Execute responsibilities involving inspection and enforcement delegated by any standing University Safety Committee (e.g. the Biosafety Committee, the University Radiation Control Committee).
14. Review self-audits.

Risk Management and Safety Director

1. Direct operations, services and safety programs of the Risk Management and Safety Department.
2. In cases of imminent danger to life or health, order the cessation of hazardous activity until the danger from such a condition is abated or adequate corrective measures have been taken.

Employees and Students

1. Comply with this policy and all other University health and safety practices and programs.
2. Maintain classrooms, work and laboratory areas safe and free from hazards.
3. Attend required health and safety training.
4. Notify a supervisor or instructor of any safety hazards in the workplace, classroom, or laboratory. If supervisor or instructor fails to address unsafe conditions or act, notify RMS of the hazard.
5. Keep informed of conditions affecting their health and safety.
6. Report all accidents and injuries to your supervisor or instructor.

7. Stop working or performing your assignment if employee or student feels he/she is in a dangerous work environment or classroom situation. Every employee or student has the right and responsibility to stop what they are doing to address the safety concerns with their supervisor or instructor.

Responsibility Table

When	Task	Responsible Party
First 14 days	Verify coworker participation in RMS safety.	PI
First 14 days	Ask coworker to read the NDRL Safety Program.	PI
First 14 days	Have coworker read and sign the appropriate safety compliance forms waivers and personal protection forms.	PI
First 14 days	Instruct coworker on potential hazards and PPE policy of your lab.	PI
Monthly	Ensure that monthly inspections of eyewash stations and fire extinguishers are conducted.	Building Manager
Semi-annually	Ensure that the lab first aid kits have been checked and restocked.	Building Manager
Annually	Ensure coworkers have completed RMS refresher training.	Assistant Director
Annually	Perform RMS safety self-audit of lab.	Safety Committee
As Needed	Conduct hazard assessment for new SOPs.	PI
As Needed	Notify RMS of changes in lab use or design.	PI/Safety Committee
As Needed	If PPE requirements change, instruct coworkers and have them sign PPE certification form.	PI
As Needed	Update safety forms to be kept on file for each coworker.	PI

Laboratory Specific Protocol Requirements

If a lab has any of the hazards identified below, the PI or his designee will develop a Laboratory Safety Protocol specific to those hazards

1. Sealed, non-sealed or machine produced radiation.
2. Laboratory is Bio-safety level (BSL) 2 or 3.
3. Use of controlled substances.
4. Use of lasers 3B or 4.
5. Conducts entry into confined spaces
6. Performs maintenance on equipment- may require lockout/tagout.
7. Experiments involving exposed electrodes with voltages above 50V.
8. Other hazards as identified by the LSC or Risk Management and Safety.

NDRL Safety Rules and Regulations

Dangerous situations in the practice of experimental sciences cannot be entirely avoided on account of the very nature of these research disciplines. However, reasonable and sensible precautions will minimize injury and property damage. Many laboratory accidents can be attributed to carelessness and a lack of familiarity with accepted safety practices. **Fostering a culture of safety is the responsibility of all laboratory members.**

It is not possible to anticipate every possible hazardous situation to which you may be exposed during your work at the NDRL. Because of this, these safety rules are not complete. You are required to read and understand all the available safety procedures and policies that apply to the laboratories in which you will be working. These are available through the Risk Management and Safety (RMS) Department website (<http://riskmanagement.nd.edu>) and include:

1. The Chemical Hygiene Plan (CHP)
2. The Laser Safety Manual
3. The Radiation Safety Manual
4. The Personal Protective Equipment Policy
5. Metal or Woodworking Shop Policy
6. Handling Time Sensitive Materials
7. Material Safety Data Sheets (MSDS)
8. Lockout Tagout Procedures

The following safety rules address the more commonplace and dangerous laboratory situations. When there is not a stated rule that applies to a given circumstance, it is the responsibility of the laboratory worker to 1) inquire about the possibility of hazards, 2) ask for advice concerning

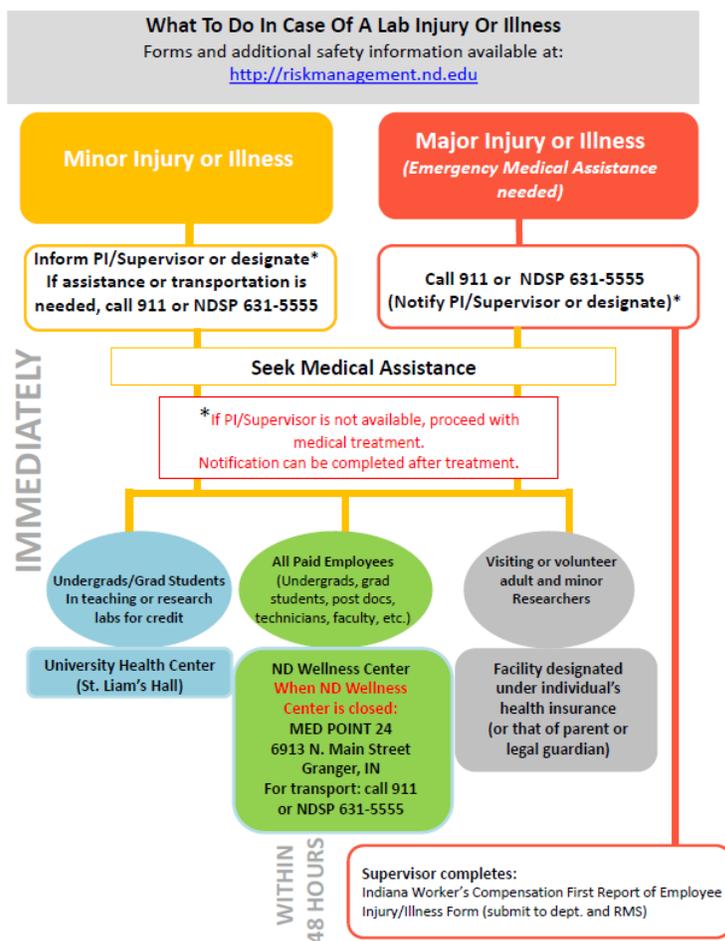
safety devices and procedures, and 3) use common sense. **Always** consult your supervisor before you undertake experiments new to you. Research involving the new and unknown can carry the possibility of unexpected and dangerous outcomes. It is prudent to perform new experiments on the smallest possible scale to observe unexpected or dangerous outcomes. Casual regard for routine procedures can also result in damage and injury. **Never underestimate risks, even in routine and familiar situations.**

No experiment is so critical that one cannot take the time to perform it safely.

General Lab Safety and Portable Fire Extinguisher Training

1. **All new NDRL personnel are to complete the initial General Lab Safety Training and Portable Fire Extinguisher Training online before beginning any laboratory work.** Please see the Assistant Director for access to these courses.
2. It is the responsibility of the worker to complete the online General Lab Safety Refresher Training and Portable Fire Extinguisher Training on an annual basis.
3. All workers must consult with their faculty supervisor regarding the specific Personal Protective Equipment (PPE) policy of the laboratory.
4. The NDRL is a government-owned building, and is locked outside of business hours. Coworkers will be given a key as their supervisor sees fit. Each key holder must sign a *Key Holder Responsibility Agreement*.
5. Any volunteer worker in the lab must submit a signed *Research Waiver, Release and Indemnification Agreement*. If the unpaid coworker is a minor (<18 years old), they must submit a *Research- Minor Waiver, Release and Indemnification Agreement* signed by a parent or guardian.
6. Students may not commence a program of laboratory work or engage in, assist, or cooperate with others in any laboratory activities of any kind without the knowledge and consent of the faculty in charge.
7. Laboratory work involving potentially hazardous procedures cannot be carried out unless responsible assistance is immediately available nearby in the event of an accident. Avoid working alone in the building. Make sure that another person is aware of your presence and location in the building. Do not work in the laboratories alone with hazardous materials.
8. There are no fixed gas monitoring devices in the Radiation Laboratory. It is advised that you use a portable monitor when working with gases.

9. All fires, explosions, spillage of dangerous chemicals, release of toxic fumes, etc., must be reported promptly to RMS (Security Dispatch), the faculty member in charge and to all other persons who might be affected by such as occurrence. Security Dispatch from your cell phone: 631-1555. From a campus phone: 1-5555. The worker(s) involved will need to complete the appropriate incident reports.
10. For all major or minor injury/illness or any near misses, the procedures below are to be followed. The Assistant Director needs to be informed of injury and illness.



11. Workers must know how to access the laboratory's Material Safety Data Sheets (MSDS) in either electronic or hard copy format.
12. Each worker must know the location of fire extinguishers, safety showers, eye-wash stations, and first aid kits nearest to the areas in which they work.
13. All laboratories must have contact information posted externally and visibly.

14. Minors are prohibited from working alone in any Notre Dame laboratory and must be attended by a senior coworker.
15. Hose connections from water-cooled condensers to drains must be tightly secured (wired or clamped) to the condenser to prevent accidental detachment if left unattended.
16. Broken glass must be promptly collected and placed in appropriate cardboard containers for disposal. Likewise, sharps must also be disposed of in appropriate containers. Both container types are available from the stockroom (room 102)
17. Paper, broken glass, stoppers, rubber tubing, etc., are to be kept out of sinks at all times to minimize the possibility of clogged drains. Such items are to be kept away from areas where they might fall into sinks.
18. Practical jokes, horseplay, and excessive noise (as from radios) are forbidden.
19. iPods and MP3 players with earpieces or headphones should not be used when one is alone in the lab as it may compromise the wearer's ability to hear fire alarms or other alarms associated with hoods and other equipment.
20. Gloves worn in the laboratory must be removed before leaving the laboratory.
21. Eating, drinking, chewing gum and cosmetic application are not permitted in any laboratory.
22. Smoking is not permitted in the NDRL.
23. Hood sashes must be closed when hoods are not in use. Closing the hoods promotes energy savings, and guards you against something going awry.
24. Safety glasses, suitable goggles, or face shields must be worn in all areas where chemicals are stored or handled, or where hazardous procedures are carried out. Individuals who wear eyeglasses must wear safety glasses or goggles over these, or obtain prescription safety glasses from [Eyemart Express](#) (215 E. University Drive, Granger, IN) at no cost to you. Take your prescription to the Stockroom Coordinator, and she will arrange to obtain the glasses. Contact lenses should not be worn where chemical vapors are present or a chemical splash or chemical dust is possible. If, however, an individual chooses to wear contact lenses in the laboratory, chemical splash goggles must be worn.
25. Visitor eye protection should be made available at the entrances to all laboratories.

26. In all experiments where explosion, implosion, or violent reaction is possible, the operator and neighboring workers must be protected by safety shields.
27. Appropriate footwear is required in the lab at all times. Shoes that cover the entire foot must be worn. Flip-flops, sandals, open-toed shoes, ballet slippers, and related footwear is not allowed.
28. Equipment operated by a motor driven belt (such as a vacuum pump) should be protected by a suitable belt shield or guard.
29. If flooding occurs, determine the source of the flooding and turn it off. A wet vacuum is available in room 026, and another in the mechanical room. The preferred vacuum is the one from 026 as it is designed for water pick-up. Please do not place vacuums in standing water. Mops are available in the janitor's closet on each floor.
30. Fire extinguishers are located throughout the building. RMS and our Emergency Plan strongly encourages evacuation if there is a fire. However, there may be fires small enough to extinguish with a fire extinguisher. The acronym P.A.S.S. is typically used to instruct how to use a fire extinguisher.
 - P**ull the pin by the trigger
 - A**im the extinguisher as the base of the fire
 - S**queeze the trigger
 - S**weep the extinguisher
31. Used fire extinguishers must be reported to the ND Fire Department at 1-6200 (631-6200) after each use.
32. Alcoholic beverages are not to be consumed in the building.

Communication

From time to time, safety bulletins will be distributed. Safety bulletins can come by email or directly to the individual as appropriate.

Radiation Safety

Instructions concerning the use of radiation sources are contained in the University's **Radiation Safety Manual**. Some general remarks applicable to all Laboratory personnel are listed below.

- 1. All personnel who intend to use the sources must undergo Radiation Safety Training provided by RMS.**

2. After attending the initial training, it is the responsibility of each worker to complete the online Radiation Safety Training annually.
3. Each radiation source has a designated custodian who is responsible for the operations of that source. The custodian authorizes users to operate the radiation source after the worker has been trained for that particular source.
4. Workers who intend to use sources need to obtain a radiation badge from the Stockroom Coordinator, which is to be worn whenever the user is in a designated radiation area.
5. Persons who have not received radiation training or are not authorized to use a particular source should not enter source areas unless accompanied by authorized personnel.
6. Do not attempt to enter an accelerator vault when its red light is on, unless an emergency makes it necessary. Entry in these circumstances will trip the interlocks and force shutdown of the accelerators.
7. All problems involving any of the radiation sources should be brought to the attention of the custodian of the source or a member of the NDRL Safety Committee.
8. **Each radiation user is responsible for reading the Radiation Safety Manual.**

Laser Safety

Each Laser Operation Area (LOA) in the NDRL consists of a Laser Controlled Area (LCA) and an Operator Area (OA). In the LCA, there is significant risk of exposure, and this should be separated from the OA by means of passive shielding such as walls, drapes and other approved dividers. In some LOAs, the OA is not distinct from the LCA, and the entire room must be considered as an LCA. Warning lights: a three-phase system is being implemented at the entrance points to the LOAs.

- Green: System off. No laser hazards in the LCA.
- Yellow: Laser is on standby, and shutter is in its closed position. Entrance is limited by permission of the authorized user that is signed in for the current time period.
- Red: Laser is ON (operating) and the entrance to the LCA is limited only to authorized users. No spectators or collaborators can enter without approval of the user.

Standard Operating Procedure. There is a Standard Operating Procedure (SOP) in each OA indicating the type of laser in the attached LCA and the proper goggles to be worn by users and spectators who might enter the controlled area. The SOP should also indicate whether goggles are required in that particular OA.

Lasers can cause eye damage by exposure to the beam or through specular reflections. Even diffused reflections from high-power lasers can permanently damage the eye. In addition, lasers can burn exposed skin, and ignite any flammable materials within their beams. There are often additional hazards such as high voltages in LCAs, and excimer lasers using toxic gases.

Instructions for laser use are given in the University's **Laser Safety Manual**. Below are general rules for Laser Safety.

- 1. All workers who intend on using a Laser are required to read the Standard Operating Procedure for that laser before use.**
2. Each new laser user must have an initial eye exam, arranged through the Assistant Director.
3. Each LOA has a designated custodian, who is responsible for the operations of the lasers in the LOA. The custodian authorizes users to operate the laser after they have been trained in its operation.
4. Passive protection in the form of room dividers, bench-top optical shields and enclosed light paths are employed in the Laser Controlled Areas. Such passive devices should not be moved without the prior knowledge and consent of the NDRL Safety Committee. If any passive protection is moved in order to make room for experimental apparatus, the user should replace it with an equivalent optical shield.
5. The proper laser goggles must be worn in the LCA when the laser is on standby or the laser is operating. Proper goggles should be indicated in the SOP.
6. If possible, leave the lights on during operations. This decreases the likelihood of accidents. Additionally, darkness increases the eye's vulnerability to stray laser beams.
7. The users should avoid placing their heads in the plane of the laser beam. Never deliberately look directly at the laser beam.
8. When the users leave the area temporarily, the laser should be put into a standby mode with the beam shutter in the closed position. The yellow warning light will then be lit.
9. If the permanent beam stops have to be temporarily replaced or removed, care must be taken that the replacement is not flammable, especially with infrared beams.
10. The back of dielectric mirrors should be shielded since they can transmit a significant fraction of incident laser light.

11. Accidental exposure should be reported to the PI, who will initiate the injury/illness policy and inform the Assistant Director. An eye exam is required in the event of an accidental or suspected exposure to the eye.
12. A final eye exam is offered to each laser user at no cost to them on termination of employment.
13. The laser user is responsible for reading the Laser Safety Manual and the SOP of each laser area he or she will use.
14. Any problems concerning a particular laser should be brought to the attention of that laser's custodian or a member of the NDRL Safety Committee.

Electrical Safety

In general, all electronic/electrical problems with the equipment or building facilities should be referred to the Supervisor of the Electronics Shop. The supervisor should also be consulted before requisitioning any electronic component.

Chemical Safety and Hazards

Other than the chemicals listed below, it is beyond the scope of this manual to outline specific procedures for the safe use and disposal of specific chemicals. It is the responsibility of all workers to ascertain, to the extent possible, the properties and safe practices needed to work with any chemical.

The University has developed a **Chemical Hygiene Plan (CHP)** that is located on the RMS website. It is the responsibility of every laboratory worker to read the **CHP**.

Specific information pertaining to the NDRL follows.

Ether and Other Peroxide Forming Chemicals. There is an ever present danger of explosion from peroxides which may be formed by the oxidation of uninhibited ether or from other compounds having an ether group. **Precautions for peroxide forming chemicals can be found on page 59 of the CHP.**

Flammable Liquids. Because of the ever present danger of fire, the amount of flammable liquids on hand must be minimal at all times as governed by actual need. They are to be stored in ventilated storage cabinets- **not** on bench tops. **More detailed information on flammable liquids can be found on page 28 of the CHP.**

Safe Handling of Compressed Gas Cylinders. The potential for a serious incident resulting from the neglect of safe handling procedure for compressed gas cylinders is high. Should a damaged cylinder

valve or regulator result in uncontrolled compressed gas leakage, a cylinder can become a projectile and blast through walls or anything else in its path. For your own safety and that of others, please observe the following general precautions.

1. When moving cylinders from place to place, make sure the valve protection cap is in place. The cylinder should then be transported only by means of a suitable hand truck with a chain or belt cylinder restraint properly secured.
2. The valve protection cap should be left on each cylinder until it has been secured against a wall or bench.
3. Never drop cylinders or permit them to strike each other violently.
4. Avoid dropping, rolling or sliding cylinders, even for a short distance.
5. Never tamper with safety devices in valves, cylinders or regulators.
6. Always secure cylinders to walls or benches with proper restraints before using.
7. Cylinders containing corrosive materials should be inspected frequently for small leaks around valves. Such leaks may cause valves to stick or fail, presenting a serious hazard.
8. Store oxygen and hydrogen cylinders separately. They can be next to each other once they're hooked up and operational.

Hazards of Soft Tubing Failures. Soft tubing failures can cause flooding or the escape of gases, creating a hazardous situation which could be avoided if the users follow the standard practice of turning the gases off at the house of cylinder valves. Soft tubing should not be left under pressure and unattended. Please observe the following precautions.

1. When you finish using a torch or burner, **close the house valves**. It is **not** sufficient to simply close the burner valves.
2. When you finish using gas from a cylinder, **close the cylinder valve**. To the extent practical, do not leave the regulator and the soft tubing under pressure while unattended and not in use.
3. If the soft tubing must be left under pressure and unattended, **secure the ends with hoseclamps**.

Transite Panels. The "transite" panels which are used throughout the NDRL as partition paneling are made of a stable composition of asbestos and cement. They present no health or

environmental hazard. However, if a panel is drilled or sawed, some of the bound asbestos may be released into the atmosphere constituting a violation of OSHA and DOE regulations. Therefore, drilling, sawing, or any other operation on any of these panels is prohibited.

If you have an assignment which necessitates work on these panels, please contact the Assistant Director.

Mercury. The use of Mercury has been phased out in the NDRL. However, if a need arises that only a mercury system can fulfill, the following restrictions and procedures shall apply.

1. DOE requires that a secondary container for mercury be used. This means any type of container containing a significant amount of mercury which is subject to breakage or leakage should be protected by a secondary container.
2. Where the operating apparatus does not permit the use of a direct contact secondary container, it is necessary to achieve the same objective by having a tray beneath a primary container. If you need assistance in providing a secondary container, the Building Manager will assist you.
3. A vacuum cleaner equipped with a mercury trap is available in the stockroom for spills.
4. In the event that any mercury is spilled into a drain, the Building Manager is to be notified immediately in order that the drain trap may be opened and the spilled mercury recovered.

Chemical Accumulation and Disposal. It is recommended that all researchers make a concerted effort to reduce quantities of all chemicals that have collected in laboratories but are not being used. The researcher should determine which chemicals should be placed on stockroom shelves for future use and which chemicals need to be disposed. **The CHP outlines disposal procedures starting on page 36.**

1. Most waste solvents may not be poured down the sink or drain (exceptions listed on page 55 of the CHP). They are to be stored in labeled glass bottles until picked up by RMS personnel.
2. Incompatible waste chemicals are never to be placed in the same waste container (page 38 of the CHP).
3. The assistance of RMS (1-5037) is available at all times.

Other Chemical Safety Requirements. Listed below are a few other safety considerations when using chemicals.

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.
2. Reactions in progress that are in any way chemically or mechanically hazardous may not be left unattended.
3. Well-documented, small-scale reaction may be left unattended; written notice of such reactions must be posted outside of the laboratory entrance.
4. When handling hazardous chemicals, the operator must be protected by a lab coat (or apron) and suitable gloves. Consult the [Glove Compatibility Chart](#) (found on the RMS website) for proper glove selection.

Glass Vacuum Systems

Extreme caution should be taken whenever a leak is noted in a glass vacuum system, particularly when it includes a liquid nitrogen trap. The trap may contain some liquid oxygen and minute amounts of organic material constituting a very dangerous combination. To avoid explosions in vacuum systems, the following precautions are to be taken.

1. Clean traps periodically as needed.
2. When a sizable leak occurs in the system, turn off pumps, remove the liquid nitrogen from the trap, and bring the system up to atmospheric pressure.
3. Because liquid oxygen and other hazardous elements or compounds may be present in the traps, vent while warming the traps.
4. Always allow for sufficient volume expansion for any gas that may be contained in the trap.
5. In the event that a system contained any highly flammable or explosive compounds, special instructions should be given by the research scientist prior to shutting down the system or in the event of any malfunction of the system.
6. Install warning signs on all vacuum lines with refrigerated traps to remove refrigerant before admitting air.

Glassware

1. Do not use cracked or starred glassware. Glassware used for vacuum distillation (especially round-bottom flask) should be inspected carefully before use.
2. When using ground-glassware, disconnect all joints immediately after use to prevent “freezing.”
3. Heavy pieces of glassware should be supported with clamps and also with bottom support using items such as lab-jack, tripod, or ring.
4. Vacuum desiccators and Dewar flasks must be protected by adhesive tape or netting.

Machine Shop

Only qualified shop and maintenance personnel whose duties necessitate use of the Machine Shop Equipment are permitted to operate such equipment. Anyone working in the Machine Shop does so only with the approval of the Machine Shop Manager. To see the entire University policy, please read the *Metal and Woodworking Shop Policy* found on the RMS website.

Glass Shop

As with the Machine Shop, only qualified personnel are permitted to use the equipment in the Glass Shop. Any workers wanting to use the Glass Shop does so under the supervision of the Manager of the NDRL Glass Shop.

Lockout-Tagout System Procedure

Purpose. This procedure establishes the requirements for lockout or tagout to insure the safety of all those engaged in the repair or maintenance of equipment or machinery. Its implementation will insure that all potential energy sources will be isolated so that necessary service can be performed with safety from the unauthorized restoration of energy. Energy sources can be electrical, mechanical, hydraulic, thermal, or radiation. In the NDRL, electrical lockout will constitute the overwhelming majority of lockout-tagout situations.

Responsibility. The workforce engaged in activities addressed by this procedure is composed of service personnel of the electronic and machine shops and maintenance staff. The person who has jurisdiction of the equipment is responsible for lockout or tagout prior to servicing.

Procedure

1. Locate and identify all isolating devices which need to be locked or tagout.
2. Notify all others who may be affected by the procedure as to why it is being done.
3. If the machine or equipment is in operation, shut it down per normal procedure.
4. Dissipate any stored energy safely.
5. Lockout or tagout isolating device or devices as necessary to insure complete safety.
Always lockout device when possible.
6. Test, with appropriate caution, that equipment or machinery is indeed inoperable.
7. Proceed with maintenance, observing all other safety practices.

Restoration of Power

1. Inspect the equipment or machinery to determine that all safety devices, guards, etc. have been reinstalled.
2. Remove all tools, rags, etc. and make sure all workers are clear.
3. Remove lockout or tagout devices and restart equipment as per normal operating procedures.
4. Return all locks and devices to the lockout station.

A lockout station cabinet is located on the southeast wall of the basement corridor. Located within this cabinet are locks, tags, and devices for all normal lockout or tagout requirements. Should a situation arise where an appropriate device is not available, notify the chairman of the Safety Committee for assistance.

Under no circumstances should a lockout or tagout device be removed by anyone other than the person who installed it.

**UNIVERSITY OF NOTRE DAME
RADIATION LABORATORY**

Safety Document Checklist for New Coworkers

1) For all **paid and unpaid** adults (≥ 18 years old)

- Coworker and PLC sign Departmental *Safety Compliance Form* (PLC keeps on file)
- Coworker and PLC sign *Employee PPE Knowledge Certification Form* for PPE requirements in addition to routine eye protection, lab coats, and gloves (PLC keeps on file)

1.1) For all **non-appointed** adults

- Coworker signs University's *Scientific Research Waiver, Release, and Indemnification Agreement* (PLC submits original to RMS; PLC keeps copy on file)

2) For all **paid and unpaid** minors (≤ 17 years old):

- PLC completes *Proposed Project Checklist for Minors Performing Research in Laboratories* (PLC forwards to RMS)
- Parent/guardian, minor, and PLC sign Departmental *Safety Compliance Form--Minors* (PLC keeps on file)
- Minor and PLC sign *Employee PPE Knowledge Certification Form* for PPE requirements in addition to routine eye protection, lab coats, and gloves (P.I. keeps on file)

2.1) For all **paid** minors:

- Parent/guardian completes *Consent for Emergency Medical Treatment Form for Employed Minors* (PLC keeps on file)

2.2) For all **unpaid** minors:

- Parent/guardian signs University's *Scientific Research Waiver, Release, and Indemnification Agreement for Minors* (PLC submits original to RMS; PLC keeps copy on file)
- Parent/guardian completes *Consent for Emergency Medical Treatment Form for Visiting or Volunteering Minors* (PLC keeps on file)

To be read and signed by any adult coworker (18 and older) performing research in a **volunteer** or **other non-appointed** capacity

**UNIVERSITY OF NOTRE DAME
SCIENTIFIC RESEARCH WAIVER, RELEASE AND INDEMNIFICATION
AGREEMENT**

I, _____, being of legal age, have volunteered to perform scientific research and laboratory work (the "Research") at the University of Notre Dame du Lac ("the University"), Notre Dame, Indiana during the period _____ through _____. I am fully aware that my participation in the Research is totally voluntary.

In consideration of the University's agreement to permit me to participate in the aforementioned Research, the receipt and sufficiency of which consideration is hereby acknowledged, I agree as follows:

1) I, individually, and on behalf of my respective heirs, successors, assigns and personal representatives, hereby release, acquit and forever discharge the University and its employees, students, agents, servants, officers, trustees and representatives (in their official and individual capacities) from any and all liability whatsoever for any and all damages, losses or injuries (including death) to persons or property or both, including but not limited to any claims, demands, actions, causes of action, damages, costs, expenses and attorney's fees, which arise out of, during or in connection with my participation in the aforementioned Research, including but not limited to any damages, losses, or injuries to persons or property or both, which may be sustained or suffered by me or any person in connection with my association with, or participation in the Research, or arising out of my travel to or from the University.

2) I, individually, and on behalf of my respective heirs, successors, assigns and personal representatives, hereby agree to indemnify, defend and hold harmless the University and its employees, students, agents, servants, officers, trustees and representatives (in their official and individual capacities) from any and all liability, loss or damage they or any of them incur or sustain as a result of any claims, demands, actions, causes of action, judgments, costs or expenses, including attorney's fees, which result from, arise out of or relate to my participation in the Research, or arising out of my travel to or from the University.

3) I agree that this Waiver, Release and Indemnification Agreement is intended to be as broad and inclusive as permitted by the laws of the State of Indiana, and if any portion hereof is held invalid, it is agreed that the balance hereof shall, notwithstanding, continue in full legal force and effect.

4) I represent and warrant that I am covered throughout the Research by a policy of comprehensive health and accident insurance which provides coverage for injuries which I may sustain as part of my participation in the Research. I hereby release and discharge the University of all responsibility and liability for any injuries, illnesses, medical bills, charges or similar expense I may incur while participating in the Research.

5) I hereby acknowledge and accept that there are certain risks including bodily injury and death inherent in scientific laboratories and working with chemicals and biological materials. I have knowingly and voluntarily decided to assume the risk of these inherent dangers in consideration of the University's permission to allow me to participate in the Research.

6) I understand and agree that I am a volunteer and not an employee or agent of the University. As such, I acknowledge that I have no expectation of compensation of any kind for my services, including, but not limited to, monetary compensation, health insurance, or other benefits, nor am I entitled to any employment-related benefit afforded by the University to its employees. I also understand and agree that as a volunteer, I am not entitled to any of the protections or benefits afforded employees by law, including, but not limited to, minimum wage and overtime compensation, worker's compensation insurance, and unemployment compensation insurance.

7) In signing this Waiver, Release, and Indemnification Agreement, I hereby acknowledge and represent that I have read this entire document, that I understand its terms and provisions, that I understand it affects my legal rights and those of my child, that it is a binding Agreement, and that I have signed it knowingly and voluntarily.

Signature

Printed Name

Date

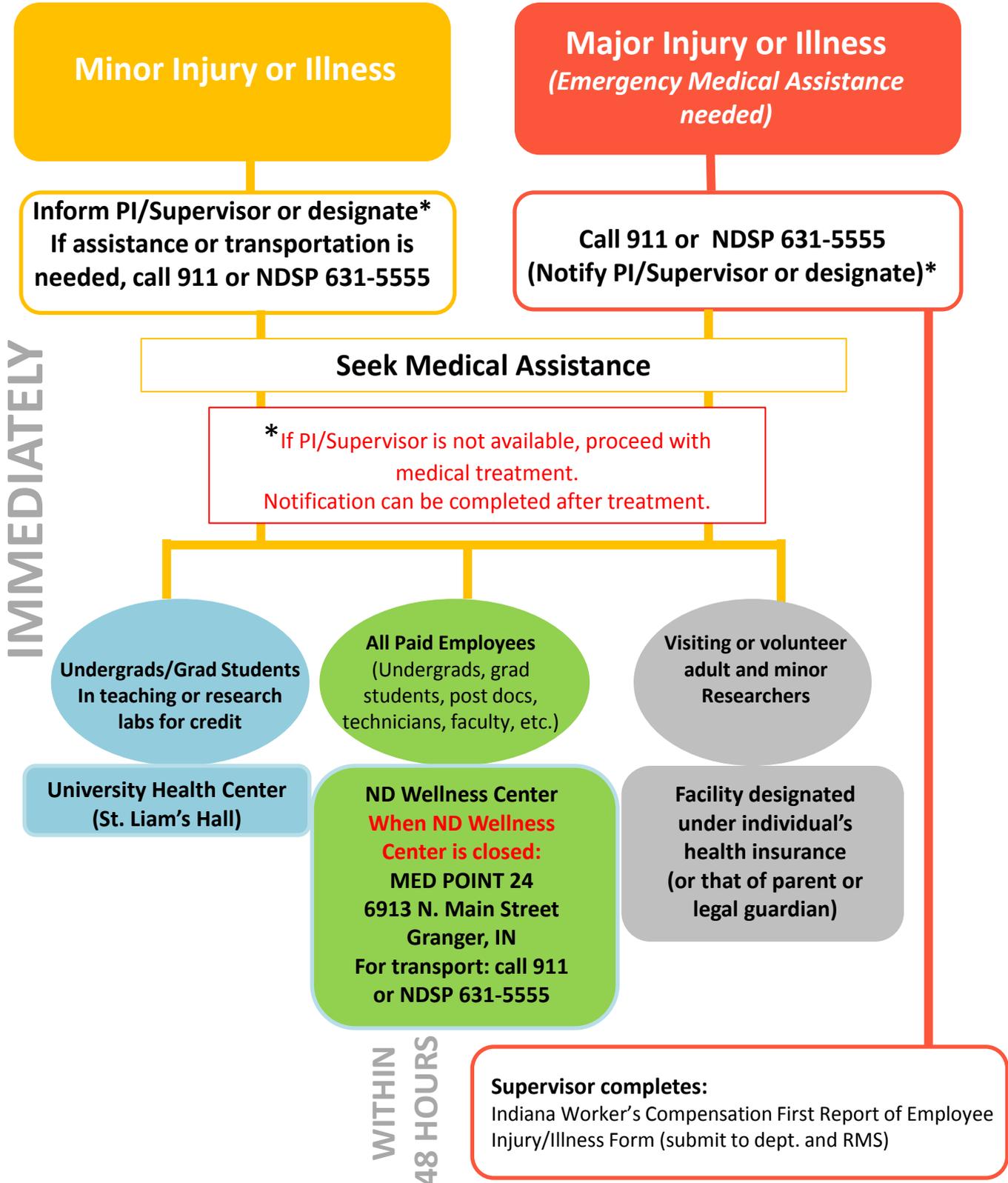
Original → PLC submits to Risk Management and Safety

Copies → PLC, coworker

What To Do In Case Of A Lab Injury Or Illness

Forms and additional safety information available at:

<http://riskmanagement.nd.edu>



Complete for Paid Employees (Including Students).

UNIVERSITY OF NOTRE DAME

SUPERVISOR'S REPORT OF AN INJURY TO THE WELLNESS CENTER

This is to certify that _____
Name of Employee

from the Radiation Laboratory is being referred to the
Wellness Center
for the evaluation and treatment of an injury that occurred on

____ / ____ / ____ at _____ am pm

Describe briefly how and where the injury occurred:

Authorized By _____

At _____ am pm on ____ / ____ / ____.

Form accompanies employee to Wellness Center.

Complete for any undergraduate using lab for teaching or research.

UNIVERSITY OF NOTRE DAME

SUPERVISOR'S REPORT OF AN INJURY TO THE HEALTH CENTER

This is to certify that _____
Name of Student

from the Radiation Laboratory is being referred to the
University Health Services (in St.Liam's Hall)
for the evaluation and treatment of an injury that occurred on

____/____/____ at _____am pm

Describe briefly how and where the injury occurred:

Authorized By _____

At _____am pm on ____/____/____.

Form accompanies student at University Health Services (in St. Liam's Hall)

UNIVERSITY OF NOTRE DAME
RADIATION LABORATORY

INJURY/ILLNESS/INCIDENT/NEAR MISS
REPORT FORM

Personnel Information

Employee/Student Name _____
Employee/Student University ID# _____
Employee/Student e-mail _____
Employee/Student Supervisor _____

Event Details

Check where applicable: Injury Illness Incident Near Miss

Event Date/Time: _____

Location of Event: _____

Employee/Student Statement (Description of event—before, during, and after)

Supervisor's Comments and Corrective Action Plan

Employee Signature _____ Date _____

Supervisor Signature _____ Date _____

Submit completed form to the Assistant Director's Office
or email Laura.Mortlock@nd.edu

Indiana Worker's Compensation Instructions

General Instructions:

1. Please enter information into all of the areas of the First Report form, except the boxes at the top right corner of the form which is for office use only.
2. Enter all dates in MM/DD/YY format.
3. Please return completed form electronically by an approved EDI process.
4. For answers to questions, please call (317) 232-3808.

Definitions:

AGENT NAME AND CODE NUMBER: Enter the name of your insurance agent and his / her code number if known. This information can be found on your insurance policy.

ALL EQUIPMENT, MATERIALS OR CHEMICALS EMPLOYEE WAS USING WHEN ACCIDENT OR EXPOSURE OCCURRED: List anything the employee was using, applying, handling or operating when the injury or exposure occurred. If the injury involves a fall, indicate any surfaces and / or objects the claimant fell on and where they fell from. Enter "NA" if no equipment, materials or chemicals were being *e.g. Acetylene cutting torch, metal plate, etc.*

AVG WG/WK: Claimant's average weekly wage, calculated by totaling the latest 52 weeks of wages (*including overtime, tips, etc.*) and dividing by 52.

CLAIMS ADMINISTRATOR: Enter the name of the carrier, third-party administrator, state fund, or self-insured responsible for administering

CONTACT NAME / TELEPHONE NUMBER: Enter the name of the individual at the employer's premises to be contacted for additional information (*i.e. Supervisor, HR Person, Nurse, etc.*)

DATE DISABILITY BEGAN: The first day on which the claimant originally lost time from work due to the occupational injury or disease or as otherwise deigned by statute.

DEPARTMENT OR LOCATION WHERE ACCIDENT OR EXPOSURE OCCURRED: If the accident or exposure did not occur on the employer's premises, enter address or location. Be specific (*e.g. Maintenance, Client's Office, Cafeteria, etc.*).

EMPLOYEE STATUS: Indicate the employee's work status from the following choices: Full-time, Part-time, Apprentice Full-time, Apprentice Part-time, Volunteer, Seasonal Worker, Piece Worker, On-Strike, Disabled, Retired, Not Employed or Unknown (you may also abbreviate *FT, PT, AFT, APT, VO, SW, PW, OS, DI, RE, NE, or UK*).

HOW INJURY / ILLNESS OCCURRED: Describe the sequence of events leading to the injury or exposure (*e.g. Worker stepped back to inspect work and slipped on some scrap metal. As worker fell, he brushed against the hot metal; Worker stepped to the edge of the scaffolding, lost balance and fell six feet to the concrete floor. The worker's right wrist was broken in the fall.*)

NCCI CLASS CODE: A four-digit code classifying the occupation of the claimant.

OCCUPATION / JOB TITLE: Enter the primary occupation of the claimant at the time of the accident or exposure.

PART OF BODY AFFECTED: Indicate the part of body affected by the injury / illness (*e.g. Right forearm, Low Back, etc.*)

REPORT PURPOSE CODE: 00 = Original First Report of Injury; 02 = Updated or Amended First Report.

RTW DATE (Return to Work Date): Enter the date following the most recent disability period on which the employee returned to work.

SIC CODE: This is the code which represents the nature of the employer's business which is contained in the Standard Industrial Classification Manual published by the Federal Office of Management and Budget.

SPECIFIC ACTIVITY EMPLOYEE ENGAGED IN DURING ACCIDENT / EXPOSURE: Describe the specific activity the employee was engaged in during the accident or exposure (*e.g. Cutting metal plate for flooring, sanding ceiling woodwork in preparation for painting.*)

TYPE OF INJURY / ILLNESS: Briefly describe the nature of the injury or illness (*e.g. Contusion, Laceration, Fracture, etc.*)

WORK PROCESS THE EMPLOYEE WAS ENGAGED IN DURING ACCIDENT / EXPOSURE: Enter "NA" if employee was not engaged in a work process, such as if walking down the hallway (*e.g. Building maintenance*).



INDIANA WORKER'S COMPENSATION FIRST REPORT OF EMPLOYEE INJURY, ILLNESS

State Form 34401 (R9 / 3-01)

FOR WORKER'S COMPENSATION BOARD USE ONLY		
Jurisdiction	Jurisdiction claim number	Process date

Please return completed form electronically by an approved EDI process.

PLEASE TYPE or PRINT IN INK

NOTE: Your Social Security number is being requested by this state agency in order to pursue its statutory responsibilities. Disclosure is voluntary and you will not be penalized for refusal.

EMPLOYEE INFORMATION						
ND ID #	Date of birth	Sex <input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Unknown	Occupation / Job title		NCCI class code	
Name (last, first, middle)		Marital status <input type="checkbox"/> Unmarried <input type="checkbox"/> Married <input type="checkbox"/> Separated <input type="checkbox"/> Unknown		Date hired	State of hire	Employee status
Address (number and street, city, state, ZIP code)				Hrs / Day	Days / Wk	Avg Wg / Wk <input type="checkbox"/> Paid Day of Injury <input type="checkbox"/> Salary Continued
Telephone number (include area code)		Number of dependents		Wage Per \$ <input type="checkbox"/> Hour <input type="checkbox"/> Day <input type="checkbox"/> Week <input type="checkbox"/> Month <input type="checkbox"/> Year <input type="checkbox"/> Other		

EMPLOYER INFORMATION			
Name of employer	Employer ID#	SIC code	Insured report number
Address of employer (number and street, city, state, ZIP code)	Location number	Employer's location address (if different)	
	Telephone number		
Carrier / Administrator claim number			Report purpose code
Actual location of accident / exposure (if not on employer's premises)			

CARRIER / CLAIMS ADMINISTRATOR INFORMATION			
Name of claims administrator	Carrier federal ID number	Check if appropriate <input type="checkbox"/> Self Insurance	
Address of claims administrator (number and street, city, state, ZIP code)	<input type="checkbox"/> Insurance Carrier <input type="checkbox"/> Third Party Admin.		Policy / Self-insured number
	Telephone number	Policy period From To	
Name of agent	Code number		

OCCURRENCE / TREATMENT INFORMATION						
Date of Inj./ Exp.	Time of occurrence <input type="checkbox"/> AM <input type="checkbox"/> PM	Date employer notified	Type of injury / exposure		Type code	
Last work date	Time workday began	Date disability began	Part of body		Part code	
RTW date	Date of death	Injury / Exposure occurred on employer's premises? <input type="checkbox"/> Yes <input type="checkbox"/> No	Name of contact		Telephone number	
Department or location where accident / exposure occurred			All equipment, materials, or chemicals involved in accident			
Specific activity engaged in during accident / exposure			Work process employee engaged in during accident / exposure			
How injury / exposure occurred. Describe the sequence of events and include any relevant objects or substances.						Cause of injury code
Name of physician / health care provider					INITIAL TREATMENT <input type="checkbox"/> No Medical Treatment <input type="checkbox"/> Minor: By Employer <input type="checkbox"/> Minor: Clinic / Hospital <input type="checkbox"/> Emergency Care <input type="checkbox"/> Hospitalized > 24 Hours <input type="checkbox"/> Future Major Medical / Lost Time Anticipated	
Name of witness		Telephone number	Date administrator notified			
Date prepared	Supervisor or Manager	Title	Telephone number			

An employer's failure to report an occupational injury or illness may result in a \$50 fine (IC 22-3-4-13).

UNIVERSITY OF NOTRE DAME

Minors Performing Research on Campus

The Risk Management and Safety Department (RMS) has developed the following guidelines and protocol for faculty or staff who allow minor children (those under the age of 18) to participate in research activities on campus. These guidelines apply whether the minor is a visitor, volunteer or employee.

The scope of this guide includes:

- A proposed checklist for minors performing research which must be completed by a principal investigator or a qualified responsible adult and returned to RMS prior to the start of work;
- A waiver, release and indemnification agreement which must be signed by a parent or legal guardian of the minor child and returned to RMS prior to the start of work;
- A health information and consent to treatment form which must be completed by a parent or legal guardian of the minor child and kept available in case of accident or emergency;
- Information regarding the supervision of minors in laboratories;
- Instructions for emergency procedures;
- Directives for laboratory safety training requirements.

This guide is intended to address minor children who will commute to campus and remain on site. If a minor will be staying in a dormitory on campus, traveling off-campus for research related activities or utilizing other facilities or services on campus, RMS should be contacted at 574.631.5037 to discuss the issues involved.

Any questions regarding the information presented in this guide may be directed to the Risk Management and Safety Department at 574.631.5037 or riskman@nd.edu.

Guidelines for Minors Performing Research

Principal investigators should follow these steps to get University of Notre Dame authorization and parental permission for a minor (persons under the age of 18) to participate in independent research activities, and to meet supervision, training, and hazardous material requirements and restrictions.

Volunteers and visitors, as well as pets, create a risk for injury and additional liability for the University. In particular, minor children are owed a greater duty of care based on legal requirements and ethical and moral obligations. The Risk Management and Safety Department (RMS) recommends that a responsible and qualified adult person appointed by the Principal Investigator (PI) supervise all visitors or volunteers when they enter a laboratory to work or for a visit. Departmental policy to this effect will reduce or eliminate the risk of personal injury to visitors, volunteers and employees in research laboratories, and the risk of damage to projects and property.

This Guideline applies to all academic and service units involved in laboratory operations. Enforcement of this Guideline will be primarily the responsibility of Department Heads, with compliance assurance by Risk Management and Safety.

The scope of this policy does not include university-sanctioned programs for the introduction of high-school students to the sciences, where minors are closely and continuously monitored by instructional staff. Examples include summer science camps and related outreach programs held during the academic year. Such programs do not constitute independent research activity.

Under University policy, persons receiving gratuities, meal vouchers or other informal reimbursement are considered Volunteers. Those persons, including minors, receiving payment or stipend for services, are considered employees and must work through the employment process with the Department of Human Resources. In some cases, Student Employment can assist with the necessary procedure. Minors under the age of 16 will require additional information and documentation from their school, parent and/or legal guardian.

1. Get authorization before the minor enters the lab

Request authorization by submitting the 2 forms below:

- **DISCLOSURE** - Form 1 - Print out and complete the [Proposed Project Checklist for Minors Performing Research in Laboratories](#) form. On the form:
 - Describe the project.
 - Obtain written consent from the minor's parent(s) or guardian.
 - Designate a qualified adult laboratory supervisor and an alternate supervisor, if necessary.
- **PERMISSION** - Form 2 - Print out and complete the [Waiver, Release and Indemnification Agreement](#):
 - Obtain signature of parent or guardian on the waiver.
 - Send the original waiver to Risk Management and Safety and maintain a copy in your departmental files for 2 years after the minor turns 18 years old.
 - Under University policy, employees are not required to sign waivers. Therefore, waivers are not required for employed minors.
- **HEALTH INFORMATION AND CONSENT TO TREATMENT** – Form 3 – Print out and complete the applicable [Form](#):

- Have the applicable form completed and signed by a parent or guardian; Form 3a is to be used for minor visitors and volunteers while Form 3b is to be used for minor employees.
- The qualified adult laboratory supervisor should maintain the form and have it readily available in case of an accident or illness.

Send **both** the completed Project Checklist form and the original Waiver to the Risk Management and Safety Department at 636 Grace Hall or scan as an attachment to riskman@nd.edu prior to the commencement of any research activities.

In addition to complying with the University's requirements for minors performing research, principal investigators are responsible for understanding and complying with University policies regarding minor volunteers, employees and visitors in research laboratories. These requirements also apply to related employment issues. If you have any questions regarding your ability to have a minor volunteer or work in your research lab, please consult with your department or Human Resources.

2. Ensure supervision requirements are observed

Minors are prohibited from working alone in Notre Dame Laboratories.

Provide direct supervision of the minor in the laboratory environment by a qualified adult laboratory supervisor at all times. "Direct supervision" means the following:

- The minor is accompanied into the lab by a trained and knowledgeable supervisor who is designated on the Project Checklist form.
- The designated supervisor must be the actual person observing and physically present in the lab with the minor.
- If under exceptional circumstances the primary supervisor can't be present, an alternate supervisor, formally named on the Project Checklist, may substitute.

3. Instruct the minor on emergency procedures

Review the following emergency procedures with the minor. Show the minor the following emergency equipment and locations:

- Telephone and emergency phone number (911 for Notre Dame Security or 631.5555 from a cell phone)
- First-aid kit
- Eye wash and emergency shower
- Fire alarm pull stations and fire extinguishers
- Building exits – means of egress signs posted
- Where to assemble outside in case of building evacuation

4. Provide general laboratory safety training

Make sure the minor receives appropriate laboratory safety training:

- Begin by enrolling the minor in RMS Lab Safety Fundamentals and Fire Extinguisher training offered online.
- Receive a copy of the certificate of training given by RMS to the minor to document the training.
- Keep all safety training documentation in the laboratory's personnel training files.

- Explain hazards specific to your lab, equipment, and the materials the individual will work with.
- Show the minor how to access and understand material safety data sheets (MSDSs) for the chemicals they will work with. See <http://riskmanagement.nd.edu/>
- Provide personal protective equipment (PPE).
- Enroll the minor in specific training (eg radiation, laser) if necessary

5. Observe hazardous materials restrictions and safety training requirements

Follow these restrictions and safety training requirements:

- **Chemical safety:**
 - Restrictions: Minors are not allowed to work with:
 - Acutely hazardous materials (i.e., compounds having a rat oral LD50 less than or equal to 50 mg/Kg, such as hydrofluoric acid, acrylonitrile, osmium tetroxide, etc.) or reactives like t-butyl lithium.
 - International Agency for Research on Cancer (IARC) [Group 1 or 2A carcinogens](#)
- **Biological safety:**
 - Restrictions for working with potentially [biohazardous substances](#) are dependent on the age group:
 - Minors between the ages of **12 and 16:**
 - **Are prohibited from working with biohazardous materials above biosafety level 1** (Risk Group 1 agents using BSL-1 practices and precautions).
 - May enter and work at BSL-1 in a large open-bay laboratory where BSL-2 work may be taking place, providing they have no contact with the BSL-2 work
 - Minors between the ages of **16 and 18:**
 - **Are prohibited from working with biohazardous materials above biosafety level 2** (Risk Group 2 agents using BSL-2 practices and precautions).
 - May enter and work at BSL-2 with appropriate training and medical surveillance (if applicable).
 - Training
 - Minors permitted to work at BSL-2 must receive job-specific training from the responsible PI.
 - PIs must use the laboratory's Biosafety Manual to instruct the minor on the risk assessment and safe-handling SOP's developed for the RG2 agents in use.
 - PIs must instruct the minor in proper handling and disposal requirements for biohazardous waste.
 - Minors must be provided with appropriate medical surveillance and training, if applicable.
- **Radiation safety:**
 - Restrictions: **Minors are generally prohibited from handling radioactive materials and operating radiation producing machines and laser units.**
 - PI's may apply for an exception to allow a minor to work under the direct supervision of an Authorized User approved by the Radiation Control Committee with up to 1 millicurie of a radionuclide per experiment.
 - Apply to the Health Physicist in the Risk Management & Safety Department for exceptions.
 - PI's may apply for an exception for a minor to operate a radiation-producing machine or laser unit under the direct supervision of an Authorized User.

- **Animal Use:**
- Restrictions: **Minors are generally prohibited from handling research animals.**
 - PI's may apply for an exception to allow a minor to work with lab animals under the direct supervision of an Authorized User approved by the Institutional Animal Care and Use Committee (IACUC).
 - Apply to the IACUC for exceptions.

**Proposed Project Checklist for Minors Performing Research in Laboratories
Form 1**

Minor Child's Name: _____ Date of Birth: _____

Supervisor: _____ Contact Phone: _____

PI & Location: _____

Time frame of research project: _____ through _____

Check here if this minor will be participating in a research laboratory project:

Check here if this minor will be participating in a classroom or education outreach program:

1) Please list the chemical hazards or radioactive materials this minor will be using: _____

2) Will the minor be using biohazardous materials such as bacteria, viruses, human cells/tissues, recombinant DNA? If yes, please explain:

3) Will the minor be handling physical hazards such as radiation producing machines or lasers? If yes, please explain:

Please provide a project summary and they types of experiments to be performed:

Minor's prior research laboratory experience: _____

Signatures (must be completed prior to the beginning of work):

Parent or Legal Guardian: _____

Contact email and phone: _____

PI: Supervisor (If different than PI): _____

RMS Review and Approval: _____

**ACADEMIC RESEARCH
WAIVER, RELEASE AND INDEMNIFICATION AGREEMENT
FORM 2**

I, _____, am the parent or guardian of a minor child, _____ who will be participating in Academic Research ("Research") at the University of Notre Dame du Lac Notre Dame, Indiana (the "University") during the period _____ through _____. I am fully aware that my child's participation in this Research is totally voluntary.

In consideration of the University's agreement to permit my minor child to participate in the aforementioned Research, the receipt and sufficiency in which consideration is hereby acknowledged, I agree as follows:

1) I, individually, and on behalf of my minor child and our respective heirs, successors, assigns and personal representatives, hereby release, acquit and forever discharge the University and its employees, students, agents, servants, officers, trustees and representatives (in their official and individual capacities) from any and all liability whatsoever for any and all damages, losses or injuries, including death, mental anguish or emotional distress to my child and/or property, including but not limited to any claims, demands, actions, causes of action, damages, costs, expenses (including hospital and medical expenses) and attorneys' fees, which arise out of, occur during, or result from my child's participation in the Research including travel to and from the University and including without limitation any loss, claim, demand or suit that my child might assert once he/she attains the age of majority.

2) I, individually, and on behalf of my minor child and our respective heirs, successors, assigns and personal representatives, hereby agree to indemnify, defend and hold harmless the University, and its employees, students, agents, servants, officers, trustees and representatives (in their official and individual capacities) from any and all liability, loss or damage they or any of them incur or sustain as a result of any claims, demands, actions, causes of action judgments, costs or expenses, including attorneys' fees, which result from arise out of relate to my child's participation in the aforementioned Research or arising out of his or her travel to or from the University and including without limitation any loss, claim, demand or suit that my child might assert once he/she attains the age of majority.

3) I agree that this Waiver, Release and Indemnification Agreement is intended to be as broad and inclusive as permitted by the laws of the State of Indiana, and if any portion hereof is held invalid, it is agreed that the balance hereof shall, notwithstanding, continue in full legal force and effect.

4) In the event of any cause of action, the laws of the State of Indiana apply and the jurisdiction lies with the St. Joseph County Superior Court or the U. S. District Court of Northern District of Indiana.

5) I hereby acknowledge and accept that there are certain risks, including bodily injury and death that could result from my child's participation in the aforementioned Research which will include working in teaching and research laboratories. I have knowingly and voluntarily decided to assume the risks of these dangers in consideration of the University's permission to allow my minor child to participate in the aforementioned Research. I, individually and on behalf of my minor child, hereby release and discharge the University from any and all negligence, including the University's own negligence, in connection with my child's attendance at, or participation in the Research, including travel to and from the University, except for any gross negligence or willful and wanton misconduct on the part of the University.

6) I hereby consent to any publicity, including the use of my child's name and likeness, and waive any right to inspect and/or approve any photography, film videotape, recordings or advertising copy which may be used in connection with my child's participation in the Research.

7) In signing this Waiver, Release and Indemnification Agreement, I hereby acknowledge and represent that I have read this entire document, that I understand its terms and provision, that I understand it affects my legal rights and those of my child, that it is a binding Agreement, and that I have signed it knowingly and voluntarily.

Parent or Guardian Printed Name

Parent or Guardian Signature

Date

UNIVERSITY OF NOTRE DAME
HEALTH INFORMATION AND CONSENT FOR EMERGENCY MEDICAL TREATMENT FORM FOR MINORS
FORM 3a (Visitors or Volunteers)

Research Department: _____

Name of Minor Child: _____ Birth Date: _____

Permission for Treatment: The health history provided on this form is correct to the best of my knowledge. By my signature below, I hereby grant permission and authorize the provision of emergency medical treatment for minors/students who become ill or injured while participating in a University of Notre Dame du Lac sponsored Program and when parents or guardians cannot be reached.

Release of Information: By my signature below, I authorize the University of Notre Dame to release medical information regarding the above named minor/student to any person or entity to whom the University of Notre Dame refers the minor/student for medical treatment.

TO GRANT CONSENT

I, _____ of _____
(Name of Parent/Legal Guardian) (City)
_____, _____, do hereby state that I am the
(County) (State)
parent or legal guardian of: _____, a minor.
(Name of Child)

Should an emergency arise while my child is under the supervision of the staff of The University of Notre Dame du Lac, I do hereby authorize the staff to obtain medical attention for my child. I do hereby give consent to any necessary examination, anesthetic, medical diagnosis, surgery or treatment, blood transfusion and/or hospital care to be rendered to the above-named minor under the general or special supervision and on the advice of any physician or surgeon licensed to practice medicine during the program period. All such treatment shall be at my expense, and I agree to reimburse the University or its representatives for any expenses that they or any of them might incur on account of my child's condition or treatment. This consent shall not give rise to, and is not intended to give rise to a legal duty owed by the University to my child. I do hereby release and forever discharge the University of Notre Dame du Lac and its employees, agents, officers, trustees, affiliates and representatives from any and all liability of any kind for any claim, demand, action, cause of action, expense (including hospital and medical expenses), judgment or cost, including without limitation attorneys' fees, co-pays or deductibles, which arise out of or relate in any manner to the exercise of authority or judgment pursuant hereto, or to the securing, oversight, administration or supervision of medical or other care or treatment on behalf of my minor child at any time or any travel incident thereto.

◆ Family Doctor: _____ Phone: _____

◆ Family Dentist: _____ Phone: _____

◆ Medical Insurance: _____, _____, _____
(ID Number) (Group Number) (Member's Name)

◆ Medical History: Allergies, if any, including medication and foods: _____

◆ Chronic or existing diseases or medical problems (e.g. diabetes, epilepsy): _____

◆ Medicines your child is now taking and dosage: _____

◆ Date child received last Tetanus injection or booster (if known): _____

◆ Any physical restrictions: _____

I can be reached at the following phone numbers(s) in an emergency:
_____, (____) _____
(Name and Location) (Phone)
_____, (____) _____
(Name and Location) (Phone)

(Signature of Parent/Legal Guardian) Dated _____

UNIVERSITY OF NOTRE DAME
CONSENT FOR EMERGENCY MEDICAL TREATMENT FORM
Form 3b (Employed Minors)

Research Department: _____ Date of Employment: _____

Minor Employee Name: _____

TO GRANT CONSENT

I, _____ of _____
(Name of Parent/Legal Guardian) (City)
_____, _____, do hereby state that I am the
(County) (State)
parent or legal guardian of: _____, a minor.
(Name of Child)

Should an emergency arise while my child is employed by The University of Notre Dame du Lac, I hereby authorize University representatives and staff to obtain emergency medical attention for my child. I do hereby give consent to any recommended examination, anesthetic, medical diagnosis, surgery or treatment, blood transfusion and/or hospital care to be rendered to my child under the supervision and on the advice of any physician or surgeon licensed to practice medicine.

◆ Family Doctor: _____ Phone: _____

◆ Family Dentist: _____ Phone: _____

◆ Medical History: Allergies, if any, including medication and foods: _____

◆ Chronic or existing diseases or medical problems (e.g. diabetes, epilepsy): _____

◆ Medicines your child is now taking and dosage: _____

◆ Date child received last Tetanus injection or booster (if known): _____

I can be reached at the following phone numbers(s) in an emergency:

_____, (_____) _____
(Name and Location) (Phone)

_____, (_____) _____
(Name and Location) (Phone)

(Signature of Parent/Legal Guardian) Dated _____

