Field Safety, Private Property Issues and Credentials

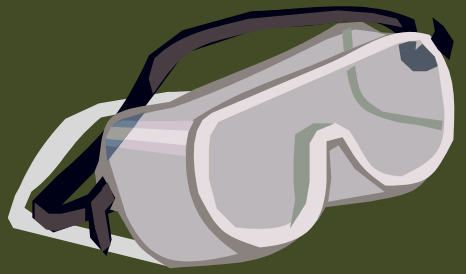
Green Country Stormwater Alliance

Tulsa Technology Center

Broken Arrow Campus

April 16, 2014

Safety



- One of your most critical considerations should be the safety of your employees.
- Field safety starts when a person leaves a building.
- Field crews consist of a minimum of two people, three is better.

No endorsement is intended for any product shown in this presentation.

Safety Gear

- Proper footwear (boots, waders, safety shoes)
- Gloves (rubber/latex/nitrile, leather)
- Safety glasses, goggles or face shield
- Phone, radio or walkie talkie
- Emergency contact phone numbers
- Identification badge or card
- Reflective safety vest
- Watch

Safety Gear

- Insect repellant (mosquitoes, chiggers, ticks)
- Personal flotation device (PFD)
- Emergency first aid kit
- Flashlight
- Rope
- Rain gear
- GPS and maps
- Hardhat

Special Gear

- Self-contained breathing apparatus (SCBA)
- Safety meters (oxygen, explosives, toxic, gases)
- Chemical apron
- Tyvek®-coveralls
- Ladder
- Safety harness
- Respirator
- Ventilation equipment

The need for some of this gear indicates participation in a dangerous or risky activity.

Safety Tips

- Don't get in a hurry, go slow and be aware!
- Be careful when walking on loose rock and steep or slippery slopes.
- Always have a first aid kit available and know basic first aid techniques.
- Treat even minor scrapes with antibacterial ointment.

Safety Tips

- Prevent insect bites and stings.
- Always use a wader belt with chest waders.
- Never wade in swift or high water.
- Often times safety comes down to individual judgment. Never put yourself in a position you consider to be unsafe.

Travel Safely

- Drive defensively and be aware of your surroundings.
- Train yourself to watch for potential hazards.
- Park your vehicle safely off the roadway and out of harms way.
- Use traffic cones, flashing lights or signage to alert and warn others of your presence.

Traffic Hazards

- Always wear a reflective safety vest around traffic.
- Work facing the traffic whenever possible.
- Avoid heavy traffic times whenever possible.
- Do not park in areas with heavy traffic if you will be working around the vehicle.
- Use traffic cones and signs to establish a safe work area.

On Site Hazards

- Drowning
- Chemicals
- Electricity
- Mean dogs
- Slippery surfaces
- Moving equipment
- Falling from heights
- Microorganisms (bacteria, viruses)
- Etc.

Chemical Hazards

- Illicit discharges and stormwater may contain hazardous chemicals.
- Some sample preservation materials are very hazardous (acids, bases, chemicals, etc.).
- Wear gloves and safety glasses to avoid skin and eye exposure to harmful materials.
- Know how to avoid exposure and what to do in the event accidental exposure occurs.

Private Property

- Your site may become posted and access denied, roads might be closed or physical conditions might make the site to dangerous to continue using.
- Unfriendly landowners or high crime in the area may make it prudent to select a new site.

Field Safety

Approach sites carefully! Watch for:

Hornets, wasps, snakes, spiders and poison ivy. Make sure you can see your feet. Step on logs, not over them.
If you are uncomfortable with the conditions or your surroundings, stop monitoring and leave the site. Your safety is more important than the data!

Mosquitoes

- Mosquitoes transmit many dangerous diseases including West Nile virus, encephalitis, malaria and yellow fever.

- Mosquitoes are attracted by heat and the chemicals excreted through our skin as well as the carbon dioxide (CO_2) we exhale. A mosquito can detect CO_2 from about 60 to 75 feet away.

Ticks

- Ticks transmit many dangerous diseases (about 30) including Rocky Mountain spotted fever and Lyme disease.

- A tick needs to be attached for 24 to 48 hours to transmit many of the diseases including Lyme disease. Remove ticks as soon as possible. Do a tick check when you come in from the field.

Ticks

Do ***not*** squeeze a tick's body or use Vaseline®, a hot match, fingernail polish, alcohol, soap or any other irritant in an attempt to kill or remove a tick.

Methods that attempt to suffocate, irritate or traumatize the tick may actually cause the tick to regurgitate, increasing the risk of infection from the bacteria located in the tick's midgut.

Removing a Tick

If you do find a tick on your body, remove it as soon as possible. Ticks can be removed with a pair of fine-point tweezers. Grasp the tick by the head or mouthparts exactly where they enter the skin. Without jerking or twisting, pull firmly and steadily directly outward. Avoid touching the tick with bare fingers. Use a tissue or glove to prevent disease transfer.

There are a few relatively new tick removal tools available. The Pro Tick and Tick Twister are two that some people really like.

Avoid Critter Bites

- Wear insect repellent when in areas where mosquitoes and ticks are active.
- DEET is very effective and can be used on skin. EPA considers DEET slightly risky and it can damage clothes, plastics and paint finishes.
- Permethrin based products should only be used on clothing, not on skin.

Avoid Critter Bites

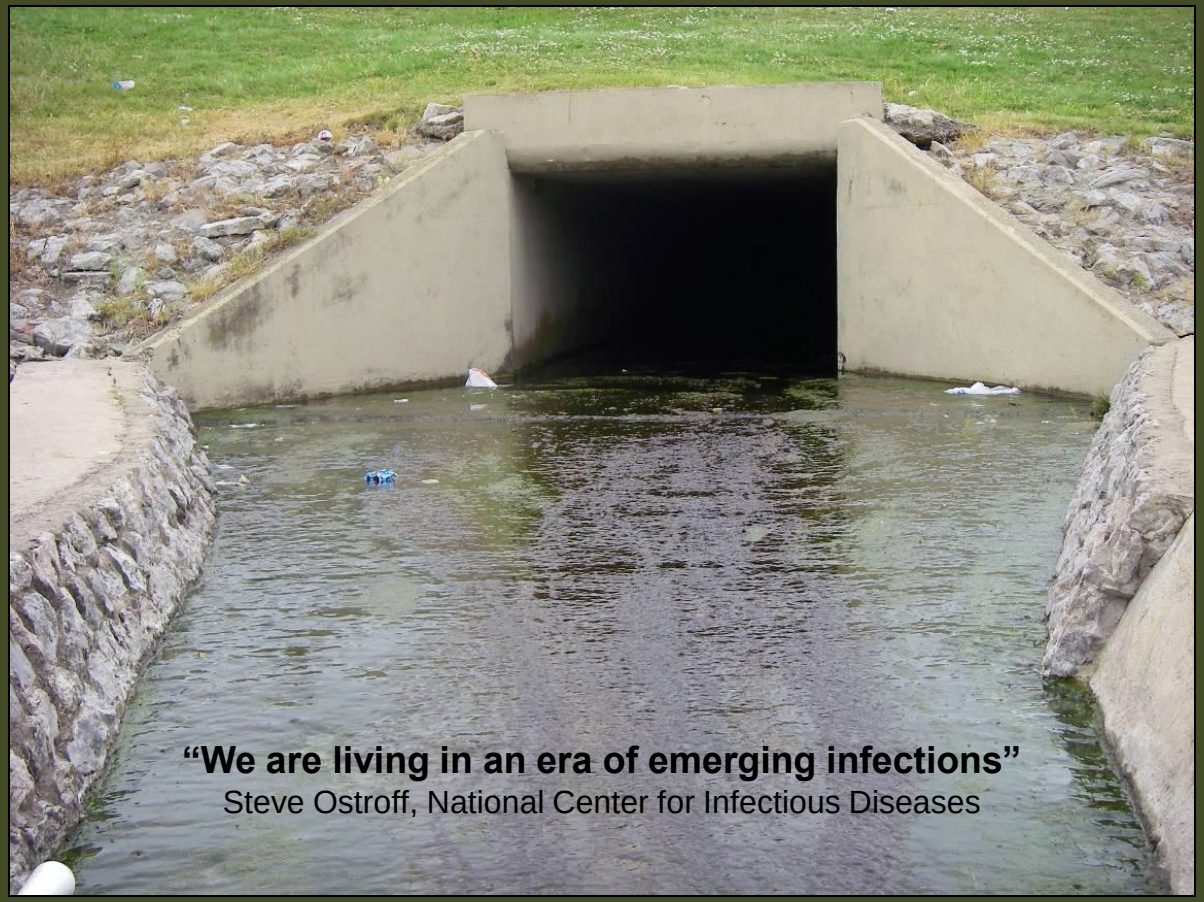
- Always read and follow product directions.
- Wear long sleeves, long pants and light colored clothing.
- Tuck your shirt into your pants and your pants into your boots (or even your socks).

Biological Hazards

Dogs, snakes and insects are obvious hazards, but don't forget about the little disease causing organisms.

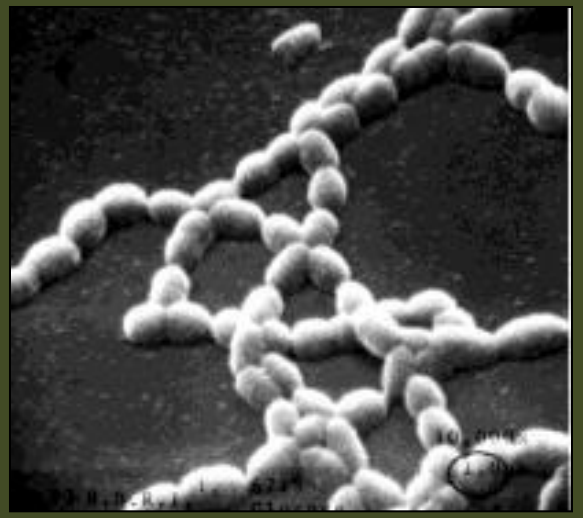
Pathogens

- Pathogens are disease causing organisms.
- Urban runoff typically contains elevated levels of pathogenic organisms including:
- Bacteria
- Viruses
- Protozoa



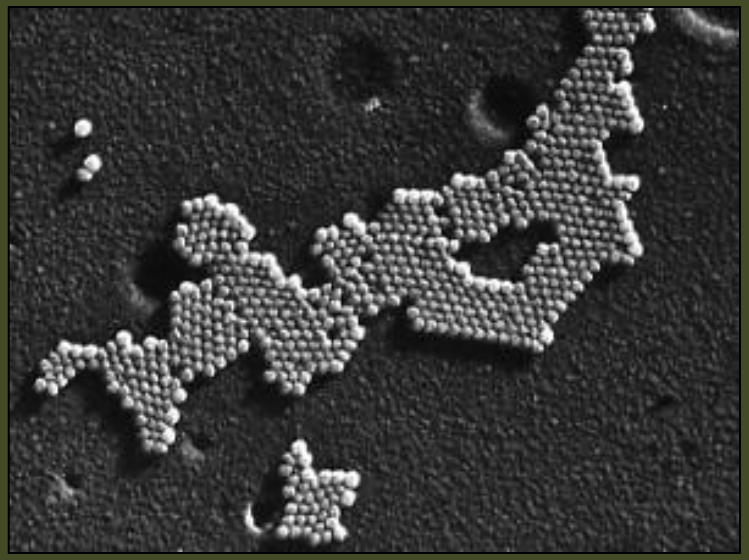
Bacteria

- Bacteria are single-celled microorganisms. They can be carried by water, wind, insects, plants, animals, and people. They survive on skin, clothes, human hair and thrive in scabs, scars, the mouth, nose, throat, intestines.
- Rocky mountain spotted fever, tetanus, strep throat and pneumonia are all caused by bacteria.



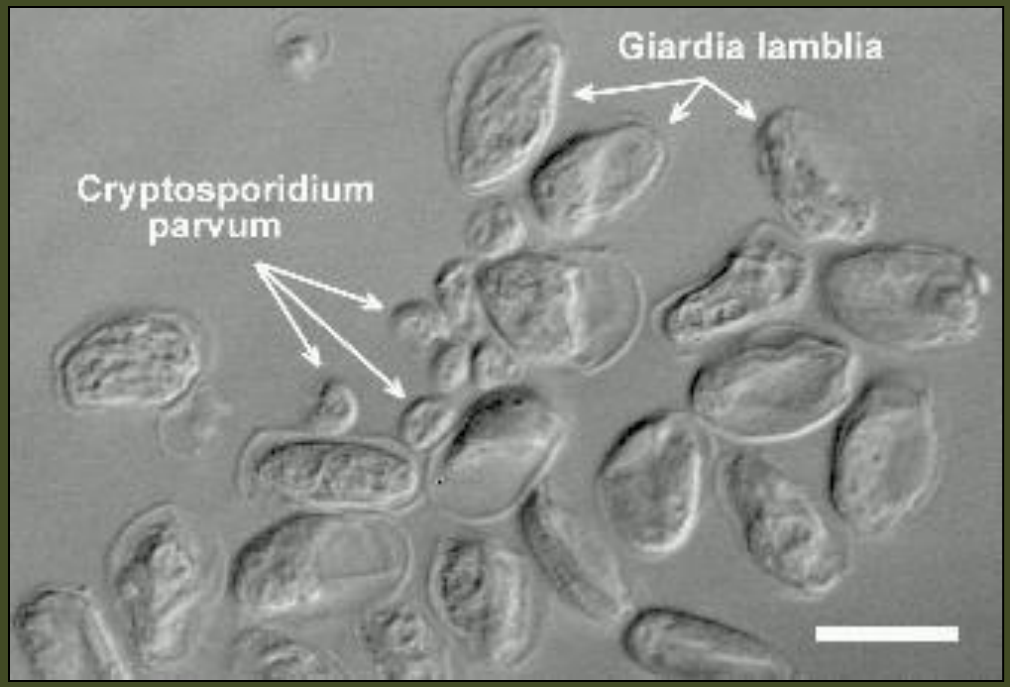
Viruses

- A virus is a microorganism smaller than a bacteria, which can grow and reproduce within another living cell. Viruses frequently reproduce with errors (mutations). This allows them to change slightly in each infected person, making treatment more difficult.
- Smallpox, HIV, hepatitis, measles, rabies and influenza are caused by viruses.



Protozoans

- Protozoans are a large group of single-celled, usually microscopic organisms, such as amoebas, ciliates, flagellates, and sporozoans.
- Giardia lamblia and cryptosporidium are protozoans and malaria is caused by a protozoa.



Hepatitis B

Hepatitis B vaccination is a good idea for all field personnel especially if you will be working around wastewater or water known to contain wastewater. Your local health department officials or doctor can help you in making this decision.

Reminder

- Clean hands frequently with sanitary wipes, hand sanitizer or biodegradable soap while in the field.
- Wear nitrile or latex gloves when collecting samples to protect yourself from pathogens, toxins and unknown substances.
- Keep your first aid kit handy and know how to use the items in it.

Sharp Objects

Urban streams and water courses can contain sharp objects such as:

1. Broken glass
2. Re-bar in broken concrete
3. Rusty metallic objects
4. Fish hooks
5. Nails and fasteners

Watch out!

Moving Water

Whenever possible, collect samples from a bank or bridge. If you must enter a flowing stream:

1. Stay out of swift currents
2. Never wade more than knee deep water if there is a significant current
3. Always have a partner
4. Keep a rescue rope handy
5. Wear a PFD

Check the weather forecast before going. Storms can roll in quickly and high winds, lightening and flooding can create dangerous conditions.

Confined Spaces

"Confined Space" means a space that:

1. Is large enough and so configured that a person can bodily enter and perform assigned work; and

2. Has limited or restricted means for entry and exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults and pits are spaces that may have limited means of entry); and …

3. Is not designed for continuous occupancy.

Permit Required Confined Spaces

- Manholes, storm sewers, pipes, trenches, pits and tanks are confined spaces and may require a confined space entry permit to enter.
- An attendant must remain outside a confined space while it is occupied.

Permit Required Confined Spaces

- Develop a confined space entry program following Occupational Safety & Health Administration (OSHA) guidelines.
- Have a policy that field personnel will not enter a permit required confined space without following the proper procedures.
- More information can be found in The Code of Federal Regulations (CFR) Title 29.

Confined Space Entry Permits

A confined space entry permit must be completed *before* entering a permit required confined space.

1. Know the potential hazards
2. Monitor the atmospheric conditions
3. Only allow trained personnel on site
4. Have the necessary safety gear available

Confined Space Hazards

- If atmospheric hazards are detected, occupants should exit and the confined space must be vented until safe. ***Only*** in emergency situations should ***highly trained personnel*** wearing an SCBA and life line enter under hazardous atmospheric conditions.
- Additional hazards may include restricted areas, sharp objects, difficult communications, unsafe ladders or steps, poor lighting, etc.

Safety Training

- Attend safety training and first aid classes. These may be offered through the city, private firms and consulting agencies, state agencies or the federal government.
- Certification from these training classes shows you have received approved training in different areas and a good faith effort on your part. You can not receive too much training and annual reviews allow an opportunity to hear about the latest techniques and acquire the most current information.

Questions?


CAUTION
WATCH
YOUR STEP!
PLEASE BE
ALERT TO THE
POSSIBLE
PRESENCE OF
RATTLESNAKES.


CAUTION
RATTLESNAKES
MAY BE PRESENT!
STAY OUT OF THE
TALL GRASS.
DON'T REACH INTO
HOLES.
STAY ON MARKED
TRAILS.
BE OBSERVANT.