



GROUND COVER FIRE SUPPRESSION SOG

Tactical Standard Operating Guidelines (SOG)

SCOPE

This guideline shall apply to all members of the Stoney Point Fire Department (SPFD) and shall be adhered to by all members.

PURPOSE

The purpose of this standard is to explain the guidelines expected by all personnel at the SPFD when carrying out fire suppression responsibilities of Ground Cover Fires.

DEFINITIONS

ATTACK- To take action on a fire to slow down or stop the spread of fire by cooling, smothering, removing, or otherwise treating the fuel around its perimeter.

DIRECT ATTACK- All control action is carried on directly against or near the fire's edge.

BACKFIRE- Technique used in indirect attack method that involves setting a fire between the control line and the advancing fire, the intent is for the backfire to meet the advancing fire some distance from the control line.

CONTROL LINE- A term for all constructed or natural fire barriers and treated fire edges used to stop or control a fire.

CROWN- A fire that leaps rapidly through the tops of trees and brush creating its own wind in addition to surface wind.

DUFF- Matted decomposed leaves, twigs, and bark beneath the trees and brush.

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ENVIRONMENT- Anything surrounding an individual or community of plants or animals, including man, that influences it in any way.

FINGER- A long narrow extension from the main body of fire.

FIRE FLANK- Sides of a Ground Cover Fire.

FIRE PERIMETER- The outer edges of the fire.

HEAD- Most active part of a Ground Cover Fire, the forward and advancing part.

HEAVY FUELS- Massive fuel such as logs, and limbs not easily ignitable but burns slowly and hot.

INDIRECT ATTACK- Control action is conducted at a distance from the edge of a fire in making a break in the fuel and halting further progress.

LIGHT FUEL- Fine fuels, grasses, most dangerous because of rapid spread they serve as kindling for heavier fuels.

REAR- The part of the fire opposite the head.

SHALL - Indicates a mandatory requirement.

SPOTTING- A fire spreading by the setting of spot fires.

STANDARD OPERATING GUIDELINE (SOG) - Documents that help establish how an organization will operate and how its members are expected to carry out specific duties outlined in general terms.

SURFACE FIRE- A fire burning the surface fuels such as leaves, duff and grass.

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TOPOGRAPHY- The physical features of the land surface-- both natural and manmade. (i.e. rivers, mountains, roads, swamps, etc.)

GUIDELINES

Command

On all incidents a Command Post and Geographic Division will be established as soon as possible. The Command Post should be in location that will be safe and not have to move if the fire changes direction.

The Command Post may use a set of maps, or tactical command sheets to plot progress, exposures and access. The units in the field, particularly divisions, will have to report this information back to Command via radio or personal contact.

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Fire Behavior

With the most important factors affecting Ground Cover Fires being fuels, weather, and topography, personnel shall be familiar with each factor and the affects they may have on firefighting crews.

Fuels

Ground Fuels also called duff fuels are often deep seated below the ground surface into the duff, peat, and roots, which makes a fire in these fuels harder to extinguish due to the smoldering characteristics. Division officers in ground or duff fires shall ensure the fire is controlled to a state to prevent a re-ignition of fuels.

Surface Fuels are simply grass, brush, low vegetation, and nonliving surface materials. Fires are more common in these type fuels, and can quickly develop into a major fire, depending again on the fuels (light or heavy), the weather, and the topography. This type of fire is usually fast



burning, hot and easily influenced by the wind. These fires can be very dangerous under adverse fire behavior conditions. Crews working at such fires shall be cautious of changing conditions in the fire behavior.

Crown Fuels are suspended and upright fuels, having characteristics of being separate from ground and surface fuels, to the extent that air can circulate around the fuel particles causing them to burn more readily.

This type of fire is common in dense heavy fueled forest land and is considered very dangerous because a crown fire leaps rapidly through the tops of brush or trees and often gains momentum by creating its own wind in addition to the surface wind. Separating the fuel from the fire or attacking the fire in areas where fuel is not adequate to support a crown fire usually controls this type of fire.

The following is a list of questions all company officers and firefighters must ask themselves to provide for effective ground cover firefighting:

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Behavior

- A. How fast is the fire spreading?
- B. How high are the flames?
- C. It is spotting?
- D. Is it hotter than usual?
- E. Is the fire crowning?

Fuel

- A. Type and arrangement of fuel?
- B. Any crown fuels involved?
- C. Fuels in path of fire?

Weather



Since most brush fires occur in the fall and early spring months, the fall weather conditions are important to note. Rainfall is relatively low during these months; fire conditions increase if rain does not fall within one week. Two weeks without rain produces conditions that are favorable to numerous fires that are more inclined to be faster spreading and hotter. The prevailing winds in this area are from the south west, this should be considered by command personnel in regards to the possibility of spot fires.

(Note * when the humidity falls below 30% the possibility of spot fires increase)

Command personnel should always be aware of the fire conditions, weather conditions, and time of day. Remember that a large free burning brush fire can create dangerous convection currents that cause erratic fire behavior and spot fires far in advance of the fire head. Heavy winds also produce similar results.

Hot and dry conditions produce extremely rapid fire spread. A slight decrease in relative humidity will cause a significant increase in fire intensity. During extreme dry days, surface wetted fuel will dry within a matter of minutes.

The following is a list of questions all company officers and firefighters must ask themselves to provide for effective ground cover firefighting:

Weather

- A. What is the wind speed and direction?
- B. Are other weather conditions at fire expected?
- C. What is the relative humidity?

Topography

Topography refers to the slope of the land and has a decided effect upon fire behavior. The steepness of the slope affects both the rate and direction of the spread. Fires will usually move faster uphill than downhill, and the steeper the slope, the faster the fire will move. This is due to several factors:

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- A. On the uphill side, the flames are closer to the fuel and the fuels become drier and ignite more quickly than if on level ground.
 - B. Wind currents are normally uphill and this tends to push heat and flames into new fuels.
 - C. Convected heat rising along the slope causes a draft which increase the rate of spread.
 - D. Burning embers and chunks of fuel may roll downhill into unburned fuels increasing spread and starting new fires.

These same factors work against the fire when it reaches the top of a ridge. For this reason, fire lines are better located just over a ridge from an advancing fire. Fire crews should be constantly aware of the different fuel types and of burning caused by slope aspects. As a result of the natural draft and preheating of fuels on the slope above the fire, ground cover fires can burn much faster uphill than on level terrain.

Strategy and Tactics

Brush fires often present a large area of rapidly spreading fire. The critical decision is often where to attack the fire to the best advantage.

The basic brush fire philosophy will be to aggressively stop the forward progress of fire whenever possible. Protection of exposures is the primary goal when immediate control is not possible.

A Direct Attack is used to cool, smother or beat out the flames of a brush fire. A control line is established along the fire perimeter when fire conditions allow for same. Class A foam should be inducted at a .01% solution.

It is the fastest control evolution available to counteract wildfire spread. Clearly, many situations will not support this possibility and Command must be prepared to readjust strategy which may make it necessary to develop a defensive mode to protect exposures which allowing the fire to burn to a location better suited for control.

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An Indirect Attack is the construction of a line well in advance of the brush fire this type of attack is usually considered when the fire is too intense, or inaccessible for a direct attack to be successful.

An Indirect Attack makes use of natural breaks and barriers. The line should be wide enough to prevent flame contact or radiant heat from igniting the other side of the line.

The following is a list of size-up considerations that greatly affect tactics and strategies for direct and indirect attacks:

- A. Location of fire head or heads- the fastest moving part of fire.
- B. Pertinent burning conditions- weather, time of day, etc.
- C. Type of fuel- light, heavy.
- D. Exposures- improvements, buildings, etc.
- E. Size of fire and rate of spread.
- F. Special hazards- hot spots, spot fires, developing heads.
- G. Manpower needs.
- H. Fuel continuity.
- I. Accessibility into fire area.
- J. Water resource- tankers, hydrants, etc.
- K. Line of retreat. How can I escape?

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When water is in short supply, it is usually most effective when applied to burning material instead of wetting fuel in advance. Seriously exposed structures should be kept wet while exposed.

Overhaul

Overhaul should start as soon as manpower is available. Don't wait until the fire is completely contained unless it is absolutely necessary.



Overhaul must be thorough. If there is a very large fire area, overhaul at least 100 yards into the main burn from the perimeter. Use water as often as possible to mop up. Dirt also works well.

Remember that perimeter fire control only contains the fire; it is not out until every ember is cold. Embers can be blown over the perimeter and quickly start spot fires.

Safety

The safety of personnel always comes first. Listed below are a few safety guidelines that should be implemented at all ground cover fires:

- A. Be aware of weather conditions and forecast.
- B. Know what your fire is doing at all times.
- C. Base all actions on the current and expected behavior of the fire.
- D. Always provide escape routes for personnel and apparatus.
- E. Maintain prompt communication with your personnel.

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Command and Divisional personnel shall ensure that all personnel are in proper protective clothing, using hand-tools and equipment in its proper manner. Do not allow your personnel to become fully exhausted or dehydrated. Ensure proper rehab guidelines are being followed.

Command and Divisional personnel shall keep all personnel informed of all Forest Service operations, to include travel path of plow. Command should advise Cumberland/City of Fayetteville Communications to activate the **ALERT TONE** and advise all units on scene of the plow entering the woods.

Upon receiving notification of the plow entering the woods, **ALL PERSONNEL** shall exit the woods. If it is not possible to exit the woods, the Division officer shall notify command of his/her situation.



The Division officer shall recall all personnel operating in that Division to a holding area. **AT NO TIME SHALL ANY PERSONNEL OPERATING IN AN AREA THAT IS TO BE TRAVELED BY A PLOW, COME WITHIN 500 FEET OF A MOVING PLOW!**

Aggressive firefighting is the key to successful suppression but must be conducted without violating proper safety procedures.

Below are personnel functions as they relate to ground cover fires:

1341/1941 Are our primary 1st out vehicles on all Ground Cover Fires within our entire 1st in response area. With the closest Engine Company responding 2nd out utilizing already established and approved protocols

POSITION #1 DRIVER/OPERATOR

Responsible for the safe operation of apparatus responding to and from calls, the safe operation of vehicles while off road, and operation of pump and equipment as needed for effective operations.

REQUIREMENTS: Must be certified through the SPFD training division.

POSITION #2 COMPANY OFFICER/Firefighter

Responsible for directing operations to include the suppression of brush, woods, grass, or related fires, and to assure effective overhaul is performed to prevent rekindles.

REQUIREMENTS: Department officer, in absence of an officer, a Fire fighter II may assume this position.

NC FORESTRY SERVICE FIRE READINESS PLANS:

- A. #1 Little or no chance of fire occurring.
- B. #2 Occasional fire activity- suppression within county capability.

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- C. #3 Moderate fire season activity.
- D. #4 Normal fire season activity.
- E. #5 Severe fire conditions.
- F. #6 Critical fire conditions.
- G. #7 Extreme fire conditions.

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