



Evidence, Documentation, Interviews, and Wildland (2022)

Course Plan

Course Details

Certification:	Fire Investigator
CTS Guide:	Fire Investigator (2022)
Description:	This course provides the skills and knowledge needed for the Fire Investigator to safely, effectively, and competently complete scene documentation and evidence collection and preservation for both structure and wildland fires. Topics include photographing, sketching, and diagramming the scene; working with evidence; identifying origin areas and cause; managing victims and fatalities; establishing and maintaining a chain of custody; planning, conducting, and evaluating interviews; and preparing written reports.
Designed For:	Personnel preparing to pursue Fire Investigator certification or anyone who performs the duties of a Fire Investigator within their agency.
Prerequisites:	Fire Investigation 1A: Basic Fire Investigation (2017 or 2022) Fundamentals of Interviewing (CFITrainer.net) Introduction to Evidence (CFITrainer.net) Wildland Fires Investigation (CFITrainer.net)
Standard:	Complete all activities and formative tests. Complete all summative tests with a minimum score of 80%.
Hours (Total):	40 hours (26 lecture / 14 application / 2 testing)
Maximum Class Size:	30
Instructor Level:	SFT Fire Investigator 1B Registered Instructor
Instructor/Student Ratio:	Lecture 1:30
Restrictions:	See Facilities, Equipment, and Personnel
SFT Designation:	CFSTES

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Required Resources

Instructor Resources

To teach this course, instructors need:

- One of the following textbooks and accompanying tool kits and test banks:
 - *Fire Investigator Principles and Practice* (Jones and Bartlett, 6th edition, 2022)
or
 - *Fire Investigator* (IFSTA, 3rd edition, 2021)
- NFPA 921: Guide for Fire and Explosion Investigations (current edition)
- NFPA 1033: Standard for Professional Qualifications for Fire Investigator (current edition)
- ASTM E620 – *Standard Practice for Reporting Opinions of Scientific or Technical Experts* (contents of a written report and evaluation methods)
- ASTM E678 – *Standard Practice for Evaluation of Scientific or Technical Data*. (contents of a written report and evaluation methods)
- ASTM E860 – *Standard Practice for Examining and Preparing Items that Are or May Become Involved in Criminal or Civil Litigation* (evidence collection methods)
- ASTM E1188 – *Standard Practice for Collection and Preservation of Information and Physical Items by a Technical Investigator*. (evidence collection methods)
- Fire Scene Evidence Collection Guide (IAAI, current edition)
- *Law Enforcement Evidence and Property Management Guide* (POST, 4th edition, 2022)
- *Guide to Wildland Fire Origin and Cause Determination* (NWCG)
- Physical Evidence Bulletins (Office of the Attorney General)
- Public Resource Code; Health and Safety Code; California Code of Regulations, Title 19
- Fire scene scenarios and associated documents (e.g., pre-fire plans and inspection reports)
- Sample documents for constructing investigative notes
- Authority requirements for establishing a chain of custody
- Relevant protocols for processing victims and fatalities
- Judicial, statutory, or jurisdictional requirements for disposing evidence
- Sample case files
- Personal protective equipment (including gloves)

Online Instructor Resources

The following instructor resources are available online at

<https://osfm.fire.ca.gov/what-we-do/state-fire-training/professional-certifications>

- Fire Investigator 1B Activities

Student Resources

To participate in this course, students need:

- Required textbook chosen by the instructor
- Access to a computer and printer
- Device capable of taking photographs (i.e., tablet or cell phone)
- Tablet or laptop computer
- Personal protective equipment (including gloves)

Facilities, Equipment, and Personnel

Facilities

The following facilities are required to deliver this course:

- Standard learning environment or facility, which may include:
 - Writing board or paper easel chart
 - Markers, erasers
 - Amplification devices
 - Projector and screen
 - Laptop or tablet with presentation or other viewing software
 - Internet access with appropriate broadband capabilities
 - Tools and equipment used by a fire investigator

Equipment

- Tools and equipment used by a fire investigator
- Evidence samples, collection materials, and logs

Personnel

- All instructors counted toward student ratios, including application components, must be SFT Registered Fire Investigator 1B Instructors

Time Table

Segment	Lecture	Application	Unit Total
Unit 1: Introduction			
Topic 1-1: Orientation and Administration	0.50	0.0	
Topic 1-2: Fire Investigator Certification Process	0.25	0.0	
Unit 1 Totals	0.75	0.0	0.75
Unit 2: Scene Documentation			
Topic 2-1: Photographing the Scene	2.0	4.0	
Topic 2-2: Sketching and Diagramming the Scene	1.0	*	
Topic 2-3: Constructing Investigative Notes	1.0	*	
Unit 2 Totals	4.0	4.0	8.0
Unit 3: Unit Evidence Collection and Preservation			
Topic 3-1: Working with Evidence	6.0	0.0	
Topic 3-2: Managing Victims and Fatalities	2.0	0.0	
Topic 3-3: Selecting Evidence for Analysis	2.0	0.0	
Topic 3-4: Maintaining a Chain of Custody	1.0	0.0	
Topic 3-5: Preparing a Written Report	3.0	6.0	
Topic 3-6: Disposing of Evidence	0.5	0.0	
Topic 3-7: Developing an Interview Plan	1.0	0.0	
Topic 3-8: Conducting an Interview	1.0	0.5	
Topic 3-9: Evaluating Interview Information	1.0	0.0	
Unit 3 Totals	17.5	6.5	24.0
Unit 4: Wildland Fire Investigation			
Topic 4-1: Wildland Fire Investigator Roles and Responsibilities	0.25	0.0	
Topic 4-2: Documenting a Wildland Fire Scene	1.25	1.50	
Topic 4-3: Identifying Origin Areas	1.50	0.0	
Topic 4-4: Identifying Wildland Fire Ignition Source and Cause	0.50	0.0	
Topic 4-5: Working with Wildland Fire Evidence	0.25	0.0	
Unit 4 Totals	3.75	1.50	5.25
Formative Assessments			
Determined by AHJ or educational institution	0.0	0.0	0.0
Summative Assessment			
Determined by AHJ or educational institution	0.0	2.0	2.0
Course Totals	26.0	14.0	40.0

* The 4 hours identified for application in Topic 2-1 covers all of Unit 2.

Time Table Key

1. The Time Table documents the amount of time estimated to deliver the content included in the course plan.
2. Time is documented using the quarter system: 15 min. = .25 / 30 min. = .50 / 45 min. = .75 / 60 min. = 1.0.
3. The Course Totals do not reflect time for lunch (1 hour) or breaks (10 minutes per each 50 minutes of instruction or assessment). It is the instructor's responsibility to add this time based on the course delivery schedule.
4. Application (activities, skills exercises, and formative testing) time will vary depending on the number of students enrolled. The Application time documented is based on the maximum class size identified in the Course Details section.
5. Summative Assessments are determined and scheduled by the authority having jurisdiction. These are not the written or psychomotor State Fire Training certification exams. These are in-class assessments to evaluate student progress and calculate course grades.

Unit 1: Introduction

Topic 1-1: Orientation and Administration

Terminal Learning Objective

At the end of this topic a student will be able to identify facility and classroom requirements and identify course objectives, events, requirements, assignments, activities, skills exercises, resources, evaluation methods, and participation requirements in the course syllabus.

Enabling Learning Objectives

1. Identify facility requirements
 - Restroom locations
 - Food locations
 - Smoking locations
 - Emergency procedures
2. Identify classroom requirements
 - Start and end times
 - Breaks
 - Electronic device policies
 - Special needs and accommodations
 - Other requirements as applicable
3. Review course syllabus
 - Course objectives
 - Calendar of events
 - Course requirements
 - Student evaluation process
 - Assignments
 - Activities
 - Required student resources
 - Class participation requirements

Discussion Questions

1. Determined by instructor

Application

1. Determined by instructor

Topic 1-2: Fire Investigator Certification Process

Terminal Learning Objective

At the end of this topic a student will be able to identify the courses and requirements for Fire Investigator certification and be able to describe the certification task book and testing process.

Enabling Learning Objectives

1. Identify the levels of certification in the Fire Investigator certification track
 - Not applicable
2. Identify the prerequisites for Fire Investigator certification
 - Not applicable
3. Identify the course work required for Fire Investigator certification
 - Fire Investigator 1A (2017 or 2022) (SFT)
 - Fire Investigator 1B: Interview, Evidence, and Documentation, and Wildland (2022)
or
Fire Investigator 1B: Evidence and Documentation (2017) **and** FI-110: Wildland Fire Observations and Origin Scene Protection for First Responders (NWCG) **and** Fundamentals of Interviewing (CFTITrainer.net) **and** Introduction to Evidence (CFTITrainer.net)
or
Fire Investigator 1B: Evidence and Documentation (2017) **and** Wildland Fires Investigation (CFITrainer.net) **and** Fundamentals of Interviewing (CFTITrainer.net) **and** Introduction to Evidence (CFTITrainer.net)
 - Fire Investigator 1C (2017 or 2002) (SFT)
 - PC832: Arrest (POST #80102)
 - Must be completed within two years of applying for certification unless candidate is employed as a peace officer
4. Identify the exams requirements for Fire Investigator certification
 - Not applicable
5. Identify the task book requirements for Fire Investigator certification
 - Fire Investigator Certification Task Book (2022)
6. Identify the experience requirements for Fire Investigator certification
 - A minimum of two (2) years' full-time paid experience with a recognized California fire or law enforcement agency
 - Investigate 25 fires as the lead investigator (verified in chief's, sheriff's, or equivalent's letter)
7. Identify the position requirements for Fire Investigator certification
 - None
8. Describe the certification task book process
 - Complete all prerequisites and course work
 - Submit application and fees to request certification task book
 - Complete all job performance requirements included in the task book
 - Must have identified evaluator verify individual task completion via signature

- Must have Fire Chief, Police Chief, Sheriff, or equivalent or authorized representative verify task book completion via signature
 - Must be employed by a California fire or law enforcement agency in the position prior to submitting completed task book to State Fire Training
9. Describe the certification testing process
- Not applicable
 - All formative and summative testing is completed in individual courses

Discussion Questions

1. Determined by instructor

Application

1. Determined by instructor

Unit 2: Scene Documentation

Topic 2-1: Photographing the Scene

Terminal Learning Objective

At the end of this topic a student, given standard tools and equipment, will be able to photographically document the scene to accurately depict the scene and so that the photographs support scene findings.

Enabling Learning Objectives

1. Discuss working knowledge of high-resolution camera and flash
2. Discuss the types of media capture and collection
3. Describe the strengths and limitations of each type of media capture and collection
4. Describe the process of photographing a scene
5. Operate a high-resolution camera, flash, and accessories
6. Describe a photo log and its purpose

Discussion Questions

1. What photographic issues might be at a fire scene?
2. How does a fire investigator approach the photographic documentation of a fire scene?
3. Why are personal cameras and cell phones not used to photograph a fire scene?
4. What is done with poor-quality photographs?
5. What is important to photograph at a fire scene?

Application

1. Activity 2-1: Scene Documentation

Instructor Notes

1. None

CTS Guide Reference: CTS 3-2

Topic 2-2: Sketching and Diagramming the Scene

Terminal Learning Objective

At the end of this topic a student, given standard tools and equipment, will be able to sketch and diagram the scene to accurately represent the scene and identify evidence, pertinent contents, significant patterns, and area(s) or point(s) of origin.

Enabling Learning Objectives

1. Define commonly used symbols and legends that clarify the diagram
2. Describe types of evidence and patterns that need to be documented
3. Identify formats for diagramming the scene
4. Sketch the scene
5. Perform basic drafting skills
6. Locate evidence
7. Demonstrate observational skills

Discussion Questions

1. What is the difference between a sketch and a diagram?
2. What symbols and legends are required on a diagram?
3. What content should be included?
4. What is the importance of a diagram to a case?

Application

1. Activity 2-1: Scene Documentation

Instructor Notes

1. None

CTS Guide Reference: CTS 3-1

Topic 2-3: Constructing Investigative Notes

Terminal Learning Objective

At the end of this topic a student, given a fire scene, available documents (e.g., pre-fire plans and inspection reports), and interview information, will be able to construct investigative notes that provide accurate documentation of the scene.

Enabling Learning Objectives

1. Describe the relationship between notes, diagrams, and photos
2. Describe how to reduce scene information into concise notes
3. Discuss using notes during report writing and legal proceedings
4. Demonstrate data-reduction skills
5. Demonstrate note-taking skills
6. Demonstrate observation and correlation skills

Discussion Questions

1. What are some important scene observations to include in notes?
2. How detailed should notes be in order to construct a report?
3. Can you legally destroy notes after the report is written?
4. Are notes discoverable if they are in the investigative file?

Application

1. Activity 2-1: Scene Documentation

Instructor Notes

1. For more information and sample forms for scene documentation, see NFPA 921, Figure A.3.2(a) through Figure A.16.3.2(k). For sample forms for documentation of compartment fire modeling data, see NFPA 921, Figure A.3.2(k).

CTS Guide Reference: CTS 3-3

Unit 3: Evidence Collection and Preservation

Topic 3-1: Working with Evidence

Terminal Learning Objective

At the end of this topic a student, given standard or special tools and equipment and evidence collection materials, will be able to process evidence and establish chain of custody by locating, documenting, collecting, labeling, packaging, and storing evidence so that it is properly identified and preserved for use in testing, legal, or other proceedings and examinations, avoiding cross-contamination and investigator-inflicted damage to evidentiary items.

Enabling Learning Objectives

1. Explain the impact of evidence collection on the investigation
2. Describe the authority requirements for collecting evidence and establishing a chain of custody
 - Civil subrogation
 - Criminal evidence
3. Describe an evidence log and its purpose
4. Describe the impact of removing evidentiary items on civil or criminal proceedings (exclusionary or fire-cause supportive evidence)
5. Discuss legal repercussions regarding evidence spoliation
6. Describe how to secure and store evidence
7. Determine whether evidence is critical to the investigation
8. Describe types of evidence
9. Explain standard and special tools and equipment used to locate evidence
 - Types
 - Capabilities
 - Limitations
10. Identify the types of laboratory tests available
11. Identify packaging techniques and materials

Discussion Questions

1. How significant is a chain of custody?
2. How can a chain of custody be compromised?
3. Why is it important to leave space in a container of fire debris?
4. What is the importance of properly documenting and packaging evidence?
5. What are the steps to properly marking an evidence container?
6. What is the role of the fire investigator in collecting evidentiary items (exclusionary or fire-cause supportive evidence)?

Application

1. Determined by instructor

Instructor Notes

1. Refer to Physical Evidence Bulletins (Office of the Attorney General).
2. Refer to NFPA 1033 Annex A for definitions of standard and special tools.

CTS Guide Reference: CTS 4-2

Topic 3-2: Managing Victims and Fatalities

Terminal Learning Objective

At the end of this topic a student, given a protocol and appropriate personnel, will be able to utilize proper procedures for managing victims and fatalities to discover and preserve all evidence and follow protocol procedures.

Enabling Learning Objectives

1. Describe types of evidence associated with fire victims and fatalities
2. Discuss evidence preservation methods
 - Authority to collect evidence from fatalities
3. Demonstrate observational skills
4. Apply AHJ procedures
 - Coordinating with coroner/medical examiner
 - Obtaining autopsy reports
 - Coordinating with local law enforcement

Discussion Questions

1. What evidence should you collect from a victim?
2. What is unique about the way a fire investigator approaches a fire scene with a fatality?
3. What protocols does your AHJ have for a fatal fire?
4. Why should a fire investigator attend an autopsy?

Application

1. Determined by instructor

Instructor Notes

1. Consider inviting a guest lecturer from the coroner's office for this topic.

CTS Guide Reference: CTS 4-1

Topic 3-3: Selecting Evidence for Analysis

Terminal Learning Objective

At the end of this topic a student, given all information from the investigation, will be able to select evidence for analysis so the items for analysis support specific investigation needs.

Enabling Learning Objectives

1. Discuss criteria for selecting evidence for analysis
2. Explain purposes for submitting items for analysis
3. Identify types of analytical services available
4. Describe capabilities and limitations of the services performing the analysis
5. Destructive
6. Non-destructive
7. Evaluate fire scene to determine forensic, engineering, or laboratory needs
8. Describe needs related to prioritizing testing given limited evidence

Discussion Questions

1. Why submit evidence for analysis?
2. What types of evidence should be analyzed?
3. How does the evidence determine the type of analysis that should be considered?
4. What is destructive testing, and when should it be done?

Application

1. Determined by instructor

Instructor Notes

1. None

CTS Guide Reference: CTS 4-3

Topic 3-4: Maintaining a Chain of Custody

Terminal Learning Objective

At the end of this topic a student, given standard investigative tools, marking tools, and evidence tags or logs, will be able to maintain a chain of custody so that written documentation exists for each piece of evidence and evidence is secured.

Enabling Learning Objectives

1. Describe and execute transfer of custody procedures
2. Identify types of evidence
 - Physical evidence obtained at the scene
 - Media
 - Documents
3. Describe methods of recording the chain of custody
4. Demonstrate the chain of custody procedures
5. Describe the types of evidence storage
6. Accurately complete necessary documentation

Discussion Questions

1. Where should evidence be stored?
2. How should evidence be stored?
3. What are the different methods of recording the chain of custody?

Application

1. Determined by instructor

Instructor Notes

1. None

CTS Guide Reference: CTS 4-4

Topic 3-5: Preparing a Written Report

Terminal Learning Objective

At the end of this topic a student, given investigative findings, will be able to prepare a written report so that the report accurately reflects the facts, data, and scientific principles on which the investigator relied; clearly identifies and expresses the investigator's opinions and conclusions; and contains the reasoning by which the investigator reached each opinion or conclusion to meet the needs or requirements of the intended audience(s).

Enabling Learning Objectives

1. Describe elements of writing
 - Purpose
 - Audience
 - Clarity
 - Coherence
 - Accuracy
2. Describe components of a written report
 - Summary of events
 - Notification and response/chronology of events
 - Property description
 - Scene observations
 - Witness statements
 - Reasoning by which each opinion and conclusion was reached
 - Area of origin
 - Fire patterns
 - Fire dynamics
 - Witness statements/electronic media
 - Cause
 - Fuel
 - Ignition source(s)
 - Act or omission that brought a competent ignition source and material first ignited
 - Attachments
3. Explain how to transfer investigative notes into a fire investigation report
4. Identify types of audiences and their respective needs or requirements
5. Demonstrate writing skills
6. Analyze information

Discussion Questions

1. Why is it important to demonstrate good writing skills?
2. What is the purpose of a fire investigation report?
3. What should be included in the report? As important, what should not be included?
4. How detailed should the report be?

Application

1. Activity 3-5: Fire Investigation Report

Instructor Notes

1. Refer to the Five Elements of Writing (http://ngl.cengage.com/assets/downloads/greatwi_pro0000000335/gw3_unit2.pdf).
2. Clarify that we do not identify types of audiences and their needs or requirements to write to their bias but to write within their format and answer their unique questions.

CTS Guide Reference: CTS 8-1

Topic 3-6: Disposing of Evidence

Terminal Learning Objective

At the end of this topic a student, given jurisdictional or agency regulations and file information, will be able to dispose of evidence in a timely manner, safely conducted, and in compliance with jurisdictional or agency requirements.

Enabling Learning Objectives

1. Discuss judicial or statutory requirements for disposal
2. Identify disposal services available
3. Describe common disposal procedures and problems
4. Demonstrate documentation skills

Discussion Questions

1. How long should evidence be kept?
2. What are some options for disposing of evidence?
3. Who may require notification before evidence is disposed?

Application

1. Determined by instructor

Instructor Notes

1. Refer to *Evidence and Property Management Guide* (POST)

CTS Guide Reference: CTS 4-5

Topic 3-7: Developing an Interview Plan

Terminal Learning Objective

At the end of this topic a student, given no special tools or equipment, will be able to develop an interview plan so that the plan reflects a strategy to further determine the fire cause and affix responsibility and includes a relevant questioning strategy for each individual to be interviewed that promotes the efficient use of the investigator's time.

Enabling Learning Objectives

1. Describe the difference between "interview" and "interrogation"
2. Identify critical persons to interview at the scene
3. Determine types of questions that are pertinent and efficient to ask of different information sources
 - Open-ended (not leading)
4. Develop focused questions for specific individuals
 - First responders
 - Neighbors
 - Witnesses
 - Suspects
5. Demonstrate planning skills
 - Language and cultural considerations
6. Evaluate existing file data to help develop questions and fill investigative gaps
7. Determine when and what visual aids might be helpful in conducting an interview
8. Discuss the benefits and limitations of interviews versus document gathering

Discussion Questions

1. Who are critical persons to interview at the scene?
2. What are planning considerations within your AHJ?

Application

1. Determined by instructor

Instructor Notes

1. Refer to Physical Evidence Bulletins (Office of the Attorney General)
2. Refer to NFPA 1033 Annex A for definitions of standard and special tools
3. Make sure to convey that successful and unsuccessful types of questions are the same no matter the person—i.e., open-ended, not leading, questions are key for all information sources.

CTS Guide Reference: CTS 5-1

Topic 3-8: Conducting an Interview

Terminal Learning Objective

At the end of this topic a student, given incident information, will be able to conduct an interview to obtain pertinent information, ask follow-up questions, elicit responses to all questions, and accurately document the response to each question.

Enabling Learning Objectives

1. Identify types of interviews
 - In-person
 - Phone
 - Virtual
2. Describe personal identifying information needed for proper documentation or follow-up
3. Identify documenting methods and tools
4. Identify types of verbal and nonverbal communications
5. Adjust interviewing approach based on deductive reasoning
 - Interview witnesses separately
6. Describe and apply legal requirements
7. Demonstrate active listening skills

Discussion Questions

1. What are the legal requirements for interviewing as a peace officer and not?
2. How can using active listening skills establish rapport with interviewees, particularly those who may be hesitant or traumatized?

Application

1. Given fire investigation scenarios, have students pair up and conduct interviews.

Instructor Notes

1. Be careful not to teach interrogation techniques.

CTS Guide Reference: CTS 5-2

Topic 3-9: Evaluating Interview Information

Terminal Learning Objective

At the end of this topic a student, given interview transcripts or notes and incident data, will be able to evaluate interview information so that all interview data is individually analyzed and correlated with all other interviews, corroborative and conflictive information is documented, and new leads are developed.

Enabling Learning Objectives

1. Describe how to evaluate interview information
2. Identify data correlation methods
3. Demonstrate data correlation skills
4. Evaluate source information
 - First responders
 - Other witnesses
5. Evaluate information obtained during interviews to determine follow-up

Discussion Questions

1. How would you determine the need for follow-up?
2. How would you evaluate interview information?
3. How do you verify witness statements?

Application

1. Determined by instructor

Instructor Notes

1. None

CTS Guide Reference: CTS 5-3

Unit 4: Wildland Fire Investigation

Topic 4-1: Wildland Fire Investigator Roles and Responsibilities

Terminal Learning Objective

At the end of this topic a student, given an actual or simulated wildland fire incident, will be able to describe the roles and responsibilities of a fire investigator in a wildland setting to safely identify, secure, and protect the areas of origin.

Enabling Learning Objectives

1. Identify importance of determining jurisdictional responsibility for investigation
 - Federal (FRA), including Tribal
 - State (SRA)
 - Local (LRA)
2. Identify basic responsibilities of a fire investigator at a wildland scene
 - Record observations en route and upon arrival at a fire scene
 - Perform a site safety assessment
 - Photograph and document fire scene as soon as practical
 - Identify and protect the area of origin until documented
 - Secure the different origin areas from nonessential personnel
 - Mark with boundary tape
 - Identify and protect physical evidence
3. Discuss the systematic method of investigating a wildfire
 - Begins in the advancing area of the fire
 - Continues from each of the general origin areas to the ignition area
4. Identify equipment specific to a wildland investigation
 - Compass / GPS unit
 - Belt weather kit or digital weather instrument
 - Flagging
 - Magnet
5. Identify Personal Protective Equipment (PPE)
 - Fire shelter
 - Helmet / goggles
 - Fire resistant clothing
 - Boots

Discussion Questions

1. Why is it important for investigators to protect wildland fire origins and scenes?
2. What are the different types of jurisdictions?
3. Given a wildland fire, how are individual responsibilities determined?
4. What are some potential consequences of inaccurate or incomplete documentation of wildland fire origins and scenes?
5. How can investigators ensure their own safety when protecting wildland fire origins and scenes?
6. What are observations fire investigators may make while responding to the incident?

7. What is the importance of the specific equipment and PPE?

Application

1. Determined by instructor

Instructor Notes

1. Demonstrate a belt weather kit and flagging for reference.

CTS Guide Reference: CTS 6-1

Topic 4-2: Documenting a Wildland Fire Scene

Terminal Learning Objective

At the end of this topic a student, given a simulated or actual wildland fire incident, will be able to assist with documenting the wildland fire scene to accurately represent the scene and identify evidence, pertinent contents, significant patterns, and area(s) or point(s) of origin.

Enabling Learning Objectives

1. Describe documenting a wildfire scene
 - General origin area (GOA)
 - Specific origin area (SOA)
 - Ignition area (IA)
 - Physical evidence
 - Potential witness information
 - On-scene weather readings
 - Topography reading
2. Discuss outside influences on a wildland scene
 - Public
 - Animals
 - Weather
 - Light
 - Aircraft
 - Fire suppression
3. Describe how to gather digital media
 - Aerial
 - Personal action cameras
 - Social media
 - Witness media
 - Emergency personnel media
4. Identify and interview witnesses
5. Demonstrate data-reduction skills
6. Demonstrate note-taking skills
7. Use cameras and accessories
8. Demonstrate observational and correlational skills
9. Describe how to collect and document on-scene weather readings
 - Use belt weather kit or digital weather instrument
 - Obtain at or near GOA
 - Use RAWS data closest to incident

Discussion Questions

1. What are some challenges to documenting a wildland incident?
2. In what ways can evidence at a wildland incident be uniquely compromised?
3. Why is weather data important?

4. If weather is not taken at the time of the fire, what reliable resources exist to get weather information?

Application

1. Collect weather data using belt weather kit or digital weather instrument.

Instructor Notes

1. Demonstrate a belt weather kit and flagging for reference.
2. Provide diagrams of GOA, SOA, and IA.

CTS Guide Reference: CTS 6-2

Topic 4-3: Identifying Origin Areas

Terminal Learning Objective

At the end of this topic a student, given an actual or simulated wildland fire incident, will be able to assist with identifying the origin areas so that the opinion regarding origin is supported by the data, facts, and evidence.

Enabling Learning Objectives

1. Describe what influences wildland fire behavior
 - Fuels
 - Types, quantities, moisture Content
 - Weather
 - Topography
2. Describe parts of a wildland fire
 - Head / Advancing
 - More damage
 - Rapid spread
 - Indicators in line with direction of spread
 - Flank / Lateral
 - Some residual fuels
 - Indicators at 45° to 90° angle
 - In line with advancing indicators if wind influenced
 - Heel / Backing
 - More residual fuels
 - Indicators in line with direction of spread
 - Transition zones
 - Area of directional change based on variations in intensity
 - Area of change between advancing, lateral, and backing vectors
 - General Origin Area (GOA)
 - Larger area where fire first established itself and is identified by an analysis of fire behavior context, fire pattern indicators, and witness statements
 - General origin area includes within its boundary the specific origin area and ignition area
 - Specific Origin Area (SOA)
 - Smaller area within general origin area where fire's direction of spread was first influenced by fuel, weather, and/or topography
 - SOA will contain Ignition Area
 - Generally characterized by subtle and microscale fire pattern indicators as a result of less intense burning associated with initial stages of fire
 - Ignition Area (IA)
 - Smallest area that a wildland fire investigator can define based on physical evidence of fire pattern indicators, within specific origin area, in which a competent ignition source came into contact with first fuel ignited and combustion was sustained
3. Identify and describe fire direction indicators

- A physical object that displays changes (fire effects) from exposure to heat, flame, and combustion by-products that can reveal the direction of fire progression
 - A fire direction indicator is a single component of the overall fire pattern
- Indicators
 - Protection
 - Side of a physical object facing away from oncoming fire is shielded from full heat and/or byproducts of fire
 - Grass stem
 - Unconsumed grass stems and heads of cured grass left lying on ground after passage of a fire that under certain circumstances point in direction that fire came from
 - Typically found in areas of low-intensity burning including but not limited to backing and lateral areas of fire progression
 - These indicators are typically missing from areas of high-intensity burning where they are normally consumed
 - Foliage freeze
 - Small branches, needles, and leaves swept into a position by wind and fixed by desiccation indicating wind direction at time of fire passage
 - Angle of char
 - Angled or horizontal char or scorch pattern created on standing fuels as fire burns up to, past, and beyond, indicating direction of fire progression
 - Fire enters low, exits high (Advancing fire)
 - Parallel to slope or ground (Backing fire)
 - Spalling
 - Rock or boulders that display more chipping or pitting on exposed surface than protected surface due to passage of fire indicating direction of fire progression at that location
 - Exposed side is side facing oncoming fire, not necessarily direction of ignition area
 - Curling
 - Uncured green leaves and succulents, uncured vegetation which bends and curls inward inwards towards the heat source due to desiccation
 - Folds in the direction the fire was traveling
 - Occurs in slower moving lighter burns (backing and lateral fire spread)
 - Sooting
 - Objects displaying more soot deposits on exposed surface of object than on protected surface of object indicating direction of fire progression at that location
 - Staining
 - Objects displaying more stain deposits on exposed surface of object than on protected surface of object indicating direction of fire progression at that location

- Ash deposits
 - Deposits: Objects displaying more white ash deposits on exposed surface of object as opposed to protected surface of object indicating the direction of fire progression at that location
 - Exposure: Objects displaying more attached white ash on exposed surface of object as opposed to protected surface of object indicating direction of fire progression at that location
 - Cupping
 - A concave or cup-shaped char pattern found on side of fuels exposed to oncoming fire including:
 - Small stumps
 - Grass stem ends
 - Terminal ends of brush and tree limbs that indicate direction of fire progression at that point
 - V or U patterns
 - Fire pattern resembles a V or U shape and indicates direction of fire progression on horizontal surface or plane
 - V pattern indicator
 - High wind flat ground
 - Origin on steep slope
 - Look below the canopy for pattern boundaries
 - U patterns indicator
 - Light wind flat ground
 - Origin on moderate slope
 - Look below the canopy for pattern boundaries
4. Describe the relationship between individual indicators and overall fire pattern(s), which may reveal overall fire progression
 5. Demonstrate analytical and assimilation skills
 6. Discuss indicator flags and their use
 - Color
 - Placement

Discussion Questions

1. How do indicators help determine the overall fire pattern?
2. How do indicators help determine origin areas?
3. What types of vegetation are common in your response area?

Application

1. Determined by instructor

Instructor Notes

1. Reference the *Guide to Wildland Fire Origin and Cause Determination (NWCG)*.

CTS Guide Reference: CTS 6-3

Topic 4-4: Identifying Wildland Fire Ignition Source and Cause

Terminal Learning Objective

At the end of this topic a student, given an actual or simulated wildland fire scene, will be able to assist with identifying the ignition source and cause of a wildland fire so that what brought the ignition source and materials together is determined.

Enabling Learning Objectives

1. Identify categories of fire causes and ignition sources
 - Lightning
 - Campfires
 - Smoking
 - Debris burning
 - Burn barrels
 - Field or agricultural burn
 - Open trash burning
 - Incendiary
 - Equipment and Vehicle
 - Tractor
 - Chainsaw
 - Railroad
 - Children
 - Miscellaneous
 - Firearms
 - Explosives
 - Fireworks
 - Power generation, transmission, or distribution
 - Spontaneous combustion
2. Employ search techniques

Discussion Questions

1. What are open flame ignition causes?
2. What is the difference between lightning and miscellaneous electrical causes?
3. What is the difference between a debris fire and spontaneous combustion?
4. Does an investigator need to eliminate an ignition source that is not present?

Application

1. Determined by instructor

Instructor Notes

1. Reference the *Guide to Wildland Fire Origin and Cause Determination* (NWCG).

CTS Guide Reference: CTS 6-4

Topic 4-5: Working with Wildland Fire Evidence

Terminal Learning Objective

At the end of this topic a student, given an actual or simulated wildland fire scene, will be able to assist with locating, photographing, documenting, and protecting wildland fire evidence so that evidence is properly identified, preserved, collected, packaged, and stored for use in testing, legal, or other proceedings and examinations.

Enabling Learning Objectives

1. Describe how evidence is located and identified at a wildland fire scene
 - Gridding
 - Sifting
 - Flagging
2. Identify equipment and vehicle use evidence
 - Keep suppression efforts away to avoid destroying potential evidence
 - Tire or track impressions near the general origin area
 - Identify and protect evidence of equipment operation at or near the ignition area
 - Identify and protect rock strike locations
 - Identify and protect scrape marks on pavement
3. Identify any evidence of firearms use
 - Ammunition
4. Identify firework evidence
5. Identify evidence related to power generation, transmission, or distribution
 - Photograph power line conditions and other relevant evidence from a safe distance prior to utility repair crew removal
 - Photograph and document power pole identification numbers
 - Document and report removal of equipment or evidence by utility repair crews
6. Identify incendiary evidence
 - Footwear impressions
 - Incendiary devices
 - Document persons or vehicles entering or leaving the fire scene
7. Recognize different types of evidence
8. Determine whether evidence is critical to the investigation

Discussion Questions

1. How can investigators preserve evidence related to wildland fires?
2. Why is it important to identify and document components of incendiary device evidence?
3. What type of location or indicators might lead an investigator to believe firearms are commonly used in the area?

Application

1. Determined by instructor

Instructor Notes

1. None

CTS Guide Reference: CTS 6-5

How to Read a Course Plan

A course plan identifies the details, logistics, resources, and training and education content for an individual course. Whenever possible, course content is directly tied to a national or state standard. SFT uses the course plan as the training and education standard for an individual course. Individuals at fire agencies, academies, and community colleges use course plans to obtain their institution's consent to offer courses and provide credit for their completion. Instructors use course plans to develop syllabi and lesson plans for course delivery.

Course Details

The Course Details segment identifies the logistical information required for planning, scheduling, and delivering a course.

Required Resources

The Required Resources segment identifies the resources, equipment, facilities, and personnel required to deliver the course.

Unit

Each Unit represents a collection of aligned topics. Unit 1 is the same for all SFT courses. An instructor is not required to repeat Unit 1 when teaching multiple courses within a single instructional period or academy.

Topics

Each Topic documents a single Terminal Learning Objective and the instructional activities that support it.

Terminal Learning Objective

A Terminal Learning Objective (TLO) states the instructor's expectations of student performance at the end of a specific lesson or unit. Each TLO includes a task (what the student must be able to do), a condition (the setting and supplies needed), and a standard (how well or to whose specifications the task must be performed). TLOs target the performance required when students are evaluated, not what they will do as part of the course.

Enabling Learning Objectives

The Enabling Learning Objectives (ELO) specify a detailed sequence of student activities that make up the instructional content of a lesson plan. ELOs cover the cognitive, affective, and psychomotor skills students must master to complete the TLO.

Discussion Questions

The Discussion Questions are designed to guide students into a topic or to enhance their understanding of a topic. Instructors may add to or adjust the questions to suit their students.

Application

The Application segment documents experiences that enable students to apply lecture content through cognitive and psychomotor activities, skills exercises, and formative testing. Application experiences included in the course plan are required. Instructors may add additional application experiences to suit their student population if time permits.

Instructor Notes

The Instructor Notes segment documents suggestions and resources to enhance an instructor's ability to teach a specific topic.

CTS Guide Reference

The CTS Guide Reference segment documents the standard(s) from the corresponding Certification Training Standard Guide upon which each topic within the course is based. This segment is eliminated if the course is not based on a standard.

Skill Sheet

The Skill Sheet segment documents the skill sheet that tests the content contained within the topic. This segment is eliminated if the course does not have skill sheets.