

SAFETY



THIS PROJECT HAS
BEEN FUNDED WHOLLY
OR IN PART BY THE
UNITED STATES
ENVIRONMENTAL
PROTECTION AGENCY
UNDER EPA TREATMENT
WORKS AREA 2



Original Materials Development

These materials were originally developed through a CIDWT project. The project was a collaborative effort with stakeholder support to develop materials specifically focused on operation and maintenance of onsite wastewater treatment systems.

Overview

- Safety management program
- How to work safely
- Limiting the risk of illness
- Site safety considerations
- Other important hazards
- Confined space entry
- Ergonomics

Common Safety Issues

A close-up photograph of a dog's face pressed against a chain-link fence. The dog's nose and mouth are visible through the diamond-shaped openings of the metal mesh. The dog's fur is light-colored with some darker patches. The background shows a grassy area and a concrete path.

Is the dog friendly?

**Discuss the owner's responsibility for
this during contract negotiation**

Managing Safety

1. Why do we have to manage safety in our workplace?

IT IS THE LAW!

2. Whose responsibility is it?

EVERYONE

3. What are some examples of unsafe work practices that you have seen?

NO PPE, Entering a Tank

4. Who has control over your safety?

YOU DO!



Why Do Accidents Happen?

1. Rushing
 - Slow and steady is better
 - Rushing makes you less effective
2. Eyes not on Path
 - Slips, trips and falls
 - Turn off the cell phone
3. Eyes not on Task
 - Impact injuries
 - Look where you are going or at what you are doing
4. Line of Fire
 - Exposure to sewage by “splash back”
 - Stay out of the way of danger

Working Safely

1. Always use good lifting techniques.
2. Use good personal hygiene.
3. Ensure lids are secure when done.
4. Always use your own equipment.
5. Never go inside a tank unprotected or alone.
6. Use the “buddy” system if possible.

Common Workplace Accidents



- Back injuries
 - Wear a back supporter
 - Lift smart
- Cuts/abrasions
 - Heavy gloves
 - Steel toed shoes
 - Coveralls
- Driving Accidents
 - Use seat belt
 - Do not rush
 - Do not use cell phone

Preventing common workplace illnesses

- Repetitive motion
 - Change position
 - Stretch
- Exposure to UV unit radiation
 - Eye protection
- Long term exposure to noise
 - Ear protection
- Protect points of entry
 - Appropriate gloves (nitrile)
 - Goggles
 - Coveralls



Microbiological Hazards

- Bacteria

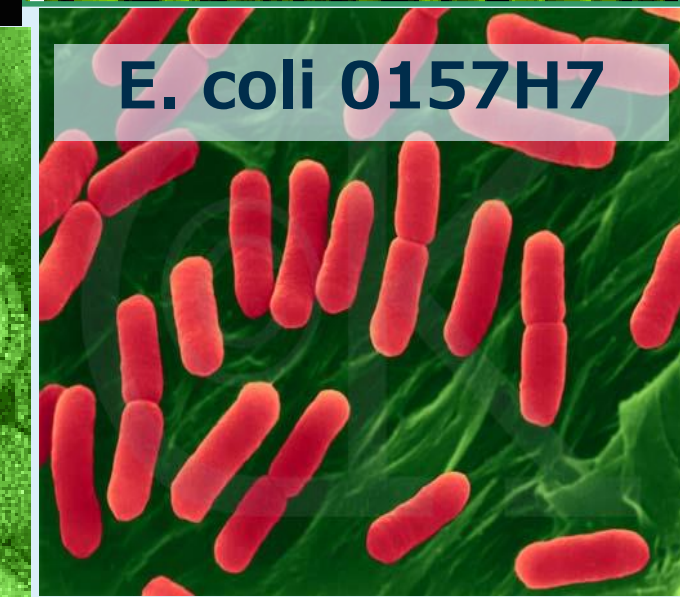
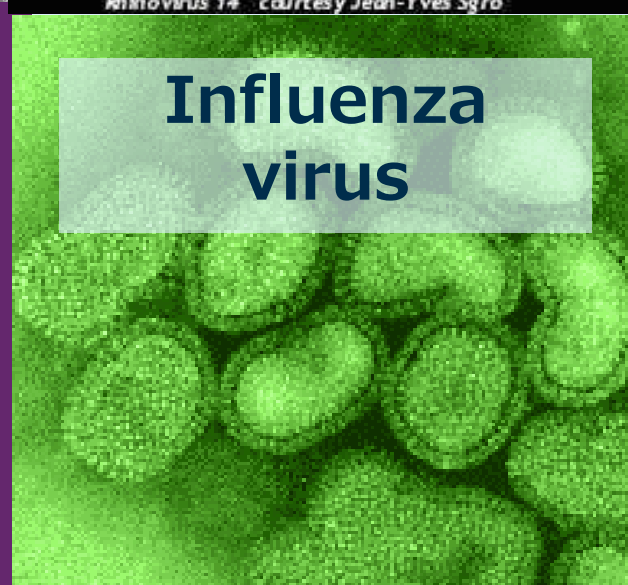
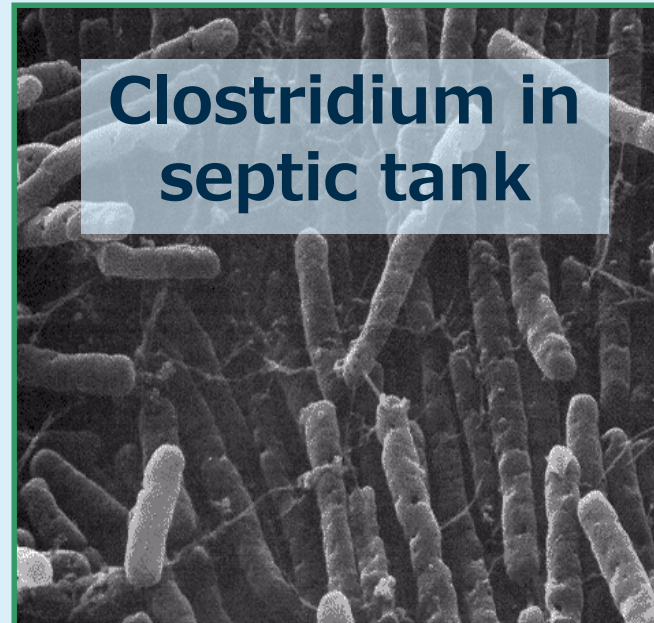
- Viruses

- Protozoans

- Helminths

- Extremely common in sewage
- Microscopic
- Found naturally
- Anaerobic conditions favor survival
- Some are pathogenic
- Presence of fecal coliforms as an indicator

Common Biological Hazards in Sewage



Managing Microbiological Hazards

- Assume that pathogens are present
- Use appropriate PPEs
- Clean and sanitize after service visit
- Manage risk of contaminated clothing at end of shift

Other Hazards around the Site



- Kids
- Dogs
- Cats
- Insects
- Snakes
- Vegetation
- and ... The Owner?

**Is there a
problem?**



Septic tank under swing set

Site Safety Considerations



What's incorrect?

1. No provider on site
2. Using owner's hose
3. No back-flow preventer on hose
4. Shovel should be turned over
5. Lids/access open and exposed





Equipment

- Perform regular maintenance
- Calibrate
 - Pressure gauges
 - DO, Chlorine and pH meters
- Cl test strips (not expired)

Gases

- Poisonous
- Explosive
- Sometimes both!
- Invisible but may have an odor (H_2S)
- Replaces/displaces O_2 or converts to something worse in the lungs

Confined Space

Remember that open excavations can be considered a confined space based upon depth.

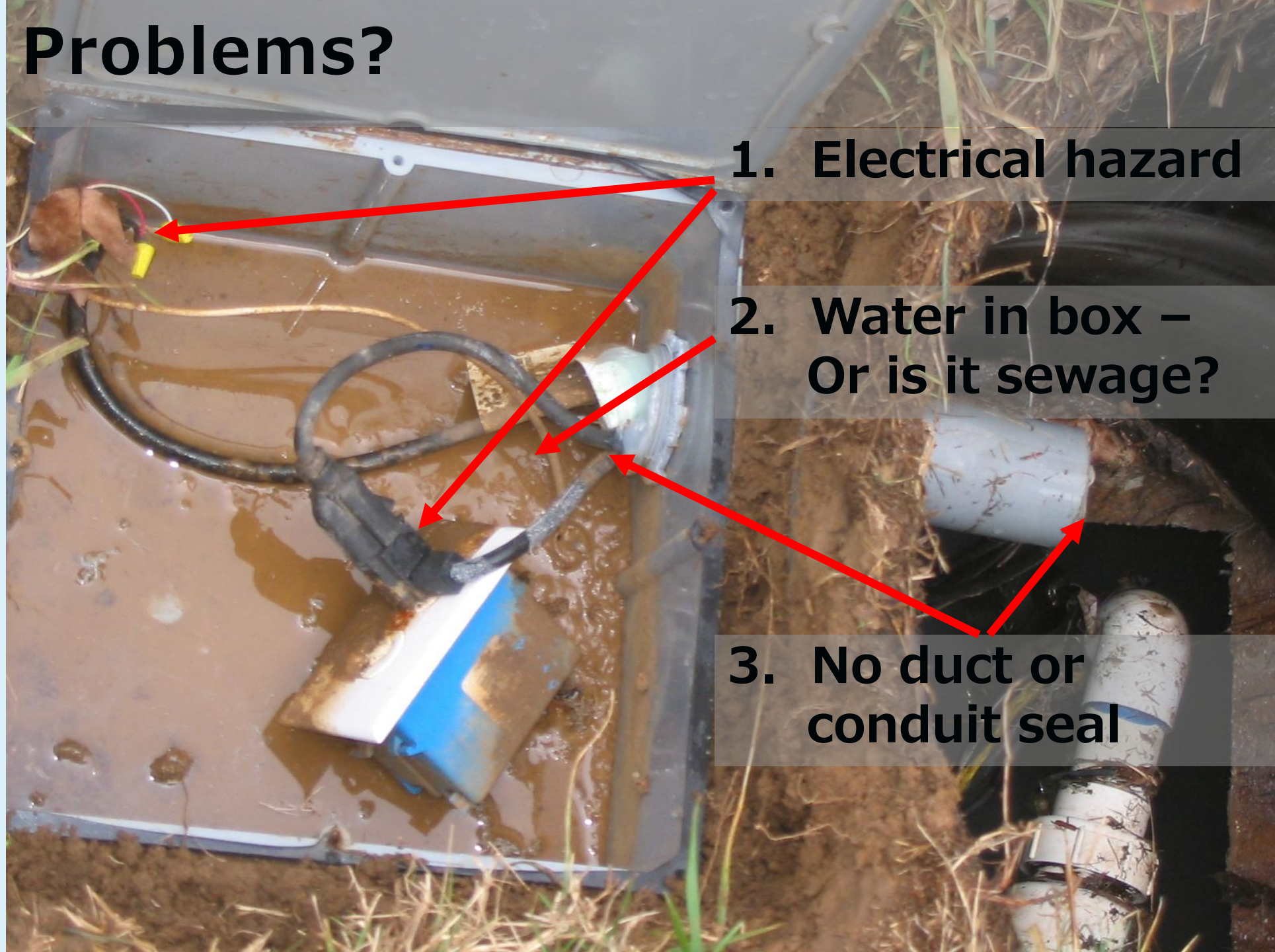
Confined Spaces





This is an unsafe practice. Your head, body, etc. should never be in a confined space.

Problems?



1. Electrical hazard

**2. Water in box –
Or is it sewage?**

**3. No duct or
conduit seal**

Site Hazards



- Underground utilities
- Uneven surfaces, slopes, and ditches
- Critters and Bugs: Snakes, bees, ants, hornets, and the danger of shock/startle.
- Hypothermia (cold) and Heat Stroke. A real killer!
- REMEMBER TO CLOSE ALL LID(S) TIGHTLY/SECURELY BEFORE LEAVING! (Lockout/Tag out)





PPE AND PERSONAL HYGIENE

What's incorrect?

1. No Gloves

2. Shovel turned up

What's right?

1. Lid right side up

2. Screen over hole for rinsing



What's right?

1. Gloves

2. Rinsing screen over inlet

3. Back-flow preventer?

What's incorrect?

1. No Goggles

2. Use of owner's hose



Points of Contamination

- All the tools touched
- Truck door handle
- Steering wheel
- Radio
- Gear shifter
- Lunch
- Cigarettes, snuff, vaping devices, gum, etc.

Good Practices

- Coveralls
- Industrial grade nitrile gloves
- Goggles
- Container for contaminated clothing, equipment, etc.
- Waterless sanitizer
- Spray disinfectant
- Soap and water (lots of it)

Doing it Right?

1. Use of providers hose with back-flow preventer
2. Lid turned right side up
3. Gloves
4. Coveralls



What are the safe behaviors?

1. Gloves
2. Use of providers hose with back-flow preventer

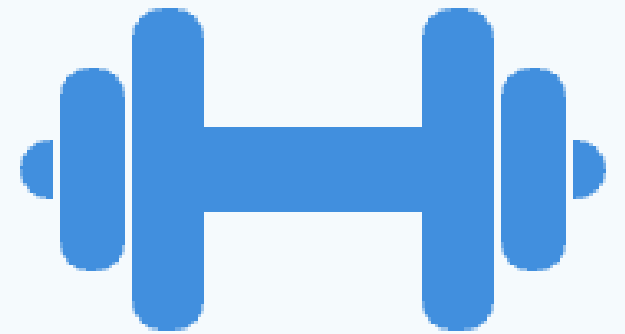
What are the unsafe behaviors?

1. No goggles
2. Bending over hard on the back
3. Splash back hazard



Ergonomics

- Prevent back injuries using good lifting postures:
 - Stabilize your core before the lift.
 - Position body close to the load.
 - Bend your knees and use your legs.
 - Do NOT “lift and twist”.
- Lifting limits: use the “buddy system.”
 - Loads are lighter; makes good sense






Incorrect!

Better, much better!





Dum dee
dum...

HEY, BUDDY! A
LITTLE HELP
WOULD BE NICE!!!

**Two working together is
always better than one!**

What can you do to improve?

- Assume the equipment in the back of the truck is contaminated.
- The vehicle interior is probably contaminated to some degree.
- Use soap and disinfectants properly by observing protocols for cleaning and disinfection hold times.

Do you need to be immunized?

- Ask your personal physician
- Ask the local health department
- Know the risks



What can you do to improve?

When you go home, don't forget to protect the spouse and kids.

- Take off contaminated clothing in a separate area.
- Keep contaminated clothing separate from family laundry.
- Have a washing machine at the shop for contaminated clothes.
- Consider using a professional laundry service.

Emergency Numbers & Info

- Keep a fully stocked Emergency First Aid Kit in your vehicle, including:
 - List of phone numbers for and travel directions to area hospitals or emergency rooms
- Confirm cell phone service in your work area.
- Contingency plan: make sure someone knows your schedule.
- Know the 911 address for your work site
- GPS locator setting active?

**Always
think
safety
when in
the field**

- Site or job specific hazards
 - Biological (pathogens)
 - Critters
 - Equipment
 - Electrical
 - Confined space
 - Gases
 - Ergonomics
- Points of entry
- Areas of contamination
- Personal Protective Equipment (PPE)
- Contingency contact plan



TWISTER OUTBREAK

TORNADOES SLAM THE HEAR



Summary

- Safety management program
- How to work safely
- Limiting the risk of illness
- Site safety considerations
- Other important hazards
- Confined space entry
- Ergonomics

QUESTIONS?

*Instructor's Contact information
here*