Training Guidelines for the Fire Debris Analyst

Lesson Plan (Module) 9

Date: November 2006          Instructor: Qualified Instructor
Subject: Other Evidence      Total Time: 12 hours

Learning Objectives

- To create an awareness of the forensic significance of non-fire debris types of physical evidence from fire scenes.
- To create an awareness of the potential destruction of other types of evidence during fire debris examination.

Suggested Reading


Introduction

The student will be introduced to the many diverse types of physical evidence that might be present at the fire scene or in the submitted evidentiary materials recovered from a fire scene.
Outline

1. Seek appropriate consultation
   a. Scene
      i. Determine what possible types of examinations are required on a particular piece of evidence.
      ii. Prioritizing and preserving potential evidence.
      iii. Package evidence appropriately based on the above determination.
   b. Laboratory
      i. Determine whether other analyses can/should be performed on evidence in a fire debris container prior to an ignitable liquid examination.
      ii. Package evidence appropriately based on results of consultation.
2. Friction ridge patterns/impressions
   a. Latent
   b. Patent
   c. Plastic
3. Impression evidence
   a. Shoe impressions
   b. Tire impressions
   c. Tool marks
4. Biological evidence
   a. Detection
   b. Identification
   c. Individualization (DNA)
      i. Types of evidence to consider
   d. Types
      i. Fluids
         1. Stains
         2. Liquids
      ii. Anatomical parts
5. Physical matches
6. Trace evidence
   a. Fibers
      i. At the scene
      ii. In the fire debris
      iii. Singed fibers on the suspect
      iv. Comparing textile wick (Molotov cocktail) to textile in possession of suspect
   b. Glass
      i. Molotov cocktails
      ii. Glass from scene on suspect
   c. Hairs
      i. At the scene
ii. In the fire debris
iii. Singed hairs on the perpetrator
d. Soil
e. Paint
f. Gunshot residues
   i. Primer residues
   ii. Gunpowder
g. Building materials
   i. Brick
   ii. Concrete
   iii. Plaster board
   iv. Wood (processed/natural)
   v. Insulation
7. Firearms
8. Questioned Documents (including charred papers)
9. Digital evidence
   a. Hard drives
   b. Digital/analog media
10. Controlled substances
    a. Paraphernalia
    b. Clandestine laboratories
       i. Safety issues
       ii. Awareness of possible secondary incendiary devices
       iii. Evidence of controlled substance manufacturing
11. Role of the medical examiner
    a. Medical examiner reports
    b. Toxicology
    c. Pathology

Teaching Aids

Visitation of respective forensic disciplines
Visual aids
Handout
PowerPoint presentation

Summary

Having completed this training, the student will be aware of the many types of potential evidence that could be present at a fire scene. The student will be able to execute the correct evidence handling procedures to ensure that all forensically significant evidence will be preserved.
Test Questions

1. Blood stains cannot be individualized after any exposure to fire or heat. True or False

2. Fingerprints are rendered useless by exposure to fire conditions. True or False

3. A torn match can sometimes be identified back to its matchbook by a physical (jigsaw fit) comparison. True or False

4. At a fire scene, a shoe print is located in soil below a broken ordinary clear glass window; the authorities have a suspect in custody. Which of the following is more likely to provide a positive link between the suspect and the scene?
   a. soil comparisons with soil on the suspect’s shoe
   b. identification of an ignitable liquid on the suspect’s shoe
   c. recovery of glass fragments embedded in the suspect’s shoe
   d. shoe impression examination

5. A charred document has been submitted to the laboratory for authentication and ignitable liquid analysis. Which one of the following steps is recommended?
   a. consult a questioned documents examiner
   b. process the charred document for ignitable liquids by usual methods
   c. repackage the charred document in plastic
   d. examine the document using a forensic light source

6. A cigarette butt is found at the fire scene. What types of examinations could the cigarette butt be subjected to?
   a. DNA analysis
   b. latent print examination
   c. cigarette brand identification
   d. all of the above