

The Academy of Natural Sciences of Drexel University
Center for Academy Science (CAS)
Field Safety Plan (FSP) revised Jan. 2022

Project Name: : [Increasing regional carbon sequestration through salt marsh restoration](#)

Date plan prepared: May 31st, 2022

Project/Research Leader (and phone #'s): [Elizabeth Watson, 831-345-6353](#)

IN CASE OF EMERGENCY:

1. Take **immediate** action to protect site personnel and bystanders.
2. If injuries/accidents are serious, or life-threatening, and require emergency medical treatment, call 911, or appropriate emergency number specific for the country you are working in, and wait for emergency responders. If certified, perform First Aid and CPR/AED.
3. If injuries are not severe, provide first aid to the injured worker and monitor their activity during the day.
4. For all injuries and accidents, contact Jennifer Gallagher, Drexel HR Business Partner (215/ 895-1666, 215-299-1083) to report the incident. If Ms. Gallagher is unavailable, work your way down the list of administrators (below) until direct phone contact is made. The injured may need to visit a Drexel Occupational Medical Facility, (WORKNET Center City at 219 N. Broad St-1st floor, 215/762-8525, or the South Philadelphia -Navy Yard facility 215/467-5800) for further care.
5. For injuries and emergencies outside the United States, contact Marcia Henisz, Drexel's Senior Director of International Health, Safety, and Security in the Office of International Programs, Phone:(215/571-3762), email: mwh23@drexel.edu. For immediate assistance contact Call International, Drexel's Emergency Assistance provider, at 1-603/952-2038, or 1- 267/571-5911
6. Injured employees will need to fill out the ANSDU Employee Injury Form Main Campus <https://drexel.edu/generalcounsel/insurance/forms/within> 24 hours of the incident and forward the form to the Department of Risk Management, 3180 Chestnut St, Suite 101 Phone: 215/895-2292. Fax: 215/895-1411.
7. Drexel Risk Management must be notified within 24 hours of a car accident involving Drexel employees/vehicles. A completed Driver Accident Report form <https://drexel.edu/generalcounsel/insurance/forms/>, as well as the Public Safety report (if applicable), must be submitted to Risk Management no later than two (2) business days from the date of the accident (Section 9).
8. For any injury to a participating student, the student's Supervisor/Instructor should report to Drexel Public Safety (215/895-2822) who will contact Environmental Health and Safety. EH&S will send forms for the student and the supervisor/instructor to fill out. EH&S will conduct interviews or investigate as they see fit.

EMERGENCY CONTACT ADMINISTRATORS:

- 1) Roland Wall, MS (PCER Director)
Work: 215/299-1108 Cell: 302/299-9099 email: rjw85@drexel.edu
- 2) Paul Overbeck (CAS Field Safety Officer)
Work: 215/299-1072 Cell: 215/704-4964 email: pfo23@drexel.edu
- 3) Jennifer Gallagher (Drexel HR Business Partner-to be notified in case of any injury or accident).
Drexel phone: 215/895- 2810 email: jlg452@drexel.edu

SAFETY PLAN APPROVALS:

PCER Director: _____ Date: 6/1/2022

CAS Field Safety Officer: *Paul Overbeck* Date: June 1, 2022

CAS Project/Research Leader: *Elizabeth Watson* Date: 6/1/2022

Drexel University COVID-19 Essential Travel Guidance

As of Jan. 3, 2022, Drexel University remains in a limited phase for University-related travel. All Drexel travelers participating in University-related travel are required to be fully vaccinated, including a booster for COVID-19. Vaccinated Domestic travel no longer requires approval via the Essential Travel Request process. However, all domestic travel must seek approval via their supervisor or designated departmental travel approver. Vaccinated International Travel must be approved through the Essential Travel Request process. Any Travel by non-vaccinated travelers with a medical or religious exemption may be considered on a case-by-case basis. If you are **NOT** fully vaccinated, you should contact covid19travel@drexel.edu to determine which essential travel approval process is applicable to you. Additionally, all travelers must confirm that funding for their travel fits within the unit's existing budgets.

ESSENTIAL TRAVEL CATEGORIES

Academic: student travel that is for an academic purpose that is *necessary* and *cannot be postponed or handled remotely* (i.e., for graduation, academic progress, research experience, etc.).

Research: travel required for a professional purpose that is *necessary* and *cannot be postponed or handled remotely*. Examples include travel that:

- Is necessary to preserve the safety/well-being of research subjects and/or participants;
- Preserves the continuity of research that cannot be repeated, replaced or performed remotely; and/or
- Advances critical research in the national or global interest.

The following policy applies to every ANSDU-CAS employee, co-op, or any person to whom the Academy/Drexel grants the privilege of completing field work, including field research and field projects. As a result of the COVID-19 pandemic special travel guidelines and directives have been developed by the Drexel Oversight and Travel Committee. All project team members should refer to the following link to review the new policy covering Essential Travel with and without overnight stays: <https://drexel.edu/procurement/about/covid-19-operations/travel-guidance/>. The document "Domestic Essential Travel Guidance (Overnight stay)-Vaccinated Travelers" (presented in this link) will take the place of the COVID-19 Addendum. This document will present Drexel COVID safety policies and procedures that all staff must follow during field efforts with overnight stays.

Drexel is currently (as of 12/1/2021) in Phase 3: Limited Travel stage

Travel Category	Phase 1: Travel Prohibited	Phase 2: Restricted Travel	Phase 3: Limited Travel	Phase 4: Travel Resumed
Department of State Travel Advisory	Level 4	Level 3	Level 3 or 2	Level 2 or 1
CDC COVID-19 Travel Health Notice	CDC Level 4	CDC Level 3	CDC Level 2	CDC Level 1
Faculty, Staff and PostDocs	Not allowed*	Not allowed*	Permitted, with necessary approvals	Permitted

Graduate Students	Not allowed*	Not allowed*	Permitted, with necessary approvals	Permitted
Undergraduate Students	Not allowed*	Not allowed*	Permitted, with necessary approvals and guidance	Permitted (if destination is not classified as high risk)
Travel must be registered in University System	N/A	Required for any exceptions	Required	Required
Travel booked through World Travel	N/A	Required for any exceptions	Required	Required
Waiver or Assumption of Risk Document Signed	N/A	Required for any exceptions	Required as appropriate	Standard terms & conditions of participation apply
<i>*As of 11/24/2020, this chart has been updated to reflect updates in the CDC advisory level ratings.</i>				

**Non-Vaccinated Travelers may be required to secure additional approvals. Please contact covid19travel@drexel.edu well in advance of your proposed departure date.*

HOW TO SEEK APPROVAL FOR ESSENTIAL TRAVEL

The COVID-19 pandemic continues to affect locations differently, and travel increases your chance of getting and spreading COVID-19. All University-related travel must be deemed essential and receive approval by the appropriate entities. The process to seek approval for essential travel depends upon one’s vaccination status, destination(s), duration of travel and travel type as outlined below. Personal travel does not fall under these restrictions, but the University encourages all individuals engaging in travel to be fully vaccinated (see “Am I Fully Vaccinated?” section) prior to their departure.

Please Note: A Pre-travel Attestation is no longer required for approval; however, all travelers must be in compliance with Drexel’s Health and Safety regulations.

Travel Type by Vaccination Status	Review Process	Supports Provided	Assumption of Risk Document	Registration Required in GRAND
Fully Vaccinated Local-Domestic – No Overnight	Supervisor approval	Guidance	No	No
Fully Vaccinated Local-Domestic – Overnight	Supervisor approval	Guidance	No	Yes
Fully Vaccinated International Travel	ETRC review	Guidance doc and customized pre-departure orientations	Yes	Yes

*All Non-Vaccinated Travelers	ETRC review	Guidance doc and customized pre-departure orientations	Yes	Yes
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APPROVAL PROCESS FOR FULLY VACCINATED INDIVIDUALS

In order to be considered a fully vaccinated traveler, the vaccine obtained must be an FDA-approved vaccine and one must be two weeks or more after a second dose in a two-dose series, the Pfizer or Moderna vaccines, or two weeks or more after a single-dose vaccine, Johnson & Johnson’s Janssen vaccine. Effective Jan 3., 2022, booster shots are required for all University travelers.

If you have obtained a COVID-19 vaccine in another country, please review the Drexel Vaccine Requirements for more information on Drexel’s acceptance of a non-U.S.-authorized COVID vaccine.

If you will not meet the Drexel standard prior to your departure, you are NOT considered to be fully vaccinated and should contact covid19travel@drexel.edu to determine which essential travel approval process is applicable to you.

Overview of Vaccinated Traveler Process

Local Travel/No Overnight Stay	Domestic Travel Overnight Stay	International Travel
Supervisor approval No GRAND registration	Supervisor approval GRAND registration required	ETRC Approval GRAND registration required Risk Acknowledgement

FOR FACULTY, PROFESSIONAL STAFF AND GRADUATE STUDENTS WITH ESSENTIAL TRAVEL

No Overnight: Local/Domestic

For **essential local or domestic** travel that **does not** require an overnight stay:

1. Seek approval for essential travel from your dean or school designee (for academic units) or senior vice president/provost or designee supervisor (for administrative units).
2. Review the Local/Regional Travel Guidance – Vaccinated [PDF] and ensure you are adhering to the University's travel guidelines and policies.

Overnight: Local/Domestic

1. Seek approval for Essential Travel from your dean or school designee (for academic units) or senior vice president/provost or designee (for administrative units).
2. Register your travel in the GRAND system.

3. Review the Domestic Overnight Travel Guidance – Vaccinated [PDF] and ensure you are adhering to the University's travel guidelines and policies.

International

International travel continues to pose additional risks, even for vaccinated travelers, and therefore is subject to a more involved review process. Please review the steps to complete the essential international travel process below.

1. Complete the Exception for Travel Request form [PDF]
2. Seek Essential Travel approval from your dean or school designee (for academic units) or from the senior vice president/vice provost or designee (for administrative units).
3. Submit completed request with dean/SVP sign-off to covid19travel@drexel.edu.
4. Review the appropriate guidance for your proposed travel: International Travel Guidance – Vaccinated [PDF]
5. If travel is approved, complete all pre-departure requirements, which generally includes:
 - Signing an Acknowledgement of Risk: Domestic [PDF] or International [PDF].
 - Reviewing Travel Guidance: International Travel Guidance – Vaccinated [PDF]
 - Register your travel in the GRAND system.
 - Book your travel with World Travel by calling 1-855-809-8166 or by contacting travel@drexel.edu.
 - Complete a short pre-departure orientation/meeting.

Typically, completed requests will be processed within 7-10 days of receipt. Some additional information may be requested from the traveler as part of the review process.

MASKS

- **Drexel requires that all students, visitors, and employees (vaccinated or not) wear a mask in ALL indoor public, shared, instructional, and research settings on campus.** The responsibility to have and wear a mask belongs to each member of the campus community.
- **Get a well-fitting mask.** We recommend you consider doubling up, with a surgical mask underneath a cloth mask that fits snugly against your face. A single-layer cloth mask with no filter, while better than nothing, does not provide the most efficient protection from newer COVID-19 variants. While 2-layer, surgical face masks with wire clips are still effective, such masks often don't fit snugly by themselves. All masks should completely cover your nose and mouth and fit well to prevent air escaping out of openings in the mask while still being comfortable. Other options for masks include a properly fitting KF94 or KN95.
- Bandannas, balaclavas, scarves, neck gaiters and masks with ventilation valves are NOT permissible face coverings indoors at Drexel.
- Vaccinated students and employees may remove masks while alone in single-occupancy offices (with doors closed), as well as with roommates in Drexel housing. These exceptions do not apply to unvaccinated individuals.

1. General Field Policy

Employees (co-op's are employees) should be constantly aware of risks involving the aspects of each field research project and conduct themselves accordingly. The Project Leader (PI) or the Field/Research Coordinator will define and present all project-specific risks and inform participating researchers of the dangers involved with the activity. The Project Leader (PI) or Field/Research Coordinator is responsible for generating and distributing the Field Safety Plan (FSP) for their projects prior to commencement of field activities.

If an employee encounters dangerous working conditions (flooding river, inclement weather, unsafe boats, unsafe sampling conditions, etc.), they may question the dangers with the Project Leader(PI) or Field/Research Coordinator, and the Field Safety Officer (FSO), and if not satisfied that the work can be performed safely, may cease field activities (without repercussions), until the employee considers the job safe.

Employees and co-ops will have read and understood the project Field Safety Plan (FSP), before participating in any field activities. A copy of the FSP will be kept with the Project Leader (PI) or Field/ Research Coordinator for the duration of the specific project.

Employees are required to dress appropriately for the field work as weather conditions can change quickly. Monitor the weather prior to going in the field.

No open toed (e.g. sandals, flip flops) footwear is permitted to be worn in the field. The loading of equipment into vehicles and boats is considered field work.

Cellular phones shall be carried by each field team while conducting field activities for use in case of emergency. Check with your cell phone service about international coverage and rates. You may consider bringing an unlocked phone and purchasing a local SIM card or renting a satellite phone for work in more remote areas.

All employees performing field work are required to be certified in First Aid/CPR/AED.

A First-aid kit will be carried during the field project. The FSO has First Aid kits that can be signed out for field use. Check with the Field Safety Officer for availability. An Automatic External Defibrillator (AED) unit is available to sign out for use (contact Field Safety Officer).

Field staff who are renting field vehicles should check with Megan Bucci (215/299-1037) regarding insurance for the rentals. In addition, all occupants must be restrained with a seatbelt.

ANSDU vehicles may only be driven by employees on ANSDU business and shall not be driven unless the employee has been properly approved for driving by Drexel Human Resources and ANSDU Administration and has met the Eligible Driver Classifications outlined in the Drexel Motor Vehicle Operator Policy (<http://www.drexel.edu/hr/resources/policies/dupolicies/rm2/>). **Undergraduate students and co-ops are not permitted to drive ANSDU/Drexel vehicles.**

If sampling from any boat, a USCG Approved (Type I, II, or III) Personal Floatation Device must be worn by all staff and students while sampling. In addition, boats that are 16ft and longer are required to have a throwable floatation device (Type IV) on board. The boat operator must have a valid Boating Safety certificate (USCG approved course) to pilot the boat.

If field work includes sampling from boats <16ft in length, it is required for one trained and experienced employee (has boating certificate, and approved by FSO), to be in boats with the students/staff. Boats >16 ft in length will require two experienced and trained employees to occupy the boat with students/staff. Sampling from boats during the winter months (Dec.-March) requires two experienced and trained employees to occupy any size boat when sampling. One trained employee (with boating safety certificate or course) may be allowed to operate a boat, if in sight of other personnel on shore, or in company of other project boats, and weather conditions are favorable. Lone field workers are not allowed to complete field work by boat.

A solitary field worker on land may undertake work only with prior approval from the appropriate CAS Administrator and the FSO and must carry a cell phone for emergency communication. In addition, the solitary

field worker must directly contact the Project Leader(PI)/Supervisor at a scheduled time during the sampling session

Employees operating a ANSDU vehicle with a trailer (with boat) in tow are required to have appropriate training. Trailer training for employees must be requested through the Field Safety Officer and will involve reviewing training material (DVD, pamphlets etc.) and require the employee to be instructed by an experienced staff member over a time before being approved for trailering.

Employees sampling off bridges will need to wear high visibility safety vests and have an additional staff member (not actively sampling) act as a lookout for oncoming traffic.

Employees sampling during the hunting season should also wear high visibility safety vests. The hunting seasons vary between states and species, so be sure to check on hunting in the area you are sampling and prepare accordingly.

All employees traveling out of the country must register in the Global Research and Academic Network Database (GRAND) and the Foreign Exposure Registry. This program is administered through the Drexel Office of Global <https://drexel.edu/global/health-and-safety/travel-safety/> The Senior Director of International Health, Safety & Security is Marcia Heinsz mwh23@drexel.edu, 215/571-3762. Important travel safety and security information can be found on this website. For International Emergencies, 24/7 Tel: 267-571-5911.

The University has contracted with On Call International to provide emergency medical, political and natural disaster assistance, evacuation and repatriation coverage for employed faculty, professional staff and all students participating on a university-affiliated international activity If you are abroad and in need of immediate assistance, contact Call International. Drexel's Emergency Assistance provider at +1-603/952-2038.

If a staff member's personal vehicle is being used for field transportation, then the vehicle owner's insurance policy will be primary to any insurance that the University carries. The University is not responsible and will not reimburse for the cost of repair to a personal vehicle and/or any deductibles and the vehicles used for business purposes should have at least \$100,000/\$300,000 of liability insurance coverage per the travel reimbursement policy. The University is not responsible and will not reimburse individuals for the cost of insurance. Staff members personal vehicles should not be used to transport students.

2. Weather Precautions

If weather advisories, or alerts, have been issued for an area and time where sampling will occur, discussion and approval from the Field Safety Officer will be required prior to performing field work.

CAS employees and co-ops working during unusually hot weather need to take the following precautions against heat related illness (e.g., heat cramps, heat exhaustion and heat stroke in order of severity).

If possible, please schedule your field efforts for early in the day with work finishing before 3pm, which is typically the hottest part of the day.

The Project Leader(PI) or Research Coordinator is responsible for making sure there is enough water and/or Gatorade/Powerade (or similar liquids), to keep field workers hydrated through the day.

Take frequent breaks during the field effort, preferably in the shade, if available. If no shade is available, take a break in a vehicle with air-conditioning.

Make sure you have a cellular phone working and charged for use in case of emergency.

In extreme heat (heat index between 95-100° F), try to reschedule field work to a day when temperatures are predicted to be lower. Field work should be postponed if the heat index is greater than 105° F.

Hats, sunscreen, loose fitting clothes can help in preventing heat related problems.

CAS employees and co-ops working during unusually cold weather (typically the winter months in the eastern US between early December and mid-March) need to take the following precautions against cold related illness (hypothermia and frostbite).

If possible, schedule your field efforts for that part of the day which is warmer and with less wind (wind chill can heighten the effects of cold weather). Refer to weather <http://www.intellicast.com/> and wind prediction <http://www.sailflow.com/> services for current and upcoming conditions.

The individual student/employee/crew member is responsible for making sure they are appropriately dressed for the conditions. It is prudent to bring an extra set of dry clothes in case you get wet during cold weather field sampling. An all-weather blanket should be carried by the crew for use in emergencies. Hand warmers should also be provided for use.

In extreme cold (wind chill less than 25° F), try to reschedule field work to a day when temperatures are predicted to be higher. Field work should be postponed if the wind chills are below 20° F.

The Project Leader(PI) or Research Coordinator is responsible for providing fluids (hot chocolate, water), to keep field workers hydrated through the day.

Take frequent breaks during the field effort (preferably in a warmed vehicle, or building, if available).

Make sure you have a cellular phone working and charged for use in case of emergency.

3. Project Description with Specific Safety Concerns

For this project, we will measure greenhouse gas fluxes (carbon dioxide, methane, and nitrous oxide) using various field greenhouse gas analyzers (Picarro, LGR, and Liccor). Greenhouse gas exchange will be measured in three areas: restored areas, unrestored areas, and reference areas. Measures will be made in grasslands, marshes, and mudflats. In addition, sediments and biomass will be sampled for carbon density measures, again in restored areas, unrestored areas, and reference areas. Sediment sampling may occur using various coring devices and augers. Biomass will be clipped, dried, and processed. Ancillary fieldwork will include using a geophysical survey instrument to map salinity, use of pushpoint porewater sampler, and collection of biochar amended soils for biogeochemical and microbial analyses.

The research will be conducted by Elizabeth Watson with field assistants arranged for by the Elkhorn Slough National Estuarine Research Reserve, including interns from CSUMB and UC Santa Cruz and ESNERR staff and volunteers. Watson will work with field assistants in a socially distanced manner, and each will drive their own vehicle.

Safety concerns associated with this project include:

- (1) Slips, trips, and falls due to uneven and soft salt marsh and mudflat terrain. Work will be conducted with student interns from CSU Monterey Bay and UC Santa Cruz, and ESNERR staff and volunteers so that work will not occur solo.
- (2) Fieldwork will be conducted during summer, which is typically mild and foggy at the field site (e.g., 60F), and rain/thunderstorms do not occur during summer. However, over the past five years, there have

been active wildfires in this part of the state during summer. Wildfire activity will be monitored daily using Cal Fire - <https://www.fire.ca.gov/incidents/>. If fires are active nearby, a mask will be worn during fieldwork to prevent ash inhalation. If evacuation is required due to wildfire, I will evacuate to the house of a family member.

(3) Ticks: Ticks will be checked for daily.

(4) A frequent hazard encountered at Elkhorn Slough, has been barbed wire in various forms, and past research trip participants have needed to get a tetanus shots after encounters with barbed wire. I received a tetanus shot in May of 2019, and have local knowledge of where barbed wire is found, and will do my best to avoid it.

(5) COVID-19: See COVID safety plan below.

Project Dates: In person dates: July 1-31, 2021 (anticipated)

Employees/ Students: Elizabeth Watson

Transportation: Field sites will be accessed via a rented vehicle.

4. General Safety Information

AT NO TIME IS A FIELD CREW MEMBER PERMITTED TO TRESPASS ON PRIVATE PROPERTY TO ACCESS A SAMPLE SITE.

Some project sites are in urban areas and caution must be taken when sampling. The sites, though urban, are at times remote, and there is a possibility of meeting with transient individuals. Be aware of your surroundings always.

No open toed footwear (e.g. sandals, flip flops) is permitted to be worn in the field.

Sampling will be done during daylight unless procedures for night sampling are defined in the FSP.

Dress appropriately for various weather events. It is the field crew member's responsibility to monitor the weather and select the appropriate clothes to wear for themselves and to inform the other field team members.

Field equipment may be heavy so the equipment should be distributed equally between field team members for transport to the sampling site.

All staff participating in the field collections for this project should have standard personal protective equipment, including appropriate foot protection while completing field work. Waders and rubber boots should be provided (paid for by the project) for all staff working in wetlands, or in other waterbodies. Hand protection (i.e. gloves, hand warmers) should also be provided. Insect spray (with at least 20% DEET), sun lotion and a tick removal kit will be available for use. Hats and polarized sunglasses are highly recommended. A First Aid kit will be carried to all field sites. Anti-bacterial soap should also be available for use.

If traveling outside the United States obtain all recommended immunizations for your destination country (Visit the CDC for more information).

All full time and temporary ANSDU employees (paid co-op students and interns) performing project field sampling will have completed standard ANSDU field safety training and will be certified in First aid /CPR/AED. An AED unit will be available for use if needed for a project. Volunteers working on the field portion of this project, will be exempt from the standard field safety training, but will be required to complete the Center For Academy Science Volunteer Field Safety Addendum form (attached at end of document) prior to participating in the field effort.

Interns, volunteers, and co-ops are not permitted to dispense gasoline, formaldehyde, ethanol or any other chemicals brought into the field.

Formaldehyde and ethanol (preservatives) will be stored in an air-tight Rubbermaid container when being transported in field vehicles. The container will be removed from the vehicle when crew needs to access the materials stored in the box. Fumes can build up in this container and it must be opened outside of the vehicle. Nalgene gloves and eye protection (goggles) will be worn by trained employees when dispensing gasoline or preservatives. (see Section 11.)

Sample Preservation:

Can only be performed by trained, experienced staff.

Nalgene gloves and eye protection will be used when preparing and using preservatives. Care must be maintained when preserving samples that no liquid splashes onto your face, body or ground. If preservative gets onto your body you should remove any contaminated clothing and wash off the preservative of your skin immediately with fresh water, or clean creek water. If solution gets into your eyes, you need to flush with clean fresh water and depending on the severity transport the crew member to the nearest hospital for medical care.

Some of the euthanized animals will be placed in appropriate sized jars and preserved with either a 10% formalin or a 70% ethanol solution to preserve taxonomic characters as these specimens will be identified, documented and curated into the Academy's Ichthyology museum collection for long term storage as teaching specimens. Some samples may be kept on wet or dry ice for otolith and isotope analysis. The preservatives should be carried to the field in appropriate (original is best), labelled containers, which are stored separately in an airtight container while in the field vehicle.

5. Common Field Hazards

The information presented below is comprehensive and specific for the field safety hazards associated mainly within the Northeastern United States. These hazards may or may not be essential for your FSP. Please remove any hazards that may not pertain and add ones that do pertain to your specific sampling locations. Please research the various hazards (biological, botanical and meteorological) that may occur in your sampling locations and summarize them in this section.

Stinging insects (bees and wasps)

At times the crews need to access sample areas which contain overhanging vegetation and trees. Frequently there are wasp and hornet nests at the edges of the tree branches along the stream. Crews need to be aware of their positions in these areas and keep checking on the branches to avoid disturbing these nests. Also, care must be taken to avoid stepping onto ground yellow jacket ground nests. Sting kits are available in the first aid kits, which will be carried by the field crew. If you are allergic to stings, please be prepared with your EPI pen for prevention of shock and inform the field leader to this condition.

Severe Weather

Severe weather events (thunderstorms with lightning, high winds, excessive heat and excessive cold, snow, icing) can occur in this region of the United States. The Field/Project Coordinator and the Field Safety Officer are responsible for deciding if the field trip should be cancelled during severe weather events and will communicate with the staff in advance if the trip is to be cancelled. The Field/Project Coordinator must monitor the weather for the area where the field crew will be sampling and listen to the weather forecast for that area.

Lightning Safety

Thunderstorms and lightning are most likely to develop on hot, humid days. Thunderstorms and lightning can be very dangerous, especially if a person is outdoors without proper protection. Cease work and take protective action immediately if thunder and lightning is seen or heard. Staff should proceed quickly to seek shelter at a safe location.

Protection During Lightning Storms (adapted from the Electronic Library of Construction Occupational Safety and Health)

There are several things one can do if caught outdoors when a lightning storm strikes. Take shelter inside a building or car and close the windows and doors. Get out of the water if you are swimming or boating, and get away from it. If boating, stay low and avoid contact with the water.

Do not take refuge under any tall, isolated object, such as a tent or tree. Standing under a group of trees, shorter than others in the area, is better than being in the open. Avoid electrical fences, clothes lines, metal pipes, rails, telephone poles and other conductors. Put down any object that might conduct electricity, such as a rake, metal rod, or shovel. Seek low ground, preferably a ditch or gully. If you are outside with no protection, get to a low spot. Make your body low to the ground, but do not lie flat on the earth. Curl on your side or drop to your knees and bend forward, putting your hands on your knees. If there is a group of people, spread out. If someone feels their hair stand on end, it may mean lightning is about to strike. Stay calm and keep low. This will help reduce your chances of being struck by lightning.



Do not take refuge under an isolated object

If lightning strikes are suspected, keep clear of windows if inside a dwelling. Turn off the television and any other electrical appliances. Electricians suggest unplugging televisions and other valuable appliances because lightning can strike or cause electrical surges that can destroy these appliances. Postpone baths, showers and doing dishes until the storm passes because there is the possibility of electrocution. Stay away from water and gas pipes, electrical appliances and telephones because electricity can travel through these and cause electrocution.

Ways Lightning Can Kill

There are five ways in which lightning can severely injure or kill people or animals.

1. A direct strike usually results in cardiac arrest and/or stoppage of breathing.
2. A sideflash may occur when the body of a person provides an alternate or parallel path for the current. This means the person may be another way for the current to reach the ground. If the current passes through the head or heart, death may result.
3. Conducted current from a lightning flash may range from tingling shock to a massive current diverted from a poorly grounded electric power pole through the wiring system.
4. Step voltage radiates out through the ground from a struck tree or pole. This results in many livestock deaths every year.
5. Fires, fallen trees, crushed cars. These are secondary effects. Injuries that occur from these are an indirect result of lightning.

First Aid for Lightning Victims

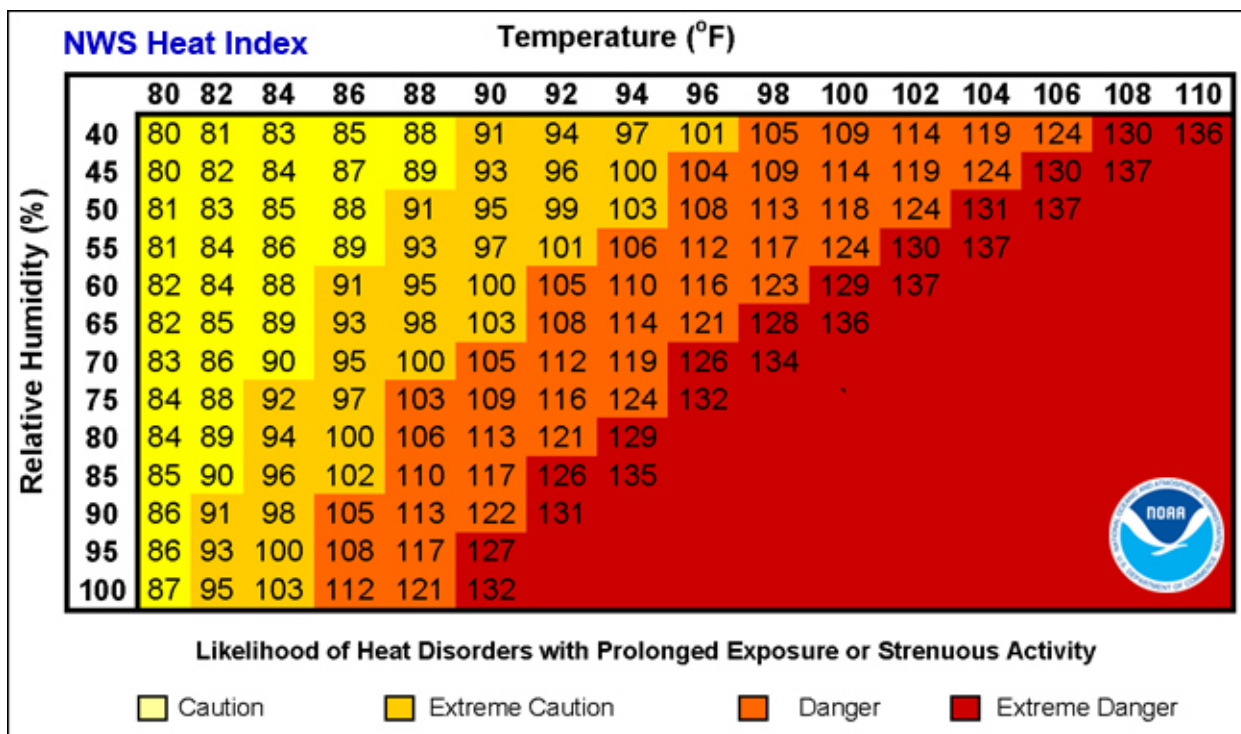
Besides burns, lightning can also cause nervous system damage, broken bones and loss of hearing or eyesight. Victims may experience confusion and memory loss. First aid for lightning victims needs to be carried out immediately. After the lightning strikes, get to the victim as quickly as possible. Check breathing and pulse if the victim is unconscious. If the victim has a pulse, but is not breathing, begin mouth-to-mouth resuscitation. If there is no pulse, begin cardiopulmonary resuscitation CPR. If the victim has no pulse use and AED to revive them if one is available. Check for other injuries, such as possible fractures. Do not move a suspected spinal injury victim. Cover the electrical burn with a dry, sterile dressing, but do not cool the burn. There may be more than one burn area -- one where the current entered the body and another where it left. Call the local emergency department for help. Keep the victim from getting chilled until help arrives.

If a person struck by lightning appears only stunned or otherwise unhurt, medical attention may still be needed. Check for burns, especially at fingers and toes, and areas next to buckles and jewelry. Make sure all lightning victims have a medical examination even if they do not seem to need it.

Extreme Temperatures:

Heat Injury

Field work should be cancelled if the heat index (combined effects of temperature and humidity) is above 103° F. Extra precautions will be taken for field work in heat indexes 91° F -103° F.



Heat exhaustion and heat stroke can be severe medical emergencies requiring immediate hospitalization. Heat stress is most likely to occur if heavy work is performed under high air temperatures, particularly when protective clothing inhibits the body's ability to cool itself.

The most common signs and symptoms of heat exhaustion include:

- Confusion.
- Dark-colored urine (a sign of dehydration)
- Dizziness.
- Fainting.

- Fatigue.
- Headache.
- Muscle or abdominal cramps.
- Nausea, vomiting, or diarrhea.

The most common signs and symptoms of heat stroke include:

- Throbbing headache.
- Dizziness and light-headedness.
- Lack of sweating despite the heat.
- Red, hot, and dry skin.
- Muscle weakness or cramps.
- Nausea and vomiting.
- Rapid heartbeat, which may be either strong or weak.
- Rapid, shallow breathing.

If work activities take place outdoors during periods of high temperature or in high temperature environments or require protective clothing (i.e. waders) that can cause or contribute to heat stress, employees should monitor themselves and each other for signs of heat stress. Employees should take proper precautions, including consumption of additional fluids and frequent breaks to forestall the onset of heat stress or more serious conditions. Work and break schedules should be set depending on the workload and the outside temperature. These breaks will be taken in a shaded area or inside a building /car with air conditioning, if possible, and employees should remove protective clothing.

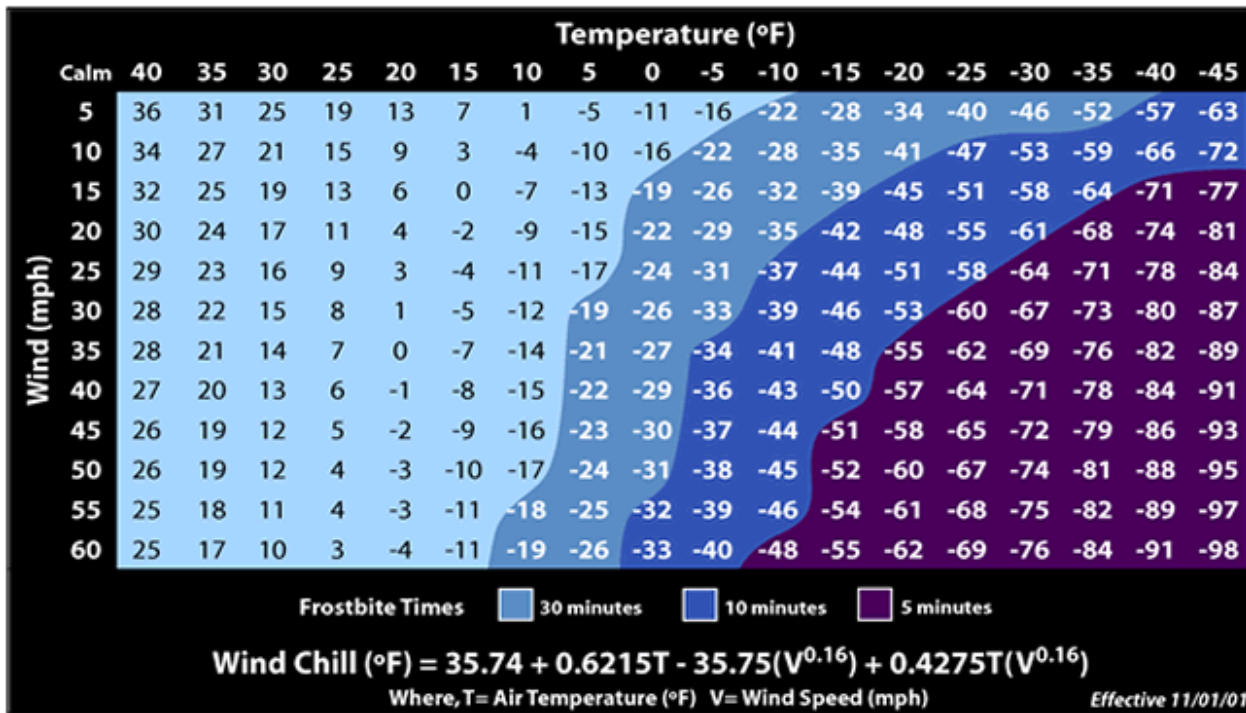
Generally, workers conducting field activities in protective clothing need a break in the shade every hour during elevated temperatures. Rest time should include fluid replacement with electrolytes. Drinking small amounts of fluids often. It is the responsibility of the site supervisors to provide appropriate liquids (water and/or Gatorade type drinks) for drinking and, during hot weather, to encourage employees to drink more than the amount required to satisfy thirst.

Cold injury

Field work should be cancelled if the wind chills are below 20° F. Extra precautions will be taken when sampling in temperatures below freezing (with colder wind chills).



Wind Chill Chart



Persons working outdoors in temperatures at or below freezing, experiencing excessive cold or wet conditions can cause excessive loss of body heat (hypothermia) and/or frostbite. Frostbite and hypothermia can be severe medical emergencies requiring immediate hospitalization.

Frostbite is a cold weather-related stress. Areas of the body having high surface-area-to-volume ratios, such as fingers, toes, and ears, are most susceptible to frostbite. Frostbite of the extremities can be categorized into three types:

- Frost nip or incipient frostbite, which is characterized by skin blanching or whitening
- Superficial frostbite, in which the skin has a waxy or white appearance and is firm to the touch but the tissue beneath, is resilient
- Deep frostbite, an extremely serious injury, in which the tissues are cold, pale, and solid

Hypothermia is the second type of cold weather-related stress. Systemic hypothermia is caused by exposure to freezing, or rapidly dropping temperatures. Its symptoms are usually exhibited in five stages:

- shivering
- apathy, listlessness, sleepiness, and sometimes rapid cooling of the body to less than 95°F
- unconsciousness, glassy stare, slow pulse, and slow respiratory rate
- freezing of the extremities
- death

At the outset of signs of either, proper steps should be taken to see that the affected person gets proper attention. Ambient air temperature and the velocity of the wind are the two factors that influence the development of a cold weather-related injury. The term wind chill is used to describe the chilling effect of moving air in combination with low temperature. For instance, 10°F with a wind of 15 miles per hour (mph) is the equivalent in chilling effect of still air at -18°F. As a rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Because of the effects of wind chill, there is a greater danger from cold-related stress on cold, windy days than on cold days when there is little or no wind.

Water conducts heat 240 times faster than air; therefore, the body cools more quickly when damp or wet. Care should be taken to minimize the possibility of workers becoming damp or wet. If workers do become damp or wet, efforts should be made to minimize the time that the worker is exposed to the cold. If clothing beneath the personal protective clothing becomes damp, the field supervisor will assess site specific weather conditions to determine if it is appropriate for workers to remove protective clothing outdoors.

Employees working in these conditions should be properly outfitted with warm and/or waterproof/resistant clothing and proper footwear. Employees should be monitored for signs of frostbite and hypothermia. Breaks should be taken more frequently when weather conditions are severe.

- Drink warm, sweet beverages (sugar water, sports-type drinks). Avoid drinks with caffeine (coffee, tea, sodas or hot chocolate).
- Hand warmers will be provided during winter sampling.
- Make sure the field vehicles heaters are working prior to the trip and report any problems to the vehicle manager, or rental car company.
- The winter field crew should bring an extra set of clothes and jacket to change into in case of getting wet while sampling.
- Wading in water that has ice or snow along the banks presents more challenges and crew must be very careful when sampling in these conditions. Traction sandals that fit over wader boots should be worn to prevent slipping. Winter field crews wading in streams should use neoprene waders for extra warmth.

Sampling Terrain/Roads/Waterways

Some sample sites are in steep terrain and the creeks may have slippery boulders and rocky ledges to traverse. Slips, trips and falls may occur. Lug sole waders and/or rubber boots should be available for the field crew to wear at these sites (check with Field/Project Coordinator). It is highly recommended for the field crew to wear either sturdy hiking shoes, boots, or sneakers during all sampling events. No open toed shoes, sandals, or flip flops are permitted in the field. Special care must be taken while driving to the sample sites. Some of the sites may require 4-wheel drive vehicles. Caution must be taken when driving on dirt, gravel and snow-covered roads where there is less traction and heavy vehicles may slip more. Field crew conducting work in remote locations with guides familiar with the site hazards, should follow all safety procedures presented to them by these guides.

Ticks

It is very important to review the preventative measures of tick infestation. Field crew should be provided with insect repellents that contain at least 20% DEET and should use this product according to manufacturer's directions. Field safety kits should have a tick removal kit, or several pairs of fine tweezers for tick removal along with rubbing alcohol to disinfect the tweezers. It is recommended that ticks be saved for identification (in small vials). Long sleeved shirts and hats are recommended to be worn when in the field. Make frequent body checks for ticks when you are back home and showering. A web site from the CDC http://www.cdc.gov/lyme/signs_symptoms/index.html gives a detailed overview of Lyme Disease signs/symptoms/diagnosis and treatment. Please review this document to learn more about the disease and how to prevent it.

Field crew members who are bitten by ticks should pay careful attention to the bite area and see if the bull's eye rash develops (only develops in 70-80% of bites and can occur 3-30 days after bite). You should also realize that there are different types of rashes associated with other tick diseases. Early recognition and treatment is the best way to avoid serious complications. Your physical condition is very important to monitor, be cognizant of fever, excess fatigue, joint pain (these symptoms may be masked by the overall difficulty and exhaustion experienced during the daily field work you are performing, so you really must know your own tolerance

levels).

Tick bites are considered an injury and the injured person will need to contact the Drexel Occupational Medical Facility, (WORKNET Center City at 219 N. Broad St, 215/762-8525, or the South Philadelphia -Navy Yard facility 215/467-5800) for further care. Contact Courtney Claiborne, Drexel HR Business Partner (215/ 895-1666); email: CNP45@drexel.edu for further information.

The following information will be requested by the Medical Facility:

1. Name of the person bitten
2. The date and time of the bite
3. Location of the bite (*example*, arm, leg)
4. Location of the work area
5. What you were doing at the time of bite

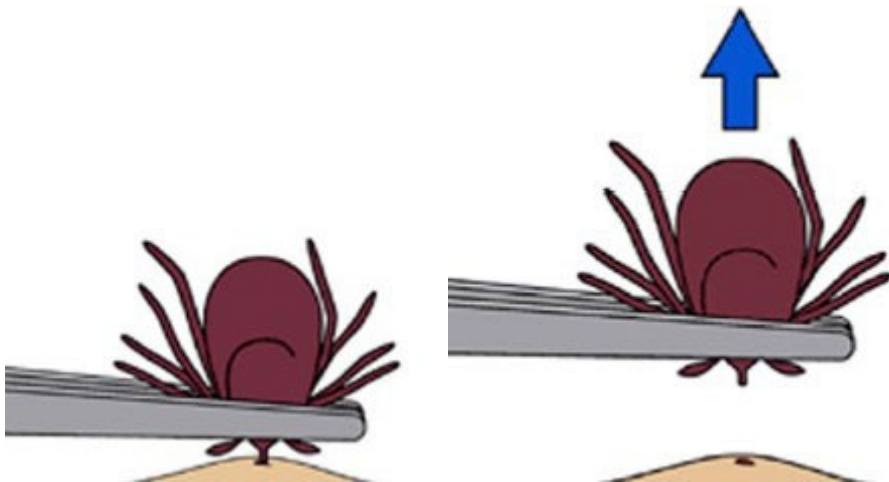
Tick Removal

If you find a tick attached to your skin, there's no need to panic. There are several tick removal devices on the market, but a plain set of fine-tipped tweezers will remove a tick quite effectively.

How to remove a tick

1. Use fine-tipped tweezers to grasp the tick as close to the skin's surface as possible.
2. Pull upward with steady, even pressure. Don't twist or jerk the tick; this can cause the mouthparts to break off and remain in the skin. If this happens, remove the mouthparts with tweezers. If you are unable to remove the mouth easily with clean tweezers, leave it alone and let the skin heal.
3. After removing the tick, thoroughly clean the bite area and your hands with rubbing alcohol, an iodine scrub, or soap and water.
4. Dispose of a live tick by submersing it in alcohol, placing it in a sealed bag/container, wrapping it tightly in tape, or flushing it down the toilet. Never crush a tick with your fingers.

Avoid folklore remedies such as "painting" the tick with nail polish or petroleum jelly or using heat to make the tick detach from the skin. Your goal is to remove the tick as quickly as possible--not waiting for it to detach.



Mosquitoes

Mosquitoes have been implicated in the spread of West Nile Virus and EEE (Eastern Equine Encephalitis) in many parts of the eastern United States where many field teams' sample. In other parts of the world mosquito diseases vary with species and location and severe sicknesses (malaria, dengue, encephalitis, etc.) can be transmitted from their bite. When travelling out of the United States be aware of the species of mosquito(s) that

may be present in your sampling areas and use precaution to prevent being bit. One main way to avoid being bitten by these insects is by wearing long sleeved shirts and pants. The use of a mosquito bed and head net may be prudent in some situations. Use insect repellents when you go into the field according to manufacturer's recommendation. Repellents containing DEET, picaridin, IR3535, and some oil of lemon eucalyptus and para-menthane-diol products provide longer-lasting protection. Mosquitoes may bite through thin clothing, so spraying clothes with repellent containing permethrin or another EPA-registered repellent will give extra protection. Don't apply repellents containing permethrin directly to skin. Do not spray repellent on the skin under your clothing.

In the eastern US, report dead birds to local authorities. Dead birds may be a sign that West Nile virus is circulating between birds and the mosquitoes in an area. By reporting dead birds to state and local health departments, you can play an important role in monitoring West Nile virus. State and local agencies have different policies for collecting and testing birds, so check with your state health department to find information about reporting dead birds in your area.

No symptoms in most people: Most people (70-80%) who become infected with West Nile virus do not develop any symptoms.

Febrile illness in some people: About 1 in 5 people who are infected will develop a fever with other symptoms such as headache, body aches, joint pains, vomiting, diarrhea, or rash. Most people with this type of West Nile virus disease recover completely, but fatigue and weakness can last for weeks or months.

Severe symptoms in a few people: Less than 1% of people who are infected will develop a serious neurologic illness such as encephalitis or meningitis (inflammation of the brain or surrounding tissues). The symptoms of neurologic illness can include headache, high fever, neck stiffness, disorientation, coma, tremors, seizures, or paralysis.

Serious illness can occur in people of any age. However, people over 60 years of age are at the greatest risk for severe disease. People with certain medical conditions, such as cancer, diabetes, hypertension, kidney disease, and people who have received organ transplants, are also at greater risk for serious illness. Recovery from severe disease may take several weeks or months. Some of the neurologic effects may be permanent.

About 10 percent of people who develop neurologic infection due to West Nile virus will die.

Information compiled from <https://www.cdc.gov/westnile/symptoms/index.html>

Poison Ivy

Care must be taken to avoid exposure to poison ivy and the resulting rash. The rash is caused by contact with an oil (urushiol) found in poison ivy, oak, or sumac. The oil is present in all parts of the plants, including the leaves, stems, flowers, berries, and roots. Urushiol is an allergen, so the rash is actually an allergic reaction to the oil in these plants. Indirect contact with urushiol can also cause the rash. This may happen when you touch clothing, pet fur, sporting gear, gardening tools, or other objects that have come in contact with one of these plants. But urushiol does not cause a rash on everyone who gets it on his or her skin.

If you know you had contact with one of these plants, immediately wash areas of the skin that may have touched the plant. Sometimes the rash can be completely avoided by washing the affected areas with plenty of water within 10 or 15 minutes of contact. You could also try using a product (such as Tecnu or Zanol) that is designed to remove the oil from your skin.

To relieve itching and help dry blisters, apply wet compresses or soak the area in cool water. Antihistamine pills or calamine lotion may help relieve symptoms.

If you have a moderate to severe rash, you may need to see the doctor at the Occupational Medical Facility. You will need to call our HR representative Courtney Claiborne at 215/299-1083 or 215-895-1666 for further information. A doctor may prescribe corticosteroid pills. These medicines may help improve or clear up the rash more quickly. Prescription corticosteroid creams, ointments, gels, or shots may also be used.

A frequent complication of the rash is infection. If this occurs, your doctor will probably prescribe an antibiotic cream that you spread on the affected skin if the infection is small. Otherwise, you may need antibiotic pills or a shot. To prevent infection, try not to scratch the rash. Cut your fingernails short to minimize the possibility of opening the skin and spreading bacteria.

Black Bears

Bear attacks are extremely rare, especially considering how often people encounter them. In most cases, a bear will detect you first and leave the area long before you'll ever see it. However, if you do meet a bear before it's had time to leave, here are some suggestions. But remember, every bear encounter is different.

- Stay calm – If you see a bear and it hasn't seen you, leave the area calmly. While moving away, talk to help the bear discover your presence.
- Get back – If you have a close encounter, back away slowly while facing the bear. Avoid direct eye contact, which a bear may perceive as a threat. Give the bear plenty of room to escape. Wild bears rarely attack people unless they feel threatened or provoked. If you're on a trail, step off on the downhill side and slowly leave the area.
- Don't climb or run – If a cub is nearby, try to move away from it. But be alert, there could be other cubs. Never climb a tree to escape, because sows chase their cubs up trees when they detect danger. If you climb a tree, a sow may interpret that as an attempt to get her cubs. Stay on the ground and don't make any sudden movements. Running may prompt the bear to give chase; nobody can outrun a bear.
- Pay attention – Bears will use all of their senses to figure out what you are. If they recognize you as a person, some may stand upright or move closer in their efforts to detect odors in the air currents. Don't consider this a sign of aggression. Once a bear identifies you, it will usually leave. However, if the bear stays, it may pop its jaws as a warning sign that it's uncomfortable. That's a sign for you to leave. Back away and slowly leave the area. If the jaw popping warning is ignored, some bears have been known to bluff charge to within a few feet. If this occurs, wave your arms wildly and shout at the bear.
- Fight back – Again, black bear attacks are extremely rare. However, they have occurred. If a bear attacks, fight back. Bears have been driven away when people have fought back with rocks, sticks, binoculars and even their bare hands.

Snakes

The northern copperhead and timber rattlesnake may be present in some of the sampling areas. The snakes listed produce similar reactions when they attack a prey, or a threatening biologist. Initially, a local irritation will occur followed by swelling. If envenomation occurred, the bite will be quite painful with heavier swelling occurring at the bitten part. (20-25% of poisonous snake bites never result in envenomation). Nevertheless, always treat the bite as if venom were injected. Do not panic if bitten! You have plenty of time to get to a hospital. Immediately immobilize the person who is bitten. Keep the person as calm and immobile as possible. Call 911 or the Penn State Poison Center (1-800-222-1222). You may apply a light constricting band above the bite area (be able to insert a finger under the band). The bitten part should be kept at a level below the heart. The anti-venom is stored by most hospitals. You have approximately 4 hours to get the victim to the hospital, so move the victim without delay. Most snakes are more aggressive in early spring or late fall. Also, snakes are aggressive when they are shedding skin.

Rabid Animals (<http://www.humanesociety.org/animals/resources/facts/rabies.html>)

Rabies (Lyssavirus) is an infectious disease that affects the central nervous system in mammals. Any warm-blooded mammal can carry or contract rabies, but the primary carriers in North America are raccoons, skunks, bats, foxes, and coyotes. It's transmitted through the saliva a few days before death when the animal "sheds" the virus. Rabies is not transmitted through the blood, urine, or feces of an infected animal, nor is it spread airborne through the open environment. Because it affects the nervous system, most rabid animals behave abnormally. In the "furious" form, wild animals may appear to be agitated, bite or snap at imaginary and real objects, and drool excessively. In the "dumb" form, wild animals may appear tame and seem to have no fear of humans.

There are other signs, such as the animal appearing excessively drunk or wobbly, circling, seeming partially paralyzed, acting disorientated, or mutilating itself. However, most of these signs can also be indicative of other diseases like distemper or lead poisoning. There are few behavioral signs that are telltale of rabies alone.

If a typically nocturnal animal, such as a raccoon or skunk, is active during the day and exhibiting abnormal behavior, you should seek advice from your local animal control, humane society, wildlife rehabilitator, or state wildlife agency.

Rabies travels from the brain to the salivary glands during the final stage of the disease—this is when an animal can spread the disease, most commonly through a bite.

Rabies can't go through unbroken skin. People can get rabies only via a bite from a rabid animal or possibly through scratches, abrasions, open wounds, or mucous membranes in contact with saliva or brain tissue from a rabid animal.

The rabies virus is short-lived when exposed to open air—it can only survive in saliva and dies when the animal's saliva dries up.

If you handle a pet who has been in a fight with a potentially rabid animal, take precautions such as wearing gloves to keep any still-fresh saliva from getting into an open wound.

Despite the long odds of contracting rabies, the remote possibility of infection exists and should not be taken lightly:

- Don't approach or handle wild animals.
- If you see a wild animal that may be sick, contact your local animal control, veterinarian, or wildlife rehabilitator for help. Don't handle sick wildlife!
- If anyone is bitten by any wild animal, get medical advice from a doctor or health department immediately.
- Scrub any bite wound immediately and aggressively with soap and water, use antiseptic soap such as betadine or Nolvasan®, if available. Flush the wound thoroughly with water.
- If anyone is bitten by a potentially rabid animal, scrub and flush the wound then go to your doctor or an emergency room.
- If possible, the animal should be captured and tested for rabies. Unless you can do it without risking further bites, leave this task to animal control professionals.

Timely treatment after a bite or other exposure is 100 percent effective. The very few people who die from rabies are those who don't get timely treatment.

Disinfection of Equipment:

All nets, field equipment submerged in the sample water (i.e seine nets), boots, and waders will be soaked in a 10% bleach solution for 10 minutes then rinsed and soaked in fresh water for 15 minutes whenever equipment enters a new site to prevent the spread of aquatic invasive species (i.e. Didymo [rock snot]). Protective gear (gloves and goggles) will be worn when disinfecting equipment. The bleach should be disposed of properly after use. Additionally, eco-friendly detergent can be used instead of, or in addition to, bleach. Non-absorbent items can be soaked in a 5% solution of detergent for at least one minute. For absorbent items such as felt-soled

waders, using hot water is recommended for soaking, either with or without detergent (5% solution). Since hot water is difficult to come by in the field, the best method for disinfecting absorbent items is a combination of bleach and detergent, soaked for at least one minute.

6. Site-Specific Information:

Provide information for each location to be sampled, include Site Name, Location, Nearest Emergency Center, Directions to Emergency Center with maps, Local Emergency Phone Numbers and Field Hotel information-if necessary.

Site Name: [Hester Marsh](#)

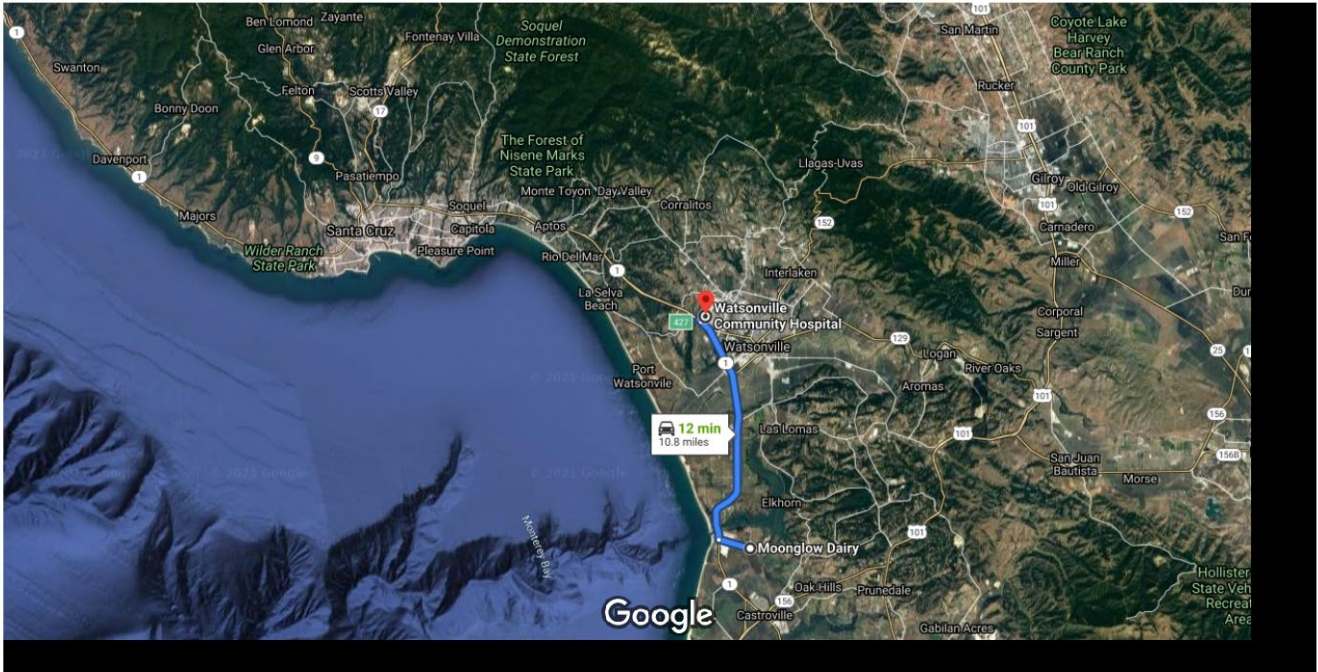
Location: [357 Dolan Rd., Moss Landing, CA 95039 \[Moonglow Dairy\]](#)

Nearest Telephone: [Charged cell phones will be carried by each member](#)

Nearest Emergency Center: [Watsonville Community Hospital ,75 Nielson St, Watsonville, CA 95076](#)

Directions to Emergency Center (with map):

Google Maps Moonglow Dairy to Watsonville Community Hospital Drive 10.8 miles, 12 min



Imagery ©2021 TerraMetrics, Map data ©2021 2 mi

Moonglow Dairy

357 Dolan Rd, Moss Landing, CA 95039

- 1. Head west on Dolan Rd
2 min (1.2 mi)

Follow CA-1 to Larkin Valley Rd in Watsonville. Take exit 427 from CA-1

- 2. Turn right onto CA-1 N
10 min (9.2 mi)

- 3. Turn right onto CA-1 N
9.1 mi

- 3. Take exit 427 toward Airport Blvd
0.2 mi

Take Airport Blvd to your destination

- 4. Merge onto Larkin Valley Rd
1 min (0.4 mi)

- 4. Merge onto Larkin Valley Rd
177 ft

- 5. Turn left onto Airport Blvd
0.2 mi

- 6. Turn right at the 1st cross street onto Nielson St
197 ft

Hotel/Field Base: Elkhorn Slough National Estuarine Research Reserve. 1700 Elkhorn Rd, Watsonville, CA 95076

7. Permit and License Requirements

Is a state, or federal (national), or other type collecting permit and/or fishing license required to conduct this study?

Yes

If yes, please specify what permit(s) and/or license(s) are required, state(s), countries in which collecting will be done, which team members need to be on each permit or have each license, and which, if any, permit or licenses need to be amended or obtained.

1. Moss Landing Harbor District Facilities / Peddlers Use Permit
 - a. Permit was approved

8. Project Personnel

(list all employees and students working on the project and their cell phone numbers).

Primary Staff:

Contact	Email	Office Phone	Cell Phone
Elizabeth Watson (PI, ANSDU)	ebw49@drexel.edu	215-299-1109	(831) 345-6353

Support Staff

Contact	Email	Office Phone	Cell Phone
Roger Thomas (ANSDU)	r1t47@drexel.edu	215-299-1105	267-251-5869
Tanya Dapkey	thd45@drexel.edu	215-299-1113	(267) 393-1899
Paul Overbeck (ANSDU) Field Safety Officer	pfo23@drexel.edu	215-299-1072	215-704-4964
Malcolm Newman	men45@drexel.edu		908-884-4862
Lin Pérez (ANSDU)	lbp43@drexel.edu		609-481-8280

9. Project/Research Associates Contact Information

(list all project, field site and research personnel involved with the project including office, home and cell phone numbers).

Contact	Email	Office Phone	Cell Phone
Kerstin Wasson (ESNERR)	kerstin.wasson@gmail.com		(831) 332-9938
Monique Fountain (ESNERR)	monique@elkhornslough.org	-	-
Rikke Kvist Preisler	rikke@elkhornslough.org	-	-
Rachel Pausch	rpausch@ucsc.edu	-	-

10. Accident Reporting and Analysis

The Academy Vehicle Accident reporting policy is administered by the University. The purpose of the accident investigation is to determine what factors, conditions, and/or practices contributed to the accident involving an Academy/University Vehicle, so that proper action can be taken to prevent recurrence. A complete accident investigation includes gathering pertinent data and making objective evaluations of facts, statements, and related information, which should lead to recommendations for preventive measures. An insurance identification card and accident information form, located in the glove compartment of all Academy Vehicles, lists the procedures to follow when involved in an accident.

A. Reporting

1. In the event of an accident:

- Stay at the scene of the accident, check for personal injury, and seek medical attention if necessary.
- Set emergency signals to prevent further damage or injury.
- Call the local police and notify your supervisor immediately. In the event the accident is on campus, notify the Department of Public Safety as well.
- Stay calm. Be courteous. Avoid arguments. Secure assistance of police and request that an accident report be completed. Make no statement concerning the accident to anyone except the police. Obtain the police officer's name and badge number. Do not admit fault, make no promises, settlement, or excuses.
- Record the names, addresses, and phone numbers of the occupants of involved vehicles and all witnesses.
- Obtain the names, addresses, and phone numbers of all persons injured, regardless of how minor the injury. Try to learn where the injured were sent.
- Record the insurance carrier of the other party, policy number, agent's name, address and phone number.
- Drive vehicle only if it has been determined by law enforcement authorities to be safe to do so.
- Before leaving the accident scene, verify that all the facts have been obtained.

2. Risk Management must be notified within 24 hours of the accident. A completed Driver Accident Report form, as well as the Public Safety report (if applicable) must be submitted to Risk Management no later than two (2) business days of the accident. A police report must be submitted to Risk Management no later than seven (7) business days of the accident. It is the responsibility of the driver and/or supervisor to obtain the necessary police and Public Safety reports.

3. The University will charge departments the insurance deductible for repair work caused from an accident involving an Academy Vehicle.

B. Investigation

The Department of Risk Management will determine if further investigation is needed by the Department of Public Safety.

C. At-Fault Accidents and Violations

- The University has established an Accident Review Committee (“ARC”) whose role is to determine whether it is still in the best interests of the University to permit the driver to continue to drive a Academy Vehicle after an accident or a Violation has occurred. The ARC consists of representatives from: the Office of Risk Management, Facilities Administration for Transportation, Human Resources, Safety and Health, and the Department of Public Safety.

- The ARC meets quarterly to review the facts relating to the accident or violation to:
- In the event of an accident:
Determine if the accident was chargeable or non-chargeable.
If it is determined the accident was chargeable, then the accident will be deemed an At-Fault Accident and used to evaluate whether the driver continues to have an Acceptable Motor Vehicle Record.
- In the event of a Violation:
The driver's MVR will be reviewed in conjunction with the new Violation to determine whether the driver continues to have an Acceptable Motor Vehicle Record.
- The ARC will notify the driver and his/her supervisor of the ARC findings and required actions.
Required actions may include training, suspension and/or revocation of driving privileges.
- In the event that driver refuses to cooperate in the reporting and investigation of the accident or provides false information, the accident shall be deemed an At-Fault Accident.

11. Securing/Transporting Hazardous Substances and Field Gear in Academy Vehicles

Some common hazardous chemicals used in field work include formaldehyde, ethanol, acids, gasoline, chlorine and other chemical compounds. A Material Safety Data Sheet (MSDS) shall be provided and carried for every chemical being used on a field project. Field/Project Coordinators shall review the appropriate MSDS and inform their field crew on the hazards (and precautions) of the chemicals being used on a specific project. Only experienced fulltime employees will be permitted to use these chemicals. The Field/Project Leader(PI) or Research Coordinator will notify the Field Safety Officer (FSO), of the hazardous chemicals being used on the project. The FSO will provide the necessary personnel safety equipment and spill containment material for the trip. It is recommended that a field safety spill kit be carried on all field trips involving transport of hazardous chemicals.

The preferred storage of chemicals is in original containers with original labels. If the original container label is destroyed or missing, you must identify the chemical and attach a National Fire Rating System (NFR) label to the container (available from the FSO). The NFR label is diamond shaped and contains four different colored diamond shaped sections and will have a specific rating for each chemical.

When packing hazardous materials in a vehicle for a field trip, pack the containers in a location where they will not be subject to physical damage from other field gear. The use of Rubbermaid clamp down sealed storage boxes or buckets is highly recommended for over-pack of these containers. Be careful of chemical compatibility before storing chemicals together (review the MSDS). Use vermiculite or Styrofoam packing material to pad the containers that are placed into the Rubbermaid storage boxes. Secure the containers with tie downs, rope, or by wedging with other gear on the deck of the field vehicle (not on top of other gear). Minimize the volume of hazardous chemicals by carefully determining how much of the chemicals will be needed for the entire field effort.

Protective equipment (i.e., Nalgene gloves, goggles) will be worn when handling and mixing chemicals. Do not open the Rubbermaid containment boxes or buckets inside the field vehicle; off gassing from the stored chemicals may have occurred during transport. Always remove the overpack/storage container from the vehicle and slowly open away from your face in a well-ventilated area.

Field samples jars that hold preserved specimens should be checked for leaks, taped around the lids with duct tape and marked on lid with a small NFR label. The sample jars are placed into Rubbermaid (or similar) storage over pack containers or buckets which have been lined with thick mil plastic trash bags. Absorbent material (i.e., vermiculite) is added around the jars to provide protection from spills. The overpack container is taped shut for transport and marked on the lid and side with NFR labels. Large tubs of nets and other gear that may

have been treated with bleach to kill algal cells will need to be rinsed thoroughly with water until no fumes are off gassing from the gear. This gear can be stowed in large plastic contractor bags to contain fumes.

Transporting field gear and equipment

Make sure the field gear is secure in the vehicle. Lighter gear should be packed on top of the heavier gear. Pack gear tightly, or use ropes and bungees, to prevent gear from shifting. Use a secured tarp or field bags to prevent cargo from moving during a potential crash. Check field gear and boat securing equipment devices during driving breaks and gas stops. Field gear should not be packed higher than the vehicles head rests. Keeping gear lower than the head rest, and/or covered with tarps will keep items from flying forward and hitting passengers during a crash and will give the driver an unobstructed view when using the rear-view mirror. Heavy field equipment (i.e. boat motors, coolers, batteries, etc...) should be placed as far forward as possible to just behind seats or against van cages and secure in place with rope, tie downs or bungees to prevent equipment from moving. Remember to block the equipment to prevent backward movement within the vehicle. The FSO can help with securing equipment by providing tie downs, rope and advice.

Battery handling, transport and charging

When transporting large 12-volt marine batteries (acid filled), always keep battery covered (in battery box with tight lid, strap, or rope) and secured in boat or vehicle. Smaller lithium ion batteries (i.e. electrofishing batteries) should be transported in sturdy coolers or boxes in the field vehicle. Large marine batteries (not sealed) are not allowed to be charged in hotel rooms. The smaller sealed electrofishing batteries can be charged in hotel rooms in an open area of the room.

Transporting gasoline

If transporting gasoline, use only approved gasoline containers. Large volumes of gasoline should not be carried within the field vehicle. Smaller approved gas containers (used for backpack electrofishing equipment) may be stored in the Rubbermaid containment box or lidded 5-gallon pail within the field vehicle. The larger gasoline containers for boats should be stored and transported within the boat. These portable containers must be vented (loosen valve on top of cap) during hot conditions to prevent expansion.

Gas containers must be removed from the vehicle, boat, or protective carrying container prior to filling. When filling, the containers should be set on the ground to avoid static electricity buildup, which could lead to a spark and fire. Fill container manually at a slow rate to only 90% full to allow for expansion. Generators, pumps and gasoline outboard motors should be drained of gasoline before packing into the field vehicle.

Transporting equipment in trailered boats

Equipment that is being transported within boats needs to be padded (old boat cushions) to prevent wear on boat decking. Secure the equipment with bungees, rope or other tie downs. Position equipment so it does not extend off the sides, front or back of the boat where it may create a hazard to other vehicles. Heavy equipment should be distributed evenly within the boat.

Transporting Dry Ice

Coolers containing dry ice should never be stored in occupied rooms during field trips. When dry ice preserved samples in coolers are left in the field vehicle leave windows slightly cracked for ventilation. Coolers filled with samples should be packed with newspaper on the top and bottom to help insulate the dry ice and frozen samples. When driving with dry ice in the vehicle, windows should be opened frequently to supply fresh air to the vehicle. Set the vehicles air flow to pull in outside air, not recirculated air. If coolers with dry ice are left in the field vehicle for a length of time (i.e. at night), then the doors to the vehicle should be opened to allow fresh

air into the vehicle prior to entering and driving. If possible, dry ice preserved samples should be shipped back to the laboratories with appropriate legal procedures (Federal Express).

Transporting Compressed Gas Cylinders

Transport of gas cylinders in BEES vehicles is a complicated issue and Drexel University has a specific policy regarding this. Please refer to <https://drexel.edu/facilities/healthSafety/ResearchSafety/Chemical%20Safety/Chemical%20Hygiene%20Plan/Cryogenic%20Liquid%20Safety/>. for further information. Notification of the Field Safety Officer is required.

**The Academy of Natural Sciences of Drexel University
Center for Academy Science Field Programs
for unpaid Volunteers, Interns,
and Non-Academy Participants**

Participation Contract, Waiver of Liability, Assumption of Risk and Indemnity Agreement

Participant Name _____

In consideration of being given the opportunity to participate in the Academy of Natural Sciences of Drexel University Field Programs (“the Program”), I:

1. FULLY UNDERSTAND that: (a) travel to the site and participation in the Program carries inherent risks associated with travel and scientific research; (b) there may be other risks and social and economic losses either not known to me or not readily foreseeable at this time; (c) personal medical insurance is my responsibility; and (d) I fully accept and assume all such risks and all responsibility for losses, costs, and damages I incur as a result of my participation in the Program.
2. AGREE AND WARRANT that I will examine and inspect each activity in which I will take part and that, if I observe any condition which I consider to be unacceptably hazardous or dangerous, I will notify the proper authority in charge of the Program and will refuse to take part in the activity until the condition is corrected to my satisfaction.
3. HEREBY RELEASE, discharge, and covenant not to sue The Academy of Natural Sciences of Drexel University and the officers, employees agents and affiliates thereof (each considered one of the “Releasees” herein”) from all liability, claims, demands, losses, or damages on my account caused or alleged to be caused in whole or in part by the negligence of the Releasees or otherwise; and I further agree that if, despite this release and waiver of liability, assumption of risk, and indemnity agreement, I or anyone on my behalf, makes a claim against any of the Releasees, I WILL INDEMNIFY, SAVE, AND HOLD HARMLESS each of the Releasees from any litigation expenses, attorney fees, loss, liability, damage, or cost which may incur as the result of such claim.

Participant’s Signature

Date

If the participant is under twenty-one (21) years of age, a parent or legal guardian through signature below must also accept the conditions of participation.

Parent's/Guardian's Signature

Date

Parent's/Guardian's Name (printed)

Date

Employee Injury and Workers' Compensation Information

Workers' Compensation is a statutory program that provides wage loss and medical benefits to employees in accordance with each state's Workers' Compensation Act. If an employee sustains a job-related injury or suffers an occupational disease in the course and scope of their employment, s/he may be entitled to receive benefits under workers' compensation.

Pennsylvania Employees

(Employees located at University City, Center City, Academy of Natural Sciences, API and Drexel University Online)

The employee must report all work-related accidents or injuries to his/her supervisor **immediately**, complete the required forms within 24 hours of the incident and forward them to the Department of Risk Management so that the claim can be submitted to the insurance carrier. It is understandable that if employees are doing fieldwork after the 9-5 business hours, if it's a Friday afternoon, or if it's an emergency that these steps may not happen in a timely order. Employees, if possible, should also try to email a note describing their injury to their supervisor and copy the Field Safety Officer and Michael J. Del Duke Jr. (mjd466@drexel.edu) at the Office of Risk Management, The Left Bank, 3180 Chestnut St, Suite 101, Philadelphia PA Phone: 215/895-2149. See below for afterhours treatment procedures.

If the injured employee seeks medical treatment, s/he must treat with one of the designated health care providers listed on the Panel of Providers. S/he must also continue to treat with one of these providers for 90 days from the date of the initial visit. Should the injured employee continue to require treatment after the 90-day period, then s/he may choose to go to a non-Panel provider; however, the employee must notify the insurance carrier within 5 days of the first visit to the new provider to assure payment of medical treatment.

Initial treatment may be sought at an emergency room in the event:

- An employee sustains an injury during an evening (after 5:00pm Monday – Friday) or weekend shift (any time Saturday and Sunday) that requires immediate treatment; or
- An employee sustains a serious or life-threatening injury during normal business hours (8:00am – 5:00pm) that requires emergency medical treatment.

However, all follow-up treatment must be with a panel provider. Also, unless the injured employee is admitted to the hospital, if any restrictions were given by the emergency medical provider, including but not limited to time off from work, follow-up with the panel provider must occur the next business day to address any

restrictions, including time off from work.

The Academy of Natural Sciences

Panel of Providers

THE FOLLOWING PROCEDURE MUST BE FOLLOWED IN CASE OF WORK-RELATED INJURY OR ILLNESS:

A. IMMEDIATELY REPORT THE INJURY TO YOUR SUPERVISOR.

Any injury you sustain at work must be reported immediately to your supervisor. **Failure to do so may delay your benefits or cause you to lose your rights to benefits.**

B. OBTAIN MEDICAL CARE FROM A MEDICAL HEALTH CARE PROVIDER LISTED BELOW.

Physician/ Specialty	Address/ Phone
WORKNET Occupational Medicine Francis X. Burke, M.D. - Medical Director Brian Birkmire, PA <i>Treatment types: ALL non-life-threatening</i>	219 N. Broad Street 1st Floor Philadelphia, PA 19107-1511 P: 215.762.8525 <i>Free transportation available</i>
General Surgery TBD	
Hand Specialist David. Zelouf, M.D.	834 Chestnut Street Philadelphia, PA 19107 P: 215.521.3000 <i>Philadelphia Hand Center</i>
Ophthalmology Mid-Atlantic Retina	840 Walnut Street, Suite 1020 Philadelphia, PA 19107 P: 800-331-6634
Orthopedics James Tom, MD, Mitesh Shah, MD, Amrit Khalsa, MD, Kevin Gingrich, MD	216 N. Broad Street Feinstein Building, 2 nd Floor Philadelphia, PA 19102 P: 215.762.BONE (2663) <u>Corey Ruth, MD (non-surgical):</u> 227 N. Broad Street, 3rd Floor Philadelphia, PA 19107 215. 762.BONE (2663) <i>University Orthopedic Institute</i>
Orthopedics/Neurosurgery/Hand Specialty Peter Deluca, M.D.; Mark Lazarus, M.D.; Paul Marchetto, M.D.; Nicholas Taweel, D.P.M., P.T.; Greg Anderson, M.D.	925 Chestnut St, 5 ^w Floor Philadelphia, PA 19107 P: 215.955.3458 <i>Group Name: Rothman Institute</i>
Neurology I. Howard Levin, M.D., Richard Katz, M.D., Richard Bennett, M.D.	405 Klein Bldg. 5401 Old York Road Philadelphia, PA 19141 P: 800.789.7366
Physical Therapy Kevin Gard, PT, DPT, OCS, Robert Maschi, PT, DPT, OCS Noel Goodstadt, PT, DPT, OCS, Sarah Wenger, PT, DPT, OCS	Drexel Recreation Center 3315 Market Street, Rm 210 Philadelphia, Pa 19104 P: 215.571.4287 <i>Drexel University Physical Therapy</i>
Physical Therapy Michael Marchessani, PT	The Navy Yard 4050 S. 26 th St., Suite 140 P: 215.467.5800 <i>Free transportation available</i>

C. MEDICAL EMERGENCY:

If you are faced with a medical emergency, **you may secure Initial emergency treatment from any emergency facility.** However, any follow-up care to the emergency treatment must be with a designated health care provider.

D. FOR MEDICAL TREATMENT TO BE PAID BY YOUR EMPLOYER:

- 1. You must select one of the providers listed above.** If you choose to seek treatment from a provider not listed above within the first ninety (90) days of treatment **you will be held responsible for costs incurred.**
- 2. You must continue** to visit one of the providers listed above or any specialist to which that provider refers you, if you need treatment, for **ninety (90) days from the date of your first visit.** This requirement is in conformance with the Pennsylvania Workers' Compensation Act, Section 306 (F) (1) (i).
- 3. After Ninety (90) days,** if you still need treatment, you may continue with the same provider or you may choose to go to another provider for treatment. **If you decide to go to another provider, you must notify your employer of this action within five (5) days of your visit.**
- 4.** In the event a posted panel physician recommends invasive surgery, you may seek a second opinion with a physician of your choice. If you choose to undergo the invasive surgery, you must use a posted physician for the treatment.

For any questions regarding your claim, please contact The Hartford: Cassandra Abraham - 315-385-3666, or
Brandon Fountain - 315-385-3653

Effective 03/2021