



Responder Safety Awareness

Unit II

For All-Hazards & Disaster Response



Unit II Objectives

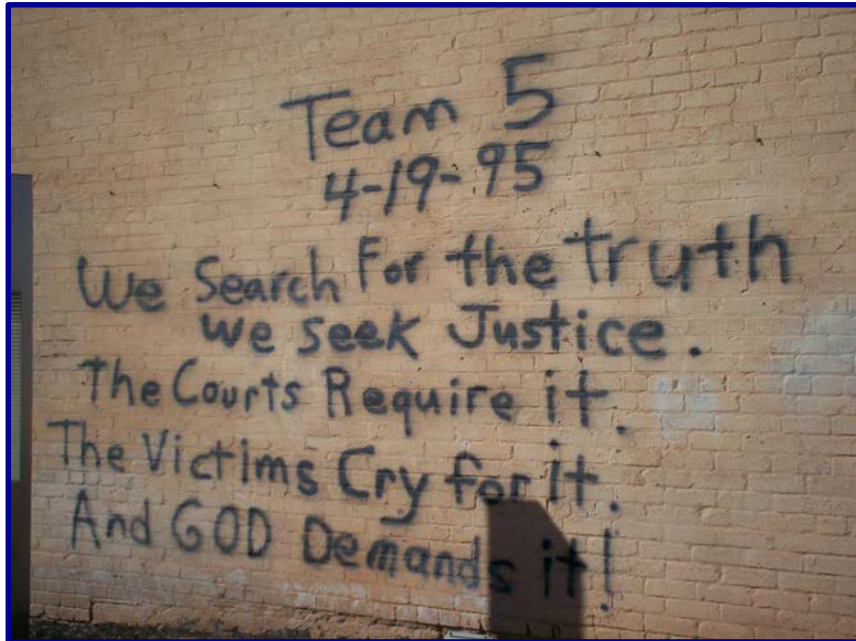
- *Identify the safety concerns to responders during response and on-scene operations at natural and man made disasters*
- *Identify the personal health issues responders are exposed to from biological agents, noise and weather extremes while conducting operations at different types of incidents*
- *Complete an ICS 206 Medical Form for a simulated incident*



Unit II Objectives con' t

- *Recognize the unique physical hazards to responders while operating at Wild-land fires*
- *Recognize the safety hazards when operating tools and equipment at incidents*
- *Identify the safety hazards when conducting operations at structural collapse and other special operation incidents*
- *Using the Incident Response Pocket Guide establish on-scene safety strategies for a simulated incident*
- *Complete an ICS 215A Safety Analysis form on a simulated incident*

Oklahoma City 1995



Some of the Hazards Dealt with by Responders

- Initial blast
- Structural collapse
- Handling debris
- Falling debris
- Electrical
- Critical incident stress
- Weather (1ST 4 days)
 - Tornado 3 miles away
 - Lightning
 - Winds up to 50 mph
 - Heavy rain
 - Wind chill as low as 32° F
 - Horizontal hail



Weather Events & Natural Disasters

- History has shown physical injuries are primary contributors to responder morbidity during major weather events
- Many hazards created by natural disasters are similar or identical to those created by man-made events, i.e. structural collapse
- Injuries may result from
 - Vehicle accidents
 - Struck by
 - Falls
 - Contusions
 - Lacerations



Medical Plan, ICS Form 206, describes the medical care to be provided in case of responder medical emergencies.

MEDICAL PLAN	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED	4. OPERATIONAL PERIOD
	Winter Storm	2-10	1530	2-10 1800 to 0600 2-11
5. INCIDENT MEDICAL AID STATIONS				
MEDICAL AID STATIONS		LOCATION	PARAMEDICS	
			YES	NO
Fire Station 1		1171 S. 5th Ave.	✓	
Fire Station 2		950 Bellingham Way	✓	
Fire Station 4		2100 Main	✓	
Fire Station 6		4700 N. 12th Ave.	✓	
Fire Station 7		170 West Oakdale	✓	
6. TRANSPORTATION				
A. AMBULANCE SERVICES				
ADDRESS		PHONE		
Minor injuries will be treated at closest Medical Aid/Fire Station. Major injuries call 911 for assistance. Any injury received on the job requires notification to immediate incident supervisor, Operations Section Chief, IC, and Safety Officer and completion of Accident/Injury Form 104 A & B.				
9. PREPARED BY (MEDICAL UNIT LEADER)		10. REVIEWED BY (SAFETY OFFICER)		
John Hilman		Pam Wetzel		

Aid Stations and Level of Service

Instructions, if required

Emergency in the Field

- Consult the ICS 206 Medical Plan
- Follow agency SOP's
- Notify your supervisor immediately!

Subpart D 1926.23
Requirements for First Aid,
Medical Attention, &
Emergency Facilities





General Considerations

- Walking over and handling debris that is unstable can cause cuts, scrapes, bruises, sprains, etc.
 - Remain current with tetanus vaccination
 - Revaccinate for a dirty wound if current vaccination is over 5 years old
 - If you will be performing direct patient care or otherwise expected to have contact with bodily fluids, get the Hepatitis B vaccine series
- Avoid contact with stagnant water
 - Wash and sanitize immediately if exposed
- Consider steel toe/shank non-slip footwear if available
- Use durable gloves when handling debris
- Use hearing protection for noisy environments
- Know your medicines, allergies, and blood type

Subpart E 1926.95-107
OSHA Pub 3077 PPE
OSHA Pub 3151 Assessing
Need for PPE

Falls

Leading cause of fire ground injuries



Potential Fall of 6' or more
1926 Subpart M Fall Protection
1926 Subpart L Scaffolds
1926 Subpart X Ladders

Ladders

- **Ladders can create a falling hazard. Make sure your ladder is heeled & secured:**
 - Position portable ladders so the side rails extend at least 3 feet above the landing with a 75° angle
 - Use only ladders that comply with OSHA or NFPA standards



Improper Heeling





Aerial Apparatus & Lifts



Driving

Every year in the U.S., there are 15,000 fire-apparatus accidents, They range from open apparatus doors knocked off to incidents that result in 5,500 lost-time firefighter injuries for a cost of \$7 to \$8 billion.





Traffic Issues





Work Zone Safety

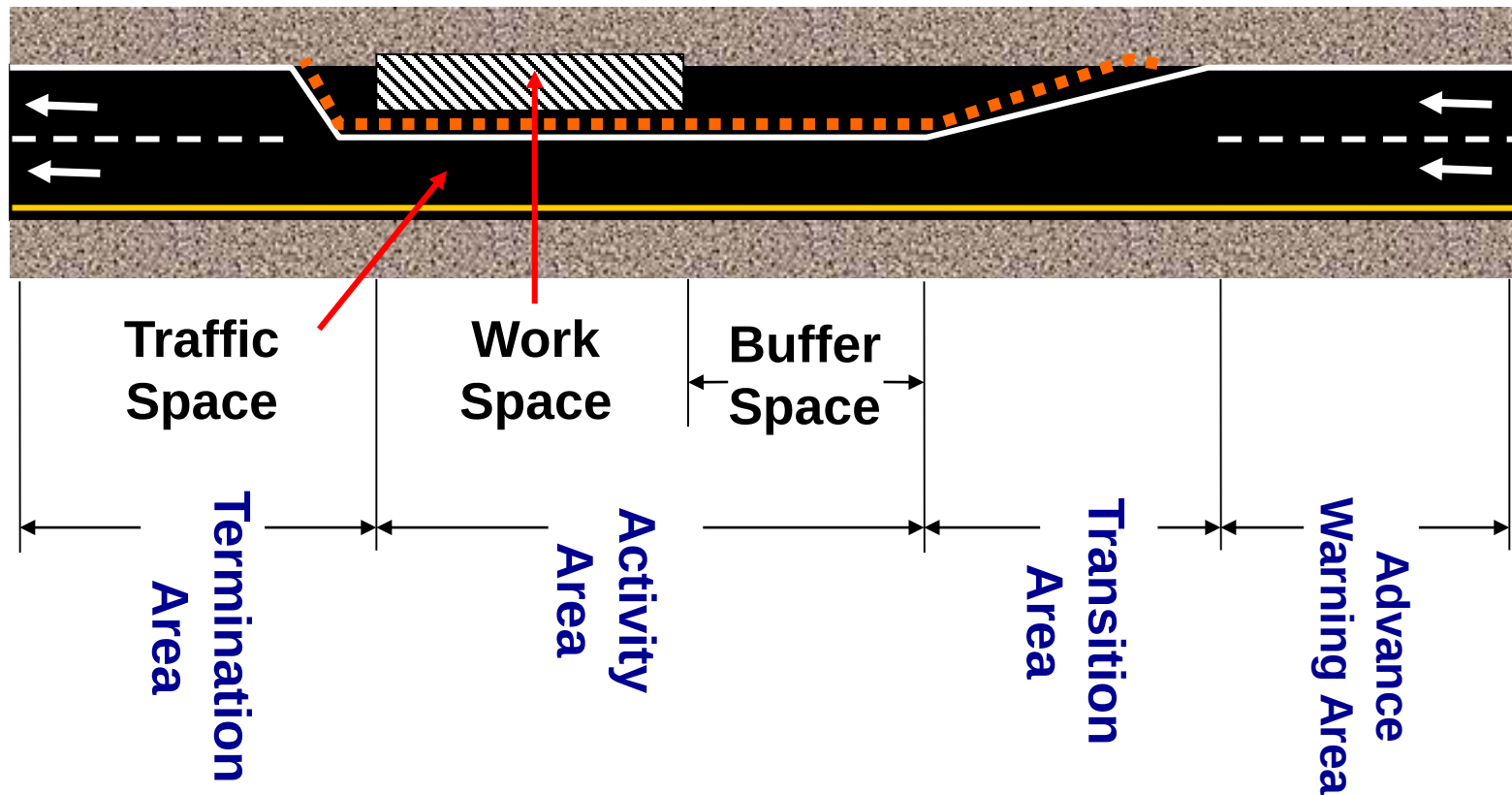


Subpart G-Signs, Signals, & Barricades 1926.200 Accident Prevention Signs and Tags

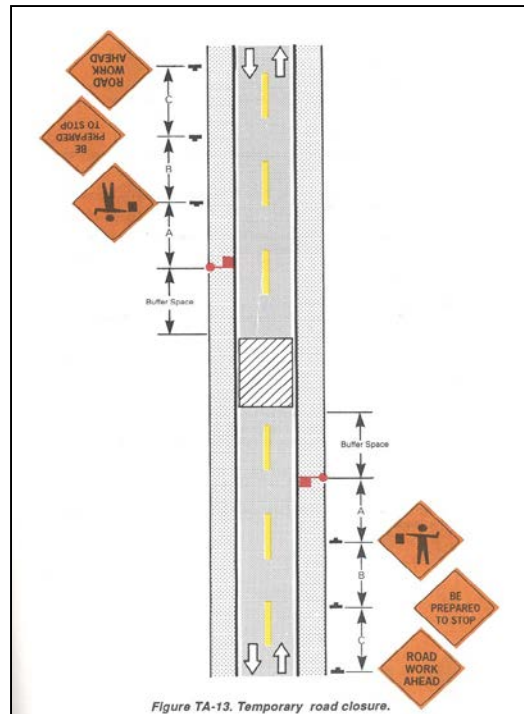
Component Parts of a Temporary Traffic Control Zone

1926.210 Signaling & ANSI D6.1-1971

Manual on Uniform Traffic Control Devices for Streets and Highways



Minimum Signs Recommended in the Manual on Uniform Traffic Control Devices (MUTCD)



1926.202 Barricades,
ANSI D6.1-1971, *Manual on Uniform Traffic Control Devices for Streets and Highways*
1926.203 Definitions applicable to Subpart G



Downed/Exposed Power Lines and Cables

- Treat all down lines as energized
- Verifying that a power line is not energized may not ensure safety.
 - Lines on both the load and supply sides must be grounded
- Generators must be grounded to protect from feedback electrical energy
- Ground fault interrupters (GFI) must be used

NFA FF Safety Video – Electrical Hazards



Chain Saws

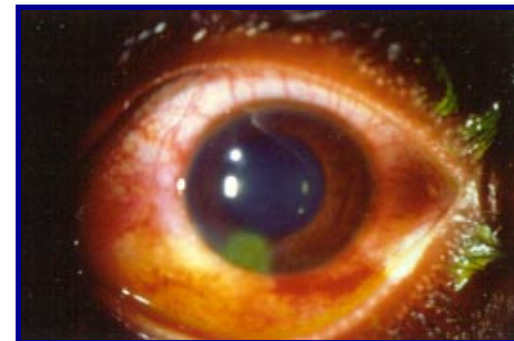
- Operate, adjust, and maintain per manufacture's instructions
- Keep chain properly sharpened and lubricated
 - Periodically check chain tension
- Choose the the right saw for the right job
- Wear appropriate PPE
 - Hard hat, gloves, eye protection, chaps, hearing protection, and boots





Eye Injuries

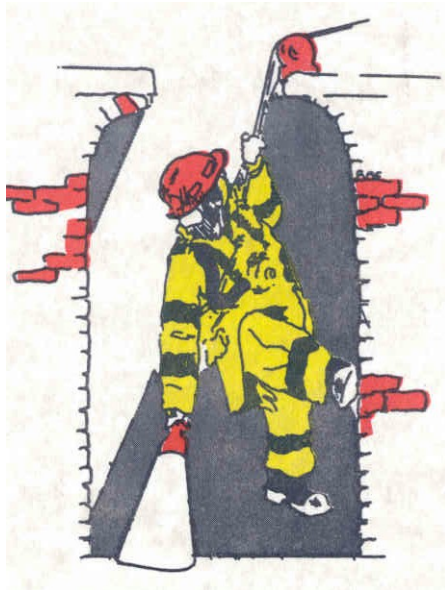
- At a minimum, use safety glasses with side shields
 - Marked ANSI Z87.1
- Use safety goggles for fine dusts or use over prescription glasses
- Any work with or around welding should use welding eye protection shield or goggles



Confined Spaces

What is a Confined Space (CS)?

- Limited access & egress
- Large enough to enter
- Not designed for occupancy



What is a Permit Required CS?

- O₂ deficiency/enrichment
- Entrapment
- Engulfment
- Hazardous atmosphere
- Any other recognizable hazardous environment

Source: OSHA Permit
Required Confined
Space Standard
29 CFR 1910.146

Sump Explosion Video



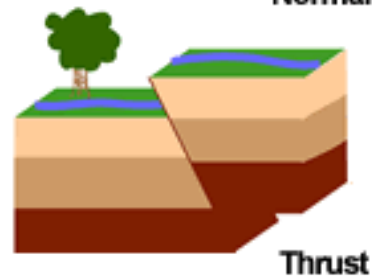
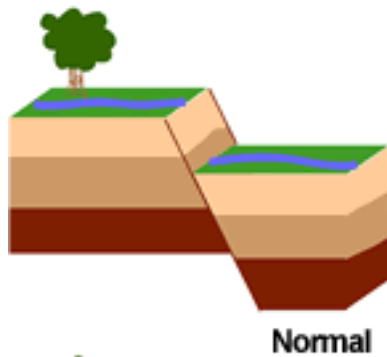
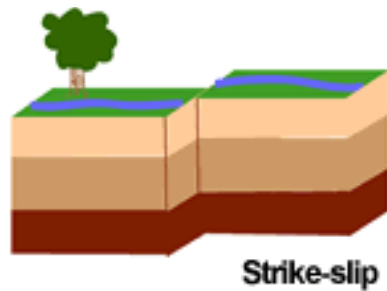
Structural Collapse

Collapse may be the result of earthquakes, wind, or flooding

- Specific hazards and effects may include:
 - Aftershocks
 - Damage to utilities
 - HazMat releases
 - Landslides
 - Avalanches
 - Fires

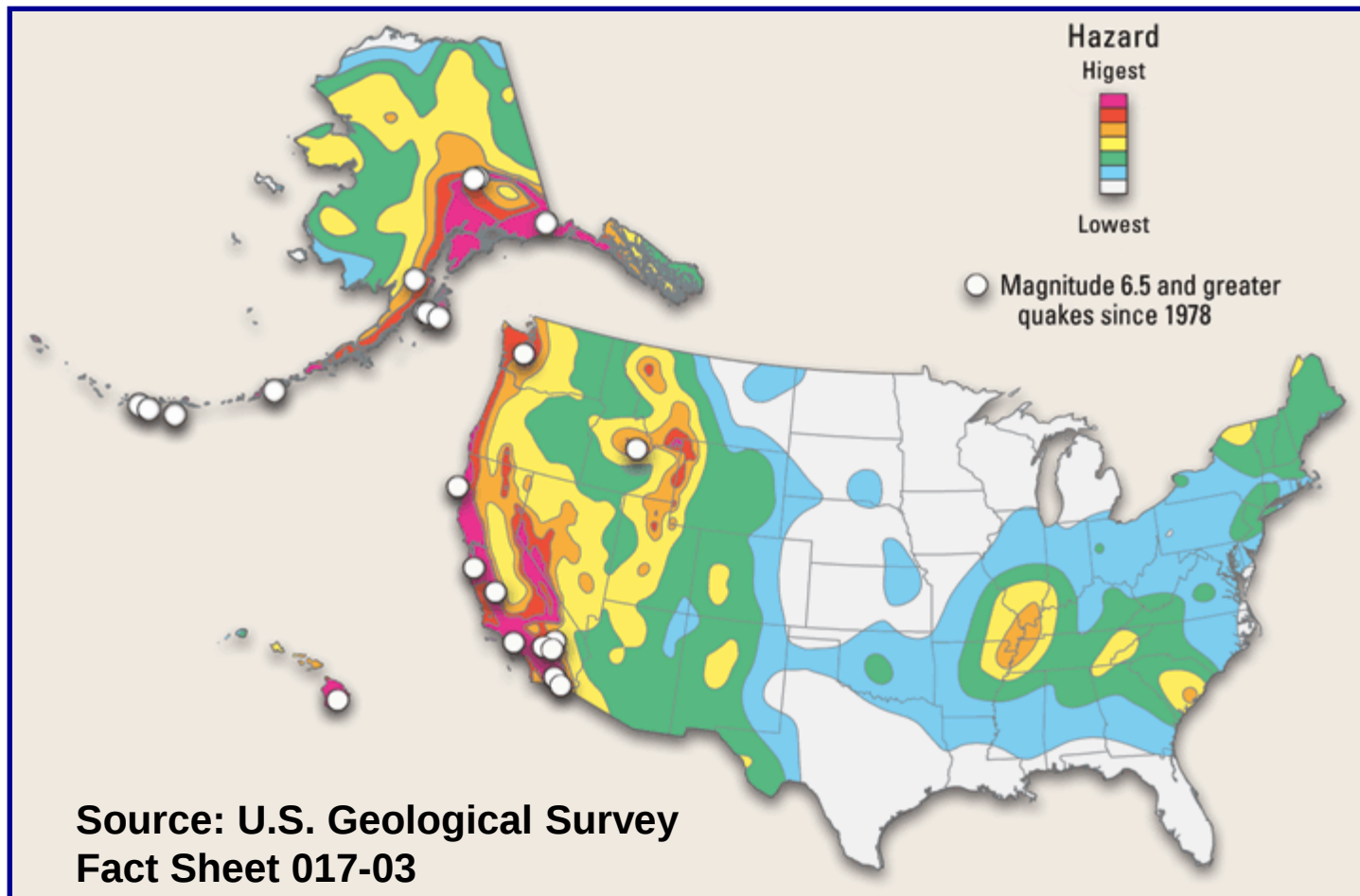


What is an Earthquake?



- An earthquake is a sudden, rapid shaking of the ground caused by the breaking and shifting of rock beneath the earth's surface.
- Earthquakes occur along fault lines.
- Earthquakes have three different shifting patterns (illustrated to the right).
- Earthquakes may occur at any time with little or no advanced warning.
- An earthquake's magnitude or "energy release" is measured on the Moment magnitude (M_w) scale.

High Risk Earthquake Zones



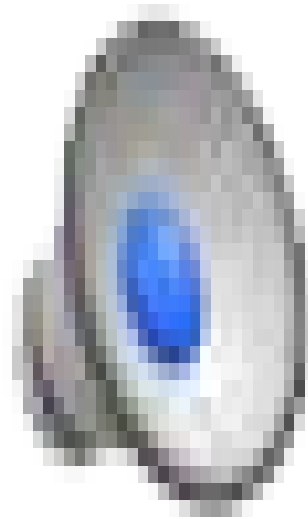
What is an Aftershock?

- An earthquake that occurs after a previous quake
- Occurs in the same area as the main quake
 - Lesser magnitude





Tsunami



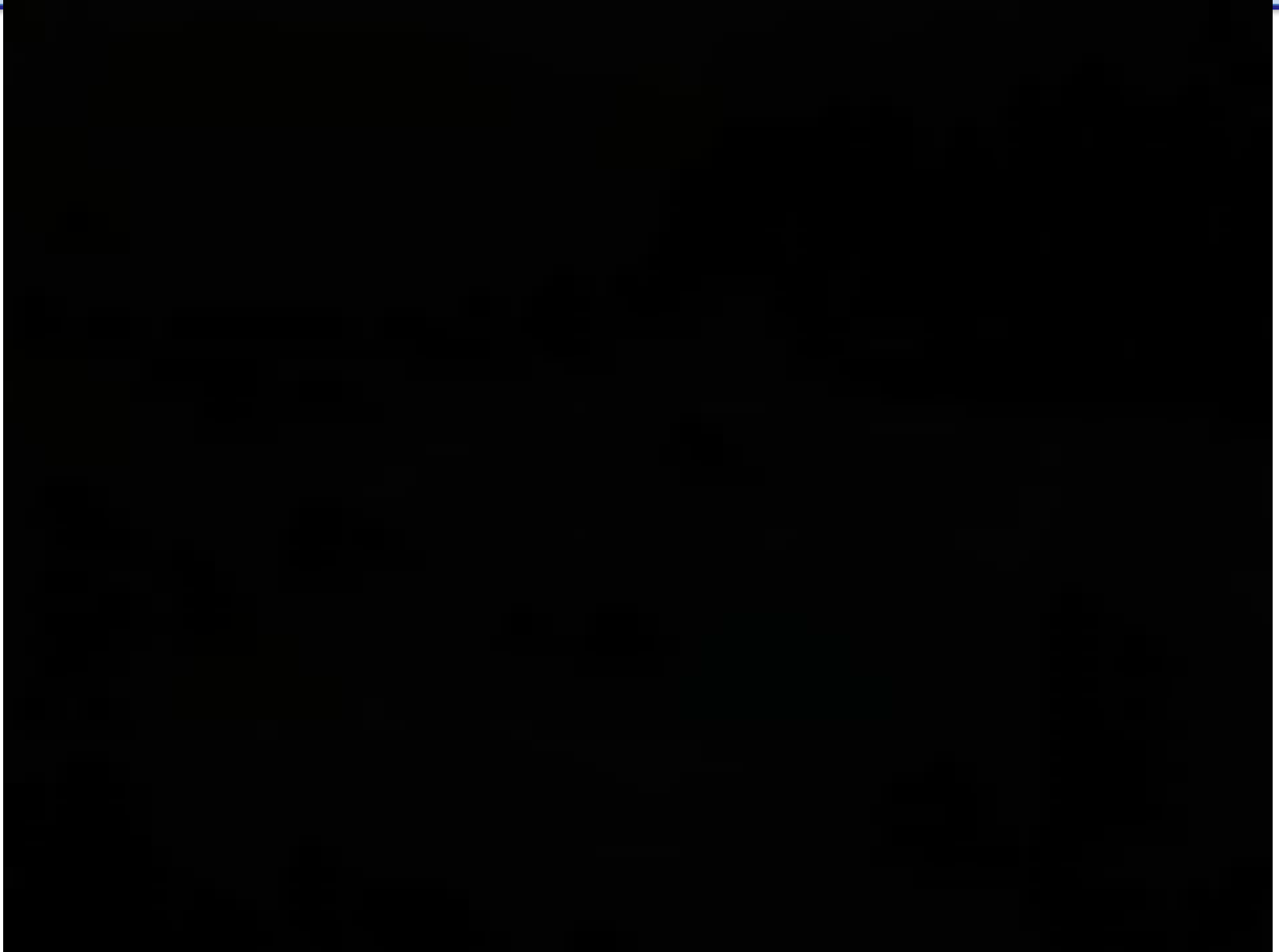


Landslides and Avalanches

- A landslide is an abrupt downhill movement of soil and bedrock
- Can be triggered by earthquakes or other natural causes
- Create ground movement from rock falls, deep failure of slopes, and shallow debris flows
- A flow of snow or ice down a mountain
- May contain victims



Ocoee, TN Land Slide



Risk Factors that can Increase Damage

- Areas near fault lines
- Structures built on unstable soil and rock
- Structures not built to earthquake grade standards
- Structures built on steep slopes and areas prone to landslides and liquefaction



Structural Fires

- Often the leading cause of property damage and casualties
- Debris left from fire may smolder for days to weeks.



Structural Collapse Events

- **Structural Integrity**

- Earthquakes can severely damage structures, such as buildings, bridges, and dams
- Never assume that damaged structures or ground is stable
- Assume all stairs, floors, and roofs are unsafe until inspected
- Look up and be aware of hidden and/or overhead risks
- Determine if any hazmats have been on the property





Continual Assessment of the Scene – Roof Collapse



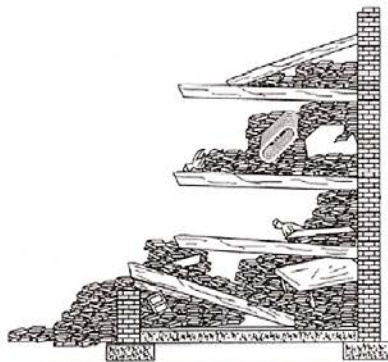


Structural Collapse

- How to reduce injuries at structural collapse
 - Ensure all workers are trained and authorized to be in the work area
 - Create a limited access zone around the structure
 - Height of structure (ft) + 4(ft)
 - Be alert for signs of a secondary collapse
 - Wear appropriate PPE
 - Steel toed boots, gloves, hard hat, and eye protection

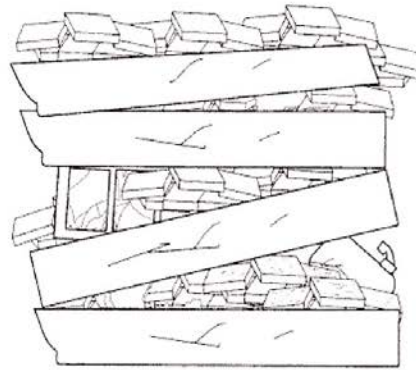
USAR structural collapse search markings
are found on page 37 of Incident Response Pocket Guide

Examples of Unstable Structures

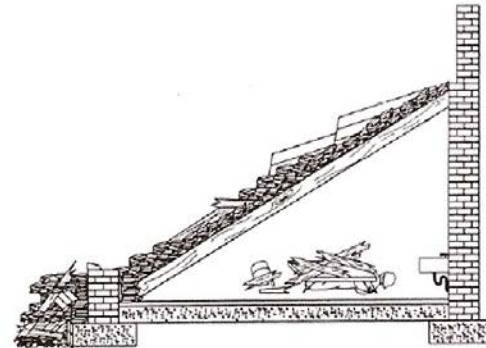


Cantilever

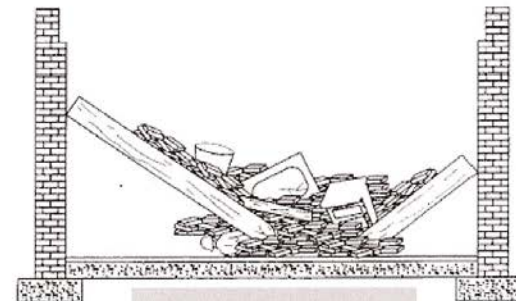
Be aware of fallen debris that has created a natural support for other structures!



Pancake



Lean to



V-shape



Minneapolis/St. Paul Bridge Collapse



Debris Piles and Unstable Surfaces

- Do not walk on unstable surfaces
- Use other ways to get to work
 - bucket trucks or designated walk-ways
- Look for smoldering material on or beneath the surface
- Lookout for hazardous materials
- Wear personal protective equipment
- Wear fall protection with appropriate anchor points

Enterprise, AL. 2007



Handling Debris and Sharp Materials

- Up-to-date tetanus vaccine (every 10yrs)
- Wear appropriate PPE
 - Hard hat, safety shoes, eye glasses, and heavy work gloves
- Clean all/any wounds with soap and water and apply antibiotic ointment
 - Contact doctor/medical aid to determine if additional medical assistance is necessary

Overhead Hazards and Falling Debris

- Injuries to disaster site workers are often the result of falling material and debris related to unstable structures
- Overhead falling hazards may include:
 - loose debris
 - building components
 - unsecure building contents such as bathtubs, refrigerators, furniture, and HVAC units

Rebecca Anderson OKC 95

THE FINAL SACRIFICE OF A GALLANT NURSE

REBECA ANDERSON AND HER HUSBAND, Fred, both 37, were relaxing at home in Midwest City, Okla., when they heard the explosion 30 miles away. Fred wanted to get in the car and see what had happened; Rebecca didn't feel that they should. She thought it was just a pilot taking off at the nearby Air Force base. But minutes later, Anderson, a licensed practical nurse, rushed into the bedroom where her husband was dressing, threw on a pair of jeans and a sweatshirt and shouted to him to get in the car. "She saw some fireman carrying a kid out, or something, and said they could use some help," he recalls.

Her family back home in Fort Smith, Ark., weren't surprised when they

learned what she'd done. "She always had time for people; she was very compassionate," says her mother, Doris Needham. Adds her brother Bob Needham Jr.: "All Bec would have to do is see one little baby carried out, and she would be off and running."

Tragically this time, Anderson never got her chance to help. Shortly after her husband, a delivery-truck driver, dropped her off at the bombing scene, she was apparently hit on the back of the head by a piece of falling debris. Although she initially declined medical attention—"She kept insisting she had to get back and help the wounded," says rescue worker Glenn Sheppard—she collapsed minutes later and was rushed to the hospital herself. Once there, she

managed to give officials her husband's pager number—Fred was setting up a snack wagon for rescue workers at the scene—and awakened briefly when he arrived at her bedside. But she was never able to answer his questions. "I said, 'Baby, what happened?'" he recalled later. "She said, 'I don't remember.'"

Initially doctors were optimistic that Anderson would recover. Later that day they performed surgery to remove a blood clot from her brain, and family members—including Anderson's four children, Gabriel, 17, Hilary, 15, Rachel, 12, and Britton, 10, from two previous marriages—rejoiced when she answered commands to wiggle her fingers and toes. But after that first day, Anderson never regained consciousness, and four days later she died from massive swelling in her brain. "Rebecca was fighting so hard to stay alive," said Fred, who met her through friends and married her last July. "With all the trauma she had suffered, she surprised people she lasted so long. I said a word of prayer and said, 'God, go and take her. It's okay.' I said to Rebecca, 'Quit fighting now. You can go now.'"

Even in death, Rebecca managed one last generous act. On April 23 her heart was transplanted into 55-year-old William Wilcoxson, a Duncan, Okla., casino worker, who is now recovering. Says Rebecca's brother Hank Needham: "My sister died a hero." ■

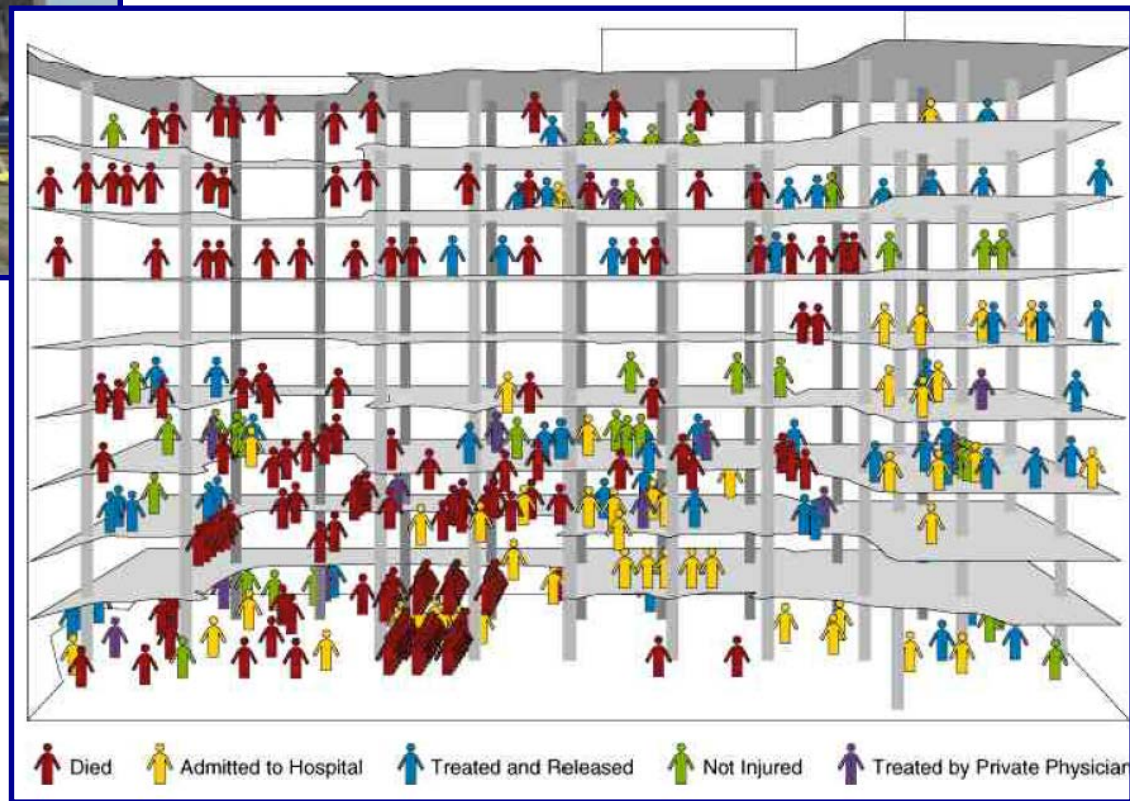
▼ Anderson (in 1993) expressed her desire to be an organ donor on her driver's license.



◀ Rescue worker Sheila Hand aided Anderson at the bombing scene. "She died doing what she loved," says Hand.

▼ "I can't think of a time that woman said, 'No,'" says Anderson's husband, Fred. "She'd forget about herself and go help others."

Murrah Federal Building 1995



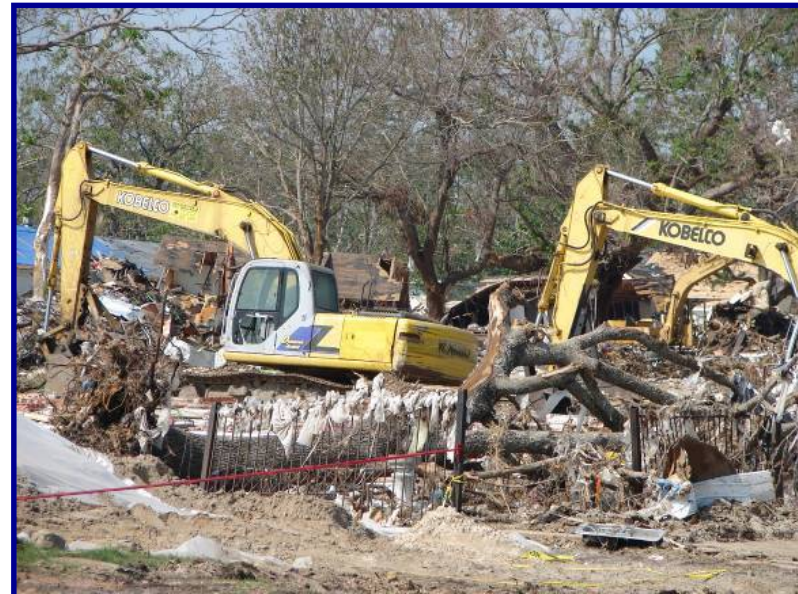
Heavy Equipment

- Have a good situational awareness
- Do not walk under cranes when lifting
- Do not walk behind equipment
- Do not climb onto or ride loads being lifted or moved

1926.550(a)(5-6)

Heavy equipment inspections and repairs

1926.32(f) Definition of “Competent Person”



Flash Floods

Flash Floods:

- Rapid flooding of low-lying areas
- Flooding occurs in less than six hours

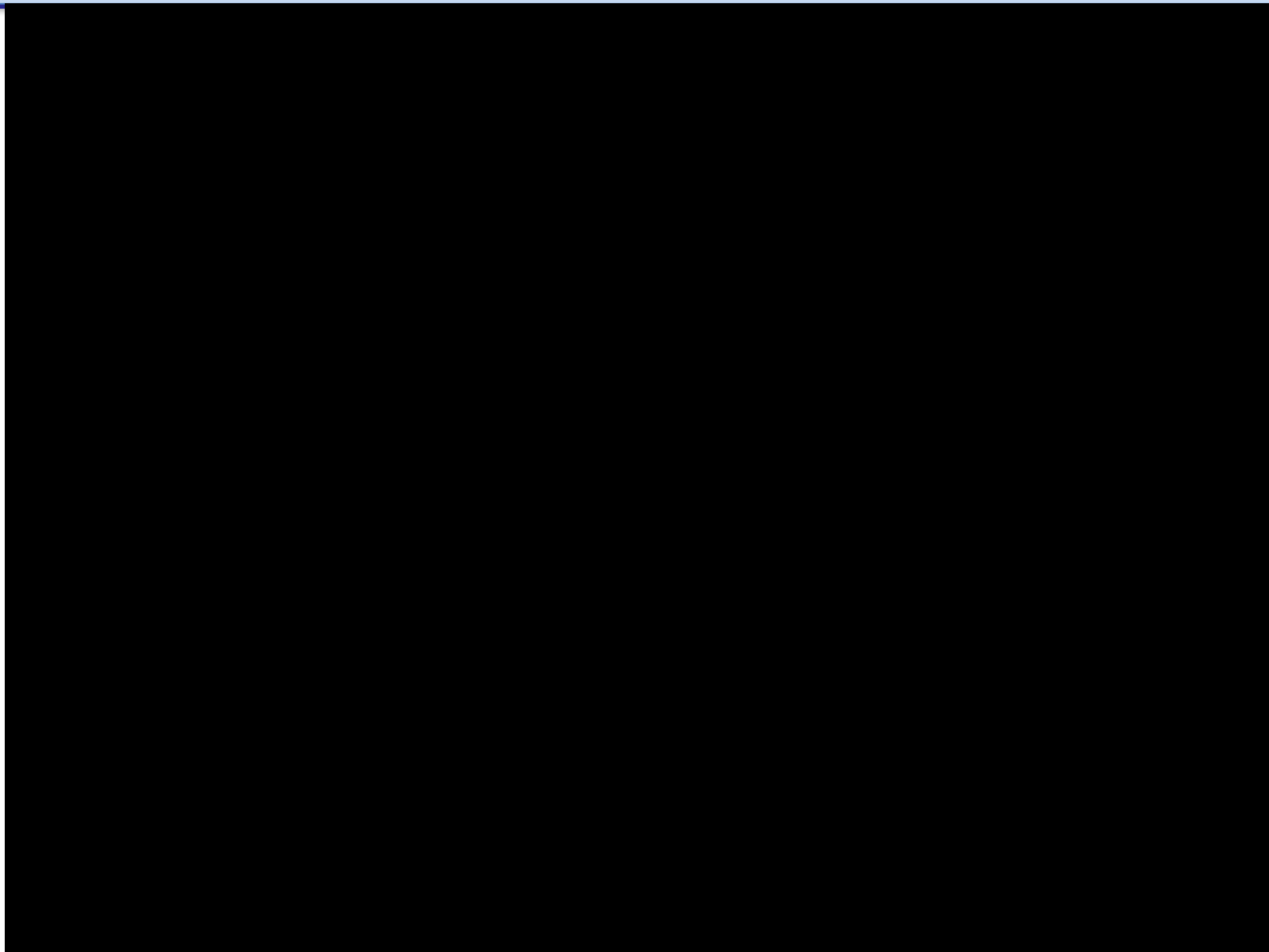
What to do:

- Know the area you are working in
- Find higher ground
- Wear personal floatation device
- Do not cross rapid moving water
- Do not wear turnout gear



Homewood Swiftwater Rescue

2005

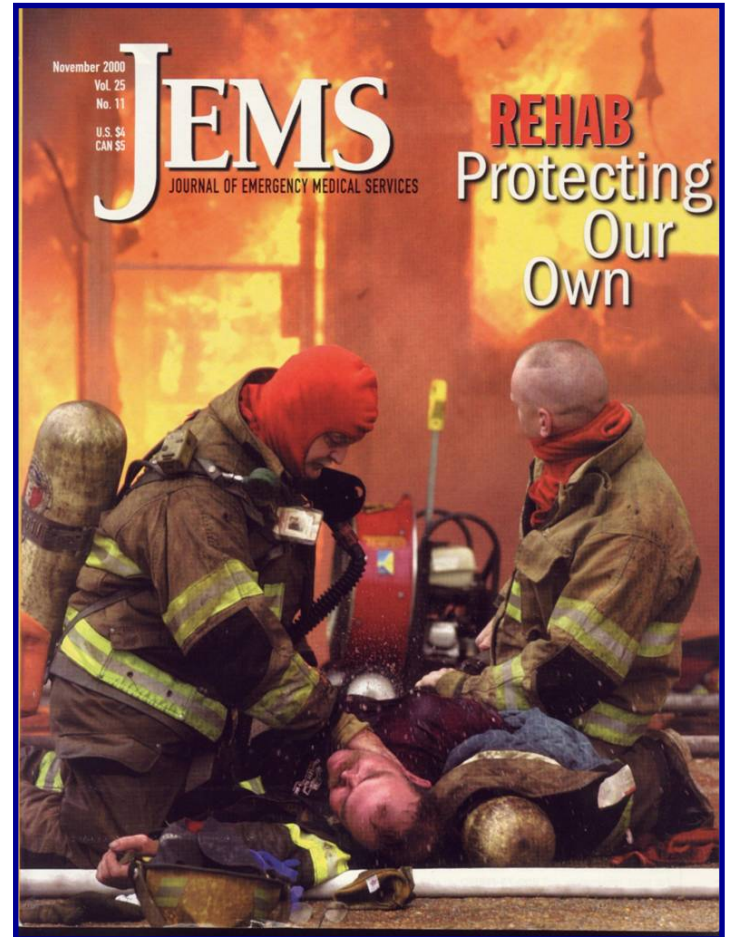




Hurricane Mathew Flooding in NC. 2016



Temperature Stress





Heat Illness Case Histories

Six Day War (1967) - 20,000 Egyptian soldiers died of dehydration / heat illness

Gulf War (1991-92) – Soldiers drank 11 – 19 liters of water per day...zero deaths from heat illness

Average work environment heat illness is common @ temperatures as low as 70° F.



Heat Illness

- Drink lots of water (5 to 7 ounces every 15 -20 minutes)
- Know the signs of heat stress/illness
- Work in the shade when possible
- Use cooling fans or take breaks
- Wear lightweight, light colored, loose fitting clothing
- Avoid alcohol, caffeine, or heavy meals
- Take shelter and remove PPE when safe



Heat Illnesses

- Heat Stress/Cramps
 - Headache, thirst, profuse sweating, muscle aches and cramps
- Heat Exhaustion
 - Dizziness, confusion, nausea, pale-clammy skin, rapid/weak pulse, profuse sweating
- Heat Stroke
 - Hot flushed dry skin, stopped sweating, body temp greater than 104F, disoriented or unresponsive or unconscious

Section 5(a)(1) of the OSH Act, The “General Duty Clause” – workplace free from recognized hazards



Heat Illnesses

- Hyponatremia (Water Intoxication)
 - This is a medical emergency – Symptoms may be mistaken for heat exhaustion, though treatment is very different.
 - Symptoms:
 - Mental status changes
 - Vomiting
 - Abdomen distended
 - Large amount of clear urine
 - Treatment:
 - Do not give water or IV
 - Give salty foods or snacks

Cold Stress

Hypothermia

- Early Symptoms
 - Shivering
 - Fatigue
 - Loss of coordination
 - Confusion and disorientation
- Late Symptoms
 - No shivering
 - Blue skin
 - Dilated pupils
 - Slowed pulse and breathing
 - Loss of consciousness



Frost Bite

Symptoms:

- Reduced blood flow to hands and feet (fingers or toes can freeze)
- Numbness
- Tingling or stinging
- Aching
- Bluish or pail, waxy skin



Sunburn

- Prevent overexposing skin
- Sunglasses, if used, must be ANSI approved for use as safety glasses (Z87.1+)
- Use sunscreen and lip balm
- Use protective eyewear
- Limit exposure



US Army

(Sunscreen Prep, NSN 6505-01-121-2336)

(Sunglasses, Polarized, NSN 8465-00-161-9415)

(Cold Climate Lipstick, Antichap, NSN 6508-01-277-2903)

- Worksite is considered “noisy” if you have to shout to communicate within 3 feet
- Use hearing protection whenever using noisy equipment
 - Saws, dozers, extrication tools, sirens, etc.
- Hearing protection prevents temporary hearing loss that otherwise can be used to listen for trapped victims

1926.101 & 52
PPE 1910.95



Chemical Releases

- Hurricane Katrina 2005
 - Chlorine tank found in downtown Gulfport, MS
 - 78,000 barrels of oil released at two spills
 - Diesel, gasoline, motor oil, chlorine, liquid oxygen, medical waste and corrosives encountered by crews
 - 22,000 facilities in area had underground storage tanks
 - Industrial and household hazardous chemicals were everywhere!



Potential Chemical Exposures

Symptoms: Eye, nose, throat, upper respiratory tract, and skin irritation; flu like symptoms; central nervous system depression, fatigue, loss of coordination, memory difficulties, sleeplessness, mental confusion. Chronic effects depend on the extent and the duration of exposure.

Jobs affected

- Debris removal
- Site clean-up



Protection

Hazard specific as identified by supervisor or safety officer



- Use only NIOSH approved respirators
 - Fit testing is required
- N-95 (or greater) respirators are typically suitable for most outdoor activities involving standard building materials
 - If asbestos is present use N,R,P-100 half masks
- If airborne contaminants are causing eye irritation use full face APR with P100 OV/AG combination cartridge
- Replace filters or masks if breathing becomes difficult or chemical odors break through

Dust Cloud at WTC





NIOSH Particulate Respirator Classification

Efficiency	P – Series Oil Proof	R – Series Oil Resistant	N – Series No Oil Present
99.97%	P100	R100	N100
99%	P99	R99	N99
95%	P95	R95	N95



Carbon Monoxide from Equipment/Tools

- Symptoms
 - Headache, dizziness, drowsiness, or nausea; progressing to vomiting, unconsciousness, collapse, and ultimately leading to death
- Use CO sensors
- Shut off engines when not used
- Do not use engines in confined spaces
- Do not work in open areas near exhaust



Hazard Communication



- Employers must inform employees of the hazards they work with
- MSDS for materials provided by employer must be available

1910.1200

Health Hazards

- Standing water
 - Trench foot
- Mold
- Water-borne disease
- Food-borne disease
- Sanitation/hygiene
- Blood-borne disease
- Animals & insects
- Snakes
- Poisonous plants
- Traumatic stress



Standing Water

- After Katrina, standing water in New Orleans was found to have elevated levels of contamination from raw sewage and hazardous substances
- Avoid contact with standing water
- Workers should wear waders and waterproof gloves when coming in contact with standing water

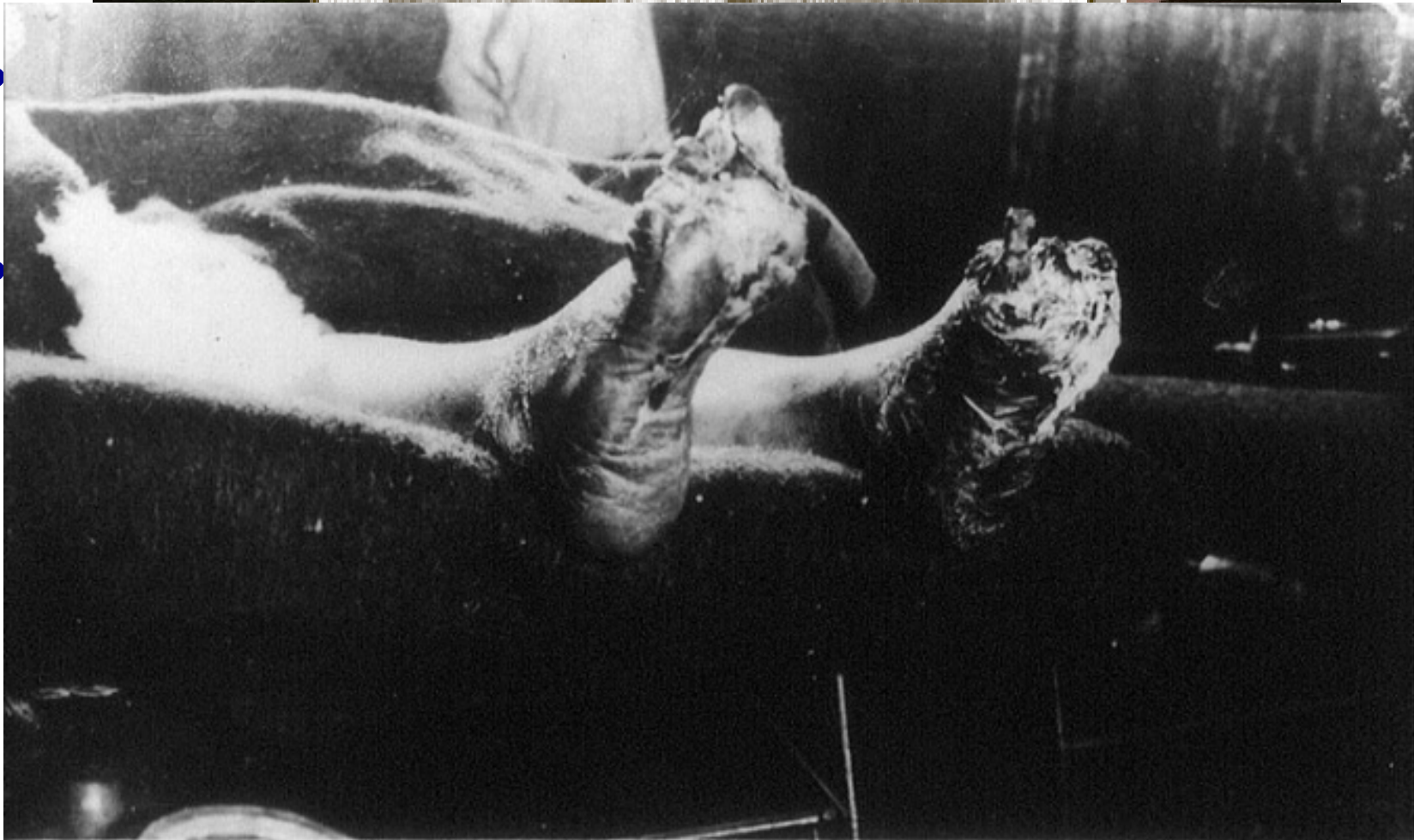


Standing Water

- If clothes get contaminated, wash separately from other clothes
- If skin contact, wash with soap and water
- If broken skin contact, wash with soap and water and apply antibiotic ointment
- Absolutely do not get standing flood water in your mouth



Trench Foot



- Exposure to mold can cause wheezing and severe nasal, eye, and skin irritation
 - Avoid breathing dusts from wet materials
 - Use NIOSH N-95 at a minimum (fit testing)
 - Use protective gloves with gauntlets and use biocide (10% bleach)
 - Wear goggles without vent holes
 - Articles with visible mold should be discarded
 - Wash or shower after work



Mold





Water-Borne Disease

- Communicable disease outbreaks of diarrhea and respiratory illness can occur when water and sewage systems are not working and personal hygiene is hard to maintain
- Ask local authorities if tap water is safe for drinking or bathing
- If not safe, use bottled water or boil/disinfect tap water



Water-Borne Disease

- Wash or disinfect hands often
- Seek medical attention immediately if you develop any of these symptoms:
 - High fever
 - Vomiting
 - Jaundice
 - Nausea
 - Diarrhea
 - Flu-like symptoms



Water Borne Disease

- Look for posted “Boil Water Notices”
- If notices are not present, ask safety officer or public health officials before drinking tap water in disaster areas

STATE OF ALABAMA
Clarke COUNTY

ORDER OF THE COUNTY HEALTH OFFICER

BOIL WATER NOTICE

WHEREAS, on January 8-January 12, 2010 a prolonged period of sub-freezing weather caused significant damages to the State of Alabama, in general, and Clarke County, in specific; and

WHEREAS, due to the effects of the extreme cold weather, the water in the City of Thomasville Water System has been temporarily rendered unfit for human consumption;

NOW, THEREFORE, THESE PREMISES CONSIDERED, as County Health Officer, I hereby declare and order as follows:

(1) The water in the City of Thomasville Water System, because of its nonpotability, is hereby declared a nuisance menacing public health in accordance with the Code of Alabama-1975, Section 22-10-1, and following for potable purposes; and

(2) All persons utilizing water in the City of Thomasville Water System for drinking, cooking and any other potable purpose are hereby ordered to collect the said water in a suitable container and bring the water to a rolling boil for one (1) minute prior to usage.

(3) This order shall remain in effect until further notice.

(4) It is further ordered that a copy of this order be forthwith delivered by the most appropriate means to the Mayor of the City of Thomasville, the Chief of Police and the City of Thomasville, the Manager of the Thomasville Water System, and the Chairman of the County Board of Health.

DONE AND ORDERED ON THIS THE 12th DAY OF January, 2010.

COUNTY HEALTH OFFICER

Food-Borne Disease

- Do not eat food that has come in contact with flood water
- Throw away if unusual odor, color, or texture
- Throw away perishables after 2 hrs if warmer than 40F
- Throw away food containers open or not if in contact with flood water
- Keep fridge/freezer doors closed as much as possible
 - If power out for more than 4 hrs, use block or dry ice to keep cold



- Sanitation and personal hygiene
 - Always wash your hands with soap
 - Use hand sanitizers frequently
 - Exercise good housekeeping
 - Only drink from proven potable water sources



Blood-Borne Disease

- **Body Substance Isolation!**
 - Replace gloves if punctured or torn (double glove)
 - Do not handle human remains if you have skin cuts or punctures
 - Use goggles or face shield and mask for handling or recovering bodies
 - Transport human remains in closed, leak-proof, labeled containers



Handling Bodies of Victims

- There is no direct risk of infectious disease from being near human remains, but when directly handling bodies, precautions must be taken
- Human remains may/will contain blood-borne viruses and bacteria
 - Wear gloves
 - Eye protection, gowns, and masks
 - Wash hands frequently
 - Use body bags to reduce risk of contamination



Insect-Borne Disease

- Mosquitoes (West Nile, Dengue Fever, Zika)
 - Use screens on shelters
 - Wear long pants and long sleeve shirts
 - Use insect repellent with DEET or Picaridin
- Fire Ants
 - Ants will be disturbed by flood waters and very aggressive
 - Protect skin with long sleeve shirts and long pants
 - Treat stings with OTC meds
 - Seek EMS care for any signs of severe reaction



Animal-Borne Disease

- Flood water and storm damage will displace wild and domestic animals
- Dead and live animals can spread diseases
- Avoid wild or stray animals
- Avoid contacts with rats/rat contaminated dwellings
- If contact with animals occurs, wash skin with soap and water and wash or decon PPE
- If bitten or scratched, wild or domestic, seek medical attention



Plague can be hard to weaponize. The World Health Organization reports 1,000 to 3,000 cases of plague every year, globally.



Thumb with skin ulcer of tularemia. Because there is no human-to-human transmission, the disease is non-contagious.



A 14-year-old boy fractured his right ulna and radius and subsequently developed wound botulism.

Snakes

- Be on alert for snakes swimming in water trying to get to higher ground
- Do not approach any snake and back away slowly
- If you are bitten:
 - Remember color and shape of snake
 - Keep person calm
 - Seek EMS
 - Lay person down with bite below level of heart
 - Cover bite with clean, dry dressing





Copyright B W Smith



Copyright 2006 B W Smith



Poisonous Plants

Poison Ivy & Oak

- Train workers on hazardous plant recognition
- Use gloves and wear long pants and long-sleeved shirts when possibility of contacting poisonous plants



summer



spring



fall



it's a bush



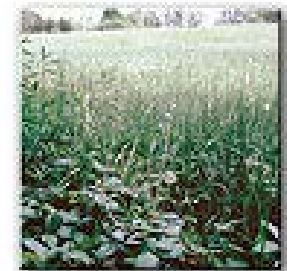
it climbs



it creeps



at the beach



where it grows



Poison Ivy & Oak – “Leaves of 3 leave it be”



©2009 Will Cook



Poison Oak



Poison Ivy

<http://www.duke.edu/~cwcook/trees/tove.html>



Poison Sumac



©2005 Will Cook

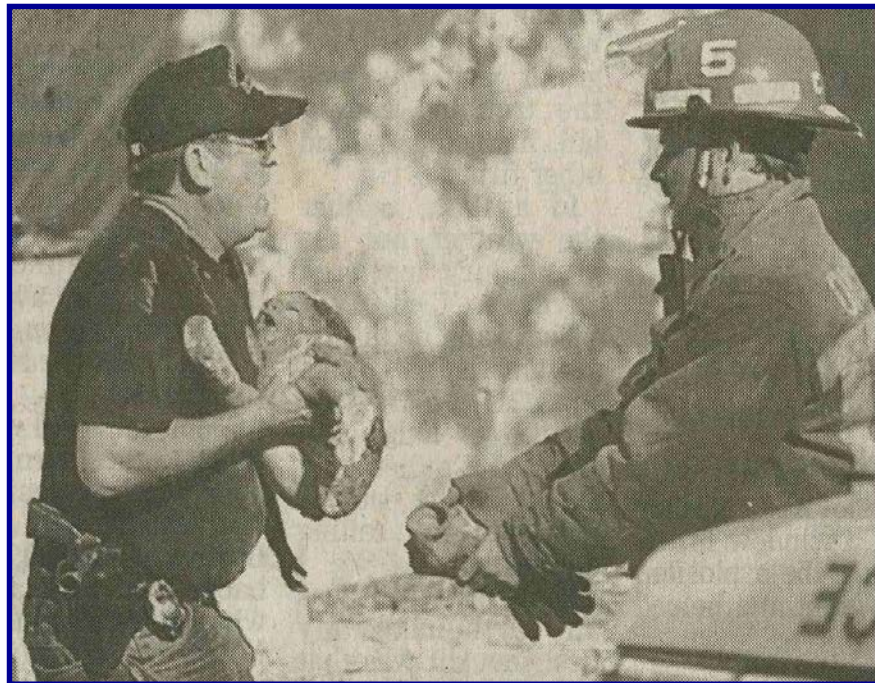


©2005 Will Cook

<http://www.duke.edu/~cwcook/trees/to ve.html>

Traumatic Stress

- Pace yourself and take frequent breaks
- Watch out for team mates
- Be aware of others around you, others are suffering too



Wildland Firefighting



Incident Response Pocket Guide



PMS 461
NFES 1077
January 2010

FIRE Orders

Ten Standard Fire Orders

FIRE BEHAVIOR

1. Keep informed on fire weather conditions and forecasts.
2. Know what your fire is doing at all times.
3. Base all actions on current and expected behavior of the fire.

FIRELINE SAFETY

4. Identify escape routes and safety zones and make them known.
5. Post lookouts when there is possible danger.
6. Be alert. Keep calm. Think clearly. Act decisively.

ORGANIZATIONAL CONTROL

7. Maintain prompt communication with your forces, your supervisor, and adjoining forces.
8. Give clear instructions and ensure they are understood.
9. Maintain control of your forces at all times.

IF YOU CONSIDERED 1 THROUGH 9, THEN

10. Fight fire aggressively, having provided for safety first.

Fire Watch Outs

WATCH OUT SITUATIONS

1. Fire not scouted and sized up.
2. In country not seen in daylight.
3. Safety zones and escape routes not identified.
4. Unfamiliar with weather and local factors influencing fire behavior.
5. Uninformed on strategy, tactics, and hazards.
6. Instructions and assignments not clear.
7. No communication link with crewmembers or supervisor.
8. Constructing line without safe anchor point.
9. Building fireline downhill with fire below.
10. Attempting frontal assault on fire.
11. Unburned fuel between you and fire.
12. Cannot see main fire, not in contact with someone who can.
13. On a hillside where rolling material can ignite fuel below.
14. Weather becoming hotter and drier.
15. Wind increases and/or changes direction.
16. Getting frequent spot fires across line.
17. Terrain and fuels make escape to safety zones difficult.
18. Taking nap near fireline.

Wild Land Fires



PMS 472 (5/94)
NFES 2397

Firefighters Escape Burn-Over Video





Southern California Fires 2016

Video



Wildland Fires

- **LCES** must be established & known to **ALL** firefighters **BEFORE** needed.



Applied Exercise



Follow instructions . . .

- Presented by instructors
- Outlined on handouts



Summary

- The hazards and issues are dynamic and require vigilance and flexibility
- The key to a safe response is attention to the safety issues of your work environment
 - The physical hazards are similar to any construction or demolition site
 - The health hazards include the hazards associated with the environment