



Online Courses for Wildland Firefighters

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Safety is Our #1 Priority!



S-190 ~ Fireline Safety and Fire Behaviour

S-190 ~ Introduction

S-190 Fireline Safety and Fire Behaviour Specifically This course, originally developed by the B.C. Forest Service will help the student understand the importance of identifying critical elements on both fire line safety and understanding fire behaviour. Some information has been added to aid Engine and Tender deployment crews.

- Section 1 ~ Course Objectives
- Section 2 ~ Fire Behaviour
- Section 3 ~ Personal Protection
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- Section 5 ~ Fire Ranking System
- Section 6 ~ Crew Briefing
- Section 7 ~ Questions

Section 1 ~ Course Objectives

This course is designed to teach the student the following skills:

- 1- How weather influences fire behaviour.
- 2- How to identify dangerous topography.
- 3- Know what type of personal protective gear is needed.
- 4- Identify the categories of fuel.
- 5- Learn the fire ranking system.

- 6- How to identify dangerous fire-fighting strategies.
- 7- How to identify possible fire entrapment situations.
- 8- Identify what information is needed from a crew briefing.

Section 2 ~ Fire Behaviour

The most critical component of personal safety on the fire line is knowing how to understand fire behaviour. If you can understand what a fire wants to do, you can keep one step ahead of it to protect your safety. A safe attitude means not making assumptions, not ignoring danger signs, not being overconfident and always putting safety first.

"SAFETY FIRST ~ DON'T TAKE CHANCES"

2a - Weather

Weather plays a major role in fire behaviour. The basic rule is the hotter and dryer it is, the more intense the fire activity will be. Wind can cause a fire to move quickly across the landscape. The weather will produce a wind that moves in a predictable direction. Be aware of that forecast before engaging in fire fighting activities. Always work with the wind at your back. The fire can also create a wind effect. The larger it gets, the more oxygen it requires and will draw that in from all around the fire. Be aware of local wind conditions at all times and know that they can change at any time.

2b - Fuel

Fuel is another key factor in fire behaviour. Knowing the amount of fuel, its configuration and type are critical factors in keeping safe.

Assess if there is a large accumulation of fuel on the forest floor and are the trees close together. This combination can be extremely volatile. A light accumulation of ground fuel and trees that are spaced out will create less of a hazard to fire fighters.

Fir and Pine trees are more susceptible to extreme fire behaviour than the hardwood trees such as Aspen, Alder or Birch.

2c - Topography

Topography is the lay of the land. On flat ground it is easier for the firefighter to maneuver and fire rate of spread tends to be more predictable.

On a slight slope, the fire has a tendency to be faster moving and it is harder for the firefighter to work on. On steep slopes, the fire can move at a rapid pace while the firefighter can only move slowly. This is a recipe for disaster. Never work at the head of a fire or in a canyon or gully with the fire below you.

Slopes facing the south will generally be drier than north facing slopes. Fire will spread and with more intensity on south facing slopes. Be aware of soft ground and hazards such as downed barbwire fences and holes where stumps have been burnt out.

Section 3 ~ Personal Protection

You are responsible for your own safety! There may be a safety officer or team leader there, but the nature of wildland fires means you are often working away from them. Never work alone! Always have a least one team member with you and a radio that has been tested to communicate with your team leader.

"PROTECT YOUR SELF AT ALL TIMES, DO NOT BECOME PART OF THE PROBLEM BY GETTING INJURED"

3a - Clothing

It is best to have fire resistant coverall or shirt and pants on. Standard issued turn out gear is not suitable for wildland firefighting as it is bulky and you will quickly become overheated.

Wear good leather boots that are at least 20 cm (8 inches) high. Steel toed boots are not required. Use good leather gloves, a hard hat and goggles.

3b - Personal Behaviour

Unsafe personal behaviour can lead to death or injury. Do not work if you are feeling tired or fatigued. Ask you team leader to be relieved of duty so you can rest up. Overconfidence can lead to compromising situations that can cause death or injury. Always follow the directions given to you. Do not panic if the situation becomes dangerous stay calm and retreat to your safe zone.

Make sure you understand your directions before going to work. If you have any questions do not be afraid to ask for clarity.

3c - Safe Areas and Escape Routes

It is critical that you know where your safe area is and how to get there (escape route). Your supervisor will identify the safe areas and escape routes to you during the briefing. If they are not given, ask before going to work.

A safe area is a place that you will be safe from being overrun by the fire. Examples are: burnt over sections, large open fields, gravel pits or wet areas. Even a section with deciduous trees is helpful. Do not use caves as the oxygen can be sucked out.

Never totally deplete your water supply but keep the last light (or 25%) for self-protection. The cab of a fire truck can also be used. Gather in the cab and use a hand line, held outside of a window, to soak down the truck. If time permits, soak down the area around the truck.

Escape routes should be well marked and know by all team members. They must be cleared of any obstacles that will inhibit travel. Make sure your safe area and escape route are kept current and appropriate for your needs.

Section 4 ~ Fire Fighting Safety

Crews driving Engines and Tenders are generally not required to fight fires away from their apparatus. If you are requested to do this you should have the full S-100 course.

"WHEN IN DOUBT, BACK OUT"

4a - Dangerous Conditions

Be aware of the following conditions:

- Poor road conditions or dead-end lanes.
- Heavy timber on both sides of the road.
- Hazardous trees along the roads or in yards.
- Steep drop off along the roads.
- Steep road grades or loose ground conditions.

4b - Firefighting Strategies

- Have a good plan. Be prepared to change that plan if conditions change.
- Do a good assessment of the expected fire behaviour before going to work.
- Keep abreast of weather conditions.
- Know what you are capable of doing based on your training, experience and available equipment.

4c - Extra Caution

Exercise extra caution if you are not experienced, working near the head of a fire, working after dark or have lost radio communications. If this happens, retreat to the last location that you have service.

Section 5 ~ Fire Ranking System

To ensure good communications, a fire ranking system is in place to help us describe the intensity of the fire.

"NEVER WORK ON A FIRE GREATER THAN A RANK 3"

Rank 1 ~ low intensity fire on the ground. There may not even be any flames visible.

Rank 2 ~ Mild intensity fire on the ground and low shrubs. Flames up to you knee.

Rank 3 ~ Active fire on the ground, shrubs and lower limbs. Flames up to or over your head.

Rank 4 ~ Fire extending up the lower limbs or trees or candling (single or small groups of trees burning to the top but not spreading). Fall back and reassess.

Rank 5 ~ Full involvement of the forest fuels. Active crown fire (burning in the tops of the trees). Crews should not work near this type of fire.

Rank 6 ~ Total blow up or "conflagration". Crews should be a long way from this type of fire.

Section 6 ~ Crew Briefing

As mentioned earlier, you are ultimately responsible for your personal safety. The pre-action crew briefing is critical to your safety. These briefings should be given at the start of each shift.

"IF YOU DO NOT GET A BRIEFING, DO NOT ENGAGE IN FIREFIGHTING ACTIVITIES."

6a - Crew Briefing Protocol

At each briefing you should receive at least the following information:

- Who is your team leader?
- What are the current fire conditions?
- What is the current weather conditions?
- What is your specific job?
- What radio frequencies should you use.
- Who do you do your safety check ins with and how often?
- What are the potential hazards in your area?
- Where are your safe areas and escape routes?
- Where can you get fuel for your vehicle.

This is the time to ask questions, check your equipment and pack a good lunch! Be safe out there, we need you for an even dirtier job tomorrow.

Section 7 ~ Questions

Please answer the following questions and then proceed to the registration page.

Are the following statements True or False;

- 1 - The most critical part of fighting any fire is understanding fire behaviour.
 True False
- 2 - The three key factors of Fire Behaviour are Fuel Weather and Overtime pay.
 True False
- 3 - Fire intensity can quickly increase on a steep south facing slope.
 True False
- 4 - It is permissible to work by yourself if you have the proper personal protecting gear on.
 True False
- 5 - Escape routes and safe areas are only needed in Rank 5 fires.

True False

6 - It is acceptable to completely empty your water tank before going for a refill.

True False

7 - It is important to have a good plan before going to work.

True False

8 - A rank 5 fire is not a problem for a well-trained crew.

True False

9 - Crew briefings should be done before each shift.

True False

10 - Safety always comes first.

True False

Continue...

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