

# FIRE, ARSON, & EXPLOSION INVESTIGATION



# My Background

Investigator Clayton T. Kinder

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- Volunteer firefighter for 17 years.
- Career firefighter for 5 years.
- State arson investigator for 7 years.
- Private sector fire and explosion investigator for 1 year.
- Bachelor of Science Degree in Fire, Arson, and Explosion Investigation from Eastern Kentucky University.
- Indiana Law Enforcement Academy graduate.
- State, National, and International Fire and Explosion Investigations Certifications.

# Indiana State Fire Marshal's Office

- A division of the Indiana Department of Homeland Security (IDHS).



# Primary Functions of the Arson Division

- Determine the origin and cause of fires and explosions.
- Conduct witness and suspect interviews.
- Collect and submit evidence to the Indiana State Police and ATF Laboratories.
- Make arrests for arson, explosions, and related crimes.
- Prepare case files and testify as expert witnesses in legal proceedings. (Criminal and Civil)
  - Often other crimes are discovered during the fire / explosion investigation (i.e. narcotics, firearms, neglect of dependents, etc...)

# Investigator Education and Training

- All investigators are state and nationally certified in fire and explosion investigation.
- All investigators are required to complete the Indiana Law Enforcement Academy.
- All investigators must maintain annual mandatory fire investigation and law enforcement training requirements.

# Investigation Division Authority

- Powers established under IC 22-14-2-8
  - Assist a prosecuting attorney with any criminal investigation.
  - Subpoena books, documents, and other evidence.
  - Give oaths and affirmations.
  - Take depositions and conduct hearings.
  - Law enforcement powers.

# Division Organization

## CHIEF INVESTIGATOR

Bob Dean

### SOUTH ASSISTANT CHIEF

Matt Wells

### NORTH ASSISTANT CHIEF

Dennis Randle

### SOUTH INVESTIGATORS

Clayton Kinder

Chris Broderick

Jeff Ramey

Josh Kreigh

### NORTH INVESTIGATORS

Tim Murray

Fred Sumpter

Rick Constable

Mike Vogely



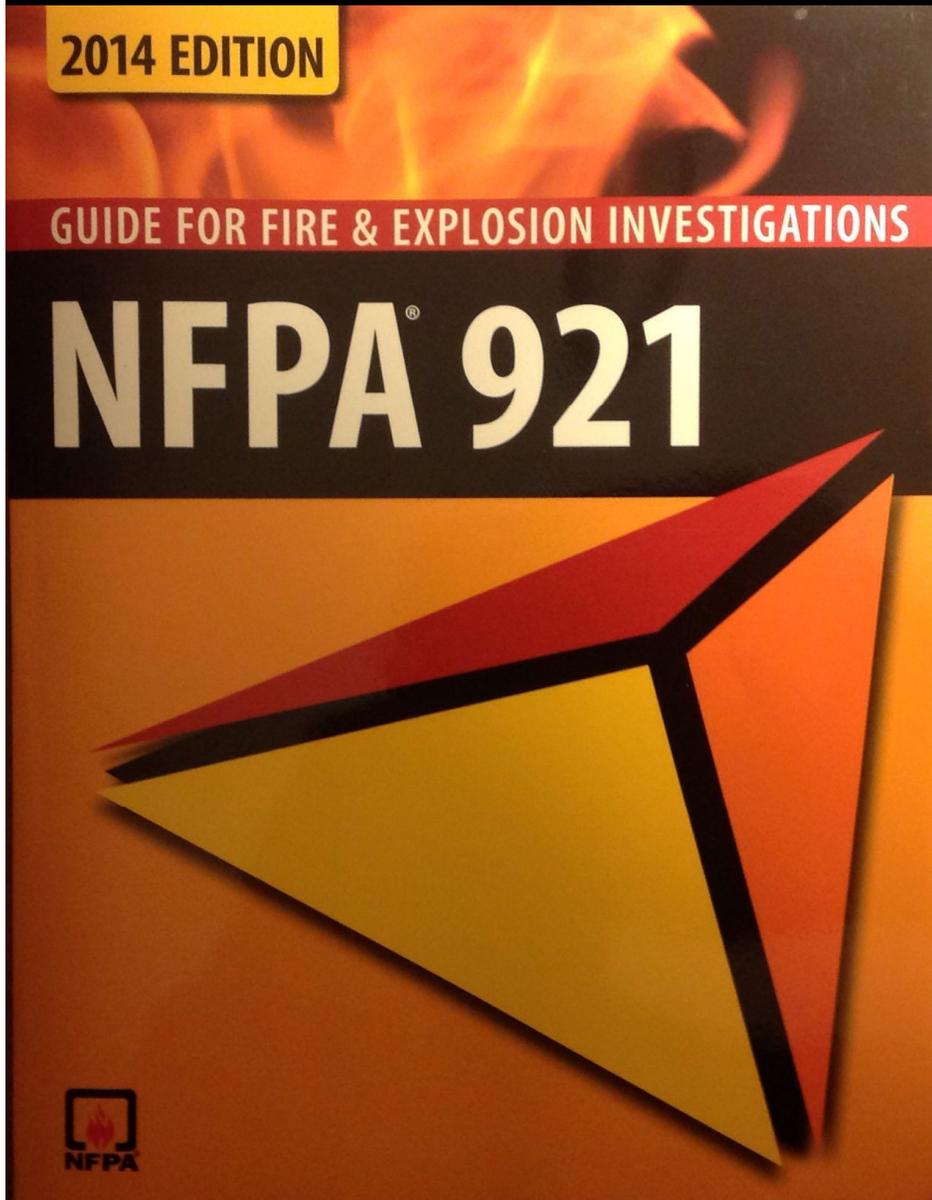
# Immediate Response Incidents

- Fatality / Injury
- Government property.
- Assemblies of worship.
- Commercial property.
- Multi-family residences.
- Incident scene is not stable which could result in evidence destruction.
- Known suspects in the case of an incendiary fire or explosion.
- On a case by case basis other incidents may be determined by the duty officer to meet the immediate response protocol due to special circumstances.

# Non-Immediate Response Incidents

- Single family residence fires with no fatalities or injuries.
- Fires involving total property destruction with no fatalities or injuries.
- Other structure fires with no fatalities or injuries.
- Vehicle fires with no fatalities or injuries.
- Wild land or rubbish fires.

# NFPA 921



- NFPA 921 is considered the standard of care for all fire and explosion investigations.
- The revision cycle for NFPA 921 is every 3 years.

# NFPA 1033

1033

NFPA® 1033  
Standard for  
Professional  
Qualifications for  
Fire Investigator  
2014 Edition



NFPA®, 1 Batterymarch Park, PO Box 9101, Quincy, MA 02169-7471, USA  
An International Codes and Standards Organization

- NFPA 1033 outlines the minimum requirements to be a fire investigator.
- The revision cycle for NFPA 1033 is every 3 years.

# NFPA 921/1033

- NFPA 921 is a “Guide” used for investigations.
  - Guide is defined by NFPA 921 as “A document that is advisory or informative in nature and that contains only non-mandatory provisions. A guide may contain mandatory statements such as when a guide can be used, but the document as a whole is not suitable for adoption into law.”

## NFPA 921/1033

- While NFPA 921 is a “guide” it should be referenced and considered the standard of care in fire and explosion investigations.
- References ASTM (American Society for Testing and Materials) Standards.
  - These are testing standards with scientifically confirmed data.

## NFPA 921/1033

- NFPA 921 also references other NFPA standards and scientific publications.
- Contains information on fire patterns, basic investigative methodology, building systems, evidence collection, vehicle fires, marine fires, wild land fires, explosions, and many other topics related to fire and explosion investigations.

# NFPA 921/1033

- NFPA 1033 is a standard.
  - Standard is defined by NFPA 1033 as “A document, the main text of which contains only mandatory provisions using the word “shall” to indicate requirements and which is in a form generally suitable for mandatory reference by another standard or code or for adoption into law.

# NFPA 921/1033

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  - Standard is defined by NFPA 1033 as “A document, the main text of which contains only mandatory provisions using the word “shall” to indicate requirements and which is in a form generally suitable for mandatory reference by another standard or code or for adoption into law.
  - Identifies the minimum job performance requirements for both public and private fire investigators.

## NFPA 921/1033

- NFPA 1033 requires fire investigators to maintain at a minimum an up to date basic knowledge of the following topics beyond the high school level.

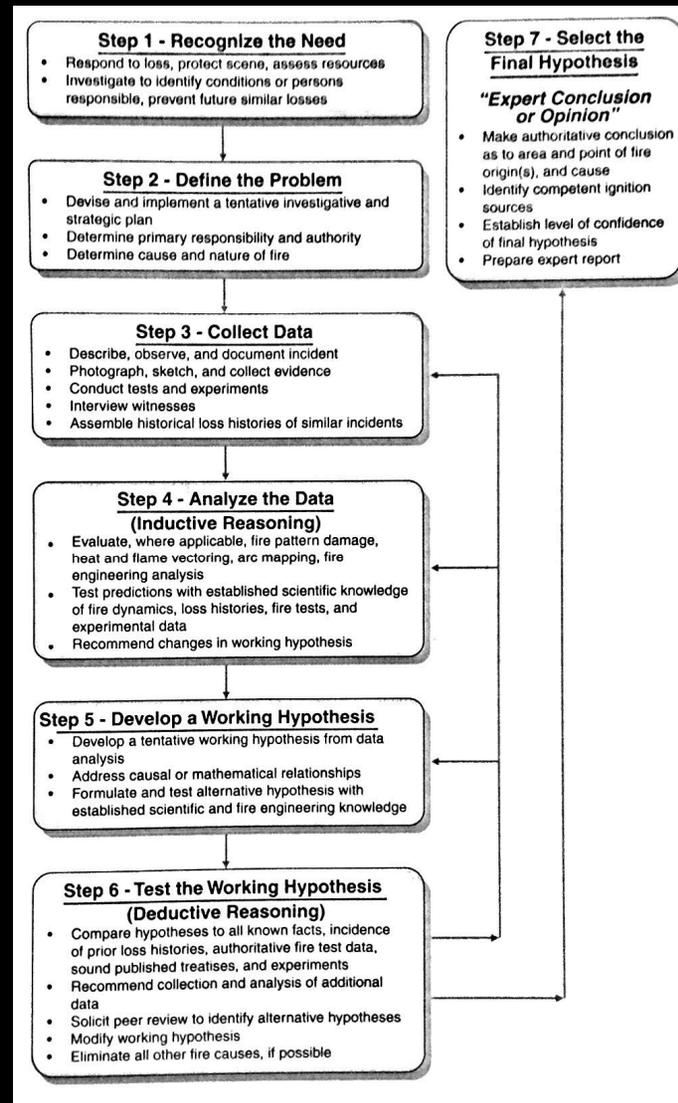
# NFPA 921/1033

- Fire Science
- Fire Chemistry
- Thermodynamics
- Thermometry
- Fire Dynamics
- Explosion Dynamics
- Computer Fire Modeling
- Fire Investigations
- Fire Analysis
- Fire Investigative Methodology
- Fire Investigation Technology
- Hazardous Materials
- Failure Analysis and analytical tools.
- Fire Protections Systems
- Evidence Documentation, Collection, and Preservation
- Electricity and Electrical Systems

# NFPA 921/1033

- Investigative Methodology
  - Scientific Method
  - Systematic Approach

# Scientific Method



# Right of Entry

- Exigent Circumstances
- Consent to Search
- Administrative Search Warrant
- Criminal Search Warrant

## Case Law and Rules

- Michigan V. Tyler (1978)
- Michigan V. Clifford (1984)
- Daubert V. Merrill Dow Pharmaceuticals, Inc., (1993)
  - Daubert Challenge
- Federal Rule of Evidence 702

## Michigan V. Tyler

- “[once] the blaze [has been] extinguished and the firefighters have left the premises, a search warrant is required to reenter and search the premises, unless there is consent or the premises have been abandoned.”

## Michigan V. Clifford

- Where a warrant is necessary to search fire-damaged premises, an administrative warrant suffices if the primary object of the search is to determine the cause and origin of the fire, but a criminal search warrant, obtained upon a showing of probable cause, is required if the primary object of the search is to gather evidence of criminal activity.

# Daubert Challenge

- Expert testimony must be relevant and reliable.
  
- Relevancy Test
  - Does the testimony discuss the issues of the court?
  
- Reliability Test
  - Can the procedures used to base a conclusion be tested or have they been tested?
  - Have the procedures been subjected to peer review or publication?
  - Is there a known or potential error rate?
  - Are the methods generally accepted by the relevant scientific community?

# Federal Rule of Evidence 702

- A person who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion if:
  - a) the experts scientific, technical, or other specialized knowledge will help the trier of the fact to understand the evidence or to determine a fact in issue;
  - b) the testimony is based on sufficient facts and data;
  - c) the testimony is the product of reliable principles and methods;  
and
  - d) the expert has reliably applied the principles and methods to the facts of the case.

# Fire Cause Classifications

- Accidental (No intentional human act).
- Natural (No direct human intervention).
- Incendiary (Fire deliberately set where a fire should not be).
- Undetermined (Under investigation or cannot be determined to an acceptable level of certainty).
  - ❖ Suspicious (Not a proper fire cause classification).

# Accidental



# Natural



# Incendiary



# Undetermined



# Vehicle “Total Burn” Undetermined



# Structure “Total Burn” Undetermined



# Structure “Total Burn” Incendiary



# Fire Cause Determination

- Utilize a systematic approach.
- Exterior to interior.
- Least damage to greatest damage.
  - Consider fuel load and ventilation.

# Exterior Examination



# Exterior Examination



# Exterior Examination



# Exterior Examination



# Interior Examination



# Interior Examination



# Interior Examination



# Interior Examination



# Interior Examination



# Interior Examination



# Interior Examination



# Explosions / Post Blast



# Explosions / Post Blast



# Explosions / Post Blast



## Fatal Fires

- All fatality fires must be reported to the Office of the State Fire Marshal.
- The body may reveal evidence such as:
  - Burn patterns.
  - Position of the victim at the time of death.
- Victim should be documented.
  - Victims should be documented at the scene if possible.
  - Photos, diagram, and measurements.

# Fatal Fires

- Two separate and simultaneous investigations occur.
  - Fire origin and cause.
  - Death investigation.
- Coordination between all involved agencies is a must.

# Fatal Fires

- Autopsy results may assist in the fire origin and cause investigation.
  - Soot deposition or thermal injury to the trachea and lungs.
  - Blunt force trauma.
  - Gunshot or stab wounds.

# Arson Reward Program

# REWARD

Somebody  
Knows



Somebody  
Knows

## UP TO \$5000

FOR INFORMATION LEADING TO THE ARREST OF  
THE PERSON(S) RESPONSIBLE FOR THIS FIRE

## 1-800-382-4628

OR WRITE: P.O. 80132  
INDIANAPOLIS, IN 46280

*YOU DO NOT HAVE TO GIVE YOUR NAME*

REWARD PROVIDED BY THE  
INTERNATIONAL ASSOCIATION OF ARSON INVESTIGATORS, INDIANA  
CHAPTER #14,  
IN COOPERATION WITH THE  
INDIANA STATE FIRE MARSHAL  
AND THE  
PROPERTY INSURANCE COMPANIES OPERATING IN INDIANA.

THE AMOUNT OF THE AWARD IS DEPENDENT UPON THE VALUE OF THE  
INFORMATION AS DETERMINED BY THE  
INTERNATIONAL ASSOCIATION OF ARSON INVESTIGATORS,  
INDIANA CHAPTER #14.

[www.in-iaai.org](http://www.in-iaai.org)

- Poster may be downloaded for printing on the Indiana IAAI website at [www.iniaai.org](http://www.iniaai.org) under arson reporting.
- The number calls into a recorded line in the investigation division office.

# B.A.T.S. Bomb and Arson Tracking System



- The investigation division has been using this reporting system since January 1, 2011.
- BATS is a web based reporting and case management system operated by the ATF.

# Enrolled House Bill 1211

## Methamphetamine

- Requires law enforcement agencies to report fires related to methamphetamine abuse to the Indiana criminal justice institute. Makes it controlled substances criminal mischief, a Level 6 felony, for a person to recklessly, knowingly, or intentionally damage property: (1) during the dealing or manufacture of or attempted dealing or manufacture of cocaine or a narcotic drug or the dealing or attempted dealing of methamphetamine; and (2) by means of a fire or an explosion. Makes the offense a Level 5 felony if the offense results in moderate bodily injury to any person other than a defendant.

# Resources

[www.in.gov/dhs](http://www.in.gov/dhs)

[www.nfpa.com](http://www.nfpa.com)

[www.firearson.com](http://www.firearson.com)

[www.iniaai.org](http://www.iniaai.org)

[www.cfitrainer.net](http://www.cfitrainer.net)

[www.nafi.org](http://www.nafi.org)

# QUESTIONS ?

