



# FIRE CREW FIREFIGHTER TRAINING

Procedures Handbook 4200

WILDLAND FIRE CONTROL

**TOPIC:** MOP UP AND PATROL

**TIME FRAME:** 2:00

**LEVEL OF INSTRUCTION:** Level II

**BEHAVIORAL OBJECTIVE:**

*Condition:* Given a written quiz

*Behavior:* The student will confirm a knowledge of the importance and methods of mop up and patrol operations

*Standard:* With a minimum of 70% accuracy

**MATERIALS NEEDED:**

- Writing board with markers/erasers
- Appropriate audio visual equipment and screen
- Slides/overhead transparencies for this lesson
- Student Information Sheet 4202.7-1
- Topic Quiz

**REFERENCES:**

- Firefighter's Guide, USFS, 1986
- Forest Fire: Control and Use, Kenneth P. Davis
- Forest Fire Fighting Fundamentals Booklet, CDF, USFS
- Ground Cover Fire Fighting Practices, IFSTA, 4<sup>th</sup> Edition
- Principles of Forest Fire Management, Clar and Chatten, CDF
- Water vs. Fire Booklet, USFS
- Wildland Fire Fighting, Clayton, Day, McFadden, 1987

**PREPARATION:**

The mop up and patrol stages of firefighting are extremely important and must be taken seriously. Spot fires, flare-ups, and slop-overs can occur in these stages just as in the attack stage. Keep in mind that initially, a small ember or flame started the fire you may be assigned to mop up and patrol. An escape or a rekindle can be just as dangerous and damaging as the original fire.



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MOP UP AND PATROL

## PRESENTATION

## APPLICATION

### I. MOP UP

#### A. Defined

1. The act of making a fire safe after it has been confined
  - a. May be the applicable stage for only a segment of the fire perimeter on a large fire
  - b. May apply to the entire fire on a small fire

#### B. Mop up operations

1. Seeking out and taking action on spot fires as yet undiscovered

**NOTE:** Hand out Student Information Sheet 4202.7-1 and refer students to page 1

2. Finally extinguishing all burning material along or near the control line
  - a. May mop up for a designated distance (e.g. 100 feet) from the line
  - b. May mop up the entire fire
  - c. Extent of mop up determined by:
    - (1) Fuels involved
    - (2) Weather condition
    - (3) Topography
    - (4) Size of fire
    - (5) Resource availability

Display graphic  
4202.7-1, page 1



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### 3. Felling snags or burning trees

**NOTE:** Refer students to Student Information Sheet 4202.7-1, page 2

- a. All snags and burning trees within the control lines which could potentially spot across the line
- b. All snags and burning trees which could potentially fall and roll across the line
- c. All snags and burning trees which could present a safety hazard to firefighters or the general public if left standing
- d. All snags outside control lines which may be a receptive fuel bed for firebrands
- e. Where conditions warrant clear a bed to mineral soil prior to falling snag into the bed
  - (1) Especially where burning snag will fall into the green
    - (a) Across the control line
    - (b) Into an island within the control line

### 4. Removing or repositioning heavy fuels inside control lines

- a. Place fuels with rolling potential where they will not cross control lines
  - (1) Long axis of the fuel parallel to the slope of the hill

Display graphic 4202.7-1, page 2



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**NOTE:** Refer students to Student Information Sheet 4202.7-1, page 3

Display graphic 4202.7-1, page 3

- (2) Push/move well back into the burn and let fuel burn itself out
- b. Scatter fuels which are too concentrated to eliminate hotspots along the control line
  - (1) Minimize threat of spotting across the control line
  - (2) Prevents mutual heat exchange between concentrated burning fuels
- c. In some conditions, piling burning fuels may be desirable to expedite the burning process and cut down on total mop up time (no winds, high humidities, nighttime perhaps)
- 5. Trenching
  - a. Undercut lines, if not already done, to prevent rolling burning material from carrying fire into the green
  - b. Heavy fuels within the burn to prevent them from rolling nearer the control line and spotting across
- 6. Improve control lines
  - a. Widen lines if necessary
  - b. Eliminate sharp bends in the line where fire can more easily cross



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| PRESENTATION  | APPLICATION |
|---|-------------|
| <ul style="list-style-type: none"><li>c. Clear canopy near the line which may encourage fire extension</li><li>d. Ensure that control lines are cleared to mineral soil</li><li>e. Grub out and remove any burning roots which may cross under the control line</li><li>7. Burn out intervening fuels between the fire and the control line when practical</li><li>8. Reduce amount of unburned fuel near control lines<ul style="list-style-type: none"><li>a. Remove and scatter unburned fuels back into the green</li><li>b. Pay particular attention to receptive fuel beds<ul style="list-style-type: none"><li>(1) Flashy fuels</li><li>(2) Punky logs or stumps</li><li>(3) Other concentrations of dead or decomposing fuels<ul style="list-style-type: none"><li>(a) Susceptible to direct firebrand contact and radiant heating</li></ul></li></ul></li><li>c. Particular care must be exercised with dozer piles which may harbor burning fuel on the green side of the control line</li></ul></li><li>C. Mop up procedures<ul style="list-style-type: none"><li>1. Seek out hotspots<ul style="list-style-type: none"><li>a. Flames</li><li>b. White ash areas</li></ul></li></ul></li></ul> |             |



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| PRESENTATION   | APPLICATION                             |
|--|---|
| <ul style="list-style-type: none"><li>c. Wisps of smoke</li><li>d. Burned out stumps</li><li>e. Burned logs and other heavy fuels</li><li>f. Glowing embers during night operations</li></ul> <p>2. Use handtools in conjunction with water</p> <ul style="list-style-type: none"><li>a. Rake, scrape and chop until hotspot is located</li><li>b. Apply small amount of water directly to burning fuels<ul style="list-style-type: none"><li>(1) Water conservation is important</li><li>(2) Use of water additives is very helpful<ul style="list-style-type: none"><li>(a) Foam</li><li>(b) Wet water</li></ul></li></ul></li><li>c. Repeat above steps until fire is extinguished</li></ul> <p>3. To determine when fire is extinguished feel out the hotspot by passing the back of the ungloved hand 12" above the smoldering fuel and then lower the hand until near the fuel surface</p> |   |
| <p><b>NOTE:</b> Refer students to Student Information Sheet 4202.7-1, page 4</p>   | <p>Display graphic 4202.7-1, page 4</p> |



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## PRESENTATION

## APPLICATION

### II. PATROL

- A. The act of actively moving about all segments of the fire control line, seeking out hotspots inside and outside the control line, and extinguishing those hotspots before they become a greater problem
- B. Patrol guidelines
  - 1. The number of resources assigned to patrol the fire depends upon:
    - a. Type of fire behavior experienced during control operations
      - (1) Significant spotting
      - (2) Clean burn vs. sizeable islands
      - (3) Type of fuels
        - (a) Flashy fuels = less resources
        - (b) Heavy fuels = more resources
    - b. In some instances there may be a vantage point from which the entire fire can be seen. This may reduce the number of resources assigned patrol duty
      - (1) Must have communication with resources assigned to the fire in order to direct them to the appropriate area
    - c. Amount of control line to patrol
    - d. Vehicular access to control line
  - 2. Patrol fire as long as necessary to ensure there will not be a slopover or rekindle



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**PRESENTATION**

**APPLICATION**

Administer Topic Quiz



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## ***SUMMARY:***

Mop up and patrol are very important operations in the control of a fire. If either is done poorly the possibility of a rekindle is significant. The rekindle has the potential to be larger, more costly and more severe than the original fire.

## ***EVALUATION:***

The student will complete a written quiz at a time determined by the instructor.

## ***ASSIGNMENT:***

Review your notes and Student Information Sheet 4202.7-1 in preparation for the upcoming quiz. Study for the next session.