

**Fire Investigation Independent Study Continuing Education**  
**NFPA 921 (2004 Edition) UNIT #1 – 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 the introductory information, the scope, purpose, application, and units of measure of the administration of NFPA 921, referenced publications, and the definitions of words and terms associated with fire and explosion investigations.

**Objective:** Given an examination the participant shall demonstrate a knowledge and understanding of the basic methodology of fire and explosion investigations.

**Reading/study assignment:** NFPA 921 Guide for Fire and Explosion Investigations, 2004 Edition, inside front cover, pp. 921-1 through 921-15 (Introductory information, Chapters 1, 2, 3 and 4)

**Study/reference questions:**

Read “Important Notice About This Document” on the inside front cover.

What is fire?

Are referenced publications considered part of the recommendations of NFPA 921, 2004 Edition?

What is absolute temperature?

What does a vertical line in the margin indicate?

What is a guide?

A fire or explosion investigation is an endeavor that involves what?

What are a backdraft, a flashover, a BLEVE, a flash fire, flameover, and rollover?

What edition is the NFPA 921 2004 edition (1st, 2nd, 3rd, 4th, 5<sup>th</sup>, 6<sup>th</sup>, etc.)?

What is the scope of NFPA 921, 2004 Edition?

What is/are the purpose(s) of NFPA 921, 2004 Edition?

What is ambient?

Read through the list of Referenced Publications, Chapter 2.

How many chapters and appendices does NFPA 921, 2004 Edition contain?

What are ampacity, ampere, arc, and arcing through char?

Does the 2004 edition contain any new chapters, improvements, and/or revisions from previous edition(s)?

One Btu/s equals how many kW?

What approach is recommended for fire investigations?

What are area of origin and point of origin?

What is arson?

What are an arrow pattern, isochar, char, and char blisters?

What is NFPA 907M and is it current?

What do the following mean?

- Approved
- Bead
- Blast front pressure
- Bonding
- British thermal unit
- Burning rate
- Ceiling layer
- Ceiling jet
- Cause

What does NFPA 921 say concerning presumption of cause?

What are temperature, autoignition, autoignition temperature, ignition temperature, self-ignition, self-ignition temperature, kindling temperature, piloted ignition temperature, and heat of ignition?

Define the following.

- Clean burn
- Code
- Detection
- Entrainment
- Extinguish
- Failure
- Combustible gas indicator

What should a hypothesis be based on?

What are a fire analysis, a fire investigation, and a fire scene reconstruction?

What does NFPA 921 say about reporting procedure?

What are a flammable liquid and a combustible liquid defined as?

What are combustible, flammable, flammable limit, ignitable liquid, and nonflammable?

What may be involved in receiving the assignment?

What is the scientific method?

What are detonation and deflagration?

What is flash point of a liquid?

What is the basic method of a fire investigation, what are the steps and what do the steps involve?

What are explosive, explosion, explosive material, high-order explosion, low-order explosion, low explosive, high explosive, smoke explosion, seat of explosion, seated explosion, and secondary explosion?

What is involved in conducting the investigation?

Study Figure 4.3.

What is heat release rate?

What is empirical data?

Define:

- Drop down
- Failure analysis
- Fall down
- Finish rating
- Fire cause
- Fire dynamics
- Fire patterns
- Fire science
- Fire propagation
- Fire spread
- Flame
- Flame front
- Flash fire
- Forensic
- Fuel
- Fuel-controlled fire
- Fuel gas
- Fuel load
- Full room involvement
- Gas
- Glowing combustion
- Ground fault

(Define continued)

- Hazard

Heat  
Heat and flame vector  
Hypergolic material  
Ignition  
Ignition energy  
Ignition time  
Inductive reasoning  
Joule  
Layering  
Material first ignited  
Noncombustible material  
Ohm  
Origin  
Overcurrent  
Overload  
Oxygen deficiency  
Plastic  
Plume  
Premixed flame  
Preservation  
Products of combustion  
Proximate cause  
Pyrolysis  
Pyrophoric material  
Radiant heat  
Rate of heat release  
Recommended practice  
Rekindle  
Responsibility  
Risk  
Self heating  
Short circuit  
Smoke condensate  
Smoldering  
Soot  
Spalling  
Spark

What are the steps of the scientific method and what do they involve?

What is the basic method for fire investigation?

What is scientific method?

After defining the problem, what should be done in a fire or explosion investigation?

What is smoke?

What does “determining a problem exists” relate to in reference to fire and explosion investigations?

What is an accident?

What must the fire in relation to collecting and preserving evidence?

What is kilowatt?

What is inductive reasoning?

What are spontaneous heating and spontaneous ignition?

What systematic approach is recommended?

What are conduction, convection, and radiation?

What should the fire investigator do in preparing for the fire investigation and why?

Units of measure – Read Table 1.4, page 921-6.

What is an accelerant?

What is deductive reasoning?

Define the following.

- Standard
- Suppression
- Target fuel
- Thermal column
- Thermal expansion
- Thermal inertia
- Thermoplastic
- Thermoset plastics
- Time line
- Upper layer
- Vapor
- Vapor density
- Vent
- Ventilation
- Ventilation-controlled fire
- Venting
- Volt
- Watt

What method forms a basis for legitimate scientific and engineering processes?

When was the first edition of NFPA 921 issued?

What is heat flux?

