

<b>Subject:</b>	<b>Urban Wildfire Operations</b>
<b>Section:</b>	<b>PPG# 4400.52</b>
<b>Chapter:</b>	<b>Operations</b>
<b>Effective Date:</b>	<b>08/14/2008</b>

## **1.0 POLICY**

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- 1.1 It shall be the policy of the McLane/Black Lake Fire Department, herein referred to as the Department, that members not trained or equipped for urban wildfire operations shall not be permitted to participate in urban wildfire activities.
- 1.2 This policy applies only to suppression actions taken on fires described in the following definitions section.
- 1.3 Members wearing full structural fire fighting clothing while actively fighting urban wildfires shall not expend more than one hour before rotating to rest and rehabilitation.
- 1.4 Members may be reassigned to duty throughout the incident operational cycle once a company or crew level rehabilitation rotation has been established when containing and controlling urban wildfires, which may transition into a situation meeting the definition of a “Wildland Fire”. (See WAC 296-305-01005)
- 1.5 Members performing suppression actions on an urban wildfire shall wear a provided protective clothing ensemble as directed by the Department and Incident Commander.
- 1.6 Members shall wear provided structural firefighting footwear or leather boots at least 8” high with non-slip soles.
- 1.7 A member shall be assigned to maintain positive communication with any individual during those times when the member is assigned an ancillary firefighting task.
- 1.8 Urban wildfire firefighters/members shall all work in teams of two or more while working on or near the fire line of an active fire unless they are in visual or voice contact with an officer.
- 1.9 On fire attacks, the incident commander shall maintain the name and location of all personnel on the incident.
- 1.10 All hand tools, when not in use, shall have appropriate covers and guards to prevent injury.
- 1.11 Members whose duties require them to operate a power chain saw shall wear flexible ballistic nylon pads or other equivalent protection that shall protect the vulnerable areas

of the legs.

- 1.12 Members using chainsaws shall have training on chainsaw usage.
- 1.13 At all urban wildfires, the Incident Commander shall consider the circumstances of the incident and make adequate provisions early in the incident for the rest and rehabilitation for all members operating at the scene. These provisions shall include, fluid replenishment; and relief from extreme climatic conditions and the other environmental parameters of the incident.
- 1.14 Officers shall maintain an awareness of the condition of each member operating within their span of control and ensure that adequate steps are taken to provide for each member's safety and health. The command structure shall be utilized to request relief and the reassignment of fatigued crews.
- 1.15 During periods of hot weather, members shall be encouraged to drink water and activity beverages throughout the workday.
- 1.16 Suppression personnel assigned to an urban wildfire shall be trained to PPG#4400.47.
- 1.17 Supervisory personnel shall be trained to a level commensurate to the position and responsibility they are to assume.
- 1.18 All personnel will be trained and capable of demonstrating competency in utilizing the National Incident Command System (NIMS)
- 1.19 Members responding to urban wildfires need not be issued fire shelters.

## 2.0 DEFINITIONS

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- 2.1 **Ballistic nylon pads:** Protective pads, to protect the vulnerable areas of the legs.
- 2.2 **Heat Related Illnesses.** If the body's physiological processes fail to maintain a normal body temperature, and excessive heat is allowed to build up, a number of physical reactions can occur. These may range from mild (fatigue, irritability, anxiety, decreased concentration and dexterity) to fatal.
- 2.3 **Heat stress Index.** A function of ambient temperature and relative humidity, the heat stress index indicates the potential for heat related injuries. The higher the number, the more likely that personnel will experience signs and symptoms of heat stress. For a given ambient temperature, the heat stress index rises as humidity increases. (Heat Stress Index above 90 warrants consideration for Rehab)
- 2.4 **Lookout.** Experienced individual designated to monitor the location of a crew in proximity to the fire, security of escape route and safety zone. The lookout also should monitor for any other potential problems (e.g., fire behavior, moving apparatus, air operations).

- 2.5 **Mop up.** The act of making a wild (brush) fire safer after it is controlled. This could include extinguishing or removing burning materials along or near the control line, felling snags or trenching logs to prevent rolling.
- 2.6 **Positive Communication:** Visual, audible, physical, safety-guide rope, or electronic means which allows for two way message generation and reception.
- 2.7 **Rehab.** A rest and rehabilitation area for personnel at an emergency incident or training exercise.
- 2.8 **Rehab Manager.** Individual designated by the IC to set up and control the rest and rehabilitation area. May divide Rehab into Treatment area and Rest/ Refreshment area.
- 2.9 **Structural fire fighting protective clothing.** Also know as turnout or bunker gear the protective clothing normally worn by fire fighters during structural fire fighting operations. It includes a helmet, coat, pants, boots, gloves, and a hood.
- 2.10 **Urban Wildfire:** An uncontained fire requiring suppression action usually spreading through ground cover, vegetative fuels, brush, grass, landscaping, and often threatening residential and commercial structures within an urban environment with access to established roadways and water systems.

### **3.0 RESPONSIBILITIES**

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- 3.1 First Alarm Assignment shall follow the tactics prescribed for the fuel models described in Appendix B.
- 3.2 Firefighters shall not use chainsaws to cut directly overhead, or at a distance that would require operator to relinquish their grip on the tool.
- 3.3 Fuel management decisions at any fire covered in this policy shall follow the guidelines in Appendix B.
- 3.4 While in route to a reported urban wildfire the officer shall: assess the size and potential based on initial and follow-up dispatches, natural boundaries and potential to spread, weather and fuel conditions.
  - A. Consider whether life or structures are threatened.
  - B. Consider where an immediate safe zone for staging can be established given the above factors.
- 3.5 After analyzing conditions, the first in officer or unit will advise command and/ or additional incoming units of their plan of action to:
  - Offensive:** Fight the fire, or standby in a safe zone to await further resources, or scout the fire out from a safe route location, or

**Defensive:** Allow the fire to burn out given natural or man-made boundaries and lack of exposures.

- 3.6 Training of all members who may respond to a fire incident addressed in this policy shall be trained in safety procedures to include “Ten Standing Fire Orders” and “Common Denominators Of Tragedy Fires.” (See Appendix A)
- 3.7 Vehicles operating in smoke or dust shall have the headlights on with a flashing or rotating roof light illuminated.
- 3.8 Equipment on apparatus shall be carried in an enclosed compartment or otherwise securely mounted on the apparatus and guarded, so that personnel cannot accidentally come in contact with equipment that may injure them. All hand tools, when not in use, shall have appropriate covers and guards to prevent injury.
- 3.9 Members responding to an urban wildfire in a privately owned vehicle shall not park in areas outside of designated staging areas.

## **4.0 GUIDELINES**

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- 4.1 Apparatus other than brush trucks should not be taken off hard surfaced roads. The Incident Commander may order apparatus off, but should take vehicle weight and ground conditions into consideration.
- 4.2 Where a bulldozer or other heavy equipment is necessary for access to an emergency or extinguishment of a fire (deep-seated brush fire) the Incident Commander may call for it, referring to the department’s protocol.
- 4.3 Take care when laying hose that the fire will not extend and burn the hand and supply lines.
- 4.4 If the event is going longer than four hours, the rotation of members should be discontinued and additional resources appropriate for the incident obtained.
- 4.5 The Incident Commander should consider whether there is potential for entrapment where a firefighter is working without fire shelters.

## **5.0 REFERENCES**

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WAC 296-305-07001, 07003, 07007, 07019 (2) (4) (5)  
NFPA 1977 Standard on Protective Clothing for Wildland Fire Fighting A-4-1,

A-4-4 2, A-5-17 1998 Edition  
NFPA 295 Standard for Wildfire Control 1998 Edition  
NFPA 1143 Standard for Wildland Management 2003 Edition  
NFPA 1144 Standard for Protection of Life and Property from Wildfire  
NFPA 295 Standard for Wildfire Control 1998 Edition 8.0

## **6.0 APPENDIX**

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| 6.1 | Appendix A | Ten Standing Fire Orders<br>Common Denominators Of Tragedy Fires, Watch Out<br>“situations”   |
| 6.2 | Appendix B | Fuel Behavior Assessment Models that may be used by<br>the Incident Commander in describing the fuels in an<br>area and estimating their behavior |

### **APPENDIX A**

#### **Ten Standard Fire Orders**

1. Keep informed on fire weather conditions and forecasts.
2. Know what your fire is doing at all times.
3. Base all actions on current and expected behavior of the fire.
4. Identify escape routes and safety zones, and make them known.
5. Post lookouts when there is possible danger.
6. Be alert. Keep calm. Think clearly. Act decisively.
7. Maintain prompt communication with your forces, your supervisor and adjoining forces.
8. Give clear instructions and insure they are understood.
9. Maintain control of your forces at all times.
10. Fight fire aggressively, having provided safety first.

#### **Common Denominators On Tragedy Fires**

1. Most incidents happen on the smaller fires or on isolated portions of larger fires.
2. Most fires are innocent in appearance before unexpected shifts in wind direction and/ or speed results in “flare-ups” or “extreme fire behavior” in some cases, tragedies occur in the mop-up stage.
3. Flare-ups generally occur in deceptively light fuels, such as grass and light brush.
4. Fire runs uphill surprisingly fast in chimney, gullies and on steep slopes.
5. Suppression tools, such as helicopters or air tankers, can adversely affect fire behavior. The blasts of air from low flying helicopters and air tankers have been known to cause flare-ups.

#### **“Watch Out” Situations**

1. Fire not scouted and sized up.
2. In country not seen in daylight.
3. Safety zones and escape routes not identified.
4. Unfamiliar with weather and local factors influencing fire behavior.

5. Uninformed on strategy, tactics and hazards.
6. Instructions and assignments not clear.
7. No communication link with crewmembers or supervisor.
8. Constructing line without safe anchor point.
9. Building fire line downhill with fire below.
10. Attempting frontal assault on fire.
11. Unburned fuel between you and fire.
12. Cannot see main fire, not in contact with someone who can.
13. On a hillside where rolling material can ignite fuel below.
14. Weather becoming hotter and drier.
15. Wind increases and or changes direction.
16. Getting frequent spot fires across line.
17. Terrain and fuels make escape to safety zones difficult.
18. Taking nap near fire line.

## APPENDIX B

Fuel Behavior Assessment Models that may be used by the Incident Commander in describing the fuels in an area and estimating their behavior.

The Primary Carrier Of The Fire Is Grass 1 foot Deep. Expected rate of spread is moderate to high, with low to moderate fire line intensity.

- A. The grass is fine structured, generally below knee level, and cured or primarily dead and is essentially continuous. Fire spread is governed by the fine herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through cured grass and associated material. Very little shrub or timber is present, generally less than one-third of the area. Annual and perennial grasses are included in this fuel model.
- B. Grass is coarse structured, above knee level (averaging about 3 ft.) and is difficult to walk through. Fires in this fuel are the most intense of the grass group and display high rates of spread under the influence of wind. The fire may be driven into the upper heights of the grass stand by the wind and cross over standing water. While Stands are tall, averaging about 3 feet, but considerable variation may occur. Approximately one-third or more of the stand is considered dead or cured and maintains the fire.
- C. Grass is usually under an open timber or brush over-story. Litter from the over-story is involved, but grass carries the fire. (1 foot deep) Fire spread is primarily through the fine herbaceous fuels, either curing or dead. These are surface fires where the herbaceous material, besides litter and dead-down stemwood from the open shrub or timber over-story, contribute to the fire intensity.

The Primary Carrier Of The Fire Is Shrub Or Litter Beneath Shrub. 2-4 feet high. Expected rates of spread and fire line intensities (flame length) are moderate to high. Fire is generally carried in the surface fuels made up of litter cast by the shrubs and the grasses or (orbs in the under-story.) Fires are generally not very intense as surface fuel

loads are light, the shrubs are young with little dead material, and the foliage contains little volatile material. Shrubs are generally not tall, but nearly cover the entire area. Young, green stands with little or no deadwood such as laurel, vine maple, or alder.

- A. Live fuels are absent or sparse
- B. Shrub is about 2 ft high, with light loading of brush litter underneath. Litter may carry the fire, especially at low wind speeds.
- C. Shrub is head high (6ft), with heavy loadings of dead (woody) fuel. Very intense fire with high spread rates expected.

The Primary Carrier Of The Fire Is Litter Beneath A Timber Stand. 0.2ft deep. Spread rates are low to moderate; fire line intensity (flame length) may be low to high. It is usually the case there are slow burning ground fires with low flame heights although an occasional “jackpot” or heavy fuel concentration may cause a flare up. Only under severe weather conditions do these fuels pose fire problems. Closed-canopy stands of short needle conifers or hardwoods that have leafed out support fire in the compact litter layer. This layer is mainly needles, leaves, and some twigs since little undergrowth is present in the stand.

- A. Surface fuels are mostly foliage litter. Large fuels are scattered and lie on the foliage litter. That is, large fuels are not supported above the litter by their branches. Green fuels are scattered enough to be insignificant to fire behavior. Dead foliage is tightly compacted, short needle (2 inches or less) conifer litter or hardwood litter. Dead foliage litter is loosely compacted long needle pine or hardwoods.
- B. There is a significant amount of larger fuels with attached branches and twigs, or it has rotted enough that it is splintered and broken. The larger fuels are fairly well distributed over the area. Some green fuel may be present. Overall depth of the fuel is primarily below the knees, but some fuel may be higher.
- C. Spread rates are low to high; fire line intensities (flame lengths) are low to very high. The primary carrier of the fire is logging slash.

The primary carrier of the fire is logging slash

- A. Slash is aged and overgrown, leaves have fallen and cured. Considerable vegetation (tall weeds) has grown in amid the slash and has cured or dried out.
- B. Slash is fresh (0-3 years) and not overly compacted.
- C. Slash is not continuous. Needle litter or small amounts of grass or



shrubs must be present to help carry the fire, but primary carrier is still slash. Live fuels are absent or do not play a significant role in fire behavior. The slash depth is about 1 ft.

- D. Slash generally covers the ground though there may be some bare spots or areas of light coverage. Average slash depth is about 2 ft. Slash is not excessively compacted. Approximately one-half of the needles may still be on the branches but are not red. Live fuels are absent, or are not expected to affect tire behavior.

### **Fire Suppression Interpretations**

**Caution!** These are not guides for personal safety. Fires can be dangerous at any level of intensity. Most fatalities occur in light fuels on small fires or isolated sections of large fires.

#### **Flame Length (ft) Interpretations**

- 0-4 ft** Fire can generally be attacked at the head or flanked by persons using hand tools. Hand-line should hold the fire.
- 4-8 ft** Fires are too intense for direct attack on the head by persons using hand tools. Hand-line cannot be relied on to hold fire. Equipment such as dozers and retardant aircraft can be effective.
- 8-11 ft** Fires may present serious control problems. Control efforts at the head of the fire will probably be ineffective.