

SEVERE WEATHER SAFETY: *Prepare, Survive & Recover*

This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation. Featured are:

INTRODUCTION: A brief description of the program and the subject that it addresses.

PROGRAM OUTLINE: Summarizes the program content. If the program outline is discussed before the video is presented, the entire program will be more meaningful and successful.

PREPARING FOR AND CONDUCTING THE PRESENTATION: These sections will help you set up the training environment, help you relate the program to site-specific incidents, and provide program objectives for focusing your presentation.

REVIEW QUESTIONS AND ANSWERS: Questions may be copied and given to participants to document how well they understood the information that was presented. Answers to the review questions are provided separately.

INTRODUCTION

Because severe weather can strike anywhere without notice, you must be ready to respond appropriately. Lightning, flooding, pounding hail, tornadoes and hurricanes cause property damage, injuries and fatalities in all parts of the world each and every year. While any one of these weather events can cause destruction alone, when their effects are combined, the consequences can be devastating. For this reason, it is imperative that everyone be prepared for inclement conditions, no matter where they live and work, and that's the purpose of this program—to review the proper actions that should be taken before, during and after a severe weather event.

Topics include common types of severe weather, staying informed through severe thunderstorm/tornado/hurricane watches and warnings, emergency plans, emergency response training, practices for surviving various types of severe weather events and proper actions to take to recover after a storm event has ended.

PROGRAM OUTLINE

BACKGROUND

- Lightning, flooding, pounding hail, tornadoes and hurricanes are all examples of dangerous weather conditions. These events are often collectively called “severe weather.” Each and every year they cause property damage, injuries and fatalities in all parts of the world.
- While any one of these weather events can cause destruction alone, when their effects are combined, the consequences can be devastating. For example, a hurricane may initially cause damage with wind, but the heavy rains it also brings can lead to flooding.
- For this reason, it is imperative that you be prepared for severe weather, no matter where you live and work.

COMMON TYPES OF SEVERE WEATHER

Severe Thunderstorms

- Heavy rain, strong wind, lightning and hail can all be dangerous aspects of a thunderstorm, even more so when the thunderstorm is considered “severe.” The National Weather Service defines a severe thunderstorm as a storm that produces hail that is at least 1 inch in diameter and winds of 58 miles per hour or greater.

Flooding

- A severe thunderstorm can dump an extraordinary amount of rain in a short period of time, causing another type of severe weather: flooding. As the water flows downhill and accumulates, flash floods and fast-moving currents can rapidly occur in low lying areas.
- Understand that flash flooding can occur even when it's not raining. Heavy rain or snowmelt can cause flooding hundreds of miles downstream.

Lightning

- Another danger associated with thunderstorms is lightning. Lightning is a powerful, unpredictable force that occurs when an electrical charge is dissipated from a cloud into the ground. It often strikes elevated objects that are taller than their surroundings or any type of conductive object or water as it seeks a path to the ground.
- Be aware that lightning can also occur when it is not storming and lightning can travel a long distance. Anytime you can hear thunder, then lightning is close enough to strike, even if the sky seems clear.

Wind & Hail

- By definition, a severe thunderstorm will produce damaging winds and hail. These strong, straight-line winds and downbursts can topple trees, damage roofs and structures and hurl debris with great force.
- The hail associated with a severe thunderstorm can break windows, damage cars and buildings and cause injury or death to humans and animals that are caught outdoors.

Tornadoes

- Under certain conditions, a thunderstorm can also produce one or more tornadoes. A tornado is a violently rotating column of air extending from a cloud to the ground. The strongest tornadoes have rotating winds of more than 200 mph and can cause catastrophic damage to anything in its path.

Hurricanes

- When many people think of severe weather, tropical storms and hurricanes come to mind. These are large, powerful weather systems that can cause extreme damage over large areas. They produce dangerously high winds and tremendous amounts of rainfall.
- Because severe thunderstorms are also contained within these larger storm systems, lightning, tornadoes and large hail can also be generated by tropical storms and hurricanes.
- In addition, extreme coastal flooding can also occur when the strong winds and forward motion of the storm drive a large amount of ocean water ahead of the storm. Referred to as “storm surge,” this storm-driven water can cause severe flooding as the storm moves into shallow water and onto shore.

TROPICAL STORM & HURRICANE CHARACTERISTICS

- These types of storms begin as a small low pressure system over the warm ocean waters of the tropics. When conditions are right, these storms can grow stronger and larger as they are fueled by warm, moist air.
- The weather service categorizes these types of storms by their maximum sustained wind speed, but keep in mind that localized wind gusts, downbursts and any spawned tornadoes will have much stronger winds than the reported sustained winds.
- When sustained wind speeds reach 39 miles per hour, the storm is classified as a “tropical storm.”
- When sustained wind speeds climb to 74 miles per hour, the storm is classified as a “tropical cyclone.” Tropical cyclones are commonly referred to as hurricanes in the Atlantic Ocean and as typhoons or simply cyclones in other areas of the world.
- A hurricane’s strength is rated on a scale from 1 to 5:
 - A category 1 hurricane will have sustained winds from 74 to 95 mph;
 - A category 2 hurricane will have sustained winds from 96 to 110 mph;
 - A category 3 hurricane will have sustained winds from 111 to 129 mph;
 - A category 4 hurricane will have sustained winds from 130 to 156 mph;
 - A category 5 hurricane will have sustained winds of 157 mph or greater.
- Keep in mind that all tropical storms and hurricanes are powerful and dangerous no matter their category; however, category 4 and category 5 hurricanes are even more powerful and are capable of causing catastrophic damage to anything in their path.

PREPARE

- Severe weather events can occur with little warning. Our best chance to stay safe is to know what to do before, during and after the event. We need to prepare beforehand; survive during; and, recover after the event.
- One way to help stay safe during a storm is to be as prepared as possible beforehand, both at work and at home.

Staying Informed About Weather Conditions

- Stay informed about weather conditions through current weather reports. Both local and national weather services use an alert system that includes watches and warnings.
- For thunderstorms, the weather service will issue a severe thunderstorm watch when the conditions are favorable for the development of a severe thunderstorm. When a severe thunderstorm watch is issued, stay close by to a shelter and carefully monitor the developing weather.
- The weather service will issue a severe thunderstorm warning when a severe thunderstorm has been spotted by a trained storm spotter or has been detected by Doppler radar.
- For tornados, the weather service issues a tornado watch when the conditions are favorable for the development of tornados. While under a tornado watch, stay close by to a shelter and monitor the developing weather by listening to the radio, watching TV or checking weather websites.
- A tornado warning will be issued when a tornado has been spotted by a valid storm spotter or there is strong evidence from Doppler radar data that a tornado is occurring.
- Tropical storms and hurricanes are usually tracked for days. When a hurricane or tropical storm watch is issued, it means that hurricane or tropical storm force winds are expected in the watch area within the next 48 hours.
- A hurricane or tropical storm warning will be issued when hurricane or tropical storm force winds are expected to reach the area within 24 hours.
- It's important to understand that these storms can strengthen and change direction in a sudden and unpredictable manner. This is why the National Hurricane Center's forecast is presented as a "cone of uncertainty" and their estimated storm track is updated several times a day.
- Be sure to regularly check weather reports to have the most accurate information.

Emergency Plans

- In addition to listening to reports, your workplace has developed a plan for dealing with emergency situations. As part of this plan, sometimes called the Emergency Action Plan, Emergency Preparedness Plan or Emergency Response Plan, you will receive training on how to prepare for and respond to severe thunderstorms, tornados and other severe weather
- You should also develop an emergency plan with your family and loved ones so they will be prepared for inclement weather and know how to respond accordingly.
- To prepare your household for a prolonged severe weather event such as a hurricane, you should have a supply of one gallon of water per person a day for at least three days and enough non-perishable, easy-to-prepare food to last at least three days.
- Other supplies you should assemble and have ready for use include flashlights, batteries, a first aid kit, a 7-day supply of medications, copies of important documents, extra cash, baby and pet supplies, personal hygiene and sanitation items and anything else your family or loved ones may need if confined to your home.

Emergency Response Training

- Training and preparation help ensure a calm response when severe weather strikes. This is why it is imperative that you participate in emergency drills and response training when they take place.

- As part of your emergency response training, it is critical that you learn the various weather-related warnings that are used by your facility to notify employees that inclement weather is approaching. This includes the various sounds and signals of alarms, sirens and loudspeakers, many of which are issued to indicate a specific type of event such as a tornado.
- Also, learn where the designated meeting places or rally points for seeking shelter during weather-related emergencies are located.
- Because you may have little time to respond, or may have to do so in the dark, you must know the most efficient route to the designated meeting area or storm shelter and how to get there should the power go out. It's a good idea to practice traveling from your work area to this location so you can reach it quickly and safely in an emergency.

SURVIVE

- When severe weather strikes, that's the time to put your training and preparation to good use.

Severe Thunderstorms

- When a severe thunderstorm warning is issued, you should take shelter immediately inside a sturdy building away from windows.
- Do not take shelter inside a vehicle. A vehicle is no match for the force of falling hail or toppling trees. If you are in a vehicle when a warning is issued, you should get out of the vehicle and seek more substantial shelter immediately.

Lightning

- Another danger associated with thunderstorms is lightning. If trapped outdoors during a lightning storm, squat low to the ground in an open area away from tall objects.
- If at all possible, immediately move indoors into a building as soon as you hear thunder.
- While taking shelter, avoid contacting anything conductive.
- Because a lightning strike can travel along electrical wires, plumbing pipes and through water, avoid contacting plumbing pipes and fixtures or contacting any running water while lightning is occurring.
- Also, do not use computers, landline telephones or any electrical device connected by a cord while lightning is occurring.
- Lightning can still strike even after a storm has passed. It's important to remain in a safe shelter for at least 30 minutes after you hear the last sound of thunder.

Tornadoes

- In the event of a tornado, if a dedicated underground shelter is available and it is safe to move to it, it should be used; otherwise, make your way into a sturdy building and seek out a protected space away from windows.
- Try and maintain as many walls as possible between you and the outside. This often means a closet, hallway or bathroom.
- Do not seek shelter in an automobile or a mobile home. These provide almost no protection from the powerful effects of a tornado.
- If you're caught outside during a tornado and cannot find a place to go inside, crouch for protection next to a strong structure or lie flat in a ditch or other low-lying area. Cover your head and neck with your arms or a jacket, if you have one.

Flooding

- As the rain comes down, be aware of flooding. Moving water is a powerful force. It only takes six inches of fast-moving water to knock over an adult and quickly sweep them away.

- Avoid walking or wading through floods or fast-moving waters. Not only could you be swept away, but there may also be unseen hazards under the water.
- In addition, flood waters are often contaminated with raw sewage, chemicals and other pollutants that could cause a variety of adverse health effects.
- Moving water can also carry away vehicles. Just one foot of rushing water can carry away a small car, while two feet can wash away most other vehicles.
- Another danger of flood waters is that they can obscure washed out bridges and damaged roads, leading unsuspecting drivers to drive into deep water.
- Never attempt to drive through moving water deeper than six inches or floodwaters of an uncertain depth. Remember and follow this slogan: “Turn around, don’t drown.”
- Never underestimate the danger of flood waters. Flood waters associated with severe weather account for more deaths each year than all other aspects of severe weather combined.

Hurricanes

- Tropical storms and hurricanes involve large amounts of wind, rain, lightning and flooding. Because of this, make sure you have an evacuation plan in place and act on it when the time comes.
- If you are unable to evacuate, secure all exterior doors. Find the innermost, sturdy part of your shelter and remain there. Stay away from windows. Watch for water from storm surge and flooding.

Responding to Emergency Alert

- If you are at the workplace when an emergency alert sounds, promptly shut off any running machinery or processes, if necessary, and walk calmly and orderly to your destination.
- Once you have reached the designated meeting place or storm shelter, stay there until the storm or tornado has subsided and your supervisor notifies you that is safe to exit. Always follow your supervisor’s instructions during a severe weather event.
- Don’t be tempted to leave the facility to help friends or family. While you may be concerned for their safety, you only endanger yours by abandoning your training to be a Good Samaritan.

RECOVER

- If you are at work when a severe weather event has ended, remember your Emergency Action Plan and your preparedness training. Wait in your safe place until the all clear alert sounds and you are then able to exit.
- Look around you and see if there is a clear path for you to get to safety. When exiting the building, do not use elevators to reach lower levels.
- Also, avoid downed power lines, broken gas lines or debris caused by the storm. Stay alert for fires.
- If you had to shelter in place alone for safety, when it is safe to do so, proceed cautiously to the designated meeting place or rally point established by your organization so management can account for everyone. Stay in the area until instructed to leave by one of your supervisors.
- If you are trapped, do not try and move as doing so could disrupt unsteady objects and cause them to fall on or around you, making it harder to get out of the entrapment.
- If you have a cell phone with you, call or text for help and let emergency personnel know where you are trapped so they can get to you as quickly as possible.

- If you don't have a phone, tap on a pipe or a wall to alert rescuers of your location. Shout only as a last resort.
- If you are at home, make sure all family members are accounted for and safe after the storm ends. If there are injuries, provide first aid and call for help.
- Be aware that power lines may have been knocked down. When exiting the home or structure, look for these power lines and avoid them.
- Once all household members are safe, monitor local news reports by radio, TV, social media or cell phone alerts for emergency information and instructions.
- If your homeowner's insurance policy covers storm damage, make sure to take photos or video of the damage as evidence for your insurance claim.

PREPARE FOR THE SAFETY MEETING

Review each section of this Leader's Guide as well as the program. Here are a few suggestions for using the program:

Make everyone aware of the importance the company places on health and safety and how each person must be an active member of the safety team.

Introduce the program. Play it without interruption. Review the program content by presenting the information in the program outline.

Copy the review questions included in this Leader's Guide and ask each participant to complete them.

Make an attendance record and have each participant sign the form. Maintain the attendance record and each participant's test paper as written documentation of the training performed.

Here are some suggestions for preparing your video equipment and the room or area you use:

Check the room or area for quietness, adequate ventilation and temperature, lighting and unobstructed access.

Check the seating arrangement and the audiovisual equipment to ensure that all participants will be able to see and hear the program.

CONDUCTING THE PRESENTATION

Begin the meeting by welcoming the participants. Introduce yourself and give each person the opportunity to become acquainted if there are new people joining the training session.

Explain that the primary purpose of the program is to review the proper actions that should be taken before, during and after a severe weather event such as a severe thunderstorm, tornado or hurricane.

Introduce the program. Play it without interruption. Review the program content by presenting the information in the program outline.

Lead discussions about your organization's specific policies and procedures for preparing for and responding to severe weather conditions as well as the proper actions to take to recover after a storm event has ended.

After watching the program, viewers should be able to explain the following:

- Why the common types of severe weather can be so dangerous;
- What the characteristics of tropical storms and hurricanes are;
- What various severe weather watches and warnings mean;
- Why emergency plans and emergency response training are so important;
- What practices to follow for surviving for various types of severe weather events;
- Which proper actions to take to recover after a storm event has ended.

SEVERE WEATHER SAFETY:

Prepare, Survive & Recover

REVIEW QUIZ

The following questions are provided to determine how well you understand the information presented in this program.

Name _____ Date _____

1. According to the National Weather Service, a severe thunderstorm has winds of _____ miles per hour or greater.
 - a. 28
 - b. 48
 - c. 58
2. The strongest tornadoes have rotating winds of more than _____ miles per hour.
 - a. 100
 - b. 150
 - c. 200
3. You should develop an emergency plan with your family and loved ones so they will be prepared for inclement weather and know how to respond accordingly.
 - a. True
 - b. False
4. To prepare your household for a prolonged severe weather event, you should have a supply of one gallon of water and enough food per person to last at least _____.
 - a. 1 day
 - b. 2 days
 - c. 3 days
5. When a severe thunderstorm warning is issued, you should take shelter immediately inside _____.
 - a. An automobile
 - b. A sturdy building
 - c. A low-lying area
6. If you are trapped outside during a tornado, you should _____.
 - a. Seek protection underneath a bridge or overpass
 - b. Crouch next to a sturdy structure or lie flat in a ditch,
 - c. Run in a zigzag pattern in the opposite direction
7. It only takes _____ of fast-moving water to knock over an adult and quickly sweep them away.
 - a. 6 inches
 - b. 1 foot
 - c. 2 feet
8. You should not attempt to drive through moving water deeper than 6 inches or floodwaters of an uncertain depth unless you can see the road on the other side.
 - a. True
 - b. False
9. _____ associated with severe weather account for more deaths each year than all other aspects of severe weather combined.
 - a. Lightning
 - b. Strong winds
 - c. Flood waters
10. When exiting a building after a severe weather emergency, you should use elevators to reach lower levels.
 - a. True
 - b. False

ANSWERS TO THE REVIEW QUESTIONS

1. c
2. c
3. a
4. c
5. b
6. b
7. a
8. b
9. c
10. b