

DETAILED LESSON OUTLINE

COURSE: Fire Operations in the Wildland/Urban Interface, S-215

UNIT: 5 - Structure Protection Tactics

LESSON: D - Firing Operations

TIME FRAME: 2 hours (including Unit 5 test)

TRAINING AIDS: Flip charts; personal computer with projector and electronic presentation on CD or overhead projector and screen with overhead transparencies

OBJECTIVES:

1. List three situations in which burning out may be necessary in structure defense.
2. Describe who makes the decision to conduct a firing operation.
3. List three types of control lines used in firing operations.

OUTLINE	AIDS & CUES
PRESENT UNIT OBJECTIVES.	5D-01-S215-EP 5D-02-S215-EP SW p. 5D.1
I. FIRING OPERATIONS	
Firing operations involve the use of fire to conduct burn outs and backfires. It is important to understand the difference between the two.	5D-03-S215-EP SW p. 5D.2
A. Burning Out	5D-04-S215-EP SW p. 5D.2
Burning out is used with direct attack. In direct attack a fireline is built close to the edge of a fire. Burning out is setting fire inside the fireline to consume fuel between the fireline and the fire.	

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<p>It is generally accepted than operations personnel from crew boss on up have authority to burn out.</p> <p>B. Backfiring</p> <p>Backfiring is an indirect method of attack. It is the act of setting fire inside the fireline to:</p> <ul style="list-style-type: none"> • Consume the fuel in the path of a fire. • Change direction or force of the fire’s convection column. • Slow or change the fire’s rate of spread. <p>The decision for backfiring is usually made by the operations section chief based on recommendations from other operations personnel.</p>	<p>5D-05-S215-EP</p>
<p>REFER STUDENTS TO DIRECT AND INDIRECT ATTACK STRATEGIES IN THE INCIDENT RESPONSE POCKET GUIDE.</p>	<p>IRPG p. 9-10</p>
<p>C. When to Burn Out or Backfire</p> <ul style="list-style-type: none"> • You cannot wait for the main fire to reach your established control line. • The control line will not hold the main fire if it moves against it at full force. • The intensity of the main fire at the control line would be great enough to threaten the structure. 	<p>5D-06-S215-EP</p>

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<p>D. CAUTION:</p> <p>USE OF FIRE IS DANGEROUS! COMMUNICATION AND COORDINATION MUST BE MAINTAINED AT ALL TIMES.</p> <p>Make sure you know your agency policy concerning burning out and backfiring.</p>	<p>5D-07-S215-EP SW p. 5D.3</p>
<p>II. TIMING AND COORDINATION</p> <ul style="list-style-type: none"> • Firing should not be done if the fire will create problems for adjoining forces or would result in a threat to other structures in the area. • Firing should not be initiated until the control line to hold it is in place. • Make sure that firing is necessary, do not make the decision to fire without consultation with command and other forces in your area. • Coordinate your firing operation with those around you and with those planning the overall attack. Let them know of your plan; advise when you begin firing. • Sometimes it is necessary to wait for favorable conditions, such as appropriate wind or humidity. • Firing to strengthen the control lines should be done as soon as the above concerns are met. Make sure you have adequate forces available to patrol the firing operation. 	<p>5D-08-S215-EP</p> <p>5D-09-S215-EP</p> <p>5D-10-S215-EP</p>

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<p>III. CONTROL LINES</p>	<p>5D-11-S215-EP SW p. 5D.4</p>
<p>A. Mineral Soil</p> <p>Constructed with hand crews or mechanical equipment. Make sure the control line is wide enough to hold the fire.</p>	
<p>B. Natural or Human Made Features</p> <p>Rock outcrops, dirt roads, asphalt or agricultural fields.</p>	<p>5D-12-S215-EP</p>
<p>C. Wet Lines (water/foam/retardant)</p> <ul style="list-style-type: none"> • A wet line is a wetted strip using water, foam, or retardant to act as a control line. • Where fuels are light, such as grass or litter, use a wet line to control the firing operation. Wet lines are quick and easy to create. • If the fuel is low and easily penetrated, it works well to wet the strip and then to fire it. The fire goes out as it burns to the wet line. • If the fuel is high or matted down, the wet line will not penetrate deeply enough. The fire will creep back under the line after the firing operation has moved on. In such cases, light the fire first, then use the water stream to control the inner edge of the fire, making sure it is extinguished. 	<p>5D-13-S215-EP</p>

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<ul style="list-style-type: none"> When firing from a wet line, it often pays to take advantage of areas of lower fuel. Examples include grass that has been grazed down and tire tracks from vehicles where the grass has been crushed. 	
<p>IV. FIRING AND HOLDING</p> <p>Personnel assigned to firing and holding operations must be certified and under the supervision of a qualified firing boss.</p>	<p>5D-14-S215-EP SW p. 5D.5</p>
<p>A. Basic Firing Operations</p> <ul style="list-style-type: none"> In any firing operation, the overall progress along the line should be against the wind and/or slope that is pushing the fire along the line. In other words, take the firing operation into the wind or down the slope. If wind and slope oppose each other, key on the one that is the strongest. If the weather conditions are in your favor, the fire will move quickly away from the control line and should cause no real problems. Just light the edge of the fuel along the control line. Fuels outside and adjacent to the control line can be wet down ahead of the firing operation to prevent spotting. Foam works very well for this application. 	<p>5D-15-S215-EP</p>

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<ul style="list-style-type: none"> Space personnel and equipment out along the line. Do not advance the firing operation until the fire along the line is no longer a threat at that location. The firing operation should not move ahead any faster than the holding operation can keep up with. 	
<p>B. Firing Techniques</p>	<p>SW p. 5D.6</p>
<p>There are many firing techniques, but two that work well on interface fires are:</p>	
<p>1. Strip firing</p> <p>It involves setting fire to one or more strips of fuel and allowing the strips to burn together. Lighting numerous strips allows faster area ignition. By varying the width of the strips and their location in relation to the slope and/or wind direction a means of regulating the fire's intensity can be provided.</p>	<p>5D-16-S215-EP 5D-17-S215-EP</p>
<p>2. Ring firing</p> <p>This technique is generally used as an indirect attack and backfire operation. It involves circling the perimeter of an area with a control line and then firing the entire perimeter. Ring firing is often used to burn out around structures. However, firing personnel may not have a strong anchor point to commence firing. Escape routes and safety zones must be established.</p>	<p>5D-18-S215-EP 5D-19-S215-EP</p>

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<p>C. Holding</p> <ul style="list-style-type: none"> • Engines, hose lines, or hand crews should be deployed along the line behind the firing operation. • The holding operation must be capable of dealing with hot spots or escaped fire across the control line. • Do not impair the intentional fire. Knock down hot spots and flare-ups that threaten to escape, either by flame or firebrands. • If an escape occurs, put all the necessary resources to work to contain it. Advise the crews doing the lighting of the escape so that they can slow down or stop until the escape is controlled. 	<p>5D-20-S215-EP SW p. 5D.6</p>
<p>REVIEW UNIT OBJECTIVES.</p>	<p>5D-21-S215-EP</p>
<p>ADMINISTER UNIT TEST.</p>	<p>5D-01-S215-IR 5D-01-S215-HO</p>
<p>CONSIDER HAVING STUDENTS DO OPTIONAL EXERCISES.</p>	<p>5D-02-S215-IR</p>