

Fire Investigation Independent Study Continuing Education

NFPA 921 UNIT #20 – Study Guide

NFPA 921 Guide for Fire and Explosion Investigations 2004 Edition

Objective: Given an examination the participant shall demonstrate a knowledge and understanding of fire and explosion deaths and injuries and wildfire investigations.

Reading/study assignment: NFPA 921 Guide for Fire and Explosion Investigations, 2004 Edition, pp. 921-171 through 921-180 (Chapter 23)

Study/reference questions:

How should a fire involving serious injury be investigated as compared to a fire involving a death? Why?

What should be done concerning the documentation of a body at a fire scene?

What type of camera or cameras should be used in photographing a body at a fire scene?

How may video recording be used in the documentation of a fire death?

What should be done in reference to notification of a fire death?

If a body is badly burned, what special assistance may the fire investigator seek?

What method(s) may be used in the recovery of bodies and evidence?

What are narcotic gases, which ones are discussed and how do they affect the body?

What are irritant gases and how do they affect the body?

How may smoke affect a person's actions in a fire situation?

What hospital tests are important to the fire investigator? Why?

What should the fire investigator be aware of in relation to access to medical evidence?

What meaning does the sequence of layers have for the fire investigator?

What are sifting screens, what are they used for, and what are they made of?

What death related pathological and toxicological examinations can be conducted?

How may X-rays be used in association with a fire death investigation?

What is the most common postmortem test of a fire victim that may reveal a lot about the cause of death?

What should be done any time there is a death involved with a fire?

What should fire suppression personnel be advised of concerning firefighting operations when there is a fire death?

What should fire suppression personnel do in reference to a body at the scene of the fire?

Carbon monoxide causes what coloration to the skin?

How may carbon monoxide levels be used or measured in fire death examinations?

What other toxic products may be present in fire victims?

How may the presence of other toxic products be determined in a fire victim?

What may the presence of soot and smoke in a fire victim indicate?)

In what part(s) of a body is the presence of smoke and soot found? What may this mean?

What effects may burns and heat have on the human body?

What is the pugilistic attitude and what does this indicate?

What things must be considered concerning the consumption of a body by fire?

What part of the human body is the best fuel?

How do various parts of a body react to fire and heat?

What are the fundamental issues of fire death investigations?

What are the concerns and what must be considered in reference to remains identification?

How may victim identification be done and what are some of the methods and concerns in reference to victim identification?

How is the cause of death defined and what are some examples?

What is the manner of death and what are the classifications?

What is meant by victim activity in relation to a fire death, what can assist the investigator with this determination and what are some examples?

What are some postmortem changes that take place in a body and what do they indicate?

What is lividity, what is livor mortis, and what do they indicate?

What is rigor mortis and what does it indicate?

How does CO affect the body?

What are some of the combustion products that may affect the body and how do they contact or enter the body?

What produces CO?

What are normal CO concentrations, what concentrations are lethal, and what other factors need to be considered along with the CO levels?

What percentage of fire victims die from CO poisoning?

What are the two main thermal causes of death or injury?

What is hyperthermia and what is the difference between simple and acute hyperthermia?

What body core temperature is associated with death within minutes unless treated?

Can inhalation of hot gases cause death or injury and what is the distinguishing characteristic of thermal burns as compared to chemical burns?

What are some of the other toxic gases that may be found in the fire environment and how are they produced?

How may soot and smoke contribute to fire deaths and injuries?

What is hypoxia and what percentages are associated with this condition?

Can carbon dioxide or oxygen levels be measured post mortem in the blood? Why or why not?

Why should the fire investigator encourage postmortem tests and documentation?

What part of the body should blood for testing be taken from?

Review and study postmortem tests and documentation sections 23.6 - 23.6.13.

When can death from fire and explosion injuries occur?

Where can physical evidence from fires or explosions be found in relation to the location of the body and what may this include?

Why and what is important concerning the clothing of people injured in fires or explosions?

Why are furnishings at a fire scene important in relation to injury or death, how should they be assessed and why?

What should be done in reference to ignition sources where fire injury or death has occurred?

What are notification laws in reference to fire injuries?

How may evidence of burn injuries be recorded in medical reports?

What is degree of burn, what are the various degrees, and what are the alternative descriptions?

What is the rule of nines and what are the percentages associated with the various areas?

Review Figure 23. 7. 2. 2. 2., Mortality by percentage of body burned and age.

How, when and why should the documentation of fire and explosion injuries done?

Are chemical, hot liquid, hot gas, and flame burns distinguishable as to how they occurred?

What heat fluxes and time periods are mentioned in relation to burn injuries?

What type of heat transfer is typically more dangerous in relation to burns of the skin?

Can burns occur to the body when there is no apparent damage to the clothing covering that area of the body? With what fabric(s) is this especially true?

Is medical evidence of inhalation important to the fire investigator? Why?

What are some of the gases discussed in relation to sub lethal inhalation exposure effects on the individuals?

What is the relationship of the elimination of CO by O₂/air and why is this important to the fire investigator?

Why are explosion related injuries important and what are the four categories that they are divided into?

What are blast pressure explosion related injuries and what should the fire investigator be aware of in relation to these?

What are shrapnel explosion related injuries and what should the fire investigator be aware of in relation to these?

What are thermal explosion related injuries and what should the fire investigator be aware of in relation to these?

What are seismic explosion related injuries and what should the fire investigator be aware of in relation to these?