

“Which Way Did They Go? I’m Their Leader!”
(Increasing Consistency of Fire Ground Accountability in Portage County, Ohio)

By: Lieutenant Christopher Morrison
Brimfield Fire Department
Brimfield, Ohio

An applied research paper submitted to the Ohio Fire Chief's Association
as part of the Ohio Fire Executive Program

May 2009

CERTIFICATION STATEMENT

I hereby certify that the following statements are true:

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ABSTRACT

Each year over a hundred firefighters die in the line of duty. Personnel accountability on the fireground is a safety matter of extreme importance. The problem was the perceived failure of firefighters in Portage County, Ohio to consistently use a personnel accountability system on the fire-ground.

The purpose of this study was to recommend strategies to improve utilization of personnel accountability on the fire-ground in Portage County, Ohio.

Research was conducted to seek answers to the following research questions:

1. What are the attitudes toward fire-ground accountability and its use in Portage County, Ohio?
2. What types of firefighter accountability systems are area fire departments in Portage County, Ohio utilizing?
3. What are some strategies that Portage County fire departments could utilize to improve use habits of a personnel accountability system?
4. What are some of the nationally utilized systems in use for accounting for firefighters on the fire-ground?
5. Is there grant money available to assist departments in Portage County in the purchase of an agreed upon accountability system?

Action oriented research provided information needed to create recommendations to improve fireground accountability in Portage County, Ohio.

Research conducted indicated that 1) many firefighters in Portage County work in organizations that forget to use or do not make fire-ground accountability a priority, which indicates a lack of discipline. 2) 90% of Portage County uses the same

accountability system, which suggests that standardizing would be an easy process. 3) Significant improvements in safety could come from a common accountability system and SOP with fair disciplinary action applied when needed and frequent accountability training. 4) There is a variety of accountability systems found nationwide. 5) Grants are available to help fund accountability system purchases.

Every firefighter in an organization is personally responsible to make accountability work.

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INTRODUCTION

Personnel accountability on the fire-ground is a safety matter of extreme importance. Fire-ground scenes without accountability can result in chaos with regard to many aspects of the operations. With no personnel tracking system in place, firefighters may freelance. Freelancing causes confusion and counters the production within the incident action plan. This leads to an increased risk to themselves and their colleagues with regard to personal injury and/or death.

The National Institute of Occupational Safety and Health (NIOSH) chronicles over 100 deaths of fire service personnel each year and over 80,000 injuries. Many of these injuries and deaths are preventable.

The Problem

The problem this study addressed is the perceived failure of firefighters in Portage County, Ohio to consistently use a personnel accountability system on the fire-ground. This could endanger the very lives of the firefighters themselves and the individuals they are trying to serve and protect.

The Purpose

The purpose of this study is to identify and recommend strategies to improve the proper utilization of personnel accountability on the fire-ground in Portage County, Ohio. While there have been no local deaths or recorded increases in firefighter injuries due to this issue, line of duty death reports from NIOSH are filled with incidents where failure to practice acceptable accountability methods played either a major or a minor role in the

death of a firefighter. Several case studies reveal that NIOSH made recommendations for use of an accountability system where none was in place.

Observation of poor accountability practices initially within the Brimfield Fire Department and later, other departments within the same county, create the perception that a situation exists. This situation is the potential injury or death of a firefighter within the county due to inconsistent use of an accountability system to track all firefighters on each emergency and fire-ground incident. Consistent use of such a system will decrease the chances of such tragic events.

Data was collected for this research study utilizing the methodology of active research. Upon completion, the analysis of this data will be utilized to articulate the results to the administration of the Brimfield Fire Department. In turn, the results will be utilized in the formulation and implementation of new policy. This information will be forwarded to the Portage County Fire Chief's Association for review and possible development of a countywide standard operating procedure for an approved and accepted method to maintain personnel accountability on the fire ground in Portage County.

Research Questions

The research questions this study investigated are:

1. What are the attitudes toward fire-ground accountability and its use in Portage County, Ohio?
2. What types of firefighter accountability systems are area fire departments in Portage County, Ohio utilizing?
3. What are some strategies that Portage County fire departments could utilize to improve use habits of a personnel accountability system?

4. What are some of the nationally utilized systems in use for accounting for firefighters on the fire-ground?
5. Is there grant money available to assist departments in Portage County in the purchase of an agreed upon accountability system?

BACKGROUND AND SIGNIFICANCE

Historically speaking, the fire service kills its employees. For the last 10 years, the average number of victims has reached 110 individuals a year. The word kill is used because many of the annual deaths, once investigated, are found to have had a percentage of preventability. The same is said for the 80,000 plus annual fire service injuries. This preventability comes from the practice of placing standard operating procedures (SOPs) or guidelines (SOGs) into place that did not exist before the death, but should have. Preventability also comes from failure to enforce current fire department SOPs, SOGs, and safety regulations. Further, it is resultant from firefighter attitudes toward safety when in relation to the adherence to safety rules and regulations.

The fire service industry spends a great deal of time and money talking about safety and improving technology to make things safer for everyone. This is illustrated in the number of speakers, articles, magazines and trade news publications that discuss firefighter safety issues each year. Add these to the constant outpouring of new safety products and services available to the fire service industry at large. Yet, annually, scores of firefighters die for reasons such as not wearing seatbelts, not being educated to, or all out ignoring directives and procedures. The failure of organizations to keep consistent accountability on the fire-ground factors as well.

For the last fifteen years, there has been an increased focus on accountability in an effort to increase the safety of firefighters when responding to and working at the scene of an incident. This focus has circulated around creating systems which, when correctly placed, will help the incident commander know how many people are on the scene. They also allow tracking of what each firefighter is doing, where he or she is doing it and for how long they have been working in that given capacity.

It was recently noted that while there is an accountability program in place at the Brimfield Fire Department (BFD) in Portage County, Ohio, in as much as the hardware, there was no policy in place on the utilization of the program. Further, while they utilize their system on a somewhat frequent basis, they do not use it consistently across all three of the shifts.

Lieutenants at Brimfield, when asked about when their accountability system is put into play, gave answers that were found to be wide and varied, indicating the inconsistency to which this study refers.

Further, the issue circulated at a deeper level with officers and members of Brimfield. It became apparent that as individuals are running on auto and mutual aid calls to adjacent municipalities, they were reporting that the same types of inconsistencies exist abroad as well. Firefighters are responding to calls all over Portage County where there appears to be inconsistent utilization of an approved accountability system, if a system is utilized at all.

The National Institute for Occupational Safety and Health (NIOSH) has isolated numerous deaths of firefighters where the failure to initiate accountability plays a major contributing factor to the individual's death.

The National Fallen Firefighter's Foundation (NFFF) has gone as far as listing the need for cultural changes with regard to fire-ground accountability as a part of their number one priority for firefighter life safety initiatives.

Fortunately, Portage County has reported no deaths of firefighters in recent years, in which accountability played a role. Yet, accountability appears to be a problem that is in drastic need of address before tragedy strikes to change this fact.

This research project was an assigned project, related to the Ohio Fire Executive Program, Class 8, administered through the Ohio Fire and Emergency Services Foundation. The intent was to research a perceived problem in the fire service and report the findings for the purpose of possible changes in policies, procedures, or the development of standard operating guidelines, which could affect a possible answer to the researched problem.

The potential impact that this study could have on fire departments in Portage County, Ohio is to enhance the safety of firefighters through the development of a countywide standard operating guideline. This guideline would address the consistent utilization of early fire-ground accountability. The result would be another local step forward in the aim to reduce injury and eliminate needless tragedy attributed to lack of, or late use of a personnel accountability system on the fire-ground.

LITERATURE REVIEW

There is a great deal of literature on the use of personnel accountability systems in the fire service and even some that may be found for fields outside the fire service as well. Trades such as divers, miners, utility workers and the military all utilize their own style and method of accountability.

Literature was reviewed for this research project from numerous resources including several NFPA Standards, various textbooks, articles, and other academic research papers. These sources were gathered from the internet, the learning resources center at the National Fire Academy in Emmitsburg, Maryland, the resource center at the Ohio Fire Academy in Columbus, Ohio and the employee resource library of the Brimfield Fire Department.

To fully understand personnel accountability, a definition must first be in place. An NFPA standard was utilized for this purpose because according to Varone (2008), NFPA standards are considered in courts to be what a cautious and sensible firefighter, officer or incident commander would follow.

NFPA 1500 (2008) Standard on Fire Department Occupational Safety and Health Program states in section 3.3.72 that personnel accountability systems are defined systems that are able to readily identify all the members of fire organizations that are working at the scene of an incident, as well as the location and function of each group, team, or individual. It is the incident commander's role to maintain accountability through initiating accountability and inventory worksheets as well as emergency radio traffic, and initiating a PAR, which is a personnel accountability report. The system allows for identification of any firefighter on the scene of an emergency incident with specific regard to the location and the function. It goes on to say in section 8.4.9 that a PAS shall be used on all incidents, and in 8.4.10 that the PAS should create constant awareness of what is going on with all the personnel on the emergency scene at all times. Further, in section 5.1.11 it says that anyone that is going to be involved in operations at the scene of an emergency must have a clear understanding of not only how his or her

organization's accountability system works, but how management of an incident works as well.

All responders need to know this information because according to section 8.4.4, the responsibility of initiating an accountability system falls distinctly on the incident commander. Further, any single firefighter could end up as the incident commander on any given day depending upon circumstance. Anyone on the scene, depending upon time and rank, could just as easily become a company officer or incident commander. Section 8.4.6 states company officers shall maintain an ongoing awareness of the location and condition of all company members. Finally, out of this text in section 8.4.8, all department members shall be responsible for following PAS procedures.

This viewpoint of accountability starts with some of the principals taught within the incident command system. These principals include both, company unity and unity of command.

In *Fire Officer Principals and Practice* (2006), John Norman defines unity of command as each individual firefighter answering to only one supervisor. This principal is important because it helps eliminate breaches to safety such as confusion and mistakes that can be dangerous. An example would be one firefighter answering to two or more officers. Unity of command eliminates the carrying out of conflicting orders, which can be a hindrance to the incident action plan and cause firefighter injuries.

A well-developed and strictly followed accountability system that any fire department can put into place is one of the most important tools for maintenance of safety that exists (Schultz, 2009)

However, it should be noted that an accountability system is just that – a set of tools that according to Bingham (2005) do not take the place of crew unity or straight

thought. People are the main ingredient making an accountability system work. It is through the daily operations, practice of keeping crew unity, working in divisions or groups and following department SOP's that is the real accountability system. Bingham continues by saying that accountability tags are just trinkets that represent the system.

Fire Officer Principals and Practice (2006) further purports that one of the main factors that placed fire-ground accountability systems on the radar, was a series of happenings across the country. In each event, individuals filed lawsuits against a fire department because of an incident that occurred, where failure to keep track of working firefighters resulted in severe injuries or death.

Exemplified, is the city of Seattle. During the mid eighties and nineties, the Seattle Fire Department lost six firefighters. A common thread among the things claimed as contributing factors in all six deaths, was the Seattle Fire Department's negligence to track their personnel while on the scene of an emergency incident. Unfortunately, in each of these incidents, there was a considerable amount of time between the moment of the firefighter's death and the time the incident commander became knowledgeable of what had happened. These incidents, lawsuits and the subsequent punitive fines handed down to the Seattle Fire Department by the Washington State Department of Labor and Industry led to one of the first firefighter personnel accountability systems in the United States.

At about the same time, NIOSH was looking into an alarming number of situations where firefighters had died. A predominating factor was the detail that disorientation overcame the firefighters before their death. A report released by NIOSH identified in their list of items of problematic attributes to each, no establishment of

firefighter accountability on the fire-ground and failure to utilize a PASS device at the scene as major factors that can lead to a life-threatening situation for firefighters.

It is important before moving in the direction of investigating reasons for failure to utilize a personnel accountability system, to understand what nationally recognized standards exist regarding the use of accountability. It is important to remember when taking this into consideration that many courts in the past have considered NFPA standards to be what a prudent or cautious firefighter would do (Varone, 2008).

From that end, the study will move forward to examine what other experts say about the importance of establishing accountability.

NFPA 1584 Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises (2008) echoes NFPA 1561 in that if firefighters will be leaving the working area to go to rehab, there shall be a developed standard operating guideline (SOG). The guideline is to specifically outline how rehabilitation of fire department members working at the scene of the incident should take place. It is to include a method for accountability. The IC or accountability officer will keep accountability for firefighters in rehab in exactly the same way as that for firefighters who are performing ventilation or fire suppression activities. This standard continues with an example that if firefighters are leaving a geographical area to change out air bottles, for instance, they should be sent to staging or rehabilitation and that accountability should be kept of them at all times.

NFPA 1584 (2008) continues to say that a functional rehab group should be established on the fire-ground. With the creation of this formal group, crews may be assigned to rehab with a check in / check out system which helps to keep accountability. It also allows for formal communication regarding the accountability assignments

between the group leader and the incident commander. Failure to create a rehab group allows firefighters to take it upon themselves to self-rehab. This will likely allow them to show on incident commander's board as still active in some type of an assigned function, which erodes the accountability process.

NFPA 1710 is the *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*. NFPA 1710 (2004) states in section 3.3.32 that while on an incident, a staff aide should be assigned to assist a chief in a supervisory position with a list of functions including but not limited to the personnel accountability functions.

Further, section 5.2.4.3.1 states that as fire departments expand alarms, they shall have the ability to summon additional personnel that can help provide additional services such as fire suppression, ventilation and personnel accountability.

In NFPA 1021 *Standard for Fire Officer Professional Qualifications* (2003) section 4.6.3*(B), one of the requisite skills listed for emergency service delivery is that the fire officers are able to communicate well, able to understand and utilize an incident management system, and have the knowledge to supervise and be able to account for emergency personnel.

Many people say that NFPA recommendations are just standards. People say that NFPA is an ideal or that it is a good thing to use as a guide. Others argue that no fire department has a mandate to adopt or follow NFPA standards. While there are threads of truth to these statements, Varone (2008) says of fire-ground negligence, that court cases involving negligence become tremendously intense with a search for facts, and that many expert witnesses tend to admitted to argue one side against the other. A situation where

expert witnesses agree with each other is rare. He goes on to say, “Experts may argue over the applicability of OSHA regulations and NFPA standard to facts in a case, but law and standards provide objective and unbiased evidence about what should have been done. It is hard to argue to a jury that the reasonably prudent fire professional would ignore an OSHA regulation or NFPA standard” (p. 41).

In his book, *Rapid Intervention Teams* (2001), Jakubowski states that the only real way to control the maintenance of the incident is through having a system of personnel accountability.

In the following statement from *Fire Command* (2002), Chief Alan V. Brunacini (ret.), one of the most influential fire chief officers of our era exposes his personal account of the importance of fire-ground personnel accountability:

“While a lot of the elements that we load into fire attacks are a mystery to Mrs. Smith, they are essential to successful incident-scene operations. The IC is out of business if he/she can’t manage accountability on the command (strategic) level. The primary reason we create an IC out at Mrs. Smith’s is to coordinate the activities of all the other folks we send. If the accountability process is out of whack on the strategic level, it’s a safe bet that it is also screwed up on the tactical and task level. This is a very bad thing – bad for the IC, bad for the troops working under the IC (although if the IC doesn’t know who’s there, they probably are working independently), and bad for Mrs. Smith. A lack of accountability on the strategic level paves the way for less than safe and effective incident outcomes. A lack of accountability on the task level can be, and sadly sometimes is fatal for firefighters who must operate in the toxic environment found within the hazard zone. Nothing will interrupt the fire attack being conducted in Mrs. Smith’s kitchen quite so abruptly

as a report of a firefighter in trouble. All three levels of the incident-scene organization (strategic, tactical, and task) are responsible for the accountability and tracking of all their assigned personnel. Each individual is personally responsible to operate within the accountability system" (pp. 204-205).

FEMA (2002) echoes Brunacini by claiming that any officer that is within the command structure holds responsibility to make sure that there is strict accountability for his firefighters and that their welfare is being guarded.

Fire service organizations utilize a variety of systems to accomplish this goal; Regardless of the system, the officer should be able to pinpoint the exact location of any given firefighter on the fire-ground. Beyond that requirement, the system also needs to be able to do things such as discern impediment from a specified firefighter's assigned duties on the fire-ground, help an officer recognize the need to enact a rapid intervention crew, and fold all its function into a fully complex incident command system (ICS).

NIOSH *Investigative Report #98F-21* (1998) is one of scores of firefighter line of duty death investigative reports where the National Institute of Occupational Safety and Health attributed accountability heavily to the line of duty deaths.

In this report (Appendix 2), the story unfolds of two firefighters in Mississippi that died while working on the scene of a burning building that was part of a strip mall. The fire occurred at 0056 a.m. on August 29, 1998. The incident commander had not put an accountability system into play. Neither firefighter had a radio.

According to the report, victim 1 had made entry with two other firefighters from another department to affect an interior attack. At the same time victim 2 was sent to the roof to cut a vent hole. His partner was ordered to stay on the ladder at the edge of the roof. While inside, the roof collapsed and fell in on victim 1 and his three-member crew

on the interior. One narrowly escaped. The fallen debris had trapped victim 1 and another firefighter. Firefighters on the same side at the exterior were able to make entry and find the firefighter that was with victim 1. They dragged him from the building to safety, alive but badly injured. Another firefighter notified the incident commander that they had two firefighters down with injuries. The incident commander and other firefighters tried to find victim 1 but interior conditions worsened and exhausted air supplies and forced the search to end.

Before the roof collapse, the firefighter that was assisting victim 2 from the ladder was removed and assigned elsewhere. When the roof collapsed, victim 2 fell through the roof into the fire and died on the interior. The incident commander had no idea that this had taken place. When news that victim 2 was missing got to the incident commander he commenced a grounds search and after fifteen minutes, became convinced that victim 2 was missing inside the structure. Another fire department was contacted to assist with the interior search. This search commenced at 2 a.m. By 3:30 a.m., the body of victim 1 had been recovered. It took an additional two and a half hours to locate the body of victim 2, which only happened after overhauling efforts had begun.

Many times at an incident, the incident commander will decide that initiation of accountability is needed later in the incident as the situation gets worse and more resources are being called to assist. McCormack (2005) states that this is a problem. He goes on to parallel this situation by saying, “that’s like saying that when we find out we need more water, we will go out and find it” (p. 3).

Bingham (2005) stated that many departments opt not to initiate an accountability system until the incident requires the striking of a second alarm. He questions the accountability of the first alarm companies that are working at the fire .

Coleman (2001) says that much of the fire service is so steeped in tradition that we do not like to change things. We do things a certain way because it is the way we have done these things in the past. If it works and the system is not broken, then what is the use in changing things? Nevertheless, the problem is that people are not looking close enough. The facts are that firefighters are being injured and dying because we will not change things.

Morris, Brunacini, and Whaley (1994) said that firefighter's attitudes toward accountability must change if there is any reasonable expectation that the system is going to work. The organizational culture must transition to a point that all the members have a clear understanding that if they do not utilize an accountability system on the fireground, everyone on the fireground is placed into a category of extraordinary risk of danger.

Dr. Burt Clark (2008) states that the fire service is exceedingly lacking in doing many of the safety directives that should be in place. In his article, *Firefighters Have to Get Killed; It's Part of the Job*, Dr. Clark states, "In 1976, there were 107 line of duty deaths. In 2007, we had 115 line of duty deaths and about 80,000 injuries. The number of deaths and injuries has not changed much over the past 30 years. The reasons for the deaths and injuries have not changed. Because, in spite of all the safety talk and safety programs our safety belief, attitude, and behaviors have not changed."

He goes on to say "The NIOSH line of duty death studies report that we do not follow our own safety SOP's, national standards, and training doctrine. We do not use our safety equipment. We do not hold firefighters, officers, or chiefs responsible and accountable when it comes to safety. More fire service personnel are disciplined for being late for work than safety violations. In other words, we tolerate and accept safety misconduct, which can and does result in firefighter death or injury."

Melfi (2001) echoes Clark by saying that emergency scene discipline is just not there anymore. Further, when we fail to make accountability a priority, we are creating a situation where we allow for freelancing without consequences. This reinforces freelancing and creates situations that increase the chances of injury and death to firefighters (p. 68).

Fire professionals need to do everything that they can in their operations as related to how it may affect them with regard to legal liabilities. The challenge comes into putting enough effort into doing things the right way, so when situations turn on us we are in a position to defend ourselves in court (Varone, 2008). One of the right things we can do is provide accountability for our firefighters on the fireground.

Accountability

Fire service personnel are not the only group to utilize accountability systems. Nationwide, accountability is utilized daily in a wide variety of ways.

For example, in some areas, school systems are utilizing a personnel accountability system for their students when they go on field trips. In this system, prior to leaving the school, each student is given a tag with their name on it. Upon arrival at the site of the field trip, as the student exit the bus, teachers collect their tags and hold them for the duration of the field trip. Upon returning to the bus, the teachers redistributed tags to the students. If any tags are left in the hand of the teacher, the tag will identify the students that have not made the return to the bus.

Consider Wal-Mart whose inventory stock is logged out of a warehouse somewhere in one region. Then, it is re-logged upon its arrival to the local retail site.

Again, the merchandise is checked out of the store's system when it is purchased. At no point does Wal-mart lose track of where they may find the inventory of their stock.

There is a system developed for divers that accounts for each diver as they enter or exit a body of water. This system is comprised of several tags that can be assigned to divers. These tags typically are attached in some manner to the diver's suit, equipment or breathing apparatus. Information is inscribed on each tag. The tags usually will contain the diver's name, his air tank size and his air tank pressure. The tags contain a magnetic sensor that will activate software incorporated into this system.

The core of the system is a waterproof box with the software program that allows for data to be entered on each diver including a tracking number, air pressure, and dive depth. The box receives power through internal or external sources or a combination of both. Through mathematical means, the software will calculate air pressure in the diver's tank at entry time and correlate it with average descent and ascent times with calculated bottom time and alerts the master diver when someone is due to return to the surface. In situations where divers are working in groups or teams, it is safe and common practice to work off the information from the team member with the lowest capacity tank size and/or pressure. When the alert sounds, it typically tends to be an easy to hear warning tone to get the attention of the master diver. Programmers of the software package have included prompts for emergency action operations should a diver not return on schedule.

Mining companies must track groups of miners as they descend into the earth. They must know how many are in a group, the name of each individual miner in a group, what mine into which they are descending, and if they move from mine to mine. In this way should there be a tragic collapse of a mine, search parties will know where to look and for whom they are looking.

Military services must account for their soldiers at any given moment. Whether it is in training, on active duty, or on furlough, the military has an elaborate system of tracking where their personnel are at any given time.

Parents go out of their way to be accountable for their kids. Frequently parents ask their children where they are going, with whom they are going and when they will return. In this way if the children do not return, the parent has a starting point to begin accounting for their child's whereabouts.

The United Methodist Church has put a security statement in place that says that every local parish must have a policy that accounts for small children, recommending strongly that the parents personally check the children in and out of the nursery. This system also recommends that there be two responsible parties at any given time for a double layer of accountability. The United Methodist Church further recommends that these people be background checked and finger printed.

The Boy Scouts of America also strongly recommend two deep leadership and the buddy system for each scout, no matter where they go. When scouts take trips and travel by car the Association mandates that everyone is seat-belted and that the driver follow all vehicle safety laws.

Anytime people are responsible for people, one will typically find some type of accountability system.

Approved Fire Service Accountability Systems

Regardless of type, there must be an accountability system at the command post. The system must allow someone to chronicle the units that are on the scene and the locations where each are working (Norman, 1991). A rudimentary handwritten personnel

accountability system can work very well initially. This type of system is simple enough that it allows for crews to rapidly accomplish the tasks to which they are assigned but still maintains enough complexity to track the location and identity of everyone assigned to the fireground (Shouldis, 1998). In the very beginning stages of an incident, firefighters may use simple radio communications to supplement this tool.

Pencil and Paper Method

While a paper and pencil system is unquestionably a form of firefighter accountability, this system is vulnerable to failure because of factors such as poor weather making the paper wet, loss or other damage to the tracking page. Poor legibility due to weak handwriting and poor radio frequency interoperability are factors as well. But, firefighters may also tap into many nationally accepted systems of accountability that are in existence.

T-card System®

T-card systems are the next generation of pencil and paper systems. In the south and west of the United States, T-cards have been a preferred and widely utilized system of accountability. In this system, the IC or accountability officer will erect a T-card rack made of metal, wood, or canvas type material. The T-card rack has many slots that hold heavy stock cards, which are created in the shape of a capitol letter T (Appendix 2). The cards in a T-card system are color-coded. The National Incident Management System has designated different colors for different types of resources. Individual locales may assign their personal color code if they wish.

Most organizations order their T-cards customized and printed in advance. The T-cards can be as simple or complex as the purchasing agent sees fit. The more complex the incident, the more information an agent may want on the T-cards for their organization. In general, T-card information tends to cover at minimum: the names of the responders assigned to a resource, the designated crew leader, the apparatus unit number, the agency name or identification, the unit's home station number, their check-in time, how long the resource is available, and a section for comments.

Utilizing the T-card system as the incident expands allows for resource types and locations to be determined via color. According to a conversation between the researcher and Frank Cardinale (2009), Division Chief of the San Francisco Fire Department, the T-card system is very easy to use and great for tracking resources. It is not good at all for tracking individuals. "If you do not know what apparatus they arrived on, you will have to sort through all the cards one at a time to find out where they are", which can take time. This is one weaknesses of the T-card system. Others include failure of resources to present a card to the accountability officer, card loss, card damage due to weather or other elements, and even confusion if the accountability officer is not adequately trained.

Personnel Accountability Reports and Radios

Another accepted accountability method is the simple personnel accountability report or PAR. *Fire Officer Principals and Practice* (2006) defines a PAR as a systematic, periodic roll call method that the accountability or incident command officer administers via radio. In a PAR, the incident commander (IC) requests from each officer, to know whether all the firefighters assigned to their charge are present or not. The fire officer then is responsible to confirm this information to the IC. For confirmation, the

officer has to be able to see or touch every firefighter in their charge. If for some reason a firefighter is unaccounted for, the IC should consider him missing until some type of proof arises that shows his whereabouts.

NFPA 1500 (2008) speaks specifically about the administration of a PAR by recommending that the accountability officer call for a personnel accountability report immediately upon the event of explosions, or structural collapse. Once the report is established, if someone is found to be missing, a location can be gathered from the missing firefighter's division chief or officer verifying where the firefighter was last known to be working. Rescue crews will utilize this location as a starting point for any search and rescue activity that may be ordered.

There is some debate as to on what time interval cycles the IC's or accountability officers should order a PAR. Every 20-30 minutes is one recommendation (Yaccich, 2006). While Bingham (2005) reports that 20 or more minutes allows plenty of time for a firefighter to get disoriented, drain his tank, and die many times over.

Some radio models come equipped with a brightly colored emergency button. This button, when activated, sends out a tone to the dispatch center with a radio ID code that notifies the dispatcher there is a firefighter in some type of trouble and identifies who it is. The dispatcher will then pass this information on via radio traffic to the incident commander who through a duplicate accountability system, if used, can isolate where the firefighter was last working and initiate efforts to find him or her.

Hook and Pile Passport System

The hook and pile system of accountability is one in which each firefighter in an organization, including officers and chief officers, are issued between 2 and 4 small

plastic tags with their name and or unit or badge number inscribed on the front and rigid Velcro® on the back. Firefighters typically keep these personal tags attached to the underside of their helmet. Two similar tags are assigned to each apparatus within the organization. These apparatus tags are slightly larger than the personal tags and have soft Velcro® on the front. This allows attachment of up to five individual personal tags to each of the apparatus tags. While en route to the scene of an incident, each firefighter passes two of their pass tags, typically to the officer, who collects them in order to place them on the apparatus tags, one each.

Upon arrival to the scene, there should be two apparatus tags, each with an individual tag from every firefighter arriving on that rig attached to it. When the officer exits the apparatus, he leaves one apparatus tag in the truck. The officer will take the other and present it to the incident commander, accountability officer, or placed on an accountability board that the officer will be utilizing to begin personnel accountability.

The command board typically has places for multiple apparatus tags, associated spots to write in the assignments of each crew, and allows for the movement of apparatus and individual tags to track who each firefighter is assigned to, where they are assigned geographically on the fire-ground, with whom they are working, and the task they are performing.

The hook and pile system is widely utilized and comparatively cost effective. Drawbacks to this system include loss of tags, failure to initialize, failure to diligently move tags as firefighters and crews change tasks and locations.

The Ring Based Tag System

Another similar system involves ID tags that have rings attached. These ring based tags will have the firefighter's name and sometimes, identifying information specific to their organization. Each firefighter is generally, assigned two tags. The officer will put the first of the two tags on the apparatus in a designated spot. Upon arrival at the emergency scene, each firefighter will take their own individual second tag and carry it with them, which will act as a passport of sorts, as they move from division to division carrying out different tasks. By handing the second tag to the division leader, she is able to keep track of who is within her division and from which agency they responded.

The ring based tag system, like the hook and pile system is cost effective, but takes a degree of diligence on the part of each firefighter on the scene to make sure that they "tag in" and "tag out" as they come and go from different divisions and different tasks. Another down side to this system is that large numbers of ringed tags can become cumbersome hanging from the command board and make it a bit more tedious of a task to know who is on the fire-ground.

Systems Based on New Technology

The air pack system is an accountability system that several manufacturers of self-contained breathing apparatus are exploring if not already producing. The focus of this system is not so much to track the whereabouts of any given individual firefighter, but rather, to track the atmosphere in which the firefighter is working. This system, in some cases, allows vitals signs to be monitored as well. In this type of system, an officer keeps track of firefighters that enter and exit the hazard zone. If, while working, firefighters enter an area where conditions make it advisable that they exit in a timely fashion, the

officer has the ability to sound an evacuation alarm and alert them to leave the area
(Inudstrial Fire World, 2005)

Bar code technology is another system available for personnel accountability. The essence of bar code accountability is that firefighters are issued bar coded tags. These tags typically resemble a driver's license and are encrypted with a plethora of information including firefighter name, date of birth, social security number, and certification status. The tags can then act as the sole ID tag for each firefighter, or this system can function as a supplemental one to another manual type system that may be in use.

As firefighters come and go from different divisions or work group areas, division officers scan their tag using a hand held scanner, similar to that used for retail inventory. This allows for real time firefighter assignment information as well as a chronological audit of each firefighter's assignments including task and location later on. This information can be down loaded into a desktop or laptop computer at another time. GPS based systems are now coming on the accountability scene. With the latest technology, firefighters no longer need to exchange any type of tag. The latest systems incorporate a global positioning system (GPS). This system mimics the GPS systems utilized to track fire and emergency apparatus today (Christin, 2007).

In this system, the firefighters wear a small type of transmitter that sends information to relay units that receive the signal and resend it to a receiver at the command post. Firefighters place the relay units, also called drop readers, strategically around the scene of the incident and track fire service personnel automatically and continually. Christin (2007) said that this type of system also requires the use of a wireless network at the scene. According to OnsiteERT, a major manufacturer of this

type of system, this technology eliminates the need to constantly monitor radio traffic to obtain locations of firefighters. The weaknesses of such a system are that it requires multiple drop readers. The drop readers are a type of computer, which could cause failure in the system. As an incident commander increases the number of drop readers in the system, she increases the number of points of failure that need to be monitored.

The more technology that manufacturers pour into keeping accountability, the higher the price tag is going to go. Some of these systems can cost as much as \$1,200.00 per firefighter.

Yaccich (2007) questions if we really need to spend a large sum of money on a system that firefighters and officers can do manually. Today's economy makes it very difficult to justify a large amount of money for equipment that performs a task that firefighters and officers can perform adequately without that particular piece of equipment. Yaccich continues by saying that electronic systems are tools that can be used to assist with accountability. These tools still need someone to run them. In light of this fact, he feels that it is better to have an officer that does a great job at accountability to run the system you use than it is to have an expensive and elaborate system.

With budget constraints currently at a high, many organizations may struggle to find the money to allocate toward accountability system equipment. There is help. Grants are available for a large number of types of equipment that firefighters and emergency responders utilize every day. Included in some grants are accountability systems.

According to Onsite (2008), Onsite ERT, a manufacturer of a GIS based accountability system, they have worked with several departments who have utilized a variety of grant programs to make their purchase. These grants may be available for

other accountability systems as well. Each fire service organization's demographics and individual situations will determine whether they are eligible for any of the grants listed below. (Appendix C) gives website information for each grant. These websites will give more specific information on the respective grant and guidance on how to go about applying.

1. Federal Emergency Management Agency Assistance to Firefighter Grant
2. Ohio State Homeland Security Program Grant
3. Emergency Management Performance Grant
4. Urban Area Security Initiative Grant
5. Fireman's Fund Heritage Grant

PROCEDURES

This document is an exploration of the reasons why firefighters in Portage County, Ohio appear to have an inconsistency of use in a personnel accountability system on the fireground. To begin to investigate, an informal introspective view was taken from within the Brimfield Fire Department in western central Portage County. The first step was to observe operations on a single shift, then other shifts as time allowed. In addition, conversation was deliberately generated regarding accountability on the fire-ground to start gauging the thoughts, perceptions and attitudes of the firefighters, officers, and chief officers in and around the organization. The object was to informally study how these groups compared collectively as well as in individual subgroups.

A literature review was then conducted to gather facts and studies in order to see what other information on the topic has been previously studied and published. A large

of amount of information exists on the standards that are in existence as well as a small number of applied research projects covering aspects of the topical content as well.

While there is adequate information in existence regarding accountability as a whole, the larger sum of the research questions that this study was designed to answer, regarded the topic at a local level. A survey was compiled to address research sub-questions. The sub-questions, in turn, helped to answer the research questions, which this document posed. The survey was sent out to the Fire Chief, three line officers and eight firefighters at almost every fire department Portage County, Ohio. This combination was used to gather at least 12 representatives from most of each department in the county and includes the three main groups within these populations: chief officers, middle management, or, line officers and firefighters.

An assumption was made that chief officers will answer questions much differently than line officers; line officers will answer questions much differently than firefighters. These answers will represent variances in the thoughts between the ranks. The survey questions surround attitudes toward, knowledge of, thoughts about, and use of the recipient organization's PAS. The survey was performed to alert readers to trends in these areas running across the boundaries of rank, time on the job, age, gender and level of training.

LIMITATIONS OF THE STUDY

Limitations to the research conducted for this study included academic program time constraints, money, and population access and in some cases subject cooperation to complete the survey. The academic program time constraints and burdens, in some cases, slightly rushed the process that was utilized to collect the data with certain deadlines

surrounding holidays and project reader schedules. Further, a change in the researcher's primary job responsibilities and work schedule sharply narrowed the time frame allotted for weekly research.

This research was academic in nature and funding was extremely limited. If financial constraints were to be removed, larger populations could have been utilized for a stronger data sampling with which to deduce recommendations for the stated problem. The population sampled for this study included, but was not limited to, a group of small rural volunteer departments whose members are typically only at the fire station when there is an emergency incident, meeting or training. This limited and somewhat unpredictably restricted the survey from being administered to five departments for which it was intended. It kept the research to a smaller group of individuals from which to collect information. The need for information from all the sampled departments included a minimum of: the fire chief, at least three line officers and a minimum of double the number of firefighters as officers to get a true and valid sampling.

Two hundred twenty-five surveys were distributed to firefighters, officers and chief officers from fifteen fire department organizations. Of the distributed surveys, one hundred fifty were completed and returned, representing 66%.

RESULTS

Research Question 1:

Active research has shown that private and public agencies such as the Occupational Safety and Health Administration (OSHA), The National Institute on Occupational Safety and Health (NIOSH), the National Fire Protection Agency have published numerous standards, guidelines, and laws that suggest and require that fire-

ground accountability be in place NFPA 1561, *Standard on Emergency Services Incident Management System*, establishes that the PAS system must have the ability to keep track of everyone that enters and leaves an area of danger with particular emphasis on those that are wearing protective equipment. It also requires that supervisors on the scene maintain accountability of the resources assigned to them (section 4.5.6) and that accountability personnel should work closely with the incident commander to keep track of responders on the scene (section 4.5.4).

Documented examples from historical events in the fire service tell of how firefighters can and do become injured or die when the use of a fire-ground PAS is not in place at the scene of an incident. Subsequent law suits have been repeatedly filed against cities and fire departments because of lack of personnel accountability on tragic fire scenes. Cities are losing. NIOSH has published clear examples through their line of duty death reports where the initiation of a PAS could have saved the life of many firefighters in incidents that range from small to large. These items together draw a clear picture that nationwide: Personnel accountability is considered a safety matter of extreme importance; Firefighters can get injured or die when accountability is not in place; Accountability should be utilized on every call regardless of size; Some level of personnel accountability should be used on every call regardless of type.

Feedback From Question 1:

1. I think that keeping accountability of every firefighter on the fireground is a safety matter of extreme importance.

Strongly Agree 129 / 86.0%

Agree 20 / 13.3%

Undecided 1 / 0.7%

Disagree 0 / 0%

Strongly Disagree 0 / 0%

Feedback From Question 2

2. I believe that firefighters have a higher chance of injury or death on the fire-ground or emergency scene in the absence of the use of a personnel accountability system.

Strongly Agree 71 / 47.3%

Agree 61 / 40.7%

Not Sure 6 / 4%

Disagree 11 / 7.3%

Strongly Disagree 1 / 0.7%

Feedback From Question 3

3. I believe that using a personnel accountability system on every fire incident regardless of size is important.

Strongly Agree 59 / 39.3%

Agree 62 / 41.3%

Not Sure 10 / 6.7%

Disagree 19 / 12.7%

Strongly Disagree 0 / 0%

Feedback From Question 4

4. I believe that a personnel accountability system should be utilized on every call regardless of type.

Strongly agree	29 / 19.3%
Agree	51 / 34%
Not Sure	25 / 16.7%
Disagree	45 / 30%
Strongly Disagree	0 / 0%

Feedback From Question 5

5. I think that everyone is equally responsible for personnel accountability on the fire-ground.

Strongly Agree	53 / 35.3%
Agree	72 / 48%
Not Sure	5 / 3.3%
Disagree	20 / 13.3%
Strongly Disagree	0 / 0%

Feedback From Question 6

6. In your opinion, who is responsible for initiating the personnel accountability system on an incident?

Fire Chief	3 / 2%
IC if other than first due officer	52 / 34.7%
Officer of first due apparatus	61 / 40.7%
Officer of the second due apparatus	3 / 2%

Any firefighter can take the initiative 31 / 20.7%

Feedback From Question 7

7. When the personnel accountability system does not get utilized on an incident in my organization, I believe that the main reason is because:

We forget / We are complacent 89 / 59.3%

It has not been made a priority within my organization 37 / 24.7%

There are too many other things to do to worry about it 17 / 11.3%

We are not well trained and are not comfortable with it 5 / 3.3%

We do not have an approved accountability system or equipment to use 2 / 1.3%

Research Question 2:

Continued active research showed there are many types of accountability systems that are in use across the United States and that it is not only the fire service using them. Divers are using PAS systems that integrate electronic capabilities and computer tracking according to (Trickey, Trickey, & Raynham) *A Diver Accountability System*. Schools are utilizing accountability when they take daily students attendance (Oshry, 2008). NFPA 1500, *Standard on Fire Department Occupational Safety and Health*, has shown in section 8.4.1 that fire departments must have a written SOP in place that establishes the requirement for the initiation of a personnel accountability system on the fire-ground. In section 8.4.10, NFPA 1500 discusses the many types of approved personnel accountability systems including initial pencil and paper documentation, command boards, apparatus riding lists, company personnel boards or electronic systems such as a bar

coding. Regardless of type, literature review shows that it is very important to have these items in place and to have the written policy behind them to make certain that the system is utilized. By proactively putting these tools into play, organizations can reduce injuries and save lives.

Also, in May of 2008, an email was sent to every fire chief in Portage County, Ohio requesting a copy of his or her organization's fire-ground personnel accountability policy, if there was one in existence. Six policies were returned.

Feedback From Question 8

8. Does your organization have a written accountability SOP / SOG ?

Yes	97 / 64.7%
No	38 / 25.3%
I don't know	15 / 10%

Feedback From Question 9

9. Does your organization follow the accountability SOP / SOG?

Yes	77 / 51.3%
No	45 / 30%
*N/A	28 / 18.7%

*This answer only applies if your department does not have a written accountability SOP / SOG.

Feedback From Question 10

10. What type of accountability system does your organization employ on the fireground (If more than one, please use the *primary* system for your answer.)

Clipboard and paper 1 / 0.7%

Tag System (ring based tags) 12 / 8%

Hook and Pile (Velcro name tags under your helmet with get applied to a command board) system 135 / 90%

Bar code system technology 0 / 0%

Fireground GPS 0 / 0%

Electronic – transmitting PASS devices (to a receiver at the incident commanders location) 0 / 0%

Electronic – transmitting SCBA units (to a receiver at the incident commanders location). 0 / 0%

Other 2 / 1.3%

Research Question 3

Through literature review and active research, strategies have been isolated that would help to improve the utilization of an accountability system in the Portage County area. According to Clark (2008), we do not follow our standard operating procedures.

The act of simply enforcing our standard operating procedures can enhance accountability utilization. Some places do not have a written standard procedure for their accountability expectations. SOPs must be written clearly, concisely, and unambiguously FEMA (1998). Once in place, there should be no question as to what the fire organization expects of firefighters on the fire-ground with regard to the personnel accountability system.

Tobia (2005) states that fire departments must train their firefighters in their accountability system. Incorporating accountability into fire trainings could serve several purposes in improving accountability. Regular training with the system will keep accountability fresh on the minds of the firefighters. If it is fresh on their minds, chances are that they may be more apt to remember to pull their tags and initiate the system on an incident. Regular training with the system will allow organization fire instructors to educate their firefighters on the system they have so that everyone understands the parts of the system and how they fit together to make the system work. It also will allow them to give all firefighters an opportunity to use the system and all its parts in scenario based training to refresh on how it expands and contract with the size of the incident.

Feedback From Question 11

11. I have been educated about the personnel accountability system which my organization uses on the fireground (*educated = having been shown all the components and parts and given the cognitive information that I need to understand how to put the system into use.

Yes 131 / 87.3%

No 19 / 12.7%

Feedback From Question 12

12. I have been trained in the use of the accountability system that my organization uses on the fireground (*trained = given the opportunity to set up and use the system in a simulated incident or incidents so that if I ever need to be the person setting up accountability, I have done it before.)

Yes	117 / 78%
No	33 / 22%

Feedback From Question 13

13. In my opinion, standardizing an accountability system and associated procedures for use across Portage County would improve fire-ground personnel accountability county wide.

Strongly Agree	62 / 42.7%
Agree	69 / 46%
Not Sure	13 / 8.7%
Disagree	4 / 2.7%
Strongly Disagree	0 / 0.0%

14. In my opinion, integrating personnel accountability utilization into every fire training that my organization conducts would improve the consistency of our use of a personnel accountability system on actual incidents.

Strongly Agree	73 / 48.7%
Agree	60 / 40%
Not Sure	10 / 6.7%
Disagree	6 / 4%
Strongly Disagree	1 / 0.7%

15. Having an accountability policy in place would improve the use of personnel accountability on the fireground in Portage County, Ohio.

Strongly Agree	60 / 40%
Agree	57 / 38%
Not Sure	19 / 12.7%
Disagree	14 / 9.3%
Strongly Disagree	0 / 0%

Research Question 4

Active research has shown that there is a variety in types of accountability systems nationwide that are acceptable for use. This list includes:

1. Paper and pencil systems which simply keep track of firefighters by way of writing down who is on the scene of the incident.
2. The T-Card System®, which entails a heavy stock, color coded, pre-printed card that requests specific information from resources including but not limited to crew member names, crew leader, and specific information about the crew.
3. Personnel Accountability Reports where the incident commander or accountability officer, at regular time intervals or after an event that changes the incident, such as an explosion or collapse, will take a roll call via radio. He will check with the division and group leaders to make sure that everyone in their charge is present and accounted for.
4. The PASS Device – a battery operated box that is attached to the gear of the firefighter which monitors his movement. Should the firefighter become motionless for a prescribed timeframe, the device will sound a loud audible piercing screech, which alerts other firefighters in the area that a firefighter is not moving and possibly injured.

5. The Air Pack System which several SCBA manufacturers are producing that, instead of monitoring the firefighter's whereabouts, actually monitors certain aspects of the atmosphere in which the firefighter is working as well as her air level in her air pack.
6. The hook and pile Passport System, utilizes Velcro® name tags, apparatus tags and command board to track the locations and assignments of each firefighter and team on the fireground.
7. The Ring Based Tag Passport System that mimics the hook and pile system in many ways but the tags are attached to a ring, similar to a key ring, with a metal clip. This clip allows the nametags to attach to rings, through a hole on the command board, which help track personnel and assignments.
8. Bar code technology systems use a scanner to scan the ID/accountability card issued to each firefighter in the system. These cards are typically encoded with the name and rank of the firefighter, certification, and could include items like medical history and medications.
9. Global Positioning Satellite (GPS) and other electronic systems are utilizing radio frequency technology and GPS to track firefighters through a triangulation system where firefighters have a tag that emits a radio frequency or has a transmitter that is received by drop boxes or receivers that are strategically placed on and about the structure or scene of the incident. As firefighters move around these systems are able to transmit information back to the accountability officer or incident commander through a wireless network and allow him to know within a several foot radius where the firefighter is located.

Any system is better than no system, but in most cases, duplication by way of utilizing multiple systems will provide many layers of accountability that will create a safer situation for firefighters.

Research Question 5

Active research has revealed that there are at least five grants available for the purchase of an accountability system (Onsite ERT, 2009). These grants include the Federal Emergency Management Agency's Assistance to Firefighter Grant, the State Homeland Security Program grant, the Emergency Management Performance Grant, the Urban Area Security Initiative grant, and the Fireman's Fund Heritage grant. However due to constraints of demographics and organizational situation, not every fire department will be eligible for every grant. Fire Departments should survey private companies as well for possible grant activity.

DISCUSSION

The fire service is failing in its practices of staying safe. National Institute of Occupational Safety and Health line of duty death reports are telling us repeatedly that we are failing to follow the safety rules, regulations and training doctrine of our field nationwide (Clark, 2008). Clark continues that there is no accountability for firefighter deaths. The fire service allows tragic events to happen each year with no disciplinary action for anyone in the fire service or the politician who oversees them. Clark argues that the reason for this is because the fire service has convinced itself and everyone else around it that firefighter deaths are just part of the job.

1. What are the attitudes of firefighters regarding fireground personnel accountability and its use in Portage County, Ohio?

Literature review and history show that while fire service personnel talk a good game in as much as they will tell you that their organization believes that safety is of supreme importance, in many cases the actions that follow the words are not coming forth. In the past three decades death and injury numbers have not changed, nor have the reasons they occur (Clark, 2008).

Morris, Brunacini, and Whaley (1994) said that firefighter attitudes have to change toward accountability for the system to work. They need to understand the undue risk into which failure to utilize personnel accountability systems puts firefighters on the fireground.

According to *Fire Officer Principals and Practice* (2006), several firefighters died in a series of incidents in the city of Seattle during the eighties and again in the nineties where courts ruled that lack of accountability contributed to or was directly responsible for all of their deaths.

The National Institute on Occupational Safety and Health has reported on firefighters that died because drivers in their own organizations have accidentally run them over in department vehicles because they did not know where they were. They have reported on numerous incidents where firefighters were lost, where firefighters kept no crew continuity died. They have reported on deaths from no SOP's being in place and improperly working PASS devices. Accountability is failing all around us. A survey conducted of Portage County fire service personnel shows that 86% of fire service personnel surveyed believe strongly that accountability on the fireground is a safety matter of extreme importance. Another 13.3% agree though not as strongly that

accountability is of extreme importance. Together, this totals 99.3% of fire service personnel that believe to some degree that accountability is of extreme importance.

When asked if they believed that firefighters had a higher chance of injury or death on the fireground or emergency scene in the absence of the use of a personnel accountability system, 47.3% strongly agreed and 40.7% agreed. This totals 88% of surveyed firefighters that agree to some degree that firefighters are in danger of injury or death if a personnel accountability system is used.

Yet, 25.3% of those surveyed said their department did not have a written standard operating procedure or guideline in place for accountability (Figure 1). An additional 10% had no idea. Of the fire service personnel that said their department did have a written policy in place, 30% reported that the organization did not follow its own policy.

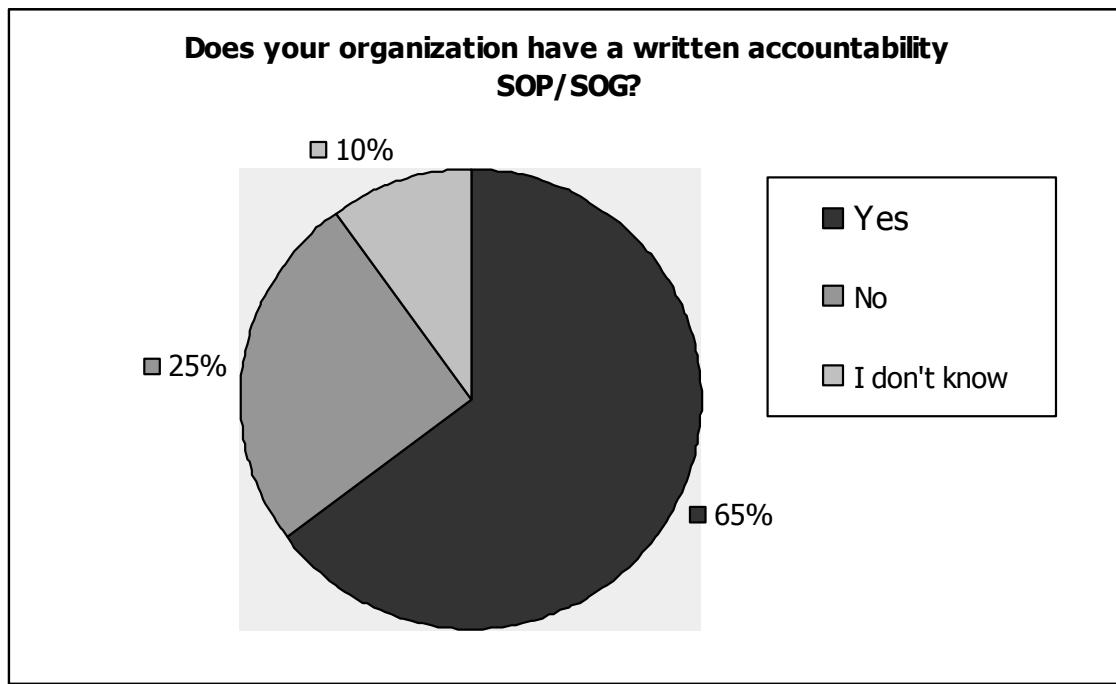


Figure 1. Results expressed by firefighters in Portage County, Ohio, when asked whether their organization had a written fire-ground personnel accountability standard operating procedure.

An interesting note that was made of the survey analysis was that 100% of the departments represented had some members who reported that their organization did have a written accountability policy. However, 100% of the departments represented had members that reported that they did not have a written accountability policy. This data suggests that many fire service personnel in Portage County do not factually know whether their organization has a written policy on fireground accountability or not.

When asked if using a personnel accountability system on every fire incident regardless of size is important, 39.3% strongly agreed and 41.3% agreed that it was important. This data says that of the 99.9% who were surveyed that agreed to some degree that personnel accountability was a safety matter of extreme importance, 19.3% have fallen back to not believing quite so strongly that it is important when size of the fire incident comes into play. The survey did not address what sizes of fire incidents on which people felt the accountability system should be initiated.

The National Fire Protection Agency is very clear about when incident commanders should initiate an accountability system. In section 8.4.9 of NFPA 1500 (2008) *Standard on Fire Department Occupational Safety and Health*, directs incident commanders to initiate an accountability system on every incident. There is no discussion on whether size of the incident should make a difference in the initiation of a PAS or not. NFPA 1561 (2008) *Standard on Emergency Services Incident Management System* (section 8.4.9) echoes 1500 by stating that the personnel accountability system shall be used on all incidents. Further, of the fire service personnel surveyed in Portage County, Ohio, 30% responded in disagreement when asked if they believed that firefighters should utilize an accountability system on every call regardless of type. An additional 16.7% said they were not sure.

NFPA 1500 (2008) states that the incident commander is responsible for keeping accountability. He has the option, however, to create an accountability officer. By this means, anybody could be made the accountability officer. Everyone should be prepared.

NFPA 1561 (2008) states in section 4.5.9 that members are personally responsible to follow personnel accountability procedures. Typically the officer of the first due apparatus is responsible to initiate accountability.

Upon survey as to who they felt was responsible for initiating the accountability system on an incident, 2% of the respondents said that the fire chief should be responsible for initiating accountability. There are times that the chief is not available or does not respond and this must be taken into account. Another 34.7% responded that the incident commander, if other than the officer of the first due apparatus should be responsible for initiation of accountability. It would stand to reason that this belief stems from the seemingly overwhelming amount of things to do by the first due crew at their arrival on an incident. However, Brunacini (2002) says that within the confines of most passport systems across the country, the apparatus operator/driver typically takes responsibility for initiating the accountability at the outset.

Of those respondents surveyed, 40.7% believe that the officer of the first due apparatus should be the initiator of the accountability system and 20.7% believe that any firefighter can take the initiative, as illustrated in Figure 2. Literature states that the officer of the first due apparatus or the driver of the first apparatus generally may take this role however, anyone can do it. This role should be spelled out in the individual organization's accountability SOP.

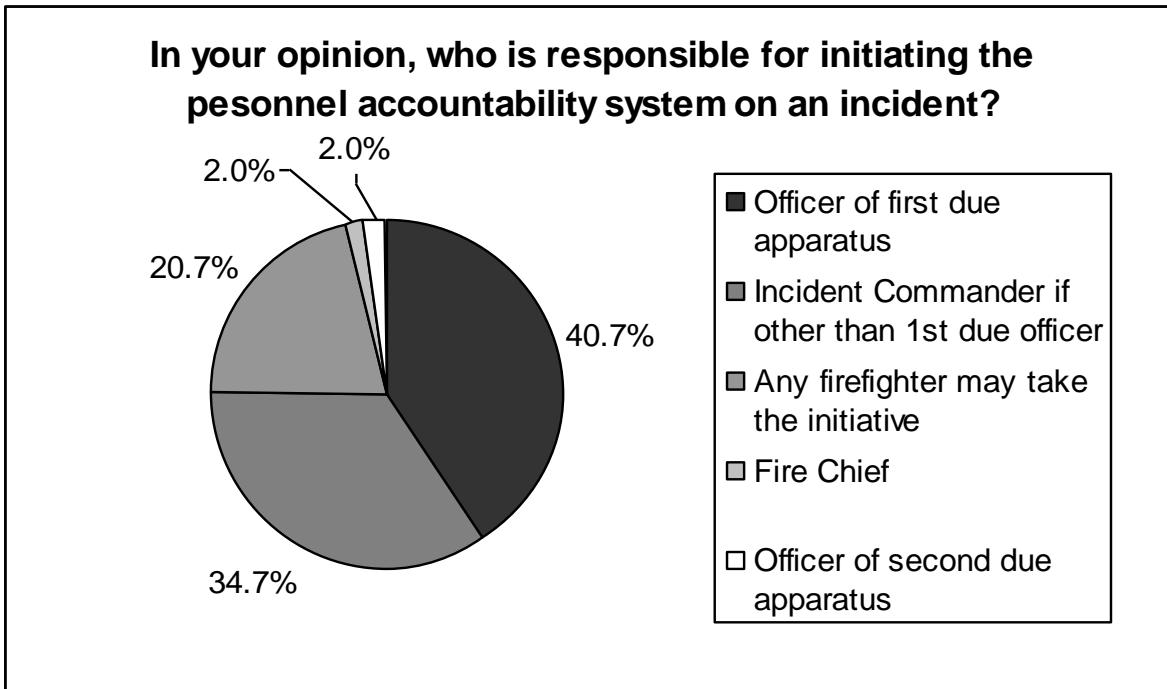


Figure 2. A result expressed by firefighters in Portage County, Ohio when asked who, in their opinion is responsible for initiating the personnel accountability system on an incident.

One of the main problems with accountability systems is that they do not get initiated. According to Bingham (2005) Company officers often don't start accountability procedures because they are in too much of a hurry to fight fire (p. 139). Likewise, he claims that chief officers frequently do not set up accountability because they are overwhelmed with other things or do not feel that the incident is serious enough to keep accountability. Again the words of Clark (2008) come back – “we do not hold our firefighters, officers or chiefs responsible or accountable for safety.”

Of the respondents to the Portage County survey, 59.3% reported that their system does not get used because they forget to use it or are complacent, while 24.7% reported that accountability has not been made a priority in their organization (Figure 3). Unbelievably, 11.3% said that they don't use accountability because there are too many other things on the scene to do to worry about it. Of the remaining, 3.3% reported that

their organization did not train or verse them in the use of their organization's system and they are not comfortable using it. The final 1.3% said that they did not have an approved system.

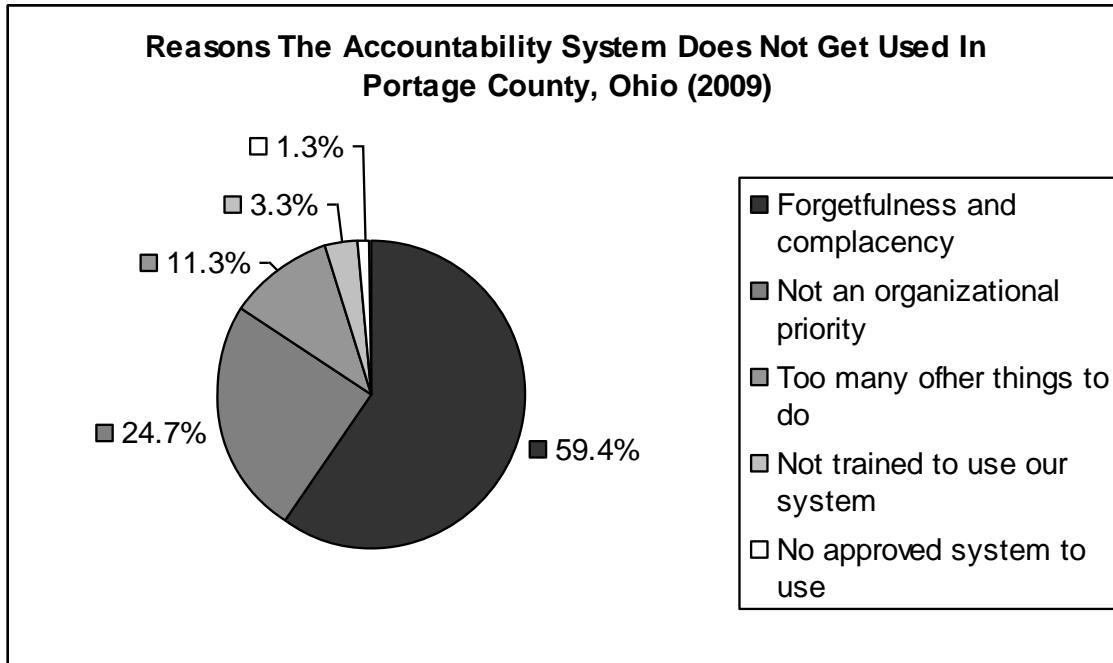


Figure 3. Results expressed by Portage County, Ohio, firefighters when asked why personnel accountability systems are not utilized when this situation arises on an incident in their organizations response district.

Research has shown that paper and pencil is considered to be an approved system of accountability (NFPA 1500). Most every apparatus has paper and writing utensils for their reporting of the incident. While this system is approved for an initial system, the other tools listed would be better suited as the incident expands.

The survey numbers begin to decline in how many people agree with fundamentals of accountability as more elements are added. Of those surveyed, 99.3% agreed that accountability is a safety matter of extreme importance. The words "safety matter" and "extreme" were specifically chosen for the phraseology of the survey. This was done to introduce the researcher's seriousness of the matter in question and to help

weed out a blasé attitude on the part of respondent. In contrast, 30% disagreed that accountability should be used on every call regardless of type, while 12.7% disagreed that accountability should be used on every call regardless of size. When broken down a little further, 18.3% of fire chiefs that responded to the survey stated that they strongly disagreed that in the absence of accountability firefighters have a higher chance of injury or death.

The results of this research and the associated survey suggest that there is a need for aggressive education in Portage County, Ohio to help fire service personnel understand that statistically, firefighters have a higher chance of injury or death in the absence of an accountability system. Further, the researcher strongly believes that each organization should have a written SOP for accountability. Of the firefighters who responded to the survey 88.7% agreed to some degree that if accountability were incorporated into all fire training that utilization would improve county-wide.

There is no room for the attitude which says that because a line of duty death has not happened yet in Portage County that it will not in the future. The survey did not address which departments have personnel that feel extremely confident that this will not happen to them. Nor did it address a parallel question that could be done in another study as to how many departments nationwide believed that they would suffer a line of duty death one day before it happened to them. Fire service leaders must evaluate these questions further to gain complete understanding of the prevailing attitudes concerning personnel accountability on the fireground.

2. What types of accountability systems are being utilized in Portage County, Ohio?

Research and a survey of firefighters in Portage County, Ohio show that numerous types of accountability systems are in existence. Policies and procedures vary across the country and in Portage County as well.

Shouldis (1998) stated that paper and pencil system, while rudimentary do work well initially at the scene of an incident. According to the survey, 0.7% of the respondents said that their department utilized a paper and pencil system which the survey account for with a dry erase board and pen as well. It does not appear as though too many departments are initially utilizing this system for accountability unless the possibility exists that they forgot to use another system that they have available to them. This topic is addressed later.

The T-Card system is utilized widely in the south and west. Typically this system allows some type of collection board to be erected and color coded T shaped cards with various items on them regarding resources and people are placed in the collection board. A brief phone interview between the researcher and Jill Harris, a representative of a company called A Better Way Inc., that manufactures the T-card system, revealed that the different colors represent different types of resources. The system can expand as wide as a holding rack will allow, which depending on the type of rack, can be up to 480 cards.

Cardinale (2009) said that this system works very well if you are trying to track resources. It becomes more difficult or tedious when trying to locate an individual if you do not know what resource in which they arrived at the incident. The T-card system was not addressed in the survey, however, it was noted recently that the Portage County

USAR team was strongly considering the use of the T-card system and had been utilizing it during training drills.

Personnel accountability reports are radio roll calls that are done every 20-30 minutes. This should only take about 20 seconds and if everyone is okay should give you an accurate idea of whether or not you have accountability of your crews (Yaccich, 2006). However, Bingham reports that a firefighter has more than enough time to get lost and die many times over in any period over 20 minutes. This is a good system to utilize with another as a tandem accountability system, allowing for more than one layer of accountability.

Though this method is not accounted for in the survey, 100% of the SOP's that the researcher received through departments from which he requested them mandated the use of personnel accountability reports or PAR's. These reports are done at different time intervals or after the happening of an event such as a firefighter or team that become presumed missing, a change in tactical modes from offensive to defensive or an even such as an explosion or a structural collapse. The incident commander always maintains the right to call a PAR when he or she determines the need.

The hook and pile system consists of several small name tags that are issued to each firefighter. On the scene of an incident, these name tags are placed on larger but similar apparatus tags which then are taken to the accountability officer and placed on an accountability board to track assignments and personnel. Of the firefighters surveyed in Portage County, 90% reported utilizing the hook and pile system as their main system of accountability. This would allow for an easy conversion to a county-wide accountability system because little money would have to be appropriated to standardize equipment.

Bingham (2005) states that most systems use this type of gear or ring/clip based tags for accountability. The reason is because they are fairly cost effective and easy to use.

The ring based passport system (My-Lor system) is very similar to that of the hook and pile. The difference is mainly the equipment. Instead of Velcro tags, the name tags are attached to a ringed clip which allow them to be clipped to larger rings attached to the accountability board. The end result is an accountability board at an incident that has numerous name tags hanging almost like keys from a key ring. These rings are placed in tactical areas on the accountability board and allow the accountability officer to know who is working in what division.

The Portage County survey showed that 8% of respondents reported the ring based tag system being the primary system of accountability that their organization utilized.

Technology based systems are those that utilize electronic technology such as GPS, radio frequencies, and computers to track the whereabouts of the firefighters that utilize them. Most of these systems are pricey in comparison to things such as hook and pile, and ring based tags. They do bring a different dimension to the accountability table. But according to a conversation with Jason Kapica of Onsite Emergency Resource Tracking systems, these devices can cost over \$1000 per firefighter on the department. The difference is, at this price, you are able to automatically and continually track equipment as well as personnel. The ERT system allows for color coded resource job assignments for easier tracking and allows the operator to see time in assignment in real time. This feature meets NFPA 1584 (2008) *Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises* requirements.

Unfortunately, budgetary constraints have made things tight for fire departments across the nation. Few chiefs, trustees, safety directors or fiscal officers are going to easily be swayed to appropriate \$1000 or more per firefighter for a system that does a job that can be done just as well by a good accountability officer without the system (Yaccich 2006). There are grants available specifically for Onsite's system to help defray the cost to the organization.

According to the Portage County survey, none of the respondents reported utilizing technology based systems for their accountability program.

3. What are some strategies that could be used by Portage County fire departments to improve utilization of an approved accountability system?

Research shows that firefighters should train regularly and be familiar with the accountability system utilized by their organization (NFPA 1500). The system has to be used on a regular basis (Bingham, 2005). Regular training with the system will keep accountability fresh on the minds of the firefighters. If it is fresh on their minds, chances are that they may be more apt to remember to pull their tags and initiate the system on an incident. Regular training with the system will allow organization fire instructors to educate their firefighters on the system they have so that everyone understands the parts of the system and how they fit together to make the system work.

The National Fire Academy incorporates into a number of their courses the way recognition primed learning works. The premise of recognition primed learning is that if you have seen or done something once, you will be somewhat familiar with it and will have that knowledge base to fall back on in the face of a similar emergency. It stands to

reason that the more you train with your accountability system, the more familiar and the better you will be with it.

Respondents to the Portage County survey conveyed that 12.7% had not been educated on their organizations accountability system. Educated in this case meant that they had been taught about the parts and components of their organization's accountability system and been given the cognitive information they needed to put the system together. Additionally, 22% of respondents said that they had not been trained in the use of the system their organization uses. In this case, trained meant given the opportunity to set up and use the system in a simulated incident so that if they ever were in a position where they had to do it again, they had done before.

Clearly with these statistics put a strong emphasis on the need for training. When asked if they felt regular training with their system by incorporating it into their fire training sessions would help improve utilization of accountability on incidents in Portage County, 88.7% agreed to some degree (48.7% of those, strongly agreed).

Having SOPs in written form to guide and direct firefighters is just as important as training with their systems. SOPs must be written clearly, concisely, and unambiguously FEMA (1998).

NFPA 1584 Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises (2008) states that there shall be a developed standard operating guideline (SOG) that outlines specifically how rehabilitation of fire department members working at the scene of an incident should take place including the way in which they will be accounted for.

Fire Officer Principles and Practice (2006) says that SOP's are standard organizational directives for actions the fire service industry considers supervisory or

administrative. In other words, they give direction as to how things should run. How are firefighters going to know how and when to deploy the accountability system if there are no written SOP's or SOG's in place? Upon the researcher's request, six departments out of twenty forwarded copies of their SOP's for fire-ground accountability. Six fire departments represent about 35% of the county. This leaves space for readers to assume that the other 65% of Portage County does not have written SOP's for fireground accountability. Additionally, 25.4% of survey respondents said that their department did not have a written policy. When asked if they agreed that establishing a written accountability policy in their organization would improve overall use of fireground accountability systems in Portage County, 78% agreed to some degree, 40% strongly (See Figure 4).

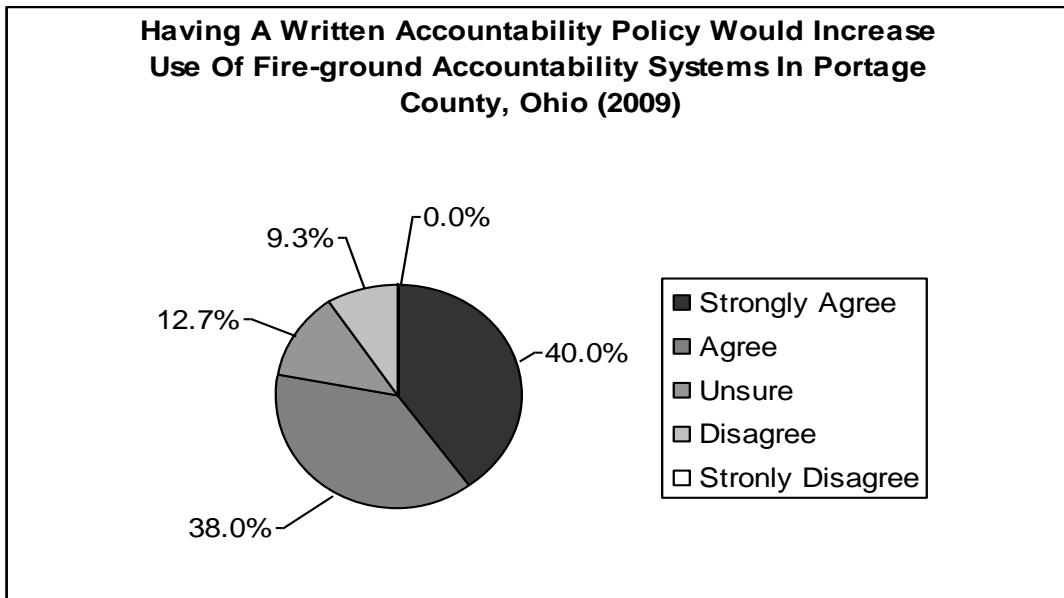


Figure 4. Results expressed by firefighters in Portage County, Ohio, when asked if they believed that having a written personnel accountability policy would increase overall use of accountability systems on the fire-ground.

Additionally, 42.7% strongly agreed and 46% agreed that standardizing accountability procedures across Portage County would improve the utilization of an

accountability system at an incident across Portage County. Of the remaining, 8.7% were not sure, and 2.7% were in disagreement.

Dr Burton Clark (2008) states, “we tolerate and accept safety misconduct” and that “more firefighters are disciplined for being late to work than for safety issues”.

Melfi (2001) echoes Clark by saying that emergency scene discipline is just not there anymore. Further, when we fail to make accountability a priority, we are creating a situation where we allow for freelancing without consequences. This reinforces freelancing and creates situations that increase the chances of injury and death to firefighters (p. 68).

The research suggests that we are not putting our money where our mouth is when it comes to following through with firefighter safety. We all say we use accountability, but sadly research shows that we nationwide we do not. Maybe it is time to put a zero tolerance policy in place for breaches of safety.

Without discipline, fire service personnel have the green light to run about and freelance. Freelancing tends to manifest in many different ways. Bingham (2005) says that investigations of fireground operations in the past have shown firefighters that were working on the scene of an incident outside of an assignment and committed stupid acts. He continues by saying that the answer to freelancing is to maintain accountability and impose discipline on those who fail to follow the rules.

Firefighters from the Portage County survey reported that 58.8% of the respondents agreed to some degree (40% strongly) that fair and consistent discipline applied to those who failed to follow their organization’s accountability policy would improve fireground accountability in Portage County. An additional 24.8% said that they were not sure. Of the remaining, 11.3% disagreed and 1.4% strongly disagreed (See

Figure 5.). Of the respondents, 11 were fire chiefs. A total of 18.2% of the responding chiefs disagreed with this. In contrast, 54.6% agreed to some degree (18.2% strongly), and 27.3% said they were unsure.

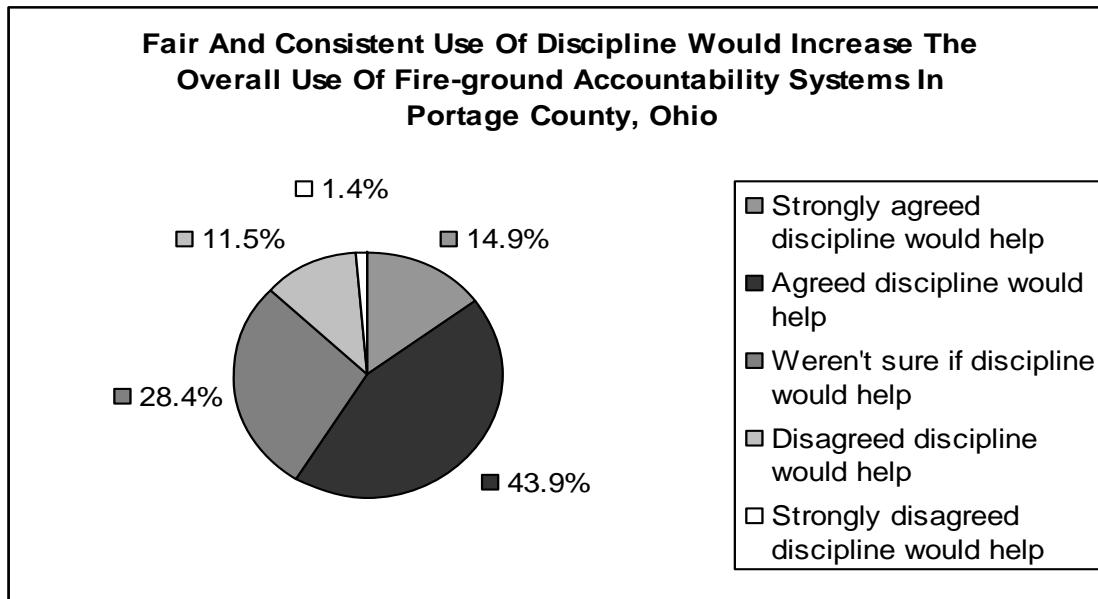


Figure 5. Results expressed by firefighters in Portage County, Ohio, when asked if they felt that fair and consistent use of disciplinary action against those who refuse to follow accountability SOP's would increase the overall use of personnel accountability systems on the fire-ground.

4. What are some of the nationally utilized systems in use for accounting for firefighters on the fire ground?

Research has shown that some of the nationally utilized systems for in use for accounting for firefighters on the fireground across the country include rudimentary pencil and paper systems (Coleman, 2001).

There are also T-card systems, mostly utilized in the south and west of the United States. This system is gaining popularity and moving further east in recent years. It include color coded T-shaped cards with basic resource information applied. These cards are collected and placed in a card collection rack or board that depending on the

model can hold over 450 cards, which would create accountability for a very large incident (Harris, 2009).

Personnel Accountability Reports (PAR's) given via radio are common across the country. The idea of a PAR is to find out from division supervisors in a brief round of radio traffic if they have accountability of all their crewmembers. To have accountability the supervisor must have direct visual contact or direct physical contact with each of members of his or her crew.

Both the hook and pile, and ring based tag accountability systems employ small name plastic nametags that the firefighter carries with him and hands to his or her company officer on the scene of an incident. The company officer then takes the collection and hands them, gathered in an organized group to the accountability officer who attaches them to an accountability board for tracking their assignments and location. Most systems use this technology (Bingham, 2005). The Portage County survey supports Bingham in that 90% of the respondents used hook and pile, and 8% of respondents use the ring based tag system.

Recently there have been several systems developed based off new technology. Included in this group is the bar code system, which utilizes ID cards similar to a driver's license that get scanned manually on the scene of an incident. The ID cards are encrypted with basic information on the respective firefighters including things like name, rank, department, home station and even basic past medical history.

Also included in this group are systems that utilize global positioning systems (GPS) technology to track firefighters. One of the problems with this system is that it doesn't work well under a roof. This has been an ongoing challenge for GPS accountability system developers.

Additionally, the newest of the new systems which is still under some development utilizes radio frequency identification or RFID. These systems include a reader that is attached to the firefighter gear which sends a signal to the accountability site or the incident commanders post (Oshry, 2008). The developers of this system are trying to find a way to allow apparatus manufacturers to build the receiver into apparatus to eliminate the need for drop receivers around the scene the fireground. This system also shows promise for a three dimensional view of the fireground while tracking responders on the scene.

Finally, air pack systems are in use across the country. Air pack systems utilize technology that more monitors the atmosphere in which the firefighter is doing his job rather than just the location and assignment of the firefighter. This information is sent to an entry officer via a magnetic chip that is attached to the firefighter's self-contained breathing apparatus. If the entry officer receives information that suggests the atmosphere is such that the firefighter should make a hasty retreat, then the entry officer may notify the firefighter (Oshry, 2008).

5. Is there grant money available to assist departments in Portage County in the purchase of an agreed upon accountability system?

Research says that there is good news. Even in the recent depths of the recent recession in the United States, there are entities that are willing to grant monies to willing and qualified organizations that apply. There are stipulations however. First, most of the grants that the research revealed were shown to be given to organizations for the purchase of the Onsite Emergency Response Tracking system. This system is one of the technology based systems that can run over \$1000 per firefighter in the applicant's

organization. Kapica (2009) says that Onsite ERT has a very aggressive grant program that works to help individuals find grants that will help them purchase an Onsite system. Several of these grants are listed on the Onsite website, www.onsiteert.com. These grants include the Federal Emergency Management Agency Assistance to Firefighter Grant, the Ohio State Homeland Security Program Grant, the Emergency Management Performance Grant, the Urban Area Security Initiative Grant and the Fireman's Fund Heritage Grant. See appendix B for more specific information on how to get in touch with these organizations to apply for these loans.

Since these grants have already paid for the Onsite system, the possibility stands that they may assist organizations in paying for other accountability systems as well. Each organization will be a case by case basis depending upon their unique demographics and situation.

RECOMMENDATIONS

The problem this study addressed is the perceived failure of firefighters in Portage County, Ohio to consistently use a personnel accountability system on the fire-ground. This could endanger the very lives of the firefighters themselves and the individuals they are trying to serve and protect.

- 1. Gross re-education must be completed across Portage County to help firefighters understand that research has shown that failure to institute an accountability system on the scene of an incident put firefighters a increased risk of injury or death.**

Encourage responders to pay attention to line of duty deaths and how they happen. Firefighters and responders need to take time each week to look at and study NIOSH

reports and become familiar with the things that are killing firefighters. A frequently seen item on the list of recommendations to prevent deaths similar to a fair number of certain line of duty death reports is lack of accountability on the fireground. If responders can learn what the firefighter killers are, they will be familiar with them when they see them happening on their own incidents and with vigilance be able to stop them and increase the safety levels of the working environment for their colleagues and friends. A count of 59.3% of responders to the Portage County accountability survey stated that when accountability doesn't get utilized in their organization, it is because they forget and are complacent. Another 24.7% said that accountability has not been made a priority in their organization. These statistics are unacceptable. Through re-education, fire service leaders can make it so that those 24.7%, in the future, cannot say that accountability has not been made a priority within their organization. Through repetitious education and training, accountability will be fresh on the minds of responders and the statistic of 59.3% that said when accountability doesn't get utilized in their organization it is because they forgot. Forgetting kills firefighters.

2. An accountability system should be utilized on every incident regardless of type or size by every department in Portage County.

The research clearly demonstrated that many NFPA standards require the use of a personnel accountability system on the fire ground on every call. These standards require that accountability procedures be reduced to writing and that all members of the emergency response organization be adequately trained to the level in which they will be expected to participate.

**3. Fair and consistent disciplinary action be handed down to individuals
who are caught freelancing or do not follow accountability practices or
established procedures.**

The research demonstrated that speaking as an occupational field, the fire service is falling down in its responsibilities toward truly striving to create the safest environment in which for firefighters to work by failing to initiate an accountability system on every incident. Additionally, some fire service leaders believe that the fire service nationwide is actually rewarding freelancers by withholding disciplinary actions when they observe unsafe practices, which tells the person freelancing that their behavior is okay and encourages them to future repetitions.

**4. A standardized accountability system needs to be established countywide
in Portage County, Ohio.**

By standardizing the accountability system, interoperability for mutual aid operations is another degree easier. Research shows that 90% of the respondents in the Portage County survey are already using the hook and pile system. The hook and pile system is an easy, effective, and cost effective way to track firefighters on the fireground. Only those departments not currently utilizing the system would have to change equipment and the equipment is comparatively cheap when you look at all the systems available. Further, there are grants available should an entity such as the Portage County Fire Chief's Association decide to adopt this recommendation and look at a more advanced type of system that falls into the category of technology based accountability systems.

5. Fireground Accountability System training should be integrated into every fire-training session at respective organization within the county.

NPFA 1561 (2008) *Standard on Emergency Services Incident Management System*, states that training the responders in each emergency response organization is mandatory to the level at which they may be expected to perform. Research suggests that anyone may be called upon to be the accountability officer. The more frequently an organization trains on a given topic the better responders will know the topic, the equipment and the more comfortable they will feel. If responders are comfortable with the accountability system, equipment, and know their organizations accountability SOP and they have practiced with it they will be ready when the responsibility befalls them to act as the accountability officer.

What remains for others to study in the future? This research project is not an all inclusive accountability study. Due to constraints of time and money, there were widths that were left untouched. Future researchers must look at whether fire service personnel on a broad scope honestly believe that a death or serious injury will not happen within their organization and if so why they feel this way.

Technology is going to continue to unravel and develop new and better ways to keep track of fireground workers. These new and advanced methods must be studied to continue the quest to find what may be the ultimate accountability system – as system that is easy to use, dependable, and cost effective to the organization.

Continued research should follow continued trends in education levels and attitudes versus actions, as well as track the annual number of injuries and deaths related directly to fireground accountability. These benchmarks will tell how the fire service is doing in the end.

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Appendix 1 – Survey Regarding the Consistency of Use of Accountability Systems on the Fireground in Portage County, Ohio

Introduction

Lt. Chris Morrison of the Brimfield Fire Department is conducting this survey. The survey is part of an applied research project/paper that Lt. Morrison will be submitting to the Ohio Fire Chief's "Ohio Fire Executive" Program. This survey is anonymous and your cooperation to provide answers as true to the best of your knowledge as possible is appreciated.

Instructions

Please take a few moments and answer the following questions by filling in the bubble on each question that best describes your answer to the question. Please be honest in your responses.

- 1) I think that keeping accountability of every firefighter on the fireground is a safety matter of extreme importance.
 Strongly agree
 Agree
 Undecided
 Disagree
 Strongly disagree

- 2) I believe that firefighters have a higher chance of injury or death on the fireground or emergency scene, in the absence of the use of a personnel accountability system.
 Strongly agree
 Agree
 Not sure
 Disagree
 Strongly disagree

- 3) I believe that using a personnel accountability system on every fire incident regardless of size is important.
 Strongly agree
 Agree
 Not sure
 Disagree
 Strongly disagree

4) I believe that a personnel accountability system should be utilized on every call regardless of type.

- Strongly agree
- Agree
- Not sure
- Disagree
- Strongly Disagree

5) I think that everyone is equally responsible for personnel accountability on the fireground.

- Strongly agree
- Agree
- Not sure
- Disagree
- Strongly agree

6) In your opinion, who is responsible for *initiating* the personnel accountability system on an incident?

- Fire Chief
- Incident Commander
- Officer of the first due apparatus
- Officer of the second due apparatus
- Any firefighter can take the initiative

7) When the PAS does not get utilized on a fire call in my organization I believe that the main reason is:

- We forget / we are complacent
- It has not been made a priority within my organization
- There are too many other things to do to worry about it
- We are not well trained and versed in its use
- We do not have an approved accountability system or equipment to use

8) Does your organization have a written accountability SOP/SOG ?

- Yes
- No
- I Don't know

9) Does your organization follow the accountability SOP/SOG?

- Yes
- No
- N/A

10) What type of accountability system does your organization employ on the fireground? (if more than one, please use the primary system for your answer)

- Clipboard and paper
- Ring based tags (that hang from your helmet)
- Hook-and-Pile system (Velcro name tags under your helmet which get applied to an associated command board)
- Bar code system technology
- Fireground GPS
- Electronic-transmitting PASS devices (to a receiver at the IC's location)
- Electronic-transmitting SCBA units (to a receiver at the IC's location)
- Other _____

11) I have been *educated about the personnel accountability system which my organization uses on the fireground (*educated = shown all the component, and given the cognitive information I need to understand how to put the system into use).

- Yes
- No

12) I have been *trained in the use of the personnel accountability system which my organization uses on the fireground (*trained = given the opportunity to set up and use the system in a simulated incident or incidents so that if I ever need to be the person setting up accountability I have done it before.)

- Yes
- No

13) In my opinion, integrating personnel accountability utilization into every fire training my organization conducts would improve the consistency of our use of a personnel accountability system on actual incidents.

- Strongly Agree
- Agree
- Not sure
- Disagree
- Strongly disagree

14) In my opinion, standardizing an accountability system and associated procedures for use across Portage County would improve fireground personnel accountability county-wide.

- Strongly Agree
- Agree
- Not sure
- Disagree
- Strongly disagree

- 15) Having an accountability policy in place would improve the use of personnel accountability on the fireground in Portage County, Ohio
- [] Strongly Agree
- [] Agree
- [] Not sure
- [] Disagree
- [] Strongly Disagree
- 16) Fair and consistent disciplinary action applied toward individuals that do not follow the organization's SOG/SOP for personnel accountability would improve the use of personnel accountability on the fireground in Portage County, Ohio.
- [] Strongly agree
- [] Agree
- [] Not sure
- [] Disagree
- [] Strongly disagree
- 17) I currently serve my organization in the position of:
- [] Fire Chief
- [] Assistant Chief
- [] Captain
- [] Lieutenant
- [] Firefighter
- 18) The number emergency calls my organization responds to on an annual basis averages:
- [] Less than 250 calls
- [] Between 250 and 499 calls
- [] Between 500 and 749 calls
- [] Between 750 and 999 calls
- [] Between 1000 and 1249 calls
- [] Between 1250 and 1499 calls
- [] 1500 or more calls
- 19) My gender is:
- [] Male
- [] Female
- 20) I am between the ages of
- [] 18 and 24 years old
- [] 25 and 34 years old
- [] 35 and 44 years old
- [] 45 and 54 years old
- [] 55 and 64 years old
- [] 65 years old or older

