



FIRE PROTECTION TRAINING

Procedures Handbook 4300

MOP UP AND PATROL

TOPIC: Mop Up and Patrol

TIME FRAME: :30

LEVEL OF INSTRUCTION: Level I

BEHAVIORAL OBJECTIVE:

Condition: Given a written quiz

Behavior: The students will list and describe the importance and methods of mop up and patrol operations.

Standard: With a minimum of 80% accuracy

MATERIALS NEEDED:

- Appropriate visual aids
- Audio visual equipment

REFERENCES:

- Teie, Firefighter's Handbook on Wildland Firefighting, 3rd Edition, Chapter 6, pp.222-230
- IFSTA, Wildland Fire Fighting for Structural Firefighters, 4th Edition, Chapter 6 pp 235-239
- NWCG, S-130: Firefighter Training, Chapters 10, 11, 2003
- USFS, Water vs. Fire Booklet, 1975
- CDF, Principles of Forest Fire Management, Clar and Chatten, 1972

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 that you have been 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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PRESENTATION

APPLICATION

I. MOP UP

A. Definition

1. The act of making a fire safe after it has been confined, such as extinguishing or removing burning vegetation or material along or near the control line, felling snags, trenching logs to prevent rolling, etc.
 - 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. Critical fire situations can be avoided during mop up by establishing Escape Routes
2. Seeking out and taking action on spot fires as yet undiscovered
3. 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

Information Sheet #1

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PRESENTATION	APPLICATION
<ul style="list-style-type: none">(2) Push/move well back into the burn and let fuel burn itself outb. Scatter fuels which are too concentrated to eliminate hotspots along the control line<ul style="list-style-type: none">(1) Minimize threat of spotting across the control line(2) Prevents mutual heat exchange between concentrated burning fuels(3) Start at the hottest area and move to the cooler areas(4) Work inward from the control linec. 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 humidifies, nighttime perhaps)d. "Boneyard" Moving large burning fuels to a cold black area well within the burn. These heavy fuels are physically separated, removing/or cooling all hot materials, and left parallel to the slope6. Trenching<ul style="list-style-type: none">a. Undercut lines, if not already done, to prevent rolling burning material from carrying fire into the greenb. Heavy fuels within the burn to prevent them from rolling nearer the control line and spotting across7. Improve control lines	



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<ul style="list-style-type: none">a. Widen lines if necessaryb. Eliminate sharp bends in the line where fire can more easily crossc. Clear canopy near the line which may encourage fire extensiond. Ensure that control lines are cleared to mineral soile. Grub out and remove any burning roots which may cross under the control line <p>8. Burn out intervening fuels between the fire and the control line when practical</p> <p>9. Reduce amount of unburned fuel near control lines</p> <ul style="list-style-type: none">a. Remove and scatter unburned fuels back into the greenb. Pay particular attention to receptive fuel beds<ul style="list-style-type: none">(1) Flashy fuels(2) Punky logs or stumps(3) Other concentrations of dead or decomposing fuels<ul style="list-style-type: none">(a) Susceptible to direct firebrand contact and radiant heatingc. Particular care must be exercised with dozer piles which may harbor burning fuel on the green side of the control line <p>C. Mop up procedures</p>	



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<ol style="list-style-type: none">1. Seek out hotspots<ol style="list-style-type: none">a. Flamesb. White ash areasc. Wisps of smoke and steamd. Burned out stump holese. Burned logs and other heavy fuelsf. Glowing embers during night operationsg. Use your sense of smell and hearingh. Thermal imaging camera2. Use handtools in conjunction with water<ol style="list-style-type: none">a. Rake, scrape and chop until hotspot is locatedb. Apply small amount of water directly to burning fuels<ol style="list-style-type: none">(1) Water conservation is important<ol style="list-style-type: none">(a) Mop-up kits and $\frac{3}{4}$" "pencil or toy" hose(2) Use of water additives is very helpful<ol style="list-style-type: none">(a) Class A Foam(b) Wet water(3) Mix and stirc. Repeat above steps until fire is extinguished	



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<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>a. Mop up and patrol continues on fire until the fire is officially declared "dead out" and all resources are released from the incident</p> <p>II. PATROL</p> <p>A. Definition</p> <p>1. Actively moving about all segments of the fire control line, seeking out hotspots inside and outside the control line, and extinguishing those hotspots and spot fires before they become a greater problem</p> <p>B. Patrol guidelines</p> <p>1. The number of resources assigned to patrol the fire depends upon:</p> <p>a. Type of fire behavior experienced during control operations</p> <p>(1) Significant spotting</p> <p>(2) Clean burn vs. sizeable islands</p> <p>(3) Type of fuels</p> <p>(a) Flashy fuels = less resources</p> <p>(b) Heavy fuels = more resources</p>	<p>Information Sheet #4</p>



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<ul style="list-style-type: none">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<ul style="list-style-type: none">(1) Must have communication with resources assigned to the fire in order to direct them to the appropriate areac. Amount of control line to patrold. Vehicular access to control line2. Patrol fire as long as necessary to ensure there will not be a slop over or rekindle3. Grid the black and the green as a final check	



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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:

A written quiz.

ASSIGNMENT:

To be determined by instructor(s).