



FIRE INSTRUCTOR I

Student Presentation Lesson Plan

4-Firefighting Methods

Outline of Instruction

Objective

Upon successful completion of this lesson, the student shall be able to:

- Describe the methods through which firefighting operations can influence fire behavior. [NFPA® 1001, 5.3.11, 5.3.12]

Instructor Directions

1. Set up non-projectable training aids
 - a. Chart pad to include:
 - i. Title Page
 - ii. Acronym
 - iii. Summary
 - iv. 1 Application scenario
 - v. 2 Evaluation questions
2. Set up projectable training aids (LCD projector & computer)
3. Present lecture utilizing this outline of instruction, non-projectable and projectable audio visual aids.
 - a. Overall time 18 min. (set up, present topic, and take down of audio visuals)
 - b. Presentation time 8-12 min. (presentation time is part of the 18 min)
4. Breakdown of projectable training aids.

Reference Stowell, F.(2013). Essentials of Fire Fighting and Fire Department Operations (6th ed.). Upper Saddle River, N.J.: Brady Pub.; ISBN# 978-013-314080-4

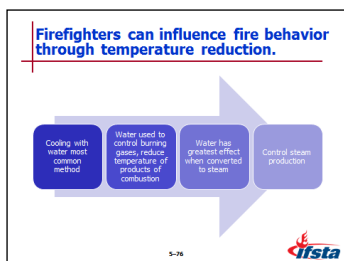
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Preparation

Introduction

- Instructor introduction
- Objectives
- Preparation Step

Presentation



Most common method – Cooling with water

Enough must be applied to burning fuel to absorb heat generated by combustion

Reduces temperature of fuel to point where does not produce sufficient vapor to burn

Can extinguish solid, liquid fuels with high flash points

Cannot sufficiently reduce vapor production when low flash point flammable liquids, gases involved

Most effective method for extinguishment of smoldering fires

Water can also be used to control burning gases, reduce temperature of hot products of combustion in upper layer

Slows pyrolysis process

Reduces radiant heat flux from upper layer

Reduces potential for flashover

Water has greatest effect when vaporized into steam

Converted to steam at 212°F (100°C)

Expands 1,700 times – Avoid creating too much

Excess steam

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Reduces visibility

Increase chances for steam burns

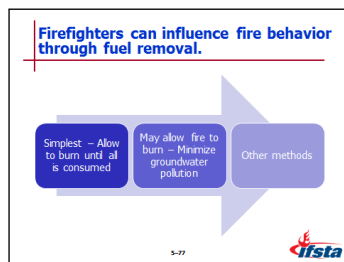
Disrupts thermal balance

Control steam production by

Using good nozzle technique

Applying appropriate amount of water

Applying water using most effective form of stream based on conditions



Fuel Removal

Simplest method – Allow fire to burn until all fuel consumed; not always desirable

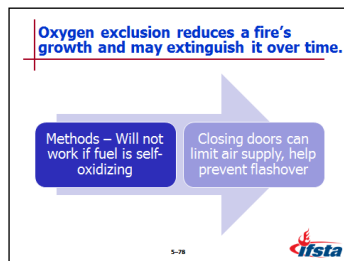
Best solution may be to allow fire to burn, minimizing groundwater pollution

Other methods

Stop flow of liquid fuel

Close valves to stop emission of gaseous fuels

Move solid fuels out of path of fire



Oxygen Exclusion

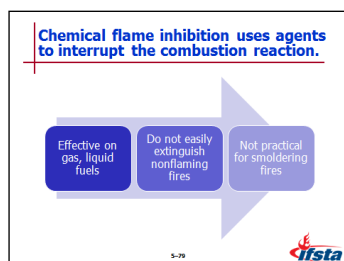
Reduces fire's growth, may totally extinguish over time

Methods – Do not work if fuel self-oxidizing

Flood area with inert gas to displace oxygen

Separate oxygen by blanketing fuel with foam

Closing doors before leaving building can limit air supply, help prevent flashover



Chemical Flame Inhibition

Extinguishing agents interrupt combustion reaction, stop flame production

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Effective on gas, liquid fuels

Do not easily extinguish nonflaming fires – No chemical chain reaction to inhibit

Not practical for smoldering fires

Chart Pad:

Title Page

- Name, Department, Title of Presentation

Acronym

- **L.I.P.** (Life Safety, Incident Stabilization, Property Conservation) instructor relates these priorities to the lecture

Summary (2-4 key points)

- Instructor reviews 2-4 key points of the lesson plan to clarify uncertainties, prevent misconceptions, increase learning and improve retention

Application (1 scenario)

- The student is given a scenario where the student will apply all of the knowledge that was given in the lecture. *This is not a question*, it is merely the explanation of the scenario.

Evaluation (2 questions)

- Instructor should ask students 2 direct questions that were presented during the lesson. *Answer to the questions must be give after asking the question.*