Module 4: Potential Hazards and Human Factors on the Fireline

Topic 1: Introduction

Module introduction

Narration Script: Fighting wildland fires isn't a solo occupation. You'll arrive at the scene with others and must work with a singular purpose. You'll be getting instructions from your supervisor about the job at hand and the resources you'll have available. And you'll also learn where to go to stay safe and how to get there. You must LISTEN to these important instructions and make sure you understand them—your safety depends on it.

You also have to keep your wits about you and become a critical observer of your environment—also known as "situational awareness." Falling snags, smoke, steep terrain—they all pose hazards, and no one person will notice everything. That's why you need to "see and tell." If you see a hazard, tell your fellow crew members or supervisor. And if you see a hazard, you need to share that information with others—it could save lives. By knowing your role and looking out for your crew members' safety, you'll be a valued part of the team.

Module overview

Before going out on the *fireline*, there are a number of risk management basics you need to know.

This module will bring you up to speed on your part in the risk management process including:

- **Human factors on the fireline—stresses awareness and communication on the fireline**
- **Hazards on the fireline—describes both controllable and uncontrollable hazards on the fireline**
- **Risk management process—more on situational awareness and the need to evaluate hazards**
- **Teamwork—learn your part working with diverse groups of firefighters**

Narration Script: How you manage risk *BEFORE* you head to the fireline is as important as when you're working just yards away from a wildland fire. This module discusses the "ins" and "outs" of the risk management process. You'll discover that you need to be aware of your surroundings at all times no matter whether you're overly focused or dreadfully fatigued. Your attention to detail will help you manage and recognize the hazards you can and cannot control. We'll talk a lot about your individual responsibility to learn the risk management process—but when it's all said and done and you're ready to begin your fire fighting in earnest, you'll be part of a diverse team working on the singular goal of protecting life, property, and natural resources.

Topic 2: Human Factors on the Fireline

Topic introduction

Bulldozers, **helitack** *crews*, **base camps, computer modems, fax machines—you'll see all these** *resources* **and more on an** *incident*. **A wildland fire can result in "insta-organizations" being formed to organize the response and manage the blaze. Of all the resources employed to fight a wildland fire, none is more vital than the wildland firefighter.**

You are the human component—and as such, you can fall victim to the simplest of errors because of fatigue, stress, miscommunication, or bravado. This topic covers measures for the prevention of human error by discussing:

- **Safety**
- **Situation awareness (SA)**
- **Communication**

"Seeing" and "telling" are the foundation for safely fighting wildland fires.

Narration Script: Bulldozers, helitack crews, base camps, computer modems, fax machines—you'll see all these resources and more on an incident. A wildland fire can result in "instant-organizations" being formed to manage the blaze. Of all the resources employed to fight a wildland fire, none is more vital than the wildland firefighter. You are the human component—and as such, you can fall victim to the simplest of errors because of fatigue, stress, miscommunication, or bravado.

The trend in the 21st century has been an increase in both severity and occurrence of wildland fires. Construction in areas that were formerly wide open spaces and wildland has created the wildland/urban interface. What's more, over 100 years of fire suppression has led to wildland fuel accumulations.

You, as a firefighter, must remain alert and aware of all hazards that you might be exposed to. Your safety begins by knowing your surroundings and staying in constant communications with your crew and supervisors. Start by staying alert through this topic.

Safety

During recent years, firefighters have been injured or killed because they did not recognize and respond appropriately to hazards to themselves and others working around them. Safety means being secure from danger or harm. You'll be safe if you're doing things right. Controlling the known hazards is one way to stay safe.

Throughout the S-130 course, we'll stress the importance of making two documents your best friend:

- **Incident Response Pocket Guide (IRPG)**
- **Fireline Handbook**

The "Watch Out!" and LCES module is an excellent resource to rehash these handbooks. Beginning every incident by consulting these resources is a good means of understanding the known from the unknown hazards on the *fireline*. You can view the complete IRPG in the resources available with this course.

Narration Script: Safety doesn't just "happen." It's the result of doing things right. Too many wildland firefighters have lost their lives—or been seriously injured—when they misread the current situation or didn't recognize critical indicators. You can define safety in part as the act of doing things right. Your goal should be to learn to identify what hazards are known from those that aren't.

Situation awareness

A firefighter's work environment:

- **Is high risk**
- **Requires teamwork**
- **Is subject to extreme conditions**
- **Can result in serious consequences if accidents occur**

You need to employ the fundamental principle of situational awareness (SA) while working on an incident. Situational awareness is:

- **Gathering information by observation and communication**
- **The foundation of all the decision making**
- **An ongoing cycle**

Be an active thinker and observer on the fireline. Stop and reevaluate and make careful, informed decisions—especially when you're tired or unsure.

Narration Script: A foundational safety principle for you to use on the fireline is called "situational awareness." There's no mystery to the definition. Be aware of your situation. It seems like a "keep it simple stupid" idea—but after long periods of work, high rates of fatigue and pressure, and operating in potentially dangerous situations, the mind can grow weary and you can be tempted to go into "auto-pilot" mode. Always, and we do mean always, employ the constant cycle of observing your environment, communicating with crew and supervisors, and evaluating your decisions.

Maintaining situation awareness

While SA might seem something a supervisor will do for you—not so. Even as a Firefighter Type 2, (FFT2) you must maintain good SA for three central reasons:

- **You cannot depend entirely on your supervisor to see everything out there.**
- **Individual responsibility for personal safety begins from the first fire assignment on.**
- **SA enables you to detect problems early.**

Narration Script: You've probably already learned that in your day-to-day life you make your best decisions when you gather enough information. In wildland fire fighting, that's part and

parcel of being situationally aware. It pays to know what's going on around you—and to share vital information about hazards with your supervisor or crew members. Situational awareness has no "off switch" when you're working a fire. Like on the football field, you need to "keep your head on a swivel" before you get thumped by a linebacker, or in this case, a wildland fire; but more on that in a second.

Look up, look down, look around

If your head truly is on a swivel, then you will continually monitor fireline conditions and check your environment. Developing this habit is one of the best ways to protect yourself in hazardous situations.

Have a 360-degree perspective:

- **Look up**
- **Look down**
- **Look around**

You will investigate each perspective in turn to learn how to keep your eye out for common safety hazards.

Narration Script: Develop a habit of checking your environment. It is one of the best ways for you to stay out of trouble. Keep your head on a swivel, and don't forget to look up, look down, and look around.

Look up

It's tempting to focus on what's in front of you if you've got a specific task, but don't forget to look up once in a while—there's a lot going on over your head. When you look up, you may recognize any number of potential hazards:

- **Weather and smoke movement**
- **Rocks or burning materials rolling into unburned** *fuel* **below**
- **Overhead power lines**
- **Aircraft flying overhead and performing** *airdrops*
- **Tree limbs weakened by fire and burning or burned-out** *snags*

Narration Script: One of the most critical things to notice when looking up is weather and smoke movement. When crews or equipment are working upslope, rocks may dislodge and roll down the hill toward you. Or burning materials may roll into unburned fuel below you. Overhead power lines may burn through and fall on anyone below. High-voltage lines can arc in heavy smoke. Look up and stay aware of aircraft flying overhead to reduce the chances of your being hit by an airdrop. And during mop-up, look up and be wary of tree limbs weakened by fire and burning or burned-out snags that may fall without warning.

Lightning, the 30/30 rule

Since weather is one of the most critical things to watch for when you look up, the possibility of lightning strikes bears further investigation. You can get struck whenever lightning strikes reach the earth (ground flashes). This danger exists as much as 40 mi. (64 km) ahead of a thundercloud formation. However, the good news is that most ground flashes occur directly below a *cumulonimbus cloud***.**

Here's a rule of thumb to help you predict when it's time to take precautions from lightning—it is called the 30/30 rule: "When the interval between a ground flash and the thunder it produces is less than *30 seconds*, take precautions against being struck for at least *30 minutes* after the thundercloud passes."

Narration Script: Thundercloud formations are a critical weather condition to "look up" for. In addition to the fire behavior effects produced by thunderstorms, lightning can injure or kill you if you don't take precautions.

Lightning strike precautions

So what are the precautions to take during your 30/30 waiting period? Ideally, try to get inside a vehicle or structure if possible. If that isn't possible, get in the middle of a large clearing and sit (don't lie down) on your pack or crouch with your feet together—especially if your skin tingles.

During a lightning storm, don't use landline phones and radios with long antennas—use only cell phones or radios that have short antennas. Then, avoid getting too close to:

- **Dry creek beds because of the flash flood potential**
- **Heavy machinery**
- **Flammable liquids**
- **Poles or trees**
- **Ridge tops**
- **Ledges**
- **Wire fences**
- **Rock outcroppings**
- **Metal tools**

Look down

In addition to looking up and around, always look down and be careful about where you step. Some things you might notice by looking down include:

- **Downed power lines**
- **Poor footing**
- **Unseen ditches, holes, or drop-offs**
- **Snakes and critters**
- **Fuels that cause changes in** *fire behavior*
- **Fire downslope from your position**

Narration Script: Looking down can be critical to your safety. For instance: stepping on a downed power line can be fatal. Poor footing, especially on steep slopes, can cause you to fall. You could be injured or even killed if you walk into unseen ditches, holes, or drop-offs. In the wildland, snake and critter bites are always a threat to the unwary. But looking down to observe the fuels around you can also help you anticipate changes in fire behavior. And, if there is fire downslope from your position, observe it carefully and often.

Look around

Looking around can alert you to approaching vehicles as well as to changes in the fire's behavior that might threaten you. Also, look around when working on the fireline to be sure there is at least 10 ft. (3 m) between you and other crew members.

Narration Script: In the sometimes noisy environment of the fireline, firefighters may not hear signs of danger approaching. For example, if you are not looking around, you may drift into working too close to another crew member. An important technique in the avoidance of tunnel vision is taking time to look around you.

Knowledge Check 1

Multiple choice—check the box of the answer(s) you choose.

Always look up to identify potential hazards. One of those hazards involves the 30/30 rule.

When the interval between a ground flash and the thunder it produces is less than 30 seconds, you should take precautions against being struck

- ☐ **for at least 30 minutes after the rain stops.**
- ☐ **for 30 seconds after the last thunder clap.**
- ☐ **for at least 30 minutes after the thundercloud passes.**
- ☐ **for 3 minutes after the "all clear" signal is sent by Command.**

The correct answer is for at least 30 minutes after the thundercloud passes.

Risks to situation awareness

Maintaining your SA on the fireline can be challenging for a number of reasons:

- **Inexperience**
- **Personal and job-related stress**
- **Fatigue**
- **Personal and environmental distractions**
- **Attitude**

Distractions and lack of focus on the fireline can draw your attention away from potential problems or hazards. Decision making can be a struggle when you're fatigued and your ability to filter the important information is diminished.

Narration Script: The "human factor" of situational awareness has a lot to do with your mental and physical fatigue. Distractions can lead to disaster. Staying focused and maintaining your situational awareness is your key to maintaining safety. And if you're tired, it's okay to bounce ideas or concerns off of your supervisors and fellow crew members.

Knowledge Check 2

Multiple choice—check the box of the answer(s) you choose.

Let's see if you are staying aware right now.

All of the following are challenges to maintaining your situational awareness, EXCEPT

- ☐ **inexperience.**
- ☐ **personal and job-related stress.**
- ☐ **fatigue.**
- ☐ **reading the Fireline Handbook.**

The correct answer is reading the Fireline Handbook.

Communication

When you're fighting a wildland fire, you're working hard to contain damage and put out the fire. Communicating with your fellow firefighters might get lost in your focus. However, taking time to report current conditions in progress helps paint a picture for all teams on an incident.

Good communication is important for the following reasons:

- **Allows you to receive orders and instructions**
- **Provides a way for you to learn of hazards**
- **Gives a way for you to report the situation to others**
- **Serves as a learning tool to encourage learning, making you a better wildland firefighter**

Barriers to communication

Being an objective listener is a must on the fireline. Barriers to communication include:

- **Having a preconceived opinion about a message**
- **Allowing personal or environmental distractions to take your focus**
- **Hearing what you want to hear and filtering out the rest**
- **Focusing on your own response instead of listening to what's being said**
- **Allowing personality differences to hinder effective listening and message relaying skills**

Cultural or gender differences or even differences in vocabulary can also create communication barriers. Overcoming these barriers means understanding:

- **Listener responsibilities**
- **Communicator responsibilities**

You will examine each responsibility in turn to remove the static.

Narration Script: Have you ever heard the saying, "Two monologues do not make a dialog"? Not listening or having a bad attitude about the person talking with you can make the high-risk environment of fire fighting even more risky.

Listener responsibilities

By taking these steps, you have a better shot at hearing—and understanding—important information:

- **Be focused and pay attention**
- **Clarify any unclear information**
- **Ask questions**
- **Repeat instructions back to your supervisor**
- **Switch roles frequently back and forth during the communication process**

At the end of this exchange, you should know the answers to each of these questions:

- **What task am I to perform?**
- **What are the known hazards?**
- **Where do I go to be safe?**
- **How do I get there?**

Narration Script: To do the job you need to do and know where to go if the fire gets the upper hand, you have to hear instructions clearly and feel free to ask questions. This is no time to be shy or assume that you know what to do.

Communicator responsibilities

If you're delivering the message, follow these do's and don'ts:

- **DO be direct and know what you need to communicate**
- **DO use standard wildland fire fighting terms**
- **DO use easy-to-understand language**
- **DO be specific with instructions**
- **DON'T be patronizing, superior, or sarcastic**
- **DON'T assume that everyone understands your message**

Narration Script: Part of communicating effectively means choosing words that people easily understand. Telling your crew, "This fire sure is recalcitrant," probably isn't going to be as

effective as saying, “This fire sure is stubborn and hard to contain.” Know your common fire fighting terms and use those to describe what’s going on and what needs to happen.

Knowledge Check 3

Multiple choice—check the box of the answer(s) you choose.

Has there been a communication break-through? Let’s see.

All of the following are listener responsibilities, EXCEPT

- ☐ **staying focused and paying attention.**
- ☐ **clarifying unclear information.**
- ☐ **listening to just what affects you directly.**
- ☐ **repeating instructions back to your supervisor.**

The correct answer is listening to just what affects you directly.

Topic summary

This topic covered the *human* factors on the fireline:

- **Safety**
- **Situation awareness (SA)**
- **Communication**

As you can see from the information presented, safety starts with you. By practicing situation awareness and good communication techniques, you’ll be a vigilant wildland firefighter and valuable crew member.

Narration Script: By now you should know that sharpening your safety, situational awareness, and communication skills is as important as sharpening your hand tools. Having habits on the fireline can be a good thing. In this case, you need to make it a habit to Look Up, Look Down, and Look Around.

Topic 3: Hazards on the Fireline

Introduction to hazards on the fireline

Wildland fire fighting is a dynamic and dangerous job. It requires that you be thoroughly familiar with the hazards of the *fireline* and the surrounding area. Your life and the lives of others may depend upon your ability to recognize a dangerous situation long before it develops. During recent years, firefighters have been injured or killed because of their failure to adequately recognize and respond appropriately to hazards.

Narration Script: We're here to tell you there's a lot more to safety than just getting your P-P-E on straight. Think about the myriad of equipment necessary for wildland fire fighting. Yes, there is more to safety than just knowing how to use McLeods and Pulaskis. You need to be aware of and avoid all the potential safety hazards on the fireline.

Subjective and objective hazards

Since fighting fires is risky business, it makes sense to know the types of hazards you will be facing. Read the following to investigate subjective and objective hazards.

Subjective Hazards

Subjective hazards are hazards that firefighters have control over. Examples of subjective hazards are:

- **Condition of equipment**
- **Decision to turn back**
- **Correct use of tools**
- **Wearing all personal protective equipment (PPE)**

Since you have control over these hazards, you should be able to work to eliminate them. Most of this course is designed to help you learn how to control subjective hazards.

Objective Hazards

Objective hazards are hazards that firefighters have no control over. Examples of objective hazards are:

- **Fire-weakened timber**
- **Lightning**
- **Rolling rocks and logs**
- **Changes in wind direction and speed**

These hazards are inherent to the fire fighting environment, and you have to practice "look up, look down, and look around" to avoid them.

Narration Script: Know your enemy. Obviously, if you know your enemy, it will help you focus on the steps you need to take to CONTROL subjective hazards and the steps you need to take to AVOID objective ones. For example, you can CONTROL the hazard of being injured by tools

by keeping them maintained and sharp. But you can't control the weather, so when you see lightning coming, it's time to AVOID that hazard instead.

Knowledge Check 4

Multiple choice—check the box of the answer(s) you choose.

Rain or shine, you must always be on the lookout for hazards in the fire fighting environment.

A subjective hazard is one that you

- ☐ **can't control or avoid.**
- ☐ **can avoid but can't control.**
- ☐ **have direct control over.**
- ☐ **must discuss with your crew leader.**

The correct answer is have direct control over.

Main hazard categories

Besides organizing hazards as either subjective or objective, you can also categorize hazards in other ways. In the remainder of this topic, we're going to examine these categories of hazards:

- **Fire and burned-over areas**
- **Tools**
- **Electrical lines and fences**
- **Firing operations**
- **Weather**
- **Biological**
- **Human-related**
- **Base camp**
- **Vehicles**
- **Aircraft**
- **Hazardous materials**

Narration Script: You can't deny it. There are many elements of wildland fire fighting that don't make it the safest occupation. You face subjective and objective hazards, such as lightning strikes, falls of fire-weakened timber, rolling rocks or logs, and fire entrapment. And, you may encounter these hazards when working on any wildland or wildland/urban interface incident. But understanding the hazards you face puts you more than half way toward controlling or avoiding those hazards. Roll up your sleeves and put on your poker hat so that you can learn how to stack the deck in your favor.

Working near fire and in burned-over areas

Working near fire and burned-over areas (also called the burn or the *black*) is exactly the image you get when you think of *wildland fire*—either you have flames or black and charred landscape everywhere. Although there will be pockets of unburned *fuel* in some burned-over areas, these areas are relatively safe places to work because of the absence of unburned fuels. However, there are still other safety hazards to deal with in this environment.

You will investigate in turn the hazards and precautions for working near fire or in burned-over areas:

- **Burning materials**
- **Smoke**
- **Snags and trees**
- **Holes, loose rock, and steep terrain**

And, remember this quick phrase when working in the black: "look up, look down, look around."

Narration Script: You will probably be on highest alert when you see flames anywhere near you. But don't get complacent when working in areas that have been burned. Many hazards exist such as snags, holes, loose rocks, and still burning fuels. Always look up, look down, and look around.

Burning materials

There's an old adage about "where there's smoke there's fire." So, if you see smoke, something is burning. You should be on the lookout for fire even if you think you're in a fire-free area. *Running fires* **and timber** *crowning out* **are pretty obvious, but look for** *smoldering* **and** *creeping fires* **as well. No matter the size or the intensity of the flames, you can suffer burns.**

When working on or near an active fireline, be watching for:

- **Trees** *torching* **inside the fireline**
- **Smoldering fires intensifying over large areas**
- **Increased** *spotting*

Narration Script: Don't be the one who "jumps out of the frying pan and into the fire." Always be on the lookout for underground burning and creeping flames that might become a very unpleasant surprise.

Surviving an approaching fire hazard

Part of being aware of objective hazards is being prepared to stay calm and act decisively when things go "south." Panic is dangerous *and* contagious! When the warning is given of an approaching fire, these personal survival techniques might save your life:

- **Stay with your** *crew* **and follow orders**
- **Know the locations of** *escape routes* **and** *safety zones*
- **Don't try to outrun a fire, especially uphill or in thick** *brush***—run laterally or downhill if you must run at all**
- **Try to get to the** *fire flanks* **or into the burned area**

Narration Script: Even when you carefully practice looking up, down, and around, sometimes the incident can "go south" on you. If this happens, be prepared to stay calm but act decisively. You can reduce the risk of being trapped by following all the safety guidelines we have discussed so far. But, even if you always apply your knowledge of proper fire fighting procedures, it may not be possible to completely eliminate the risk of being trapped by a fire or overrun by a rapidly advancing flame front. Furthermore, firefighters may take foolhardy risks because heat and smoke can impair their judgment. Ask yourself, "When the warning horn sounds, do I know what to do?"

Smoke and materials still burning

Wildland fires produce large amounts of very heavy smoke. Very large fires produce smoke columns that can be seen for miles and may obscure the sun to the point that it is quite dark on the ground in the middle of the day.

Even in the end stages of a fire, the end product of a wildland fire is not pretty. In addition to the smoke and embers from smoldering stumps and other materials, *whirlwinds* **may stir up clouds of particulates. These tiny dust particles will fly into your eyes, nose, and mouth, so wear a shroud and eye protection. If the fire is not completely extinguished, continue to wear all your protective clothing.**

Visibility issues

One of the obvious hazards of smoke is that it obscures vision. Smoke not only presents an opaque barrier to clear vision, it is irritating to the eyes and often causes heavy tearing. All responders on the scene must take precautions.

Read the following to understand the precautions each responder must take.

Smoke and Line Firefighters

As a firefighter:

- **Be careful where you step when you cannot clearly see what is in front of you**
- **If you must move in heavy smoke, leave both feet on the ground and slide your feet along the surface of the ground**
- **Be especially watchful for fire apparatus approaching you through the smoke**

Smoke and Driver/Operators

As an apparatus driver/operator, you should:

- **Be careful and go slowly when you drive in smoky conditions to allow for stopping within your range of vision**
- **Keep on all lights (including emergency lights) to make the apparatus more visible to firefighters on foot**
- **Keep windows rolled up and vents closed when surrounded by heavy smoke**
- **Set your air conditioning controls (if present) to recirculate**
- **Keep spotters in clear view and have personnel stay in the apparatus until you receive the order to venture out—this preserves crew integrity and protects the spotter or crew from unseen hazards, such as being run over by another vehicle, stepping on a downed power line, or being overrun by fire**

Smoke and Spotters

In rare situations, such as when the vehicle has to be driven off a surfaced road through heavy smoke, use spotters. Spotters must be in proper PPE. Preferably, they should also have radio contact with the driver/operator.

Smoke composition and effects

Smoke from wildland fires is a suspension of small particles floating in a combination of heated gases. These particles provide a site for the condensation of some of the gaseous products of *combustion*, especially aldehydes and organic acids formed from carbon.

Depending upon what is burning, the smoke can contain any or all of the following gases:

- **Carbon dioxide (CO_2)**
- **Carbon monoxide (CO)**
- **Hydrogen cyanide (HCN)**
- **Hydrogen chloride (HCl)**

By far, the most common fire gas that wildland firefighters are exposed to is CO.

Caution—Toxic Effects of Smoke

Most of the gases produced in fires are toxic. Some have a delayed effect, and so you may not know to seek medical aid. To be safe, limit your time in the smoke, and get medical attention promptly.

Narration Script: Breathing smoke is not good for you. Since you can't avoid it, you need to understand what you're facing. Smoke is made up of pieces of carbon and tar, and add some dust for good measure. These particles are lofted and carried by some very noxious gases.

Particulate dangers

A large portion of visible smoke is composed of particulate matter such as carbon, tar, and dust. Some of the particles suspended in smoke are merely irritating if inhaled, but others can be quite harmful. The size of the particle determines how deeply it penetrates into the lungs. The bottom line is to minimize your exposure to smoke whenever possible.

Narration Script: Black smoke in particular contains lots of particulates and indicates an incomplete burn, usually from a fast-moving fire.

What is carbon monoxide?

Carbon monoxide (CO) is an odorless, tasteless, invisible gaseous by-product of the combustion of organic (carbon-containing) materials. When there is insufficient oxygen available to form CO_2, the fire forms CO instead.

Even though there appears to be an unlimited supply of oxygen available to fires in the wildland, this is not always the case. For example, fires burning in thickly matted grasses cannot get enough oxygen to all layers of the fuel to form CO_2, so CO is formed instead. CO is present at some level in all smoke from wildland fires but can be found in even higher concentrations in *inversions***.**

Carbon monoxide safety tips

It may sound like gloom and doom with CO exposure, but there is good news. Research shows that there is very little chance of firefighters in the wildland being exposed to dangerous levels of CO.

However, crew leaders and supervisors should limit each firefighter's possible exposure to CO by:

- **Rotating personnel from areas of heavy smoke to areas with little or no smoke as the situation allows**
- **Monitoring personnel operating chain saws or** *fire pumps* **in confined areas for signs of CO exposure**

- **Not allowing personnel exhibiting symptoms of CO exposure to operate a chain saw or any other potentially dangerous piece of equipment, or drive a fire** *apparatus* **until they have recovered**
- **Following agency policy with regard to giving oxygen to affected personnel**

Narration Script: There are precautions you and your crew can take to avoid carbon monoxide exposure. Divide the heavy smoke detail so everyone gets a chance to breathe fresh air. Look out for yourself and others if you show signs of CO exposure, and make sure exposed firefighters are not operating machinery or driving apparatus.

Knowledge Check 5

Multiple choice—check the box of the answer(s) you choose.

Let's see if you were properly exposed to the training concepts.

All of the following are ways for supervisors to minimize your exposure to CO, EXCEPT

- ☐ **rotate personnel from areas of heavy smoke to areas with little or no smoke.**
- ☐ **monitor personnel operating chain saws or fire pumps for signs of CO exposure.**
- ☐ **give oxygen to affected personnel according to agency policy.**
- ☐ **mandate filter mask use to prevent CO exposure.**

The correct answer is mandate filter mask use to prevent CO exposure.

Snags and trees

The hazards associated with *snags* **and live trees deserve special mention. These hazards are a significant cause of firefighter fatalities and injuries.**

Since all snags and trees cannot be removed from the fire environment, stay tuned so you can learn the hazards they pose.

Snag hazards

Snags are standing dead trees. They present a variety of hazards to those working near them, such as:

- **They often smolder long after the main fire has been extinguished, so they must be cut down (felled) during** *mop-up.*
- **Dead limbs can break off and fall on you in high** *winds* **or when attempting to fell a snag—use a spotter to watch for falling limbs during felling operations.**
- **Roots on live and dead trees may have burned away and the tree may fall at any time—be alert.**

Stay away from snags until they have been cut down. After felling a snag, open the trunk and extinguish the fire within the trunk.

Qualified to Cut

Felling any snag or live tree is dangerous. Normally, professional sawyers are used to fell large diameter trees. Smaller diameter trees may be felled only by chain saw certified firefighters. Follow your agency's policy regarding sawyer qualifications.

Narration Script: You've got to watch out for snags. Stay away from them until they have been cut down. You won't be able to use a chain saw unless you've been certified by your agency to do so. However, all firefighters should know to safely flag off trees that pose a hazard and keep others away from the snags until a qualified sawyer arrives.

Tree hazards

The main hazard of working around live trees is that they can fall on you.

Be aware of these conditions that can cause live trees to fall:

- **Felling operations**
- **Strong winds and downward** *rotor blast* **from helicopters**
- *Heavy equipment*
- **Fire burning inside live trees**
- **Shallow, exposed, or burned roots**
- **Loose and cracked branches, limbs, and tops**
- **Trees leaning heavily to one side or on the side of steep terrain**
- **Eroded areas around live trees**
- **Insect activity causing disease and decay**

Narration Script: Looks can be deceiving. Even trees that look alive can fall and crush someone. For example, the root systems of trees could be damaged by dozers and graders working in the area. This damage, even though not readily visible can cause trees to fall. Look for any sign of tree instability, such as discoloration and stands of dead and dying trees that might be caused by insect infestations.

Knowledge Check 6

Multiple choice—check the box of the answer(s) you choose.

If a tree falls in the woods, is it on fire? Not necessarily, but falling trees and snags are definitely hazards.

The first thing to do when you have to work around a snag is to

- ☐ **extinguish any fire within the trunk.**
- ☐ **break off all dead limbs that are easily reached from the ground.**
- ☐ **stay away from the snag until it has been cut down.**
- ☐ **expose the tree roots and evaluate for stability.**

The correct answer is stay away from the snag until it has been cut down.

Holes and steep terrain precautions

The surface of the ground in burned-over areas is opaque and often covered with dark gray or black *ash*, making holes in the ground difficult to see during the day and impossible to see at night. Burned out roots and stumps create dangerous voids—stump holes can be deep and virtually impossible to see.

You can be hurt by falling into these holes. Besides the obvious ankle strain or broken bone, these holes can be full of hot ash which could cause severe burns. When you see white ash, probe it with your hand tool first before stepping.

Also, be prepared for the roadblocks that steep terrain will put in your path. Climbing to your assignment over steep terrain can cause physical exhaustion.

Consider the additional hazards you face because of darkness. Darkness can be the result of fighting fires at night, in deeply wooded areas with little daylight, or the lack of visibility caused by heavy smoke.

Darkness is a hazard to you because of:

- **Invisible holes and other hazards in treacherous terrain**
- **Loss of direction and inability to establish location**
- **Inability to find escape routes and safety zones**
- **Losing sight of other crew members**
- **Traffic and moving vehicles or apparatus**

Narration Script: Don't get caught in a trap! Wildland fires can trip you up in many ways. Holes, burned-out voids, and abrupt changes in terrain are difficult to see when you are working in the black—especially if you are wearing goggles in a smoky or dusty environment. And at night these hazards are next to impossible to spot—so you should use your headlamp. If you are

driving in the black, be aware that apparatus also can be damaged if a wheel drops into a deep hole.

Loose rock precautions

We talked earlier about the dangers of objects rolling down hills while fighting fires. Even in burned-over areas, loose rocks can be a danger:

- **You could slip and fall if you step on loose rocks in the black.**
- **Loose rocks on steep hillsides can roll down and strike others.**
- **Large rocks or boulders can roll down and damage fire apparatus.**

Whenever a rock is dislodged and rolling, yell "Rock!" to alert others in the area.

Here are the avoidance tactics if you are dealing with rolling or falling objects:

- **Face the danger and do not move until the danger is seen—you would never do this if the hazard you were facing was an active fire!**
- **Move behind the protection of the nearest large tree or other stable barrier**
- **If suitable protection is not nearby, move into a clear area with maximum upslope visibility—then face the oncoming danger and be prepared to act instantly**

Knowledge Check 7

Matching—select the match you choose from the pull down list.

Working in burned-over areas is not a walk in the park.

Match each hazard with the MOST appropriate safety precaution.

Smoke and embers	Wear shrouds and eye protection when necessary
Snags	Wear shrouds and eye protection when necessary
Holes	Wear shrouds and eye protection when necessary
Loose rock	Wear shrouds and eye protection when necessary

The correct matches are as follows:
Smoke and embers: Wear shrouds and eye protection when necessary
Snags: Stay away until they are down
Holes: Poke the area with a hand tool before stepping
Loose rock: Yell a warning when it becomes dislodged

Tool hazards

The various cutting tools you have to use make your job more dangerous. Obviously, some tools are more dangerous than others, and when you use them or work in close proximity to others who are using them, you have an increased risk of injury.

Lucky for you, most tool hazards are ones you can control—they are subjective hazards. So, if you maintain and use your tools according to the manufacturer's recommendations and accepted practice, they are *not* unsafe to use.

Let's look at safety for two types of tools:
- **Hand tools**
- **Chain saws**

You will investigate each set of safety rules in turn.

Narration Script: We'll continue our safety discussion with tools, covering everything you always wanted to know about hand tool safety and chain saw safety. Let's get it started!

Sharp tools

Hand tools such as axes, Pulaskis, McLeods, and *brush hooks* **should have smooth, well-maintained handles and sharp cutting edges. The two biggest safety concerns for hand tools occur if you don't take proper precautions with the cutting edge or don't carry hand tools properly.**

First, let's talk about the cutting edge. A tool with a sharp blade benefits you because it:
- **Is easier and safer to use than a tool with a dull blade**
- **Cuts more effectively than a dull one**
- **Allows you to use short, sharp cutting strokes**
- **Reduces the need for you to raise a tool above your head**

All these benefits translate into less fatigue when you use the tool. And because fatigue is a leading contributor to fireline accidents, a sharp tool is a safer tool.

Narration Script: Make the proper use and maintenance of your hand tools a priority. If you keep your tools sharp, your job will be easier, and you'll be able to use short, efficient cutting strokes.

Safety carrying tools

Carrying tools can be dangerous business too—if safety precautions are overlooked.

When carrying tools:
- **Hold hand tools at the balance point**
- **Carry hand tools at your side, close to the body, and parallel to the ground**
- **Maintain a distance of at least 10 ft. (3 m) between yourself and other firefighters**

Narration Script: Since fighting fires is dangerous enough, you wouldn't want to accidentally chop off an appendage now, would you? When carrying tools, don't hold the tool's handle on one end or the other, find the balance point, keep the tool close and parallel to the ground when carrying it, and keep your distance from other firefighters or bystanders—especially when swinging tools on the fireline.

Chain saw safety

One of the most useful and potentially dangerous tools available to you is the chain saw. Chain saws are notoriously unforgiving of mistakes.

When you work around chain saws follow these safety rules:

- **Wear hearing protection**
- **Maintain the same distance between firefighters when carrying chain saws as any other tool—at least 10 ft. (3 m)**
- **Maintain a distance from sawyers equal to at least twice the height of the tree being cut**
- **Keep away from the moving chain**
- **Look up, look down, look around**

Knowledge Check 8

Matching—select the match you choose from the pull down list.

Let's see if you were paying attention to our tool talk.

Match each task to the MOST appropriate tool safety guideline.

Working around chain saws	Maintain distance at least twice the height of the tree being cut
Carrying tools	Maintain distance at least twice the height of the tree being cut
Sharpening the blade	Maintain distance at least twice the height of the tree being cut
Using ear protection	Maintain distance at least twice the height of the tree being cut

The correct matches are as follows:
Working around chain saws: Maintain distance at least twice the height of the tree being cut
Carrying tools: Maintain proper distance between firefighters
Sharpening the blade: Cut effectively
Using ear protection: Prevent hearing loss

Electrical safety overview

You may run into situations during wildland fire fighting where there are overhead power lines, especially in the *wildland/urban interface*. You better believe there are safety guidelines to abide by in these situations.

Consider the different types of electrical situations you may encounter while fighting wildland fires:

- **Downed power lines**
- **Fighting fire near power lines**
- **Electrical fences**

You will examine each electrical situation in turn.

Narration Script: From a very young age, we're taught to respect electricity. We don't stick our fingers into electrical plugs or stand in a puddle while operating power gear. As a firefighter, you probably have respect for electricity and then some. Believe us—there is a real danger when working around power lines—downed or not. So, please pay very close attention.

Downed power lines

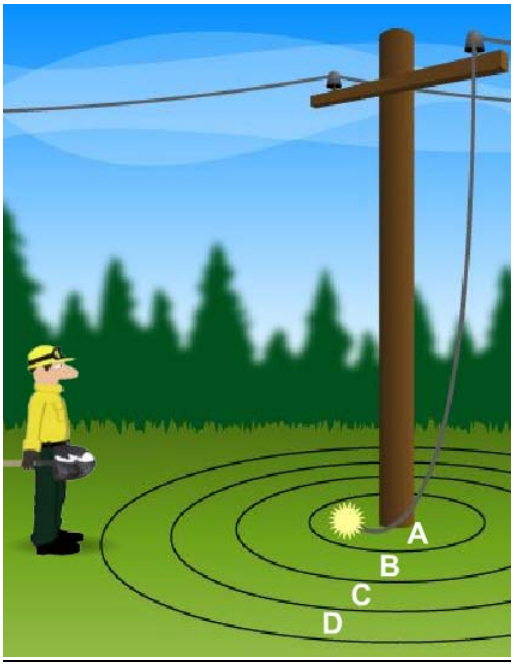
Power lines on the ground are dangerous even if you don't touch them. When an electrical wire is on the ground, current flows in all directions from the point of contact. Voltage drops as the current flows away from that point. This is called *ground gradient*. Depending upon the voltage and other things such as ground moisture, this energy can extend for several feet.

You could be electrocuted by walking into this field because of the differing potentials between each of your feet. Avoid this hazard by staying away from downed wires a distance of at least one span between poles until you know the power is off. When you receive confirmation the power is off, communicate the message to all at the scene.

Warning—Backfeed

Either end of a downed wire can be energized by backfeed. Backfeeding is when electric power flows in the opposite direction that it typically flows.

Narration Script: Downed power lines pose significant danger even if you don't touch them. Keep a considerable distance away from any downed power line until it's confirmed that the power is shut off. Use extreme caution when approaching it because energy can conduct through the ground. Don't even come near it! Don't take chances with a live wire!



Caption: An example of a downed power line hanging from a utility pole.

Downed power lines without fire

When you encounter downed power lines, observe these guidelines:

- **Be on the lookout for danger—heavy smoke might obscure electrical wires that are dangling or on the ground**
- **Assume all lines are energized**
- **Advise communications or dispatch to announce that power lines are down**
- **Control the scene by marking the lines with flagging tape or cones, and make sure everyone stays far away**
- **Call for the power provider to respond**

Realize that even after power provider intervention, deactivated power lines can continue to be hazardous because automatic controls may be programmed to periodically reenergize them in an attempt to restore service.

Narration Script: Even when there is no fire, take precautions. First, you may not see the danger—you have to look for it. And when you see the danger, always assume the wire is hot, inform dispatch, control the scene, and contact the power provider. Only after you've confirmed the power is off will it be safe to approach the area. However, be aware the power may start surging again when you least expect it.

Electrical conduction

One more danger of fallen power lines—if an energized electrical line falls across a metal fence or guardrail, the entire length (as long as it is continuous) can become charged. This makes controlling the scene difficult because of the length of some fences.

Also, never park engines and mechanized equipment under power lines because they can become energized in the same way.

Attacking fire near downed power lines

It is common for energized electrical wires to start fires when they fall into dry grass. The distance the fire has burned from the downed line will determine how you will attack the fire:

- **If the fire has spread away from the downed lines a distance equal to one span between poles or towers, fight the fire just like any other wildland fire**
- **If the fire has not yet burned that far from the downed wire, delay the attack until the fire has burned the span distance**

In other words, you can safely work around the power lines whenever you can operate *at least one span distance* from them.

Narration Script: When you have a downed power line out in the wildland, it's probably not long before you have a fire too. Downed wires pose a hazard anytime. But the hazard is especially great when the wire starts a fire or is in the middle of an active fire.

Active wildland fires and power lines

Take precautions whenever you see power lines in or near a wildland fire. Even if lines haven't fallen, it is still possible that you could be electrocuted because high brush and small trees under power lines can cause a phase-to-ground short.

When encountering power lines within an active fire:

- **Communicate the power line situation**
- **Extinguish the fire with caution**

Read the following to learn more.

Communicate the Power Line Situation

- **Notify all incoming units**
- **Warn all incoming aircraft of poles or transmission towers**

Extinguish the Fire with Caution

- **Construct a control line around the fire a distance equal to one span from the power lines**
- **Use fog streams to extinguish the fire once the fire has spread away from the point of contact—don't use solid fire streams because they are conductive!**
- **Never direct water streams or aerial retardant onto high-tension lines**

- **Work from the uphill side of the fire to avoid water runoff (which can conduct current), but never work the slope directly above the fire**
- **Use fire apparatus to move equipment and firefighters around the scene or to apply water to wet the control line**

Narration Script: Power lines around active fires, even if they are not down, pose a danger of electrocution. So the message here is communication. All units and incoming aircraft need to know where power line poles or transmission towers are located. Establish control lines, use fog streams on the uphill side, and use your apparatus and resources wisely.

Power line do's

Let's finish this discussion about fire fighting near power lines with a general summary of do's and don'ts.

First the DO's:

- **DO identify, map, and discuss at briefings all electrical lines in the** *incident* **area**
- **DO announce "*power line down*" to alert personnel if a line falls, and make sure that all acknowledge the announcement by repeating it back**
- **DO notify communications or dispatch so rebroadcast can be made to responding units**

Power line don'ts

Now, even if a line is not down, here are some DON'Ts:

- **DON'T operate heavy equipment under power lines**
- **DON'T drive vehicles with long antennas under power lines**
- **DON'T stand or work in dense smoke anywhere near power lines—smoke may become charged and conduct electrical current**
- **DON'T refuel vehicles under power lines**
- **DON'T direct fire** *retardant drops* **onto power lines**
- **DON'T stand near power lines during retardant drops**

Downed power line don'ts

When, the line goes down—get smart! Here are some more DON'Ts:

- **DON'T go near or attempt to move downed power lines**
- **DON'T leave a vehicle if a power line falls on it until the power company deactivates the line; if you must exit the vehicle because it is on fire or fire is approaching, jump well clear of the vehicle and hop away with your feet together**

Electric fences

Electric fences are usually for confining livestock. Manufactured systems operate at very low amperage and are not a safety hazard to you—unless the system has been altered.

Homemade systems may use enough amperage to be harmful to you. Because you can never be sure what type of system you are dealing with, assume that any electric fence is dangerous.

When working around electric fences:

- **De-energize the fences by turning off the power supply, but make sure the animals don't get out—otherwise you may cause another safety hazard**
- **Use only fog streams near the wires**

Narration Script: Avoid being zapped by an electric fence by turning off its power supply and not directing solid fire streams on the fence. But in the process, make sure any animals in the fence can't get out and cause another safety hazard.

Knowledge Check 9

Multiple choice—check the box of the answer(s) you choose.

Have you been electrified by this electrical discussion?

Why is a deactivated power line dangerous?

- ☐ **Automatic controls may be programmed to periodically reenergize it in an attempt to restore service.**
- ☐ **There could be lag time after you receive confirmation from the power company before power goes off.**
- ☐ **Heavy smoke from a fire can obscure them from view.**
- ☐ **Transmission towers can interfere and provide power to the power lines.**

The correct answer is automatic controls may be programmed to periodically reenergize it in an attempt to restore service.

Backfiring and burning-out safety

Backfiring **and** *burning out* **are really means to start fires to** *control* **a larger fire.** *Backfires* **are used as a means to attack very intense fires. Burning out is used to widen a control line by eliminating unburned fuels between the control line and the advancing** *fire front***.**

Look at the safety tips for backfiring and burning out from these perspectives:

- **Overall safety for firing operations**
- **Backfiring safety**

You will investigate each safety concern in order.

Narration Script: Starting fires to control a larger fire is dangerous business, so safety is of the utmost concern. Let's break down backfire and burning-out safety into three discussion points—overall personnel safety, firing team safety, and firing operations safety.

Overall safety for firing operations

Whether backfiring or burning out, supervisors need to:

- **Ensure an adequate number of skilled people and supervisors are assigned to the firing team, based primarily on the size of the area to be** *contained*
- **Maintain constant radio communications with adjacent forces**
- **Clearly identify escape routes and safety zones before starting operations**
- **Assign personnel to monitor and secure the area behind the drip torch operator to look for** *spot fires* **that might trap crews or compromise the** *control line*
- **Use the chain of command before continuing if firing is not igniting all available fuel along the control line**
- **Stop or modify firing if it becomes too intense for crews to** *control***, and do not resume firing until intensity diminishes and you regain control**

Narration Script: It may be advantageous or necessary to backfire or burn out certain areas during a fire. Regardless of the purpose and the tactic chosen, certain basic safety procedures apply to both backfiring and burning-out operations because any additional fire may increase the risk to life and property.

Backfiring safety

Let's get more specific with safety for backfiring teams. Supervisors should keep these guidelines in mind:

- **Establish an** *anchor point* **from which backfiring operations are both initiated and terminated**
- **Assign personnel to backfiring operations only if they are trained and authorized by the IC or Operations Section Chief**
- **Use only certified aircraft and approved equipment when backfiring with** *aerial ignition* **devices**

Narration Script: When you are working near backfiring teams, for your safety and the safety of others, you'd better know what's involved in these techniques.

Knowledge Check 10

Multiple choice—check the box of the answer(s) you choose.

Do you know about firing team safety?

Identify THREE true statements about performing firing operations safely.

- ☐ **Hand signal communication must be maintained with adjacent forces.**
- ☐ **Personnel must be assigned to monitor and secure the area behind the drip torch.**
- ☐ **Firing operations should continue until firefighters reach the anchor point.**
- ☐ **Operators should be on the lookout for spot fires.**
- ☐ **Escape routes and safety zones must be established after firing operations.**
- ☐ **Backfiring operations must be initiated and terminated from an anchor point.**

The correct answers are personnel must be assigned to monitor and secure the area behind the drip torch, operators should be on the lookout for spot fires, and backfiring operations must be initiated and terminated from an anchor point.

Weather and wind

Turn your attention now to hazards related to the weather—starting with wind.

Unexpected or erratic winds are one of the most important weather-related elements affecting wildland *fire behavior*. In fact, winds are the most variable and the least predictable of all the factors. Wind intensifies combustion by increasing the amount of oxygen available to the fire. Wind also works to dry out fuels, making them ignite more easily.

Be on the lookout for:

- **Wind speed and direction changes**
- **Sudden whirlwinds**

Read the following to catch up with the wind.

Wind Speed and Direction

The rate and direction of the fire's spread are mostly functions of wind speed and direction. Because wind speed and direction can change rapidly, wind-induced fire behavior can also change rapidly.

Look for:

- **Approaching thunderheads with dark clouds beneath**
- **Increased spotting**
- **Sudden calm or changes in speed or direction**
- **High clouds moving fast in a direction different from surface wind**

Sudden Whirlwinds

Even after a fire is under control, sudden whirlwinds or dust devils may stir up clouds of particulates from smoldering stumps and other materials. These tiny dust particles will fly into your eyes, nose, and mouth.

Narration Script: Had enough of all the hazards on the fireline? Well, we've got a few to go. Now we turn our attention to the weather, including winds, temperature, and humidity changes. Winds are an important factor affecting wildland fire behavior because they are the most variable and the least predictable. That would make them an objective hazard, right? Changes in wind speed and direction may change fire behavior.

Relative humidity and high temperature

Weather factors such as low *relative humidity* **and high temperatures can also be hazards in the wildland environment.**

- **High temperatures—the higher the temperature, the higher the temperature of wildland fuels. Heated fuels ignite and burn much easier than those at lower temperatures. The higher the temperature, the more likely the hazard.**
- **Low relative humidity—if the relative humidity is high, the air adds moisture to fuels, making them less likely to ignite. On the other hand, if the relative humidity is low, the air removes moisture from fuels, making them more likely to ignite. The drier the wildland fuels, the more likely the hazard.**

Biological hazards

How much do you know about the kinds of plants and animals in the area where you'll be fighting fires? Many people don't think of plants and animals as hazards of wildland fire fighting, but in reality Mother Nature does her share of providing biological hazards out there. And don't forget about heat-related illnesses. They can trip you up faster than anything!

Here are some of the biological hazards to look for.

- **Heat-related illness**
- **Snakes**
- **Insects**
- **Animals**
- **Plants**
- **Microorganisms**
- **Viral infections**

Read the following to learn about the hazards.

Heat-Related Illness

You are very vulnerable to heat-related problems because of the heat and humidity extremes you have to work in. The heat-related hazards you will face are:

- **Heat cramps—painful muscle cramps in the legs and abdomen caused by loss of salt in perspiration**
- **Heat exhaustion—general weakness and fatigue, cool and clammy skin, unstable gait, and possible fainting**
- **Heat stroke—a life-threatening emergency caused by the total collapse of the body's temperature-regulating system**
- **Hypothermia—lower than normal body temperature from exposure to cold that can lead to unconsciousness and death**

Snakes

Wherever your duties take you, be aware of the kinds of poisonous snakes that might be there. North America is home to four kinds of poisonous snakes:

- **Rattle snakes**
- **Copperheads**
- **Cottonmouth moccasins**
- **Coral snakes**

Insects

Several types of insects can harm you in the wildland environment:

- **Bees, wasps, and hornets—have nests in trees and snags**
- **Wood ticks and deer ticks—can transmit Lyme disease and Rocky Mountain spotted fever**
- **Spiders—deliver nasty bites**
- **Mosquitoes—some species transmit West Nile disease**

Animals

Bears, mountain lions, lynx, and other predators will not usually attack humans. However, anything can happen under the stress of a wildfire, especially when the animals are frightened and fleeing the fire. For example, a fleeing bull moose could kill you if it runs over you. Or running into a porcupine would not be a pleasant experience. Be aware of what types of wildlife inhabit the area you're assigned to. If you don't know—ask.

Plants

Direct contact with poison ivy, poison oak, and poison sumac is bad enough. But what about breathing smoke from burning poisonous plants? That can create a very serious health situation. Additional plant hazards to look for are trees and shrubs with long, sharp needles and thorns. OUCH!

Microorganisms

Fighting fires is hot, exhausting work. You might be tempted to take a drink from a clear, bubbling stream or refill your canteen from a cold mountain creek. STOP! Get fresh water from the proper sources or from base camp.

Microorganisms such as giardia are rampant in almost all lakes and streams in North America. Giardia and other parasitic organisms can really do a job on your digestive system and require months for recovery.

Viral Infections

It's almost impossible to completely avoid others who might have viral infections. However, if someone is obviously sick or known to be contagious, try to avoid personal contact. Wash your hands frequently and consider hand sanitizer as an optional item to pack in your gear bag.

Also, going to work on the fireline with a bad cold or flu may not be a good idea either. The work will be more difficult, you run the risk of infecting others in your crew, and inhaling smoke and other airborne particles won't do an infected respiratory system one bit of good.

Narration Script: Mother Nature can pose many hazards to firefighters. Look for plants, animals, and insects that may be harmful. Stay away from water that might contain giardia, and try to avoid people with colds and flu. Fighting wildland fires if you're sick is no picnic.

Human-related hazards

The fireline environment isn't the only hazard you face. The human factor enters into the picture as well. The human-related hazards you might face include:

- **Attitudes**
- **Physical condition**
- **Experience and training level**
- **Fatigue**
- **Critical stress**

Read the following to understand how "being human" could become a hazard.

Attitudes

Poor morale, overconfidence, fear, and other emotions and attitudes can be hazards on the fireline. For example, fear can cause a firefighter to freeze in particularly difficult situations. Likewise, overconfidence can cause firefighters to take risks that endanger themselves and others. When you work in the wildland/urban interface, you may even have to deal with homeowners and residents who are fearful or panicked.

Physical Condition

To perform the tough work of fire fighting, you must be in good physical condition. Firefighters typically work 12- to 24-hour shifts. Working in high temperatures and sometimes at high elevations where there is less oxygen available adds to the hazards that already exist in the fire environment. Besides taking necessary precautions, being in good shape will help you avoid heat-related hazards such as heat exhaustion.

Experience Level

The more experienced you are, the more you should be able to recognize hazards in the fire fighting environment. Until you become an experienced wildland firefighter, make sure that you don't make the mistake of disregarding instructions from your supervisor and the more experienced firefighters on your crew. Likewise, the quantity and quality of the training you receive should affect your ability to recognize and handle fireline hazards.

Fatigue

Hard work over extended periods of time can cause fatigue. Did you know that fatigue and sleep deprivation can produce the same physical symptoms and impaired judgment as would a level of alcohol intoxication above the legal limits in most states?

Critical Stress

Stress caused from a critical incident, such as firefighter or civilian deaths and injuries can have a negative influence on the fire fighting effort. Morale can suffer and firefighters may get inattentive to safety procedures. When a critical incident occurs, Command will evaluate the need for a critical incident stress debriefing (CISD).

Narration Script: Fire hazards aren't your only worry. Many human-caused hazards also exist when you are working an incident. To stay safe, don't overlook poor attitudes, low levels of experience and training, poor physical conditioning, and fatigue.

Base camp precautions

At *base camp***, the logistics section is usually in charge of facilities including accommodations for:**

- **Sleeping**
- **Sanitation**
- **Food handling**

Read the following to learn about the precautions to take.

Sleeping Areas

Areas set aside for firefighters to catch some shut-eye should never be anywhere near the fire. The logistics section chief will anticipate the "worst-case" scenario and place your base camp at a safe distance from the fire. This will ensure base camp will not be threatened even if conditions change. Also, since some crews will be sleeping during daylight hours, sleeping areas will usually be located in the shade.

Sanitation

Showers, hand washing, and toilet facilities need to be set up so they do not pollute the environment. Plans for treating wastewater or hauling it away for later treatment must be in place. Your job is to maintain your personal hygiene so that you don't get sick or get others sick.

Food Handling

Firefighters need to consume between 6,000 and 7,000 calories per day and drink a lot of water and sports drinks to prevent dehydration. All food and beverages must be kept at safe temperatures and handled according to safe food-handling practices. An outbreak of food poisoning could endanger the whole response.

Narration Script: You would think that once you leave the wildland fire environment, you wouldn't have to worry about a thing, right? Not so. Even at base camp, you have a few things to think about!

Final hazards

Safety on the fireline also means dealing with the following miscellaneous hazards. We will mention them here, but look for complete coverage of these serious hazards in later modules of this course.

Keep these final hazards in mind:
- **Vehicles, traffic, and equipment**
- **Aircraft**
- **Hazardous materials**

Read the following to get a summary of each hazard.

Vehicles, Traffic, and Equipment Hazards

All types of apparatus are used in fighting wildland fires. These vehicles pose a number of hazards if safe operating procedures are not followed. Among the hazards to consider are:
- **Injuries from unsafe operation of a vehicle**
- **Mechanical failure of brake systems if vehicles aren't properly maintained**

- **Burns from equipment that heats up such as mufflers on apparatus, engines on pumps, chain saws, and firing devices**
- **Noise at hearing-impairment levels from engines, chain saws, and other equipment**
- **Foreign objects and moving parts being thrown from breakdowns on motorized equipment**
- **Shifting cargo on steep terrain**

Look for complete coverage of these hazards and associated safety procedures in the Transportation Safety Module.

Aircraft Hazards

You can't ignore the hazards that accompany aircraft used for fire fighting. Those working on the fireline and in and around operating aircraft must know the possible hazards and follow safety procedures to avoid the hazards.

You'll need to know the hazards of working in or around:
- **Helicopters—rotor hazards areas, effects of rotor wash**
- **Fixed-wing aircraft—propeller hazard areas**
- **Drop zones—sling loads and water, retardant, or supply drops**

We'll cover the hazards and related safety procedures for each of these situations in the Transportation Safety Module.

Hazardous Materials

While no one wants to believe that it could be true, you could encounter hazardous materials during a wildland fire, especially in the wildland/urban interface. This could include:
- **Fuel storage tanks, such as aboveground gasoline and diesel tanks, safety cans, and fuel tanks on vehicles and machinery**
- **Propane tanks**
- **Chemicals, such as fertilizers and pesticides**
- **Paints**
- **Explosives, such as dynamite, blasting caps, and ammunition**

Look for complete coverage of these hazards and associated safety procedures in the Hazardous Materials Module.

Narration Script: Wow, we are getting close—but we are not done yet. Here are a few more hazards to consider. We mention them near the end, not because they are not that hazardous, but because they are so hazardous that we will cover them more in depth in later modules.

Knowledge Check 11

Matching—select the match you choose from the pull down list.

Can you stack the hazard deck in your favor?

Match each hazard with the MOST appropriate step to control or avoid it.

Heat-related illness	Attend CISD
Lack of experience	Attend CISD
Impaired judgment	Attend CISD
Critical incident stress	Attend CISD
Sickness	Attend CISD

The correct matches are as follows:
Heat-related illness: Get in good shape
Lack of experience: Follow instructions from your supervisor
Impaired judgment: Avoid fatigue and sleep deprivation
Critical incident stress: Attend CISD
Sickness: Maintain your personal hygiene

Fireline safety conclusion

Now that you are armed with the knowledge of hazards you will face, know that safety starts with you! In this topic, we have emphasized safety during the entire incident.

And because you know these safety procedures, you have three obligations:

- **Closely follow fireline safety procedures**
- **Bring ANY safety concerns to the attention of your supervisor**
- **Turn down an assignment that involves undue risk and for which an alternative solution cannot be negotiated**

The safety and survival of everyone working the fireline depends on your looking out for yourself and each member of your crew.

Narration Script: Know that safety starts with you! It is NOT someone else's job—it's yours! You have an obligation to yourself to closely follow the safety procedures we have discussed. Know also that you have both a right and an obligation to bring ANY safety concerns to the attention of your supervisor. Your supervisor, likewise, has an obligation to give your concerns serious consideration.

You also have the right to turn down an assignment that involves undue risk and for which an alternative solution cannot be negotiated. So, control the situations you can control and avoid the hazards you cannot control. Put your safety first along with the safety of each member of your crew.

Topic 4: Risk Management Process

Topic introduction

Fighting wildland fires for a living involves a certain amount of risk. As a novice firefighter, you have a professional responsibility to begin learning and understanding the risks you will encounter. How you *manage* risk can be the difference between good days on the *fireline* and significantly bad ones.

This topic touches on the risk management process and presents a five-step checklist designed to get you thinking about working smarter and safer when you're out on a call.

Narration Script: The wildland fire fighting business can be risky, so you'll need some proven steps to help manage risk before you begin the hard work of putting out fires. This topic describes a five-step process designed to get your mind working before you hit the road to fight the good fight.

Risk management

To protect yourself and others, you need to know how to identify and manage the risks that you face. Even the most seasoned professionals make it a habit as part of their risk management process to review the Incident Response Pocket Guide (IRPG) before attacking any fire.

If you've gone through this course in order, then you have already had a good look at the 18 "Watch-out!" situations, the 10 Standard Fire Fighting Orders, LCES, and the common denominators of *fire behavior* on tragedy fires. The risk management process is a set of steps for applying these "remember and follow rules" to every incident. All of these guidelines should only be as far away as the IRPG you carry in your pocket.

Narration Script: Don't risk your life and the lives of your co-workers by not recognizing the importance of using the risk management process EVERY time you're on the job. Even the most seasoned professionals make it a consistent habit to consult their IRPGs and review the risk management process before the actual fire attack begins.

Five-step risk management process

It's risky business not knowing how to manage the risks that go along with your job as a firefighter. You might think of it as playing Russian roulette, only in your case the smoking gun is a wildland fire.

Let's examine the five steps in the risk management process:
Step 1—Situation awareness
Step 2—Hazard assessment
Step 3—Hazard control
Step 4—Decision point
Step 5—Evaluate

You will investigate each step in the risk management process in order.

Narration Script: The risk management process is a set of five steps that will help you analyze the situations you find yourself in when you are fighting a wildland fire. Applying the process is a MUST DO for every firefighter—beginner and expert alike. The risk management process involves having situational awareness, assessing hazards, controlling hazards, making decisions, and evaluating decisions and situations.

Situation awareness

Step 1 of the risk management process is being AWARE of the situation you're going to be working in. When it comes to managing risk in wildland fire fighting, *never* go on an assignment without being aware of what you're getting into.

Before you begin any assignment, make sure you receive the following specific information from your supervisor:

- **Objectives—know your assignment and the reasons behind it**
- **Communications—be familiar with the incident communication plan and lines of communication**
- **Who is in charge—know the leadership structure and chain of command**
- **Previous fire behavior—learn about previous fires in the area**
- **Weather forecast—access local resources, and stay on top of changes**
- **Local factors—talk with the "locals" to learn important details about the incident location**

Narration Script: Step 1 of the risk management process is built on the concept of situational awareness. Help manage your risk by running down a checklist of the specific information you need to know before beginning an assignment. Consult your IRPG for suggested information you need when you arrive at a fire.

Hazard assessment

Step 2 of the risk management process is hazard ASSESSMENT.

As a beginning firefighter, you have the professional responsibility to begin to learn how to identify hazards. As your expertise grows, you will become more and more skilled at assessing hazards. To help you with this responsibility:

- **Estimate the potential fire behavior hazards—use the look up, down, and around indicators**
- **Identify any tactical hazards—use the 18 "Watch-out!" situations**
- **Determine if any other safety hazards exist—make sure you have gone through the Hazards on the Fireline Topic**
- **Consider severity versus probability—do not attempt actions that have significant risks for little benefit**

In the field, use the hazard assessment checklist in your IRPG.

Hazard control

When it comes to fighting wildland fires, it's great to be a control freak! In fact, Step 3 of the risk management process is hazard CONTROL.

Just as there are rules of engagement for doing battle, there are rules of engagement on the fireline. These rules provide the primary hazard control mechanisms for all operations on the fireline. You already know these hazard control tools as the 10 Standard Fire Fighting Orders.

There are also four key operational components of the standard fire fighting orders that must always be in place when you work on the fireline. If you've studied the Watch Out and LCES Module of this course, you've already learned these four components as LCES:

- *Lookouts*
- **Communications**
- **Escape routes**
- **Safety zones**

Narration Script: Go ahead and be a control freak! Step 3 of the risk management process is controlling hazards. Resources you can consult are the Standard Fire Fighting Orders and LCES.

Decision point

Step 4 is the DECISION point. However, since you won't be making tactical decisions right away, look at Step 4 as your time to ask questions.

By applying the previous risk management steps, you should already be aware of the incident's hazards, but use these questions at the decision point to know how to respond to these hazards:

- **Are controls in place for identified hazards?**
- **Are selected** *tactics* **based on expected fire behavior?**
- **Have instructions been given and understood?**

If you're still unsure or you remain concerned about your safety, be persistent and communicate with your supervisor. Do not initiate any action until you can answer yes to each of these three questions. Questions for your own knowledge can be asked at the after-action review or post-fire critique.

Narration Script: Step four is about making decisions, but since you won't be doing that until you have a bit more experience and knowledge under your belt, start by asking questions that will hopefully improve your decision-making skills in the future. Your safety and that of your fellow crew members is at stake, so always ask questions about decisions you don't understand. You should always fully understand the task you've been asked to perform, the known hazards, the location of the safety zone, and escape routes to get there.

Evaluate

Step 5 of the risk management process is to EVALUATE. You and your supervisor, as well as the others on your *crew*, have the responsibility to continually evaluate risks presented by human factors and the situation itself.

Regarding human factors, determine if performance of any individual or crew is negatively influenced by:

- **Low experience levels**
- **Distractions from primary tasks**
- **Fatigue or stress reactions**
- **Unsafe or hazardous attitudes**

When evaluating the situation itself, ask:

- **What aspects of the situation are changing?**
- **Are *strategies* and tactics working?**

Continual evaluation of human factors, situations, and previous decisions help keep you out of harm's way.

Narration Script: Evaluating the situation and the decisions that have been made is an ongoing aspect of the risk management process. The fire, your working location, and firefighters' level of mental and physical awareness are always changing during an incident so you need to stop and reassess the big picture.

Knowledge Check 12

Sequencing—select the number from the pull down list to put the items in the correct sequence.

We just ran you through the five-step risk management process.

Place each step in the risk management process in the correct order.

Evaluate	5
Hazard control	5
Decision point	5
Situation awareness	5
Hazard assessment	5

The correct order is as follows:
Situation awareness
Hazard assessment
Hazard control
Decision point
Evaluate

SAFENET

The risk management process requires you to take your responsibility to ask questions and evaluate situations seriously. To help you out, here are a few more tools. Since risk management is your job, there is a mechanism for you to document a safety concern or report a close call. It is called SAFENET and it is endorsed by Federal land management agencies.

SAFENET is intended to provide:

- **A way to immediately report and correct unsafe situations or unacceptable risks in a wildland fire**
- **A means of sharing safety information throughout the fire community**
- **Long-term data that will assist in identifying trends**

Narration Script: You have both a right and an obligation to report safety problems to your supervisor and contribute ideas regarding your safety. This can be done by submitting a SAFENET form.

How to use SAFENET

SAFENET is designed to address safety needs at the operational level but may result in changes that affect the entire fire fighting community.

When you complete this form, you may submit it to your immediate supervisor, the *safety officer* (SO), or the *incident commander* (IC). You can also submit it to the National Interagency Fire Center (NIFC) at http://safenet.nifc.gov/safenet.nsf, or by mail to:
SAFENET
P.O. Box 16645
Boise, ID 83715-9750

Once a form is submitted, copies are delivered to the:

- **Person responsible for safety on the unit**
- **Regional or state fire safety officer**
- **National database at the NIFC**

Check out a copy of the SAFENET form in the resources accompanying this course.

You can file a SAFENET form anonymously, but if you sign your name, you'll get an answer to your concerns. Filling out a SAFENET form should take you no more than about 10 minutes, and that 10 minutes may save a firefighter's life.

Turndown

We wrap up our risk management discussion with one of the most important concepts in the fire service. You can "turn down" an unsafe assignment—in fact, it can be argued that you have a responsibility to do so. A turndown (also called *refusal of risk*) is a situation where an individual firefighter or supervisor has decided that he or she cannot carry out an assignment as given *and* is unable to negotiate an alternative solution.

Individual firefighters or supervisors may turn down an assignment when:

- **There is a clear violation of written safe work practices.**
- **Environmental conditions clearly make the work unsafe.**
- **They lack the necessary qualifications or experience.**
- **Defective equipment is being used.**

Narration Script: Regardless of whether you choose to use the SAFENET system, you also need to know that you can turn down an unsafe assignment. However, there are specific criteria for taking this action. Make a reasonable assessment of risks before turning down an assignment. You might use the "10 Standard Fire Fighting Orders" or the 18 "Watch-out!" situations to base your judgment on. And while it is important to maintain the chain of command, don't be afraid to speak out when your gut tells you something is not right. It could save someone's life.

Turndown procedures

If you turn down an assignment, it is best to document the turndown by following guidelines found in the IRPG. Your supervisor is obliged to give your expressed concerns and ideas serious consideration. If an alternative way of completing the assignment cannot be found, your supervisor will immediately notify the safety officer of the turndown. If there is no safety officer, the notification must be passed on to the appropriate Section

Chief or to the IC. If your supervisor asks another resource to perform the assignment, he or she must inform the new resource that you turned down the assignment and the reasons for the turndown. If an unresolved safety hazard still exists after following the IRPG guidelines, document the turndown by submitting a SAFENET form in a timely manner.

Narration Script: If you decide to turn down an assignment, inform your supervisor directly that you're turning down the assignment as given and explain why. Handle the turndown according to the incident command system.

Knowledge Check 13

Multiple choice—check the box of the answer(s) you choose.

Take responsibility for your own safety!

Identify THREE situations when you may turn down an assignment.

- ☐ **There is a clear violation of written safe work practices.**
- ☐ **Your supervisor is being too demanding.**
- ☐ **Environmental conditions clearly make the work unsafe.**
- ☐ **You have "a bad feeling about this one."**
- ☐ **Defective equipment is being used.**

The correct answers are there is a clear violation of written safe work practices, environmental conditions clearly make the work unsafe, and defective equipment is being used.

Topic summary

The five-step risk management process is a valuable tool that even the most seasoned wildland firefighters use.

The five steps we discussed are:
Step 1—Situation awareness
Step 2—Hazard assessment
Step 3—Hazard control
Step 4—Decision point
Step 5—Evaluate

Though you might be new to wildland fire fighting, it's your responsibility to begin to understand the risks you will encounter in your work environment. Building your risk management expertise will help you stay safe and effective on the fireline.

Narration Script: File this five-step risk management process in the forefront of your memory. Of course, a good back-up plan is to read and re-read your IRPG before, during, and even after a wildland response.

Topic 5: Teamwork

Teamwork introduction

The very nature of your job as a wildland firefighter requires that you and your fellow firefighters work together as a team to control wildland fires, work safely, and protect each other from injury.

Narration Script: There's nothing quite like the comforting thought that someone out there "has your back." The reality is that ALL fire personnel have the obligation to work as a team, focusing on the goal of containing wildland fires, working safely, and protecting themselves and others from injury.

Teamwork

Babe Ruth said, "The way a team plays as a whole determines its success. You may have the greatest bunch of individual stars in the world, but if they don't play together, the club won't be worth a dime."

Being a team player means taking these key points to heart:

- **Fire fighting is not an individual undertaking.**
- **Team unity is one of the foundations of safe and effective fire fighting.**
- **Success is a measure of each member's participation.**
- **Participation is based on having a good attitude, a willingness to learn, and a willingness to get along and work together with others.**
- **Good team members help each other and look out for each other's safety.**

Narration Script: You may be a great firefighter, but without the support of incident command, finance, communications, ops, and your co-workers, you have zero chance of scoring a victory against a fire. When it comes to wildland fire fighting, the whole team is greater than its individual members. Safe and successful fire fighting depends on buying into the team concept.

Characteristics of successful teams

Think about some teams you've been on. Maybe you've played in a softball league, on your high school or college football team, or even been part of a production team in an office.

No matter what type of team you've been on, certain characteristics define successful teams:

- **Continuous and effective communication**
- **Continual experimentation to improve performance**
- **High performance from team members and leaders**
- **Needs of the team before the needs of individuals**
- **Cohesion among team members**

Read the following for more information on each successful team characteristic.

Continuous and Effective Communication

Learn all you can about becoming a good communicator. Be an active listener, ask questions, and repeat back what you understood your leader or team member said. Always stay in contact with your leader and other team members. That contact will improve your performance and increase your team's effectiveness.

Continual Experimentation to Improve Performance

You've no doubt heard the old adage "Practice makes perfect." And when it comes to working as a team to fight wildland fires, nothing could be truer. For example, there's no such thing as too much practice when it comes to knowing how to deploy a fire shelter. You may only have seconds to do so. And, what about those hand tools? Become an expert at using your McLeod or Pulaski.

High Performance from Team Members and Leaders

Imagine you're about to go out with apparatus to fight a wildland fire and you notice your co-workers aren't equipped with fire shelters. Even as a novice or relatively new firefighter, you have the responsibility to question potentially dangerous activities and scenarios. Quality leaders have the unique skill of listening to all team members' concerns.

Needs of the Team Before the Needs of Individuals

It's a given that your team is made up of individuals, but you have to work together to be a safe and proficient team. Green Bay Packers coach Vince Lombardi said it well: "Individual commitment to a group effort—that is what makes a team work, a company work, a society work, a civilization work."

Cohesion Among Team Members

If your team has practiced together long enough, all members should be able to work together as a cohesive unit. Keeping a sport's analogy, professional teams know where their players are at all times. Work to build the cohesiveness on your team by consistently attending all required training and crew meetings, and keeping your gear and your body fit and ready for duty when the time comes.

Narration Script: There are five characteristics of successful teams, whether they are sports teams or fire fighting teams. Contribute to the success of your team by demonstrating your commitment to all five of these factors.

Characteristics of unsuccessful teams

You have a pretty good idea of the characteristics you'll find in every successful team, whether that team is on the scrimmage line or on the fireline. However, there are two sides to every coin.

When a team becomes unsuccessful, chances are you'll find one or more of these characteristics in play:

- **Deteriorating effectiveness of communication**
- **Developing attitudes or conflicts that cause members to take sides**
- **Demonstrating a poor work ethic**
- **Disrespecting other team members**
- **Failing to strive for improved performance**
- **Failing to learn new tasks**
- **Blaming others for poor performance**
- **Putting individual needs before team needs**

Knowledge Check 14

Multiple choice—check the box of the answer(s) you choose.

Let's see if you've been a team player in this topic and have paid attention.

What are THREE characteristics of successful teams?

- ☐ **High performance is expected from team members and team leaders.**
- ☐ **The needs of the team come before the needs of individuals.**
- ☐ **Team members put their needs first.**
- ☐ **The team uses continuous and effective communication.**
- ☐ **Team leaders are responsible for lack of high performance.**

The correct answers are the needs of the team come before the needs of individuals, the team uses continuous and effective communication, and high performance is expected from team members and team leaders.

Importance of teamwork

Joe Paterno, the famous head coach at Penn State, said this about teamwork: "When a team outgrows individual performance and learns team confidence, excellence becomes a reality."

Why is teamwork so important? The wildland fire—your opponent—is a threat not only to the property and wildlands your team is defending, but also to the safety of you and your co-workers.

Fire fighting teamwork is important because:

- **A *crew* is only as strong as its weakest member.**
- **Individual team members cannot know all the hazards in the work environment.**
- **Individuals by themselves cannot accomplish most large tasks that are assigned to a crew.**
- **Good teamwork goes hand in hand with good communication.**

Narration Script: Your team is only as strong as its weakest member. Therefore, you and your fellow team members must depend on one another to avoid the hazards found in your work environment. Most of the tasks your team must perform will require more than just you. So, good communication and good teamwork go hand in hand.

Successful team players

You're responsible for your own personal actions, but they play an integral role in the success of your team. Unlike other teams you may have been on, this factor is critical because of the dangerous environment you're working in.

There are 10 guidelines that will help you become the best team player you can be. For additional information and valuable resources, visit the Leadership Toolbox at http://www.fireleadership.gov**.**

You will examine each guideline in turn. Also, we've included a checklist for becoming an effective team player.

Narration Script: Each firefighter's actions can determine the success of the team. This factor is especially important in fire fighting because of the risks of your work environment.

Checklist for Becoming an Effective Team Player

(Ask your leader and other team members for feedback to help you assess your proficiency in each of these guideline areas.)

Guideline	I am a beginner in this guideline area.	I have improved in this guideline area.	I am proficient in this guideline area.
1. Know yourself and seek improvement.			
2. Be technically and tactically proficient.			
3. Comply with orders and initiate appropriate actions in the absence of orders.			
4. Develop a sense of responsibility and take responsibility for your actions.			
5. Make sound and timely decisions and recommendations.			
6. Set an example for others.			
7. Be familiar with your leader and his job and anticipate his requirements.			
8. Keep your leader informed.			
9. Understand the task and ethically accomplish it.			
10. Be a team member but not a “Yes” person.			

Team guidelines 1 and 2

The guidelines for becoming a great team player begin with these two tasks:

- ***Know yourself and seek improvement*—it is your responsibility to know what tasks you already do well and what tasks you need to work on. Successful teams consist of players who consistently seek improvement in the field.**

- ***Be technically and tactically proficient*—consistently work toward reducing errors by knowing how to correctly perform necessary duties. Make it a point to understand how wildland fires behave, what *fuel* conditions to look for, how weather conditions will alter situations and events, and all other factors affecting the success of your team.**

Narration Script: To become a good team player, these two guidelines will help—seek self-improvement and become technically and tactically proficient.

Guidelines 3 and 4

Knowing yourself and becoming technically and tactically proficient are just the start of how to become a good team player. Two additional guidelines are:

- ***Comply with orders and initiate appropriate actions in the absence of orders*—make it a point to understand the intent of your assignment. If you don't understand your assignment, ask questions.**

- ***Develop a sense of responsibility and take responsibility for your actions*—don't allow your ego to get in the way of admitting mistakes. Instead, own up to your mistakes and learn from them so you don't repeat them again.**

Narration Script: Here are two more guidelines—comply with orders and be responsible for your actions.

Guidelines 5 and 6

The next guidelines on your checklist for becoming an effective team player are:

- ***Make sound and timely decisions and recommendations*—it is your responsibility to be aware of your situation at all times. Have situational awareness (SA) so you can minimize the risk levels to yourself and others. You are also responsible for learning the risk management process used by your team.**

- ***Set the example for others*—even if you're not a team leader or a crew supervisor, you can still make sure your actions are professional. Become an unofficial team leader by being a good example.**

Narration Script: Improve your effectiveness by making sound and timely decisions and recommendations to your crew supervisor and by setting a good example for others on your team.

Guidelines 7 and 8

Making sound decisions and timely recommendations, along with setting a good example, go hand in hand with the next guidelines on your checklist.

- ***Be familiar with your leader and his or her job*—as part of your responsibility to learn and improve your performance, absorb information about how your team leader does his or her job and anticipate his or her requirements.**

- ***Keep your leader informed*—stay in contact with your leader when in the field and on the fireline. Always provide information about the situation and provide feedback when asked. These actions will contribute to the good and constant communication characteristic of successful teams.**

Narration Script: Become familiar with your leader and his or her job so you can anticipate requirements. Keep the lines of communication open by always keeping your leader informed.

Guidelines 9 and 10

To further point out the importance of good communication among team members, consider the final two guidelines from your checklist.

- ***Understand the task and ethically accomplish it*—never hesitate to ask questions when the intent of your task or assignment is unclear**

- ***Be a team member but not a "yes" person*—develop and use communication tools to work as an effective team member**

Narration Script: Guidelines 9 and 10 are all about communication skills. Be sure you understand the intent of assigned tasks and ask questions if tasks and assignments aren't clear.

Knowledge Check 15

Multiple choice—check the box of the answer(s) you choose.

You'll need to follow specific guidelines to develop into the best team player you can be.

You should follow all the following guidelines, EXCEPT

- ☐ **be technically and tactically proficient.**
- ☐ **set the example for others.**
- ☐ **never question the intent of an assigned task.**
- ☐ **take responsibility for your actions.**

The correct answer is never question the intent of an assigned task.

Topic summary

This topic introduced you to the characteristics of successful and unsuccessful teams and provided guidelines for becoming an effective team player. *Never* downplay the importance of your role on a fire fighting team. Teamwork is essential in combating wildland fires and helps to keep both you and your co-workers safe.

Narration Script: Coach Vince Lombardi said: "People who work together will win, whether it be against complex football defenses or the problems of modern society." In your duties as a wildland firefighter, make it a point to learn and grow from the experiences of your co-workers. In the future, the knowledge you have obtained on the fireline will serve others and ensure the enduring adage, "There is no "I" in team."