Flood Response for CERTs

Community Emergency Response Team
Participant Introductions

Introduce yourself to the class by providing your:

- Name
- Reason you want to learn more about flood response
Administrative Announcements

- Breaks
- Emergency exits
- Restrooms, smoking policy, cell phones silent
- Module completion
Module Purpose

To teach CERT members how to respond to a flood in a safe and efficient manner.
What You Will Learn

- CERT Basic Training Concepts That Apply to Flood Response
- Overview of Flood Response
- Personal Safety Around Floodwaters
- Working With Sandbags
- Building a Sandbag Barrier Activity
Module Objectives

At the end of this module, participants will be able to:

- Identify the CERT role in responding to floods
- Explain CERT Basic Training concepts that apply to flood response
- Describe how to know when a flood response will be needed and how the emergency management system responds to floods
Module Objectives (cont’d)

At the end of this module, participants will be able to:

- Explain the dangers of floodwaters and how to work safely around them
- State how to work safely with sandbags
- Demonstrate how to fill and move a sandbag correctly and construct a sandbag barrier correctly
What Do You Think?

- What experience do you have with floods or flood response?
Local Flooding History

- Event
- Response
- Lessons learned
- Future threats
Review of CERT Basic Training Concepts

- Onscene Management and ICS
- Maintaining Personal Safety
- Typical Flood Response Injuries
Purpose of onscene management is to:

- Maintain safety of responders
- Provide clear leadership and organizational structure
- Improve effectiveness of rescue efforts
Incident Command System (ICS)

- CERTs are part of ICS
- Basic ICS structure is established by person who arrives first on scene
- CERT members always defer to professional responders
- If no professional responders on scene, CERT Incident Commander/Team Leader (IC/TL) is in charge
What Do You Think?

- What are the command positions of the ICS?
Team Organization

- CERT may operate in two ways
  - One team performing all tasks
  - Smaller teams performing specific tasks
- In all situations, each unit must have an identified leader
  - To supervise tasks being performed
  - To account for team members
  - To report information to his or her leader
Maintaining Personal Safety

- Personal safety is CERT member’s #1 priority
- Know your limitations
  - Don’t engage in activities that are uncomfortable
- Use buddy system
What Do You Think?

- What safety concerns do you have about flood response?
Typical Flood Response Injuries

- Working in and around floodwaters is dangerous
- Reminder: Safety precautions limit injuries
- Typical injuries
  - Heat- and cold-related injuries
  - Sprains
  - Strains
  - Lacerations
  - Blisters
Cold-Related Injuries

● Causes
  ▪ Exposure to cold air or water
  ▪ Inadequate food combined with inadequate clothing and/or heat

● Signs and Symptoms
  ▪ Body temperature of 95° Fahrenheit (37° Celsius) or lower
  ▪ Redness or blueness of the skin
  ▪ Numbness accompanied by shivering

● Older people particularly at risk
Treating Cold-Related Injuries

- Remove wet clothing
- Wrap in blanket or sleeping bag; cover head and neck; protect from weather
- Conscious survivor: warm, sweet drinks and food; warm bath if possible
- Unconscious survivor: recovery position
- Do not use massage
- Keep survivor from walking around
Heat-Related Injuries

- Heat cramps
  - Muscle spasms from over-exertion in extreme heat
- Heat exhaustion
  - Loss of body fluids through heavy sweating while working in extreme heat
  - Blood flow to skin increases, blood flow to vital organs decreases
  - Result: mild form of shock
- Heat stroke
  - Life-threatening
  - Survivor's temperature control system shuts down; possible brain damage and death
Treating Heat-Related Injuries

- Place survivor in cool environment
- Cool body slowly with cool, wet towels or sheets
- Have survivor drink water slowly: $\frac{1}{2}$ glass every 15 minutes
- If vomiting, cramping, or loss of consciousness: NO food or drink; alert medical professional ASAP
Treating Sprains and Strains

● Signs
  ▪ Tenderness at injury site
  ▪ Swelling and/or bruising
  ▪ Restricted use, or loss of use

● Treatment
  ▪ Immobilize and elevate
  ▪ Treat it as if it were a fracture
What Do You Think?

- What did you learn in *CERT Basic Training* about immobilizing a sprain or strain?
Splinting a Sprain or Strain

- Support injured area above and below site of injury, including joints
- Assess PMS in extremity before initiating splint
- Try to splint injury in position that you find it
- Don’t try to realign bones or joints
- Fill voids to further stabilize and immobilize injury
- Immobilize above and below injury
- After splinting, reassess PMS and evaluate against initial PMS assessment
Treating Lacerations and Blisters

- Keep blisters clean and intact
- Control bleeding
  - Direct pressure
  - Elevation
  - Pressure points
- Dress and bandage wound
  - Irrigate wound with clean, room temperature water
  - Apply dressing and bandage to keep wound clean and control bleeding
Overview of Flood Response

- What Is a Flood?
- The Emergency Management Response
- Flood Response Supplies, Operations, and Tools
What Is a Flood?

- One of most common hazards
  - May be confined or widespread
  - May develop slowly or quickly

- Types
  - Coastal flooding (from storms)
  - Overland (from rain, snow melt)
  - Flash floods (from heavy rain in short time)
  - Ice jams (from rapid warming and snow melt)
  - Dam and levee failure
Scenario

Flood Response for CERTs
What Do You Think?

- How do you know if a flood is coming?
Storm Prediction Center issues watches and warnings

CERT members should monitor these alerts during severe thunderstorms and coastal storms
Flood Watch

- Indicates that flooding is possible and situation could worsen
- During a flood watch, you should:
  - Watch water levels
  - Stay tuned for further advisories
  - Alert neighbors
Flood Warning

- Issued when flooding is expected
- Flash flood warning issued after few hours of locally heavy rainfall, a dam or levee failure, or water released from ice jam
During a flood warning, you should take action

- Alert neighbors
- Listen to radio or television for further instruction
- If any possibility of flash flooding, move to higher ground immediately
- Prepare to evacuate
- Evacuate
The Emergency Management Response

● Response protocols vary by community
  ▪ Protocols are described in community’s Emergency Operations Plan

● Roles and responsibilities
  ▪ Many public and private partners contribute to flood response
  ▪ Roles and responsibilities are determined by local jurisdiction and may change
CERT Roles and Responsibilities

- CERT roles will vary by type of incident
- Adhere to protocols for that incident
- Do not self-activate
- Remember personal safety
  - Don’t take on more than you can handle
  - CERT Safety Officer and IC/TL will help monitor individual and team safety and well-being
Flood Response Supplies

- Sandbags
- Polyethylene: commonly called “Poly”
- Lumber and planking
- Shovels, wheelbarrows, etc.
- Other basic supplies
  - Drinking water and sanitation supplies
  - First aid kit and gloves
Flood Response Operations

1. Supply and transportation
2. Filling sandbags
3. Moving sandbags
4. Building a sandbag barrier
5. Flood patrols
6. Support services
Flood Response Equipment

- Pumps
- Trucks
- Forklifts
- Front-end loaders
- Sandbag-filling machines
Flood Response Barriers

- Tubes filled with water
- Sandbags filled with sand, dirt, gravel
- Jersey wall
- Hay bales or wood covered with poly
Personal Safety Around Floodwaters
Realities of Flood Response for CERTs

- Mentally and physically demanding
- Personal safety is top priority
- You know your limitations better than anyone
Fatigue

- Work is exhausting
- Listen to your body
- Take breaks as needed, especially when working extended hours
Weather

- Weather conditions can affect a flood response by making tasks more difficult
- Dress appropriately for weather
- Dress in layers
Mental Preparation

- Flood response is long process
  - Work is repetitive
  - Signs of progress are limited
  - Experience can be frustrating
- Take breaks to keep yourself alert
What Do You Think?

- What are some of the most common dangers during a flood response?
Dangers of Flood Response

- Icy/muddy conditions
- Electrical equipment and machinery
- Swift water movement
- Contaminants
- Temperature (hot and cold)
- Debris
- Sand boils
Sand Boils

- Occur when pressure of floodwater causes water to bubble up on dry side of sandbag barrier
- Generally harmless if contain clean, clear water
- Extremely dangerous if contain sand (“dirty”)
  - May lead to eventual barrier failure
- Treat all sand boils as “dirty”
  - Do not ignore
  - Surround with ring of sandbags
Common Ailments and Injuries

- Hyperthermia
- Hypothermia
- Sprains and strains
- Raw hands
- Blisters
- Lacerations
Work Smart

- Take care of yourself
- Stay healthy
- Practice safety
- Watch out!
Working with Sandbags

● Operation 2
  ▪ Filling sandbags

● Operation 3
  ▪ Moving sandbags

● Operation 4
  ▪ Building sandbag barrier
Sandbagging Tools

- Sand (or dirt)
- Bags (cloth or plastic)
- Shovel
How to Fill a Sandbag

Two- or three-person operation

#1. Holds empty bag on ground
#2. Fills 1/2 to 2/3 full
#3. Stacks and stockpiles
General Sandbagging Tips

- Keep elbows in when filling sandbags
- Rotate duties
  - Holding
  - Shoveling
  - Stacking
- Wear gloves
- Do not tie sandbags
Move a Sandbag Correctly

- Lift with your knees, not your back
- Use a passing line to move sandbags
  - Diagonal-pass formation is most effective
- General rule: When constructing barrier on incline, taller volunteers should be at end of line farthest from barrier
Exercise

Diagonal-Pass Formation
Filling and Moving Safety Concerns

- Maintain situational awareness
- If large vehicles are in the area, listen for the sound of them backing up
- Be careful when working around power-loading equipment
How to Build a Sandbag Barrier

1. Strip sod before laying bottom layer, if possible.
2. Bonding Trench: 1 sandbag deep x 2 sandbags wide.
3. Width = 3 times Height.
Pyramid or Vertical?

- General rule: Do not stack sandbags vertically
- May be placed one on top of another if floodwater:
  - Is not fast moving
  - Is up to a foot high with no debris
Building a Barrier Safety Concerns

- Maintain situational awareness
- Treat all sand boils as dirty
- Be cautious when working on levees; barriers may break
Summary

- Types of floods common in the local area
- Review of relevant concepts from CERT Basic Training
  - Remember onscene management and ICS structure
  - Personal safety is paramount
  - Conduct medical assessment and treatment
- Types of floods and flood watches and warnings
- Emergency management system response to floods
Flood response supplies, operations, equipment

Flood realities and dangers

How to fill and move sandbags safely and correctly

How to build a sandbag barrier safely and correctly
Additional Resources

- www.ag.ndsu.edu/disaster/flood.html
- www.redcross.org/en/prepare/events
- OSHA Fact Sheets: Flood Hazards and Flood Cleanup