

# Landfill Safety

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Department of Solid Waste



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# It's All Fun and Games...

- ▣ Many shows make fun of these incidents (TOSH .O, Fail Army, AFV, Tik Tok)
- ▣ Need to take a hard look at 'near misses'







# Areas of Concern

## JUST AN OVERVIEW:

- ▣ The Working Face
- ▣ Leachate Lines (Confined Spaces)
- ▣ Gas Collection (Trenching)

# Working Face Safety

## General Hazards Assessment:

- Truck traffic
- Environmental Hazards (Wind, Lightening, Dust, Extreme Heat/Cold, Ice)
- Working on side slopes
- Excavating dirt from borrow area



# Working Face Safety

- Have a posted speed limit (5mph, 10mph)
- Designate an area for un-tarping/staging .
- Limit the size of the working face
  - No more than 3 trucks dumping at a time
  - Assign a spotter
- Maintain a safe distance between pit equipment and garbage trucks (15-20ft)
- Make sure equipment safety features are working properly
  - backup alarm, flashing lights, backup cameras





# Working Face Safety

- Policies for haulers:
  - Maintain radio contact with spotter/operators
  - Don't go far from your vehicle (5-6ft)
  - Open doors as far in front as practical from active working face, then back up as directed.
  - Pull forward off from active landfill working face until clear, and secure and close doors.
  - Be aware of over head power lines



# Working Face Safety

- Maintain a safe distance from heavy equipment, out of the swing radius
- If you cannot see the operator's eyes of the heavy equipment or vehicle, they cannot see you.



# Working Face Safety

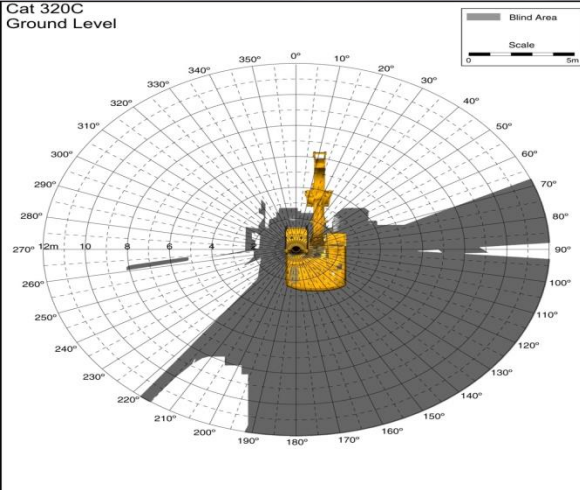
- ▣ Don't be Distracted!
  - No cell phones, music devices when operating equipment
- ▣ No Smoking!
  - Have a designated area on site
- ▣ No Scavenging!



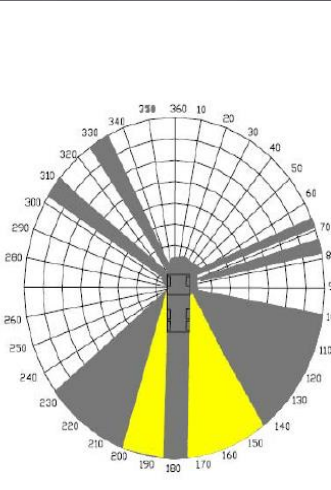
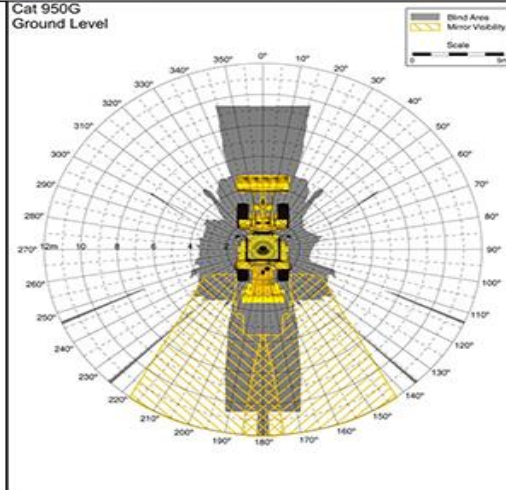
# Blind Spots

- ❑ Know your equipment and where the blind spots are!
- ❑ Certain equipment can have multiple blind spots.
- ❑ Maintain safe distances, look before you back, check surroundings frequently.

Cat 320C  
Ground Level



Cat 950G  
Ground Level



■ Not Visible to Operator

■ Visible in mirrors only

# Working Face Safety

- Personal Protective Equipment (PPE)
- Be Visible
  - Class 2 or 3 vest, shirt, jacket
    - Class 2 (parking lots / directing traffic)
    - Class 3 (roadways / utility work)
- Wear a hard hat
- Boots
- Gloves
- Safety Glasses



# What's in the Trash?



Watch for prohibited materials

- Hazardous Materials
- Radioactive Materials
- Tires
- Electronics
- Friable asbestos  
(if not approved)



- Implement clear bag policy and require barrels be cut up before disposal
- HHW Collection

# Asbestos Awareness

- ▣ Have protocols in place
  - 24 hour notice
  - Excavate a hole to bury it in
  - GPS location
  - Don't directly run over asbestos containing material
- ▣ Homeowners are exempt from DOL code rule 56 if they are removing asbestos themselves!
- ▣ Side note: Know where asbestos is at your facility (boilers, roofing materials, floor tiles)

# Bloodborne Pathogens

Infectious microorganisms in human blood that can cause disease in humans.

- hepatitis B (HBV)
- hepatitis C (HCV)
- human immunodeficiency virus (HIV)
- Fentanyl

☐ Recommended PPE:

Puncture resistant gloves and boots



# Bloodborne Pathogens

## What to do:

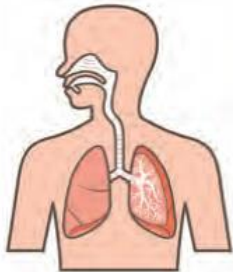
- Wash needle sticks and cuts with soap and water
- Flush splashes to the nose, mouth, or skin with water
- Irrigate eyes with clean water, saline, or sterile irrigants
- Report the incident to your supervisor
- Immediately seek medical treatment



# Routes of Exposure

## Exposure

There are four ways (or routes) substances can enter the body: **inhalation, absorption, ingestion or injection.** Harmful effects can be **acute** (immediate) or **chronic** (long-lasting). Symptoms may not appear immediately and some materials can take 20 years to develop.



Inhalation

### Inhalation:

Breathing in a hazardous substance is the most common way for a substance to enter the body. Workers can inhale:

- solids (dusts or fibers)
- liquids (mists)
- gases (vapors)



Ingestion

### Ingestion:

Occurs through the mouth by ingesting substances when:

- eating or drinking in contaminated areas
- not washing hands before eating
- use of cosmetics or chap-stick
- smoking



Absorption

### Absorption:

Absorption occurs through direct contact with the skin or eyes. Solids, liquids and gases can all be absorbed potentially causing local irritation, burns and rashes as well as systematic effects to various target organs.



Injection

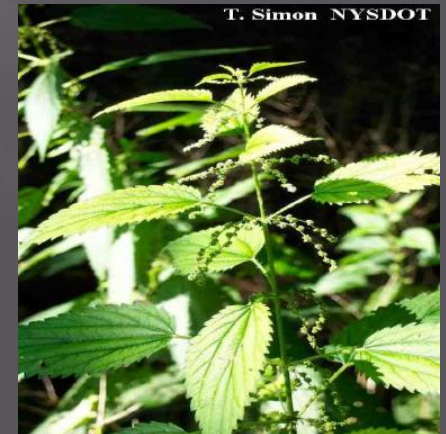
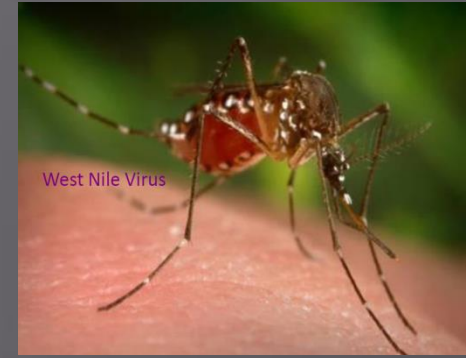
### Injection:

Occurs when a substance is forced through the skin or enters through broken skin. It is very dangerous because the substance goes directly into the blood stream. Examples of injection are:

- stuck by needles, medical waste
- glass, nails, other sharp objects
- pressurized hoses

# Working Outdoors

- ▣ Stay Hydrated
- ▣ Proper attire for the season
- ▣ Poisonous plants/animals



# Ticks & Lyme Disease



- Wear tall boots when working in tall grass or weeds.
- Use Tick Repellent
- Check yourself thoroughly after being outdoors.

## LYME DISEASE ALERT

DO A THOROUGH BODY CHECK FOR TICKS AFTER BEING OUTDOORS.



Deer tick size (left to right)  
larva, nymph, adult

### How To Remove A Tick



- Using tweezers, grasp tick near the mouth parts, as close to skin as possible.
- Pull tick in a steady, upward motion away from skin.
- DO NOT use kerosene, matches, or petroleum jelly to remove tick.
- Disinfect site with soap and water, rubbing alcohol or hydrogen peroxide.
- Record date and location of tick bite. If rash or flu-like symptoms appear contact your health care provider immediately.

**DISEASE RISK IS REDUCED IF TICK IS REMOVED WITHIN 36 HOURS.**

New York State Department of Health

# Ticks & Lyme Disease

## Early Signs and Symptoms

Fever, chills, headache, fatigue, muscle and joint aches, and swollen lymph nodes

Erythema migrans (EM) rash:



## Later Signs and Symptoms

Severe headaches and neck stiffness  
Additional EM rashes on other areas of the body

Arthritis with severe joint pain and swelling, particularly the knees and other large joints.

Facial or Bell's palsy

Intermittent pain in tendons, muscles, joints, and bones

Heart palpitations or an irregular heart beat

Episodes of dizziness or shortness of breath

Inflammation of the brain and spinal cord

Nerve pain

Shooting pains, numbness, or tingling in the hands or feet

Problems with short-term memory

# Leachate Line Cleaning

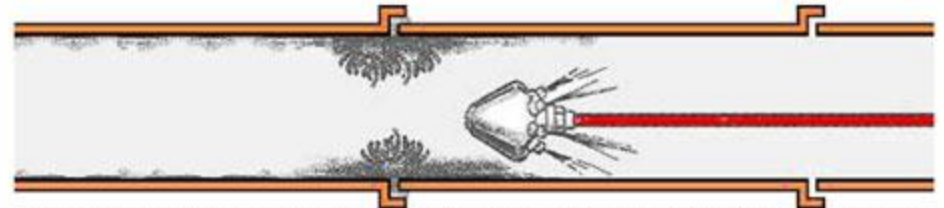
- ▣ High PSI/Noise
- ▣ Have eye protection
- ▣ Hearing protection
- ▣ Gloves/Tyvek Suits
- ▣ Coordinate with all parties involved.
- ▣ Hours of operation
- ▣ Confined Spaces??



## How High Pressure Jetting Works



*Powerful water jets from nozzle bores through blockages & washes debris away.*



*Routine maintenance removes debris before a disruptive blockage can occur.*

# CONFINED SPACE ENTRY



# What is a Confined Space?

A confined space must have **ALL three (3)** of the following characteristics.

A confined space is...

I) A space large enough and so configured that a worker can enter and perform his/her assigned work;



**AND...**

2) Has limited or restricted means for entry or exit;



**AND...**

**3) Is not designed for continuous human occupancy.**



# Identify Spaces and Evaluate All Hazards

- Employers must identify the existence of all Permit-Spaces.
- Prevent Unauthorized entry
- Complete evaluation of all hazards prior to entry.



# Examples of Confined Spaces



Vault for cleanout or wet well

# Examples of Confined Spaces



Leachate Storage Tank

# Examples of Confined Spaces



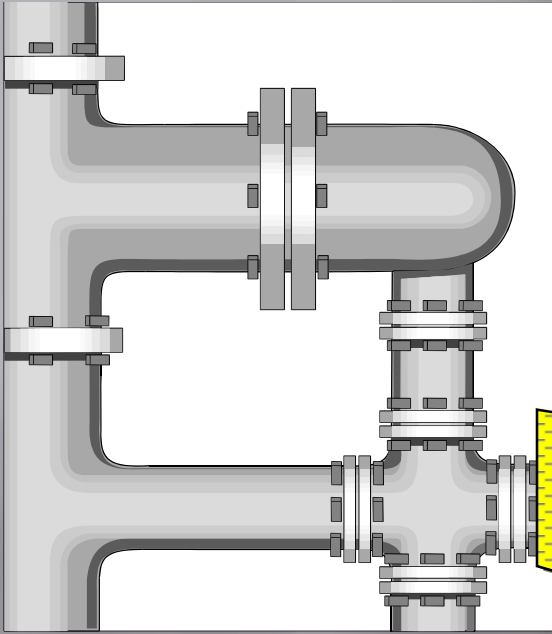
Storm Water Catch Basin

# Team Responsibilities

- Entrant(s)
  - Attendant
- Must be present during permit entries.**
- Entry Supervisor
  - Designated Rescue Service



# Develop Safe Entry Procedures



**Line Isolation**



**Lockout Tag out**

**Ventilation**



# Develop Emergency Procedures

- Has a rescue service been designated?
  - On-site team vs. Outside agency (practice annually)
  - Merely calling 911 won't cut it
  - Must be able to respond in a 'timely manner'
- Are communications available in the event of an emergency?



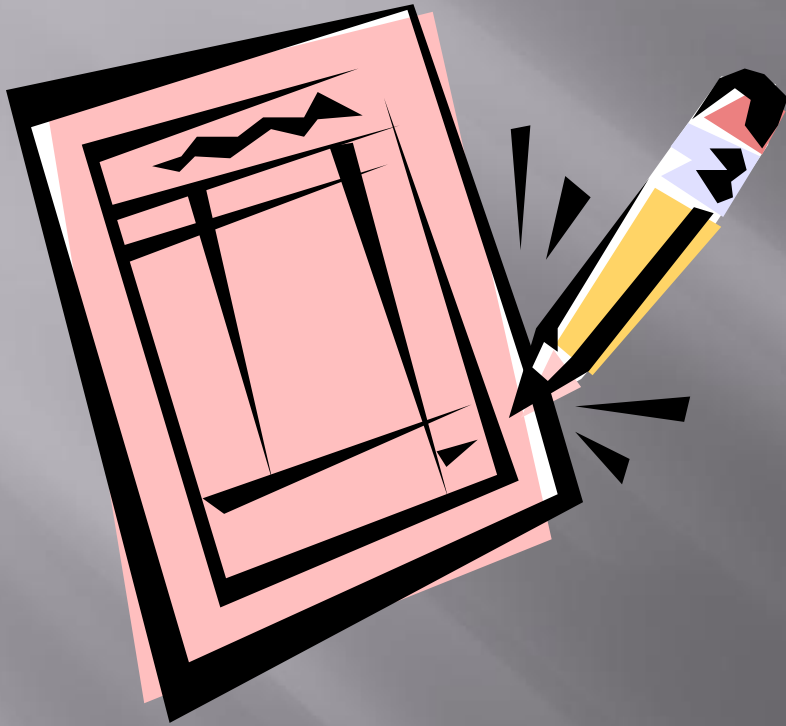
# Non-Entry Rescue

- Each authorized entrant shall use a full body harness, with a retrieval line attached at any point that will ensure the entrant will present the smallest possible profile during removal.
- Should be inspected before each use.
- Each has a weight capacity.
- Powered winches cannot be used.



[www.cseany.org](http://www.cseany.org)

# The Confined Space Permit



- Only good for a defined period of time
- Right at the point of entry
- Reviewed & signed by the Entry Supervisor
- Available to entrants for review
- Cancelled by the Entry Supervisor
- Records kept for a year

**A good permit system is the key to an effective and safe program.**

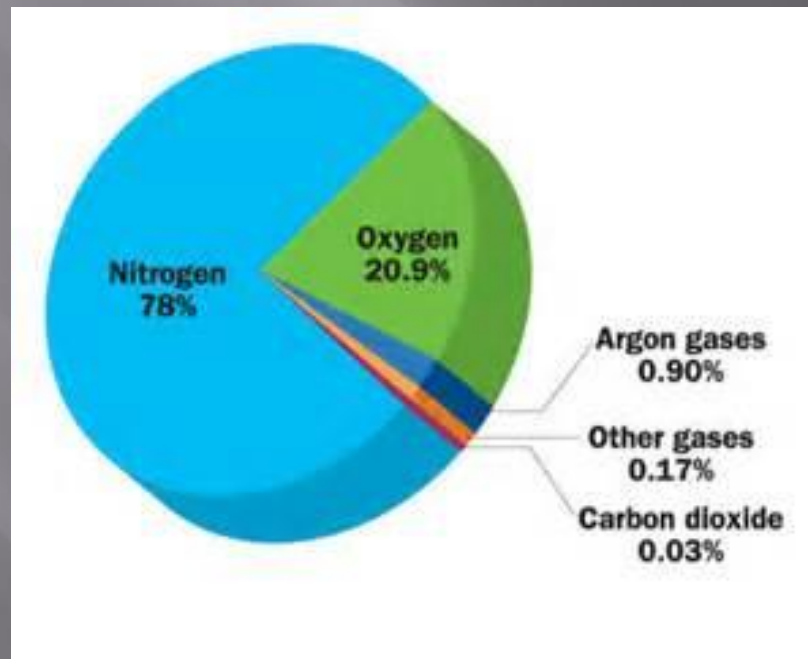
# Atmospheric Testing

- Must be performed prior to each Permit entry (calibrated meter)
- Monitor throughout the duration of the entry
- Document air monitoring data on the Permit.



# Atmospheric Testing

Oxygen levels below **19.5%** by volume are considered unsafe and can result from either the consumption or displacement of ambient oxygen.



# Atmospheric Testing

**Oxygen Content  
% by Volume**

**Effects and Symptoms  
(At Atmospheric Pressure)**

23.5% and above  
(O<sub>2</sub> enriched Env.)

Extreme Fire Hazard

19.5%

Oxygen deficiency action level

15-19%

Decreased ability to work strenuously; possibly impaired coordination and early symptoms in persons with coronary, pulmonary or circulatory problems

12-14%

Increased respiration and pulse, impaired coordination, perception and judgment

10-12%

Further increased rate and depth of respiration, poor judgment, lips blue

8-10%

Mental failure, fainting, unconsciousness, ashen face, blueness of lips, nausea and vomiting

6-8%

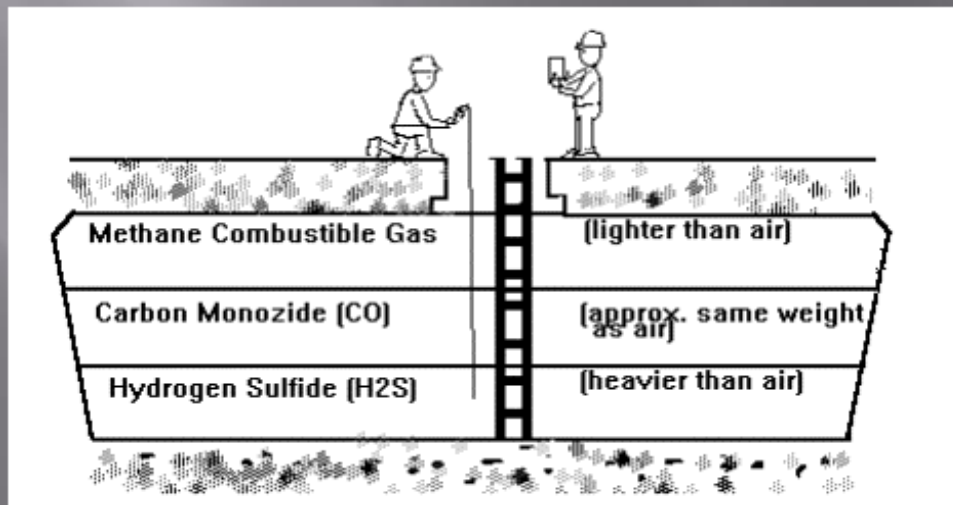
Recovery possible after 4-5 minutes of exposure; 100% fatal after 8 minutes

4-6%

Coma in 40 seconds, convulsions, respiration ceases, death

# Monitoring Strategies

- Check outside the space.
- Check approximately every 4 feet.
- Some gases are lighter than air (Methane, CH<sub>4</sub>)
- Some gases are heavier than air (Hydrogen Sulfide, H<sub>2</sub>S)



# Types of Respiratory Protection

- Air Purifying Respirators (APR)
- Atmosphere-Supplied Respirators



The use of respirators requires a respiratory protection program.



[www.cseany.org](http://www.cseany.org)

# Landfill Gas Collection

- ▣ 36in diameter wells drilled 60-70 ft vertically
  - Use grating over holes when installing pipe
  - Have tie-offs and fall protection harnesses



Horizontal collectors might involve trenching!

# Trenching

A *Trench* is a narrow excavation made below the surface of the ground which is deeper than it is wide and the width does not exceed 15 feet.

- Trenches 5 feet deep or greater require a protective system unless the excavation is made entirely in stable rock. If less than 5 feet deep, a competent person may determine that a protective system is not required.
- Trenches 20 feet deep or greater require that the protective system be designed by a registered professional engineer or be based on tabulated data prepared and/or approved by a registered professional engineer in accordance with 1926.652(b) and (c).

# Trenching

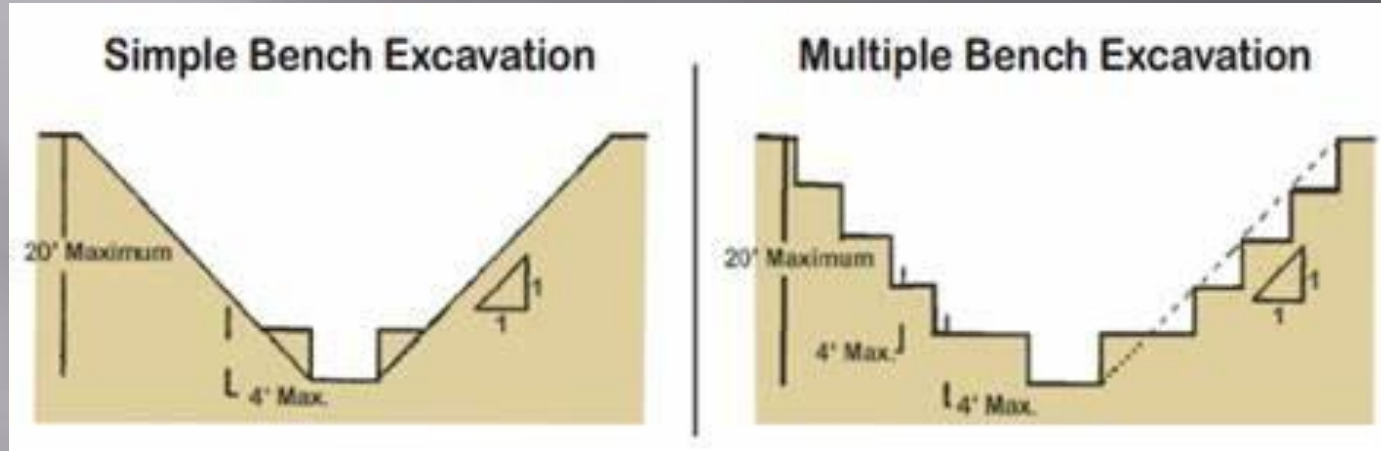


Source: OSHA Directorate of Construction

# Trenching



# Trenching



# Trenching

## Things to Watch Out For:

- are there any utilities in the area
- possible cave-ins
- people or equipment working nearby
- indications of failure of protective systems
- hazardous atmospheres
- hazardous conditions
- over head loads
- a change in conditions.

\*1 cubic yard of dry soil topsoil weighs about 2,000 pounds, while the same soil can weigh around 3,000 pounds when saturated.\*



# Stay Safe

- ▣ Try a tailgate talk!
  - Great way to get everyone on the same page, coordinate operations
  - Brief reminders of safety programs/protocols
    - ▣ LOTO / Slips, trips and falls
  - Bring doughnuts/breakfast. This is key.



# CSEA PEER TRAINER PROGRAM

## ▣ Objective:

- Eliminate all preventable fatalities and injuries in the work place by providing a cost-effective, labor/management initiative that creates an internal safety and health training structure that allows for compliant training for workers by workers.
  
- Used by:
  - ▣ NY County Governments
  - ▣ NYSDEC
  - ▣ NYS Parks
  - ▣ NYS DOCS
  - ▣ SUNY
  - ▣ NY Towns, Cities and Villages
  
- Vast network. If I don't know the answer, I know someone who does!

# CSEA PEER TRAINER PROGRAM

## Peer Trainer Program Course Offerings

- ▣ Emergency Response to Hazardous Materials
- ▣ Confined Space Entry
- ▣ Hazard Communication/Right-to-Know
- ▣ Temporary Traffic Control for Emergency Response
- ▣ Trenching & Excavation for Emergency Response
- ▣ Mold
- ▣ Safe Refuse Collection
- ▣ Asbestos Awareness
- ▣ Lock-Out/Tag-Out

# Slow Down to Get Around

- ❑ **SLOW DOWN** when approaching a refuse truck making its rounds. Stop if necessary to allow workers to do their jobs.
- ❑ **LOOK FOR WORKERS** before attempting to pass the truck.
- ❑ **CHECK FOR TRAFFIC** approaching from the opposite direction before proceeding around the truck.
- ❑ **AVOID DISTRACTIONS** like texting, talking on the phone, changing the radio station or checking your GPS while driving near a sanitation truck



Stay Safe

Thank You and Good Luck on the Exam!!

Questions??