

Evaluating the Effectiveness and Procedures of the Harrison Arson Task Force

By: Greg Chetwood
Deputy Chief
Harrison Fire Department
Harrison, Ohio

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CERTIFICATION STATEMENT

I hereby certify that the following statements are true:

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2. I have affirmed the use of proper spelling and grammar in this document by using the spell and grammar check functions of a word processing software program and correcting the errors as suggested by the program.

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ABSTRACT

The research problem this study addressed was that fire investigations were not being conducted by the Harrison Fire Department according to standards such as the NFPA 921. Since its inception in 2005 the overall effectiveness of the Harrison Arson Task Force had never been evaluated to determine if its protocols and practices were indeed providing the highest results expected or whether some changes needed to be made. The research utilized evaluative and descriptive styles of research to provide answers to the following research questions;

1. What are the recognized standards for fire investigation used by Harrison Fire Department and surrounding departments?
2. What specialized training enhances the fire investigators' practices and their credibility for presenting evidence in a courtroom that supports fire cause and origin determinations?
3. What are some of the common mistakes made by fire investigators that hinder their ability to establish fire cause and origin?
4. What objections and impediments have been encountered (voiced by elected officials and department administrators) when attempting to develop a joint fire investigation team?

A survey of the Hamilton County Fire Chiefs was conducted to identify fire investigation practices and protocols used for fire investigation within their respective departments with a return rate of forty two percent. A copy of the survey is contained in Appendix 4.

Data from this study suggests that Harrison Fire Department Joint Arson Task Force is operating at a much higher level of fire investigation than all other departments in Hamilton County Ohio. The research also indicated that the Harrison Fire Department has empowered the fire investigators assigned to the task force with absolute authority as described under Ohio Revised Code 737.27.

The Standard Operating Procedures for the Harrison Fire Department Joint Arson Task Force are included in Appendix 1 along with an example of fire investigation reports.

Recommendations from this research include the implementation of clear and concise protocols that direct the steps of the investigator in determining fire cause and origin. Additionally, specific training in the fields of fire investigation should be completed by all personnel serving as fire investigators on the Harrison Arson Task Force. Lastly, investigators should allow themselves to be exposed to a variety of courtroom proceedings. This will increase the investigators understanding of courtroom ethics and policies and enable them to establish a rapport with court officials.

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INTRODUCTION

Statement of the Problem

The problem that this study addressed was that fire investigations at the Harrison Fire Department (HFD) were not being conducted according to recognized trade standards such as the NFPA 921. This practice interfered with the application of scientific research to support cause and origin determinations. This practice also interfered with prosecution of criminal acts when cause and origin determined the fire was intentionally set and created controversy from elected officials as they interacted with the public about fires in their city.

Current studies indicate that nationally, as many as forty percent of all reported structure fires are intentionally set (DeHann, 2002). Such data indicated the necessity for investigators to follow standardized policies and procedures when conducting fire scene investigations to ensure the conclusions about fire cause are based on credible scientific evidence and facts.

A combined effort by Harrison Fire and Police departments created the Harrison Arson Task Force in 2007. The value of the program had not been evaluated for effectiveness nor had it been compared to other area fire investigative practices currently in place in Hamilton County Ohio.

Purpose of the Study

The purpose of this study was to (describe and evaluate) the fire investigative practices followed by the Harrison Arson Task Force (HATF) to determine if clearly defined steps and procedures are followed to produce evidence that will withstand scientific scrutiny and criticism in a court of law.

The results of the study will be used to propose policies and guidelines that enforce these practices and improve the effectiveness of fire investigations and prosecutions for fire related

crimes. Data collected during this research project will be made available as a guide for other fire departments or investigating units experiencing similar situations that may hamper their investigation capabilities or findings. The method used in this study was evaluative and descriptive.

Research Questions

The following questions were answered by this evaluative research:

1. What are the recognized standards for fire investigation used by Harrison Fire Department and surrounding departments?
2. What specialized training enhances the fire investigators' practices and their credibility for presenting evidence that supports fire cause and origin determinations in a courtroom?
3. What are some of the common mistakes made by fire investigators that hinder their ability to establish fire cause and origin?
4. What objections and impediments have been encountered (voiced by elected officials and department administrators) when attempting to develop a joint fire investigation team?

BACKGROUND AND SIGNIFICANCE

The City of Harrison Fire Department (HFD) is located approximately 30 miles southwest of Cincinnati, Ohio and was originally formed as the Washington Fire Company No.1.

Increases in community growth and the demand for service caused the department to evolve from an all-volunteer department to a combination department. The department provides 100 % of the fire protection and emergency medical services for 4.2 square miles of incorporated area that form the City of Harrison, Ohio and 18.8 square miles of unincorporated area forming Harrison Township, Ohio. In addition, HFD contracts fire and emergency medical services for the Village of West Harrison, Harrison Township, Indiana with additional contracts for emergency medical services to Kelso and Logan Townships, Indiana, for a combined service area of 46 square miles. The estimated combined population for these areas is 28,090. (United States Census Bureau, 2000)

Currently the HFD has 21 full-time and 24 part-time personnel, being dual trained as Firefighters and Basic-Emergency Medical Technicians (E.M.T.-B), Intermediate-Emergency Medical Technicians (E.M.T.-I) or Paramedics (E.M.T.-P). The HFD operates out of two stations with multiple automatic and mutual aid agreements from the neighboring departments in Ohio and Indiana. The HFD operates two engines, one tanker/pumper, one rescue quaint, one heavy rescue, one brush truck, one hazardous materials unit, two rescue boats, one medic unit and four life squad units. An increase in personnel was approved and as of January 1, 2009 HFD added two personnel per unit day; bringing the total on-duty personnel to ten per day with minimum staffing of eight. The stations are manned twenty-four hours a day 365 days a year with personnel being divided accordingly, six personnel at station 56 and four personnel at station 57.

An increase in fire related losses has been experienced as the city of Harrison continues to grow. An annual average of 300 combined fire and medical details in the early 1990's, now reached an average of 2100 details in 2009 (Harrison Fire Department Annual activity Report

2009). With the increase in fire related activity, an increase in fire investigation was also necessary. The responsibility of fire investigation was outlined in the Ohio Revised Code 737.27 dated 1953. Therein, it specifically named the fire chief or his/her designee as the responsible person to investigate all fires within his jurisdiction for cause and origin. Reports are then to be forwarded to the state for storage and compilation of data. Even though Ohio was the first state to organize and operate an arson lab in 1973, an actual course for training firefighters in basic fire investigation was not offered until sometime in the early 1980's (Ohio.Gov Department of Commerce).

The Harrison Fire Department received its first accredited fire investigation class in February 1995 at the Ohio Fire Academy. During that class, basic information was presented on the discovery of fire origin and cause. A total of twenty four hours was deemed satisfactory to train a fire investigator in 1995 (IFSTA Fire Investigator 1992).

Once certified by the state fire academy, participants of the course would return to their respective departments and use their new skills to try to determine the causes of fires. In 1995, HFD responded to approximately 50 fire related details. (Firehouse Software was not yet used to store data and the number fifty is an approximation based on personal conversations with firefighters employed during that period). If the number fifty is correct, "forty percent of all reported structure fires are intentionally set", then 20 of those fires could have suspicious circumstances (DeHann, 2002). The number of reported "suspicious" fires did not reflect this number for HFD in 1995. That is not intended to indicate that there were no suspicious fires in that period, only that evidence available today suggests that they did exist and in relatively high numbers.

At a structure fire in March 2002, (Firehouse Software, Harrison Fire Department) a single story structure was reported with smoke coming from the front door and relayed to the responding fire units. Upon arrival, fire crews entered the structure and extinguished the fire

which had extended heavily through the rear of the structure. The fire investigation was initiated by the fire chief and he was assisted by a fire captain with equal experience in determining fire cause and origin. Harrison Police officers were on scene which was a welcomed assistance as they typically helped with air packs and hoses. One of the officers was approached by an onlooker who questioned if it was odd that the homeowner was seen walking down the street as her smoke alarm was sounding, alerting neighbors. This information was noted by the officer. A short time after the investigation was initiated by the fire chief; he exited the structure with his determination that the homeowner had left several candles lit in proximity to combustibles. The candles gained the attention of the family cat which knocked the candle onto a table initiating the fire (# 020000230 March 7, 2002 Firehouse Software Harrison Fire Department).

Several bystanders had offered up additional information that motivated the Harrison Police department to do some investigating into the homeowner's background. At the conclusion of the police department investigation the homeowner confessed to intentionally setting the fire to destroy records evidence that would incriminate her for embezzlement of monies for the local football team (Koopman, N. Harrison Police Department).

In a personal interview with Detective Norbert Koopman of the Harrison Arson Task Force, he stated "most police officers don't want to deal with fires because they don't know what they are looking at". As the lead detective for Harrison Arson Task Force, Koopman further states, "before the development of the Harrison Arson Task Force a number of arson fires most likely went undiscovered simply because no one was properly trained to pursue the crime of arson". The fire was reinvestigated by the fire chief in an attempt to regain the department's integrity but since the police department had uncovered an unfounded cause and origin determination, the past cases could be reopened and potentially argued. This incident soon found Harrison Fire Department being ridiculed by neighboring fire departments, elected officials and

the general public. Because the fire was incorrectly ruled, the public might have wondered if previous fires causes also were incorrectly identified.

Since the Harrison Fire Department had always relied on outside investigation entities to pursue suspicious fires, there were no past examples of Harrison investigators cases failing in a court environment. Since the collection of evidence in past fires was conducted by outside investigation entities as well and there is no record to indicate that fire debris evidence had ever been presented by any member of the Harrison Fire Department in the past. Until the inception of the Harrison Arson Task Force, no standardized practices or protocols were followed in the field of fire investigation. These shortcomings were recognized by the fire department administration after several fire cause rulings were challenged. The need for a well trained investigation division was identified and the Harrison Joint Arson Task Force was developed.

In a personal interview with current Harrison Fire Chief Rob Hursong, he offered several comparisons of fire investigations in Harrison Ohio. The first example was a residential fire which had occurred in a mobile home. As fire crews conducted suppression operations it was noted that there appeared to be two distinct fire origins. One fire was located in a rear bedroom and the second was located in a front bedroom. Both fires were seated within the closet areas however there was no correlation between the two fires. This caused the fire crews to request an investigator for action. The fire investigation was conducted by the Harrison Fire Department and assisted by the Hamilton County Arson Task Force. The fire was officially determined as an arson fire. Several observations by fire crews and information from bystanders made the homeowner a person of interest in the fire. The criminal investigation was turned over to the local law enforcement agency for Harrison Township which is Hamilton County Sheriffs Office. The homeowner and a daughter in law were interviewed and administered a computer generated voice stress analysis (CVSA) test in which they both indicated deception in all questions concerning the fire and its origin. Because of the practice of relinquishing control of the fire

investigation to the law enforcement agency, the suspects were never officially charged with the crime. Both parties retained legal counsel and could not be charged because the law enforcement agency was not trained or qualified to argue fire evidence to a grand jury for an indictment.

Harrison Fire Chief Rob Hursong gave an example of how a joint task force handled a case in 2005. Harrison Fire Department made two fires in a trailer park where two sheds had been burned in arson fires. These fires occurred within three months of each other. In both fires, witnesses reported seeing an older male subject walking around the park prior to the fires. At the second fire an older male was retrieved from the wooded area behind the trailer park by fire investigators from Harrison Fire Department. The Hamilton County Arson Task Force was summoned to the scene and a Hamilton County Sheriff Deputy responded to take the subject into custody. The male subject was interviewed and released on the scene. When the Deputy was asked why he released him he stated that he didn't think he did it and didn't have any reason to hold him. In 2007, a fire investigator and Fire Chief Hursong were eating at a local restaurant in the city limits of Harrison. While paying the bill the investigator saw an employee in the restaurant kitchen that looked very familiar. He pointed him out to the Fire Chief who recognized him as the male subject from the shed fires in 2005. Hursong says the employee made quick eye contact with him and then turned away. This was on a Friday afternoon and on Monday morning the same restaurant was on fire. When crews arrived on scene the same investigator was on the first due engine and saw the male subject standing in the parking lot watching the fire. The investigator told the Harrison Police Officer to take him into custody for questioning. The fire was investigated by the newly formed Harrison Joint Arson Task Force and the subject taken into custody admitted to starting the fire. He also admitted to starting both shed fires in 2005 and was charged and convicted of three counts of aggravated arson and three counts of arson. he is now serving eight years in the penitentiary. Had the Hamilton County Sheriffs Deputy done an

effective job of interviewing and investigating the fires in 2005 they would have discovered this subject has prior history of arson in Arizona and served time for the same.

The graph illustrated in appendix 2 indicates an overall increase in fire department activities, but does not outline the different types of fires occurring. By researching the available information sources on fire types and frequencies experienced over several years, much emphasis is placed in the occurrence of incendiary fires (Firehouse Software, Harrison Fire Department).

After completing this research project, any department, including Harrison Fire Department, would have factual data to utilize as a reference when developing or evaluating a new or existing fire investigation program. Most problems identified throughout this research are inherent to all investigative programs but had not been readily identified in a research project. Past practices and principles can be compared to determine which one yields the most favorable approach. By applying this information, much of the uncertainty of developing a new investigative program or common obstacles to expect could be exposed early and overcome by that department. Having credible information readily available, when developing or evaluating an investigation program would serve as a valuable tool when presenting the final design of a fire investigation program to the administration and elected officials.

LITERATURE REVIEW

The purpose of this literature review was to gather information and answer research questions that will develop standardized practices and policies for fire investigation.

The mission of this fire department is “To provide a high level of customer service for the community, through fire prevention, education, fire suppression and providing optimal levels of emergency medical services with the resources available”.(Harrison Fire Department Standard Operating Procedures Mission Statement, 2006).

In consideration of fire investigation as a science, one must take into consideration how the necessity was identified. Fire investigation was not skilled work. Based on experience from similar fires that appeared to leave the same burn patterns and indicators, an investigator could arrive at the same conclusion with relative consistency. However, as construction methods changed so would the characteristics of how it burned or contributed to a fire. Impact from economic strain shows a dramatic increase in arson related fires over the last five years (NFPA).

The graph illustrated in appendix 2 shows the overall increase of fire related activities in Harrison Ohio over the last five years. Firehouse software is the standard reporting medium used by Ohio fire departments and is used in this research project for analysis information (Firehouse Software Harrison Fire Department).

The United States Fire Administration (USFA) collects and distributes annual reports from all reporting fire agencies to determine the types and frequencies of all occurring fires. Because of the amount of data collected, the information from the latest full year is usually not available until well into the following year. The following information reported for 2008 to the USFA summarizes the entire year in related dollar losses, number of reported incendiary fires, firefighter injuries/deaths and civilian fire related deaths and injuries. According to the USFA's National Fire Incident Reporting System (NFIRS) data and the National Fire Protection Association (NFPA), an estimated average of 316,600 intentional fires are reported to fire departments in the United States each year causing injuries to 7,825 firefighters and civilians. In 2006, ten firefighters died as a result of arson. In addition to needless injury and death, an estimated \$1.1 billion in direct property loss occurs annually. Appendix 9 contains the overall statistics for that year.

According to 2004 data from the U.S. Fire Administration and the National Fire Protection Association, 36,000 intentionally set vehicle fires occurred, an increase of 18 percent from the previous year. Vehicle arson accounted for \$165,000,000 in property damage, an

increase of 25.0 percent from the previous year. Vehicle arson accounted for 29.0 percent of all arsons. (U.S. Fire Administration August 2009).

Fire investigation is not intended to only uncover intentionally set fires. By comparison, set fires are a relatively low number when compared to cooking fires or careless fires. The ability to make accurate fire cause and origin determinations provide valuable information identifying careless acts and faulty equipment that have already led to a fire. This information is then made available to assist in developing educational programs, investigative inquiries and resolutions to problem areas relating to the cause of fires. The graph illustrated in Appendix 3 is from the 2006 statistics reported to the USFA outlining the percentage of types of fires reported.(U.S. Fire Administration August 2006).

From information available, Dehann (2002) estimated that up to 40 percent of all urban structure fires are incendiary (intentionally set). They are a serious threat to public safety and well being in urban, suburban and even rural areas causing around two billion dollars in direct losses and as much as ten billion dollars in indirect losses (p.507).

Arson is a difficult crime to investigate and prosecute. Its difficulty lies in three areas. First, the scene must be carefully investigated before it can be determined if a crime actually exists. This is unlike finding a dead body and a bloody knife, which are strong indicators that a crime took place. Such indicators gain the immediate attention of investigators and warn them to proceed cautiously so as not to compromise any evidence that may be present, unlike a common dwelling fire which may be investigated cursorily, if at all. Therefore, it is vitally important that every fire scene be treated as a potential arson scene (from a security standpoint and preservation of evidence) until clear proof of natural causes is discovered (DeHann, 2002 p.507).

Second, the crime itself, if successful, destroys the physical evidence at its origin. This is like comparing a murder case where the body has turned to dust. The evidence is still there only

manifesting in a different state requiring careful and methodical analysis. Arson is a crime that destroys evidence, rather than creates it as it progresses (DeHann, 2002 p.507).

Third, the official investigation of arson seems to fall into a gap between the area of responsibility of the fire department and that of the police. Fire department personnel may consider their primary responsibility to be public safety through extinguishment of the fire. They may consider the investigative work required to solve the crime to be outside of their realm of education or responsibility. Police investigators realize that the evidence created and secured from a fire scene such as burn patterns and charred remains is outside their level of training and may refuse to deal with it. As a result of this schism, valuable evidence of one type or another is often overlooked (DeHann, 2002 p.508).

The strict empiricist approach to fire investigation is predicated upon the idea that only the individual investigator's experience of the fire scene is important; objective scientific analysis is applied only to the data they observed at the scene. This egocentric approach restricts the sources of information available to the investigator and, contrary to the scientific method, excludes essential sources of data. This approach is not only a willful departure from scientifically based problem solving, but it is also a dangerous methodology that has most certainly led to erroneous origin and cause determinations (Avato, 2009).

The fire investigator should never intentionally ignore or exclude any information. It is the investigators responsibility to carefully consider all available data and then analyze that information in a meaningful and appropriate way, including its credibility (Avato, 2009).

Many fire departments do not have a full understanding of their responsibility to investigate fires and subsequently attach an incorrect cause or simply pass all information to their local law enforcement agency. The law enforcement agency then has the responsibility of pursuing the criminal aspect of the case but may not be viewed as credible witness in court when attempting to validate fire evidence (Avato 2009).

Ohio Revised Code 737.27 Investigation of Fires states that “The legislative authority of a municipal corporation may invest any officer of the fire or police department with the power, and impose on him the duty, to be present at all fires, investigate the cause thereof, examine witnesses, compel the attendance of witnesses and the production of books and papers, and to do and perform all other acts necessary to the effective discharge of such duties. Such officer may administer oaths, make arrests, and enter, for the purpose of examination, any building which, in his opinion, is in danger from fire. The officer shall report his proceedings to the legislative authority at such times as are required” (Ohio Revised Code 737.27, 1953).

When evaluating what is required to effectively investigate a fire scene, there are many variables. However, the ability to accurately explain the behavior of fire and its normal progression to a jury requires formal fire investigation training. A fire or explosion investigation is a complex endeavor involving skill, technology, knowledge and science. The compilation of factual data, as well as analysis of those facts, should be accomplished objectively and truthfully. The basic methodology of the fire investigation should rely on the use of a systematic approach and attention to all relevant details. The use of a systematic approach often will uncover new factual data for analysis, which may require previous conclusions to be reevaluated (NFPA 921, 2001 Ch 2.1).

To begin the fire investigation process, a fire must have occurred and been reported. This sounds rudimentary, however the time frame in reporting an occurring fire or the lack of reporting an existing fire can uncover many pieces of evidence. Arson investigation starts with the fire itself. To create and sustain a fire three factors must be present. The three factors are known as the fire triangle (Peige, 1977). The fire triangle consists of oxygen, a fuel source and heat. In most cases the percentage of available oxygen must be above 16% (Peige, 1977). The fuel may be any flammable substance. The heat source needs only to match the ignition temperature of the fuel.

In a fire involving arson, the arsonist will have tampered with one or more of the factors of the fire triangle. The arsonist may increase the fuel load by introducing flammable material or by adding accelerants such as kerosene, gasoline or alcohol. (French, 1979).

The arsonist may increase the amount of available oxygen by opening windows or punching holes in walls and ceilings allowing additional airflow to carry the fire faster. By ventilating a structure at the top and starting the fire in a lower room, the fire will assume a chimney effect and quickly advance upward and outward causing damage along its entire path. An arson fire involves the introduction of a heat source that can be as simple as a match or as complex as a combination of chemicals that when combined can ignite at a very low temperature. By definition, an arson fire is a fire that exists when all accidental sources have been eliminated as the cause. In order to determine if a fire has been deliberately set (arson), an investigator must be able to scientifically prove that one or more components of the fire triangle were tampered with (French, 1979).

The initiation of fire investigation must include the firefighters first arriving on the scene. Information on the condition of the structure, area of involvement, position of doors or windows that could indicate forced entry and suspicious person(s) at the scene or leaving the scene can all be invaluable evidence. There may be obvious signs of arson such as multiple points of origin or the presence of accelerants. What ever it is that raises the suspicions of the firefighter at the scene, it is their observations that initiate an arson investigation (French, 1979).

Fire cause and origin investigations are conducted in different ways. Although designed to uncover evidence that lead to factual information, time frames are considerably different. In a typical fire investigation when suspicious circumstances do not exist, the investigator may not interview witnesses immediately. This may be due to waiting on laboratory results of collected evidence or the necessity to concentrate their attention towards other areas of the investigation. In an arson fire, it is imperative that initial interviews be conducted as soon as possible and any

possible lead produced by witnesses or evidence at the scene be pursued without delay (Kennedy 1977).

An effective fire investigation is instrumental in minimizing losses associated with fire. An accurate determination of fire cause can prevent accidental fires through the identification and elimination of hazardous products, processes, careless practices and the development of better building codes (DeHann, 2002).

Fire investigation includes the discovery of arson and the prosecution of those responsible. It has been found that arson discoveries increase in areas where routine fire investigations are conducted. As investigators become more proficient, they provide law enforcement and fire marshals with information and evidence needed for successful prosecution. Consequently, arrests and convictions of arsonists increased and a reduction in the number of fires are reduced (Phillip & McFadden, 1996 p.107).

Standard Operating Guidelines were established in 2006 to outline the procedures followed by the Harrison Arson Task Force (Harrison SOP). These are listed in Appendix 1.

The following fire investigation courses are being offered by the Ohio Fire Academy and surrounding state certified training facilities.

- Basic Fire Investigation – 80 hour course covering basic fundamentals of fire scene preservation, evidence collection, burn pattern recognition and legal issues
- Advanced Fire Investigation – 80 hour course covering interview techniques, courtroom testimony, laboratory analysis and burn pattern recognition
- State Fire Marshal Fire Investigative Law Enforcement – 144 hours covering criminal law as it applies to fire crimes, advanced evidence collection and processing, subject control and self defense, firearms qualification and arrest procedures

The current costs for the courses are \$485.00 each and change from year to year as course requirements dictate. The State Fire Marshal Fire Investigative Law Enforcement

program has not been offered since 2006 and a reason is not listed. (Ohio Fire Academy Course Guide, 2009 pg 4).

The necessity for increased training in fire investigation was evident in 2006 when the General Assembly of the State of Ohio passed house bill 145 that states, “In conjunction with the Ohio Fire Academy, established under section 3737.33, the Ohio Peace Officer Training Academy shall conduct a course of instruction in fire investigative law enforcement for firefighters that have been approved by the Ohio Fire Academy under section 3737.33 of the Revised Code.”(126th general assembly regular session 2005-2006, section 109.791).

In 1988, the Hamilton County Fire Chiefs developed a volunteer group of firefighters and police officers to investigate fires. It was named the SCAT team which stood for Specialized County Arson Team. The team is still in existence today and accounts for the majority of fire investigation cause and origin in Hamilton County Ohio. The team is requested from the command post at fire scenes if needed. This request is relayed from the Hamilton County Communications Center to a paging system monitored by SCAT personnel. The teams are divided in three geographical sections, east, central and west (Hamilton County Ohio Communications Protocol 1989).

Statistics for the SCAT team are available showing the numbers of fires investigated and the cause determinations. Any information concerning prosecution of suspects is turned over to the Hamilton County Sheriffs Office for disposition and not available for review (SCAT Year End Report 2009).

The SCAT teams operate under a mutual aid agreement with the fire departments to establish cause and origin. There is no mutual aid agreement with the local police departments that identify who the authority having jurisdiction (AHJ). If the police agency responsible for the area the fire occurred does not investigate fires, the only resource is the Hamilton County Sheriffs office. The Sheriffs Office only provides four detectives to the SCAT team. Those

detectives are already assigned primary investigative duties in other more prevalent crimes. This often causes slow development in the investigation and prosecution of suspicious fires (Hamilton County Arson Task Force Standard Operating Procedures).

A survey completed by the Hamilton County Fire Chiefs indicated that the majority of the departments polled did use the NFPA 921 as a standard reference for fire investigation. The data also indicated that fire investigators are still utilizing the local law enforcement to pursue criminal fires. The results obtained in prosecution of fire crimes from departments polled did not yield favorable results (Fire Investigation Survey for Hamilton County Fire Departments).

In a personal interview with the State Fire Marshal for Hamilton County Ohio, Trace Lawless, he states “The existence of a well trained local fire investigation team can expedite the investigative process”. He further states, “Training programs for fire investigation such as the “Law Enforcement Fire Investigation” are no longer offered by the Ohio Fire Academy because of current administration views. There is a great necessity for educational programs such as these to continue in order to effectively investigate fires.

In a personal conversation with Fire Chief Robert Rielage, of the Wyoming Fire Department, who was the Ohio State Fire Marshal when the Fire Investigation Law Enforcement program was offered to fire investigators throughout Ohio, he was unable to specify why the Fire Investigative Law Enforcement program was discontinued but speculated that it was possibly due to a change in administration and made at the executive level. He went on to say that the Fire Investigative Law Enforcement program is the most sought after course within the state. In closing he stated that he feels the program is essential “if you take fire investigation seriously”.

In a interdepartmental correspondence with Chief Charles Lindsey of the Harrison Police Department, he indicated that he had spoken with the staff at OPOTA and they informed him

that the Law Enforcement Fire Investigation course was being rewritten and planned to be offered soon (personal correspondence dated May 4th,2010).

After compiling the research data it clearly indicated there was a desire by the fire service to continue to advance in the field of fire investigation and that it was very likely that all departments were experiencing similar shortcomings. By interviewing the past State Fire Marshal and local fire chiefs, an overall evaluation of the Hamilton county fire departments ability to investigate fires could be compared to Harrison Fire Department Arson Task Force.

Limitations of the Study

The limitations of this study are based on the fact that all departments have the flexibility to investigate fires in a manner that works well for them. This can be based on financial needs and education level of a particular department or the past experience of best practices for them. The research indicated that in Hamilton County more than half of the departments attempt to determine the cause of the fire prior to requesting outside resources. With that, the administration of a fire department does not have to investigate fires like Harrison Fire Department does. The fire department may utilize any and all resources available to investigate cause and origin of fire or delegate the task to another authority having that capability. Based on the information collected from the Hamilton County Fire Chiefs Survey all but one department polled utilizes outside resources such as the Hamilton County Arson Task Force. The department that did not utilize outside resources is a combination fire and police department in which all members are firefighters and police officers .The law, OAC 3737.24 (see appendix 5), merely states that cause and origin must be determined by the fire chief or his/her designee. No other department in Hamilton County Ohio operates at the level of Harrison Fire Department in fire investigation that does not have sworn police officers as part of its staff. Many departments do conduct fire investigation up to the criminal aspect and then turn responsibility over to the law enforcement

entity having jurisdiction. The research indicated a problem still existed between local law enforcement as more than half of the departments reported a mark of favorable to less than favorable when describing the working relationship between entities on the fire ground. There were no police agencies polled in regards to their experiences with local fire departments in fire investigation.

The educational limitations at the time of this research were based on economic constraints that all departments were experiencing. In addition to that, the Ohio Fire Academy disestablished the Fire Investigative Law Enforcement program which greatly reduced aspiring department's ability to increase their credentials for fire investigation.

At the time of this research the course was not available, however data collected indicated the program was being rewritten to be offered again.

PROCEDURES

This research used a descriptive and evaluative method. An evaluation form was utilized to seek input from area department chief officers and command staff about the standards they utilized for fire investigation and the practices they would like to see incorporated. At the conclusion of the evaluation, the results specified the standards that are used and the procedures that are working in the field.

Research began by reading available publishing such as NFPA 921 and Kirks Fire Investigation which address fire investigation principles and practices. As a fire investigator, the availability of information provided from three fellow fire investigators was also utilized in a descriptive research manner but also explored their personal experiences on fire scenes and findings.

A survey to evaluate the current practices of fire investigation was distributed to the fire chiefs of every department in Hamilton County Ohio. The survey questions were written by the author and approved prior to distribution by Ohio State University Professors with years of research experience in gathering data. The intention of the survey focused on the current satisfaction of the available investigation resources and gaining information on specific areas that required attention. The key audience was the fire chiefs as this is where the decision to request outside resources would be approved. The past experiences the fire chief had with investigation teams, policies and practices were considered a benefit in preparing this research. Prior to distributing the survey to the west side fire chiefs which is comprised of seven individual departments, a presentation was conducted, by the author, where the questions and the benefits of the research were explained. All seven west side departments returned their completed survey.

Information submitted by local fire chiefs, when questioned about their impression of current fire investigation practices within their own departments, was also use as a basis for identifying the largest issues. A copy of this survey can be reviewed in appendix 4.

The information obtained from the survey was used to show the similarities in the operational guidelines used by their departments during fire investigations. An example of this was that all reporting departments indicated they utilized the NFPA 921 as a reference for fire investigation. The questions were created in a way that an evaluation could be made of how departments utilized their fire investigators and to what lengths they empowered them.

The evaluation distributed to the area departments yielded a return of approximately forty two percent. The total surveys sent were thirty with 13 returned. All seven of the west side departments returned completed surveys and six other departments in the area returned surveys. The data also revealed how departments recognize the empowerment to investigate fires as directed by the OHIO Revised Code (ORC) (Fire Investigation Survey for Hamilton County Fire Departments).

Definition of Terms

Accelerant – a fuel (usually a flammable liquid) that is used to initiate or increase the intensity or speed of spread of fire.

Aggravated Arson - causing a fire in an occupied structure and creating the potential for serious physical harm to someone other than the offender.

Arson – the act of causing damage to another’s property by means of fire.

Evidence- items utilized in a court room setting to validate ones argument or justify the allegations being made against a defendant.

Fire Investigation - sometimes referred to as origin and cause investigation is the analysis of fire-related incidents. After firefighters extinguish a fire, an investigation is launched to determine the origin and cause of the fire or explosion. Investigations of such incidents are done using a systematic approach and knowledge of basic fire science.

Firehouse Software- a computerized program that replace paper copies of fire reports and data analysis, typically utilized for all reporting of activity involving fires to the state.

Ohio Revised Code (ORC) - contains the criminal codes for fire offenses and how they relate to specific evidence required to apply criminal charges.

SCAT – (Specialized County Arson Task Force) a volunteer organization of trained fire investigators widely utilized in Hamilton County Ohio in the absence of a fire department investigator.

Structure Fire- any fire, involving a dwelling with walls and roof attachments typically a residential home or commercial building.

Quint - aerial apparatus that has a water tank, ground ladders, pump, large diameter supply hose and an aerial ladder device.

Tanker- apparatus utilized to transport firefighting water to the scene in the absence of fire hydrants.

Engine- apparatus utilized to pump water to attached hose lines from a pump driven by the chassis engine.

Prosecute- court room proceedings which include the presentation of evidence, witness testimony to prove guilt of a particular individual to a magistrate or jury.

Overhaul - the firefighting operation of eliminating hidden flames, glowing embers, or sparks that may rekindle the fire, usually accompanied by the removal of structural contents.

RESULTS

The results of the literature review provided the following answers to the research questions.

Research Question 1- What are the recognized standards for fire investigation used by the Harrison Fire Department and surrounding fire departments?

The most widely recognized reference for fire investigation is the NFPA 921 Guide for Fire and Explosion Investigation (2001). It was developed by the Technical Committee for Fire Investigations which is a cooperative effort of science and practicality and is intended for use by public and private investigation units.

The standard reference followed by the Harrison Arson Task Force for its authorization to operate as an investigative unit is Ohio Revised Code 737.27 (See Appendix 6).

Kirks Fire Investigation is a reputable reference for fire investigation and is listed in the NFPA 921 as a source.

Ohio revised code 3737.27 is a recognized standard which also identifies the investigators legal empowerment and responsibility.

Research Question 2- What specialized training enhances the fire investigators practices and their credibility for presenting evidence that supports fire cause and origin determinations in a courtroom?

10 of 11 reporting departments indicated that the Basic Fire Investigator and Advanced Fire Investigator courses are the requirements to investigate fires for their departments.

All 11 fire chiefs that responded to the questionnaire indicated that when it came to additional training beyond the basic and advanced courses, they would always support training based on the operational needs of the departments and not the individual firefighter.

National organizations such as NAFI (National Association of Fire Investigators) and IAAI (International Association of Fire Investigators) routinely offer technical training in fire

investigation. Of the departments reporting data, 3 of 11 fire departments indicated they had investigators which possessed specialty investigation certifications such as vehicle fire investigator and structural fire investigator certifications.

2 of 11 fire departments indicated that they would be interested in cross training fire investigators through programs such as the Fire Investigative Law Enforcement course. The incorporation of the law enforcement and fire department cross training programs ensures that both representatives, fire and police, are equally trained and competent to investigate all fires and equally pursue and prosecute the criminal elements that may be involved in an arson fire.

Research Question 3- What are some common mistakes made by fire investigators that hinder their ability to establish fire cause and origin?

The research indicated that there are a wide variety of items that can hinder effective fire investigation practices. How a particular hindrance impacts a specific investigation would be based on the specifics of that detail.

According to Trace Lawless from the Ohio State Fire Marshals Office, time is a major hindrance in effective fire investigation. Investigators too often are interested in establishing a cause for the fire in a short time frame. The investigation may be rushed. Doing so contributes to inconsistent cause determinations that can be easily challenged in a court room setting. There are several outside influences that cause mistakes to occur. One is the lack of technical training in fire investigation science by the command staff controlling operations of the fire scene. A probable point of origin may be established well before a fire investigator arrives on scene thus inadvertently steering the focus of the fire investigation in a wrong direction. This can lead to the fire investigator being scrutinized by on scene staff when taking what they may consider to be an excessive amount of time to rule a fire cause.

According to Jim Smith, Commander of the Hamilton County Arson Task Force, a fire investigator may be restricted in the time available to actually work a fire scene. Scheduled work shifts and other fire service commitments can reduce the time that the investigator can commit to the investigation. Investigators that work for volunteer county teams may be scrutinized closely by the requesting agency due to the false assumption that when there are several investigators responding to a scene, they should make quick work in determining the origin and cause of the fire. The research also indicated that many of the volunteer fire investigators may not be compensated for the hours they work on the investigation or for the use of their private vehicle to respond to the scene.

Research Question 4- What were the objections and impediments encountered (voiced by elected officials or administrative staff) when attempting to develop a joint fire investigation team?

According to the survey completed by the Hamilton County Fire Chiefs, the primary concern for implementing a joint investigation team is money. Incorporating a line item for budgetary items requires approval from the elected officials that would approve spending budgets for their respective departments. All 11 departments polled indicated that if financially able, they would increase their overall capabilities when it pertains to fire investigation. Placing a dollar figure on an investigation team would be inaccurate because it would depend on the capacity that a particular agency wanted to achieve. A department could have a small line item to increase their investigative ability if basic and advanced fire investigation courses were the only improvement sought. Whereas a department wanting to incorporate advanced technical training, law enforcement training and evidence collection capabilities, the line item would be considerably larger.

According to Harrison Fire Chief Rob Hursong, cross training a police officer does not impact the administrations decision as much as the cross training of a firefighter into law enforcement. The primary concern is the firefighter possessing a fire arm in the commission of the duties of a fire investigator. The training available to empower the investigator to carry a weapon is the same training a police officer is subjected to in their training. Annual firearm qualification is mandatory as is use of force training and testing. Establishing in house protocols such as the protocols included in appendix 1 create a well thought out plan to address these situations.

DISCUSSION

Fire Investigation is conducted in two basic manners in Hamilton County Ohio. The typical procedure involves the fire department investigator who is usually on shift for the day the fire occurs. The investigator is often trained at the level of Basic Fire Investigator as a minimum and frequently has increased his/her investigator knowledge to the Advanced Fire Investigator level. (Fire Investigation Survey for Hamilton County Fire Departments 2010).

In many cases fire cause and origin is determined by the fire department fire investigator, who then reports his/her findings to the Fire Chief. From the departments responding to the questionnaire, 10 out of 11 indicated that they had fire investigators trained at the basic level to accomplish this. Also reported was that 4 of 11 had investigators trained to the advanced fire investigator level. That information indicates that 10 of 11 departments have taken the appropriate steps to ensure fires are investigated as outlined in the Ohio Revised Code. The Fire Chief or his/her designee is responsible for investigating all fires occurring in their jurisdiction for cause and origin (Ohio Revised Code 3737.24, 1986).

Alternatively, in the absence of a qualified fire investigator on shift or within the particular departments staffing, an outside team is requested by fire ground command and

dispatched by Hamilton County Communication Center. All 11 departments indicated they utilize an outside investigation team when their investigator is unavailable. These teams are comprised of highly qualified and experienced fire investigators who respond in relatively large numbers to assist the requesting department in the investigation. These teams are capable of conducting all aspects of fire investigation including criminally set fires. These teams have a common approach to the investigative process and seldom experience operational issues with the exception of funding. These teams are typically operated on a volunteer basis and no one department accepts the financial responsibility of their operation.

Utilization of a standard reference such as the NFPA 921, to guide the investigator and support evidence, produces proven scientific practices which support fire cause determinations. 10 of 11 reporting departments utilize the NFPA 921.

The occurrence of large dollar loss fires or fires where there is loss of life or significant injury, the State Fire Marshals Office is summoned to assist with the fire investigation. This practice enforces the regulations outlined in the Ohio Revised Code and places responsibility of the cause and origin determination on that specific entity conducting the fire investigation. The availability of state wide resources and technical expertise proves invaluable in these high interest investigations. The utilization of the State Fire Marshal also alleviates the burden of time restrictions encountered when utilizing local county volunteer investigation teams. The team members typically have full time firefighting jobs away from the investigation team.

With the availability of organized investigation teams such as the Hamilton County Arson Task Force (formerly SCAT) allows area fire departments the use of highly trained, experienced fire investigators to conduct cause and origin determinations. This team has a law enforcement component incorporated within, however, in many situations when fires are determined to be suspicious/incendiary in nature the results are not favorable. 10 of 11 fire

departments indicated in the fire investigation survey, the law enforcement component of fire investigation falls short of expectations.

In general, law enforcement officers are not afforded any educational opportunities to increase their knowledge base in fire crimes. The Ohio Peace Officer Training Academy (OPOTA) only offers a basic course in fire investigation that covers eight hours of information in arson crimes and identification of suspicious activity during fires (OPOTA course catalog 2010, p. 125).

It is a common error in the fire service to assume that the law enforcement agency has the highest level of training in fire investigation when in fact they have the lowest level. The practice of turning over responsibility of a fire scene when determining that suspicious activity has occurred, to the local law enforcement agency is not advisable nor is it productive.

Utilizing a police officer in fire investigation has its merits. If the officer is cross trained to understand and identify fire related evidence, he/she feels much more comfortable defending the evidence introduced in a particular case according to Detective Norb Koopman of the Harrison Arson task Force. The police officer already has the interview and an interrogation skill taught by the academy, and routinely utilizes these skills in their daily duties outside of fire investigation. The firefighter does not have a great amount of interview technique, aside from patient care skills, and requires training to educate them in criminal interview techniques. The firefighter is exposed to fires on a continuous basis and understands things like fire behavior and dynamics. Each entity has its contributions to lend to a fire investigation. Determining how to effectively utilize the two separate talents in a cooperative “Joint” effort is the key to a successful investigation team.

In 2005 the 126th General Assembly unanimously passed HB145 which set clear definitions of fire investigation authority and responsibility to cities and township fire

departments as a direct result of insufficient resources to accurately investigate and prosecute fire crimes in the state of Ohio (HB 145, 2005).

The focus needs to improve on the relevance and occurrence of fire related crimes. Many cases have been shelved by the local law enforcement agency and soon grow cold. It is not the responsibility of the police department to investigate fires in the same way that it is not the fire departments responsibility to investigate automobile accidents. A coordinated effort in the two examples, by both fire and police entities, could yield very favorable results. The key to a cooperative effort is to evaluate the working relationship between the fire and police. Each department should have similar vision and mission statements to determine if there is a common objective declared. Attempting to incorporate a cooperative effort of fire investigation in a system that has no desire to assist one another will be futile at best.

The Harrison Fire Department has a very clear cut mission, as does the Harrison Police Department, when investigating fires. First, all fires are subjected to scientific examination as outlined in NFPA 921. Cause and origin decisions are based on credible evidence that have been subjected to cross examination in a court room and can be readily argued and supported. Secondly, an incendiary (set) fire is a crime. A crime requires investigation, evidence identification and collection, interviews and interrogations and ultimately the arrest and prosecution of the offender.

With the cross training of three fire investigators and one police detective, the Harrison Arson Task Force, in its first year investigated 10 suspicious fires and explosions in Harrison Ohio alone. From these investigations 3 adults and 7 juveniles were successfully prosecuted and convicted of arson, aggravated arson or both.

John DeHann stated in Kirks Fire Investigation, that “forty percent of all reported structure fires are intentionally set”. This number may rise and fall, but without effective fire investigation such as the Harrison Arson Task Force, a community will never know.

RECOMMENDATIONS

Based on the supporting data collected from this research the following are recommendations to be implemented by the Harrison Fire Department when conducting fire investigations.

1- A clear protocol should be established to systematically direct the investigators actions at a fire scene. An example of clear and precise protocols are included as a reference, in Appendix one. Adhering to clearly define steps ensures that a consistent process will be applied to any and all fire investigations.

2- Harrison Arson Task Force Fire Investigators should be trained in the same manner to conduct fire investigations. This could reduce the potential for indecision based on differences in educational backgrounds. All members of the Harrison Arson Task Force fire investigation team should be trained at the Basic and Advanced Fire Investigator levels to ensure there are no misinterpretations concerning fire cause determinations. Additional certifications in structure fires and vehicle fire investigation, through organizations such as the National Association of Fire Investigators (NAFI) and International Association of Fire Investigators (IAAI) should be completed. These programs give added educational opportunities such as fire model trainers and training seminars. These should be considered by the Harrison Fire Department administration in order to qualify the fire investigator as an expert witness in a courtroom.

3- The Harrison Fire Department administration must decide how far the investigation program will excel. Adopting the Ohio Revised Code 737.27 as the standard in which legal authority is assigned to the investigation unit, provides clear provisions of what the investigative unit can accomplish.

4- A well thought out information gathering system should be put into place starting with an interview of the first arriving fire personnel. They are the eyes of the investigator as they initially witnessed the fire as it occurred prior to the investigators arrival in most cases.

A copy of the information gathering forms recommended by the Harrison Arson Task Force can be reviewed in Appendix seven of this research.

5- Cross training of both police and fire personnel in fire investigation is paramount. The absence of the Law Enforcement Fire Investigation course has placed a burden on departments wishing to develop an investigation team. According to Harrison Police Chief Charles Lindsey, negotiations were being conducted at the time of this research to teach the law enforcement fire investigator program at a local level with both fire and police teaching their respective fields to new investigators.

6- Court room exposure is a necessity for fire investigators. Many courts are open to the public depending on the case being heard. Spending time observing court proceedings and evidence presentations is a valuable learning experience to the new fire investigator. Establishing rapport with the local prosecutor's office is invaluable to the success of a fire investigator. The prosecutor's office will be interested in the investigators qualifications and can assist them in becoming an "expert witness".

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APPENDIX 1 – HARRISON JOINT ARSON TASK FORCE STANDARD OPERATING PROCEDURES

Purpose

The Harrison Joint Arson Task Force is a cooperative effort of firefighters and police officers within the City of Harrison utilized to investigate any and all fires in its jurisdiction.

Certifications

Members of the Harrison Fire Department shall be trained at the level of Advanced Fire Investigation and possess an Ohio Peace Officer Training Certification for investigating fire related crimes (ORC 2909).

Police Officers shall be trained at the level of Advanced Fire Investigation and continue their education in fire related crimes as it pertains to law enforcement as it becomes available.

Firefighters qualified through Ohio Peace Officers Training Academy (OPOTA) shall qualify with the firearm carried annually or anytime prior to that if deemed necessary without exception. Qualification will take place at the appropriate range as determined by the Harrison Police Department.

Members holding national certifications in investigations will be expected to maintain any and all continuing education parameters required to continue to possess said certification levels.

The members department will make payment for any qualification standard required to maintain their certifications in Fire Investigation and any related field.

Investigations

Fire Investigations shall be conducted within an acceptable time frame with the first phase occurring at the scene of the fire. The Incident Commander will notify the Harrison Joint Arson Task Force when a suspicious fire has occurred. The Task Force will notify the Chief of Police and the Fire Chief that they have been activated. The Investigator will respond directly to the scene without delay and initiate the investigation.

The Incident Commander shall do everything within reason to maintain the physical security of the fire scene prior to the Investigators arrival. Any overhaul procedures should be minimized except when stop loss will be affected. A face to face meeting shall occur between the Incident Commander and the Investigator immediately upon the Investigators arrival on scene.

The Incident Commander will maintain command of the scene at all times during fire suppression efforts and turn over control of the scene to the Investigator when fire scene is secured.

The Investigator will then immediately secure the scene and control any and all personnel entering the structure or surrounding area as necessary to preserve evidence.

All initial attack teams will be required to make a handwritten statement pertaining to their initial observations as the events of the fire developed before they leave the scene. This will be conducted in a timely manner and be only a brief statement so units can be returned to service. This brief statement should include specific items such as door conditions, fire seat and interior observations during suppression. If a firefighter has specific items of interest a follow up interview may be requested.

The Investigator will be responsible for gathering any and all evidence including items identified by on scene fire personnel to ensure chain of custody is maintained.

Any interviews outside of initial contact will be conducted by the Investigator. In the event that the Incident Commander has established rapport with a key witness or suspect then the Investigator may wish to maintain that environment by conducting the interview with them present.

Interviews

All interviews should be conducted at the Harrison Police Department in a controlled interview room where video and audio recording is available when required.

Evidence collection

Evidence collected at the scene of a fire shall be logged and assigned a tracking number allowing it to be retrieved or located at any time in accordance with Harrison Police Department policy.

All evidence shall be collected utilizing the appropriate techniques that would allow it to stand alone in court as credible evidence.

All fire related evidence requiring accelerant testing shall be sent to the appropriate laboratory for acceptable testing and the results recorded within the case file immediately after it is received.

Evidence shall be maintained in its original condition as collected for the period appropriate for the crime.

All evidence within reason due to physical size will be stored at the Harrison Police Department Evidence Room.

Court Appearance

Members of the Harrison Joint Arson Task Force will be periodically required to testify in court as it pertains to fire related offenses under investigation. Pay parameters will be in compliance with the current collective bargaining agreement.

Members will be afforded a staff vehicle when available for transportation to and from court and reimbursement for any required parking fees as they apply.

Members shall wear a suit and tie and present a professional appearance at all times when representing Harrison Fire Department.

Members being credited as an expert witness may be asked to testify in their expertise by other agencies pertaining to fire related crimes.

Follow up

The Lead Investigator will make contact with the Fire Chief periodically to report progress or delay of the investigation. Confidential information will not be disclosed as it may prove detrimental to the case while it is open.

Arrest Powers

Members of the Harrison Joint Arson Task Force have the authority to detain, handcuff and effect arrests in any case related to fire investigations. This authority is granted in accordance with ORC 737.27 Fire Investigators and by the Harrison Police Department. When possible, a uniformed police officer would be present or a member of the Task Force who is a police officer would be present when an arrest is imminent. The Harrison Joint Arson Task Force will process all arrests at the Harrison Police Department.

Firearms

Members of the Harrison Joint Arson Task Force are authorized to carry an approved firearm while in the discharge of their duties as a Fire Investigator. All members shall maintain their qualifications in firearms as outlined by the Harrison Police Department and Ohio Peace Officers Training Academy.

Firearms may be worn at any time the Investigator is away from the confines of the firehouse conducting business as a Fire Investigator.

Firearm shall be holstered in an approved holster. The holster must also be the same type holster used during most recent firearms qualification.

Ammunition will be provided by Harrison Police Department for duty and training.

Firearms shall be secured in an approved firearm safe in the investigations office during normal duty day.

Subject Control

Any physical force or restraint utilized by the task force will meet the situation as it dictates. Approved handcuffs will be carried by all members of the task force while actively performing interviews or affecting arrests. For safety purposes all arrests should be done with at least two members of the task force when possible. If a second member is not available then a uniformed officer should be requested to assist.

Deadly Force

All members of the Harrison Joint Arson Task Force are trained in the use of deadly force and the parameters for such use. In the event of such an occurrence the Chief of Police and Fire Chief will be contacted immediately and the appropriate investigation will be conducted immediately. The effected member of the task force will surrender his weapon and be placed on

stress leave (IAW 3204 collective bargaining agreement) during the course of the investigation. Upon returning to duty status the Investigator shall be issued a new approved firearm to replace the previous surrendered weapon if the previous weapon is retained as evidence.

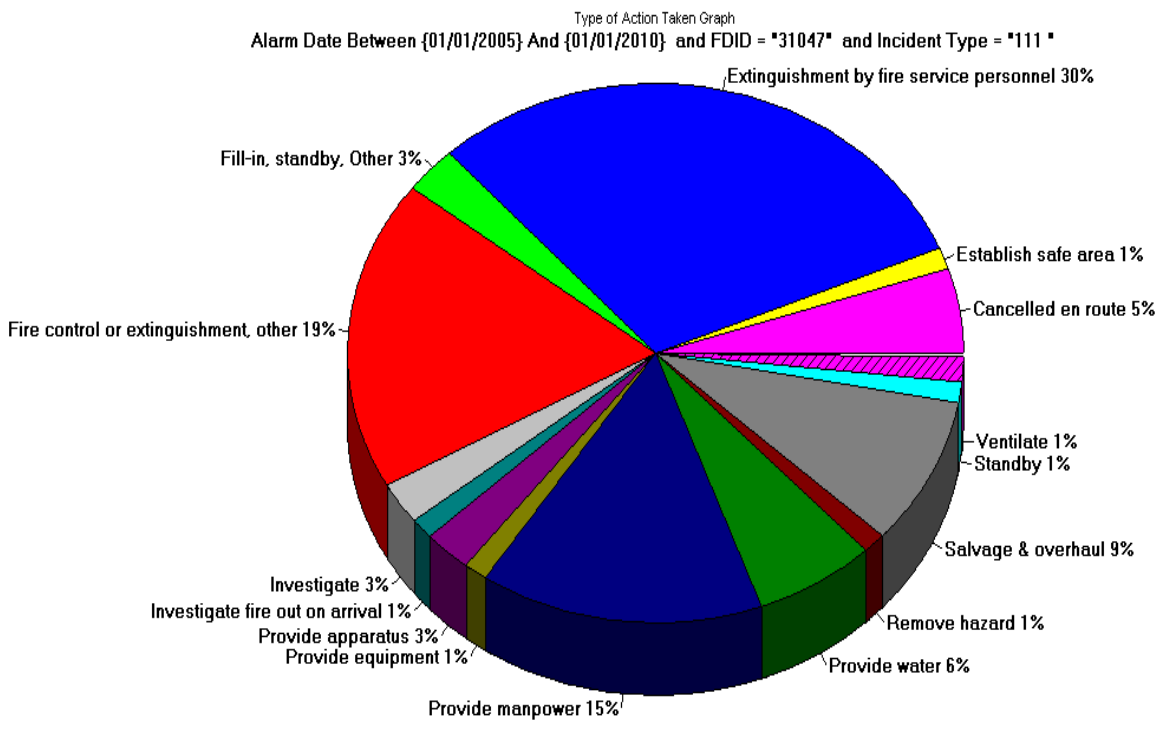
Discharge of Firearm

Any discharges of the member's firearm will be immediately reported. This includes training evolutions or actual usage of the firearm.

Uniform

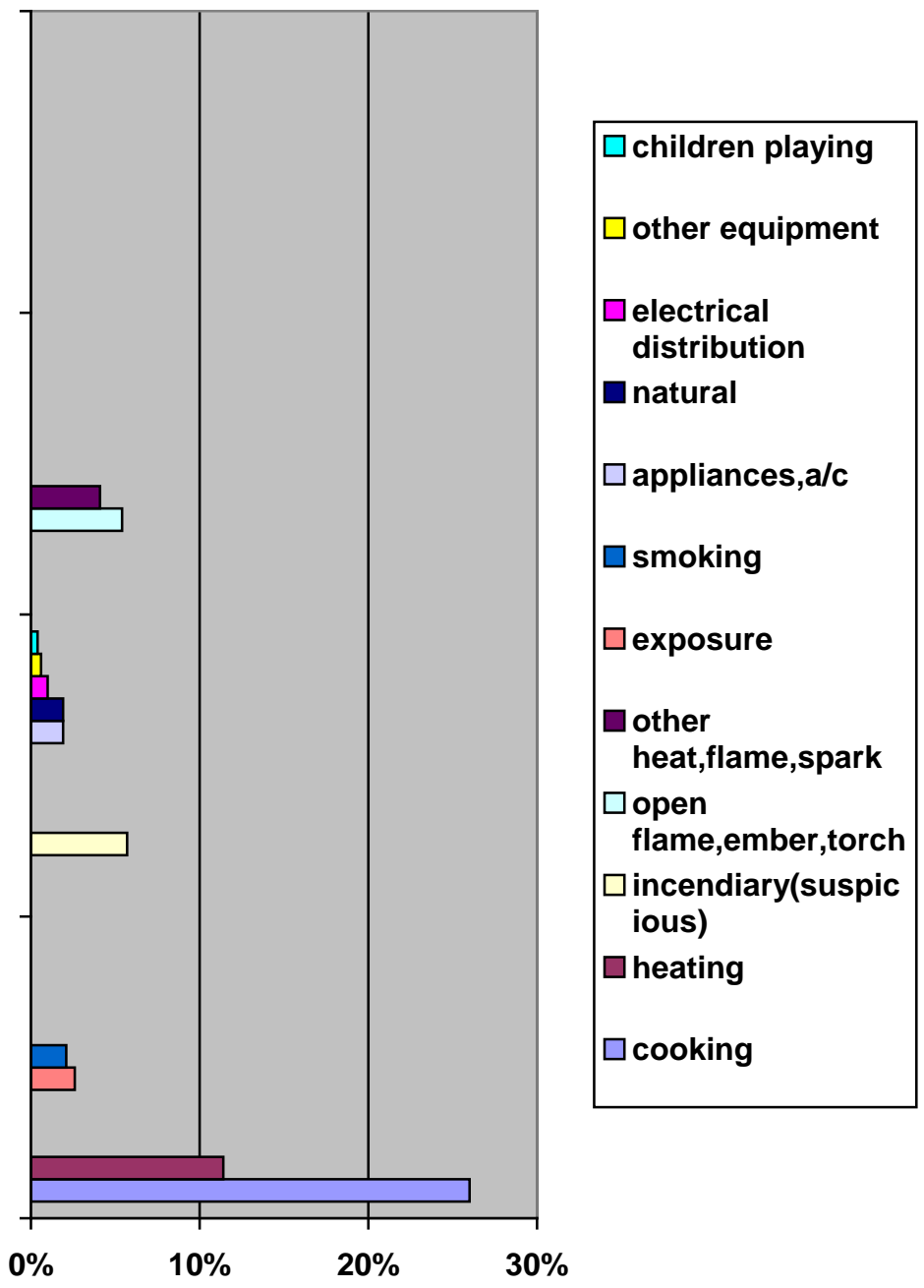
Fire Department members of the Joint Arson Task Force shall dress appropriately when conducting interviews or working away from the confines of the fire stations. Members shall wear coveralls or appropriate fire department uniform when working at the fire scene. These coveralls shall be marked in such a way that the Investigator is easily identified as such. Firearm may be worn in an approved holster with the required retention device that allows for security of the firearm while engaged in physical activity at the fire scene. A member of the Arson Task Force, wearing a firearm, **MUST ALWAYS** display their badge next to the holster so the Investigator is easily identified. Approved handcuffs shall be worn at all times when working as a Fire Investigator. The member shall also have a Harrison Fire Department picture identification card on his person any time a firearm is carried. The identification card shall be issued by the Harrison Fire Department and list the member as a Fire Investigator and reference ORC 737.27 as to the authorization source to carry a firearm and carry out duties as a Fire Investigator.

Appendix 2 – Firehouse Software graph indicating percentages of service provided



APPENDIX 3 – UNITED STATES FIRE ADMINISTRATION (USFA)

COMPARISON OF TYPES OF FIRES AND THEIR FREQUENCY



Appendix 4 – Fire Investigation Survey for Hamilton County Ohio Fire Departments

Dear Chief,

I am currently enrolled in the Ohio Fire Executive program and conducting research on the effectiveness of fire investigation in Hamilton County Ohio. I hope to use the information that you provide to propose a standardized process for fire investigations. The findings from this research project will be used to develop a plan of action to remedy any identified deficiencies in the current system. The long term goal is to establish a more efficient process of fire investigation and to increase the effectiveness of the available investigating teams. Thank you for taking time from your schedule to complete this survey.

Please list your department name.....

1) Please list the qualifications your department requires for a firefighter/police officer to investigate a fire. Please circle all that apply.

a) Basic Fire Investigator

b) Advanced Fire Investigator

c) National Association of Fire Investigators (NAFI)

d) International Association of Fire Investigators (IAAI)

e) Others not listed above

2) Does your department utilize the NFPA 921 in its investigation (Yes/No)?

If no, please describe any other publications or standards utilized.

3) Do you have a Standard Operating Procedure that directs your personnel in fire investigation? (Yes/No).

If not, what other policies are in place in your department pertaining to fire investigation?

4) Please list the number of structure fires that your department recorded in 2009. #.....

Of that number how many were investigated using your department investigator? #.....

5) How many structure fires did your department record in 2009 for which an outside agency was used to conduct the investigation? #.....

Please list the name of those agencies.

6) When your department has used an investigation service other than your own, were the procedures used to establish the origin and cause of the fire similar to your departments?

(Yes/No).

Please describe the differences.

7) If time and resources were available, how would you enhance your department's fire investigation capability?

8) If the time and resources were available, how would you enhance the Hamilton County Arson Task Force fire investigation capabilities?

9) Do you empower your fire investigator(s) under the Ohio Revised Code (ORC 737.27)? (Yes/No)

10) How does your department divide fire investigative responsibilities when working with your local law enforcement?

11) Which of the following best describes the working relationship between your department and local law enforcement as it pertains to fire investigation?

a) Very effective.... mostly effective.... some what effective.... mostly ineffective.... very ineffective....

12) In the last three years, how many recorded fires that your department investigated were determined to be incendiary in nature? Structures #... Vehicles #...

Of those incendiary fires how many resulted in arrest and criminal prosecution? #...

13) What policies, procedures and standards would you like to see your department follow concerning fire investigation in your community?

14) How many fire investigators do you currently employ at your department? #.....

Of that number how many investigate on other fire investigation teams? #.....

If you do have investigators serving on other teams, what are the other teams?

15) Does your department compensate the member in any of the following areas?

a) Compensated at hourly rate of normal pay (Yes/No) Overtime pay (Yes/No)

b) Compensated by paying for fire investigator training (Yes/No)

c) Purchasing hand tools for member to use in investigations (Yes/No)

d) Providing a department vehicle for investigation call outs (Yes/No)

Thank you once again for answering this survey. If you have any additional thoughts or suggestions please contact me at your convenience at 513-367-4194. Please return this survey in the enclosed addressed envelope to:

Greg Chetwood

Deputy Chief

Harrison Fire Department

Harrison Ohio 45030

513-367-4194

Appendix 5 - Ohio Administrative Code 3737.24

3737.24 Investigation of fire.

The fire marshal and the chief of the fire department of each municipal corporation in which a fire department is established, the chief of the fire department in each township in which a fire department is established, the chief of the fire department of a joint fire district, or the fire prevention officer in each township or village where no fire department is established, shall investigate the cause, origin, and circumstances of each major fire, as determined by the rules of the fire marshal, occurring in such municipal corporation, joint fire district, or township by which property has been destroyed or damaged, and shall make an investigation to determine whether the fire was the result of carelessness or design. The investigation shall be commenced within two days, not including Sunday, if the fire occurred on that day. The marshal may superintend the investigation.

An officer making an investigation of a fire occurring in a municipal corporation, joint fire district, or township shall forthwith notify the marshal, and within one week of the occurrence of the fire shall furnish him a written statement of all facts relating to its cause and origin and such other information as is required by forms provided by the marshal.

In the performance of the duties imposed by Chapter 3737. of the Revised Code, the marshal and each of his subordinates, and any other officers mentioned in this section, at any time of day or night, may enter upon and examine any building or premises where a fire has occurred, and other buildings and premises adjoining or near thereto.

Effective Date: 09-17-1986

Appendix 6 – Ohio Revised Code 737.27

737.27 Investigation of fires.

The legislative authority of a municipal corporation may invest any officer of the fire or police department with the power, and impose on him the duty, to be present at all fires, investigate the cause thereof, examine witnesses, compel the attendance of witnesses and the production of books and papers, and to do and perform all other acts necessary to the effective discharge of such duties.

Such officer may administer oaths, make arrests, and enter, for the purpose of examination, any building which, in his opinion, is in danger from fire. The officer shall report his proceedings to the legislative authority at such times as are required.

Effective Date: 10-01-1953

Appendix 7 – Harrison Arson Task Force Fire Incident Report



Charles R. Lindsey, Chief of Police

City of Harrison Arson Task Force

Investigative Team

Investigation Report

Location (geographical, roads, etc)

Estimated Damage: _____

Estimated Damage of Contents: _____

Person discovering fire/explosion: _____ **Date/Time**

Address

Home Phone _____ Work Phone _____ Cell Phone

DOB _____ SSN _____

Owner:

DOB: _____ SSN: _____

Address:

Home Phone _____ Work Phone _____ Cell Phone

Who had access? _____

Phone: _____

Had Key?: _____

Phone: _____

Occupant(s): _____ DOB:

Address: _____ Phone:

SSN: _____

Occupant(s): _____ DOB:

Address: _____ Phone:

SSN: _____

Witness: _____ **DOB:**

Address: _____ **Phone:**

SSN: _____

Witness: _____ **DOB:**

Address: _____ **Phone:**

SSN: _____

STRUCTURE

This is a ____ story building consisting of ____ rooms and ____ bath(s) with ____
porch(es),

_____ decks, _____ chimney(s), _____ attic(s), _____ car garage(s), _____ basement(s), _____
crawl space(s).

Frame construction of the building is () wood () brick () concrete () aluminum ()
steel () other.

Condition of Structure () Good () Average () Poor

Wall covering () dry wall () brick () wood paneling () cinder block () tile

<u>Level</u>	<u>Rooms</u>	<u>Closets</u>	<u>Baths</u>	<u>Construction</u>
Basement	_____	_____	_____	_____
<hr/>				
1 st Floor	_____	_____	_____	_____
<hr/>				
2 nd Floor	_____	_____	_____	_____
<hr/>				
3 rd Floor	_____	_____	_____	_____
<hr/>				
Other	_____	_____	_____	_____
<hr/>				

Doorways and Entrances

<u>Door</u>	<u>Location</u>	<u>Secured</u>	<u>Forced Open</u>
-------------	-----------------	----------------	--------------------

#1	_____	()	()
#2	_____	()	()
#3	_____	()	()
#4	_____	()	()

<u>Window</u>	<u>Location</u>	<u>Secured</u>	<u>Forced Open</u>
#1	_____	()	()
#2	_____	()	()
#3	_____	()	()
#4	_____	()	()
#5	_____	()	()
#6	_____	()	()
#7	_____	()	()
#8	_____	()	()
#9	_____	()	()
#10	_____	()	()

Utilities

_____ Electric	_____ Well Gas	_____ Telephone	_____ Well Water
_____ Natural Gas	_____ Septic	_____ Cable TV	_____ City Water
_____ Propane Gas	_____ Sewer	_____ Satellite TV	_____

Other

Heating Source and Appliances

_____ Natural Gas Furnace _____ Propane Gas Furnace _____ Electric Furnace

_____ Oil Furnace

_____ Wood Stove _____ Natural Gas Stove _____ Propane Gas Stove _____ Wood

Fireplace

_____ Natural Gas Fireplace _____ Propane Gas Fireplace _____ Electric Heater

_____ Other

Make: _____ Model _____ Serial#

Make: _____ Model _____ Serial#

<u>Appliance</u>	<u>Make</u>	<u>Model</u>	<u>Serial#</u>	<u>Location</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Electrical Check

Entrance

Wiring

Main

Breakers

Fuses

Ground

Electrical Notes:

Flammable/Combustible(s) in structure? () Yes() No

If yes, describe:

Housekeeping () **Excellent** () **Good** () **Average** () **Poor**

Furnishings () Excellent () Good () Average () Poor

Storage () Excellent () Good () Average () Poor

Comments:

Intrusion Alarm () **Alerting** () **Tampered with** () **Malfunctioning** () **Not connected**

Fire Alarm () **Alerting** () **Tampered with** () **Malfunctioning** () **Not connected**

Insurance

<u>Company</u>	<u>Agent</u>	<u>Phone</u>	<u>Fax</u>	<u>Claim#</u>
_____	_____	_____	_____	

_____	_____	_____	_____	

Previous problems with structure?

Previous fires?

Ignition Sequence

- Heat Source:

- Fuel Source:

- Ignition Factor:

Fire Spread

- Materials:

- Avenues:

Smoke Spread

- **Materials:**

- **Avenues:**

VEHICLE

Vehicle examined at:

Location at time of fire:

() Street () Alley () Highway () Parking lot () Attached Garage () Detached

Garage

() Driveway () Field () Woods () Yard

() Residence () School () Business () Industrial () Other

Year Make Model Color

VIN: _____

License Plate: State _____ Number _____ Expires _____

Lien Holder: _____ Phone: _____

Monthly Payment: _____ Balance Due: _____

Insurance Company _____ Agent _____

Phone: _____ Fax: _____ Policy Number: _____

Adjuster _____ Claim Number: _____

Phone: _____ Fax: _____ Coverage: _____

Title History:

Driver: _____ Dob: _____

Address:

Phone: _____ Cell: _____ SSN: _____

Passenger Compartment (interior)

Dashboard: Intact Consumed Partially Missing

Radio: Intact Consumed Partially Missing

Speakers: Intact Consumed Partially Missing

Firewall: Intact Destroyed by fire

Ignition: Intact In Debris Destroyed by fire Pulled

Locked

"On" position "Off" position Thumb Assist

"Off"

Steering Column: Intact Locked Tampered with Destroyed
by fire

Front Seat: Intact Consumed Partially Missing

Rear Seat: Intact Consumed Partially Missing N/A

Glove Box: Intact Consumed Partially Missing

Personal Effects Yes No

Ignition Key: None found In Ignition At scene

Odometer Reading: _____ Oil Change Sticker

Personal affects in passenger compartment:

Engine Compartment:

Engine Accessibility: Limited {hood jammed} Open

Engine Intact partially stripped Burned Missing

Battery Intact Melted Removed

Radiator Intact Consumed Removed Radiator Level:

Oil Level: _____ Oil Pan: Intact Missing

Leakage Noticed

Belts: Intact Melted Missing Number of Belts: _____

Hoses: Intact Melted Missing Number of Hoses: _____

Transmission: Intact Missing Leakage noticed

Engine Parts Missing:

Alarm System: Yes No Unknown Tampered with

Exterior

<u>Tires: Type</u>	<u>Wheel cover</u>	<u>Tread wear</u>	<u># Lugs</u>
<u>Missing</u>			
LF _____ _____	_____	_____	_____
RF _____ _____	_____	_____	_____
LR _____ _____	_____	_____	_____
RR _____ _____	_____	_____	_____

Locks:

Left Front Door: Intact Melted Punched Missing

Right Front Door: Intact Melted Punched Missing

Glass Condition:

Windshield: Broken Melted/Cracked by heat In/Out
Intact

Rear Window: Broken Melted/Cracked by heat In/Out
Intact

Drivers Window: Broken Melted/Cracked by heat In/Out
Intact

Position Up Down

Passenger Window: Broken Melted/Cracked by heat In/Out
Intact

Position Up Down

Left Rear Window: Broken Melted/Cracked by heat In/Out
Intact

Position Up Down

Right Rear Window: Broken Melted/Cracked by heat In/Out
Intact

Position Up Down

Sunroof: Open Closed Melted N/A

Convertible: Up Down Destroyed N/A

T-Tops: On Removed Melted N/A

Electric Windows Yes No

<u>Areas</u>	<u>Missing</u>	<u>Rust</u>	<u>Damage</u>
Light rust)			
Front Bumper	_____	_____	

Hood	_____	_____	

	() Open	() Closed	
Grill	_____	_____	

Left Fender	_____	_____	

Driver's Door	_____	_____	

	() Open	() Closed	
Rear Drivers Door	_____	_____	

	() Open	() Closed	
Left Quarter Panel	_____	_____	

Trunk Lid	_____	_____	

	() Open	() Closed	
Rear Bumper	_____	_____	

Roof _____

Right Quarter Panel _____

Passenger Door _____

 Open Closed

Rear Passenger Door _____

 Open Closed

Right Fender _____

Rear Cargo Doors _____

 Open Closed

Side Cargo Doors _____

 Open Closed

Truck Bed _____

 Tailgate Open Tailgate Closed

Trunk Compartment:

Spare Tire: Intact Missing On Vehicle

Tire Changing Equipment Intact Missing At scene

Other Contents/ Personal Effects:

Under Vehicle:

Fuel Tank: Intact Damaged

Gas Cap: Intact Melted Missing

Fill Pipe: Intact Damaged Missing

Appendix 8 – Personnel Communications

Hursong, R. Harrison Fire Department Harrison Ohio Fire Chief

Koopman, N. Harrison Police Department Harrison Ohio Detective

Lindsey, C. Harrison Police Department Harrison Ohio Police Chief

Lawless, T. Ohio State Fire Marshal

Reilage, R. City of Wyoming Ohio Fire Department Fire Chief

Appendix 9 – Statistics for 2006 United States Fire Administration

- There were 3320 civilian lives lost to fire
- There were 16,705 civilian injuries from fire
- There were 118 firefighters killed on duty
- Fire killed more Americans than all natural disasters combined
- Eighty four percent of all civilian deaths occurred in residences
- There were an estimated 1.5 million fires in 2008
- Direct property loss due to fire was an estimated 15.5 billion. This figure includes the 2008 California wildfire with an estimated 1.4 billion
- An estimated 32,500 intentionally set (incendiary) structure fires resulted in 315 civilian deaths
- Intentionally set structure fires resulted in an estimated 866 million dollars in property loss

