



Fire Protection Training

Procedures Handbook 4300

FIREFIGHTER SAFETY

TOPIC: Avoiding Fire Entrapment

TIME FRAME: 1 Hour

LEVEL OF INSTRUCTION:

BEHAVIORAL OBJECTIVE:

Condition: A written quiz

Behavior: Student will describe methods of avoiding fire entrapment and will be able to describe what to do if trapped by fire.

Standard: With a minimum of 70% accuracy

MATERIALS NEEDED:

- Chalkboard and chalk
- Flip chart
- Appropriate visual aids
- Audio visual equipment

REFERENCES:

- Wildland Firefighting, Clayton, Day, and McFadden Chapter 7

PREPARATION:

The job of firefighting is recognized as a dangerous profession. Over one hundred firefighters have died in the last forty years on wildland fires. By recognizing the causes of these fatalities and other near-miss situations it is hoped future fire entrapment can be avoided. It is the responsibility of all firefighting personnel to know and understand how to fight fire aggressively but to provide for safety first.

4306.6



Fire Protection Training

Procedures Handbook 4300

AVOIDING FIRE
ENTRAPMENT

PRESENTATION	APPLICATION
<p>I. COMMON CAUSES OF ENTRAPMENT</p> <p>A. Not Following "The Ten Standard Firefighting Orders"</p> <p>B. Not Recognizing and Reacting Appropriately to "The Thirteen Fire Situations That Shout Watch Out!"</p> <p>C. Additional-Miscellaneous</p> <ol style="list-style-type: none">1. Instructions unclear or misunderstood2. Senses dulled by carbon monoxide3. Poor visibility due to terrain, fuels, or smoke4. Lack of understanding of fire behavior5. Lack of experience with local fuels, topography, and climatic conditions6. Not recognizing (or at least delaying) need to alter tactics or strategy based on changing conditions7. Poor selection of safety islands8. Poor selection of escape routes	<p>Review "The Ten Standard Firefighting Orders"</p> <p>Review "The Thirteen Fire Situations That Shout Watch Out!"</p> <p>Emphasize need for training. Can lead to poor tactics.</p> <p>Easy to get "locked in" to an established plan</p>

4306.6



Fire Protection Training

Procedures Handbook 4300

AVOIDING FIRE
ENTRAPMENT

PRESENTATION	APPLICATION
<ul style="list-style-type: none"> 9. Trying to outrun a fire going uphill 10. Physical conditioning and stamina 11. Failure to avoid (or misjudging) danger areas and/or situations 12. Crew not alert to hazards and/or changing fire conditions 13. Lack of communications with other crews or supervisors 14. Confused and/or overly excited 15. Someone inadvertently setting a backfire or burning out in a manner that could jeopardize a crew <ul style="list-style-type: none"> a. Not aware of crew location b. Firing operation adversely influencing fire direction/intensity c. Firing wrong side of line 16. Extreme and/or unpredictable fire behavior 17. Failure to follow instructions 18. Poor crew discipline 	
<p>II. ADVANCE PREPARATION</p> <p>A. Physical Fitness</p> <ul style="list-style-type: none"> 1. General fitness program <ul style="list-style-type: none"> a. Physical strength 	<p>Escaping a bad situation can involve maximum effort</p>

4306.6



Fire Protection Training

Procedures Handbook 4300

AVOIDING FIRE
ENTRAPMENT

PRESENTATION	APPLICATION
<ul style="list-style-type: none">b. Stamina2. Conditioned to tolerate high daytime temperatures <p>B. Safety Uniform and Equipment</p> <ul style="list-style-type: none">1. In place and secured<ul style="list-style-type: none">a. Fire resistive shirts and pantsb. Shroud, collarsc. Gloves, goggles, helmet (chinstrap)d. Boots2. In working order and well maintained<ul style="list-style-type: none">a. Headlamps/flashlightsb. Radios3. Proper equipment<ul style="list-style-type: none">a. Mapsb. Compassesc. Radiosd. Canteense. Forest fire shelter	<p>Train with full safety uniform</p> <p>Can take precious seconds to secure in a bad situation</p>
<p>III. SAFETY ISLANDS/ESCAPE ROUTES</p>	

4306.6



Fire Protection Training

Procedures Handbook 4300

AVOIDING FIRE
ENTRAPMENT

PRESENTATION	APPLICATION
<p>A. Safety Islands</p> <ol style="list-style-type: none">1. Pre-plan number and location<ol style="list-style-type: none">a. Will vary with terrain and fuelsb. May already existc. Construct new ones concurrent with line construction <p>B. Escape Routes</p> <ol style="list-style-type: none">1. Will vary constantly as line progresses and fire conditions change<ol style="list-style-type: none">a. Keep everyone updated2. Must be adequate<ol style="list-style-type: none">a. May require brushingb. Must avoid danger areasc. Large enough for all personnel3. Make use of natural routes<ol style="list-style-type: none">a. Game trailsb. Dozer (skid) trailsc. Natural openings4. Use burned over areas	<p>Consider fire direction and wind direction</p> <p>Have students name some natural escape routes</p>

4306.6



Fire Protection Training

Procedures Handbook 4300

AVOIDING FIRE
ENTRAPMENT

PRESENTATION	APPLICATION
<ul style="list-style-type: none"> a. Potential for re-burn exists 5. May have to set an escape fire <ul style="list-style-type: none"> a. Open area b. Set fire-step into burn 6. Don't try to outrun a fire uphill 7. Evaluate your situation <ul style="list-style-type: none"> a. Keep calm b. Think through your situation and your alternatives c. Select the best alternative and act on it quickly 	<p>The safest part of the fire is the burned area!</p> <p>Fire spreads much faster uphill. Spread speed doubles with every 20% increase in slope due to super-heated air and pre-heating of fuels</p>
<p>IV. AREAS OF RELATIVE SAFETY</p> <ul style="list-style-type: none"> A. Natural Barriers <ul style="list-style-type: none"> 1. Bodies of water 	<p>None are 100% safe. Each will vary in effectiveness depending on the situation Have students list or call out</p>

4306.6



Fire Protection Training

Procedures Handbook 4300

AVOIDING FIRE
ENTRAPMENT

PRESENTATION	APPLICATION
<ul style="list-style-type: none">a. Lakes, ponds, streams, marshes2. Caves3. Large rocks and rock outcroppings4. Lava caps5. Breaks in surface fuels<ul style="list-style-type: none">a. Heavy brush to light grass6. Game trails7. Grazed areas (sheep, etc)8. Old burns9. Irrigated fields or meadowsB. Constructed Barriers<ul style="list-style-type: none">1. Roads, trails, dozer lines2. Fire breaks, fuel breaks, old VMP burns3. Culverts, bridges, tunnels4. Buildings5. Quarries, gravel pits6. Orchards, vineyards, crops7. Water ditches, aqueducts, sloughs8. Safety islands, helispots9. Vehicles10. Swimming pools	<p>Have students list or call out</p>

4306.6



Fire Protection Training

Procedures Handbook 4300

AVOIDING FIRE
ENTRAPMENT

PRESENTATION	APPLICATION
<p>V. CREW PREPARATION</p> <p>A. Stay Together</p> <ol style="list-style-type: none">1. Keep close account of all crew members2. Avoid having to search for a "stray", thus exposing crew members to additional risks <p>B. Follow Directions of Crew Leader/Supervisor</p> <p>C. Contact an "Outside" Person</p> <ol style="list-style-type: none">1. Explain situation2. Give accurate description of your location and access to it<ol style="list-style-type: none">a. For ground/air support and/or rescue <p>D. Re-evaluate Your Situation.</p> <ol style="list-style-type: none">1. Possible escape routes2. Weigh risks of staying against risks of escape attempt3. Have you considered all options? <p>VI. RUN THROUGH FIRE</p>	<p>There are cases where persons have died trying to find a crew member they thought had strayed off</p> <p>Retardant/water drops</p> <p>Possible helicopter rescue or transport of injured</p>

4306.6



Fire Protection Training

Procedures Handbook 4300

AVOIDING FIRE
ENTRAPMENT

PRESENTATION

APPLICATION

Note: Severity of this situation can vary greatly from a minor step-across in light fuels to a very risky last ditch sprint through high heat situations in heavy fuels. Procedures here are for a "worst-case scenario" but should be considered in all situations.

A. Preparations

1. Safety uniform secured
 - a. Sleeves, pant legs, shroud, bandanna (dry), collar
 - b. Gloves/chin strap or helmet
 - c. Forest fire shelter
 - d. Goggles
2. Keep tool
 - a. Use as a heat shield
3. Dispose of any fire sensitive items
 - a. Fusees, fuel packs
4. Shed hose packs or other items that might impair mobility
5. Maintain crew communication and coordination

Cite some examples of various degrees of severity
-Fuels
-Topography
-Flame intensity

No skin exposed. Most radiant burns involve the ears and nose

Important to know where everyone is and if they are safe

4306.6



Fire Protection Training

Procedures Handbook 4300

AVOIDING FIRE
ENTRAPMENT

PRESENTATION	APPLICATION
<p>B. Choose Best Route</p> <ol style="list-style-type: none">1. Least intensity-light fuels2. Open area-no tripping hazards3. Least residual flame or heat inside burn4. Shortest distance to safety5. Level terrain <p>C. Proceed Through Flame</p> <ol style="list-style-type: none">1. Don't breathe while going through flame or hottest area2. Stay low in crouched position when most intense heat is high<ol style="list-style-type: none">a. Don't overdo to the extent it would hamper mobility or increase possibility of tripping3. Remain upright if flame length or height is low; such as in flashy light fuels.	<p>Note: Of prime importance is to not breathe super-heated air. Selection of route would be based on this priority</p> <p>Super-heated air can easily damage respiratory system and can lead to death. If you have a choice, it is better to suffer some body burns rather than breathe super-heated air</p>

4306.6



Fire Protection Training

Procedures Handbook 4300

AVOIDING FIRE
ENTRAPMENT

PRESENTATION	APPLICATION
<ul style="list-style-type: none">4. Watch ahead-pick your route as you go5. Use your fire tool as a heat shield<ul style="list-style-type: none">a. Keep broad area of the tool toward the greatest heat and use it to protect your face.b. Hold in such a manner as to not block your visibilityD. Upon Reaching Safe Area<ul style="list-style-type: none">1. Check for burning clothing and extinguish2. Collect crew members together to ascertain status3. Advise I.C. or appropriate line supervisor of your status4. Administer any first aid or burn treatment as needed5. Evacuate or continue assignment6. Consider critical incident stress debriefing	<p>Instructor to demonstrate proper holding of a tool</p>

4306.6



Fire Protection Training

Procedures Handbook 4300

AVOIDING FIRE
ENTRAPMENT

SUMMARY:

Knowing the causes of wildland firefighter fatalities and near-misses, and recognizing them on the fireground are extremely important in avoiding entrapment incidents.

If entrapment is unavoidable, seek a safety island and deploy a fire shelter. Entrapment can often be avoided by using an escape route or running through the fire. Remain calm while you or your supervisor determines what to do.

EVALUATION:

A written quiz.

ASSIGNMENT:

To be determined by instructor(s).