

## INSTRUCTOR GUIDE

TOPIC: WILDLAND INTERFACE ISSUES

LEVEL OF INSTRUCTION:

TIME REQUIRED: TWO HOURS

MATERIALS: APPROPRIATE AUDIO-VISUAL MATERIALS

REFERENCES: ESSENTIALS OF FIRE FIGHTING, FOURTH EDITION,  
INTERNATIONAL FIRE SERVICE TRAINING ASSOCIATION; FIRE OPERATIONS  
IN THE URBAN INTERFACE, NATIONAL WILDFIRE COORDINATING  
COUNCIL

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PREPARATION:

MOTIVATION: Looking back at the amount of training that a new firefighter received, it is evident that most of the material is aimed at structural firefighting with a very small portion of the time devoted to wildland fire control. This may be due to the proportion of responses to each type of fire in most areas or the relative importance placed on each. While large-scale wildland fires may be infrequent in most areas, they required specialized knowledge, training, and equipment to control. Many of the techniques used in structural firefighting may not be appropriate for a wildland fire.

OBJECTIVE (SPO):

The firefighter will demonstrate a basic knowledge of wildland fire control and the differences with urban fire suppression.

OVERVIEW:

### WILDLAND INTERFACE ISSUES

- \* Structural and Wildland Fire Differences
- \* Wildland Obstacles
- \* Safety Considerations

## WILDLAND INTERFACE ISSUES

- SPO: The firefighter will demonstrate a basic knowledge of wildland fire control and the differences with urban fire suppression.
- EO 1-1 Describe the basic differences between structural and wildland fire control.
- EO 1-2 Identify obstacles that may be encountered in controlling a wildland fire.
- EO 1-3 Describe the various safety measures that can be applied to a wildland fire control situation.

In order to better understand the issues related to “wildland/urban interface” fire control, we must first understand what the term means. Wildland/urban interface generally refers to wildland fires that impact on structures.

As part of the drill, it may be beneficial to review the terminology associated with wildland fire control, the types of fuels involved, and basic wildland fire control techniques (direct, indirect, and combination).

## I. STRUCTURAL AND WILDLAND FIRE DIFFERENCES (EO 1-1)

### A. Common elements of a structural fire

1. Development of fire generally limited to available oxygen supply within the structure
2. Fire generally confined to the structure or a portion of the structure
3. Fire development is dependent on the building contents and materials used in construction
4. Structure may be equipped with fire detection and/or suppression systems
5. There is generally a specific street address or location given
6. Structure is generally accessible to apparatus on at least one side
7. Structures may be serviced by municipal water supply
8. Interior structure fires not affected by wind or other weather conditions
9. May be necessary to vent the structure to release heat

### B. Common elements of a wildland fire

1. Unlimited supply of oxygen
2. Fire not confined and may even jump natural barriers
3. Fuel for wildland fires varies from hardwoods to softwoods to leaves to shrubs to brush or a combination of them
4. Wildland are generally not equipped with fire detection and/or suppression systems
5. The location of the fire may be vague or incorrect
6. Wildland fires may be difficult to access with apparatus especially structural units (may have to rely on smaller units with less water and equipment)
7. Most wildland areas are beyond municipal water supplies
8. Wind, relative humidity, temperature, and precipitation can greatly affect the development of a wildland fire
9. Heat is vented to the atmosphere

### C. Fire Behavior

1. Fuels

- a. Subsurface (ground) – roots, duff, and other organic matter that lies under the surface of the ground
  - b. Surface – grass, leaves, downed limbs, slash and brush up to six feet in height
  - c. Aerial (crown) – suspended and upright fuels over six feet in height
2. Factors affecting wildland fuel burning characteristics
- a. Fuel size and shape – small and light fuels burn faster than larger heavier fuels
  - b. Horizontal continuity – closer the fuels are together the faster the fire spread because of the effects of heat transfer
  - c. Loading (volume) – amount of fuel present in a given area
  - d. Compactness – spacing between fuels, loosely compacted fuels burn faster than tightly compacted fuels
  - e. Vertical arrangement – height of fuels above the ground can form a fuel ladder
  - f. Moisture content – drier fuels ignite easier and burn with greater intensity than those with higher moisture content
  - g. Chemical content – presence of volatile substances that can enhance combustion, such as oils, resins, wax, and pitch

## II. WILDLAND OBSTACLES (EO 1-2)

### A. Terrain

- 1. Mountainous area
- 2. Hills and valleys
- 3. Rugged surfaces
- 4. Trees, heavy brush, and other forage
- 5. Soft and uneven surfaces

### B. Lighting

- 1. Darkness
- 2. Difficulty in lighting work area
- 3. Dependence on portable lights

### C. Orientation

- 1. No specific street addresses or less than specific location
- 2. Difficulty in identifying landmarks
- 3. May be some distance from roadways or permanent trails
- 4. No street signs or road markers
- 5. May not be accessible for structural apparatus

6. May be difficult to find way back to apparatus, staging area, or command post
7. May be difficult to maintain control of personnel (accountability)

### III. SAFETY CONSIDERATIONS (EO 1-3)

A. The following FIRE ORDERS are generally accepted practice when dealing with a wildland fire. You should discuss one along with the implications for not following them.

1. **F**ight fire aggressively but provide for safety first
2. **I**nitiate all action based on current and expected fire behavior
3. **R**ecognize current weather conditions and obtain forecasts
4. **E**nsure instructions are given and understood
5. **O**btain current information on fire status
6. **R**emain in communication with crew members, your supervisor, and adjoining forces
7. **D**etermine safety zones and escape routes
8. **E**stablish lookouts in potentially hazardous situations
9. **R**etain control at all times
10. **S**tay alert, keep calm, think clearly, and act decisively

B. The 18 situations that shout “watch out” are warning signs under by forestry services that alert their personnel to a potentially dangerous situation that is developing. You should discuss each one along with the associated implications.

1. The fire has not been scouted and sized up
2. You are in country that you have not seen in daylight
3. Safety zones and escape routes are not identified
4. You are unfamiliar with local weather and other factors that may influence fire behavior
5. You are uninformed on strategy, tactics, and hazards
6. The instruction and assignments you were given are not clear
7. You have no communications link with crew or supervisor
8. You are constructing firelines without a safe anchor point
9. You are building firelines downhill and there is fire below you
10. You are attempting a frontal assault on the fire
11. There is unburned fuel between you and the fire
12. You cannot see the main fire and are not in contact with anyone who can
13. You are on a hillside where rolling material can ignite the fuel below you
14. The weather is getting hotter and dryer
15. The wind is increasing or changing direction
16. You are getting frequent spot fires across the line
17. Terrain and fuels make escape to your safety zone difficult
18. You feel like taking a nap near the fireline

### C. General Safety Considerations

1. Always wear and use appropriate personal protective clothing and equipment (may be clothing specifically designed for wildland fire control)
2. Protect your engine as well as the structure by keeping the hose bed covered, compartments closed, and windows rolled up
3. Park your engine in a safe area, with your front always toward the escape route, do not block escape routes, and back into driveways or narrow access roads
4. Avoid excessive idling with lights, radios, etc., on unless you can maintain adequate RPM's with a hand throttle because excessive idling can deplete the battery, killing the engine and radio and placing you and your crew in jeopardy
5. When moving around in smokey conditions, keep your headlights and red lights on
6. Keep at least one length of charged 1-1/2-in or larger line looped on top of the engine for protection of your engine and your crew
7. Save the last 100 gallons of water in your booster tank for the protection of your engine and your crew and never pass up an available water source when your tank is less than full
8. Never leave your equipment unattended, unless you are parked in a safe area such as the burn, cleared areas, or paved, gravel openings, etc.
9. If trapped by fire
  - a. Take refuge in the structure because it does not burn instantly and provides protection from the fire outside or if you leave your engine, park it in as safe a place as possible, perhaps in the garage
  - b. Take refuge in your engine and, if it is in a good location, stay there, or, if not, keep moving and seek a place where the fire is less intense but be aware that visibility will be poor
    - 1) Keep the pump running and use the looped line to deploy a fog pattern over the cab
    - 2) If available, take SCBA into the cab and use them as necessary to protect yourself from smoke.
    - 3) Use fire shelters or salvage covers to reflect radiant heat from the windows
    - 4) Request air drops
    - 5) Stay inside the cab until you are sure it is safe to go outside. If the motor has died, there is not enough oxygen outside to keep you running either. If the engine is catching on fire, so will you if you go outside. The cab will normally burn last, and may buy you time until things outside start to cool down

- c. Ensure everyone has a fire shelter and is properly trained to use it  
(This is your last resort)
- 10. Maintain control of your people, keep calm, display a positive attitude and maintain communications, and don't make a bad situation worse by coming unglued
- 11. Stay out of possible lethal areas such as saddles, chimneys, chutes, extraordinary fuel buildups, areas where you would not position your personnel or public, or the structural collapse zone
- 12. Be aware of hazardous materials in the home or on the farm, smoke color indicators of hazardous materials, and vehicle fires which include approximately 300 lbs. of plastic in each vehicle

#### D. Interface Safety Considerations

- 1. Structural situations that shout "Watch Out"
  - a. Wooden construction, shake roof
  - b. Poor access, narrow one-way roads
  - c. Inadequate water supply
  - d. Natural fuels 30 feet or closer to structures
  - e. Extreme fire behavior
  - f. Strong winds, 25 mph plus
  - g. Evacuation of public (panic)
  - h. Structures located in chimneys, box or narrow canyons, on slopes of 30% or more and in continuous, flashy fuel types
  - i. Bridge load limits
- 2. Do's and Don'ts in protecting structures in the interface
  - a. Do wear full protective clothing and equipment
  - b. Do keep at least 100 gallons of water reserve in your engine booster tank
  - c. Do have a protective line for your crew and engine
  - d. Do back your engine in or you may need to leave quickly to protect you and your crew
  - e. Do use 1-1/2-inch or larger lines when possible
  - f. Do post lookout as necessary
  - g. Don't park in saddles or in chimneys
  - h. Don't enter a burning structure unless you have been properly trained and equipped for that sort of activity
- 3. Don'ts when working around power lines

- a. Downed conductor on vehicle; don't leave vehicle until power company arrives; if the vehicle is on fire or fire is near, jump clear; don't hang on; keep feet together and bunny hop away
- b. Don't operate heavy equipment under power lines
- c. Don't use rights-of-way as a jump or cargo drop spot
- d. Don't drive with long antennas under power lines
- e. Don't fuel vehicles under power lines
- f. Don't stand near power lines during retardant drops
- g. Don't park under power lines
- h. Don't apply straight stream to power line

REVIEW:

WILDLAND INTERFACE ISSUES

- \* Structural and Wildland Fire Differences
- \* Wildland Obstacles
- \* Safety Considerations

REMOTIVATION: Wildland fire may be taken for granted until they spread to structures, especially residential structures. Then operations are faced with two types of challenges—the structural fire and the wildland fire—each with its own unique characteristics. You must be prepared for one or both. Always keep safety your primary concern; however, because no structure is worth a serious injury or a life

ASSIGNMENT:

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EVALUATION: