



FIELD SAFETY PROGRAM

Created and Maintained by UNM Environmental Health & Safety Department

Reviewed and Approved by the UNM Chemical & Lab Safety Committee

Spring 2023

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DOCUMENT REVISION LOG

Document: **Field Safety Program**

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ACRONYMS & DEFINITIONS

AED	Automated External Defibrillator
ASAP	As Soon As Possible
CDC	Centers for Disease Control
CHP	Chemical Hygiene Plan
CLSC	Chemical & Lab Safety Committee
CPR	Cardiopulmonary Resuscitation
EMNRD	Energy, Minerals and Natural Resources Department
EHS	Environmental Health & Safety
EOHS	Employee Occupational Health Services
FAA	Federal Aviation Administration
FSP	Field Safety Plan
GPS	Global Positioning System
IACUC	Institutional Animal Care & Use Committee
OACC	Office of Animal Care Compliance
PI	Principle Investigator
PPE	Personal Protective Equipment
RAT	Risk Assessment Tool
SDS	Safety Data Sheet
SOP	Standard Operating Procedures
UNM	University of New Mexico

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Introduction

Safety is a core value of the University of New Mexico (UNM) and UNM is committed to creating and promoting a culture of safety within the University community. Part of demonstrating this commitment is providing guidelines and resources to lead safe, successful field courses and research trips. The Field Safety Program focuses on risk management and hazard mitigation measures that are relevant for field courses, research expeditions and other UNM-sponsored academic outdoor excursions.

This program was created to enable field research leaders and participants to plan and carry out field activities in the safest manner possible. However, because of the inherent dangers associated with working outdoors and in remote locations, successful implementation of the provisions of this program relies upon each individual field research participant to take responsibility for their safety.

1. SCOPE

This program applies to all students, faculty, staff and volunteers at the University of New Mexico (UNM) who conduct or participate in field courses, research expeditions and other academic outdoor excursions. The program covers roles and responsibilities, planning, training, incident response, best practices, common field hazards, and campus resources. Templates for creating work-specific Field Safety Plans (FSPs) are included as attachments to this document.

2. RESPONSIBILITIES

2.1. Environmental Health & Safety (EHS) is responsible for:

- Preparing, maintaining and periodically revising this program
- Distributing this program to Deans, Directors and Department Chairs
- Monitoring compliance with this program
- Providing advice and recommendations for safe field research operations
- Assisting with the development of Field Safety Plans
- Investigating incidents and accidents

2.2. UNM Chemical & Lab Safety Committee (CLSC) is responsible for:

- Reviewing and approving of the UNM Field Safety Program
- Promoting a safe working environment for all UNM personnel who work in University-owned laboratories, including University-sponsored field research
- Resolution of safety concerns identified by EHS, including recommending modification, suspension, revocation and/or termination of any activities that are deemed to pose an unacceptable risk to life or safety

2.3. Deans, Directors, and Department Chairs are responsible for:

- Ensuring departmental compliance with all the procedures outlined in this program
- Ensuring Field Safety Plans and Standard Operating Procedures (SOPs) are in place for all PIs and Field Supervisors

2.4. PIs and/or Field Supervisors are responsible for:

- Ensuring compliance with this program in their work area(s)
- Developing a Field Safety Plan that is specific to their field activities and distributing the plan to all fieldwork participants
- Developing SOPs or written instructions for the procedures or objective hazards (i.e. bears, lightening, etc.) most likely to cause illness or injury while conducting fieldwork, and distributing the SOPs and written instructions to all fieldwork participants
- Ensuring all fieldwork participants have read and understand the Field Safety Plan and SOPs prior to conducting fieldwork
- Communicating the requirements for any required medical examinations and/or vaccinations/prophylaxis
- Arranging for immediate emergency response for injuries, illnesses, overexposures and/or chemical spills
- Maintaining Safety Data Sheets (SDSs) for all hazardous chemicals used in the field
- Notifying EHS of any employee incidents/accidents that occur during fieldwork

2.5. Field Participants (Employees/Students) are responsible for:

- Knowing the provisions of and abiding by the Field Safety Plan and SOPs
- Reporting accidents, possible exposures or unsafe conditions to their supervisor
- Obtaining appropriate training for their designated field activities
- Utilizing engineering controls, safety equipment and personal protective equipment (PPE) as specified in the Field Safety Plan and SOPs
- Knowing what to do in the event of an emergency

3. PLANNING AND PREPARATION**3.1. Initial Preparations for a Successful Trip**

Planning and preparation for fieldwork is essential to a safe and successful venture for all participants. The PI, Field Supervisor, or Field Instructor should consider the following steps during the early stages of planning:

- Schedule a pre-trip medical consultation with EOHS or SHAC
- Develop an Emergency Communication Plan
- Take first aid training and obtain a first aid kit

- Consider and discuss security risks and personal safety
- Begin working on a Field Risk Assessment
- Obtain approval from the UNM Purchasing Department prior to any international travel

Depending on the location of your fieldwork and the activities involved, additional preparations may be necessary.

3.2. Preparing for Potential Field Hazards and Risks

All field activities warrant a plan addressing foreseen hazards, appropriate precautions, communication options, and emergency procedures. Use the table below as a guide for resources and recommended actions to take prior to your field event.

DESTINATION	REQUIRED ACTIONS
Will you be traveling more than 100 miles from UNM?	Notify your department and identify all participants
Does UNM, the CDC, or State Department recommend vaccinations or prophylaxis for your destination?	Schedule a medical visit with EOHS at least 6 weeks prior to your trip EOHS CDC Travelers Health US State Dept. - Travel Advisories
Will you be traveling internationally?	Notify the UNM Purchasing Department UNM Purchasing Department Be familiar with UNM International Travel Policy (UNM Policy 4030, section 4.2) International Travel Policy Check the U.S. State Department travel advisories website: US State Dept Travel Advisories Website
Will you be visiting sites with hazardous terrain, climate, wildlife, zoonotic risks, poor sanitation, other environmental hazards, or remote sites with limited services?	Complete a Field Safety Plan (FSP) that addresses the specific hazards and submit FSP to PI for review; share FSP with all participants Field Safety Plan Template Ensure at least one participant has current first aid training and carry a first aid kit

Is reliable phone service available at your destination?	<p>Include check-in procedures in your FSP</p> <p>Avoid working alone, when possible</p> <p>Carry field radios, satellite communication device or personal locator beacon</p>
Will you be visiting access-restricted sites such as construction sites or mines?	<p>Request PPE and site access requirements in advance</p> <p>Carry UNM identification</p> <p>Check in with site manager</p> <p>Be familiar with the EHS Confined Space Program</p>
Will you be spending more than 3 working days at a mine?	<p>Must take MSHA training Mine Safety & Health Administration</p>
Will you be driving to your destination via UNM vehicle, rental, or personal vehicle?	<p>Be familiar with UNM Vehicle Use Policy (UNM Policy 7780) Use of University Vehicles</p> <p>Complete National Safety Council Defensive Driving Course Online Defensive Driving Course</p> <p>Carry an Accident Report Form in vehicle Accident Report Form</p> <p>Confirm the presence of a working spare tire</p> <p>Confirm the vehicle has undergone periodic maintenance and is road-ready</p>
PARTICIPATION	
Are you responsible for students registered in a field course?	<p>Consider establishing a "Student Behavior Agreement" or a "Code of Conduct" (see attachment 4)</p> <p>Set the tone for a safe trip by discussing expectations and rules before the trip</p> <p>Carry a participant roster with emergency contact information at all times</p>
Will volunteers be helping on your project?	<p>Refer to Section 2.18 of the Regents Policy Manual, which includes information on volunteers</p> <p>Consider purchasing UNM Volunteer Insurance</p>

Will you be working alone?	<p>Include this information in your FSP</p> <p>Notify your department and provide your FSP</p> <p>Identify contacts for immediate or local assistance in the event of an emergency</p> <p>Incorporate check-in times into your FSP</p> <p>Consider using personal locator beacons or other satellite communication devices</p>
FIELD ACTIVITIES	
Working outdoors when temperature is more than 80 degrees F?	All participants must complete Heat Stress training course (online, via Learning Central)
	UNM Learning Central
	Carry sufficient water
	Carry tarps or other means of creating shade if natural shade is not available and/or wear hats and clothing that protects from overexposure to sun
Working in dry vegetation or areas with high fire danger?	At least one person must complete Portable Fire Extinguisher Safety (via Learning Central)
	Carry a fire extinguisher, shovel, and bucket of sand in vehicle
	For New Mexico, check the New Mexico EMNRD Fire Restrictions page
	For other US states, check with the local forest, grassland or ranger district for fire restrictions or area closures US Forest Service Fire Safety page
	Consult with EHS Fire Safety Division
Working in cold, possibly wet conditions?	All participants must complete Cold Stress training course (online, via Learning Central)
	Provide all participants with a recommended gear list
	Carry extra blankets or sleeping bags in vehicle
Does work involve:	
Excavating soil more than 4 feet deep?	Contact EHS for assistance with hazard assessment, training, and PPE selection
Working at heights over 6 feet?	Include training requirements and precautions in your FSP or refer to specific SOPs
Entering caves, vaults, mines, or other potential confined spaces?	Be familiar with the EHS Confined Space Program
Handling or transporting hazardous chemicals, materials or samples?	UNM Chemical Hygiene Plan

Use of power tools or equipment?	Ensure operators of power tools or equipment have completed appropriate training; check Learning Central for online courses on certain power tools and equipment
Exposure to loud noise (>85 decibels)?	Refer to the EHS Hearing Conservation Program and to section 10 of the EHS PPE Program Contact EOHS for an evaluation and to enroll in the hearing conservation program.
Using ATVs?	Ensure operators of ATVs have been trained on how to safely use them and wear appropriate PPE including helmets
Using snowmobiles?	Ensure operators of snowmobiles have been trained on how to safely use them and wear appropriate PPE including helmets
Handling or trapping wildlife?	Contact the UNM Office of Animal Care Compliance
Will anyone be operating Unmanned Aircraft Systems (UAS) aka drones?	The use of drones for research or educational purposes requires a 107 Pilot Certification from the FAA. All UNM units that purchase drones must notify the Associate Director of Risk Services (risksvcs@unm.edu) upon purchase and when drones are taken out of use. The information is submitted to the State Risk Management Division for insurance-related purposes Plan for proper storage, charging, and transportation of lithium batteries
Will anyone be boating or working on the water?	Ensure properly-fitted personal floatation devices (PFDs) are worn at all times Complete a Float Plan (Attachment 6) for every trip
Will anyone be SCUBA diving?	Ensure all participants are SCUBA-certified and at least one participant is CPR/First Aid certified UNM Recreational Services offers Open Water Diver SCUBA Certification Complete a Dive Plan (Attachment 5) for every dive trip
Will any waste be generated at the work site?	Consult the UNM Chemical Hygiene Plan for information on handling, transporting, and disposal of hazardous waste Plan for proper storage, labeling and transportation of waste generated Include requirements for managing waste in your FSP or refer to specific SOPs

3.3. Risk Assessments and Field Safety Plans

Prevention of injuries, illness, and incidents in the field begins with identifying the hazards present. A risk assessment tool is a practical approach recommended to identify hazards and ways to reduce or eliminate those hazards. It focuses on the relationship between the researcher, the work, the tools, and the work environment. Ideally, after you identify uncontrolled hazards, you will take steps to eliminate or reduce them to an acceptable risk level.

Conduct a risk assessment as part of the planning process for any field operations trip being conducted for the first time. **Once you have conducted a risk assessment for a particular work site, individual trips there should be planned using a Field Safety Plan.** The plan should include information on equipment needed, work protocols, and emergency procedures and contacts. The same plan may be used repeatedly for each trip to the same location.

Copies of completed Field Safety Plans must be submitted to:

- The PI of the field research project
- The Department Chair and administrators
- The EHS Department (EHS-L@list.unm.edu)
- All field research participants

For field research projects that include non-UNM organizations with their own respective field safety protocols, UNM field research participants are expected to abide by whichever protocols are more protective.

More information on these tools is found in Sections 6 and 7 of this program.

3.4. Emergency Communication Plan

Knowing who to contact in an emergency is critical. As part of your preparations, identify the key emergency contacts for your work group and the site of your operation. Keep a written copy with you at all times and share it with other field work participants. There is an Emergency Communication section in the Field Safety Plan templates at the end of this document.

Plan for events such as the loss of your phone or the contact list on your phone. A little pre-planning now can save valuable time in an emergency. Consider creating a shared document with critical contact information.

Consider the following when developing your emergency communication plan:

- Who do you need to communicate with? UNM contacts, local contacts, UNM resources, students, staff, faculty, department leadership?

- Who is responsible for communicating to each group? What is the chain of communication to follow in the event of an emergency?
- How will you communicate? E-mail? Phone? Text? Other emergency devices?
- What do you need to say? What information do responders or emergency contacts need to know?
- How often will you communicate? What additional follow-up will be required after initial contact?
- Different types of emergencies may require different communication plans with respect to privacy considerations

3.5. Register Your Foreign Trip

The UNM Global Education Office facilitates safe and successful travel abroad for Lobos through the Global Travel Security Program.

Information regarding travel registration for faculty, staff, and students, current UNM travel policies, and insurance information is covered in [UNM Policy 4030](#). More information related to travel can be found on the [UNM Purchasing Department website](#).

3.6. Identifying Appropriate Equipment, Gear, and First Aid Supplies

Field work typically occurs in locations that lack basic services such as plumbed water, reliable communications, or prompt emergency medical services. It's important during planning to budget for appropriate safety measures, including field safety supplies and training. It is appropriate for field safety supplies and training to be budgeted and reimbursable using University research and/or departmental operation funds.

3.6.1. Equipment and Gear

The equipment you need will depend on the tasks, location and weather of your destination. Typical equipment needed for field work includes:

- Map, compass, GPS
- Cell phones, field radios, satellite phone/device or personal locator beacon, extra battery, solar charger
- Extra water and/or water purification methods
- Extra food and snacks
- Hats, sunscreen, sunglasses
- Space blanket, sleeping bag
- Emergency shelter, shade canopy, tarp
- Flashlight or headlamp

- Matches or firestarter
- Signal/mirror, whistle
- Knife or multi-tool
- Duct tape, super glue, bungee cords
- Jumper cables, spare tire, jack, tow rope
- Tools: pliers, screw driver, wrench
- Fire extinguisher, bucket of sand, shovel
- PPE: nitrile gloves, safety glasses, reflective vests

A variety of outdoor equipment is available to rent from UNM Recreational Services. Contact their [Outdoor Rental & Resource Center](#) for more information.

3.6.2. First Aid Kits

First aid supplies must be readily available and should be stored in clearly marked, portable containers. The containers must not be locked. They must be made of material that protects them from damage, deterioration, or contamination in the work environment. When assembling or purchasing a first aid kit, consider the following:

- First aid kits don't save lives, people do. Get trained and know how to use everything you put in your kit.
- Commercially-available first aid kits are good starting points. Vendors such as Grainger and REI have options designed for outdoor excursions for various group sizes.
- Customize your kit for your destination, tasks, group size and level of training.
- Pack extra gloves.
- Repack your kit for each trip and replenish used or expired items.

3.7. Forms and Documentation

Important documents such as permits, licenses and personal identification should be inventoried and assembled before your trip. These may include:

- Permits – land use, firearm use, animal use, scientific collecting
- Drivers licenses, driver authorization forms
- Passports, if applicable
- Copies of medical prescriptions
- Participant medical forms
- Liability waivers, if applicable
- Participant list with emergency contacts

3.8. Transportation Options and Precautions

Modes of travel, including vehicles used at your field site, should be included in your Field Safety Plan. Depending on your needs, assistance may be provided by the UNM Automotive Center, Risk Services and EHS. Consider contacting:

- [UNM Automotive Center](https://fm.unm.edu/services/automotive-maintenance.html) (<https://fm.unm.edu/services/automotive-maintenance.html>) – regarding rental of UNM fleet vehicles
 - [UNM Vehicle Rental Procedures](#)
- [UNM Risk Services](https://risk.unm.edu) (<https://risk.unm.edu>) – for insurance if using personal vehicles, chartered boats, planes or other non-commercial modes of transportation

Remember that all UNM personnel who drive UNM vehicles must take the [Online Defensive Driver Course](#).

3.9. Pre-Trip Communication With Participants

Field work participants must be physically, mentally, and logistically prepared for field activities. Ensure participants are prepared for their field experience by doing the following:

- Schedule a pre-trip orientation meeting
- Give participants detailed information of field activities and tasks
- Review your Field Risk Assessment and Field Safety Plan, which should include a discussion of expected hazards and conditions, security concerns, code of conduct, and travel logistics

4. HAZARD IDENTIFICATION AND RISK MITIGATION

4.1. Hazard Identification

Prevention of injuries and incidents begins with identifying hazards. Include all hazards you might potentially encounter in the “Identified Hazards” section of your Field Safety Plan. The tables in the following sections list common hazards, appropriate responses for them, and appropriate prevention measures.

4.1.1. Physical and Environmental Hazards

Every location worldwide has its own physical and environmental hazards. All field participants should be familiar with the hazards associated with their field location and how to protect themselves from the hazards. Typical physical and environmental hazards are listed below. Information on how to mitigate these hazards is found in Section 12.3 – First Aid for Common Physical and Environmental Hazards.

- Altitude sickness
- Poisonous gases (carbon monoxide, hydrogen sulfide)

- Dehydration
- Drowning
- Electrical shock
- Extreme weather
- Frostbite
- Hazardous terrain
- Heat exhaustion/heat stroke
- Hunting season
- Hypothermia
- Impure water
- Poisonous plants/venomous animals

4.1.2. Chemical Hazards

Field projects that involve the use of chemicals and hazardous materials must comply with the requirements outlined in the UNM Chemical Hygiene Plan (CHP), including having access to an eyewash station. Ensure a portable eyewash station and/or eyewash bottles containing saline are included in your field supplies.

Consult the CHP for information on containment, labeling, transport, handling, and waste management for all chemicals used in the field. Ensure chemical- and process-specific SOPs for field work are developed. Safety Data Sheets (SDSs), SOPs, PPE and spill kits should be readily available for all participants. Include information on how to address chemical exposures in the field in your Field Risk Assessment, Field Safety Plan and SOPs.

4.1.3. Diseases

Viruses, bacteria, fungi, and parasites cause diseases in nearly every location worldwide. Diseases that are carried or transmitted by animals are known as zoonotic diseases. Diseases that are carried or transmitted by insects (arthropods) are called arthropod-borne diseases. Diseases that are carried or transmitted by a vector are known as vector-borne diseases. Consult your healthcare provider and [The State Department](#) before traveling out of the country so you are aware of the health risks specific to the region in which you are traveling. Refer to Table 1, located at the end of this document, for a list of diseases found worldwide.

4.1.4. Animals and Pests

Dangerous animals and other pests are present worldwide and may be encountered during field work. Follow these general guidelines to decrease the likelihood of an encounter with animals and pests:

- Keep garbage in rodent-proof containers and stored away from your campsite or work area; food crumbs and debris may attract insects and animals.
- Thoroughly shake all clothing and bedding before use.

- Do not camp or sleep near obvious animal nests or burrows.
- Carefully look for pests before placing your hands or feet in areas where pests live or hide (e.g., woodpiles or crevices).
- Avoid contact with sick or dead animals.
- Wear clothes made of tightly woven materials and tuck pants into boots.
- Wear insect repellent.
- Minimize the use of bright lights after dark, as they may attract animals and pests.
- Use netting to keep pests away from food and people.
- Carry a first aid kit that includes treatments for bites or stings.

Refer to Table 2, located at the end of this document, for a list of animals and pests found worldwide.

4.1.5. Security Hazards in Urban Areas

Personal safety risks during free time or when traveling or working in urban areas should be considered and discussed in advance with all participants. Expectations for topics such as alcohol or drug use, leaving the group, situational awareness, sexual harassment and local crime/security concerns must be set and understood by all participants.

5. HAZARD CONTROLS

After the hazards of your field work have been identified, determine how to control the hazards by using engineering and administrative controls, and personal protective equipment. Document the hazards and the controls in your Field Risk Assessment, Field Safety Plan and SOPs.

6. RISK ASSESSMENT

6.1. Risk Assessment Tools

A risk assessment tool can provide essential information for enhancing safety practices, establishing proper procedures, and ensuring all field work participants are properly trained. The EHS [Field Risk Assessment Tool \(Field RAT\)](#) provides a format for individuals to systematically identify hazards and hazard controls to reduce risk of injuries, illness, and incidents. Conduct a risk assessment as part of the planning process for any field work trip being conducted for the first time.

6.2. Risk Evaluation

Risk evaluation is an essential step in the risk assessment process. Always ask: If an accident occurs in the field, can I justify my actions and decision-making? Most accidents occur when objective factors (weather, darkness, uneven terrain, moving water) and subjective factors (complacency, distraction, fatigue, stress, lack of competence) overlap. For example, if you are walking on uneven terrain in the

dark while looking at your phone, the risk of a trip/fall accident in which you sustain a minor injury is high. High risk activities require additional controls to reduce risk.

Evaluate risk with this equation: Risk = Likelihood x Consequences

		Severity of Consequences – Personnel Safety			
Likelihood of Incident Occurrence		No injuries	Minor Injury	Significant Injury	Life threatening
	Very Likely	Low	High *	Unacceptable **	Unacceptable **
	Likely	Low	Medium	High *	Unacceptable **
	Possible	Low	Medium	High *	High *
	Rare	Low	Low	Medium	High *

Use the table below to determine the action to take based on the risk rating. Which steps are the most risky? What more can be done to control the risks? Return to planning and use the hierarchy of controls to design a safer trip if the risk rating is High or Unacceptable.

Hazard Risk Level	Action
Unacceptable **	STOP! Additional controls needed to reduce risk. Consult with PI.
High *	Additional controls recommended to reduce risk. Consult with PI.
Medium	Ensure you are following best practices. Consult with peers, PI, and EH&S as needed.
Low	Perform work within controls

7. ASSEMBLE A FIELD SAFETY PLAN

Once you have conducted a field risk assessment for a particular work site, you will have all of the information needed to assemble a Field Safety Plan. Taking the time to compile a thorough FSP and reviewing it thoroughly with all field participants will prepare you to more effectively manage risks that arise in the field. A FSP is essential for the following activities:

- Conducting field research
- Teaching field courses
- Working at field stations, nature reserves, or controlled sites
- All international field work

Information that should be included in your FSP includes:

- Site location and description
- List of participants and contact information
- Modes of travel and site access
- List of equipment needed, including PPE
- SOPs for tasks being conducted
- First aid information
- Emergency services at site
- Location of nearest off-site emergency services
- Emergency contact information

Field Safety Plan templates are available as attachments to this program and on the [EHS website](#).

8. FACILITATING SAFE GROUP DECISION-MAKING

As a field leader, you must possess the ability to assess risks, mitigate hazards and carry out safe actions/operations. You must also be able to facilitate making important decisions as a group, which requires solid communication and leadership skills. Consider the following four ways that groups make decisions:

1. **Directive:** The leader decides and informs the participants.
2. **Consultative:** The leader decides after consultation with participants. For example, the leader might first solicit input from participants and then decide, or the leader might tentatively decide and get input and reaction from participants before making the final decision.
3. **Group decides:** All participants (including the leader) contribute equally to the decision-making process. This could happen through a vote or through consensus.
4. **Delegation:** The leader delegates the decision-making to participants after defining the appropriate boundaries and conditions. Before delegating, the leader must feel comfortable with any decision made.

Many experienced leaders employ all of these decision-making styles depending on the situation and the expertise of their participants. By doing so, leaders help maintain a safe learning/working environment while at the same time helping participants take ownership and responsibility for their collective experience.

Keep in mind the misleading role that unconscious heuristics (i.e. biases, rules of thumb) can play in group decision making. For example, decisions made by large groups of people are often riskier than decisions made by one or just a few people, and decisions made by a group and based on the perceived expertise of a group member or the group leader also tend to be riskier. Recognize that these heuristics exist and decrease the likelihood of being negatively affected by them by taking time to think critically about risks, hazards, actions and consequences.

9. PREVENTING AND RESPONDING TO HARASSMENT AND VIOLENCE

Standards for behavior in the field are the same as standards for behavior on campus. This includes preventing harassment and discrimination based on culture, gender, race, sexual orientation, immigration status, and ability. Field leaders should ensure that all participants are aware of this and have access to support and guidance in the field. A general *Code of Conduct* template is included as an attachment.

When traveling to areas off campus, be mindful of discriminatory behaviors and practices that may be encountered. Know who to contact to report harassment or discrimination in the field, and include that information in your Field Safety Plan.

If you become aware of a situation that involves sexual assault, relationship violence, domestic violence, stalking, sexual harassment, related retaliation, or other forms of sexual misconduct, you are required to follow the [UNM Title IX Reporting Obligations](http://oeo.unm.edu/title-ix/title-ix-reporting-obligations.html) (<http://oeo.unm.edu/title-ix/title-ix-reporting-obligations.html>). See also [University Administrative Policy 2720](#).

9.1. Addressing Participant Behavior in the Field

One of the most difficult challenges of a field instructor/leader is to address group dynamics and individual behavior that can undermine a positive learning environment for everyone. These challenges may manifest as homesickness/disengagement, alcohol or drug use, poor performance, sexist or racist behavior, or other behaviors that prevent inclusion of everyone.

Engaging participants to collaborate involves all of the following:

- Setting the tone for a safe and positive learning environment
- Using inclusive language
- Building rapport and developing positive professional relationships with all participants
 - Give regular positive and constructive feedback
 - Make an effort to individually check-in with each participant
 - Have conversations, ask how they're doing

9.1.1. Options to Consider if Challenges Arise:

- Are there social dynamics at play that isolate, intimidate, or threaten this individual?
- What needs of this individual are not being met? What can you do to meet them?
- What is this individual getting from their disruptive behavior? Is there any other way this individual could meet their needs in a more productive way?
- Are the boundaries you have created thwarting this individual's ability to feel capable, connected, and that their presence matters?
- Make structural changes (such as giving more time for meals or breaks) that you think may alleviate some of the stress on this individual and the group
- Give verbal feedback and coaching first before written documentation
- Keep a written behavior log of observations about the individual's behavior

- Be accurate – stick to observations and quotes; avoid speculation, interpretation and evaluation
- Be specific, clear and organized – use dates, times, names, etc.
- Use direct quotes from the individual and their peers
- Be brief and avoid redundancy

If a behavior issue does not resolve itself after 1-2 days of trying all of the above, consider creating a performance agreement, which is a structured way to:

- Document behaviors that need to change
- Clarify behavioral expectations
- Outline consequences if change doesn't occur

An effective agreement should target behavior that is specific, observable, and changeable. It needs to include a timeline for change and appropriate consequences. If behavior does not improve, early termination of fieldwork may be required and disciplinary action in accordance with UNM administrative policies may be implemented.

10. TRAINING

10.1. Training Documentation

Mentoring is essential for transferring knowledge and practical skills from experienced faculty, staff, and researchers to new researchers and students, and is often provided informally. However, formal, documented training is a critical part of University safety programs in order to comply with regulatory requirements, accrediting agencies, and in many situations, funding organizations. Commercial trainers typically provide documentation via certification that an individual should maintain and be able to provide upon request, (e.g., a first aid card). UNM safety training is documented through the [Learning Central](https://learningcentral.unm.edu/) (<https://learningcentral.unm.edu/>). University trainings that occur outside of that system (such as in-person trainings given by EHS) are not centralized and may or may not be documented. Departments, research groups or field course instructors can integrate training on safe practices into lab meetings, hands-on demonstrations, and/or field lectures, and document completion in paper or electronic format. It is highly recommended to list required training as a prerequisite in a Field Safety Plan that is reviewed and signed by all participants.

10.2. First Aid Training

First aid training is essential for working at remote field sites, as emergency medical services may be limited or delayed. At least one member of the field team must have a current First Aid certification; the minimum training required is the Red Cross First Aid Training (see list below). Wilderness first aid training is appropriate for outdoor fieldwork at remote sites, as it covers more first responder information and relevant scenarios than a typical four-hour first aid class. For trip

leaders, field scientists, or students who plan to pursue a career doing outdoor work, wilderness first aid training is highly-regarded professionally and will prepare individuals to manage a broad range of emergency situations, illnesses, and injuries.

[Red Cross - Adult First Aid/CPR/AED Online Training](#) – This Red Cross training is the minimum training required for at least one field participant. The training is offered online for \$35.

[UNM Recreational Services](#) offers a Wilderness First Aid course for students, faculty, staff and the general public. (https://recweb.unm.edu/register/#oac_list_classes)

The [International Mountain Medical Center](#) at UNM offers a Wilderness First Aid course for organized groups. (<https://hsc.unm.edu/medicine/departments/emergency-medicine/programs/prehospital-care/immc/>)

The National Outdoors Leadership School ([NOLS](#)) [offers training courses in coordination with REI](#). (<https://www.rei.com/events/a/wilderness-medicine>)

Additional options for wilderness first aid and wilderness first responder training are provided by [The Mountaineers](#) (<https://www.mountaineers.org>)

10.3. Basic Outdoor Skills

Working in the field often requires skills and knowledge of things such as reading maps, using a compass, cross-country navigation, camping, cooking over a fire or with a camp stove, field sanitation practices, and treating/purifying drinking water. Options for these types of trainings include:

- [UNM Recreational Services](#) offers classes on cooking in the back country, bicycle maintenance and wilderness first responder.
 - Rec Services also has a variety of camping equipment (tents, sleeping bags, camping stoves, backpacks, etc.) they offer for rental to UNM students, staff and faculty. Contact their [Outdoor Rental & Resource Center](#) for more information.
- The Albuquerque REI retail store offers a variety of outdoor skills workshops ([REI Classes & Events](#)).

10.4. Site- and Task-Specific Skills

In order to make accurate risk assessments in the field, you need to know the specific hazards that will be encountered, and how to control those hazards. For example, if you don't understand what causes an avalanche, you cannot accurately decide when, where and how to safely travel on steep snow. *Get the training you need for the specific tasks you will be performing in the field.* Brief participants often – at the beginning of a task and as conditions change. Consult with EHS for guidance and to establish safe work practices that include these activities:

10.4.1. Climbing or Working at Heights

Falls from height are consistently among the top causes of work-related fatalities in the U.S. Climbing trees, towers, or other structures; using ladders or lifts like “cherry pickers”; or other work at height or near edges or cliffs all warrant careful review of equipment and safe practices.

Full-body harnesses, helmets, and other safety gear must be properly fitted, diligently inspected, and properly used to avoid injuries. *Please note:* seat harnesses commonly used for sport rock-climbing with dynamic (elastic) ropes are not acceptable for working at heights due to the potential to be suspended upside down and because they are not designed to absorb shock after a fall, as full-body harnesses used in conjunction with shock absorbing fall arrest systems are designed to do. Compliant full-body harnesses have a dorsal D-ring to attach fall arrest systems and/or to be used during rescue.

EHS (via [Learning Central](#)) provides trainings such as Slips, Trips & Falls, Scaffold Safety, and Personal Fall Arrest Systems. Consult EHS to select appropriate fall protection equipment for your field work.

10.4.2. Entering Confined Spaces

A confined space is defined as a space with limited entry and egress and is not suitable for human inhabitants. Examples include caves, vaults, tunnels and mines. Hazards associated with entering confined spaces include:

- Physical hazards from unstable structural integrity, low overhead clearance, sloping floors
- Engulfment from rapid rainfall or other water source filling the confined space
- Internal configurations that may result in becoming trapped or asphyxiated
- Changes in thermal environment
- Atmospheric hazards from unsafe environmental conditions, such as lack of oxygen or presence of hydrogen sulfide gas
- Increased risk due to access limitations, unreliable communications, and isolated, often dark and rugged/uneven terrain

Some spaces that present these hazards may only be entered after obtaining a Confined Space Entry Permit, which requires specialized training, equipment and a rescue plan. Contact EHS for more information about confined spaces and consult the [EHS Confined Space Program](#). Additionally, work in currently active mines will require MSHA training, contact EHS for more information.

10.4.3. Excavating and Trenching

Trench collapses, or cave-ins, pose a very high risk to field workers in trenches. Hazards associated with excavating and trenching include:

- Physical hazards from the use of digging equipment and/or being trapped/buried in collapsing soil
- Respiratory hazards cause by disturbing soil that contains *Coccidioides* fungi (causes Valley Fever) or other contaminants
- Trips/falls if the edge is not clearly flagged and protected

Excavations five feet deep or greater require a protective system (shoring) unless the excavation is made entirely in stable rock.

10.4.4. Firearms

The improper use and/or storage of firearms poses a very high risk to field workers and everyone within the vicinity of the firearm. Hazards associated with firearms include:

- Serious injury or death from being shot
- Hearing loss or damage due to exposure to loud noise

Firearms must be stored such that only personnel who have been trained on how to use, clean and store them have access to them. When not in use, firearms should be stored in a locked case or vehicle to decrease the likelihood of theft. If your field operations include the use of firearms, ensure that the proper permits, authorizations, and trainings have been acquired in advance. Per [UNM Policy 2210](#), firearms are prohibited on the UNM campus unless a Limited Exception is obtained from the UNM Police Department.

10.4.5. Handling Wildlife/Animal Work

Handling wildlife in the field includes hazards such as contracting zoonotic and/or vector-borne diseases and the potential for being attacked and bitten/scratched. It is standard precaution to wear gloves when handling any wildlife, and additional controls are warranted for species that transmit life-threatening diseases, e.g. wearing a respirator for handling deer mice (hantavirus), or getting a rabies vaccination for handling bats. Research and procedures that involve animals requires specific training. Contact the [UNM Office of Animal Care Compliance](#) for guidance and never perform work that is not specifically approved of by the Institutional Animal Care and Use Committee (IACUC).

10.4.6. Operating Power Tools or Equipment

Prerequisites and SOPs for the use of power tools (e.g. saws, drills) and equipment (e.g. all-terrain vehicles, generators) that will be used in the field should be included in your FSP. Follow manufacturer's instructions and keep manuals accessible. Training for a variety of power tools and equipment is available on [Learning Central](#). Contact EHS for guidance on the use of power tools and equipment.

10.4.7. Use of Chemicals

All faculty, staff, and field participants who handle and/or work with chemicals for research purposes should complete Hazard Communication training, available on [Learning Central](#). This should be supplemented with training on the chemicals and procedures specific to your field operations. Guidelines and recommendations related to working with chemicals at UNM are covered in the [UNM Chemical Hygiene Plan](#).

Keep in mind that all chemical waste generated during field operations must be disposed of properly through [EHS Hazardous Waste Management](#).

10.4.8. Use of Drones (Unmanned Aircraft Systems)

The use of drones for research or educational purposes is regulated by the Federal Aviation Administration under 14 CFR Part 107 – Small Unmanned Aircraft Systems. This is the default regulation for drones weighing under 55 pounds and it is comprised of three main steps:

1. Learn the rules - [Part 107 - Small Unmanned Aircraft Systems](#)
2. Obtain FAA-Certified Drone Pilot Certificate by passing a test
3. [Register your drone with the FAA](#)

All UNM units that purchase drones should notify the Associate Director of Risk Services (risksvcs@unm.edu) upon purchase and when the drones are taken out of use. The information is submitted to the State Risk Management Division for insurance-related purposes. If using drones outside of the United States, follow all local laws and regulations.

10.4.9. Use of Radioactive Materials

Faculty, staff and field participants handling or working with radioactive materials must complete *Introduction to Radiation Safety* training on [Learning Central](#) and must consult the [UNM Radiation Safety Office](#) prior to the use of radioactive materials in the field.

11. TRANSPORTING CHEMICALS, HAZARDOUS MATERIALS/WASTE, BIOLOGICAL SPECIMENS

If precautions are taken, most chemicals, biological specimens and hazardous materials (including waste) can be safely and legally transported to and from field sites by PIs, supervisors and field instructors. Precautions include carrying a list of all materials being transported, carrying copies of SDSs for each, and transporting all materials in secondary containment or spill-proof bins. Incompatible materials (e.g. acids and bases, oxidizers and flammables) should be segregated and transported in separate spill-proof bins.

If biological specimens/samples must be transported in dry ice or liquid nitrogen, suitable containers (e.g. vented coolers, dewars) must be used and must not be transported within the enclosed cab of a vehicle, due to the risk of asphyxiation. These containers must be secured in an upright position in a truck bed or other open, well-ventilated compartment. Several commercial couriers offer shipping services for dangerous goods and cryogenic containers.

- [FedEx - Shipping Dangerous Goods](#)
- [DHL - Shipping Dangerous Goods](#)

More information on transporting chemicals can be found in section 7.6 – Off-Campus Transport of Hazardous Chemicals, of the [UNM Chemical Hygiene Plan](#). Contact EHS at 505-277-2753 for assistance and/or to request the temporary use of spill-proof bins.

12. ENVIRONMENTAL PROTECTION

12.1. Waste Management

If your field operations include the use of chemicals, hazardous materials, biological specimens/samples or radioactive materials, your operations will likely generate waste, both hazardous and non-hazardous. Your FSP should include information on the types and quantities of waste you anticipate will be generated, and how to manage those wastes.

Containers of waste that is hazardous (e.g. flammable, reactive, corrosive, toxic) must be labeled with the name of the contents and an indication of the hazards. As with hazardous waste generated on campus, hazardous waste generated in the field must be properly disposed of through EHS. Refer to section 9.0 of the [UNM Chemical Hygiene Plan](#) for more information on proper disposal of hazardous waste.

12.2. Leave No Trace and Outdoor Ethics

Many field sites are fragile and can be easily damaged by even light use. It is important to adopt field practices that minimize lasting negative impacts on the environment. The [Leave No Trace \(LNT\)](#) educational program has developed a set of principles that can be applied when working in wilderness areas and specific habitats such as rivers and deserts. Their guidelines describe how to adhere to the seven LNT principles:

1. Plan ahead and prepare
2. Travel and camp on durable surfaces
3. Dispose of waste properly
4. Leave what you find
5. Minimize campfire impacts
6. Respect wildlife
7. Be considerate of other visitors

12.3. Wildfires

Campfires are a major cause of wildfires. Do not light a fire in the field unless there are no burn restrictions for your field location. Consult the [New Mexico Fire Restrictions](#) website (within New Mexico) or the Department of Natural Resources for the U.S. state in which your field operations will take place for information on burn restrictions.

12.3.1. Safety Tips for Preventing Wildfires

- Ensure vehicles used in the field are equipped with operating spark arrestors
- Do not park vehicles in dry, grassy areas
- Know the current wildfire risk for your field site

12.3.2. Take Responsibility When Choosing to Have a Campfire

If your fire escapes, you will be responsible for paying the costs of fire suppression personnel and equipment, as mandated by the laws in most states.

- Campfires are not allowed when a burn restriction is in place
 - [Check current fire restrictions in New Mexico \(EMNRD link\)](#)
 - [Check current fire restrictions outside of New Mexico \(BLM link\)](#)
- Do not leave a smoldering campfire; drown the fire with water or smother with sand or soil
- Ensure there is a shovel, fire extinguisher, and bucket of sand or water nearby

13. EMERGENCY RESPONSE

13.1. Incident Response and Reporting

It is impossible to foresee all potential injuries, illnesses and incidents that may occur when working in an uncontrolled environment such as a field site. Having first aid skills and an emergency plan in place will help manage these situations more effectively and potentially mitigate negative consequences. After an incident has occurred and the situation is stable (e.g. medical care needs are met, spills are contained/controlled), it should be reported to EHS via the [EHS Accident, Incident & Spill Reporting webpage](#) and to UNM Risk Services via their [Reporting an Incident webpage](#).

Reporting all incidents and all near-misses is vitally important, as it affords us the opportunity to alter our work practices and improve upon less-than-ideal processes. Valuable lessons can be learned, risks can be minimized, and overall safety can be improved when we have the opportunity to analyze incidents, accidents and near-misses.

13.2. First Aid and Initial Response

This section outlines established protocols for first aid. This section is for reference purposes only and is not a replacement for maintaining current first aid certification.

13.2.1. Life-Threatening Injuries or Illness

Call 911 or seek medical care immediately. Always know your physical location (e.g. address, GPS coordinates). All field participants should be able to provide accurate directions to the field site.

13.2.2. Basic First Aid

By administering immediate care during an emergency, you can help an injured or ill person before the arrival of emergency medical services personnel. A variety of useful references can be downloaded to a smartphone, which are then accessible in areas without cell or Wi-Fi services. The following steps are adapted from the American Red Cross:

Assess the Scene

Before administering care to an injured or ill person, check the scene and the person. Answer the following questions:

- Is the scene safe to enter?
- What happened?
- How many people are involved?
- Does the person have any life-threatening injuries (e.g. severe bleeding, head injury)?
- Is anyone else available to help?

Awake and Responsive

If the person is awake and responsive and there is no severe life-threatening injuries:

- Obtain consent: Tell the person your name, type and level of training, what you think is wrong and what you plan to do, and ask permission to provide care.
- Use appropriate PPE: Put on gloves (if available)
- Interview the person: Use **SAMPLE** questions (**S**igns/symptoms, **A**llergies, **M**edications, **P**ertinent medical history, **L**ast ins/outs, **E**vents) to gather more information about events leading up to the incident.
- Conduct a head-to-toe check for injuries: Check head and neck, shoulders, chest and abdomen, hips, legs and feet, arms and hands.
- Provide care consistent with knowledge and training according to your initial assessment.

Unresponsive

Shout to get the person's attention; use the person's name if known. If no response, tap the person's shoulder and shout again, while checking for normal breathing. Check for responsiveness and breathing for no more than 5-10 seconds.

If the Person is Breathing

Call 911 or the designated emergency number and obtain an AED and first aid kit.

- Proceed with gathering information from bystanders using SAMPLE questions listed above.

- Conduct a head-to-toe check for injuries.
- Roll the person onto their side into a recovery position if there are no obvious signs of injury.

If the Person is NOT Breathing

- Call 911 and obtain an AED and first aid kit.
- Ensure the person is face-up on a firm, flat surface.
- Begin CPR (starting with chest compressions) or use an AED if immediately available
- Continue administering CPR until the person exhibits signs of life or until an AED or emergency medical personnel arrive on site.

CPR/AED Instructions

The 2017 American Heart Association Guideline Updates continue to recommend that rescuers trained in CPR administer chest compressions at a rate of 100-120 compressions per minute and rescue breaths at a ratio of 30:2 (compressions:breaths) for adults and adolescents in cardiac arrest. If a second rescuer can assist, a ratio of 15:2 should be followed.

13.2.3. Common First Aid Practices

A summary of first aid practices for common types of injuries is provided in the table below.

Table 3 – Common First Aid Practices

Type of Injury	First Aid Practices
Bleeding	Put on gloves. Cover wound with a bandage/dressing and apply pressure. Elevate the wound above heart level if possible. Apply additional bandages and pressure as needed.
Burn	Submerge burned area in cool water. Cover burn with bandage.
Frostbite	Get to a warm room or shelter ASAP. Immerse affected area in warm (not hot) water or warm the affected area using body heat. Warm the affected area slowly. Do not rub or massage affected area.
Heat Illness	Move to a cool, sheltered place. Hydrate with cool liquids. Call 911 if no improvement.
Hypothermia	Move to a warm room or shelter and remove any wet clothing. Warm from the core – chest, neck, head and groin – under loose, dry layers of material. Hydrate with warm liquids. If victim has no pulse, administer CPR.
Muscle, bone, joint injuries	Rest/immobilize the injured part. Apply ice pack. Seek medical attention.
Poisoning	Call Poison Control Center (800-222-1222)
Shock	Keep victim from getting too hot or cold. Elevate the legs about 12 inches if broken bones are not suspected.

13.2.4. Anaphylaxis

Anaphylaxis is a serious, life-threatening allergic reaction typically caused by foods, insect stings or medications. Symptoms may develop immediately or slowly, over several hours. Anaphylaxis requires immediate medical treatment, often including a prompt injection of epinephrine. If not treated properly, anaphylaxis can be fatal. Signs and symptoms of anaphylaxis may include:

- Rash, hives, welts that are usually itchy
- Swollen throat and/or tongue
- Wheezing/coughing and/or difficulty breathing
- Tightness in chest
- Difficulty swallowing
- Vomiting
- Diarrhea
- Stomach cramping
- Pale or red color in face or body
- Feeling of impending doom

Anaphylaxis First Aid

1. Call 911
2. Remove the victim from further exposure to the allergen, if possible
3. If the victim can speak and swallow, administer oral antihistamines (25-50 milligrams of diphenhydramine hydrochloride/"Benadryl®" every 4-6 hours) and continue until emergency medical personnel arrive
4. If the victim cannot speak or swallow (due to swollen lips, tongue, face), administer epinephrine via auto-injector/"epi-pen"
 - a. Once the victim can swallow, administer oral Benadryl® to prevent the airway from reclosing
5. If severe allergic reaction continues, administer second dose of epinephrine via auto-injector
6. Evacuate to seek emergency medical care immediately (if emergency medical personnel are not reached)

How to Use an Auto-Injector/Epi-Pen

1. Ensure thumbs, fingers and hands are not covering the tip of the auto-injector
2. Wear gloves
3. Inform the victim of your actions and obtain consent. If unresponsive, implied consent is acceptable in all life-threatening situations
4. Form a fist around the auto-injector

5. With the opposite hand, remove the safety caps
6. Jab the auto-injector firmly into the victim's outer thigh, so that the injector is perpendicular to the thigh
7. Hold the auto-injector firmly in the thigh for 10 seconds to allow the medication to disperse
8. Remove the auto-injector, then massage the injection area for several seconds
9. Store the used auto-injector in its carrying case
10. Continuously monitor the victim while seeking emergency medical care
11. As needed, a second dose of epinephrine may be administered 15 minutes after the initial dose

13.3. First Aid for Common Physical and Environmental Hazards

All field participants should be familiar with the physical and environmental hazards of the field site. The table below provides information on these hazards and how to treat and prevent them.

Table 4 – Common Physical and Environmental Hazards

Hazard	Cause	Symptoms	First Aid	Prevention
Carbon monoxide poisoning	Inhalation of fumes from combustion	Severe headache, disorientation, lethargy, coma	Bring victim to fresh/outdoor air, perform CPR if needed	Keep work and sleep areas well-ventilated; ensure vehicle exhaust does not enter area
Dehydration	Insufficient water intake	Dark urine, constipation, lethargy	Drink plenty of fluids	Drink plenty of fluids (2 quarts water/day, minimum)
Drowning	Inhalation of water leading to respiratory impairment	Apnea (suspension of breathing), death	Administer CPR, call 911	Wear personal floatation device when on water
Extreme weather	Blizzards, lightening, tornadoes, hurricanes, floods		Seek shelter	Stay indoors during extreme weather or bring appropriate equipment to protect from extreme weather in field
Hazardous terrain	Walking, hiking, climbing in steep, uneven, unstable areas	Physical injury or death	Perform CPR and/or seek medical attention if needed	Wear appropriate shoes/clothing; do not overload backpack; carry ropes/rappelling equipment when climbing/descending steep terrain

Hunting season		Injury or death	Seek medical attention	Wear high-visibility clothing
Impure water	Harmful organisms and pathogens	Gastrointestinal distress, flu-like symptoms	Hydrate with clean water; seek medical attention if symptoms persist	Carry clean water; treat (with tablets, purifiers or boiling) unclear/unknown water prior to drinking
Poisonous plants	Exposure to poison ivy, oak and sumac	Rash, itchy skin	Apply a wet compress with baking soda or vinegar or use a topical ointment; avoid scratching	Be aware of how to identify poisonous plants at field site; wash with soap and water after exposure

End of Main Document

Attachments Follow

TABLE 1

Diseases

Table 1 – Diseases

Location: WORLDWIDE					
Type	Prevalent In	Exposure Route	Symptoms	First Aid	Prevention
Food-borne: <i>Campylobacter</i>		Poultry, cattle, pig, sheep products; unpasteurized milk; contaminated water or ice	Fever, diarrhea, nausea, vomiting, abdominal pain; gastrointestinal symptoms	Drink plenty of fluids. Seek medical attention if symptoms persist for more than 3 days.	Cook food thoroughly. Do not drink impure water.
Food-borne: Cholera (<i>Vibrio cholerae</i>)	Africa, Asia, Latin America	Contaminated food and water	Diarrhea, vomiting; gastrointestinal symptoms	Drink plenty of fluids. Seek medical attention if symptoms persist for more than 3 days.	Cook food thoroughly. Do not drink impure water.
Food-borne: <i>E. coli</i>		Beef, unpasteurized milk, unwashed raw vegetables, contaminated water	Diarrhea, abdominal pain, cramps; gastrointestinal symptoms	Drink plenty of fluids. Seek medical attention if symptoms persist for more than 3 days.	Cook food thoroughly. Wash vegetables. Do not drink impure water.
Food-borne: Hepatitis A	Under-developed countries	Contaminated water, shellfish, unwashed raw vegetables	Fever, diarrhea, abdominal cramps; gastrointestinal symptoms	Drink plenty of fluids. Seek medical attention if symptoms persist for longer than 3 days.	Obtain vaccine. Consult your doctor at least 1 month prior to departure. Always cook food thoroughly.
Food-borne: <i>Salmonella</i>		Beef, poultry, milk, eggs, unwashed raw vegetables	Fever, diarrhea, abdominal cramps; gastrointestinal symptoms	Drink plenty of fluids. Seek medical attention if symptoms persist for longer than 3 days.	Cook food thoroughly. Wash vegetables.
Food-borne: Typhoid Fever (<i>Salmonella typhi</i>)	East and Southeast Asia, Africa, Caribbean, Central and South America	Contaminated food and water	Fever, cough, diarrhea or constipation, abdominal pain; gastrointestinal symptoms	Drink plenty of fluids. Seek medical attention if symptoms persist longer than 3 days.	Obtain vaccine. Consult your doctor at least 1 month prior to departure. Cook food thoroughly. Do not drink impure water.
Bacterial: Tetanus (<i>Clostridium tetani</i>)		Via open wound	Stiffness and painful muscle contractions	Seek medical attention if you suspect tetanus	Obtain tetanus booster every 10 years.
Fungal: Histoplasmosis (<i>Histoplasma capsulatum</i>)	Mississippi & Ohio River Valleys	Inhalation of fungus from soil or dust contaminated with bat or bird droppings	Mild flu-like symptoms; occasionally can turn into acute pulmonary histoplasmosis	Seek medical attention if you suspect histoplasmosis. Typically clears up in 3 weeks.	Use caution when disturbing dust or dry soils in areas with bat or bird droppings. Keep surfaces wet to reduce dust. Wear dust mask.
Arthropod-borne: Lyme Disease (<i>Borrelia burgdorferi</i>)	United States, Europe, and Asia	Bite of an infected tick	Rash that spreads; flu-like symptoms early on, followed by arthritis and neurological symptoms	Seek medical attention if you suspect Lyme Disease.	Avoid tick-infested areas. Wear long pants and sleeves. Apply repellent. Check clothing and hair at end of day.
Arthropod-borne: Typhus Fever (<i>Rickettsia</i> species)		Bite of infected lice, fleas, ticks and mites	Headache, fever, rash	Seek medical attention if you suspect Typhus	Apply repellents. Wear long pants and sleeves. Tuck pants into boots.

				Fever. Treatable with antibiotics.	
Arthropod-borne: Zika virus	Central and South America, Southeast Asia, Southern United States	Bite of infected mosquito; can be transmitted through sexual contact with an infected person	None to mild symptoms such as rash, fever, joint pain, red eyes. NOTE: Zika virus is linked to severe birth defects	Seek medical attention if you suspect Zika virus.	Apply repellents. Wear long pants and sleeves. Treat clothes with permethrin. Avoid areas of standing water. Pregnant women: Do not travel to Zika-affected areas; do not have unprotected sex with a partner returning from Zika-affected area.
Arthropod-borne: Chikungunya virus	Africa, Asia, Europe, Indian and Pacific Oceans	Bite of infected mosquito	Fever, joint pain/swelling, headache, muscle pain, rash	Treat symptoms accordingly.	Apply repellents. Wear long pants and sleeves. Treat clothes with permethrin. Avoid areas of standing water.
Arthropod-borne: Leishmaniasis (<i>Leishmania</i>)	Tropics, subtropics, southern Europe	Bite of infected sand flies	Some may develop one or more sores on skin that progress to painless ulcers. Swollen lymph glands. Occasionally fever, weight loss, enlarged spleen and liver.	Seek medical attention if you suspect leishmaniasis.	Apply repellents. Wear long pants and sleeves.
Arthropod-borne: Lymphatic filariasis or Elephantitis (<i>Filarioididea</i>)	Tropics and subtropics of Asia, Africa, Western Pacific and parts of Caribbean and South America	Bite of an infected mosquito	Most do not have symptoms. Local pain and swelling, fever, chills; inflammation of lymphatic system leads to lymphedema and elephantitis.	Seek medical attention if you suspect elephantitis.	Apply repellents. Wear long pants and sleeves. Use a mosquito net.
Zoonotic: Plague (<i>Yersinia pestis</i>)		Bite of an infected flea	Flu-like symptoms; swollen lymph nodes	Seek medical attention if you suspect plague.	Use caution when working with wild rodents.
Zoonotic: Rabies (<i>Rabies lyssavirus</i>)		Bite of an infected animal	Spasms, paralysis, fear of water; fatal without immediate treatment.	Seek medical attention IMMEDIATELY if bitten by a rabies-carrying species (bats, skunks, carnivores).	Obtain the vaccine series if working with bats or other carnivores. Use extreme caution when handling these animals.
Zoonotic: Leptospirosis (<i>Leptospira</i>)		Ingestion, swimming in or contact with water contaminated with <i>Leptospira</i> bacteria	Flu-like symptoms	Seek medical attention if you suspect leptospirosis.	Use care when working in water, especially after a flooding event; avoid entering the water with open wounds.
Location: North, Central, and South America					
Fungal: Valley Fever (<i>Coccidioidomycosis</i>)	Arid regions of N. and S. America	Inhalation of <i>Coccidioides</i> fungus in disturbed soil	Flu-like symptoms; occasionally	Seek medical attention if you	Use caution when working in soil and dust; use wet

			progresses to severe lung disease	suspect Valley Fever	method to reduce dust.
Arthropod-borne: Viral Encephalitis (St. Louis Encephalitis, West Nile Virus)	N. and S. America	Bite of an infected mosquito	Mild: fever and headache Severe: headache, high fever, neck stiffness, stupor, disorientation, tremors, convulsions, muscle weakness, paralysis, coma, occasionally death	Seek medical attention if you suspect encephalitis	Apply repellents. Wear long pants and sleeves. Avoid standing water.
Arthropod-borne: Rocky Mountain Spotted Fever (<i>Rickettsia rickettsia</i>)	United States, southern Canada, Mexico, Central America	Bite of an infected tick	Sudden onset fever, headache, muscle pain, spotty rash	Seek medical attention if you suspect Rocky Mountain Spotted Fever	Avoid tick-infested areas. Wear long pants and sleeves. Apply repellent. Check clothing and hair at end of day.
Zoonotic: Hantavirus Pulmonary Syndrome (HPS), Sin Nombre Virus	N. and S. America	Inhalation of dusts and aerosols from infected rodent's feces, urine, saliva Vector: deer mouse (<i>Peromyscus maniculatus</i>)	1-5 weeks: fatigue, fever, muscle aches, headaches, dizziness, chills, abdominal pain 4-10 days after initial symptoms: coughing, shortness of breath	Seek medical attention IMMEDIATELY if you suspect HPS. Survival rate increases greatly with early diagnosis and treatment.	Avoid contact with rodents, especially their droppings.
Zoonotic: White Water Arroyo (WWA) (<i>mammarenavirus</i>)	N. America	Inhalation of dusts and aerosols from infected rodent's feces, urine, saliva Vector: woodrats (<i>Neotoma</i> species)	Fever, headache, muscle aches, occasionally severe respiratory distress	Seek medical attention IMMEDIATELY if you suspect WWA. Survival rate increases greatly with early diagnosis and treatment.	Avoid contact with rodents, especially their droppings.
Vector-borne: Chagas Disease or American Trypanosomiasis (<i>Trypanosoma cruzi</i>)	Mexico, C. America, S. America	Contact with the feces of an infected triatomine bug ("kissing bug" or conenose bug)	Acute phase: fever, fatigue, body aches, headache, rash, diarrhea, vomiting, eyelid swelling, enlargement of spleen or liver. Chronic phase: cardiac and gastrointestinal complications	Seek medical attention if you suspect Chagas disease.	Avoid contact with triatomine bugs.
Location: Outside of North America					
Arthropod-borne: Dengue Fever	Africa, Southeast Asia and China, India, the Middle East, South and Central America, Australia and the Pacific Islands	Bite of an infected mosquito	Flu-like symptoms, rash. Takes up to 1 month to recover.	Seek medical attention if you suspect Dengue Fever.	Apply repellents. Wear long pants and sleeves. Use a mosquito net.
Arthropod-borne: Yellow Fever	S. America and Africa	Bite of an infected mosquito	Flu-like symptoms, jaundice. Can be fatal.	Seek medical attention if you suspect Yellow Fever.	Obtain vaccine at least 10 days prior to travel. Apply repellents. Wear long pants and sleeves. Use mosquito net.

Arthropod-borne: Malaria	Central and South America, Hispaniola, Africa, India, Southeast Asia, the Middle East, and Oceania	Bite of an infected mosquito	Flu-like symptoms, anemia, jaundice. May take up to 30 days for symptoms to appear. Can be fatal.	Seek medical attention if you suspect Malaria.	Obtain anti-malarial drugs 4-6 weeks prior to travel. Apply repellents. Wear long pants and sleeves. Use mosquito net.
Arthropod-borne: Schistosomiasis	Brazil, Egypt, sub-Saharan Africa, southern China, Philippines, Southeast Asia	Swimming in contaminated fresh water	Can be asymptomatic. Acute (2-3 weeks): fever, loss of appetite, weight loss, abdominal pain, weakness, headaches, joint and muscle pain, diarrhea, nausea, cough Chronic: disease in lungs, liver, intestines or bladder	Seek medical attention if you suspect schistosomiasis.	Avoid wading or swimming in fresh water in endemic regions. Heat bath water to over 122°F/50°C for at least 5 minutes.
Arthropod-borne: Onchocerciasis or River Blindness (<i>Onchocerca volvulus</i>)	Africa, Yemen, Latin America	Bite of a blackfly (<i>Simulium</i> species) infected with worm's larvae	Can be asymptomatic. Itchy skin, rashes, nodules under skin, swollen lymph glands. Occasionally vision changes including blindness.	Seek medical attention if you suspect River Blindness.	Apply repellent. Wear long pants and sleeves.
Zoonotic: Ebola virus	Primarily Africa, but could spread to other areas.	Direct contact (vial broken skin or mucous membranes) with blood or bodily fluids of person infected with Ebola or person who has died from Ebola, including objects contaminated with their blood or bodily fluids. Fruit bats and primates may also carry Ebola.	Fever, severe headache, muscle pain, weakness, fatigue, diarrhea, vomiting, abdominal pain, unexplained bleeding or bruising. Symptoms may occur 2-21 days after exposure. Fatal in about 50% of cases.	Seek medical attention IMMEDIATELY. Early treatment greatly increases the survival rate.	Avoid contact with persons sick with Ebola. Avoid travel to areas with outbreaks. Staff caring for Ebola patients must follow prevention advice from WHO and CDC.
Vector-borne: Japanese Encephalitis (flaviviruses)	Asia	Bite of an infected mosquito of the <i>Culex</i> species.	Usually mild: fever, headache. Severe disease characterized by rapid onset of high fever, headache, neck stiffness, disorientation, seizures, paralysis, coma. Can be fatal.	Seek medical attention if you suspect Japanese Encephalitis.	Obtain vaccine at least 1 month prior to travel. Wear long pants and sleeves. Apply repellents. Use mosquito net.
Vector-borne: African Sleeping Sickness or African Trypanosomiasis (<i>Trypanosoma brucei</i>)	Sub-Saharan Africa	Bite of an infected Tsetse fly (<i>Glossina</i> genus)	First stage: fever, headache, malaise, fatigue, itchiness, joint pain, swollen glands. Second stage: neuropsychiatric manifestations – sleep/wake cycle reversed,	Seek medical attention if you suspect African Sleeping Sickness.	Tsetse flies are attracted to bright or dark colors and can bite through lightweight material. Wear long pants and sleeves made of mid- to heavy-weight material in

			hallucinations, delirium, anxiety, motor weakness, gait disturbance, speech disturbance, tremors, sensory disturbances including visual problems, seizures, coma.		neutral colors that blend into environment. Apply repellent.
Vector-borne: Tick-borne Encephalitis	Russia, some areas of Europe and Asia	Transmitted from tick eggs, larvae and adults	7-14 day incubation period. Common symptoms include fever, malaise, anorexia, muscle aches, headache, nausea, vomiting. After 8 days of remission, may experience onset of central nervous system symptoms of meningitis (e.g., fever, headache, and a stiff neck), encephalitis (e.g., drowsiness, confusion, sensory disturbances, and/or motor abnormalities such as paralysis or meningoencephalitis.	Seek medical attention if you suspect tick-borne encephalitis.	Apply repellent. Wear long pants and sleeves. A vaccine is available in some areas where disease is endemic.

TABLE 2

Animals and Pests

Table 2 – Animals and Pests

Location: Worldwide					
Type	Prevalent In	Most Dangerous	Defensive Action	First Aid	Prevention
Dogs and cats (feral and domesticated)	Worldwide	All	Avoid or move away if displaying aggressive behavior	Seek medical attention for serious wounds.	Avoid dogs and cats. Store food in sealed containers.
Conenose Bugs (<i>Triatominae</i>)	N. and S. America	All	Avoid	Topical ointments for itching; hospitalization in case of anaphylactic shock	Use caution when working near animal nests and rock shelters.
Crocodiles and Alligators	Tropics and subtropics of North America, Australia, Eastern China, and Africa	American alligator (N. America), Estuarine crocodile (Australia), Nile crocodile (Africa)	Avoid	Seek medical attention for serious wounds.	Avoid waters known to harbor crocodilians.
Mosquitoes	Wet areas, standing water	Refer to Table 1		Topical ointments for itching	Apply repellent. Avoid standing water. Use mosquito net.
Rodents	Worldwide	May carry disease; refer to Table 1		Clean wounds thoroughly if bitten or scratched.	Store food in sealed containers. Keep work area clean.
Sharks	Shores of oceans and seas	Great White, Tiger, Bull, White-Tip	Punch or kick if necessary.	Seek medical attention for serious wounds.	Do not swim alone. Do not enter water when bleeding.
Venomous fish and invertebrates	Worldwide	Blue-Ringed Octopus, Box Jellyfish, Portuguese Man o' War, Irukandji Jellyfish, Stonefish	Never touch an unidentified octopus or jelly fish. Avoid stepping on stingrays.	<u>Jellyfish/ Octopus sting:</u> Use vinegar to deactivate nematocysts. Seek medical attention immediately. <u>Stonefish sting:</u> Rinse/soak in hot water (45° C or 113° F); seek medical attention. <u>Blue-ringed octopus sting:</u> Provide basic life support and first aid. Use the Pressure Immobilization Technique if trained. Monitor vitals and be prepared to initiate CPR. Seek medical attention IMMEDIATELY.	

				<u>Stingray sting:</u> If spine breaks off in wound, leave it in, treat bleeding and seek medical attention immediately. If no spine or fragments of spine remain, remove spine fragments and pressure to stop bleeding. Soak wound in hot water or apply heat pack. Seek emergency medical attention.	
Bears	All North America	Black bear (N. America), Grizzly bear (Alaska, W. Canada, Pacific NW), Polar bear (Arctic)	Carry bear spray. Do not run. Move slowly and speak in a low soft voice. If attacked by a grizzly bear, lay in the fetal position and protect head. Play dead. Punch a black bear in the face if it attacks you.	Seek medical attention for serious injuries or wounds.	Keep food out of sleeping areas. Never approach a bear or bear cub. Wear a bell or other noisemaker that alerts bears to your presence.
Bees, Wasps	All North America	Bees, wasps, hornets, Africanized bees	Avoid contact. Carry an epi-pen if allergic.	Place an icepack on sting site. Use an antihistamine if needed.	Keep scented foods and meats covered.
Elk, Moose, Mountain goats	All North America		Do not disturb, corner or provoke.	Seek medical attention for serious wounds.	Keep camp area free of food waste.
Mountain Lions	Most of North America	All	DO NOT RUN. Fight back. Protect your neck and head. Don't play dead.	Seek medical attention for serious wounds.	Carry pepper spray. Throw rocks or sticks. Use loud voice. Make yourself look as large as possible.
Scorpions	All North America	All	Avoid contact	Clean wound and place icepack on area. Use antihistamine if needed. Seek medical attention if no sign of improvement.	Shake out bedding and clothing before use. Check shoes. Avoid lumber piles and old tree stumps.
Snakes	All North America	Rattlesnakes, Moccasins, Corals, Copperheads	Do not pick up snakes.	Let the wound bleed freely. Apply cold pack. Seek medical attention ASAP.	Wear heavy boots. Walk in open areas. Use a stick to disturb tall grass or brush ahead of your step.

Spiders	All North America	Black Widow, Brown Recluse	Do not pick up spiders.	Place ice on wound. Seek medical attention if reaction occurs.	Use care around rock piles, logs, bark, old buildings. Shake out clothing and bedding before use.
Location: Outside North America					
Bears	Arctic, South America, Asia	Polar bears (Greenland, N. Russia), Spectacled bears (S. America), Asiatic black bears (Asia)	Never run. Move slowly and speak in a low soft voice. If attacked, lay in fetal position and protect head. Play dead.	Seek medical attention for serious wounds.	Keep camp area clean. Store food away from sleeping area.
Large Cats	Africa, Asia	Lions, Bengal and Siberian tigers, leopards, jaguars	Do not provoke.	Seek medical attention for serious wounds.	Stay inside vehicle if traveling near large cats. Do not camp in areas frequented by large cats.
Other Large Land Dwellers	Africa, Asia	Hippos, elephants, rhinos, buffalo	Do not provoke.	Seek medical attention for serious wounds.	Stay inside vehicle if traveling near large animals. Do not camp in areas frequented by large animals. Keep a lookout in open spaces.

ATTACHMENT 1

Field Risk Assessment Tool

FIELD RISK ASSESSMENT TOOL (Field RAT)

This tool provides a format for researchers to systematically identify, evaluate, and control hazards, for the purpose of reducing the risk of injuries, illness, and incidents while conducting field work. A risk assessment must be conducted prior to conducting field work for the first time.

The risk assessment process involves rating the risk of field work from “low” to “unacceptable”. Consult with your PI/supervisor and EHS if your risk rating is “high” or “unacceptable” to redesign the work and/or implement additional controls to reduce risk.

Field Project/Activity:	
Site/Location:	
PI/Lab Group:	
Supervisor:	
Department:	Start Date:
Form Completed By:	On (Date):

PHASE 1: EXPLORE

Identify your research question and your approach. What question are you trying to answer? Where will you conduct your research? What are you trying to measure or learn? What is your hypothesis? What approach or method will you use to answer your question? Are there alternative approaches?

Research Question(s)

Approach or Method

Identify the field/physical hazards: For each task, identify all of the hazards and consequences that could occur. Think about the inherent hazards of the field environment, material, equipment or activity; what could go wrong (failures and/or modes of failure); what is the worst-case scenario.

Field and Physical Hazards

- | | |
|--|---|
| <input type="checkbox"/> Ladder work - severe injury, fatal fall | <input type="checkbox"/> Repetitive tasks - Musculoskeletal Disorder (MSD) injury |
| <input type="checkbox"/> Poor housekeeping – congestion; slip, trip, or fall; injuries | <input type="checkbox"/> Strain from lifting, pushing, or pulling - MSD injury |
| <input type="checkbox"/> Machinery – moving parts; amputation, strangulation | <input type="checkbox"/> Working in awkward position - MSD injury |
| <input type="checkbox"/> Flammable Liquids – vapors; fire/explosion | <input type="checkbox"/> Lighting problem - seizures, headache |
| <input type="checkbox"/> Hazardous materials - uncontrolled spill/release | <input type="checkbox"/> Falling object – struck by; injury |
| <input type="checkbox"/> Hazardous materials transportation | <input type="checkbox"/> Radiation - exposure |
| <input type="checkbox"/> Noise - hearing loss | <input type="checkbox"/> Weather conditions that could affect safety |
| <input type="checkbox"/> Electricity - shock and/or arc flash | <input type="checkbox"/> Thermal – cold/heat - burn, dehydration |
| <input type="checkbox"/> Dusts, fumes, mists, or vapors in air - inhalation | <input type="checkbox"/> Other (specify): |
| <input type="checkbox"/> Oxygen displacement - asphyxiation | |
| <input type="checkbox"/> Confined space - hazardous atmosphere; engulfment; fatality | |
| <input type="checkbox"/> Portable tools – projectiles; eye injury | |
| <input type="checkbox"/> Contact with hot, toxic, or caustic chemical/product - burn, injury | |
| <input type="checkbox"/> Biological exposure - infection | |

Identify the experimental hazards: Perform background research to identify known risks of the reagents, reactions, or processes. Review SOPs, SDSs, and other available safety information for hazardous chemicals, agents, or processes. Review accident histories within your laboratory/department and at outside laboratories/departments that perform similar field work.

Hazardous Agents

**Physical Hazards of
Chemicals**

- ☐ Compressed gases
- ☐ Corrosives
- ☐ Cryogenics
- ☐ Explosives
- ☐ Flammables
- ☐ Organic peroxides
- ☐ Oxidizers
- ☐ Peroxide formers
- ☐ Pyrophorics
- ☐ Self-heating substances
- ☐ Self-reactive substances
- ☐ Substances which, in contact with water, emit flammable or toxic gases

**Health Hazards of
Chemicals**

- ☐ Acute toxicity
- ☐ Carcinogens
- ☐ Eye damage/irritation
- ☐ Germ cell mutagens
- ☐ Nanomaterials
- ☐ Reproductive toxins
- ☐ Respiratory or skin sensitization
- ☐ Simple asphyxiant
- ☐ Skin corrosion/irritation
- ☐ Specific target organ toxicity
- ☐ Hazards not otherwise classified

Ionizing Radiation

- ☐ Irradiator
- ☐ Radionuclide
- ☐ Radionuclide sealed source
- ☐ X-ray machine

Non-Ionizing Radiation

- ☐ Lasers, Class 3 or 4
- ☐ Lasers, Class 2
- ☐ Magnetic fields (e.g., NMR, MRI)
- ☐ RF/microwaves
- ☐ UV lamps

Biohazards

- ☐ BSL-2 biological agents
- ☐ BSL-3 biological agents
- ☐ Human cells/blood/BBP
- ☐ NHPs/cells/blood
- ☐ Non-exempt rDNA
- ☐ Animal work
- ☐ High risk animals
- ☐ Other (list):

Hazardous Conditions or Processes

Reaction Hazards

- ☐ Explosive
- ☐ Exothermic, with potential for fire, excessive heat, or runaway reaction
- ☐ Endothermic, with potential for freezing solvents decreased solubility or heterogeneous mixtures
- ☐ Gases produced
- ☐ Hazardous reaction intermediates/products
- ☐ Hazardous side reactions

Hazardous Processes

- ☐ Generation of air contaminants (gases, aerosols, or particulates)
- ☐ Heating chemicals
- ☐ Large mass or volume
- ☐ Pressure > atmospheric
- ☐ Pressure < atmospheric
- ☐ Scale-up of reaction

Physical/Other Hazards

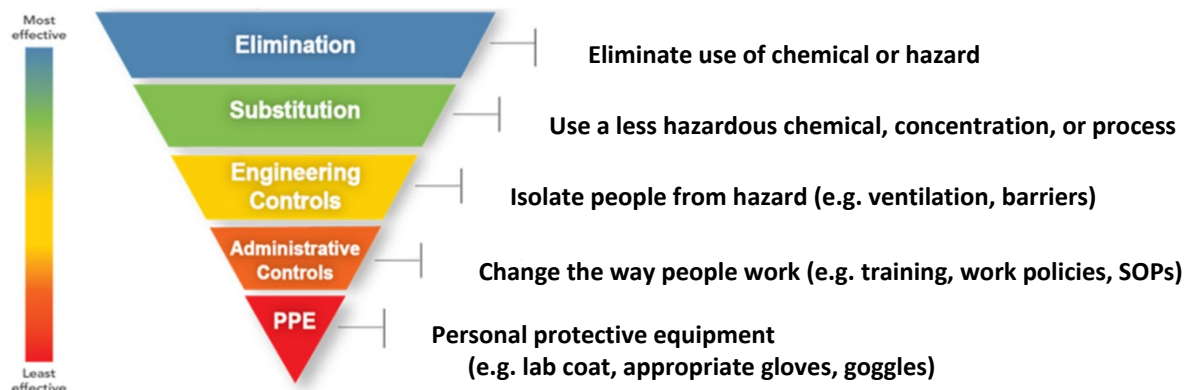
- ☐ Hand/power tools
- ☐ ATVs
- ☐ Slip/trip/fall
- ☐ Noise > 80 dBA
- ☐ Heat/cold illness/injury
- ☐ Animal handling
- ☐ Needles/sharps
- ☐ Other (list):

PHASE 2: PLAN

Outline the Procedure: List the steps or tasks of your field procedures and the hazard/potential consequences of each. Include set-up and clean-up steps or tasks. Define the hazard controls to minimize the risk of each step using the hierarchy of controls starting with the most effective (i.e., elimination, substitution, engineering controls, administrative controls, and personal protective equipment). List the hazard control measure you would use for each step or task (e.g., perform only during daylight hours, bring fire extinguisher, wear gloves).

Steps or Tasks	Hazard / Consequence	Hazard Control Measure(s)
1		
2		
3		
4		
5		
Add more tasks/steps as needed	•	•

HIERARCHY OF CONTROLS



Use the hierarchy of controls to determine the appropriate hazard controls and PPE/safety supplies for your field work.

Field Controls/Safeguards

Engineering

- ☐ Secondary containment (berms, vaults)
- ☐ Install guards on machine moving parts
- ☐ Use scaffold or lift instead of ladder
- ☐ Ventilate the area
- ☐ Detection and alarm systems (interlocks and notification)
- ☐ Use platform ladder instead of regular step ladder
- ☐ Guardrails (permanent or temporary)
- ☐ Pressure relief
- ☐ Isolate the area (barriers)
- ☐ Insulate noisy equipment
- ☐ Waste/Hazardous materials disposal method(s)
- ☐ Fire protection - sprinklers and alarm, field procedures
- ☐ Fire extinguisher
- ☐ Other (specify):

Safe Work Practices and Administrative

- ☐ Field RATs
- ☐ Field Safety Plan
- ☐ Safe work practices
- ☐ Chemical Transportation
- ☐ SDSs
- ☐ Chemical and Process Standard Operating Procedures (SOP)
- ☐ Work permits (LOTO, CSE)
- ☐ Use tool lanyards at heights
- ☐ Reduce exposure time
- ☐ Training
- ☐ Field Communication System
- ☐ Emergency Response Team
- ☐ Emergency Contact Information
- ☐ Exposure Control Plan
- ☐ Other (specify):

Field PPE/Safety Supplies: Conduct PPE Hazard Assessment

- | | |
|--|---|
| <input type="checkbox"/> Appropriate clothing
(long pants and sleeves, closed-toe shoes or boots, hats)
<input type="checkbox"/> Gloves; indicate type:
<hr/> <input type="checkbox"/> Safety glasses
<input type="checkbox"/> Safety goggles
<input type="checkbox"/> Face shield and goggles
<input type="checkbox"/> Lab coat/Tyvek suit
<input type="checkbox"/> Respiratory protection
<input type="checkbox"/> Personal fall protection equipment
<input type="checkbox"/> Hearing protection
<input type="checkbox"/> Hardhat | <input type="checkbox"/> Impact/radiation shielding
<input type="checkbox"/> Flame-resistant lab coat
<input type="checkbox"/> Fire extinguisher
<input type="checkbox"/> Portable eyewash/safety shower
<input type="checkbox"/> First aid kit
<input type="checkbox"/> Spill kit
<input type="checkbox"/> Specialized medical supplies (e.g. calcium gluconate for hydrofluoric acid and amyl nitrite for cyanides)
<input type="checkbox"/> Other (list): |
|--|---|

Identify the appropriate training: Identify the general safety and procedure based/specific training appropriate for your procedure.

General Safety Training

General/Chemical Safety

- ☐ Laboratory Safety
- ☐ Hazardous Waste Mgmt
- ☐ Compressed Gas Safety
- ☐ Hydrofluoric Acid Safety
- ☐ Formaldehyde Safety

Biosafety

- ☐ Biosafety Training
- ☐ Bloodborne Pathogens

Radiation Safety

- ☐ Radiation Safety
- ☐ Laser Safety

Field Safety

- ☐ Equipment Safety
- ☐ First Aid & CPR
- ☐ SCUBA certification/diving safety
- ☐ Driving safety
- ☐ Boating safety
- ☐ Other (list):

Job-Specific Training

- | | |
|--|---|
| <input type="checkbox"/> Lab/job-specific training
<input type="checkbox"/> Review of Field Safety Plan
<input type="checkbox"/> Chemical and process SOP(s) to review (list): | <input type="checkbox"/> Emergency plans or field evacuation plans
<input type="checkbox"/> Equipment SOP(s) to review (list): |
|--|---|

PHASE 3: CHALLENGE

Question your methods. What have you missed and who can advise you? Challenge your hazard control measures by asking “What if...?” questions. “What if” questions should challenge you to find the gaps in your knowledge or logic. Include possible accident and field-specific scenarios. Factors to consider are human error, weather considerations, equipment failures, and deviations from the planned/expected parameters (e.g., temperature, pressure, time, flow rate, and scale/concentration). Update your plan to include any new controls required to address these possibilities.

[illegible]

Assign a risk rating to the experiment: Based on your procedure outline and the “what if?” analysis, determine the risk rating for the experiment or procedure.

Risk Rating:

1The Risk Rating is subjective. The primary goal is for researchers to think about risk, and differentiate unacceptable and high-level risk steps from those with a lower level risk. This will help drive additional consultation and control measures where needed.

	Severity of Consequences – Personnel Safety				
Likelihood of Incident Occurrence		No injuries	Minor Injury	Significant Injury	Life threatening
	Very Likely	Low	High *	Unacceptable **	Unacceptable **
	Likely	Low	Medium	High *	Unacceptable **
	Possible	Low	Medium	High *	High *
	Rare	Low	Low	Medium	High *

Revise plan if the risk rating is too high. Are these risks acceptable? Use this table to determine the action to take based on the risk rating. What are the highest risk steps? What more can you do to control the risks? Return to planning and use the hierarchy of controls to design a safer experiment.

PI/Supervisor Approval:

Hazard Risk Level	Action
Unacceptable **	STOP! Additional controls needed to reduce risk. Consult with PI.
High *	Additional controls recommended to reduce risk. Consult with PI.
Medium	Ensure you are following best practices. Consult with peers, PI, and EH&S as needed.
Low	Perform work within controls

*Signature for **High** risk ratings. If needed, contact EHS (505-277-2753) for recommendations.

NOTE: **Unacceptable risk-rated experiments **should not proceed**. Introduce further controls to reduce risk. Contact EHS (505-277-2753) for recommendations and best practices.

PHASE 4: ASSESS

Perform a trial run: How can you test your experimental design? Can you simulate the field environment? Can you conduct a dry run of the procedure without hazardous chemicals/reagents/gases to familiarize yourself with equipment and demonstrate your ability to operate field equipment and/or manipulate the experimental apparatus? Can you run the procedure with a less hazardous material? If your procedure requires multiple people, would a table top exercise be useful?

Trial Run
Trial Run Procedure/Date:
Did the trial go as expected? Yes <input type="checkbox"/> No <input type="checkbox"/>
Experimental design changes needed (if any):

Perform and evaluate: Run your procedure using the appropriate controls you've identified. Evaluate controls and hazards as you work. Critique the controls and process you used by answering the questions in the section below. If changes to controls are needed, update your risk assessment tool and re-evaluate any time you revise your process (e.g. changes in scale, reagent, equipment, or field conditions that might increase the hazard/risk). Share your assessment with your PI/colleagues for the next iteration of the experiment.

Evaluate Your Procedure
What went well?
Did the controls perform as expected?
Did anything unexpected occur?
Did a hazard manifest itself that was not previously identified?
Were there any close-calls or near-misses that indicate areas of needed improvement?
Did something go exceptionally well that others could learn from?
I plan to evolve my procedure by...

Procedure Risk Assessment is Complete	
Form Completed By:	
Signature:	Date:
PI/Supervisor Signature:	

ATTACHMENT 2

Field Safety Plan Template 1

FIELD SAFETY PLAN – TEMPLATE #1

This form may be used by the Principal Investigator (PI), Supervisor, or Field Instructor to develop a Field Safety Plan. **The completed Field Safety Plan must be shared with all members of the fieldwork team and kept with the team's safety documents.** Multiple trips to the same location can be covered by a single plan. The plan must be revised when/if a significant change to the location or scope of work occurs.

PI/RP/Field Instructor Contact Information:

Name:

Department:

Phone Number:

Email Address:

Dates of Travel: *List multiple dates if more than one trip is planned.*

Location of Fieldwork:

Country:

Geographical Site/GIS Coordinates:

Nearest City:

Name, distance from site

Nearest Hospital:

Name, distance from site, phone number

Type of Fieldwork: Please include a brief description of the type of work to be performed.

UNM Contact:

Name and Phone Number:

Local (Field) Contact:

Name and Phone Number:

Communication Plan: Describe *planned* communication, including frequency of contact with UNM and local contacts.

Emergency Communication Plan & Procedures: Describe who will be called in the event of an emergency.

Emergency/24-HR Contact # for PI:

Emergency Contact # for Department:

EHS After-Hours Emergency #: 505-951-0194

UNM Risk Services #: 505-273-1573

First Aid Training: Please list the names of participants who are trained in first aid and the type of training received. At least one member of the field team must have taken first aid training.

Physical Demands: Please list any physical demands required for this field operation; e.g., diving, climbing, high altitude.

Chemicals/Hazardous Materials: Please list any chemicals and/or hazardous materials required for this field operation; e.g., preservatives, reagents, etc. Ensure chemicals are labeled properly (name & hazards, minimum) and stored within secondary containment during transport. Ensure SOPs, SDSs and a spill kit are available.

Chemical/Material	Hazards (i.e., flammable, toxic)

Risk Mitigation: Ensure that a hazard analysis has been completed prior to writing your safety plan (see Field Safety Program). List measures in place to mitigate hazards (engineering/administrative controls, PPE, etc.).			
Identified Hazards	Controls		
Travel Immunizations: Please list required immunizations/prophylaxis. <i>Contact UNM Employee Occupational Health Services for additional information (505) 272-8043</i>			
Field Team Membership: Please list the names, titles (e.g., undergraduate, staff), and emergency contact information for all members of the field team, and identify the Field Team Leader.			
<u>Participant name</u>	<u>Title</u>	<u>Emergency Contact Name</u>	<u>Emergency Contact Phone Number</u>
Responsible Party:			

Team Members:			
Training Certification:			
By signing below, the Principal Investigator (PI), Supervisor, or Field Instructor verifies that they have shared the contents of this field safety plan with all team members and that they are familiar with the hazards, hazard controls, prevention measures, and emergency plans.			
Signature	Printed Name	Date	

ATTACHMENT 3

Field Safety Plan Template 2

FIELD SAFETY PLAN – TEMPLATE #2

Field Site Location:	<i>Descriptive name of research location (e.g. Carrizo Plain, CA; Tortuguero, Costa Rica)</i>		
Activity Description:	<i>Type, length, and purpose of activity (e.g. hiking 3-4 miles, collecting specimens, etc.)</i>		
Plan Created for:	<i>Name of Research Group / Course / Trip Leader</i>	Date of revision:	<i>Mo-Day-Yr</i>
Date(s) of Travel:	<i>Start date, duration, expected return to campus</i>		
Site Information			
Location	Latitude:	Longitude:	
Site Information	<i>Elevation, terrain, environment.</i>		
Travel to Site	<i>How will participants get to the field site? Note any dangerous roads, conditions.</i>		
Site Access	<i>Are there any particular restrictions or challenges to accessing site? Note any alternate routes or suggested parking areas; gate access codes, etc. Make special note if isolated or remote.</i>		
Environmental Hazards	<i>Describe any dangerous wildlife, insects, endemic diseases, poisonous plants, etc. that participants may encounter. Note intended mitigation measures; discuss prior to trip.</i>		
Security	<i>High risk for harassment or violence? Note intended mitigation measures; discuss prior to trip. For international travel, check the U.S. State Department travel site for current travel alerts.</i>		
No-Go Criteria	<i>What are the conditions under which approach to - or activities at - the site should be stopped or canceled? e.g. heavy rains, electrical storms, snow, temperatures > 100 degrees, within 2 hours of high tide, wave heights over 1 meter, etc.</i>		
Expected Weather	<i>Note extreme conditions that could impact the trip or require additional planning, (e.g. high heat, wind, rain, snow, approaching storm).</i>		

Drinking Water Availability	<input type="checkbox"/> Plumbed water available <input type="checkbox"/> Water cooler with ice provided <input type="checkbox"/> Bottled water provided <input type="checkbox"/> Natural source and treatment methods (e.g. filtration, boiling, chemical disinfection):		
Access to Shade/Shelter	If forecast exceeds 80°F, shade must be provided by natural or artificial means for rest breaks. <input type="checkbox"/> Building/Structure <input type="checkbox"/> Trees <input type="checkbox"/> Temporary Canopy/Tarp <input type="checkbox"/> Vehicle with A/C <input type="checkbox"/> Other:		
High Heat Procedures	Required when temperatures are expected to exceed 95°F: If possible, limit strenuous tasks to morning or late afternoon hours. Rest breaks in shade must be provided at least 10 minutes every 2 hours (or more if needed). Effective means of communication, observation and monitoring for signs of heat illness are required at all times. Pre-work safety discussion required. <input type="checkbox"/> Direct supervision <input type="checkbox"/> Buddy system <input type="checkbox"/> Reliable cell or radio contact <input type="checkbox"/> Other:		
Emergency Services and Contact Information			
Local Contact	<i>Name, address & phone #, may be a local colleague/institution, reserve manager, etc.</i> Lodging location: <i>name, address, phone #</i>	University Contact: Not on trip. Provide a copy of this plan.	<i>Name, number, email; may be a Professor/PI, contact, supervisor back on department campus, etc.</i> Frequency of check ins: <i>daily, at end of work day, etc.</i>
Emergency Medical Services (EMS)	<i>Procedures for contacting emergency medical services.</i>		
Nearest Emergency Room (ER)	<i>Evacuation plan and transportation options to the nearest Emergency Room; include estimated transport time, contact information and driving directions from the site to the nearest provider of emergency medical care. Attach map with specific directions.</i>		
Cell Phone Coverage	Primary Number: Coverage: good, spotty, none Nearest location with coverage:	Satellite phone/device	Device carried? <input type="checkbox"/> yes <input type="checkbox"/> no Type/number:
Nearby Facilities	<i>What facilities are available at or near the site: restrooms, water, gas, public phone,store? If not, where are the nearest services along the route?</i>		

Side Trips	<i>Are side trips planned or allowed during free time? Before or after the planned activities? Are there restrictions, specific rules, or expected code of conduct?</i>
Participant Information	
Field Team/Participants	<p>Is anyone working alone? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, develop a communications plan with strict check-in procedures; if cell coverage is unreliable, carry a satellite communication device or personal locator beacon.</p> <p>Primary Field Team Leader: <i>Name, phone number</i></p> <p>Secondary Field Team Leader: <i>Name, phone number</i></p> <p><input type="checkbox"/> Field Team/Participant list is attached as training documentation</p> <p><input type="checkbox"/> Other attachment: e.g. course roster</p>
Physical Demands	<i>List any physical demands required for this trip and training/certification provided. e.g. diving, swimming, hiking, climbing, high altitudes, respirators, heights, confined or diving, restricted spaces, etc.</i>
Mental Demands	<i>List any unique mental demands required for this trip, e.g. long travel days, high stress environments, different cultural norms, etc.</i>
First Aid Training & Supplies	<p>Requires at least one trained person (with current certification) for work at remote sites. CPR also recommended. <i>List team members trained in first aid and the type of training received.</i></p> <p>Location and description of group medical/first aid kit: Who is carrying it, where is it stored. Brief description of contents.</p>
Immunizations or Medical Evaluation	<i>List required immunizations/prophylaxis or required medical evaluation, if applicable.</i>
Equipment and Activities – Consult with EHS for specific training and requirements.	
Research Activities	<i>Briefly describe the goal of your field operations, e.g. collection of samples, observation of animals/environment, interviews with human subjects, etc.</i>
Field Transportation	<i>What vehicles will be used during field operations? e.g. chartered boat, paddle craft, car, ATV, truck with trailer, snowmobile, chartered plane or helicopter, etc. Include all.</i>
Research Tools	<i>Briefly describe tools or equipment that will be used to access the research site or during research activities. Indicate specific training required before use, e.g. sharps (knives, razors, needles), hand tools, chainsaws, power tools, heavy machinery, tractors, specialty equipment, firearms; lasers, portable welding/soldering devices; other hazardous equipment or tools.</i>

Chemicals and Hazardous Materials	<i>Identify chemicals/hazardous materials that will be used during research activities. Indicate specific training required before use and identify hazards, e.g. flammables, corrosives, etc. Ensure chemicals are properly labeled (name & hazards, minimum, stored within secondary containment during transport and a spill kit is available. Attach all associated SOPs and SDSs.</i>
Other Research Hazards	<i>Describe other potential research-associated hazards e.g. handling or shipping hazardous materials (chemical, biological, radiation, and explosives), handling animals, climbing or working at heights, rigging; shoring/trenching, digging/entering excavations, caves, other confined spaces; drone use.</i>
Personal Protective Equipment	<p>Required—e.g. boots, safety glasses, PFDs, hardhats, etc.</p> <p>Recommended – e.g. walking sticks, gloves, long pants, hats, insect repellent, sunscreen</p>
Additional Considerations	
Insurance	
International Activities	Check with the UNM Purchasing Department regarding required approvals. Visas, permits, finances, import/export controls, transportation of specialized equipment, and data security must be considered.
Personal Safety & Security	<p>Personal safety risks during free time should be considered and discussed in advance, e.g., alcohol or drug use, leaving the group, situational awareness, sexual harassment, or local crime/security concerns. Review expectations and set the tone for a safe, successful trip.</p> <p>High Risk Travel: Check the U.S. State Department travel site for current travel alerts.</p>
Campus Contacts	
UNMPD	505-277-2241
Employee Occupational Health Services	505-272-8043
EHS	505-277-2753

UNM Travel Emergency Assistance	Risk Services	
Report Injuries	Online Incident Reporting	
First Aid Reference – Signs & Symptoms of Illness (<i>examples for heat illnesses included</i>)		
Signs & Symptoms	Treatment	Response Action:
HEAT EXHAUSTION <ul style="list-style-type: none">• Dizziness, headache• Rapid heart rate• Pale, cool, clammy or flushed skin• Nausea and/or vomiting• Fatigue, thirst, muscle cramps	<ol style="list-style-type: none">1. Stop all exertion.2. Move to a cool shaded place.3. Hydrate with cool water.	<i>Heat exhaustion is the most common type of heat illness. Initiate treatment. If no improvement, call 911 and seek medical help. Do not return to work in the sun. Heat exhaustion can progress to heat stroke.</i>
HEAT STROKE <ul style="list-style-type: none">• Disoriented, irritable, combative, unconscious• Hallucinations, seizures, poor balance• Rapid heart rate• Hot, dry and red skin• Fever, body temperature above 104 °F	<ol style="list-style-type: none">1. Move to a cooler location.2. Loosen clothing and spray clothes and exposed skin with water and fan.3. Cool by placing ice or cold packs along neck, chest, armpits and groin (Do not place ice directly on skin)	Call 911 or seek medical help immediately. <i>Heat stroke is a life-threatening medical emergency. A victim can die within minutes if not properly treated. Efforts to reduce body temperature must begin immediately!</i>

Include any additional resources: route/location maps, photos of general terrain and areas requiring extra caution, etc.



THE UNIVERSITY OF
NEW MEXICO.

Signature of PI/Supervisor:

I acknowledge this Field Safety Plan has been prepared for field work under my supervision.

Name	Signature	Date	Phone Number

Field Team/Participant Roster - Training Documentation

I verify that I have read this Field Safety Plan, understand its contents, and agree to comply with its requirements.

[illegible]

ATTACHMENT 4

Code of Conduct



ENVIRONMENTAL HEALTH & SAFETY

Field Research, Field Station, Field Course

Code of Conduct

- **Expected Behavior**

- All participants, visitors, staff, students, faculty and vendors are to be treated with respect and consideration, valuing a diversity of views and opinions.
- Be considerate, respectful and collaborative.
- Be mindful of your surroundings and of your fellow participants.
- Alert UNM personnel (field instructor or leader) of any dangerous situation or person in distress.

- **Unacceptable Behavior**

- Harassment, intimidation or discrimination in any form.
- Physical or verbal abuse of any participants, visitors, staff, students, faculty, vendors or other field research/station/course guests.
- Comments related to gender, sexual orientation, ability, physical appearance, body size, race, religion or national origin.
- Unwelcome physical contact.
- Inappropriate use of nudity and/or sexual images.
- Threatening or stalking any participants, visitors, staff, students, faculty, vendors or other field research/station/course guests.

- **UNM Contacts**

- UNM Title IX Coordinator: Angela Catena, (505) 277-5251, acatena@unm.edu
- Enter Name and Phone Number of Department Chair

ATTACHMENT 5

Dive Plan Template

DIVE PLAN

A Dive Plan must be completed for each dive. Each diver must be familiar with the Dive Plan.

Copies of the plan must be sent to:

1. The Chair of the UNM Department under which the dive project is being done
2. UNM Environmental Health & Safety (ehsweb-L@list.unm.edu)
3. UNM Risk Services (risksvcs@unm.edu)

Description of proposed dive:

Date of Dive	
UNM Department	
Purpose	
Approximate # of dives	
Location of proposed dives	
Estimated depths and bottom times	
Decompression status	
Boats and equipment to be used	
Hazardous conditions anticipated	

Diver information:

Name of Lead Diver	
Diver qualifications	
Name of Dive Buddy	
Diver Qualifications	
Name of Diver	
Diver Qualifications	
Name of Diver	
Diver Qualifications	

Diver Emergency Contacts:

Diver Name	Emergency Contact Name	Telephone #	Relationship

List of Emergency Contacts for Dive Location:

Divers Alert Network Emergency Hotline	919-684-9111
Nearest operational recompression chamber	
Nearest hospital	

General Procedures for Diving Accident:

A diving accident victim could be any person who has been breathing air underwater, regardless of depth. It is essential that emergency procedures are pre-planned and that medical treatment is initiated as soon as possible. Follow these procedures in the event of a diving accident:

1. Make appropriate contact with the victim of rescue as required.
2. Establish (C)irculation, (A)irway, (B)reathing.
3. Stabilize the victim.
4. Administer 100% oxygen in cases of decompression illness or near-drowning.
5. Call local emergency medical system (911 if in United States) for transport to nearest medical treatment facility.
 - a. Explain the circumstances of the dive incident to the evacuation teams, medics and physicians.
 - b. Do not assume they understand why 100% oxygen may be required for victim or that recompression treatment may be necessary.
6. Call Divers Alert Network (DAN) Emergency Hotline for contact with diving physician and location of nearest recompression chamber.
7. Submit an [Incident Report Form](#) to UNM Environmental Health & Safety

ATTACHMENT 6

Float Plan Template

FLOAT PLAN

A Float Plan must be completed before going out conducting research via boat. Copies of the plan must be sent to:

1. The Chair of the UNM Department under which the project is being done
2. UNM Environmental Health & Safety (ehsweb-L@list.unm.edu)
3. UNM Risk Services (risksvcs@unm.edu)

Float Plan Creator's Name	
Telephone Number	

Description of Boat:

Registration Number	
Type of Boat	
Make/Model of Boat	
Color/Identifying Features	
Length	
Engine Type (if applicable)	
Fuel Capacity (if applicable)	
Name of Boat (if applicable)	

Passenger information:

Name	Age	Telephone #

Passenger Emergency Contacts:

Passenger Name	Emergency Contact Name	Telephone #	Relationship

List of Survival Equipment on Board:

Yes (check)	Equipment
	Life Jackets/PFDs
	Flares
	Signal Mirror
	Anchor
	Paddles
	Raft or Dinghy
	Horn
	Food & Water

Radio:

Yes (check)	Type	Frequencies	Call Sign

Trip Expectations:

Leaving From	
Going To	
Departing Date & Time	
Returning Date & Time	

Description of Automobile:

License Plate #	
Make	
Model	
Color	
Trailer License Plate #	
Where Parked	

If Not Returned By:

Date	
Time	

Call:

Nearest U.S. Coast Guard Unit	
VHF-FM Channel 16 (156.8 MHz)	
Local Authority	