



FIRE CREW FIREFIGHTER TRAINING

Procedures Handbook 4200

FIREFIGHTER SURVIVAL

TOPIC: AVOIDING FIRE ENTRAPMENT

TIME FRAME: 1:00

LEVEL of INSTRUCTION: Level II

BEHAVIORAL OBJECTIVE:

Condition: Given a written quiz

Behavior: The student will confirm a knowledge of 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:

- Writing board with markers/erasers
- Appropriate audio visual equipment and screen
- Topic Quiz

REFERENCES:

- CDF Fire Protection Training Handbook 4300
- Wildland Firefighting, Clayton, Day, and McFadden, 1987

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 entrapments 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.



FIRE CREW FIREFIGHTER TRAINING

Procedures Handbook 4200

AVOIDING FIRE
ENTRAPMENT

PRESENTATION

APPLICATION

I. COMMON CAUSES OF ENTRAPMENT

- A. Not following "The Ten Standard Fire Orders"

- B. Not recognizing and reacting appropriately to "The Eighteen Fire Situations That Shout Watch Out!"

- C. Additional-miscellaneous
 - 1. Senses dulled by carbon monoxide
 - 2. Poor visibility due to terrain, fuels, or smoke
 - 3. Lack of experience
 - 4. Poor selection of safety zones
 - 5. Poor selection of escape routes
 - 6. Trying to outrun a fire going uphill
 - 7. Physical conditioning and stamina
 - 8. Crew not alert to hazards and/or changing fire conditions
 - 9. Confused and/or overly excited
 - 10. Someone inadvertently setting a backfire or burning out in a manner that could jeopardize a crew
 - a. Not aware of crew location
 - b. Firing operation adversely influencing fire direction/intensity

Review "The Ten Standard Fire Orders"

Review "The Eighteen Fire Situations That Shout Watch Out!"



FIRE CREW FIREFIGHTER TRAINING

Procedures Handbook 4200

AVOIDING FIRE
ENTRAPMENT

PRESENTATION

APPLICATION

c. Firing wrong side of line

11. Failure to follow instructions

12. Poor crew discipline

II. ADVANCE PREPARATION

A. Physical fitness

NOTE: Escaping a bad situation can involve maximum effort

1. General fitness program

a. Physical strength

b. Stamina

2. Conditioned to tolerate high daytime temperatures

a. Train with full safety uniform

B. Safety uniform and equipment

1. Can take precious seconds to secure in a bad situation

2. In place and secured

a. Fire resistive shirts and pants

b. Shroud, collars

c. Gloves, goggles, helmet (with chinstrap)

d. Boots

e. Forest fire shelter

3. In working order and well maintained

a. Headlamps/flashlights

b. Radios



FIRE CREW FIREFIGHTER TRAINING

Procedures Handbook 4200

AVOIDING FIRE
ENTRAPMENT

PRESENTATION

APPLICATION

4. Proper equipment

- a. Maps
- b. Compasses
- c. Radios
- d. Canteens

III. SAFETY ZONES/ESCAPE ROUTES

A. Safety zones

- 1. Pre-plan number and location
 - a. Will vary with terrain and fuels
 - b. May already exist
 - c. Construct new ones concurrent with line construction
 - d. Large enough for all personnel

B. Escape routes

- 1. Will vary constantly as line progresses and fire conditions change
 - a. Consider fire direction and wind direction
 - b. Keep everyone updated
- 2. Must be adequate
 - a. May require brushing
 - b. Must avoid danger areas
- 3. Make use of natural routes



FIRE CREW FIREFIGHTER TRAINING

Procedures Handbook 4200

AVOIDING FIRE
ENTRAPMENT

PRESENTATION

APPLICATION

- a. Game trails
- b. Natural openings
4. Use burned over areas
 - a. The safest part of the fire is the burned area!
 - b. Potential for re-burn exists
5. May have to set an escape fire
 - a. Open area
 - b. Set fire-step into burn
 - (1) Step into burn
6. Don't try to outrun a fire uphill
 - a. Fire spreads much faster uphill
 - (1) Spread speed doubles with every 20% increase in slope due to super-heated air and pre-heating of fuels
7. Evaluate your situation
 - a. Keep calm
 - b. Think through your situation and your alternatives
 - c. Select the best alternative and act on it quickly

What are some examples of natural escape routes?



FIRE CREW FIREFIGHTER TRAINING

Procedures Handbook 4200

AVOIDING FIRE
ENTRAPMENT

PRESENTATION

APPLICATION

IV. AREAS OF RELATIVE SAFETY

NOTE: None are 100% safe. Each will vary in effectiveness depending on the situation. Have students list or call out

A. Natural barriers

1. Bodies of water
 - a. Lakes, ponds, streams, marshes
2. Caves
3. Large rocks and rock outcroppings
4. Lava caps
5. Breaks in surface fuels
 - a. Heavy brush to light grass
6. Game trails
7. Grazed areas (sheep, etc.)
8. Old burns

B. Man-made barriers

NOTE: Have students list or call out

1. Roads, trails, dozer lines
2. Fire breaks, fuel breaks, old VMP burns
3. Culverts, bridges, tunnels
4. Buildings
5. Quarries, gravel pits
6. Orchards, vineyards, crops
7. Water ditches, aqueducts, sloughs



FIRE CREW FIREFIGHTER TRAINING

Procedures Handbook 4200

AVOIDING FIRE
ENTRAPMENT

PRESENTATION

APPLICATION

8. Safety zones, helispots
9. Vehicles
10. Swimming pools
11. Irrigated fields or meadows

V. CREW PREPARATION

- A. Stay together
 1. Keep close account of all crew members
 2. Avoid having to search for a "stray", thus exposing crew members to additional risks
 - a. There are cases where persons have died trying to find a crew member they thought had strayed off
- B. Follow directions of Crew Leader/Supervisor
- C. Contact an "outside" person
 1. Explain situation
 2. Give accurate description of your location and access to it
 - a. For ground/air support
 - b. Possible helicopter rescue or transport of injured
- D. Re-evaluate your situation
 1. Possible escape routes
 2. Weigh risks of staying against risks of escape attempt
 3. Have you considered all options?



FIRE CREW FIREFIGHTER TRAINING

Procedures Handbook 4200

AVOIDING FIRE
ENTRAPMENT

PRESENTATION

APPLICATION

VI. RUN THROUGH FIRE

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.

Cite some examples of various degrees of severity involving fuels, topography and/or flame intensity

A. Preparations

1. Safety uniform secured
 - a. No skin exposed. Most radiant burns involve the ears and nose
 - (1) Sleeves, pant legs, shroud, bandana (dry), collar
 - (2) Gloves/chin strap or helmet
 - (3) Forest fire shelter
 - (4) Goggles
2. Keep tool
3. Dispose of any fire sensitive items
 - a. Fusees, fuel containers, oily chainsaw chaps
4. Shed hose packs or other items that might impair mobility
5. Maintain crew communication and coordination
 - a. Important to know where everyone is and if they are safe

B. Choose best route

1. Least intensity-light fuels



FIRE CREW FIREFIGHTER TRAINING

Procedures Handbook 4200

AVOIDING FIRE
ENTRAPMENT

PRESENTATION

APPLICATION

2. Open area-no tripping hazards
3. Least residual flame or heat inside burn
4. Shortest distance to safety
5. Level terrain

NOTE: Of prime importance is to not breathe super-heated air. Selection of route would be based on this priority

C. Proceed through flames

1. Don't breathe while going through flame or hottest area
 - a. Super-heated air can easily damage respiratory system and can lead to death
 - b. If you have a choice, it is better to suffer some body burns rather than breathe super-heated air
2. Stay low in crouched position when most intense heat is high
 - a. Don't overdo to the extent it would hamper mobility or increase possibility of tripping
3. Remain upright if flame length or height is low, such as in flashy light fuels
4. Watch ahead - pick your route as you go

D. Upon reaching safe area

1. Check for burning clothing and extinguish
2. Collect crew members together to ascertain status
3. Advise Incident Commander or appropriate line supervisor of your status



FIRE CREW FIREFIGHTER TRAINING

Procedures Handbook 4200

AVOIDING FIRE
ENTRAPMENT

PRESENTATION

APPLICATION

4. Administer any first aid or burn treatment as needed
5. Evacuate or continue assignment
6. Consider critical incident stress debriefing

Administer Topic Quiz



FIRE CREW FIREFIGHTER TRAINING

Procedures Handbook 4200

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 zone 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 determine what to do.

EVALUATION:

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

ASSIGNMENT:

Review your notes in preparation for the upcoming quiz. Study for the next session.