

General Field Safety Protocol

The same general safety considerations, precautions, and philosophy that govern work in indoor laboratories must govern work in off-campus field situations (herein referred to as field labs). In addition, specific hazards exist in the field which are not encountered indoors. Thus, work in field labs involves safety considerations not addressed in the usual laboratory safety plan.

First and foremost, become familiar with and aware of the field lab surroundings. Anticipate hazards and avoid unsafe working conditions. Always read and observe manufacturer labels and precautions for any materials, tools, or equipment you are using. Wear appropriate Personal Protective Equipment. Always carry communication equipment such as a cell phone or two-way radio.

Emergency Contact Information

It should be possible for safety personnel to locate any employee in case of an emergency. Try to make yourself visible to emergency responders. Since field labs are away from the normal/campus work space, there should be information on record (including a detailed map) in the responsible departmental office noting the location of such field labs. Field lab locations encompassing routine or primary field activities should be identified on the map and shown relative to local, well-known destinations and landmarks. A general itinerary including destination(s), expected departure and return times should be filed in the departmental office for each trip involving a field lab.

Motor Vehicle Safety

The use of motor vehicles represents a potential hazard experienced by field lab participants. Certain vehicular precautions must be observed.

1. All drivers must be State employees with valid NC driver's licenses. Each driver must have a photocopy of his/her license on file with the department.
2. All North Carolina laws governing the use of motor vehicles must be observed at all times including the requirement that all passengers wear seat belts.
3. In addition to motor vehicle laws, drivers must abide by all State, University and Departmental policies (see document BAE 002) governing the use of State owned vehicles. Failure to strictly adhere to these policies may result in loss of the privilege to use a State vehicle.
4. Since field labs sometime involve frequent stops along busy roads, special care should be taken to alert passengers to traffic hazards when leaving or boarding vehicles, or when walking along highways. In general, trips should be planned to minimize exposure of employees to highway traffic.
5. Drivers should pay close attention to parking of vehicles while in the field. Vehicle visibility could be critical for locating an employee in an emergency. Also, drivers must be aware of other

activities occurring at the field location, such as a construction site, which could result in damage to the vehicle.

6. Use caution and proceed slowly when traveling off-road. Be vigilant for hazards presented by holes, wash outs, wet areas, wildlife, and down trees or other hidden obstructions. Test wet areas before entering with a vehicle. Vehicles have better traction when moving forward rather than in reverse. If you must proceed and are uncertain of the traction, “back in” to retain your option to “drive out” if the going gets too touch. If you become stuck, assess the situation, call for help, and proceed only if you may safely extract the vehicle. Do not attempt to move the vehicle if there is a danger of the vehicle turning over or sliding down onto you or someone else.

Safety in the Field

1. A "buddy system" should be used for every trip to a field lab, such that each individual has a partner who knows his or her whereabouts at all times.
2. All state vehicles assigned to the department are equipment with a small first-aid kit. Prior to departure, ensure that you know the whereabouts of the first aid kit and verify its inventory.
3. Each employee should familiarize themselves with the location of emergency medical care (clinic, emergency center, park ranger station, etc.) nearest the field lab. Contact information for the medical care facilities near field labs should be on file at the field site as well as in the vehicle. Be familiar with University policy governing medical care away from campus. Failure to follow policy could jeopardize employee medical benefits.
4. Employees should report any special medical problems they may have to their immediate supervisor prior to participating in field lab activities. Examples are allergies to insect stings, diabetes, asthma, physical disabilities, etc.
5. Employees who are uncertain about the types of hazards that may exist at a field lab should consult with their supervisor prior to departure to learn of hazards they may encounter.
6. Know your equipment and tools. Each piece of equipment has its own hazards and requires specific safety training. Never attempt to use any equipment or power tool before reading the operator’s manual and being properly trained in its use.
7. Stay “out-of-the-way”. Be aware of what others around you are doing and maintain a safe distance. Always be sure that the operator of equipment knows you are present and your location. Only approach equipment from where the operator can see you and only after you are certain the operator has acknowledged your approach. If you are the equipment operator, make sure you know where everyone else is positioned.
8. Wear highly visible clothing such as blaze orange or yellow. Always wear Personal Protective Equipment appropriate for the job, tools and equipment you are using.

9. Special precautions should be taken for field labs around or in water. Non-swimmers should identify themselves and wear appropriate personal flotation devices (PFDs). On trips using boats, all US Coast Guard regulations must be observed. Appropriate numbers and types of PFDs must be supplied and worn by passengers. If hip or waist waders are in use in water greater than waist deep, PFDs should also be worn.

10. Stay alert to environmental hazards which may include, but are not limited to:

- a. **Stings from venomous insects**, such as bees, wasps, hornets, and yellow jackets. Medication for immediate relief from stings may be carried in the first aid kit, but employees who know they react severely to such stings should be advised to carry any special medication they might need.
- b. **Bites from venomous snakes**. Care should be taken to note and avoid poisonous snakes in the field. Supervisors should instruct employees on field recognition of common snakes. Protective gear (long pants, boots, leggings) should be worn in areas where poisonous snakes are common. In case someone is bitten, return to the vehicle and seek medical attention immediately which may involve transporting the victim to the nearest medical facility. Field treatments such as tourniquets, cutting or sucking should NOT be applied by amateurs.
- c. **Poisonous plants**. Employees should be shown how to identify common poisonous plants and should be instructed to avoid them. This precaution includes plants that can cause contact dermatitis (poison ivy, poison oak, poison sumac) and plants that might be poisonous upon ingestion (some mushrooms and berries). In general, employees should not eat plants or fruits collected in the field.
- d. **Ectoparasites (ticks and chiggers)**. Tick-borne diseases constitute a serious threat to individuals conducting field work during warm weather. Employees should inspect their entire bodies carefully after returning from a day in the field, and to remove any ticks found. It is a good idea for individuals to note the date they found a tick firmly attached, in the event that symptoms of Rocky Mountain Spotted Fever or Lyme Disease appear later. A physician should be consulted if suspicious symptoms (fever, joint aches, swollen glands, reddish flushing of skin) occur in the weeks following a tick bite. Chiggers are annoying, although not likely to threaten health. In areas known to have either ticks or chiggers (practically any wooded or shrubby area in North Carolina), employees should utilize means of avoiding contact (tucking and taping pant legs, using repellents, frequent tick checks, etc.).
- e. **Endoparasites**. Employees should exercise care to avoid contact with water- or soil-borne parasites (*Giardia*, tapeworms, etc.). Never drink untreated water. Always carry enough drinking water for anticipated personal needs. Water obtained from sources in the field should be boiled, filtered, or chemically treated before consumption. Wash hands after handling soil, especially before eating.

- f. **Lightning.** North Carolina experiences frequent electrical storms, especially during the warmer months; the state has one of the highest frequencies of lightning-caused fatalities in the U.S. If a thunderstorm threatens, the best response is to seek shelter in a building or vehicle. When this is not feasible, care should be taken to minimize the risk of being struck by lightning. Avoid open areas and exposed portions of the landscape (peaks, hilltops, ridges). Boaters should seek shelter on shore immediately. Never stand near or under isolated tall objects, such as trees or power poles. The safest places outdoors are in topographically protected areas (valleys or ravines), away from the tallest trees. Avoid sheltering under rock overhangs or in other situations where an individual could become part of the shortest path of lightning to ground.
- g. **Steep topography.** Some trips may involve hiking in areas of steep topography, where a real risk of injury caused by accidental falls may exist. Exercise caution when hiking in steep terrain (such as rock outcrops). Similar precautions should be exercised in other areas where falls could occur (overlooks, observation towers, waterfall areas, large canals, etc.). Even wet or mossy rocks on a path can be a serious hazard.
- h. **Large forested areas.** When hiking in large forested areas without well defined trails, utilize florescent ribbon, flagging, or paint to mark your trail for the return hike to your vehicle. Watch for and avoid walking near or under broken or dead limbs and trees.
- i. **Wetlands, swamps.** Be mindful of hidden depressions. Deep, soft boggy areas often develop from tree falls or decayed stumps. These areas are often, but not always observed to have dark surfaces. Proceed slowing, testing the ground before applying your full weight.
- j. **Cold weather trips.** Special precautions should be observed to avoid hazards of frostbite and hypothermia. Become familiar with symptoms of these two hazards and the field treatment should someone be affected. The field first aid kit for cold weather trips should include specific directions for determining and treating hypothermia, and needed supplies to do so.
- k. **Hot weather trips.** During the summer months, avoid hazards of heat exhaustion and heat stroke. Become familiar with symptoms of these two hazards and the field treatment should someone be affected. The field first aid kit for hot weather trips should include specific directions for determining and treating heat stroke, and needed supplies to do so. Always carry and consume ample amounts of water.