



# **Post Storm Response Safety**

## **Facilitator Guide**

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Midwest Consortium for Hazardous Waste Worker Training

## **Acknowledgements**

The University of Tennessee Center for Industrial Services developed this program in conjunction with the Midwest Consortium. This activity is conducted under cooperative agreement number U45 ES 06184 from the National Institute of Environmental Health Sciences (NIEHS).

We encourage you to comment on these materials. Please give your suggestions to your Program Director.

## **Warning**

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The material was prepared for use by facilitators experienced in the training of persons who are or who anticipate responding to industrial emergencies. Authors of this material have prepared it for the training of this category of workers as of the date specified. Users are cautioned that the subject is constantly evolving. Therefore, the material may require additions, deletions, or modifications to incorporate the effects of that evolution occurring after the date of this material preparation.

## **Disclaimer**

The Occupational Safety and Health Administration (OSHA) rule to help ensure worker health and safety at hazardous materials responses requires annual refresher training. Refresher training requirements are specified in 29 CFR 1910.120(q)(8). This program is intended to help meet the requirements for knowledge and skills that the employer must certify annually.

Additional training is necessary to perform many activities. These activities include developing an emergency response plan, identifying materials using monitoring instruments, selecting protective equipment, and assuming the role of incident commander. For information about this matter, consult the training facilitator and/or your company emergency response plan or your company health and safety representative.

This program was updated April 8, 2024; all web links are active as of that date. If you find an error, please inform your program director so that it can be updated.

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## **Course Overview**

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This program was developed in response to the need for workers to gain additional knowledge and skills to facilitate safe response in a post storm environment. By following the outline format and activities in this guide, you will be better able to enhance learning, stimulate class discussion, and maintain the training objectives. The program is designed to be tailored for the needs of participants. It is expected that a 4-6 hour program would be useful, as well as a full 8-hour program. Breaks and lunch are not part of the training hours.

It is the responsibility of the training center staff to develop the following:

- Agenda (retain in program file)
  - Tailor the program to align with participant needs
- Supplemental Exercises
  - Note: If used more than once, the exercise must be sent to University of Minnesota to be approved for use by all MWC training centers
- Sufficient equipment resources to illustrate necessary points during the program and facilitate needed skills among participants

The Midwest Consortium is devoted to professional facilitator freedom while maintaining consistency of training. It is recommended that a minimum of two experienced facilitators team-teach this course. Additional experienced trainers may be required to facilitate some exercises in accordance with the NIEHS Minimum Criteria.

### **Facilitator Preparation**

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This Facilitator Guide provides step-by-step instructions for presenting the course. It includes information such as time requirements, suggested facilitator preparation, minimum content requirements, issues which may arise, and reference materials.

In addition to this guide, course materials include PowerPoint slides for each module and a Participant Guide. Every facilitator should be familiar with the material in the Facilitator Guide, Participant Guide, Exercises, PowerPoints, and the content he/she is teaching. In addition, facilitators should be familiar with applicable OSHA Standards pertinent to the presentation topics.

Flexibility in the inclusion of exercises facilitates the development/use of activities that are most relevant to the participants; for example, if participants work at an area where flood related hazards are prevalent, exercises can be focused on flood related hazards.

Lesson plan forms shown below may be helpful when drafting your presentation outline.

The facilitator should also:

- Ensure operation of audiovisual equipment prior to the session
- Ensure you are able to show videos
- Test web links prior to the session
- Print and make copies of any needed materials such as the Participant Guide. One printing option for PowerPoint presentations (3-slide Handout option) includes lined space on each slide so participants can take notes during the presentation. Your participants may find this helpful as they can take notes and have all content to refer to in the future. An example (Module 5 Water Emergencies) is included in the Participant Guide.

Lesson Plan Form 1

<p><b>Teaching Methods for This Lesson Plan</b> (Check each method you will use)</p>	<p><b>Audiovisual Requirements</b> (Check each that is needed)</p>
<ul style="list-style-type: none"> <li><input type="checkbox"/> Presentation</li> <li><input type="checkbox"/> Discussion</li> <li><input type="checkbox"/> Question and answer</li> <li><input type="checkbox"/> Hands-on simulation</li> <li><input type="checkbox"/> Team teaching</li> <li><input type="checkbox"/> Small-group activities</li> <li><input type="checkbox"/> Case study</li> <li><input type="checkbox"/> Other (describe):</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Training handbook</li> <li><input type="checkbox"/> Supplemental handbook material</li> <li><input type="checkbox"/> Online platform (Zoom etc)</li> <li><input type="checkbox"/> Websites loaded on devices</li> <li><input type="checkbox"/> Whiteboard and markers</li> <li><input type="checkbox"/> Hands-on simulation</li> <li><input type="checkbox"/> Other (describe):</li> </ul>
<p><b>Reference Materials</b> (List all materials needed--paper or electronic)</p>	<p><b>Special Space or Facility Requirements</b></p>
	<p>(List any room size or special facility regulations here, such as set-up areas, equipment storage concerns, etc.)</p>
<p><b>Suggested Discussion Questions</b> (Think <u>in advance</u> what you might be asked, and prepare responses)</p>	<p><b>Suggested Instructor Preparation</b> (Consult with others as needed to improve preparation skills)</p>

Lesson Plan Form 2

<b>Subject Area or Element</b>	<b>Detail</b>	<b>Reference Number or Citation</b>
Major subject heading from outline format.	Detailed breakdown of subject area or element. This detail will necessarily occupy more space than shown here.	e.g., page number in training handbook, section number of regulation, or audiovisual material.

## Instructional Resources

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NIEHS Worker Training Program Homepage: <https://tools.niehs.nih.gov/wetp/>

NIEHS Hurricanes & Floods page: <https://tools.niehs.nih.gov/wetp/index.cfm?id=2472>

NIEHS Responder & Community Resilience page:  
<https://tools.niehs.nih.gov/wetp/index.cfm?id=2528>

National Fire Protection Association (NFPA): Standards 1006, 1670

US Forest Service Water Safety page: <https://www.fs.usda.gov/visit/know-before-you-go/water-safety#:~:text=Main%20hazards&text=Choose%20swimming%20areas%20carefully%20and,Always%20supervise%20children%20closely>

Merrell G (2017). A Swift Water Rescue Primer for EMS Providers. *Journal of Emergency Medical Services*: <https://www.jems.com/operations/a-swift-water-rescue-primer-for-ems-providers/>

## Presentation of Material

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### Small-Group Activities and Exercises

Small-group activities and exercises are incorporated throughout this course. The purpose of these activities and exercises is to involve participants in clarifying information, identifying options, and applying skills. Participants may be allowed to complete the activities or exercises on their own, have them work individually and share their reactions in class, or work in small groups. If small group activities are used, plan to allow sufficient time for participants to complete activities.

Class activities and exercises can enhance the learning process; therefore, it is strongly recommended that you make activities and discussions comfortable so that everyone can participate. Assume that every class will have participants with a wide range of communication skills. Some participants will have no problems participating in group discussion, while others may have a hard time talking in front of the group.



Suggestions for facilitating group activities and discussions include:

- Allow participants to freely express their values, attitudes, and opinions.
- Do not judge participant's responses.
- Facilitate discussion by paraphrasing and clarifying. It is seldom appropriate for the facilitator to give opinions.
- Avoid putting people on the spot. Instead of asking individuals for answers, have a voluntary group spokesperson present findings to/for the entire group.
- Keep the groups focused on the task at hand. Because small-group exercises can draw heavily on the participants' personal experience, sometimes conversation can drift.
- Be alert to the potential for one person to dominate work in small groups. If you see this happening, facilitate participation by other members of the group.
- Keep the participants alert and interested by encouraging participation. If the groups are not participating or giving only cursory answers, ask them probing questions linked to previous work or life experiences.

Exercises are designed to provide the opportunity for participants to observe demonstrations and receive hands-on experience using equipment while reinforcing knowledge content. Performance checklists are completed by the participant during the exercises. At the end of each exercise, performance checklists must be signed by the facilitator, collected, and retained by the training center as part of the participant's permanent records.

## Evaluation

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Evaluation gathers input from participants regarding value to them, achievement of learning objectives, and insights into how to improve the program. NIEHS supports 'model programs' that employ interactive training methods to build skills; see [https://tools.niehs.nih.gov/wetp/public/hasl\\_get\\_blob.cfm?ID=11266&file\\_name=WTP\\_Minimum\\_Criteria\\_062818\\_Final\\_508.pdf](https://tools.niehs.nih.gov/wetp/public/hasl_get_blob.cfm?ID=11266&file_name=WTP_Minimum_Criteria_062818_Final_508.pdf). Collection and use of evaluation data are key to program improvement. Adherence to these criteria is a term-and-condition of NIEHS funding.

Evaluation forms are shown at <http://mwc.umn.edu>

## Successful completion

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Successful completion for this course is defined as: Attendance, 100% on Performance Checklists.

**Sample Agenda for 8-hour course**

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Introductions, paperwork, distribute participant materials	30 minutes
Module 1: Storm Response Safety	1.5 hours
Break	
Module 2: Driving in Disasters	45 minutes
Module 3: Electrical Safety	1 hour
Lunch	
Module 4: FEMA Marking System	1 hour
FEMA Marking System Exercise	30 minutes
Break	
Module 5: Water Safety	1 hour
Water Safety PPE Exercise	45 minutes
Throw Bag Exercise	45 minutes
Closing and Course Evaluation	15 minutes

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# Introduction

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Time Requirement: 30 minutes

Number of Facilitators: 1 or more, consistent with ratio shown in Minimum Criteria

## Materials

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- Participant registration forms and other handout materials
- Open-space room
- Whiteboard or equivalent; markers

## Course Objectives

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After completion, participants will better be able to:

- Recognize hazards encountered in a post storm environment
- Identify how to protect themselves from hazards in a post storm environment
- Define terms and concepts used frequently in a post storm environment
- Implement a FEMA Marking System
- Describe water rescue techniques

## Objectives for the Introduction

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- Introduce facilitator(s), program, participants
- Describe format of class sessions and activities
- Distribute and complete class forms
- Discuss class expectations and rules as applicable
- Discuss importance of operational safety in the post storm environment

## **Suggested Facilitator Preparation**

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- Gather necessary paperwork and handouts prior to the session
- Ensure operation of audiovisual equipment prior to the session
- Test web links prior to the session

## **Minimum Content Requirements**

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- Introduction of facilitator(s), program, participants
- Complete registration forms (if not done in advance)
- Everyone signs in

## **Presentation of the Session**

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The session can be presented as follows.

Introduce facilitator(s) and provide any needed orientation. Review MWC, NIEHS 'model programs' and uses of evaluation. Note that attendance is required for the duration of the program.

Present the agenda that has been prepared, noting that training time does not include lunch or breaks. Introduce the course.

Ask participants to introduce themselves, describing experience and what each wants to gain from the session. Note any goals identified by participants that are not in the listing above - address any that may fit with the session materials and describe why remaining goals are outside the scope of this training.

Collect any forms and provide to program staff for retention.

# **Module 1: Storm Response Safety**

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Time Requirement: 1.5 hours

Number of Facilitators: 1 or more, consistent with ratio shown in Minimum Criteria

## **Materials**

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- NIEHS Safety Awareness for Responders to Hurricanes PowerPoint
- NIEHS Hurricane Response Safety booklet (1 per participant)

## **Objectives**

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When completed, participants will better be able to:

- Recognize hazards encountered in a post storm environment
- Identify how to protect themselves from hazards in a post storm environment

## **Suggested Facilitator Preparation**

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- Review agenda, PowerPoint, participant materials
- Ensure web access if needed
- Test web links in advance
- Order copies of NIEHS Hurricane Response Safety booklet (one per participant)

## **Minimum Content Requirements**

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- Post storm hazard recognition
- Post storm hazard protection

### **Presentation of the Session**

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Utilize the NIEHS Safety Awareness for Hurricane Responders PowerPoint presentation and notes below for this module. Participants can follow in the NIEHS Hurricane Response Booklet. You may add additional content as needed to reflect local hazards which may be encountered in a post storm environment. Encourage discussion from participants who have previously responded to these incidents, as adult learners generally place high value upon experience.

#### **Introduction/Overview**

- Background
- Workers' Rights
- Additional Training Required
- Incident Command

#### **Physical Hazards**

- Traffic/Driving
- Work Zones
- Heavy Equipment
- Falls
- Debris
- Electrical
- Confined Space

#### **Health Hazards**

- Heat Stress
- Cold Stress
- Traumatic Stress
- Sunburn
- Chemicals
- Water-borne
- Food-borne
- Animals/Insects

## Introduction/Overview

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### Background

General Construction Safety & Health Provisions Subpart C 29 CFR 1926.20 - 35.

Subpart C is one of the most important subparts because it covers an overview of many of the major safety requirements for construction work.

These requirements are *every contractor's responsibility*.

- Providing a safe and healthful workplace is the employer's responsibility as established by OSH Act of 1970
- Jobsite inspections must be performed at frequent and regular intervals.
- Jobsite inspections include jobsites, materials, and equipment.
- A competent person must be able to STOP THE WORK to correct any hazardous conditions or problems.
- Construction includes demolition as well.
- The importance of the concept of a qualified employee is that *only qualified employees are allowed to operate equipment and machinery*.

For more information, call 1-800-321-OSHA or log onto [www.osha.gov](http://www.osha.gov)

An effective disaster site worker safety program includes provisions for the systematic identification, evaluation, and prevention or control of general workplace hazards, specific job hazards, and potential hazards that may arise from foreseeable conditions.

- The extent to which the program is described in writing is less important than how effective it is in practice.
- As the size of a worksite or the complexity of a hazardous operation increases, however, the need for written guidance increases to ensure clear communication of policies and priorities as well as a consistent and fair application of rules.
- An effective occupational safety and health program will include the above four main elements: management commitment and employee involvement, worksite analysis, hazard prevention and control, and safety and health training.

### Additional Training Required

Environmental and occupational health hazards are a potential threat to personnel. Additional training is required for specific operations involving, but not limited to:

- Confined spaces
- Excavations
- Heavy equipment operators
- Fall protection
- Work zone safety

### Physical Hazards

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- OSHA Subpart D 1926.23 contains specific requirements for the provision of first aid, medical attention, and emergency facilities.

Additional OSHA requirements:

- Names of employees to contact for further information
- Alarm system in compliance with 1926.150(e) (fire Alarms) or 1910.38 (Emergency Action Plans)
- Training of sufficient employees to assist in evacuation before program is implemented
- The Plan must be reviewed whenever a change has taken place and upon initial assignment
- If the employer has 10 or fewer employees, the program can be communicated verbally

Physical injury was a leading diagnosis following Hurricanes Katrina and Andrew.

#### Key items to have

- Insect repellent with Deet or Picaridin
- Water life vest
- Earplugs
- Bottled water
- Sunscreen
- Rain Gear

29 CFR Part 1926 Subpart E

Personal Protective and Life Saving Equipment (1926.95 to 1926.107)

See Personal Protective Equipment Fact Sheet, also in Spanish, at <https://www.osha.gov/sites/default/files/publications/ppe-factsheet.pdf>

See Publications:

-- OSHA 3077, Personal Protective Equipment

-- OSHA 3151, Assessing the Need for Personal Protective Equipment: A Guide for Small Business Employers

#### Hazard Recognition, Control and Education are Tools for Injury Prevention

- Engineering Controls. Any physical safety device that is designed to passively protect the worker by preventing exposure to worksite hazards.
- Administrative Controls. Any procedure which significantly limits daily exposure by control or manipulation of the work schedule or manner in which work is performed. Using Personal Protective Equipment (PPE) is not administrative control.
- Work Practice Controls. A type of administrative control where the employer modifies the manner in which the employee performs assigned work. The



modification may result in a reduction of exposure through such methods as changing work habits, improving sanitation and hygiene practices, or making other changes in the way the employee performs the job.

## Falls

- Employees shall be protected from falls greater than six feet to a lower level. Fall protection such as guardrails, coverings over floor holes, or personal fall arrest systems shall be installed conforming to 29 CFR 1926 Subpart M.
- A qualified person must determine if the walking / working surface is adequate to support the weight of workers, tools, and materials. This is especially important in areas that have been compromised by floodwaters or suffered structural damage from high winds.
- Use of scaffolds shall conform to 29 CFR 1926 Subpart L. Use of ladders shall conform to 29 CFR 1926 Subpart X. The use of aerial lifts and scissor lifts shall conform to the applicable portions of 29 CFR 1926 as well as relevant ANSI standards.
- Workers shall pay extra attention to the walking / working surfaces to minimize slip/trip/fall hazards. Extra care should be exercised when stepping into areas that are unstable or uneven, such as debris field, or where the surface cannot be visualized (i.e., if covered by water).
- Objects that may dislodge and fall, especially broken glass, present a serious hazard to employees. Whenever possible, such objects or glass should be removed before employees work beneath them. If objects cannot be removed, then controls such as debris netting, sidewalk sheds, canopies, or catch platforms shall be installed.

Note: Specific applications, such as Blue Tarping, are addressed in a separate section of the HASP.

OSHA 1926.501(b)(1) General rule: If an employee can fall six feet or more onto a lower level, fall protection must be provided. Reference 1926 Subpart M App C. Reference 1926.501(b)(10). Reference 1926.501(b)(11) - steep roofs. Roofers - First refer to STD 3-0.1A

Reference 1926.503(a)(1)

## Ladders

You risk falling if portable ladders are not safely positioned each time they are used. While you are on a ladder, it may move and slip from its supports. You can also lose your balance while getting on or off an unsteady ladder. Falls from ladders can cause injuries ranging from sprains to death.

- Position portable ladders so the side rails extend at least 3 feet above the landing
- Secure side rails at the top to a rigid support and use a grab device when 3 foot extension is not possible.
- Make sure that the weight on the ladder will not cause it to slip off its support.

- Before each use, inspect ladders for cracked, broken, or defective parts.
- Do not apply more weight on the ladder than it is designed to support.
- Use only ladders that comply with OSHA standards.

### Blue Tarps

The Blue tarps are designed to temporarily protect a building until a permanent roof is constructed.

Inspect roofs and install blue tarping as temporary protection from the elements. The tasks include inspections, setting up access (ladders), and installing the blue tarp.

- Provide fall protection where feasible, at a minimum provide monitors.
- Proper set up and use of ladders in accordance with 29 CFR 1926.1053.
- Unless the electrical power lines have been deenergized and visibly grounded, maintain proper distance from electrical power lines (at least 10 feet) and/or provide insulating barriers.
- PPE to include eye protection and work boots
- Conduct task specific training
- Hand and power tool safety

### Aerial Lifts

Aerial lifts – Vehicle-mounted devices used to get a worker to an elevated position — referred to as “cherry pickers” or “boom trucks”.

#### Safe Operating Procedures for Both Manlifts and Scissor Lifts:

- Only trained and authorized people may operate the lift. Read and understand the safety and operating instructions including all warning decals or labels.
- The lanyard should be properly attached to the worker’s harness and designated anchor point on the lift as per manufacturers recommendations for all equipment involved.
- Check for overhead obstructions before driving or elevating the platform.
- Never use near electric lines unless they are deenergized or adequate clearance is maintained.
- Refuel tanks only when the unit is off and charge batteries in a well-ventilated area away from open flames.
- Conduct a visual inspection and a function test prior to use.
- Elevate the lift only when it is on a firm and level surface.

#### Scissor lifts provide a solid surface to work from, but remember:

- Guardrails, midrails, and toeboards must be in place.
- The platform must be equipped with a mechanical parking brake that will hold the unit on any slope it is capable of climbing.
- Never use the lift’s rails, planks across the rails, or a ladder to gain additional height.

Manlifts can move in more than a single direction, increasing the risk of mishap, so remember:

- Whenever working out of a manlift, a full body harness must be worn and properly attached to the basket.
- Always maintain a safe distance from debris piles, drop-offs, and floor openings.
- Never drive the manlift when it is elevated above the limit the manufacturer considers safe

OSHA Reference: 1910.66; 1910.67; 1926.950; 1926.955

American National Standard for "Vehicle Mounted Elevating and Rotating Work Platforms," ANSI A92.2 - 1969, including appendix, which is incorporated by reference as specified in 29 CFR 1910.66

### QA Towers

Refer to the PowerPoint slide. The QA tower is set up to inspect debris trucks going into dumpsites. The inspector is at risk from vehicle traffic traveling near the tower. Notice in this photo, the lack of buffer zone around the tower. There should be visual markings such as cones, signs or tape to identify the tower to the drivers.

**Supported scaffold** - one or more platforms supported by outrigger beams, brackets, poles, legs, uprights, posts, frames, or similar rigid support.

Reference 1926.451(g)(1), (g)(4), (b)(3), and Appendix A, paragraph 1d.

- 38-inch minimum guardrail height where guardrail is primary fall protection.
- 36-inch minimum guardrail height where fall arrest systems are primary fall protection.
- Protect from falling between the top rail and surface, by using midrails, screens or mesh.
- Protective barriers must be strong enough to support a falling employee. Wood, chain and wire rope may be used for top rails and midrails.

Top rails - 36-48 inches tall when using the cross bracing as the top rail

OSHA 1926.451(f)(3), 1926(f)(4)

A competent person must inspect scaffolds and scaffold components for visible defects before each work shift, and after any occurrence which could affect a scaffold's structural integrity.

Fall protection standards for roofing differ between residential roofing and commercial roofing work.

### Driving

- Avoid washed out sections of road, debris and/or potholes.
- Drive defensively.
- Be prepared for delays.

- Watch for construction vehicles, flaggers, and over loaded vehicles.
- Worker transportation to the jobsite and around the jobsite present safety hazards that can be reduced through proper planning.
- Workers who drive in the course of their duties shall possess valid licenses appropriate for the vehicles they are driving (including a commercial driver's license, if required). Drivers shall comply with all applicable traffic safety regulations. Employers shall ensure compliance with state laws governing the use of seat belts. Vehicles should be equipped with a sufficient number of seats for each passenger.
- Extra care should be exercised when driving on roads that may have been damaged by the hurricane. Roads may be washed out, undermined, or impassable. If possible, avoid driving into standing water due to the potential for unseen hazards. Be alert for debris and down power lines. Traffic may be heavy, especially around checkpoints. Traffic signs are frequently knocked down, and traffic signal lights may be inoperative. Street signs and landmarks may not be available. Allow extra time when traveling and drive defensively.
- Sufficient parking areas should be arranged for workers in a location convenient to where they report for work. Parking areas shall be adequately lit and graded. Traffic issues include movement of unusual vehicles; oversized loads such as mobile homes, heavy operating equipment.
- Non-operating traffic control signals.
- Landmarks and street signs may be missing so know where you are going before you go there.
- Puddles may hide hazards and it takes very little water to cause hydroplaning and loss of control.
- Be prepared for delays
- Watch for other drivers
- Flaggers may be hidden or obstructed by larger vehicles

### **Driving Hazards:**

- Congestion
- Power lines
- Multiple entrances/exits to roadway
- 2-way traffic
- No signage entering the zone
- Limited visibility for traffic
- Worker with multiple tasks
- Flagging & truck loading

### **Traffic signs**

Construction areas shall be posted with legible traffic signs at points of hazard. All traffic control signs or devices used for protection of construction workmen shall conform to American National Standards Institute D6.1-1971, Manual on Uniform Traffic Control Devices for Streets and Highways.

### Flagmen (persons)

- Used when signs, signals, and barricades do not provide adequate protection to the worker
- Signaling directions must conform to ANSI D6.1-1971
- Flagman must wear read yellow or orange. Red is not allowed.

### Barricades

OSHA 29 CFR 1926.202

For employee protection must conform to applicable portions of ANSI D6.1-1971

Signage alerts incoming traffic to work zone areas.

- High visibility garments: While such garments may make a worker more conspicuous to approaching drivers, they do not offer any actual protection from traffic. Such garments must be used in conjunction with other traffic safety means.

### Subpart G – Signs, Signals, and Barricades

#### **§1926.200 Accident Prevention Signs and Tags**

- Before work begins in the vicinity of vehicular or pedestrian traffic that may endanger employees, warning signs and/or flags or other traffic control devices shall be placed conspicuously to alert and channel approaching traffic. Where further protection is needed, barriers shall be utilized. At night, warning lights shall be prominently displayed, and excavated areas shall be enclosed with protective barricades.
- The employer shall insure that an employee finding any crossed or fallen wires which create or may create a hazardous situation at the work area remains on guard or adopts other adequate means to warn other employees of the danger and has notified the proper authority at the earliest practical moment.
- Signs and symbols required by Subpart G shall be visible at all times when work is being performed and shall be removed or covered promptly when the hazards no longer exist.
- If work exposes energized or moving parts that are normally protected, danger signs shall be displayed and barricades erected, as necessary, to warn other personnel in the area.

#### **§1926.201 Signaling**

Flagmen

When operations are such that signs, signals, and barricades do not provide the necessary protection on or adjacent to a highway or street, flagmen or other appropriate traffic controls shall be provided.

Signaling directions by flagmen shall conform to American National Standards Institute D6.1-1971, *Manual on Uniform Traffic Control Devices for Streets and Highways*.

Hand signaling by flagmen shall be by use of red flags at least 18 inches square or sign paddles, and in periods of darkness, red lights.

Flagmen shall be provided with and shall wear a yellow or orange warning garment while flagging. Warning garments worn at night shall be of reflectorized material.

### **§ 1926.202 Barricades**

Barricades for protection of employees shall conform to the portions of the American National Standards Institute D6.1-1971, *Manual on Uniform Traffic Control Devices for Streets and Highways*, relating to barricades.

### **§ 1926.203 Definitions applicable to Subpart G**

“Barricade” means an obstruction to deter the passage of persons or vehicles.

“Signs” are the warning of hazard, temporarily or permanently affixed or placed, at locations where hazards exist.

“Signals” are moving signs, provided by workers, such as flagmen, or by devices, such as flashing lights, to warn of possible or existing hazards.

“Tags” are temporary signs, usually attached to a piece of equipment or part of a structure, to warn of existing or immediate hazards.

### Debris Truck Hazards

Hazards include:

- Overhead power lines
- Traffic
- Congested – bottle neck area
- Worker on top of potentially unstable load
- Modified trailer used to haul oversized load debris
- No traffic control (direction)

### Electrical Hazards

- Treat all power lines and cables as energized until proven otherwise. Workers most at risk are removing debris from roadsides and in the process of pruning trees.
- Verifying that a line is not energized may not ensure your safety. Lines on both the load and supply side of the work area must be grounded. Grounding is necessary to protect you from the hazards of feedback electrical energy from a secondary power source, such as a portable generator.
- When an electrical shock enters the body, it may produce different types of injuries. Electrocution results in internal and external injury to body parts or the entire body – often resulting in death. After receiving a “jolt” of electricity all or part of the body may be temporarily paralyzed, and this may cause loss of grip or stability. A person may also involuntarily move as a result of receiving an electrical shock, resulting in a fall. Internal or external burns may result from contact with electricity.
- Electricity travels in closed circuits, and its normal route is through a conductor. Electric shock occurs when the body becomes a part of the circuit.

- **Grounding** is a physical connection to the earth, which is at zero volts.
- **The metal parts of electric tools and machines may become energized** if there is a break in the insulation of the tool or machine wiring. A worker using these tools and machines is made less vulnerable to electric shock when there is a low-resistance path from the metallic case of the tool or machine to the ground. This is done through the use of an equipment grounding conductor—a low-resistance wire that causes the unwanted current to pass directly to the ground, thereby greatly reducing the amount of current passing through the body of the person in contact with the tool or machine.
- **OSHA 1926 Subpart K - Electrical** 1926.416, 1926.417

Employees must not work near any part of an electric power circuit that the employee could contact in the course of work, unless the employee is protected against electric shock by de-energizing the circuit and grounding it or by guarding it effectively by insulation or other means.

**In work areas where the exact location of underground electric power lines is unknown**, employees using jack-hammers, bars, or other hand tools which may contact a line shall be provided with insulated protective gloves.

**Before work is begun**, inquire or observe by instruments whether any part of an energized electric power circuit is so located that the performance of the work may bring any person, tool, or machine into physical or electrical contact with the electric power circuit. Post and maintain proper warning signs where such a circuit exists. The employer shall advise employees of the location of such lines, the hazards involved, and the protective measures to be taken.

- Refer to PowerPoint Slide 26 for an example of damaged and exposed power lines and cables.
- Whenever you work with power tools or electrical circuits there is a risk of electrical hazards, especially electrical shock. Risks are increased at construction sites because many jobs involve electric power tools.
- Electrical trades workers must pay special attention to electrical hazards because they work on electrical circuits. Coming in contact with an electrical voltage can cause current to flow through the body, resulting in electrical shock and burns. Serious injury *or even death* may occur.

### **Avoid Hazards**

- Look for overhead power lines and buried power line indicators. Post warning signs.
- Contact utilities for buried power line locations.
- Stay at least 10 feet away from overhead power lines.
- Unless you know otherwise, assume that overhead lines are energized.
- Get the owner or operator of the lines to de-energize and ground lines when working near them.
- Other protective measures include guarding or insulating the lines.
- Use non-conductive wood or fiberglass ladders when working near power lines.

All electrical equipment, including generators, extension cords, lighting, and power tools, shall meet applicable OSHA, NFPA, and NEC standards. Ground fault circuit interrupters (GFCI) shall be installed on all 15A and 20A temporary wiring circuits.

### Chain Saw

#### **OSHA 1926 Subpart I - Tools – Hand and Power**

**Operate, adjust, and maintain the saw according to manufacturer's instructions** provided in the manual accompanying the chain saw.

**Ensure the chain is sharpened and lubricated.** If you notice that the saw is cutting crooked, or the cut shows fine sawdust instead of chips, or you find yourself pressing down hard to keep cutting, or smell burnt wood, your saw needs sharpening. Follow the instructions outlined in the owner's manual when sharpening the chain. Use bar and chain oil to lubricate. Additionally, the operator should periodically check and adjust the chain tension to ensure good cutting action.

**Choose the proper size of chain saw to match the job.** Choose a chain saw that includes safety features such as a chain brake, front and rear hand guards, stop switch, chain catcher and a spark arrester.

**Wear the appropriate protective equipment:**

- Hard hat
- Safety glasses
- Hearing protection
- Heavy work gloves
- Cut-resistant legwear (chain saw chaps) that extend from the waist to the top of the foot, and boots which cover the ankle.

**Avoid contact with power lines** until the lines are verified as being de-energized.

**Always cut at waist level or below** to ensure that you maintain secure control over the chain saw.

**Bystanders or coworkers should remain at least 2 tree lengths (at least 150 feet) away** from anyone felling a tree and at least 30 feet from anyone operating a chain saw to remove limbs or cut a fallen tree

### Confined Spaces

**Confined Spaces may only be entered by Authorized Personnel approved by the safety officer**

In the PowerPoint, notice the retrieval tripod being used to access the confined space. The task being performed is sumping the sewer system. Possible hazards: Hydrogen sulfide, methane, entrapment, environmental hazards such as rodents, snakes, & insects.



### **The following must be done before you enter a confined space. Your Safety Officer must:**

- Make sure you and the attendant are trained
- Ventilate and monitor for hazardous conditions
- Lock out or tag out all power equipment in the space
- Issue appropriate PPE, possibly including self-contained breathing apparatus (SCBA)
- Establish barriers to external traffic such as vehicles and pedestrians
- Provide ladders or similar equipment for safe entry and exit in the space
- Provide good communications equipment and alarm systems
- Have rescue equipment and trained personnel nearby

Work involving confined space entry shall conform to 29 CFR 1910.146. Any agency or contractor that will be performing confined space entry shall develop a specific plan and conduct a JHA prior to commencing work. Plans shall include space evaluation and established acceptable entry conditions; a permit system; training for entrants, attendants, and supervisors; atmospheric monitoring; and rescue / emergency services.

### **Structural Integrity**

Refer to the PowerPoint (Slide 34) for an example of unstable structures that workers will be tempted to enter.

- Do not enter a structure that shows indication of being unsafe such as walls with large cracks, shifting, or partial collapse.
- Consider entering the structure during daytime especially if it is without electricity and you have no lights.
- OSHA requires walls or floor to be shored or braced before demolition if workers are within the structure.
- Do not cut or remove any structure or load supporting members on any floor until all stories above have been demolished and removed.
- Determine if any hazardous substances have been anywhere on the property including pipes and tanks.
- Ensure appropriate utilities have been notified prior to entering and starting demolition work.
- Leave the structure if unusual sounds (indication of shifting) or smells (possible gas leak) are noticed.

Prior to permitting employees to start demolition operations, an engineering survey shall be made, by a competent person, of the structure to determine the condition of the framing, floors, and walls, and possibility of unplanned collapse of any portion of the structure.

- Any adjacent structure where employees may be exposed shall also be similarly checked. The employer shall have in writing evidence that such a survey has been performed.
- When employees are required to work within a structure to be demolished which has been damaged by fire, flood, explosion, or other cause, the walls or floor shall be shored or braced.
- All electric, gas, water, steam, sewer, and other service lines shall be shut off, capped, or otherwise controlled, outside the building line before demolition work is started. In each case, any utility company which is involved shall be notified in advance.
- If it is necessary to maintain any power, water or other utilities during demolition, such lines shall be temporarily relocated, as necessary, and protected.
- It shall also be determined if any type of hazardous chemicals, gases, explosives, flammable materials, or similarly dangerous substances have been used in any pipes, tanks, or other equipment on the property. When the presence of any such substances is apparent or suspected, testing and purging shall be performed, and the hazard eliminated before demolition is started.
- Structural or load-supporting members on any floor shall not be cut or removed until all stories above such a floor have been demolished and removed. This provision shall not prohibit the cutting of floor beams for the disposal of materials or for the installation of equipment, provided that the requirements of 1926.853 and 1926.855 are met.

### Heavy Equipment

Congestion of heavy equipment and debris

#### **Applicable OSHA Standard**

- 1926.550(a)(5) The employer shall designate a competent person who shall inspect all machinery and equipment prior to each use, and during use, to make sure it is in safe operating condition. Any deficiencies shall be repaired, or defective parts replaced, before continued use.
- 1926.550(a)(6) A thorough, annual inspection of the hoisting machinery shall be made by a competent person, or by a government or private agency recognized by the U.S. Department of Labor. The employer shall maintain a record of the dates and results of inspections for each hoisting machine and piece of equipment

#### **Competent Person**

1926.32(f) defines competent person as one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. The OSHA construction standards do not require employees performing crane inspections to have a Level II rating, which is a term used in an ANSI standard not referenced in the OSHA standards.

## Health Hazards

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### Heat Related Illness

- Know the signs of heat-related illnesses
- Monitor yourself and coworkers, use the buddy-system
- Block out direct sun or other heat sources
- Use cooling fans/air-conditioning and rest regularly
- Drink lots of water, about 1 cup every 15 minutes
- Wear lightweight, light-colored, loose-fitting clothes
- Avoid alcohol, caffeinated drinks, or heavy meals
- Get medical help for symptoms such as altered vital signs, confusion, profuse sweating, excessive fatigue
- Take shelter in shaded areas and, for firemen, unbutton and remove bunker gear.

Heat stress hazards are addressed in specific standards for general industry. Highlight OSHA standards, federal registers (rules, proposed rules, and notices), and standard interpretations (official letters of interpretation of the standards) related to heat stress. Section 5(a)(1) of the OSH Act, often referred to as the General Duty Clause, requires employers to "furnish to each of his employees' employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees". Section 5(a)(2) requires employers to "comply with occupational safety and health standards promulgated under this Act".

Excessive heat presents a serious hazard for employees. When the body is unable to cool itself by sweating, several heat-induced illnesses such as heat stress or heat exhaustion and the more severe heat stroke can occur and can result in death. High temperature and humidity, direct sun or heat, limited air movement, physical exertion, poor physical condition, some medicines, and inadequate tolerance for hot environments are all factors that can lead to heat stress.

To help prevent heat stress, workers and supervisors should be familiar with the signs and symptoms of heat-related illnesses and should be monitored for same. Direct sun or other heat sources should be blocked, if possible. Cooling fans, air conditioning, or misting should be provided when possible. Regular rest periods should be permitted. Workers should drink when they are thirsty. Drink sports drinks, instead of water, if possible; avoid alcohol, caffeinated drinks, or heavy meals. Workers should wear lightweight, light-colored, loose-fitting clothes.

If a worker is exhibiting the signs or symptoms of heat-related illnesses, summon emergency medical services at once. While waiting for help to arrive, move the worker to a cool shaded area. Loosen or remove heavy clothing. Provide cool drinking water. Fan and mist the worker with water.

## Cold

OSHA website has extensive information on Cold Stress  
<http://www.osha.gov/SLTC/emergencypreparedness/guides/cold.html>

During emergency response activities or recovery operations, workers may be required to work in cold environments, and sometimes for extended periods. Cold stress is a common problem encountered in these types of situations. The following frequently asked questions will help workers understand what cold stress is, how it may affect their health and safety, and how it can be prevented.

### **How cold is too cold?**

When the body is unable to warm itself, cold related stress may result. This may include tissue damage and possibly death. Four factors contribute to cold stress: cold air temperatures, high velocity air movement, dampness of the air, and contact with cold water or surfaces. A cold environment forces the body to work harder to maintain its temperature. Cold air, water, and snow all draw heat from the body. Wind chill is the combination of air temperature and wind speed. For example, when the air temperature is 40°F, and the wind speed is 35 mph, your exposed skin receives conditions equivalent to the air temperature being 11° F. While it is obvious that below freezing conditions combined with inadequate clothing could bring about cold stress, it is also important to understand that it can also be brought about by temperatures in the 50's coupled with some rain and wind.

### **How does the body react to cold conditions?**

When in a cold environment, most of your body's energy is used to keep your internal temperature warm. Over time, your body will begin to shift blood flow from your extremities (hands, feet, arms, and legs) and outer skin to the core (chest and abdomen). This allows exposed skin and the extremities to cool rapidly and increases the risk of frostbite and hypothermia. Combine this with cold water, and trench foot may also be a problem.

### **What are the most common cold induced problems?**

Hypothermia, Frostbite, and Trench Foot.

## What is Frostbite?

*Frostbite* occurs when the skin actually freezes and loses water. In severe cases, amputation of the frostbitten area may be required. While frostbite usually occurs when the temperatures are 30° F or lower, wind chill factors can allow frostbite to occur in above freezing temperatures. Frostbite typically affects the extremities, particularly the feet and hands. The affected body part will be cold, tingling, stinging or aching followed by numbness. Skin color turns red, then purple, then white, and is cold to the touch. There may be blisters in severe cases.

Do not rub the area to warm it. Wrap the area in a soft cloth, move the worker to a warm area, and contact medical personnel. Do not leave the worker alone. If help is delayed, immerse in warm (maximum 105 °F), not hot, water. Do not pour water on affected part. If there is a chance that the affected part will get cold again do not warm. Warming and recooling will cause severe tissue damage.

## What is Hypothermia?

*Hypothermia* which means "*low heat*", is a potentially serious health condition. This occurs when body heat is lost faster than it can be replaced. When the core body temperature drops below the normal 98.6° F to around 95° F, the onset of symptoms normally begins. The person may begin to shiver and stomp their feet in order to generate heat. Workers may lose coordination, have slurred speech, and fumble with items in the hand. The skin will likely be pale and cold. As the body temperature continues to fall these symptoms will worsen and shivering will stop. Workers may be unable to walk or stand. Once the body temperature falls to around 85° F severe hypothermia will develop and the person may become unconscious, and at 78°, the person could die.

Anyone working in a cold environment may be at risk for cold stress. However, older people may be at more risk than younger adults, since older people are not able to generate heat as quickly. Certain medications may prevent the body from generating heat normally. These include *anti-depressants, sedatives, tranquilizers* and *others*.

Treatment depends on the severity of the hypothermia. For cases of **mild hypothermia** move to warm area and stay active. Remove wet clothes and replace with dry clothes or blankets, cover the head. To promote metabolism and assist in raising internal core temperature drink a warm (not hot) sugary drink. Avoid drinks with caffeine. For **more severe cases** do all the above, plus contact emergency medical personnel (Call 911 for an ambulance), cover all extremities completely, place very warm objects, such as hot packs or water bottles on the victim's head, neck, chest and groin. Arms and legs should be warmed last. In cases of **severe hypothermia** treat the worker very gently and do not apply external heat to re-warm. Hospital treatment is required.

If worker is in the water and unable to exit, secure collars, belts, hoods, etc. in an attempt to maintain warmer water against the body. Move all extremities as close to the torso as possible to conserve body heat.

## Sunburn

U.S. Army recommendations:

- Using sunscreen which contains para amino benzoic acid (PABA) or other chemicals capable of blocking ultraviolet radiation (at least 15 Sun Protection Factor) and covering exposed skin will prevent most sunburns. In cold weather, use alcohol-free sunscreen lotion (Sunscreen Prep, NSN 6505-01-121-2336).
- The use of protective eyewear (Sunglasses, Polarized, NSN 8465-00-161-9415) or goggles that block at least 90% of ultraviolet radiation helps to prevent snow blindness. Not all commercially available sunglasses block enough solar radiation to protect against snow blindness.
- Chapped lips and skin can be prevented through the use of lip balm (Cold Climate Lipstick, Antichap, NSN 6508-01-277-2903) and limiting exposure of skin to the environment. Skin moisturizing lotion may help the skin retain water.

## Noise

Hearing protection will prevent temporary hearing loss that can interfere when listening for cries, moans, and other sounds from victims buried in the rubble.

1926.101 and 1926.52

Employee exposure to excessive noise depends upon several factors:

- How loud is the noise as measured in decibels (dBA)?
- What is the duration of each employee's exposure to noise?
- Do employees move between separate work areas with different noise levels?
- Is noise generated from one source or multiple sources?

Hearing protection: Earplugs, earmuffs, or a combination, should be used when employees are exposed to high levels of ambient noise. Reference OSHA 29 CFR 1910.95.

## Inhalation of dust and other materials

- A medical evaluation is required prior to using a respirator other than a nuisance dust mask.
- Protect yourself from breathing dust, it can contain toxic material.
- If in doubt about respirators, see your supervisor.
- An N-95 or greater respirator is acceptable for most activities, including silica and Portland cement dust.
- If asbestos is present, use a half-mask elastomeric respirator with N, R, or P-100 series filters.

- If airborne contaminants are causing eye irritation, full-face respirators with P-100 OV/AG combination cartridges should be used.
- Do a positive and negative seal check every time you wear your respirator and wash it at least once a day.
- Make sure you are fit-tested for a respirator; it must fit properly to protect you.
- Surgical masks should not be used because they do not provide adequate protection.

### Carbon Monoxide

#### General Recommendations:

Use CO warning sensors when using or working around combustion sources.

Shut off engine immediately if symptoms of exposure appear.

**Warning!** Do not use gasoline generators or portable fuel driven tools in confined spaces or poorly ventilated areas.

**Warning!** Do not work in areas near exhaust (CO poisoning occurs even outdoors if engines generate high concentrations of CO and worker is in the area of the exhaust gases). With symptoms of exposure, shut off the engine.

OSHA 1926.302(c)

If using a fuel powered tool in an enclosed area such as a trench, be aware that carbon monoxide generated can displace or deplete oxygen. Mechanical ventilation and testing need to be done.

### Chemical Hazards

**Fire Fighting:** Use Self Contained Breathing Apparatus (SCBA) with full face piece in pressure demand or other positive pressure mode.

**Entry into unknown concentration:** Use SCBA gear.

**Rescue operations with vapors present:** Use gas mask with front mounted organic vapor canister (OVC) or any chemical cartridge respirator with an organic vapor cartridge.

**Dusty environments:** Use combination HEPA/Organic Vapor Cartridge.

#### ***Hazardous materials spills, leaks, and releases (including oil)***

The release, spill, or leak of any hazardous material (including oil) shall be reported to U.S. EPA and/or USCG for appropriate handling. The cleanup of hazardous materials releases will be handled by properly trained and protected individuals in accordance with the requirements of 29 CFR 1910.120.

In case of unanticipated discoveries, such as tanks, drums, or cylinders of hazardous materials, or unexploded ammunitions, all work shall cease in the vicinity, the area shall be cordoned off, and appropriate public safety agencies shall be summoned.

### Hazard Communication

**Workers must be made aware of the potential hazards, personal hygiene, and personal protective measures required.**

The OSHA Hazard Communication Standard for General Industry (1910.1200) applies in its entirety to construction.

Each agency and contractor will establish a hazard communication program in conformance with 29 CFR 1910.1200. Material safety data sheets (MSDS) will be maintained by the individual employers, and will be shared upon request with employees, other agencies, and other contractors. Employees shall be informed of the existence and location of MSDSs. Containers of chemicals shall be labeled with the contents, hazards, and target organs.

### Mold

- For Severe Mold exposures recommend using Tyvex so the Mold will not get on the person and then taken home or to other areas.
- Avoid breathing dust (fungal spores) generated by wet building materials.
- Use an N-95 NIOSH-approved disposable respirator as a minimum when working with moldy or damp materials.
- Wear long gloves that reach the middle of your forearm. If you are using a disinfectant, a biocide such as chlorine bleach, or a strong cleaning solution, you should select gloves made from natural rubber, neoprene, nitrile, polyurethane, or PVC. Avoid touching mold or moldy items with your bare hands. Wash exposed skin immediately after contact with spores.
- If mold is observed, wet the area with bleach solution to minimize the release of spores; safety glasses/goggles should be worn.
- Consider discarding all water-damaged materials. Articles that have visible mold should be thrown away. (**When in doubt, throw it out.**)
- After working with mold-contaminated materials, wash thoroughly, including your hair, scalp, and nails.

### Blood-borne disease

Use goggles or face shield and mask for handling human remains, recovering deceased. Make sure to cover the nose and mouth to protect the skin of the face and the mucous membranes.

Transport human remains in closed, leak-proof, labeled containers.

### Water-borne disease

Listen to and follow public announcements.

Local authorities will tell you if tap water is safe to drink or to use for cooking or bathing.



If the water is not safe to use, follow local instructions to use bottled water or to boil or disinfect water for cooking, cleaning, or bathing.

Wash Your Hands often.

Because some water-borne diseases can be contracted through contact with contaminated standing water, it is important to follow the guidelines outlined in the Standing Water Hazard Page.

If you develop a high fever OR, nausea, vomiting, diarrhea, jaundice or flu-like symptoms, seek medical attention immediately!

## Animals and insects

**To control mosquito populations**, drain all standing water left in open containers, such as flowerpots, tires, pet dishes, or buckets, outside your home.

Flora and fauna may present hazards to workers. Native wildlife (both animals and plants) may be poisonous or venomous or may otherwise injure workers. In the wake of the hurricane, many wild and domestic animals have been displaced from their normal habitats or homes. This may cause an increased potential for interaction between animals and workers. To help avoid insect and snake bites, observe areas before beginning work to locate nests or creatures. Try to avoid working in standing water. Use caution before reaching into voids or other spaces. If possible, map likely problem areas and warn workers. Workers should use insect repellent containing DEET; repellent should be used and reapplied according to the manufacturer's instructions. Workers should be encouraged to wear long pants and sleeves, if practical (balanced with heat stress concerns). Identify persons with allergies and either administratively control exposure or coordinate with medical authorities for first aid supplies (including auto-injector medications, if indicated). Educate workers on the identification of poisonous plants and dangerous animals and steps to take to lessen this hazard. Provide vector control, where feasible.

Mosquitoes can carry diseases such as West Nile virus or dengue fever. Use screens on dwellings, and wear long pants, socks, and long-sleeved shirts. Use insect repellents that contain DEET or Picaridin. *(Make sure you follow the directions written on the label.)*

- **Fire Ants** – Flood water will often destroy fire ant mounds and the fire ants will look for a new place to live (this can be indoors or outdoors). Fire ant bites are painful and cause blisters and/or severe allergic reactions in some people. To avoid being bitten, stay alert for fire ants and stay away from them. Wear long pants, socks, and long-sleeved shirts to protect your skin. Treat stings with over-the-counter products that relieve pain and prevent infection. If chest pain, nausea, severe sweating, shortness of breath, swelling or slurred speech occurs following a sting, the person should be immediately taken to an emergency medical facility.

- **Spiders** – Depending on the area of the country black widow and brown recluse spiders maybe present. If you suspect being bitten by a venomous spider seek medical attention and bring in the spider if available for identification.

Flood waters may have displaced wild and domestic animals. It will therefore not be uncommon to come into contact with animals you usually wouldn't under normal circumstances. Dead and live animals can spread diseases such as Rat-Bite Fever and Rabies.

- Beware of wild or stray animals. Avoid wild or stray animals. Call local authorities to handle animals. Get rid of dead animals according to local guidelines. Wear proper protective clothing when handling carcasses.
- Avoid contact with rats or rat-contaminated dwellings. In addition to Rat bite fever, contact with rodents, rodent droppings, and dead rodents may result in other infectious diseases. If you cannot avoid contact with rats, wear protective gloves, practice regular hand washing.
- If you do get bitten or scratched by an animal, seek medical attention immediately, even if it is a domestic animal.

If you are bitten by a snake, try to identify the snake so that if it is poisonous, you can be given the correct antivenin. Do not cut the wound or attempt to suck the venom out. Contact your local emergency department for further care.

Be on the alert for snakes swimming in the water to get to higher ground and hiding under debris or other objects. If you see a snake, back away from it slowly and do not touch it.

- If you or someone else is bitten by a snake:
  - Remember the color and shape of the snake, which can help with treatment of the snake bite
  - Keep the bitten person still and calm; this can slow down the spread of venom if the snake is poisonous
  - Seek medical attention as soon as possible; dial 911 or call local Emergency Medical Services (EMS)
  - Apply first aid if you cannot get the person to the hospital right away
  - Lay or sit the person down with the bite below the level of the heart; tell him/her to stay calm and still
  - Cover the bite with a clean, dry dressing
- Use appropriate tools to move debris and to probe areas that may harbor snakes, alligators or other threats.
- Wear high boots and/or snake gaiters.

### Poisonous plants

- Poison Ivy
  - Poison Oak
  - Poison Sumac
- Use gloves and wear long pants when possibly contacting poisonous plants.

- Rubbing alcohol, if used immediately upon exposure, may remove the oily resin that causes the allergic reaction.

*Clothes, shoes, and tools may become contaminated by coming in contact with poisonous plants.*

### Other protective measures

#### **Sanitation:**

- Employers (agencies and contractors) shall provide or arrange for adequate facilities for their workers (hand washing and restrooms). The exercise of good personal hygiene can help minimize worker exposure to health hazards and contaminants.
- Workers should wash their hands before eating, drinking, or smoking, and both before and after using the toilet.
- Appropriate vector control measures should be put in place. Workers should utilize insect repellent containing DEET.
- Workers should avoid creating dust, work upwind whenever possible, and use appropriate PPE per their employer's JHAs. Replace PPE that is worn or torn.
- Workers should seek medical attention or self-treat any minor wounds, as appropriate.
- Workers should be current on all recommended vaccinations, per their employer's medical direction.
- Workers should avoid eating, drinking, or smoking in areas containing debris, floodwaters, or sludge remaining in previously flooded areas.
- Only drink water from sources that are proven to be potable. Avoid consuming food or beverages that were exposed to flood waters or perishables that may have spoiled.
- Exercise good housekeeping. Minimize accumulations of trash and keep garbage in closed containers. Proper housekeeping also reduces potential slip/trip/fall hazards.
- Temporary labor camps should conform to the requirements in 29 CFR 1910.142.

### Additional Information

All agency and contractor personnel engaged in response operations must be trained to recognize and avoid hazards. This training is composed of several elements:

- General training for disaster site workers
- Site-specific training
- Task specific training, including any mandated training requirements
- Pre-deployment and pre-job briefings
- Site-specific training includes an overview of conditions specific to the locales where the employee will be deployed.

Task-specific training includes items such as hazard communication, PPE, use of tools, safety at elevations, etc. Training that is mandated by various agencies, such as

OSHA, EPA, USCG, DOT, etc., shall be provided in accordance with those agencies' guidelines.

Pre-deployment and pre-job briefings are conducted on a daily basis by the worker's immediate supervisor to cover the day's work plan.

Employers (agencies and contractors) shall maintain records of employee training available for inspection by agencies having jurisdiction. Training records include documentation such as, but not limited to, training certificates, attendance rosters, course curriculum matrices, etc. Employers shall provide competent and qualified persons as required by various standards.

Training activities will be coordinated with the National Institute of Environmental Health Sciences (NIEHS), OSHA's Office of Training and Education, and OSHA's Ed Centers.

### Summary

All workers must adhere to the following work rules:

- Follow their employer's safety & health policies at all times.
- Follow supervisors' instructions and adhere to the chain of command.
- Follow personnel accountability instructions; check-in and check-out.
- Obtain vaccinations in conformance with the employer's medical direction.
- Promptly report all injuries, accidents, and near misses. Seek medical attention as needed.
- Report all unsafe conditions. Do not perform tasks until proper safety & health controls have been put into place. Employees may refuse to perform tasks that expose them to an imminent danger.
- Wear all personal protective equipment (PPE) needed for the task.
- Maintain constant awareness of your surroundings.

## **Module 2: Driving in Disasters**

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Time Requirement: 45 minutes

Number of Facilitators: 1 or more, consistent with ratio shown in Minimum Criteria

### **Materials**

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- NIEHS Driving Hazard Awareness PowerPoint
- Safe Driving Practices Handout
- If they become available again on YouTube or elsewhere: Ford Motor Company Extreme Driving Skills Video Series

### **Objectives**

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When completed, participants will better be able to:

- List characteristics of a defensive driver
- Recognize hazardous driving conditions
- Identify disaster driving tips

### **Suggested Facilitator Preparation**

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- Review agenda, PowerPoint, participant materials
- Ensure web access or have videos available on flash drive

## **Presentation of the Session**

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Utilize the NIEHS PowerPoint presentation and notes below for this module. If available, the Ford Motor Company Extreme Driving Skills videos may be interspersed through the session to emphasize issues commonly encountered in storm response environments and correct driving behaviors/defensive actions which may be used to either avoid or correctly react to them. Encourage participant discussion on what they can do to improve their driving safety in post storm environments.

Disaster Site Defensive driving is designed to heighten your awareness of everything happening around you while driving in these extremely dangerous conditions.

If you start developing these habits early and realize that every time you get in a car there is risk involved, you increase your chances that you won't be involved in a collision.

- Start practicing NOW by checking your mirrors constantly.
- Always be aware of what is on your right, your left and behind you.
- Check the road ahead. What is on the horizon, what is happening in front of the car ahead of you.
- Learn to make eye to eye contact with drivers and pedestrians. That way you know they see you.
- Look at the front wheels of the cars parked on the side of the road. If you see a car with the wheels turned to the left, is it going to suddenly pull out?

Of course, you can also just drive around in a daze, fool with the radio, use the mirrors for checking your hair etc. and the rest of us will pay for it with higher insurance rates, but you may pay with your life.

### **GET INTO THIS HABIT'**

- Before you turn the key. Fasten your seatbelt.
- Make sure your passengers are secure.
- Leave space to escape dangerous situations.
- Expect the unexpected and plan for escape routes.

Four out of ten accidents involve rear-end collisions. This usually occurs because someone was following too closely (tailgating). Allowing yourself space can be accomplished by applying the "three second rule."

Suppose you are the second car in line at a stop light. Your front bumper is three feet from the car in front of you. You look in your rearview mirror and notice that someone is approaching you at a high speed. He is waving at some girls and doesn't see the red light until it is too late. He slams on his brakes and all you hear is the screeching of his tires followed by a loud and sickening CRUNCH. Everything suddenly fades to black. The next thing you notice is a fireman trying to take your pulse as the Jaws of Life are ripping apart your car so you can be extracted. Of course, you noticed that the local moron is not hurt, and you overhear him telling the police that YOU backed into him. As you slip back into unconsciousness you remembered to GIVE YOURSELF AN OUT.

If only you had left a car and a half-length between you and the car in front of you. You could have pulled forward or even out of the way before the impact.

Pick an object like a road sign or overpass. As the vehicle in front of you passes the object begin counting "one, one thousand one, one one thousand two, one one thousand three" If you reach the object before you finish counting, you are following too closely. In the disaster site, increase your count to 3 or 5 seconds.

Be cautious as traffic lights become operational again. Many drivers may forget, as they are waiting at an intersection, to forgo the recommendation to treat all intersections as 4-way stops. Stressed, emotional, and out of town drivers may not do this so you need to be careful and cautious. Don't assume any driver will follow these guidelines. Check before you pull through any intersection.

### Road Rage

**Have** you ever experienced a bad day and you just didn't feel like yourself? Then, some "jerk" makes you angry on your drive home. These are conditions that are perfect for road rage, and almost everybody has experienced them. The only difference between you and a road rager is how you deal with these feelings.

**To** protect yourself you have to get a hold of your emotions. The worst thing that you want to happen is to meet someone who is as angry as you, or possibly even more possessed by rage. This will likely cause a confrontation on the road that may lead to an exchange of gestures, dangerous driving tactics and physical violence. If you are angry at someone on the road - let it go.

**If** you are an innocent victim of road rage by some angry driver you must protect yourself.

Do not make eye contact with an angry driver. An angry look is all he/she needs to increase the level of rage. The best advice is to safely get away from an angry driver as quickly as possible. Take the next right turn and choose an alternate route to your destination. If necessary, pull over and cool off before continuing on your way.

**If** an enraged driver attempts to follow you there is a good chance that the level of violence may increase. Do not go home. Go straight to the nearest police detachment and file a complaint/report when you arrive there.

**Do not** endanger yourself by trying to evade a road rager. Drive the speed limit and observe all traffic control devices.

Remember to be respectful while driving. Treat other people the way you would want to be treated.

Road rage can be caused by a variety of events, circumstances, and environments. The three main categories used to classify what causes road rage are the environment, instructive responses or territorial defensiveness and intrusive responses. Environmental conditions are the main factors associated with road rage. These conditions can consist of traffic congestion, another's dangerous driving habits, the weather (heat, humidity, etc.), noise levels, and time constraints.

The other two causes of road rage, instructive responses and territorial defensiveness are closely related. Territorial defensiveness is the act of defending one's personal space (the car) in response to another individuals driving. Instructive responses is the act of "teaching the other guy a lesson" ("Get off the road slow poke!", "Use your turn signals!"). Intrusive responses are actions of retaliation to get back at another for their careless driving.

Road rage is a relatively serious act; it may be seen as a violation of property rights and an endangerment of personal security.



## **Module 3: Electrical Safety**

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Time Requirement: 1 hour

Number of Facilitators: 1 or more, consistent with ratio shown in Minimum Criteria

### **Materials**

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- Electrical Safety for First Responders video: <https://youtu.be/DJJLaK3yNwU>
- SaskPower Electrical Safety PowerPoint
- SaskPower Emergency Personnel Electrical Safety Handout
- Handout on Basic Electrical Terminology
- Handout on Effects of Electrical Shock

### **Objectives**

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When completed, participants will better be able to:

- Define basic electrical terms and concepts
- Recognize common situations involving electrical hazards
- Identify potential hazards related to voltage gradients and step potential
- List effects of electricity and electrical shock on the human body
- Identify hazards of downed power lines and appropriate actions to avoid them

### **Suggested Facilitator Preparation**

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- Review agenda, video or PowerPoint, participant materials
- Ensure web access or have video available on flash drive

## **Minimum Content Requirements**

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- Electrical terms and concepts
- Electrical hazards recognition
- Voltage gradient and step potential
- Health effects of electricity and electric shock
- Protection from electrical hazards

## **Presentation of the Session**

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Utilize either the Electrical Safety video or the SaskPower Electrical Safety PowerPoint presentation (and notes below) for this module. Share Basic Electrical Terminology and Effects of Electrical Shock handouts. Alternatively, participants could be asked questions, possibly as a competition, before they are given the handouts. Encourage participant discussion on what they can do to protect themselves from electrical infrastructure hazards in post storm environments.

### **Step Potential**

Imagine that the electrically charged wire touching the ground has created a “pool” of electricity. If you were to place one foot near the point of contact (X voltage) and the other foot a step away (Y voltage), the difference in potential (voltage) would cause electricity to flow through your body in search of the ground.

### **Electrical Arcs**

Arcs are EXTREMELY hot and can ignite any combustible material in its vicinity, in some cases including insulation materials. Hot material may be thrown considerable distances, creating remote fires. When the amount of current exceeds the design capacity of conductors or other electrical equipment, dangerous situations are created.

### **Amperage**

It is the amperage that kills or injures, but voltage, which pulses the current through the body also has a crucial effect. Any electrical shock above 50 milliamps may be fatal. A common wall circuit can carry 20 amps, or 400 times the amount of electricity required to kill you.

### **Effect of electricity on the body**

The effect of electricity on the body also depends on the condition of the skin, the area of the skin exposed to the electrical source and the pressure of the body against the source.

In some cases, the current can be turned off, in others it cannot. Since electricity will always seek EVERY available path to ground, if you touch an energized wire, object or person at the same time you touch the ground, you may be injured or killed.

### Fallen Power Lines

Whether the line is hanging or in contact with the ground has little to any bearing upon whether it is still energized. If a live wire touches a vehicle, any other metal object (signs, guardrails, etc), or even a pool of water, it will be capable of killing you

Live wires in contact with objects on the ground may burn through, which may cause one end of the wire to curl (recoil) along the ground and strike other objects or persons. If the wire has fallen onto a fence or other conductive object, the electricity may be conducted to other points, expanding the danger zone. The ground itself may become energized to dangerous levels near fallen wires. NEVER attempt to move a downed line yourself.

### Electrical Vaults

Electrical failure of a cable may result in an explosion or fire, which could damage insulation and energize all electrical parts within the vault. Air monitoring and proper ventilation procedures must be used on all confined space entries

## **Module 4: The FEMA Marking System**

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Time Requirement: 1 hour

Number of Facilitators: 1 or more, consistent with ratio shown in Minimum Criteria

### **Materials**

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- FEMA Marking Systems PowerPoint
- FEMA Marking Systems Handout
- Sample Structural Assessment Tags
- Sample Search Tags

### **Objectives**

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When completed, participants will better be able to:

- Define rationale for standardized marking system
- Identify structural identification strategies
- Identify structural orientation approach
- Implement FEMA Marking System

### **Suggested Facilitator Preparation**

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Review agenda, FEMA Marking System PowerPoint and Handout, Exercise

### **Minimum Content Requirements**

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- FEMA Marking System
- Exercise

## **Presentation of the Session**

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Utilize the FEMA Marking System presentation and notes below for this module. Have participants complete sample marking tags prior to group exercise. Then, have participants perform the FEMA Marking System Exercise. Encourage participant discussion on why use of this system is important, and the safety information which may be gained from knowing how to interpret these markings.

### **Marking Types**

The FEMA system utilizes distinct categories of structural markings to provide specific categories of information. Refer to Slide 4. On the right side of the doorway, both structural assessment and search markings are visible.

### **Boundary Markers**

Boundary markers are just that. They define operational areas and hazard zones. Boundary marks can also be used to delineate access and egress routes. The markings should be placed in a manner that creates a physical and visual cue as to personnel are to be channeled into or restricted from operational areas.

### **Address Marking Systems**

The FEMA USAR System and most federal response entities use the US National Grid System to establish location reference points. At incidents involving multiple structures or large damage fields, establishing identity for an individual structure becomes crucial. If possible, use existing street names and addresses. If this is not possible, use the existing hundred block and place all even numbers on one side of the street and odd numbers on the opposite side. Mark the new numbers on the buildings with orange spray paint or other approved marking system. If the name of the street is not available, start with the letter A using the phonetic alphabet (Alpha) and move forward as needed. Use low numbers to aid in simplicity whenever possible.

### **Building Marking System**

The marking system also addresses the sides and floor positions of structures. Refer to Slide 9. As you face on the street facing the building, that becomes Side A. To the left is Side B. The rear of the building is Side C. To the right is Side D. If more than four sides are present, simply add more numbers.

Ground level is Floor 1. Second Story is Floor 2 and so upwards. Basements and floors below ground level are designated with a "B".

## Structural Assessment Markings

Safe – Refer to slide 13. Marks may be seen outside of all potential entry points. Markings may be made with orange spray paint, lumber crayon or preprinted forms/decals. A large square box is marked. Specific markings adjacent to the box indicate the condition of the structure and any hazards found during the assessment.

Damaged – Refer to slide 14. The structure is significantly damaged. Some areas may be safe, but others may require structural shoring and bracing. Ongoing hazard monitoring required. This can include “pancaked” structures.

Severely damaged – Refer to slide 15. Structure unsafe without extensive shoring and bracing. Remote search operations may proceed but at significant risk.

Additional Information – Refer to slide 16. An HM marking generally indicates the presence of hazardous condition within the structure. Operations in the building will generally not be allowed until the condition is better defined or eliminated.

Refer to slide 17. What do you see???

- The structure is safe for entry
- Checked on May 5 of 2002
- No hazardous materials
- Checked by California Task Force 4

## Search Markings

As with structural markings, often made with spray paint or lumber crayon, although the use of preprinted tags and stickers are quickly gaining acceptance. The placard /decals approach is sometimes less confusing than successive paint markings as operations cross multiple operational periods.

Refer to slide 22.

- A large “slash” mark is made to indicate a search has been initiated
- After entire building is searched, an additional slash mark is added to form an “X”
- Additional information is added to the other quadrants summarizing the search activity in the structure:
  - Left Quadrant: Search team identifier, date and time team entered structure
  - Top Quadrant: Date and time search team left the structure
  - Right Quadrant: Any significant hazards found during the search
  - Bottom Quadrant: Number of survivors or victims still inside the structure
  - “L”: Live
  - “D” Dead
  - Small “x”: no survivors or victims

Refer to slide 24. On multi-floor structures, an additional box is provided to indicate which floors/quadrants have been searched. The “dot” indicates an incomplete search.

Refer to slide 25. Note the mark has been “Xed” to indicate that search operations are completed.

### Interior Markings

As with exterior markings, placards or decals can be used to clarify activities and reduce additional damage to the structure.

### Floor Searches

It is very important that the search process used is consistent throughout the structure, especially if multiple teams are conducting search operations within the same building.

### Victim Markings

Mark a large “V” near the location of a potential survivor or victim. If needed, paint a directional arrow when the actual location is not immediately near where the “V” is placed.

## Evaluation

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This module has a structured hands-on exercise. A performance checklist should be completed by each participant during the FEMA Marking System Exercise.

## **Exercise - FEMA Marking System**

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Number of Facilitators Required: Varies with group size. Must be consistent with ratio in Minimum Criteria.

Time Requirement: 30 minutes

Materials:

- Easel
- Easel Pads (1/group)
- Markers
- Worktable for each group
- FEMA Marking Guide (1/group)
- Scenario Sheet
- Performance Checklist (1/participant)

### **Introduction**

The purpose of this exercise is to give participants the opportunity to utilize the FEMA Disaster Marking System. Participants will be given the task of creating accurate structural orientation, structural assessment, search, and victim location markings for a facilitator provided scenario. Four scenarios are provided below.

### **Organization**

The class will be divided into groups of 4-6 participants, with each group assigned to a worktable. Each group will designate or elect a leader/presenter. The group will be given 15 minutes to compile the markings for its scenario. Their findings will be presented to the class following completion.

### **Instructions:**

- Issue materials and scenario sheet to each group
- Using the guides provided, develop orientation, structural assessment, search, and victim location marking for the scenario provided
- Present the completed markings to the class
- Have each participant complete the performance checklist, to be reviewed and signed by the facilitator



## **FEMA Marking System**

### **Group Activity Scenarios**

#### **Scenario 1:**

At 1400 Hours on May 5th, your team made entry into a 2-story home to conduct a primary search. Search was completed at 1430 hours with no victims found but electrical was still energized to the home.

#### **Scenario 2:**

Your team has been tasked with a primary search of a structure on the corner of Willow and 7th. Your team makes entry at 1656 hours on July 20 and finds 2 victims who insist on sheltering in place. No hazards are found, and your team exits at 1732.

#### **Scenario 3:**

Your team makes entry into a home at 0340 on December 12. Upon entry your team finds 3 deceased victims in the front entryway. As you make your way further into the home you hear a loud whistling noise and discover a strong smell of natural gas. Your team leader orders an immediate evacuation, and your team exits the structure at 0356.

**Scenario 4:** At 0915 on April 04 your team make entry into a 5-story small apartment complex. The 1st story is flooded, and 4 deceased victims are found. 2 live victims are found on the 2nd story. The 3rd and 4th floors are clear and 3 additional live victims are found on the 5th floor. All victims are evacuated to a shelter, and you exit the structure at 1052.

## **Module 5: Water Emergencies**

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Time Requirement: 1-3 hours depending on use of hands-on exercises and demonstrations

Number of Facilitators: 1 or more, consistent with ratio shown in Minimum Criteria

### **Materials**

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- Water Emergencies PowerPoint
- Water Emergencies Handout (PowerPoint notes pages)
- What are Drowning Machines Video (<https://youtu.be/KaeqEV10uCk>)
- Optional: Water Safety PPE PowerPoint
- Optional: PFD Handout and Checklist
- Optional: Throw Bag Video ([https://youtu.be/eybMX\\_sXnFQ](https://youtu.be/eybMX_sXnFQ))
- Optional: Throw Bag Handout and Checklist

### **Objectives**

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When completed, participants will better be able to:

- Recognize hazards of working around water
- Select proper PPE for working around water hazards
- Identify risk management approaches
- Identify low risk water rescue options
- Identify basic principles of using throw bags

### **Suggested Facilitator Preparation**

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- Review agenda, PowerPoint(s), participant materials, exercises
- Ensure web access or have videos available on flash drive
- Practice hands-on activities prior to class

## **Minimum Content Requirements**

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- Water hazard recognition
- PPE
- Water rescue

## **Presentation of the Session**

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Show the What Are Drowning Machines video as a lead into the Water Emergencies PowerPoint and notes below. Encourage participant discussion about what they can do to improve their safety when operating around water in post storm environments.

While the Water Emergencies presentation portion of this module does not require use of the hands-on Water Safety PPE Exercise, the use of the exercise is encouraged. It can be incorporated on an elective basis, depending on the needs of the class and potential time constraints to present the program. It also includes a PowerPoint, to be presented prior to the hands-on portion.

The Throw Bag video may also be presented prior to conducting the elective Using a Throw Bag Exercise.

### **Water Emergencies PowerPoint**

Approximately 10 deaths per day due to non-boat-related drowning. An additional 300 victims (approximately) are involved in boating related incidents. With moving water, as the speed of current increases, so does its power. In general terms, the force of the current will increase as a square of its speed.

### **Gear**

Firefighters' turnout gear, including the helmet is completely unsuitable for use around moving/swift water conditions. The PFD should be matched to the task: the higher the risk, the greater level of PFD that should be used.

### **Advance Preparation**

In post storm responses, have emergency procedures in place before personnel are deployed, especially to high-risk areas.

## “Low Risk” Techniques

Technical swift water rescue requires extensive training and utilization of techniques that are beyond the scope of this program. So called “low risk” techniques are not completely without risk but can generally be employed safely without undue risk to workers on the shore.

## Self-Rescue

Stay away from steep or slippery banks. Always wear appropriate PPE.

## Ten-Foot Rule

The ten-foot rule applies to all storm responders, not just emergency personnel. The water can't tell the difference. Personal Flotation Devices must match the circumstance they are being used for. Higher risk operations require a higher level of PFD. This will not always be a popular rule to enforce, particularly among workers who rarely wear them. In hot climates, be mindful that wearing a PFD creates additional heat stress on workers, so maintaining hydration and cooling cycles is important.

## In the Water

- Staying afloat is the first priority in cases of accidental submersion
- Get on your back
- The arms are used for navigation
- The feet are used as shock absorbers
- Use visibility and your arms to steer away from hazards
- Do not be afraid to “let the water win” until such time as you can navigate to shore safely
- Watch for slip and fall hazards as you exit the water
- Bystanders on shore should assist with exiting, as the victim may be very fatigued, hypothermic or both

## Strainers

Not all strainers may be visible on the surface of the water. If a strainer is detected, aggressively swim to try and get around it. If you must go over the strainer, try to get as much momentum as possible by swimming face down towards the strainer, keeping your feet on the surface. The objective is to be moving faster than the water so you can propel yourself over the obstacle. Attempt to go over the strainer at the highest, most clear spot.

## Reach Rescue

If using a pike pole, it is generally more effective to extend the D handle to the victim (not what is shown in slide 16).

## Belays

In a belay the rope is bent around an object or person, which transfers all or part of the line load to the object or person. Sitting, or hip belays are generally more common. Standing belays offer the advantage of mobility. By being mobile, this may allow the belayer to reduce line load and increase the pendulum of the victim towards shore. Belayers and backup belayers MUST wear PFDs.

## Vector Pulls

Used to increase pendulum effect to move victim towards shore. The throw line is tight between the standing belayer and victim. A second rescuer pulls the line towards the shore as they slowly move downstream from the standing belayer, which gradually changes the rope angle and uses the current to sweep the victim shoreward. The vector pull can be used in conjunction with the standing belayer stepping backwards towards shore in conjunction with the second rescuer pulling the line while moving downstream.

## Evaluation

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This module has 2 optional hands-on exercises, each with a performance checklist. For each optional exercise that is included in the program, a performance checklist should be completed by each participant during that exercise.

## **Demonstration Exercise - Water Safety PPE**

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Number of Facilitators: Varies with group size

Time Requirement: 45 minutes

Materials:

- Working Around Water PowerPoint
- Personal Flotation Device Handout
- Types 1-5 personal flotation devices
- Throw bags
- Life ring
- Swiftwater helmets
- Other water-related PPE/equipment as available
- PFD Donning Performance Checklist (1/participant)

### **Introduction:**

The purpose of this exercise is to give participants the opportunity to observe and use common safety devices and PPE. As the PowerPoint presentation is given, participants will be given actual devices to observe and inspect. Each participant will demonstrate how to properly don a personal flotation device selected by the facilitators.

### **Organization:**

The class will be divided into groups of 4-6 participants, with each group assigned to a worktable. The facilitators will distribute water safety devices for the participants to don and doff.

### **Instructions:**

- Issue materials/equipment to each group
- Using the guides provided, properly don and doff a personal flotation device
- Have each participant complete the performance checklist, to be reviewed and signed by the facilitator

## **Exercise - Using a Water Rescue Throw Bag**

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Number of Facilitators: Varies with group size (4-6 participants/group)

Time Requirement: 45 minutes

Materials:

- North Carolina OSFM Water Rescue Throw Bag Handout
- Water rescue throw bag (1-2/group)
- Appropriate water safety PPE if exercise is conducted near water or in pool
- Ring Buoy with line (optional)
- Throw Bag Performance Checklist for each participant

### **Introduction:**

The purpose of this exercise is to familiarize participants with the proper use of water rescue throw bags. The exercise may be conducted on dry land or in water or a pool.

### **Organization:**

Divide into groups of 4-6 participants. Whenever possible, it is desirable to divide groups in a manner that facilitates each participant having a buddy. If the activity is to be conducted on/in water, appropriate PPE must be available for all participants working within 10 feet of the water or less. Simulated victims may be used, but they wear a minimum Type 3 or preferably a Type 5 personal flotation device (PFD) and water rescue helmet at all times.

### **Instructions:**

Using the guide provided, the participants will practice the following throws:

- Underhand throw
- Grenade throw
- Coiled rope throw
- Ring buoy throw

Have participants complete the performance checklist, to be reviewed and signed by a facilitator.

## **Closing and Evaluation**

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Time Requirement: 15 minutes  
Number of Facilitators: 1 or more, consistent with ratio shown in Minimum Criteria

### **Materials**

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- Whiteboard or equivalent; markers
- Evaluation forms

### **Objectives**

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- Review program objectives
- Answer questions
- Collect feedback (evaluation forms)

### **Suggested Facilitator Preparation**

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Ensure you have evaluation forms prior to the program.



## **Minimum Content Requirements**

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- Evaluation
- Answer any final questions
- Provide certificates for those who met the definition of successful completion; provide remediation according to Training Center and MWC policy for anyone who did not attend the entire program.

## **Presentation of the Session**

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Thank participants for attending the program.

Review the goals of the program.

This is an opportunity for final questions.

Evaluation is important to continued program improvement. This should not be rushed. Provide time to complete the program evaluation forms and collect them.