

Mopping – Up Standard

Western Cape Provincial Fire Work Group Mopping-up Guideline

1. Background:

The threat of veld and forest fires does not cease after the flames have passed, as smouldering fuels may continue to burn unnoticed for days, weeks, even months after flaming. It is during this phase that either the burn area exterior or the complete burn area of a fire is cooled so as to not reignite another fire.

Recent and historic observations in the field, during drills, through analysing records and investigation of many flare-ups has made it clear that veld and forest fire crews as well as all levels of command need to pay more attention to mop-up operations.

2. Key concepts:

a. Guarding of Fires

- An adequate force of fire fighters is to guard a fire line for a minimum period of 48 hours, once a fire has been brought under control.
- Fire fighters are to conduct mopping up operations wherever necessary.
- Mopping up crews is to be equipped with radios and/or cell phones with which they can contact the Incident Commander.
- The Incident Commander is responsible to appoint a suitably qualified and experienced person, to conduct a personal inspection to satisfy him/her-self that mopping up was concluded and that the fire line is safe before withdrawing fire fighters, (i.e. before declaring the fire as completely extinguished and withdrawing all resources).

b. Mop-Up Operations:

After primary line work is completed and a fire is called "contained," many things remain to be done to make the fire line safe and put the fire out. This work is called mop-up.

MOP-UP IS NOT SITTING AROUND LOOKING AT THE FIRE LINE BUT ACTIVELY WORKING ON THE LINE.

c. The objective of mop-up:

- Put out all fire embers or sparks to prevent them from crossing the fire line and ensure that ground fires and creeping surface fires cannot cross the fire line.
- To strengthen the fire lines so that the teams can leave the fire safely AND BE READY FOR THE NEXT FIRE AS SOON AS POSSIBLE.

Mopping – Up Standard

d. The principles of mop-up:

- A certain amount of mop-up work must be done along with initial suppression operations.
- Mop-up becomes an independent part of firefighting as soon as the spread of the fire is stopped and all lines contained.
- Ordinarily, mop-up is composed of two actions; putting the fire out, and disposing of fuel either by burning to eliminate it, or removing the fuel so it cannot burn.

3. Mop-up Guidelines:

a. COMMAND

When addressing mop-up operations, Command should:

- Determine areas that require additional mop-up and determine what the priorities are.
- During extended fires determine what areas will immediately require mop-up and that there are sufficient resources to address this.
- Develop a mop-up and patrol plan.
- Determine specific actions and what is required to carry them out.
- Ensure that mop-up resource requirements are included in the Incident Action Plan for the next operational period. This includes personnel and equipment e.g. chainsaws and chainsaw operators.
- During rotation of crews, ensure that sufficient crew and equipment remain in the area to monitor for re-ignition or spread of fire.
- Ensure that there is a schedule for rotation of crews for mop-up and follow-up checks are done by crews to ensure that the fire is completely out in mopped-up perimeter.
- Determine the distance inside the control line to be overhauled (for small fires, this may be the entire burn area).
- Ensure that the task is clearly communicated and be specific on details of your expectations during the crew briefing.

b. OPERATIONS:

General:

As soon as the suppression operations start, simultaneously, "MOP- UP" begins:

- On small fires, all inner fires should be extinguished in the mop-up, where quantities of burning material are not so large as to make this impractical. Work from the fire line toward the centre of the fire.
- On large fires, completely mop-up enough of the area adjacent to the line to be certain no fire can blow, spot, or roll over the fire line under the worst possible conditions.
- Always have a team or sufficient additional resources available right from the beginning to mop-up and guard the lines.
- Whenever possible the mop-up crew should always be able to keep up with the pace of the suppression crew.

Mopping – Up Standard

- The mop-up crew will only move forward if the section is 100% safe should they not be able to move forward then additional resources should be called in
- Start work on each section of line just as soon as possible after the fire line is contained but treat most threatening situations first.
- Ensure that this line is properly anchored on both ends.

c. Strengthening the line:

- Sweep the scratch line, widening it to a control line for a minimum of 3 m into the burnt area using a beater or rake hoe the appropriate hand tool for the remaining surface and ground materials..
- The control line fire line should be free of any flammable material.
- Begin with widening the scratch lines at the high risk areas first into the burnt area and then proceed to the remaining scratch lines until you have a control line of the entire perimeter..
- Scratch line and control line width must be based on risk.
- Burnable material lying within or in close proximity to the control line across the fire line must be removed well into the burnt area. (15- 20 meters)
- Animal dung burnt or unburnt must be removed well into the burnt area. (15- 20 meters)
- Beware of termite mounds particularly in Renosterveld and open a scratch control line around it isolating it.
- Consider an undercut control line in steep terrain where rolling material is likely. The undercut line must be wide and deep enough to catch the rolling materials.
- Allow fuel to burn up if it will do so promptly and safely. Monitor this process until area is safe.
- Burn out islands (unburned sections) only with permission from the Operations Chief or IC.
- Constantly check for spot fires outside the fire line, especially downwind from the fire line.
- Use water wherever possible and practical in mop-up.
- Wet the area 20 m into the burnt area from the fire line rake the ash bed while wetting wherever practical.
- Use water sparingly, but use enough to do the job. Match the amount of water to the job.
- Adding Class A foam to water will greatly increase effectiveness in mop up of deep-burning fuels.

Mopping – Up Standard

d. Dealing with Heavy fuels:

- Check heavier fuels (logs, snags, slash, etc.) for smouldering material. All smouldering material should be spread out well inside of lines into the burnt area. (20 meters) and apply water if possible.
- Smouldering stumps, that cannot be removed, should be isolated from the fire line and extinguished. Also open up the root collar around the stump.
- Open up stumps and roll over logs and ensure it is completely extinguished.
- Put into a safe area (the burnt area) ,at least 20 meters, all less flammable fuels, such as rotten logs and stumps, near the fire line.
- Any logs within 20 meters of the fire line that are impractical to move must be descaled and all scaled coals must be covered with dirt be broken down an allowed to cool down in a safe area or extinguished with water.
- Remove all burned trees inside of line that could throw sparks over line or fall over the line.
- Put all material that can roll across the fire line in a position that it cannot possibly roll across the line. Pack it closed with stones if needs be.

e. Ground Fires, creeping surface fires and hot spots:

- Look for indications of hot spots and ground fires.i.e. White ash, fine compacted fuels, root masses (e.g. in wattle stands)
- Feel for hot material along the fire line. (Or make use of Knox Heat scanner).
- Remove all stumps that can cause ground fires from near the fire line.
- Dig out dead or burning roots that cross under the fire line.
- Particular care must be taken where there is a thick mulch layer or Keystervaring patch adjacent to the line.
- Apply as much water as possible
- Dig out the ground fire to mineral soil.

4. Guideline for line width:

Fuel Type	Width of Hand Control Line (swept /cleared or hosed down area)	Width of scratch line to mineral soil.
Grass	3 meters	1 meter
Fynbos 2-6 years	3 meters	1 meter
Fynbos older than 6 years	10 meters	2 meters
Plantation and dense Alien vegetation	20 meters	3 meters
Slash and cleared aliens	20 meters	3 meters