UNIVERSITY OF Cincinnati

Open Learning Fire Science Program

Political and Legal Foundations of Fire Protection

Adjunct Professor Lawrence T. Bennett

32-FST-385-906

Why fire departments should improve after a “Line of Duty Death” such as the one of the late Oscar Armstrong III.

Term Paper

By: Mark J. Ober

June 3, 2007

Why local fire departments should improve after a "Line of Duty Death" such as the one of the late Oscar Armstrong III.

As a firefighter and now a chief officer with minimal exposure to line of duty deaths, I believe there are many lessons to gain from these tragedies. We lost a career firefighter, the late Bill Ellison, while he was serving in a part time capacity for a local community. Using lessons gained from line of duty death tragedies our department provided specific training to our firefighters to eliminate the possibility of these situations from occurring again. These unfortunate situations should be one that the fire service uses as one of the most influential training tools available. I had the opportunity to meet Firefighter Oscar Armstrong III at our Station 10, while he was on assignment with the Cincinnati Fire Department Engine 7 in early 2004. I believe it is important that we as administrators, officers and trainers work to provide safer working environments for our personnel. Administrators and officers need to evaluate hazardous conditions, such as routine as a structure fire, directing and reducing our personnel's exposure to the many changing elements of our profession. The fire service experienced the loss of 25 professionals in the year 2005, related to interior structure fires.[1] Yes we have heard over the years that this is a very dangerous profession, however we need to adapt to the changing world of firefighting, reducing the potential times interior structure fires occurs as a step toward of the elimination of these tragedies all together.

Why shouldn't we improve after a catastrophic event such as a loss of life from a fire scene? This is where it is easier to explain, suggest and recommend a way to improve using the actual decision making process rather than the structure fire scene when commanding with personnel inside.
Rita F. Fahy reported that:

> Since 1977, the number of U.S. firefighter deaths annually at structure fires has dropped 59 percent, a finding that often has been credited to improvements in protective clothing and

[1] Rita F. Fahy and Paul R. LeBlanc, *Firefighter Fatalities in the United States– 2005*. NFPA (2006), 2.

> equipment, fireground procedures and training. Little attention has been paid to the drop in the number of structure fires themselves. Over the period from 1977 to 2000, the most recent year for available structure fire statistics, the annual number of structure fires declined by 54 percent. She goes on to state that "a comparison of the decline in the number of structure fires and the decrease in the number of firefighter deaths at structure fires shows that the trends track fairly closely, indicating that the drop in deaths may have been to a great degree, a result of the reduction in the number of fires. This leads to an important second question; how has the rate of deaths at structure fires trended over the same period? In other words, are firefighters just as likely to die today as they were 25 years ago?[2]

Let's first explore the history of fireground deaths using 2005 as an example where there were 25 fireground deaths by fixed property use. Almost all of the 18 structure fire deaths occurred in residential properties, with fires in one-and two-family dwellings killing 11, fires in 2 apartment buildings killing 4 firefighters, 2 deaths occurring in vacant building fires, and one death at a grain elevator fire. None of the structures involved in the fatal fires in 2005 were reported to have had sprinklers installed.[3]

A detailed look at an incident can occur locally, but at present the National Institute for Occupational Safety and Health (NIOSH) has a program addressing investigations and providing a valuable database of all occupational incidents.[4] Along with department investigations where we formulate the information for our own uses, the NIOSH reports are a reference tool for future operational and training situations.

There are several ways to improve fireground techniques and tactics using these fatalities as the basis for training and education. I believe it starts with the identification of five major categories specifically related to fireground knowledge. The categories include, *A Strong Command Presence*,

---

[2] Rita F. Fahy, R. F., *U. S. Fire Service Fatalities in Structure Fires, 1777-2000*. NFPA (2002), 1.

[3] Fahy and LeBlanc, *Firefighter Fatalities in the United States– 2005,* 5-6.

[4] Fahy, *U. S. Fire Service Fatalities in Structure Fires, 1777-2000*, 2.

Operational Plans, Proper Initial and Ongoing Training, The Right Tools for the Job, and *Adequate Personnel to Safely Complete the Task.*

- ***Strong Command Presence***

Businesses use a system of managers and supervisors in completing day to day tasks, the National Incident Management System, (NIMS), gives fireground command a backbone and direction to utilize. In the State of Ohio Administrative Code (2007), 4123:1-21-07 under the section listed, "Fire Department Occupational Safety and Health" section (A) states that an Incident Management system will be established at any fire ground. This system offers a written and standard operating procedure that applies to all personnel involved in emergency operations, meaning that all members involved in emergency operations are trained in the system. An incident command system is also utilized at drills, exercises, and other situations that involve hazards similar to those encountered at an actual emergency incident and at simulated incidents that are conducted for training and familiarization purposes. The incident management system utilizes a concept of risk management based on the following principles:

- Activities that present a significant risk to the safety of members are limited to situations where there is a potential to save endangered lives
- Routine Activities employed to protect property are recognized as inherent risks to the safety of personnel, and actions are taken to reduce or avoid these risks
- No risk to the safety of personnel is acceptable when there is no possibility to save lives or property, and
- Each crew operating within the hazardous environment is provided with communication equipment capable of communicating with the incident commander[5]

A different approach to fighting fires has surfaced recently and is put into an interesting format by Battalion Chief Mark Emery of the Woodinville Washington Fire Department. If we consider having

[5] Ohio Administrative Code. *Fire Department Occupational Safety and Health. Chapter 4123:1-21 Fire Fighting, (2007).*

"Ten Command-Ments" for firefighting, as Battalion Chief Emery suggests in the recent issue of Firehouse® Magazine, May 2007, we will see that his approach can keep things in prospective.[6] The Ten Command-Ments are:

I. Thou shall have ONE competent commander.

II. Thou shall maintain teams of at least TWO personnel.

III. Thou shall recognize THREE situations that kill firefighters.

IV. Thou shall ensure that FOUR sides are seen and compared.

V. Thou shall not exceed a span-of-control FIVE.

VI. Thou shall operate within one of SIX operational modes.

VII. Thou shall perform the SEVEN-step action plan process.

VIII. Thou shall make EIGHT assignments early.

IX. Thus shall address three strategic priorities with NINE tactical objectives.

X. Thou shall evaluate the situation, mode and plan every TEN minutes.

The first two Command-Ments listed are important and should always be in place but the third is one of the most important. This is largely as a result of the amount of deaths related to structure fires. There are 3 specific situational killers investigated by NIOSH from 1996 through 2005 taking 58 lives. The three areas include; working below a structure fire, frequently below an attic fire; in the presence of a hostile smoke or fire event such as a flashover; and working above a structure fire such as above a basement fire. These situations become dangerous and occur during a hostile fire event when the incident commander fails to notice the conditions deteriorating. Making the situation worse, is not having a charged hose line or an adequate backup in the form of a team protecting the egress or the overall fire attack was not coordinated using proper ventilation techniques.[7] Have we experienced this on our firegrounds?

---

[6] Mark Emery, The *Ten Command-Ments of Intelligent & Safe Fireground Operations*. Firehouse® Magazine, (May 2007) 62.

[7] Emery, The *Ten Command-Ments of Intelligent & Safe Fireground Operations*, 63.

- ***Operational Plans***

Most firegrounds have personnel doing the right things but sometimes at the wrong place at the wrong time for the wrong reason. A recommended solution to coordinating a fire command is to paint a picture in your mind called "framing the fireground." A good fireground plan is defined as what is the fire's history (what is already consumed by fire) and what is the fire's future (what can still burn by fire).[8] When a plan is in place is every command section, branch, group or fire company including mutual aid departments at the scene orchestrating their attack using the same sheet of music? Using your commander status as a coach, director, or leader, are you changing their tactical objectives if personnel are not using appropriate techniques on the fireground? Using ventilation as an example, I agree that it's not the time to instruct how to cut the hole during the fire, however when ventilating at a suppression operation, the commander's knowledge and ability to consider all sides of the structure and control the overall fire attack, could offer an opportunity to coach as the ventilation team begins.

Communicating to all tactical functions at any scene is very important. To keep things in perspective, as it has been reported in most of the recent NIOSH reports, that accountability and command are two safety issues that surface as recommended ways to improve the next structure fire command. On scene personnel sometimes need to be guided when factors dictate that the potential personnel cost is not worth the property loss. An example of this is ordering crews not to enter or to order crews out because of the conditions you see about the fire that they may not.

Are the right amount of personnel and resources planned for all the needed functions as suggested in NFPA 1710? It is necessary to have the minimum amount of personnel to carry out the functions required; an example is having 18 as a minimum on a basic 1,800 to 2,500 square foot residential type structure. A majority of firefighters lost have lost their lives in structures of this size.

- ***Proper Initial and Ongoing Training***

Training needs to be an integral component to provide firefighters and fire officers alike the opportunity to learn the intricate and un-exact science of firefighting and it is one of the most important

[8] Emery, *The Ten Command-Ments of Intelligent & Safe Fireground Operations*. 67.

preparations for a fireground. We start off initially as a rookie with the bare minimum requirements and standards, but do we really need more than the basics? One school of thought is that it depends on the amount of actual responses that you make can make you better. While this might be true, routine may not make one better. While training, should everything that could occur on the fire ground be practiced? Computer and other types of simulations, such as a “Flashover” simulator where trainees are "put in the hot seat" related to making decisions about fighting fires are an excellent tool.[9] This is especially an important tool when learning decision making processes when considering fire behavior in varying types of building construction. The components of the command system which are now mandated with the National Incident Management System, (NIMS), and its risk management decision-making process, can all be learned in a classroom simulation environment.

A careful critique or review of fireground procedures following each major fire, including an analysis of what went right and what went wrong, is a great opportunity to learn, with some labeling it as an “opportunity for improvement.” Simulating the fireground, the personnel involved receive direction and the firefighters and officers who were not at the incident can also learn and improve their understanding of fire behavior and scene situations. The fire service leaders of today need to provide the training as well as the proper promotional assessment processes to ensure company and chief officers understand the environment to which their firefighters are exposed. The proper operational procedures dealing with the environment should improve everyone’s safety on the fireground and this improvement needs to occur after each response. A fireground is an unforgiving learning environment if operating on the fly. The National Fire Protection Association, NFPA 1001 has standards for training and professional qualifications.

Rita F. Fahy wrote that:

> Pre-incident planning is the key to recognizing problems in or with a structure that may make it more likely to collapse during a fire. The factors to look for include lightweight construction

[9] Fahy, *U. S. Fire Service Fatalities in Structure Fires, 1777-2000*, 4.

> features, such as wood trusses and unprotected open-web steel joists in both roof and floor construction. Buildings that have obvious signs of weakness include those in which there was a previous fire, those where an adjacent structure with a common separating wall has been removed, and those whose reinforcing rods are exposed in concrete construction. The use of dropped ceilings indicates the presence of confined spaces where a concealed fire could grow above the heads of working firefighters. Over time, building alterations can alter a structure's integrity and these usually fail within minutes after arrival of an involved structure.[10]

Building construction knowledge will still be one of the most important subjects taught in the fire service. Rita F. Fahy wrote that:

> If a building has no automatic suppression or detection equipment, a more advanced fire may exist by the time the fire department is notified. There are signs to look for on arrival at an incident. Although it isn't usually possible to know at the outset that a fire was intentionally set, the occupancy status can give a good indication of the likelihood of arson. Buildings that are vacant, condemned, being demolished or renovated, or even closed for the night are frequent targets of arson. Heavy roof loading, including heating and air conditioning equipment, as well as snow, can reduce a roof's integrity under fire conditions. Fires of long duration can also weaken structural members. It's important to realize that every 250 gpm stream applied to the building can add up to one ton per minute to the load the weakened structure is carrying.[11]

Do we really need to go inside a vacant structure increasing potential of injury or death?

- ***The Right Tools for the Job***

Having all the right tools for the job can reduce time to attack a fire, create safer working environments, and can augment the overall outcome especially at structure fires. The first item to address is the required Personal Protective Equipment (PPE). Not only does it need to be fitted properly but it

---

[10] Firefighters Fatalities Due to Structural Collapse, 1991-*2000, (*NFPA July/August 2001 Journal), 3.

[11] Firefighters Fatalities Due to Structural Collapse, 3.

needs to be routinely inspected, repaired and cleaned. Department personnel should be educated on inspecting their own PPE by the manufacturer. The Self Contained Breathing Apparatus (SCBA) is part of the first line of defense for having the right tools for the job. This starts with fitting and testing face pieces, and testing the overall systems as ensembles. Fire apparatus, hose types utilized, radios for all personnel and thermal imaging cameras also rank right up there with the PPE as necessary equipment at structure fires. The latest and greatest apparatus and equipment needs to be supplied to eliminate the possibility of failure, especially when it could prevent injury or death by replacing old or worn apparatus and equipment. Technology is a wonderful tool and apparatus needs to have some of the latest safety options such as; flow meters with pressure gauges, and class "A" foam systems set up for use on all interior lines when dealing with fire pumps systems. The hose for interior lines needs to be well marked have an adequate nozzle to compliment the particular load and should be tested annually as required.

- ***Adequate Personnel to Safely Complete the Task***

In the current NFPA 1710 standard it contains minimum requirements relating to the organization and deployment of fire suppression operations, emergency medical operations, and special operations to the public by substantially all career fire departments. It states that the initial full alarm assignment shall provide for the following:

(1) Establishment of incident command outside of the hazard area for the overall coordination and direction of the initial full alarm assignment. A minimum of one individual shall be dedicated to this task.

(2) Establishment of an uninterrupted water supply of a minimum 1520 L/min (400 gpm) for 30 minutes. Supply line(s) shall be maintained by an operator who shall ensure uninterrupted water flow application.

(3) Establishment of an effective water flow application rate of 1140 L/min (300 gpm) from two hand lines, each of which shall have a minimum of 380 L/min (100 gpm). Each attack and backup line shall be operated by a minimum of two individuals to effectively and safely

maintain the line.

(4) Provision of one support person for each attack and backup line deployed to provide hydrant hookup and to assist in line lays, utility control, and forcible entry.

(5) A minimum of one victim search and rescue team shall be part of the initial full alarm assignment. Each search and rescue team shall consist of a minimum of two individuals.

(6) A minimum of one ventilation team shall be part of the initial full alarm assignment. Each ventilation team shall consist of a minimum of two individuals.

(7) If an aerial device is used in operations, one person shall function as an aerial operator who shall maintain primary control of the aerial device at all times.

(8) Establishment of an IRIC that shall consist of a minimum of two properly equipped and trained individuals.[12]

I interpret the maximum number of personnel to be anywhere from 17 to more than 21 as I understand it to be somewhat discretionary. In item no. (1) with the establishment of command, with all the radio frequencies, and accountability issues during the first 20 minutes, this is best suited for a minimum of 2 personnel. The next area I have comments on is no. (4) where there is a provision of one support person for each attack and backup line deployed to provide hydrant hookup and to assist in line lays, utility control, and forcible entry. My past experiences indicate that this is best carried out, with a minimum of 4 personnel. Another area of question is in no. (6) involving ventilation, where I believe this needs a minimum of 3 personnel. The last area of concern is the Initial Rapid Intervention Crew (IRIC) which is required to have a minimum of 2. With all the preparation that is required and the possible needs if a deployment is necessary four personnel should be the minimum.

In the standard of, "Operating at Emergency Incidents," from the "Ohio Administrative Code," the employer is responsible for providing an adequate number of personnel to safely conduct emergency

[12] National Fire Protection Association 1710. *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments.* (NFPA 2004), 15-16.

scene operations. Operations shall be limited to those that can be safely performed by the employees available at the scene. No employee or employees shall commence or perform any firefighting function or evolution that is not within the established risk management principles. It also states that employees operating in hazardous environments at emergency incidents shall operate in teams of two or more and shall be in communication with each other through visual, audible, or physical means, in order to coordinate their activities. Team members shall be in close proximity to each other to provide assistance in case of an emergency.[13]

The Ohio Administrative Code also states:

> In interior structural fires a minimum of four employees shall be required, consisting of two working as a team in the hazardous atmosphere, who shall remain in voice or visual contact with each other; and two members who are located outside the hazardous atmosphere, who shall be responsible for maintaining a constant awareness of the number and identity of those operating in the hazardous atmosphere and be prepared to perform rescue of those members if required. This type of firefighting means the physical activity of fire, suppression, rescue, or both, inside of buildings or enclosed structures which are involved in a fire situation beyond the incipient stage.
>
> The initial attack operations shall be organized to ensure that, if upon arrival at the emergency scene, the initial attack employees find an imminent life-threatening situation where immediate action could prevent the loss of life or serious injury, such action shall be permitted with less than 4 employees. No exception shall be permitted when there is no possibility to save lives. Any such actions taken shall be thoroughly investigated by the employer.
>
> The employer is also advised that they shall develop and adopt a comprehensive written risk management plan. The plan shall consider all fire department policies and procedures, and it shall include goals and objectives to ensure that the risks associated with the emergency and non-

[13] Ohio Administrative Code. *Fire Department Occupational Safety and Health.*

emergency operations of the fire department are identified and effectively managed.[14]

So why should fire departments improve after a "Line of Duty Death" such as the one of the late Oscar Armstrong III? I would like to answer this question by addressing changes that occurred since March 21, 2004. I believe that explaining how the Cincinnati Fire Department and the Anderson Township Fire and Rescue departments addressed several administrative, operational and safety programs directly relate to the improvement of fireground tactics. The Hamilton County Fire Chief's Association board of directors has begun in 2007 to address standardization issues. Items that are up for discussion are responding across boundaries, operational differences, streamlining procedures and guidelines, and reinstituting the support for countywide training.

I would first like to address the approach the Cincinnati Fire Department took immediately after the loss of Firefighter Oscar Armstrong III. The Department formed a committee called the "Cincinnati Fire Department Laidlaw Investigative Committee" to investigate and release a preliminary report ensuring all the factors leading to the death of Firefighter Oscar Armstrong III would be fully investigated and appropriate actions taken to lessen the chance of similar occurrence. In this document it was discussed that a second more comprehensive report be generated by various subcommittees within the investigative committees.[15] The committee was setup with Assistant Chief Chris Corbett as committee chair and District Chief Tom Lakamp assigned as the committee coordinator. The committee had an additional 18 committee members, a city solicitor, a city risk management member, a safety specialist and this included 15 representatives from various bureaus within the fire department.

The enhanced report provided a thorough analysis of the events that occurred and additional subcommittees were formed for: Procedures, Training, Equipment and Technology, OHSA Review, Driving and Pumping Operations, Command Officers and Legal Review. Each subcommittee provided their recommendations and a synopsis of recommendations was produced. The first was personnel recommendations. This recommendation was to have district chief aides to provide support for

---

[14] Ohio Administrative Code. *Fire Department Occupational Safety and Health.*
[15] Line of Duty Death Investigation. Preliminary Report. (2003) FF Oscar Armstrong III. July 22, 1977-March 21, 2003, 2.

accountability and communications. The second recommendation involved training. Firefighter proficiency command and company officer effectiveness and driver operator efficiency were listed. The third recommendation was to have safety supervision at all scenes with training specifically for these positions. The fourth recommendation was to begin a personal protective equipment maintenance and cleaning program. The fifth recommendation was equipment improvements for the overall safety of firefighters. The sixth recommendation was revising standard operating procedures to improve safety at fire scenes. The seventh recommendation involves the current and future technology innovations involving firefighter safety. The eighth recommendation involves training improvements. These improvements were in the delivery of required programs, record keeping and promotional training. The last recommendation is command improvements. This included safety, tracking of personnel, deployment, training, and effective operations.[16]

Cincinnati Fire Department started to improve immediately by using the lessons learned and recommendations to show that this is where we all can learn from and make improvements to our departments. The first skill, task or function to improve survival includes a coordinated effort of extinguishment. A charged line before ventilation begins involves the need for coordination. Proper hose deployment will enable sufficient water to ensure a successful initial attack. It is also imperative that the line be charged for a means of orientation if and when exiting is necessary. A crew staying together is paramount for the safety and accountability of all operating at scenes. When minimum experience is present, supervision to the minimum crews of two will help eliminate potential risks. All firefighters having radios, not committing themselves without a charged hose line and remaining with their assignments is also important, particularly during a mayday operation.[17]

A strong command presence is needed from the beginning and includes such factors as an announcement with direction and a stationary post. The assumption, confirmation and position of

---

[16] Line of Duty Death. *Enhanced Report. Oscar Armstrong III*. (Independent Report by the Laidlaw Investigative Committee 2004), 72-83.

[17] Line of Duty Death. *Oscar Armstrong III*, 54.

command will not put the fire out but it has been proven to provide better coordination. This post is where the command team can initiate objectives, handle situation evaluations with feedback, maintain and control communications, deploy and track personnel, and address the strategy for the overall incident action plan. Communications must be limited on fireground channels and companies that are assigned tasks must follow command and coordinate all their findings to the incident commander. The need for a safety officer as a member of the command staff early on is important to assist the commander with safety related issues and address the time lapse benchmark increments.[18]

The fire attack size-up itself should be coordinated by the incident commander keeping an account and a keen eye on how the tactics of the attack are transpiring. We attack from the unburned side and utilize hose lines allowing all interior teams to function. The interior crews need to operate with the use of thermal imaging cameras. Additionally, operators who remain with the functioning apparatus at a scene are important. Keeping crews together and training with the companies involving current and updated procedures at all times is also important.[19]

Training for new company officers, drivers and commanding officers is important to facilitate firefighting tactics. This is especially important after promotions and should include the practice and training at that level which is critical for the overall operations to be successful. Addressing fire related behavior issues, training such as flashover and techniques for spraying water into the structure for temperature reduction need to be addressed. This technology is available and training advancements have occurred in the past 10 years. EMS training needs to be addressed with the critically burned patient as it relates airway management.[20]

Mayday procedures should be fully implemented to ensure that the rescue occurs and to ensure the firefighting continues. Standardization of hose loads and stretching of lines practice needs to be enforced regularly.[21]

---

[18] Line of Duty Death. *Oscar Armstrong III*, 55.
[19] Line of Duty Death. *Oscar Armstrong III*, 114.
[20] Line of Duty Death. *Oscar Armstrong III*, 82-124.
[21] Line of Duty Death. *Oscar Armstrong III*, 88.

Personal protective equipment needs to be inspected according to the manufacturer, cleaned and documentation needs to occur. Along with this process, training on how to inspect it and clean it is important but all firefighters must also know the limitations of the protection.[22]

Administratively the way the calls are received and how the information is passed on to on scene personnel is paramount. This information can assist companies with on scene tactics. Along with how the call is received upon the information that is forwarded to commanders that a structure is involved, a Rapid Intervention Team (RAT) needs to be immediately assigned to the run box.

The next two areas of concern are the standard operating guidelines and training records. The SOG's should be updated and reviewed on regular intervals. The personal training records need to track the firefighters involvement in there overall drills completed and the skills performed.

In summary the Cincinnati Fire Department also addresses what I feel are two very important aspects of fireground tactics that could definitely help others and they both involve the direct safety of our personnel. The first is to set-up a program where "close calls" are shared as learning tools. The second important factor is to complete interviews immediately after the fire involving a significant injury or loss of life. With the use of "close calls" the operations can be addressed to ensure that the action taken may prevent future similar situations.[23] The need to interview immediately following a catastrophic incident is very important. It is emotionally and psychologically stressful but we need the information while it is fresh and is factual. The farther we are away from an incident, the harder the facts are to acquire and document correctly.[24]

Anderson Township has always addressed safety into its operations and immediately following the release of these investigative reports our department addressed some current operational techniques and brought forward some new changes. We have been training in Mayday procedures and have sent over 40 personnel to RAT training which has become the common rescue tactic in Hamilton County under the leadership of the Cincinnati Fire Department. This training has allowed us to form our policies

[22] Line of Duty Death. *Oscar Armstrong III*, 126.
[23] Line of Duty Death. *Oscar Armstrong III*, 64.
[24] Line of Duty Death. *Oscar Armstrong III*, 66.

and curve operations to have full implementation of a trained RAT team. This implementation obviously involves extensive training and stern direction at fire scenes. With the training and direction that the RAT concept requires, Anderson Township Fire and Rescue was not able to conduct all of these concepts until equipment was purchased. We currently have four set ups for RAT purposes that include: an orange tarp, two rope search bags, the SCBA bottle covers (marked "RAT"), and the RAT bottle hook-up. Additional equipment to complete the tools needed from each rig includes, a charged hose line, a large cutoff saw, the iron set, a pair of bolt cutters, 2 box lights, a thermal imaging camera with a spare battery, and an 8 lb. sledge hammer. A separate 800 radio with a headset for the RAT officer to be able to hear better is available in our Battalion Chief's vehicle.

Operationally we have utilized one of our assigned companies on the Run Box Alarm to remain as a RAT company with a minimum of 4 firefighters and, in the case of limited staffing, have call for mutual aid. Our dispatch center, Hamilton County has added 20 minute benchmark times and has implemented a Run Box Alarm system to eliminate dispatched times by sending who is on the card in lieu of asking the on scene officer for directions. Our radio system is digital 800 and we now have a radio for everyone at the scene and the radio identification number coincides with the position of the passport. An example is on Engine 6's passport the officer is listed as "P1", the driver is "P2". Accountability is still a major concern with our operations and we have had some minimal experience with the new MSA tracking of the SCBA's system we purchased to run on a computer laptop.

In relation to apparatus and equipment we have purchased a great deal related to safety of personnel, rescue and deployment. All of our apparatus have standard hose loads and special colors for specific lines along with 75 psi nozzles. Along with the hose set-ups each of the front line engines and quint have 4 pre-connected lines and all of them have onboard Class A foam systems. Our SCBA's have dual "RIC" (rescue air) fittings and all personnel are assigned their own quick fill safety line. Better ventilation saws were ordered and placed into service. Our PPE is inspected every 4 months and repaired immediately. We have a current PPE rotation cycle of 5 years replacement for each member at about 15 sets a year.

Structural firefighting training has been one of major accomplishments in the past 3 years. We have also had Fire Tactics training from a retired Cincinnati District Chief and we continue to take personnel to a burn facility at least twice a year for practice. A majority of our pump operators have had a 2-day training covering a wide range of pump operations. We have had extensive training relating to a firefighter getting out of a structure on his or her own ability. We have utilized a maze trailer, training props and have been out in abandoned houses several times over the past 3 years to accomplish those objectives. Our major theme has been for us to use either hand lines or ropes when searching and practicing the ability to find our own way out.

Since it has been mandated from the federal government and by the state of Ohio for grant funding, we have also incorporated the (NIMS) ICS 300 and ICS 400 training as part of our requirements for all officers, Lieutenant and above. This was offered to acting Lieutenants and it was also well attended.

The question why local departments should improve after a “Line of Duty Death” has taken a larger scope. Over the years the Hamilton County Fire Chief’s have supported training and standardization as well as they could without having any authority. They have provided funding for seminars, sponsored seminars and have addressed some basic guideline recommendations. In the past two years they have supported a local fire training concept by bringing the Bowling Green State Firefighting School to the Cincinnati area.

The Hamilton County Fire Chief’s board has just recently begun a project to address mutual aid concerns, standard operating guidelines etc. I am sure lessons learned from Oscar’s tragedy will be part of this new venture for sometime to come. We as professionals should always place the safety of our personnel as our number one priority especially when we are addressing, standard operating guidelines and mutual aid concerns. The reasons why fire departments should improve are numerous, take the sacrifices given and apply the lessons learned forever.

Bibliography

Emery, Mark, "The Ten Command-Ments Of Intelligent & Safe Fireground Operations." *Firehouse® Magazine*, (2007, May): 62-68.

Fahy, Rita F. U. S, "Fire Service Fatalities in Structure Fires," *1777-2000*. *Fire Analysis and Research Department National Fire Protection Association*, (2002): 1-4.

Fahy, Rita F. and LeBlanc, Paul R., "Firefighter Fatalities in the United States– 2005". *Fire Analysis and Research Department National Fire Protection Association*, (2006): 2-6.

Firefighters Fatalities Due to Structural Collapses, 1991-2000. *Taken from "2000 U. S. Firefighter Fatalities," NFPA Journal* (July/August 2001):1-3.

Line of Duty Death, Enhanced Report. Oscar Armstrong III. *Independent Report by the Laidlaw Investigative Committee*, (2004): 54-126.

Line of Duty Death Investigation, Preliminary Report. FF Oscar Armstrong III., *Cincinnati Fire Department Laidlaw Investigative Committee*, (2003): 2.

National Fire Protection Association, "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): 15-16.

National Institute for Occupational Safety and Health (NIOSH) Death in the line of duty: "Career Fire Fighter Dies and Two Career Fire Fighters Injured in a Flashover During a House Fire-Ohio", *(F2003/12) [Data File]. Cincinnati, OH: U. S. Department of Health and Human Services*, (2005):1-6.

Ohio Administrative Code: "Fire Department Occupational Safety and Health." 4123:1. Department of Safety and Hygiene. Chapter 4123:1-21 Fire Fighting, (2007). http://codes.ohio.gov/oac/4123%3A1-21-07.