

0-90Texas Tech University

Field Safety Manual

February 2022

Chemical Safety Biosafety Radiation Safety Laser Safety Appendices

FOREWORD

Texas Tech University is dedicated to the safety of all members of its community regardless of location. The Field Safety Manual is constructed under the remit of the Department of Environmental Health and Safety and provides a guide to the planning and execution of safe research and education experiences in field locations (e.g., non-traditional, off-campus locations).

When working in an off-campus location all rules, regulations, guidelines, and safety protocols established by agency responsible for the work area (Federal, State, County or City Government, or private entity) must be followed and accounted for during the hazard and risk assessment process.

Title IX at Texas Tech

Texas Tech is committed to providing its students, faculty, and staff with an educational and workplace environment free from any form of unlawful discrimination. The Texas Tech community is dedicated to fostering and supporting a culture of mutual respect and communication. Texas Tech University does not tolerate discrimination or harassment of students based on or related to sex, race, national origin, religion, age, disability, protected veteran status, or other protected categories, classes, or characteristics. While sexual orientation and gender identity are not protected categories under state or federal law, it is Texas Tech University policy not to discriminate on this basis. Actions related to admission, discipline, housing, extracurricular and academic opportunities shall not be made based on a student's protected status. Discriminatory behavior is prohibited regardless of the way it is exhibited, whether verbally, in writing, or electronically displayed or conveyed. Individuals who violate these policies and laws are subject to disciplinary action, up to and including expulsion.

Examples of the types of discrimination and violence that are strictly prohibited by Texas Tech include but are not limited to: sexual harassment, the failure to provide equal opportunity in athletics, discrimination in a school's science, technology, engineering, and math (STEM) courses and programs, discrimination based on pregnancy.

In addition to Title IX, certain Clery specific crimes are also considered to be Title IX violations and will be handled by the university as mandated under both statutory requirements. These include but are not limited to sexual misconduct, domestic violence, dating violence, and stalking.

[Title IX website](#)

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HELPFUL TELEPHONE NUMBERS AND LINKS

Emergency: In the event of an emergency call 911.

General Outdoor Safety: For more information on outdoor and recreational safety including North America Hunting Season and regulations, contact the U.S Forest Service. 800-832-1355 <http://www.fs.fed.us/safety/outdoor/>

General Health: The Centers for Disease Control and Prevention (CDC) offers a website that describes many topics related to travel, both domestic and international: <http://wwwn.cdc.gov/travel/default.aspx>

U.S. Department of Labor – Occupational Safety & Health Administration: Assists with design, implementation and evaluation of health and safety programs in the workplace (<https://www.osha.gov/>).

Disease: The Centers for Disease Control and Prevention (CDC) provides detailed information about many diseases that may occur in the U.S. and internationally and risks of disease in general, and specific to the field location and its environment may be researched via its website: <https://www.cdc.gov/>

State Departments of Health Services and Infection Disease Control: All states in the U.S. have departments dedicated to providing information and guidance on state level (general and specific) health and disease risks.

The Texas Department of State Health Services Infectious Disease Control Unit (<https://www.dshs.texas.gov/idcu/>) provides information in Texas (Tel: 512-458-7676; Toll Free: 1-888-963-7111).

Travel Health & Outbreaks: Information on international and global health and disease risks, including outbreaks of infectious diseases and international travel health recommendations are provided by the World Health Organization (WHO). <http://www.who.int/ith/en/>

Travel Advisories: Travel advisories are announced through the U.S. Department of State. Current travel warnings, public announcements, and consular information sheets may be obtained online at: <http://travel.state.gov/>

Weather: Information on extreme weather and how to protect yourself may be found from the National Weather Service: <http://weather.gov/safety.html>

National Weather Service forecasting: <https://www.weather.gov/forecast>

[CDC Lightning Safety](#)

E1 PURPOSE

To set forth policies, procedures and practices of informing employees and students at Texas Tech University about the health hazards associated with activities conducted in [field sites](#).^d

The traditional campus resources such as Environmental Health and Safety, Texas Tech Police, Office of Emergency Management, and Office of Risk Management are typically not available at remote field sites. Field work should be carefully planned prior to departure to the field site(s)^d.

Due to the constantly changing conditions of field research, the emphasis on proper training and preparedness is of utmost importance for all people entering the field. All fieldwork warrants a pre-trip training regarding foreseen hazards, appropriate precautions, communication options, and emergency procedures.

It is the policy of Texas Tech University to conduct all institutionally sponsored activities safely and in a manner that protects the health and well-being of all participants. All participants in field-based activities have a responsibility to promote a safe working environment, and all activities will be designed, conducted, and operated in a manner that reasonably protects human health and safety. Adherence to these principles is necessary for the University to achieve its mission.

E2 ACRONYMS AND DEFINITIONS

E2.1

Acronyms

ANSI- American National Standards Institute
cc – engine capacity in cubic centimeters
DOT- Department of Transportation
GPS- Global Positioning System
DEFRA- Department for Environment, Food and Rural Affairs
PPE- Personal Protective Equipment
SPF- Sun Protection Factor
TTU- Texas Tech University

E2.2

Definitions

Benchmark - something that serves as a standard by which others may be measured or judged, or a point of reference from which measurements may be made.

Designated Contact – An individual not accompanying the field excursion supplied with all Field Safety Plan information. This individual will conduct the established check-in communications with the field group and act on the field group’s behalf should an emergency arise. Individual must have 24 hour / 7 days a week availability and be able to execute emergency procedures if needed.

Fauna - animal life especially the animals characteristic of a region, period, or special environment

Field Group – group of individuals actively engaged in research activities at the field site

Field Safety Briefing – must occur prior to departure when students are participating and should include a review of the hazard and risk assessment, provision of emergency contact information, emergency procedures, and the schedule of work.

Field Site – Any site where field work or research is being conducted in an outdoor environment and may include (but is not limited to) field stations, natural reserves, private lands, public lands or parks, wilderness areas, coastline, or waterways, including those owned and managed by Texas Tech University System, and more controlled sites such as construction areas, excavations, green houses, agricultural fields, commercial facilities and mines.

Field-Site Kit - a collection of materials appropriate to the location and nature of field-activities

Field Trip Leader – designated individual responsible for the safety of all field group personnel, as well as the safety of all equipment, vehicles and structures involved

Flora - plant, bacterial, or fungal life especially such life characteristic of a region, period, or special environment

Fording Points - a place where a river or other body of water is shallow enough to be crossed by wading.

Go / No Go Criteria - an individual group determination based on possible risks to the field group during the planned research time.

Hazard Assessment - a process of identifying hazards, evaluating the risks presented by those hazards, and managing the risks of the hazards to be performed by incorporating appropriate hazard controls into the experimental design process.

Trekking poles - common hiking accessory that function to assist walkers with their rhythm, to provide stability, and reduce strain on joints on rough terrain

E3 PRE-PLANNING

E3.1

Risk and [Hazard Assessments](#)^d

E3.1.1

[Field Trip Leader\(s\)](#)^d of the field-activity are responsible for conducting a risk and [hazard assessment](#)^d for each field-based activity that will establish the viability for members of the Texas Tech University community to safely participate in the proposed activity.

The assessment will establish criteria for participation in the activity and identify hazards, and their risks, for participants. The assessment will also establish [“go/no go” criteria](#)^d and [benchmarks](#)^d for continuation or withdrawal from a field environment. The assessment will identify risks and hazards that must be addressed in the Field Safety Plan.

Appendix EB of the University Laboratory Safety Manual contains a Field Research Risk Assessment Tool.

E3.2

Field Safety Plan

E3.2.1

Leaders of the field-activity are responsible for creating a Field Safety Plan that must include:

E3.2.1.1

A clear definition of [field site\(s\)](#)^d to be visited, defined on maps included in the document and/or by providing GPS coordinates.

E3.2.1.2

Routes to, from and in between [field sites](#)^d.

E3.2.1.3

Timeline of proposed work.

E3.2.1.4

Local emergency contact information, including Police/Sherriff Departments and appropriate State and Federal Offices (National Forest Service, National Park Service offices, State Park Headquarters).

E3.2.1.5

Assessment of potential field hazards.

E3.2.1.6

Establishment of [Go / No Go Criteria](#)^d and [benchmarks](#)^d.

E3.2.1.7

Identification of required protective and emergency equipment.

E3.2.1.8

Standard operating procedures for all field activities being conducted.

E3.2.1.9

A list of all field participants and emergency contact information.

E3.2.2

Field Safety Plan must be read and signed by all field participants. The plan shall be sent to EHS for additional review and routing to the cognizant committee/department, as needed.

E3.2.3

A copy of the Field Safety Plan must be given to the [Designated Contact](#)^d (e.g., Department Chair) prior to the [field group](#)^d departing for the [field site](#)^d.

E3.3

Equipment

E3.3.1

Field researchers must assemble a [field-site kit](#)^d with materials appropriate to the location and nature of field activities. A list of items in the kit should be part of the Field Safety Plan, and the contents of the kit must be checked for completeness, functionality, and compliance prior to departure on every trip. A list of kit items is included in Appendix EA.

E3.3.2

Items required for inclusion in the kit are:

E3.3.2.1

The Field Safety Plan with emergency procedures and protocols

E3.3.2.2

Information on Institutional Insurance Policies

E3.3.2.3

Insurance information for vehicles and personnel,

E3.3.2.4

Any required permits including TTU permits and permits from local enforcement agencies,

E3.3.2.5

Appropriate communication equipment (e.g., radio, cell, or satellite phone),

E3.3.2.6

Appropriate PPE (safety glasses/goggles, gloves, hard hat, sturdy work boots, etc.),

E3.3.2.7

First aid kit of adequate size for the group and location of [field site\(s\)](#)^d,

E3.3.2.7(a)

Repack first aid kits prior to each field excursion.

E3.3.2.7(b)

Replace any used or expired items.

E3.3.2.7(c)

Customize your kit for your destination, tasks, group size and level of training.

E3.3.2.7(d)

Pack extra gloves.

E3.3.2.7(e)

At least two field participants must be trained in first aid and CPR.

E3.3.3

Items that should be considered for inclusion dependent on [field-site](#)^d:

E3.3.3.1

Insect repellent (DEET 30-50%)

E3.3.3.2

Sunscreen (at least SPF 30), sun hat (three to seven-inch brim), long sleeves, and/or other SPF blockers

E3.3.3.3

Spare clothes, including jackets, hats, and blankets for cold climates.

E3.3.3.4

Flashlight or headlamp

E3.3.3.5

Map, compass, GPS

E3.3.3.6

Extra food/snacks

E3.3.3.7

Matches or fire starter

E3.3.3.8

Signal/mirror, whistle

E3.3.3.9

Knife or multi-tool; duct tape for basic repairs

E3.3.3.10

Extra batteries

E3.3.3.11

Other equipment specific to the educational and/or research mission of the trip.

E3.4

[Field Safety Briefing^d](#)

E3.4.1

Each department and/or instructor is responsible for conducting appropriate [Field Safety Briefing](#)^d / Training prior to the field excursion. The briefing must discuss the Field Safety Plan, all field operations, potential hazards, use of protective and emergency equipment and emergency procedures.

E3.4.2

All participants in research-oriented field activities should complete a risk and [hazard assessment](#)^d as part of their on-going professional development and engagement with the responsible conduct of research requirements.

E3.4.3

Attendance and participation in the [Field Safety Briefing](#)^d must be documented.

E3.5

Medical Treatment and/or Evaluation

E3.5.1

Field activity participants must obtain any recommended vaccinations and make medical preparations appropriate for the location of the [field site](#)^d.

Contact TTU Student Wellness Center, the Health Sciences Center or appropriate travel health clinic to learn about the required and recommended vaccinations for your intended location.

E.5.1.1.1

Preparations for handling animals that are recognized carriers of infectious diseases or being in location(s) that are known to be hazardous must be described in the Field Safety Plan. Consult with IACUC if needed.

E3.5.1.2

All participants with chronic ailments (e.g., diabetes, asthma) or are susceptible to acute reactions to particular situations (e.g., allergies) or take daily medications are recommended to share their potential health concerns with a trusted partner in the group (this may include the [Field trip leader](#)^d).

E4 FIELD HAZARDS

Animal use or handling falls under the purview of the Institutional Animal Care and Use Committee (IACUC). See [TTU OP 74.11](#).

This document identifies common field hazards, describes common risks for each type and possible mitigation and emergency responses. The hazards listed are not comprehensive and

other risks may arise. [Field trip leaders](#)^d are expected to identify and list all risks during the pre-planning process.

E4.1

Vehicles

E4.1.1

Vehicle Storage

E4.1.1.1

Do not allow non-employees or children into storage structures.

E4.1.1.2

Vehicles must be stored away from structures housing livestock.

E4.1.1.3

Vehicles must not be stored with fuel storage tanks.

E4.1.1.4

Vehicles must be parked/stored to allow easy entrance and exit from storage structure.

E4.1.1.5

Maintain clear, well-lit working spaces in and around vehicle and machinery storage buildings. Eliminate slips, trips, and falls.

E4.1.1.6

Vehicle keys must be secured if the vehicle is to be left unattended or unsupervised.

E4.1.1.7

Check that all structures, including windows, doors, and gates are secured and locked upon departure.

E4.1.2

Vehicle Maintenance

E4.1.2.1

The vehicle selected for each field activity should be appropriate for the terrain, road conditions and other predicted hazards to be encountered during fieldwork.

E4.1.2.2

It is recommended that departmental or TTU motor pool vehicles are used for all field excursions.

E4.1.2.3

The vehicle should be current on oil changes and manufacturer service schedule.

E4.1.2.4

The vehicle should be equipped with a fully pressurized spare tire, jack, tire-lever, functioning flashlight, and appropriate safety signage.

E4.1.3

Use of All-Terrain Vehicles (ATVs) and Related Vehicles / Equipment

E4.1.3.1

The National Safety Council has developed recommendations for using ATVs. The recommendations include:

E4.1.3.1(a)

All personnel using small vehicles in the field must take training courses prior to use and demonstrate competency on the vehicle type under similar conditions that will be present in the field.

E4.1.3.1(b)

ATVs with an engine size of 70cc to 90cc should be operated by people at least 12 years of age. ATVs with an engine size of greater than 90cc should only be operated by people at least 16 years of age.

E4.1.3.1(c)

Wear appropriate riding gear: DOT-, Snell ANSI-approved helmet, goggles, gloves, over-the-ankle boots, long-sleeve shirt, and long pants.

E4.1.3.1(d)

Read owners' manuals carefully.

E4.1.3.1(e)

Never carry a passenger on a single-rider ATV, and no more than one passenger on an ATV specifically designed for two people.

E4.1.3.1(f)

Any added attachments affect the stability, operating and braking of the ATV.

E4.1.3.1(g)

Vehicle attachments should be evaluated for safe usage prior to installation.

E4.1.3.1(h)

Do not operate the ATV on streets, highways, or paved roads.

E4.1.4

Vehicle Handling

E4.1.4.1

Reduce vehicle speeds to meet the safety hazards of rock conditions, and monitor speed and vehicle distancing to avoid sudden braking and aquaplaning

E4.1.4.2

Reduce vehicle speed when entering standing water, streams, and rivers to avoid mechanical damage and becoming stranded (e.g., engine flooding, loss of control).

E4.1.4.3

Unless appropriately equipped (e.g., 4- or all-wheel drive) avoid water-saturated off-road terrain to minimize risk of being stranded.

E4.2

Machinery and Equipment

E4.2.1

All tools, equipment, and machinery must be checked for proper functioning as described by the manufacturer before and after each use.

E4.2.2

Machinery and equipment should be serviced and maintained according to the manufacturer recommended schedule.

E4.2.3

All electrical (power) tools must be properly grounded or double insulated and all guards or shields must be in place.

E4.2.4

All users of machinery and equipment must wear the necessary personal protective equipment (PPE) and make sure that clothing has no strings or loose ends that could be caught by machinery. Long hair must be tied back to prevent entanglement.

E4.2.5

The [field site](#)^d must be checked for hazards prior to use of equipment and vehicles, with particular emphasis on checking for presence and height of electrical lines, aerial impediments (e.g., tree limbs, overhangs, etc.), ensuring unobstructed working space and that other fieldworkers are outside the minimum recommendations and/or maintaining safe distances from field operations.

E4.2.6

Field participants must be trained on specific equipment use prior to using equipment independently.

E4.2.7

Do not operate any equipment that is damaged, loose, missing parts, etc. Notify the [Field Trip Leader](#)^d immediately.

E4.2.8

Loading and Unloading Vehicles and Moving Equipment to [Field Site](#)^d

E4.2.8.1

Ensure that all loads are secured using straps, chains, or lines prior to putting a vehicle in motion.

E4.2.8.2

Ensure that appropriate equipment for unloading and necessary safety equipment to avoid injury is available at the [field site](#)^d.

E4.2.8.3

Mark equipment as “too heavy” if manual loading/off-loading is not possible.

E4.2.8.4

Apply appropriate control measures when lifting, moving, and carrying equipment.

E4.3

Boats and Other Watercraft

E4.3.1

One member of the field team must hold all appropriate certificates and credentials for assuming responsibility of the boat (watercraft) to be used. This includes tickets appropriate to the size of the craft, its navigation and safe use.

E4.3.2

Ensure boat is sound before setting out and that no damage has occurred in transit.

E4.3.3

Buoyancy aids must be always worn.

E4.3.4

Ensure safe anchoring prior to cutting the engine.

E4.3.5

Ensure fuel tank is horizontal and stable. Open pressure release valve when the motor is running.

E4.3.6

Never smoke near inflatable boats or engines.

E4.3.7

If the boat length exceeds the wavelength, the boat cannot ride the waves. Shelter should be sought.

E4.4

Terrain

E4.4.1

Identify the terrain types prior to departure and prepare accordingly.

E4.4.2

Mountains

E4.4.2.1

When preparing for work at a different altitude, follow these general precautions:

- a) Organize your trip ahead of time. Plan for an extra day for participants to acclimate to the elevation change.
- b) It is best practice to have a medical evaluation prior to leaving for a field excursion at high altitudes.
- c) Stay well-hydrated, rested, and educate yourself on the sign of altitude illnesses.
- d) Travel with a group if you are able. The use of a buddy system is very effective in recognizing HAI early.
- e) Gradual Initial Exposure: Graded ascent to high altitude is preferred over rapid exposure to high altitude.
- f) Ongoing Exposure: After 2-3 days spent at altitudes around 3500 m, travelers should increase their sleeping elevation no more than 600 m per day. Gaining more elevation during the day is acceptable so long as overexertion is avoided, and the sleeping elevation does not exceed 600m gained. In addition, an extra night of acclimatization is recommended every 300-900m gain in sleeping elevation.

E4.4.2.2

Slope

When ascending a steep slope, follow these general precautions:

- a) Shorten [trekking poles](#)^d.
- b) Take small steps.
- c) Ensure secure footing prior to placing weight on the next step.
- d) Walk in switchbacks, slightly weaving to the left and right.
- e) Step on flat surfaces.
- f) Sturdy footwear that provides ankle support should be worn to minimize the risk of falling.

When descending a steep slope, follow these general precautions:

- a) Keep your knee joints loose.
- b) Sturdy footwear that provides ankle support should be worn to minimize the risk of falling.
- c) Don't arrest your descent speed.
- d) Use trekking poles.
- e) Place your heel down first then your toes to ease pressure on your feet.
- f) Lean back slightly so your center of gravity shifts backward (i.e., toward the mountain top).
- g) Walk in switchbacks, slightly weaving to the left and right.

- h) Use side steps to descend by turning your feet perpendicular to the slope and taking small steps sideways.
- i) Step on flat surfaces.

E4.4.3

Waterbodies (lakes, oceans, rivers)

E4.4.3.1

Personal Floatation Devices or life jackets must be worn at all times when working within 10 feet of the water

Commented [CS1]: surely this cannot apply to streams??? this is so vaguely written and considers oceans as equivalent to small headwater streams.

E4.4.3.2

The temperature of the waterbody must be considered when selecting appropriate PPE.

E4.4.3

Deserts

E4.4.3.1

The weather pattern and temperature fluctuations of the desert being visited must be documented in the Field Safety Plan. Deserts typically have extreme temperature changes during a day.

E4.4.3.2

Additional preventative measures to prevent dehydration and sun overexposure must be employed.

E4.5

Weather and Climate

E4.5.1

Be prudent and check the weather forecast prior to leaving for a [field site](#)^d. Prevention of climate induced health risk is always better than treatment.

E4.5.2

Heat-Related Danger

E4.5.2.1

See Appendix EC for Heat Stress Related Illness information from the CDC.

E4.5.3

Cold-Related Danger

E4.5.3.1

See Appendix ED for Cold Stress Related Illness information from OSHA.

E4.5.4

Severe Weather

E4.5.4.1

The use of weather alarms (stand-alone radios, or Apps on smart devices) is recommended.

E4.5.4.2

Field personnel shall use the 30-30 rule when you see lightning. After you see lightning, start counting to 30. If you hear thunder before you reach 30, the thunderstorm is within six miles and there is a need to seek shelter and wait 30 minutes until the storm passes.

E4.5.4.2(a)

If lightning is present within six miles while working at higher elevations or in exposed regions, move to lower elevations, forested areas or depressions and stay clear of tall, isolated trees.

E4.5.4.2(b)

If caught in an electrical storm lie flat face down on the ground and cover your head if in an open area. Do not sit on ground.

E4.5.4.3

In the event of a hail-warning seek shelter to minimize risk of personal injury.

E4.5.4.4

Unless pursuing severe-weather surveillance and monitoring activities in the case of severe weather warnings seek appropriate shelter, or if time permits, identify a safe route to leave the area of the warning.

E4.5.5

Rain and Flooding Hazards

E4.5.5.1

Do not enter creeks or [fording points](#)^d unless the water depth can be verified against a flood gauge.

E4.5.5.2

Do not enter water when the depth gauge meets or exceeds vehicle clearance.

E4.5.5.3

Do not enter moving water.

E4.5.5.4

Unless necessary for environmental safety (toxicity) the use of long-water boots is discouraged.

E4.5.5.5

Do not wade into streams, rivers, ponds, or lakes unless there is a buddy present on the shore.

E4.6

Fauna and Flora

E4.6.1

All field workers must recognize that they are entering the natural habitat of the native [flora](#)^d and [fauna](#)^d; you are their guests. It is every workers responsibility to minimize the impact of their presence and to leave minimal evidence of their visit.

E4.6.2

[Fauna](#)^d

E4.6.2.1

Carefully look for insects or hazardous animals (e.g., snakes, scorpions, spiders) before placing your hands, feet, or body in areas where these creatures may live or hide (wood piles, crevices, etc.).

E4.6.2.2

Wear insect repellent (30-50% DEET), but only if it will not endanger any susceptible animals being handled, especially birds.

E4.6.2.3

Carry a first aid kit with you on any excursion so you can treat bites or stings. If the pest is poisonous or if the bite appears inflamed, seek medical attention immediately.

E4.6.2.4

Thoroughly shake all clothing and bedding before use.

E4.6.2.5

Avoid contact with sick or dead animals.

E4.6.2.6

Minimize the amount of time you use lights after dark as they may attract pests and animals.

E4.6.2.7

Location-specific animal hazards should be addressed in the Field Safety Plan and during the [Field Safety Briefing](#)^d.

E4.6.3

[Flora](#)^d

E4.6.3.1

Do not eat any wild plants as they may be poisonous or carry parasites.

E4.6.3.2

Wear gloves while handling plant materials.

E4.6.3.3

Plants may be coated with any airborne pollutant present in the area - avoid brushing against plants with bare arms/legs.

E4.6.3.4

Be aware of any plants with thorns, spines etc.

E4.6.3.5

Be aware of low, over-hanging branches.

E4.6.3.6

Be aware of tree roots and creepers that may cause you to trip.

E4.7

Disease and Pathogens

E4.7.1

Field participants must decontaminate field materials prior to field trip and before departure from the [field site](#)^d.

E4.7.2

Potential Diseases

E4.7.2.1

Hantavirus: The [CDC has detailed information about hantavirus](#).

E4.7.2.2

Lyme Disease: The [American Lyme Disease Foundation](#) provides information about the disease.

E4.7.3

More information about poisonous plants, visit the [FDA's Poisonous Plant Database](#).

E4.7.4

Impure water

E4.7.4.1

Be aware of health risks from water borne pathogens (e.g., Hepatitis 'A', Weil's Disease, Polio, and toxic cyano-bacteria. The [CDC provides information waterborne diseases](#).

E4.7.4.2

Wear waterproof gloves.

E4.7.4.3

Avoid drinking contaminated water

E4.7.5

Remote/Overseas Locations

E4.7.5.1

In remote/overseas locations be careful of eating food prepared by other people - particularly meats or fish and salads.

E4.7.5.2

In remote/overseas locations - Be wary of accepting ice in drinks.

E4.7.5.3

Be aware that some fields are cordoned off due to soil borne pathogens. These are easily spread from field to field if you walk or drive through them.

E4.7.5.4

Do not enter fields with DEFRA notices on them, even if the landowner gives permission. Consult DEFRA for further information.

E4.7.5.5

Researchers travelling internationally for field work are encouraged to notify EHS prior to departure to address safety concerns.

E4.8

Chemicals and Biological Materials

E4.8.1

Chemicals

E4.8.1.1

Handle chemicals as described in the **Chemical Hygiene Plan**. This includes following proper transportation procedures for hazardous materials as outlined in CHP Section A20.1.

E4.8.1.2

Any researcher using laboratory chemicals at a [field site](#)^d must submit a Waste Determination Form to EHS prior to departure to the field site to ensure appropriate segregation, collection, and transportation back to campus, if required.

E4.8.1.3

Additional measures including extra secondary containment, absorbent pads, and waste containers should be outlined in the Field Safety Plan.

E4.8.1.4

If gas cylinders are required for field activities, proper cylinder transportation should be followed. Regulators must be removed, valve closed, and cylinder cap firmly in place prior to transport. Students or faculty should not transport toxic, highly toxic, reactive, pyrophoric, or corrosive gases in vehicles. Cylinders moved in vehicles cannot be inside the passenger compartment and must be secured in cargo bed or trunk so they cannot move during transport. Do not allow cylinders to be exposed to high temperatures

E4.8.2

Biological Materials

E4.8.2.1

Handle biological materials as described in the Biosafety Manual.

E4.8.3

Agro Chemicals

E4.8.3.1

Seek information from landowner as to when crop spraying is likely and when entry to field will be safe. Do not enter fields until safe to do so. Be aware that any skin contact is hazardous.

E4.8.3.2

Avoid pools and puddles in freshly sprayed fields which may contain chemicals.

E4.8.3.3

Keep arms and legs covered. Ensure waterproof protective gloves or gauntlets and long pants and closed-toed shoes are worn.

E4.9

The Public

E4.9.1

Private Property

E4.9.1.1

Try to contact property owners or those responsible for the property management before arriving. Be honest about the reasons you seek access and how much time you will need.

E4.9.1.2

Do not enter private land, property, or buildings unaccompanied or without expressed, preferably written permission, from the appropriate person of authority. Ensure landowners and their employees know who you are and what you are doing.

E4.9.1.3

If accompanied, acknowledge that it is their territory; let them lead the way.

E4.9.1.4

Take special care when documenting findings, particularly of sensitive information.

E4.9.1.5

Try not to react to dirty or smelly surroundings. Do not underestimate the importance of body language.

E4.9.1.6

Maintain an orderly work site. Keep your materials confined to the work site. You are a visitor to another's property.

E4.9.2

Unexpected Behavior

E4.9.2.1

Be aware of local cultures pertaining to land use and access. Be honest and transparent when justifying your request for access or when seeking information.

E4.9.2.2

If persons on property show signs of drug or alcohol impairment or are aggressive, do not enter.

E4.9.2.3

Do not turn your back on someone who is behaving aggressively and keep your distance. Stay calm, speak gently and slowly, and avoid aggressive body language and stances.

E4.9.2.3(a)

Do not be enticed into an argument. Talk yourself out of problems; placate rather than provoke.

E4.9.2.3(b)

Identify potential escape routes. Try to get away as quickly as possible. Move towards a place where you know there will be other people.

E4.9.2.3(c)

Consider carrying a personal alarm.

E4.9.3

Strangers and Public Places

E4.9.3.1

Research and vet individuals you may meet and work with or interview.

E4.9.3.2

Schedule meetings at neutral locations or where neither party could be at risk.

E4.9.3.3

Where possible conduct any interviews with an observer.

E5 PERSONAL SAFETY

E5.1

It is the responsibility of each field participant to uphold the safety rules outlined by the [Field Trip Leader](#)^d.

E5.1.1

Behavior

E5.1.1.1

Consider cultural sensitivities and norms when preparing for field work, including selection of field clothing and display of signs, identifiers etc.

E5.1.1.2

Carry documents providing permission to work in a particular locality and personal identification.

E5.1.1.3

Field participants should always act in a professional manner. Horseplay shall not be tolerated.

E5.1.1.4

Field participants should carry a Personal first-aid kit.

E5.1.1.5

Clean hands frequently. Always wash hands prior to eating, taking medications, applying first aid treatment, etc.

E5.1.2

Attire and Personal Protective Equipment

E5.1.2.1

Appropriate clothing must be worn. Wear clothes made of tightly woven materials. Long pants and long sleeves should be worn with sturdy, solid, closed-toe footwear that provides ankle support are required. Confine long hair and loose clothing.

E5.1.2.2

Hearing protection (noise attenuating earmuffs or ear plugs) are required for personnel using loud equipment (e.g., chainsaws, tractors, etc.).

E5.1.2.3

Safety glasses must be worn when using any equipment that may produce flying debris (e.g., rock chisel, chainsaw, etc.)

E5.1.2.4

Hard hats and protective footwear (hard toed boots/slip-on protection a.k.a. “clackers”) must be worn as directed or needed.

E5.1.2.5

Rain gear is recommended during inclement weather

E5.1.2.6

Work gloves are recommended for field activities, especially when it involves rock or soil sampling.

E5.1.2.7

Additional PPE items may include hearing protection, respirators/self-rescuers, high-visibility/reflective safety vest, safety belts and lanyards, harnesses, gloves and chemical- or fire-resistant clothing (coveralls).

E6 Establishing Campsites

E6.1

Campsites

E6.1.1

All sites used for camps must be adequately drained. They must not be subject to periodic flooding, nor located within 200 feet of swamps, pools, sinkholes, or other surface collections of water, unless mosquitoes can be controlled on such still-water surfaces.

E6.1.2

The camp must be located so the drainage from and through the camp will not endanger any domestic or public water supply. All sites must be graded, ditched, and rendered free from depressions in which water may become a nuisance.

E6.1.3

All sites must be adequate in size to prevent overcrowding of necessary structures. The principal camp area where food is prepared and served and where sleeping quarters are located must be at least 500 feet from any area in which livestock are kept.

E6.1.4

The grounds and open areas surrounding the shelters must be maintained in a clean and sanitary condition free from rubbish, debris, wastepaper, garbage, or other refuse.

E6.1.5

Do not camp or sleep near obvious animal nests or burrows.

E6.2

Potable Water

E6.2.1

An adequate and convenient water supply, approved by the appropriate health authority, must be provided in each camp for drinking, cooking, bathing, and laundry purposes. Water supply is considered adequate if it can deliver 35 gallons per person per day to the campsite at a peak rate of 2 1/2 times the average hourly demand.

E6.3

Refuse Disposal

E6.3.1

Fly-tight, rodent-tight, impervious, cleanable, or single service containers must be used for the storage of garbage.

E6.3.1.1

Keep garbage containers stored away from your campsite or work area. Food crumbs and debris may attract insects and animals.

E6.3.1.2

Garbage containers must be kept clean.