Firefighter Accountability: Where are you?

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Certification Statement

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

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Abstract

The problem is the Clinton Fire Department‘s electronic accountability system is not being utilized when firefighters are entering an immediately dangerous to life and health (IDLH) atmosphere. The purpose of this research is to determine why the electronic accountability system is not being utilized when firefighters are entering an IDLH atmosphere. The following descriptive research questions were used:

1. Why doesn’t the Clinton Fire Department’s firefighter use the current electronic accountability system?
2. Why aren’t the Clinton Fire Department’s officers enforcing the use of the electronic accountability system?
3. How have other fire departments that use or have used an electronic accountability system implemented it into their department’s operations?

A literature review was completed using the U.S. Fire Administration Library, NFPA standards and an extensive on-line search. Three NFPA standards were found relevant to the research. Recent periodical articles were found during the on-line search that addressed implementation of an accountability system. Periodical articles were found that related to complacency in the workplace.

The researcher surveyed the members of the fire department to find out why they are not using the electronic accountability system. The researcher surveyed the officers to find out why they are not enforcing the use of the electronic accountability system. An interview was conducted with Fire Chief David Schutte of the Camanche Fire Department to determine how they implement electronic accountability system into their department.

The results of the research indicated that the accountability standard operating procedure (SOP) had not been updated since 2007 and did not meet the current operations of the department. Officers were not enforcing the accountability SOP because it was not updated. It appears the officers are become complacent with the use of electronic accountability system. They did not make sure everyone was using their T-PASS devices. The command base unit is rarely being place in operation during emergency incidents.

The recommendation was to establish a committee to look at the electronic accountability system. Make changes to the accountability SOP and make it enforceable. Review the technology changes available since original system was purchased in 2004. Make everyone responsible for the use of the electronic accountability system.

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Introduction

Ever since NFPA 1500 The Standard on Fire Department Occupational Safety and Health Program recommended that fire departments establish written standard operating procedures for a personnel accountability system fire departments have struggled with firefighter accountability. The Clinton Fire Department is no exception to this problem. The department has tried several different accountability systems since the late 1990s.

The problem is the Clinton Fire Department's electronic personnel accountability system is not being utilized when firefighters are entering an immediately dangerous to life and health (IDLH) atmosphere. The purpose of this research is to determine why the Clinton Fire Department electronic personnel accountability system is not being utilized when firefighters are entering an IDLH atmosphere.

The following three questions will be answered through historical and descriptive methods of research. Why don't the Clinton Fire Department's firefighters use the current electronic accountability system? Why are the Clinton Fire Department's officers not enforcing the use of the electronic accountability system? How have other fire department with electronic accountability system implemented it into their operations?

Background and Significance

Clinton, Iowa has an estimated population of 26,885 and encompasses 35 square miles (US Census Bureau, 2010), the community's eastern city limits is the Mississippi River and the western area of the community is mostly rural farm land. Clinton has a large industrial and commercial present in the area with a large number of workers coming into the community from smaller rural communities.

The Clinton Fire Department consists of three fire stations and 42 line personnel and three staff positions. The Fire Department provides building and fire code enforcement for the city. The fire department responded to 3812 calls for service in 2013 with three ALS ambulances and three ALS first response engines for our fire district and a tiered response to neighboring communities in a 25 mile radius. The Fire Department currently has automatic mutual aid with Camanche, Iowa and Fulton, IL for all structure fires within our respected fire districts. The fire department is a member of the Illinois Mutual Aid Box Alarm System (MABAS). . The Clinton Fire Department provides protection for two highway bridges over the Mississippi River and major natural gas transmission supply lines to our industry base. The fire department also provides protection to a major industrial concentration that includes bio-diesel, ethanol, and plastic manufacturing. The Union Pacific Railroad Turn-Table Bridge which is the main east-west artery rail crossing the Mississippi River for the nation's largest railroad is part of the state's critical infrastructure within our fire district. Clinton is the largest community within the 10-mile evacuation radius of the Quad City Nuclear Power Plant and provides radiological first responder support in case of a nuclear/radiation accident at the plant.

The Clinton Fire department's accountability system started in the late 1990's with the Personnel Accountability Tag (PAT) system. Each member is issued an accountability tag with a snap fastener attached so it may be clipped on the D-ring on the back of their fire helmet. The tags are color coded to coincide with the firefighter's rank: black for Firefighters and Engineers, yellow for Lieutenants and white for Chief Officers.

Each emergency vehicle is equipped with a collector ring that has a tag that identifies the unit. During an emergency call all firefighters responding on the unit will remove the tag from their helmet and attach it to the collector ring. The company officer is responsible for making sure all the members of his/her company's tags are on the collector rings. Depending on the size of the incident the Incident Commander may request the collector rings be brought to the command post for the Accountability Officer.

The Clinton Fire Department was awarded a FEMA grant thru the *Assistance to Firefighter Grant Program* (AFG) in 2004 to purchases an electronic firefighter accountability system. Grace Industries T-Pass3 Electronic Firefighter Accountability system was purchased by the Clinton Fire Department. This system consists of individual Personal Alert Safety System (PASS) devices and a Grace Command Base Receiver. The individual T-Pass units have an activation key that when removed turns the T-PASS unit on and does not allow for accidental shut off the unit. The Grace T-PASS Command Base Unit then monitors the individual PASS units. The base unit is programed with each individual firefighter's name that coincides with their issued T-PASS device (Grace, 2010).

The firefighter's Grace Industries T- PASS3 units have several unique features such as:

- Auto-on activation using a proprietary tethered “accountability key” which can be tethered to a stationary object and automatically activate the unit when the firefighter moves.
- Activation is confirmed by a loud audio sound and flashing LEDs.
- Manual and automatic radio telemetry signals from the firefighter to the command base unit.
- High temperature sensing that notifies the firefighter of a high heated atmosphere.
- Automatic signals are sent to the base station when the PASS3 unit is turned on, firefighter’s PASS3 unit is manually activated or alarms if the firefighter is motionless for more than 30 seconds or an evacuation order is received.
- Manual signals can be sent to the command base unit when a firefighter presses the panic button for a distress call and when the firefighter acknowledges an evacuation order.

These T-PASS3 features will help the rescuers locate the firefighter who have activated their devices (Grace, 2010).

The Grace T-PASS Command Base Unit is a large plastic case that monitors each individual T-PASS unit. If a firefighter’s T-PASS goes into alarm the base unit will display the firefighters name on a screen, LED lights will flash, an audio alarm will sound and a voice prompt will announce that a firefighters T-PASS3 has activated. When the Command Base Receiver activates due to an alarming T-PASS3 the Incident

Commander will request a personnel accountability report (PAR) of the specific firefighter as displayed on the Command Base screen. When the firefighter is located, T-PASS3 has been reset, then the Command Base Receiver can be cleared (Grace, 2010).

The Grace Industries T-PASS3 electronic accountability system was selected by the department's command staff. Very little evaluations of different electronic systems were done by the firefighters prior to the accountability system being purchased.

The Clinton Fire Department's Incident Accountability System standard operating procedure (SOP) was issued May, 2007 and has three different levels of accountability. Level I accountability is the minimum incident accountability and requires that every firefighter on the scene activate their personal T-PASS when arriving at the scene of the incident. This level also requires the firefighters to attach their personnel accountability tags (PAT) to the collector ring inside the vehicle they are responding in.

Level II accountability increases the accountability based on the Incident Commander (IC) need for stricter accountability for personnel operating at the emergency scene. At this level the IC may establish an accountability officer to help keep track of the firefighter's location during the emergency incident. All personnel accountability tags will be collected from the vehicles and brought to and maintained at the command post by the accountability officer.

Level III accountability is the highest level of accountability for the Clinton Fire Department. This level is activated when access to the scene must be controlled. Example of such an incident would be a multi-story structure or a major hazmat incident. When incident accountability is raised to a Level III the IC must implement a Point of

Entry control. The IC will designate an officer as “Entry Control” whose job will be to monitor all points of entry into the involved structure or hot zone. The Entry Control Officer will ensure that each member’s name, company number, duration of air supply, time of entry and assignment is recorded on an Entry Control Chart. When a firefighter exits the hot zone the Entry Control Officer shall record all the same information they recorded at the time of entry on the Entry Control Chart. The Entry Control Officer shall notify the Incident Commander any time there is an unaccounted firefighter.

This author has noticed over the last few years the continue lack of firefighters following the Clinton Fire Department’s SOP 201.04 Incident Accountability System. The company officers and staff officer are not following or enforcing the Incident Accountability System SOP 201.04. By members not following and enforcing the accountability SOP, firefighter’s lives could be at risk and liabilities may occur against the fire department.

This applied research project directly relates to the National Fire Academy Executive Development course by addressing organization culture and having the leadership to change it.

This applied research project correlates with the US Fire Administration 2012 goal #3: Improve the fire and emergency services’ capability for response to and recovery from all hazards.

Literature Review

The literature review was started by researching the requirements for a personnel accountability system. Literature review was done to determine why firefighters may not use an accountability system and why fire officers would not enforce the use of the accountability system. The research also looked at the availability of updated technology for an electronic accountability system.

National Fire Protection Association (NFPA) 1500 the Standard on Fire Department Occupational Safety and Health Program section 8.*4 Personnel Accountability During Emergency Operations* defines the responsibilities of the Clinton Fire Department and its members in regards to the accountability during an emergency. The section is broken down into 12 sub-sections that further define each member's responsibility in making the accountability system functional in their fire department. Four of these sub-sections fall directly on the reasonability of the firefighter:

8.4.3 It shall be the responsibility of all members operating at an emergency incident to actively participate in the personnel accountability system.

8.4.7 Where assigned as a company, members shall be responsible to remain under the supervision of their assigned company officer.

8.4.8 Members shall be responsible for following personnel accountability system procedures.

8.4.9 The personnel accountability system shall be used at all incidents.

Any break down of these responsibilities by firefighters will result in the failure of the accountability system (NFPA1500, 2007, p23).

NFPA 1500 section 8.4 *Personnel Accountability During Emergency Operations* further places responsibility on the company officers:

8.4.5 Officers assigned the responsibility for a specific tactical level management component at an incident shall directly supervise and account for the companies and/or crews operating in their specific area of responsibility.

8.4.6 Company officers shall maintain an ongoing awareness of the location and condition of all company members.

The company officer is a key component in an effective accountability system by making sure their crew is following the system (NFPA 1500, 2007, p. 23).

The chief officers play a major role in an effective accountability system. NFPA 1500 has six sub-sections that directly relate to the responsibilities of the fire department's chief officers:

8.4.1 The fire department shall establish written standard operating procedures for personnel accountability that is in accordance with NFPA 1561

8.4.2 The fire department shall consider local conditions and characteristics in establishing the requirements of the personnel accountability system.

8.4.4 The incident commander shall maintain an awareness of the location and function of all companies or crews operating in their specific area of responsibilities.

8.4.10 The fire department shall develop, implement, and utilize the system components required to make the personnel accountability system effective.

8.4.11 The standard operating procedures shall provide the use of additional accountability officers based on the size, complexity, or needs of the incident.

8.4.12 The incident commander and members who are assigned a supervisory responsibility for a tactical level management component that involves multiple companies or crews under their command shall have assigned a member(s) to facilitate the ongoing tracking and accountability of assigned companies and crews.

Several other NFPA standards address the need for an accountability system during emergency incidents (NFPA 1500, 2007, p. 23).

NFPA 1561 the standard on *Emergency Service Incident Management System* was issued in 1990 to support the requirements in NFPA 1500. In 1995, the standard was expanded to include the areas of incident accountability and the use of rapid intervention crews for the rescue of down or trapped firefighters (NFPA 1561, 2008, p. 1). NFPA 1561 section 4.5 thoroughly addresses resource accountability:

4.5.1 The emergency service organization ESO shall develop and routinely use a system to maintain accountability for all resources assigned to the incident with special emphasis on the accountability of personnel.

4.5.2 The system shall maintain accountability for the location and status condition of each organizational element at the scene of the incident.

4.5.3 The system shall include a specific means to identify and keep track of responders entering and leaving hazardous areas, especially where special protective equipment is required.

4.5.4 The system shall provide for the use of additional accountability personnel based on the size, complexity, or needs of the incident.

4.5.5 Responder accountability shall be maintained and communicated within the incident management system when responders in any configuration are relocated at an incident.

4.5.6 Supervisors shall maintain accountability of resources assigned within the supervisor's geographic or functional area of responsibility.

4.5.7 Supervisors assigned to specific geographic areas shall be located in areas that allow each supervisor to maintain accountability of his/her assigned resources.

4.5.8 Where assigned as a company/crew/unit, responders shall be responsible to remain under the supervision of their assigned company/crew/unit supervisor.

4.5.9 Responders shall be personally responsible for following the personnel accountability system.

4.5.10 Responders who arrive at an incident in or on marked apparatus shall be identified by a system that provides an accurate accounting of the responders on each apparatus.

4.5.11 Responders who arrive at the scene of the incident by means other than emergency response vehicles shall be identified by a system that accounts for their presence and their assignment at the scene.

4.5.12 The accountability system shall include an SOP for the evacuation of responders from an area where an imminent hazard condition is found to exist.

4.5.13 The SOP described in 4.5.12 shall indicate the method to be used to immediately notify all responders.

4.5.14 The system shall also provide a process for the rapid accounting of all responders at the incident scene.

The incident commander must realize that incident management includes more than fire ground operations, it also means to account for the whereabouts of all emergency responders on the scene (NFPA 1561, 2008, p. 1).

NFPA 1521 the *Standard for Fire Department Safety Officer* was first issued in 1977, but was revised in 1987 to coincide and support NFPA 1500 (NFPA 1521, 2008, p1). According to NFPA 1521 the safety officer has many responsibilities during an emergency incident including the use of the fire department's accountability system:

6.1.8 The incident safety officer shall ensure that the fire department's personnel accountability system is being utilized.

6.1.16 If the incident safety officer or an assistant safety officer needs to enter a hot zone or an environment that is immediately dangerous to life or health (IDLH), the incident safety officer or assistant safety officer shall be paired up with another member and check in with the entry control officer.

The fire department's safety officer is an essential part of any personnel accountability system (NFPA 1521, 2008, p. 10).

The Clinton Fire Department's Incident Accountability System SOP 201.04 clearly places the responsibility of compliance on the company officer by stating the following:

- The Company Officer shall be responsible for PASS policy compliance for all personnel riding on the apparatus.
- The Company Officer shall assure that each member has attached his/her PASS device to the anchor point.

If the company officer does not follow the policy or enforce the policy they put the safety of their crew at risk. Officers have a responsibility to say something when they see someone not following a policy. If they don't they are the one who are complacent (Marsar, 2012, para. 7).

Why doesn't the Clinton Fire Department use their current accountability system? NFPA 1500, 1521 and 1561 clearly defines the development, implementation and enforcement of an effective accountability system. One of the reasons for non-compliance is the lack of input from firefighters when the electronic system was purchased. When firefighters do not have input on the purchase of the accountability system they may choose not to use the system. Consensus-building is effective method of choosing an accountability system (Reilly, 2012, para. 5).

Complacency is another reason firefighters may not be activating their PASS devices prior to entering an IDLH atmosphere. There are several causes of compliancy in the workplace. A firefighter may feel overconfident in their abilities on the fire ground and do not feel the need to use this life saving device. Redundancy is anther cause of workplace injuries because when you do the same action so many times you do not think about it you become complacent (Wilson, 2010, para. 9).

The fire department's culture and complacency go together. If the lack of enforcing policies is the organizational culture firefighters will become complacent.

> Culture change is not as simple as a boss handing down policies. It's about mind-switch. It's about getting people motivated to buy into the message. It's about creating a culture that continually replenishes itself and moves forward through effective positive and negative reinforcement. You have to make it popular and fashionable to do the right thing, awarding good behavior and punishing bad behavior (Manning, *n.d.*, para. 16)

Grace Industries, Inc. has made several upgrades to their electronic accountability system since the Clinton Fire Department purchased the system in 2004. The new model is called the SuperPASS 3 that is NFPA 1982 2007 edition compliant. Each SuperPASS3 devices has an integrated repeater. When a firefighter's PASS unit activates the signal is repeated thru every PASS unit on scene until the signal reaches the command base unit (Grace, *n.d.*).

The Grace Command Base Unit has also been upgraded to the IN-COMMAND Automatic Personnel Monitor and Alarm system and replaces the older style command base unit. The system is easily deployed and incorporates the Watchdog Monitor and a laptop computer for a higher level of performance and safety. The system has touch screen capabilities and can monitor 3100 emergency responders at one time. The system stores important health information of every responder entered into the accountability system. The Incident Commander now has more information and control than previously available in one system (Grace, *n.d.*).

Another new product developed by Grace Industries, Inc. is the TPASS Telemetry Safety kit. The kit was designed for use by small fire departments. The kit continues to use the TPASS3 devices. The new feature is the SC500 Portable Incident Command Monitor that can be easily carried and monitored by the incident commander. The features of the unit is the small display screen that will show the firefighter's name who activated their TPASS3 or can send an evacuation alarm to firefighters working in a hazardous area. The safety kit also contains a Portable Incident Alarm (PIA) that can be placed anywhere on the fire ground. The Portable Incident Alarm monitors all the TPASS3s on the emergency scene for alarms. If a PASS unit is activated the PIA sounds a loud siren and a bright flashing light to alert everyone on the fire ground of an activation (Grace, 2010).

The extensive literature review found three NFPA standards that directly impact the fire department's accountability system. The standards clearly state every role of the members of the fire department in order to have a strong accountability system. Several articles addressed firefighter complacency and how it impacts firefighter safety on the fire grounds. The culture within the organization has an impact if rules are followed by firefighters and enforce by the officers. Firefighters are more willing use an accountability system that they help established. The literature review helped developed the survey questions asked to the members of the Clinton Fire Department.

Procedures

The research method used to gather data for this applied research project was a descriptive method. Surveys were given to members of the Clinton Fire Department. A different survey was given to each rank in the department. An interview was also conducted with a fire chief with a similar electronic accountability system.

The first research question asked why doesn't the Clinton Fire Department's firefighters use the current electronic accountability system was researched by surveying the firefighters. The firefighters were told the survey was being conduct for this applied research project. The survey was completed anonymously by the firefighters and 25 of a possible 30 surveys were returned. The survey is included in Appendix A.

The second research question asked why doesn't the Clinton Fire Department's officers enforce the use of electronic accountability system was researched by surveying the officers. The officers were told the survey was being conduct for this applied research project. The survey was completed anonymously by the officers and 11 of a possible 13 surveys were returned. The survey is included in appendix B and C.

The final research question asked how other fire departments use or have used an electronic accountability system. An interview was conducted with Fire Chief David Schutte of the Camanche, Iowa Fire Department. The Camanche Fire Department has the same electronic accountability system as the Clinton Fire Department. The department has three career members and 23 volunteer members. The interview is included in appendix D.

Results

The survey used for the first research question asked why the Clinton Fire Department's firefighters don't use the current accountability system found the following results. The survey revealed that 23/25 or 92 percent received training on the Grace T-PASS when it was issued to them. It also revealed that only 8/25 or 32 percent of the firefighters have received training on the Grace T-PASS system in the past 12 months. The firefighter's survey showed that 14/25 or 56 percent of the firefighters received training on the Clinton Fire Department's accountability SOP in the last year.

The survey's finding shows that 12/25 or 48 percent of surveyed firefighters do not turn on their T-PASS prior to entering immediately dangerous to life or health atmosphere. When asked why they didn't activate their T-PASS device the following comments were written:

- Forgot and not instructed by command staff prior to entering.
- That task takes a "back seat" to mission accomplishment: whether right or wrong.
- I probably activate it 1/3 of the time going into an IDLH atmosphere. There does not seem to be consistency between shifts monitoring the main board and it seems like an extra step to do after putting on SCBA, grabbing forcible entry tools, flashlights and hose. We have an alarm on our MSA SCBAs if we get in trouble or no motion. I think the Grace Command base unit works nice for letting you know who it is, but that seems to be the main advantage. If we used it consistently and didn't also have the tag accountability system it would seem less redundant. It also

activates easily when working with overhaul and extinguishment, this can be frustrating.

- Do not think about it. Was never made part of my routine.
- I feel like the T-PASS system isn't being used adequately enough to take time to activate it.
- Happens most of the time, however it occasionally forgotten about in the "heat of the moment"
- Battery in the T-PASS unit was dead. The base station was not in used.
- The base station was not turned on and used during the incident.
- Depends on the size of the situation.
- Don't think of it. I use the PASS device on the SCBA
- No one else does, I follow the lead of superiors.
- Never think to do it. The Grace T-PASS command base unit was not set out on the call.

When asked how often the firefighter tested their T-PASS device the following results were given:

_9___ Prior to the start of each shift

_3___ Prior to the start of the work cycle

_7___ Monthly

_5___ Quarterly

_1___ Six months

The second research question asked why the Clinton Fire Department's officers are not enforcing the use of the electronic accountability system. A survey was

conducted of all the available Company Officers and Battalion Chiefs. The company officer's survey revealed the following results. All eight of the company officers stated they received training of the Grace T-PASS system when they were issued the unit. The survey revealed that no company officer received training on the Grace T-PASS system in the last year. When asked if they received training on the Clinton Fire Department accountability SOP in the last year 3/8 or 38 percent of the company officers responded they had not received any training.

The survey showed that only 1 out of 8 or 12 percent of the company officers activate their T-PASS prior to entering an IDLH atmosphere. When asked why they don't activate their T-PASS the following comments were given:

- I don't think about it.
- Sometimes I forget, to many things to remember.
- Trying to make it a habit every time. Getting better at remembering.
- I forget is the only reason. I haven't seen the Grace Command unit out in years.
- We don't seem to pull the system out and use it on fire calls.
- The personal device is mostly turned on, but the command board is not readily used. Not a good enough reason. Probably because of staffing not available to watch the command unit.
- The system is not commonly used as it should be, so the T-PASS devices are not used.
- Should always activate it. Have caught myself in a hurry and forgetting.

Question 8 of the survey asked the company officers if they make sure members of their company activate their T-PASS prior to entering an IDLH atmosphere. None of the

company officers made sure their crews activated their T-PASS unit prior to making entry into the IDLH atmosphere. When asked why they didn't make sure their crew activated their T-PASS the following responses were given:

- Should always make sure it is activated. Have caught myself in a hurry and forgot.
- Too much attention to the scene and probably not enough to the check others (tunnel vision).
- Because we are not using the system on all fire calls.
- I forget, the command base unit is not out and command never brings up the issue.
- Trying to make it a habit every time.
- Too many things to remember.
- I don't think about it.
- The system is not commonly used as it should be, so the T-PASS is not used.

The Clinton Fire Department's Battalion Chiefs were also surveyed to help determine why the Clinton Fire Department officers were not enforcing the use of the electronic accountability system. All three battalion chiefs stated they have reviewed the department's accountability SOP in the last year. One of the three battalion chiefs stated they have not reviewed the accountability SOP with their shift in the last year.

The battalion chiefs were asked if they made sure the Grace T-PASS system was activated prior to firefighters entering an IDLH atmosphere. Two of the three stated they did not make sure they were activated. They gave the following reasons:

- The department's policy is for everyone to activate their T-PASS and the company officers responsibility to ensure it is followed.
- The command base unit never comes out of the command vehicle; we continue to use our integrated PASS device.

Two of the three battalion chiefs make sure all members of their shift follows the accountability policy when working in an IDLH atmosphere. All three battalion chiefs stated they assign an accountability officer at every incident.

The third research question asked how other fire departments with an electronic accountability system implemented them into their department. An interview was conducted with Fire Chief David Schutte of the Camanche Fire Department. The Camanche Fire Department is a combination fire department with three career firefighters and 23 volunteers. They provide protection for 4,400 residents. The Camanche Fire Department has the same Grace T-PASS unit as the Clinton Fire Department. They have a written standard operation procedure (SOP) for their accountability system. They review the SOP annual with all members.

When Chief Schutte was asked if he made sure all members of his department follow the accountability SOP when they worked in an IDLH atmosphere he replied "no". Chief Schutte stated "In smaller and shorter duration incidents sometimes the T-PASS units are not activated and the command base unit is not brought out. It is used more consistently during large scale events". Chief Schutte does not assign an accountability officer on every incident. He rates the electronic accountability system as "excellent" when used during an emergency incident. Camanche Fire Department uses a

TAG accountability system along with the electronic system to maximize safety (personal communication, January 7, 2014).

Discussion

The applied research project started with the problem of the Clinton Fire Department not utilizing their electronic accountability system when entering an immediately dangerous to life and health atmosphere. While doing the literature review it was determine that NFPA 1500, 1561 and 1521 standards recommended that fire departments account for the location of all firefighters on the emergency scene. The Clinton Fire Department has an accountability standard operating procedure that matches the requirements of NFPA 1500, 1561 and 1521.

Firefighters are required to participate in their department's accountability system (NFPA1500, 2007, p. 23). The Clinton Fire Department's accountability SOP requires that firefighters activate their T-PASS unit at every incident. The survey found that only 52 percent of the firefighters turn on their T-PASS prior to entering an IDLH atmosphere. Firefighters may not activate their T-PASS because they become complacent.

Firefighters may not be thinking of all the safety steps needed to be completed prior to entering an IDLH atmosphere. Many things are going on during an emergency call that the firefighter may become distracted and not activate their T-PASS. Complacency can also be defined as relying on your memory to activate a life saving device. Such an important task should have something in the line of sight to remind them to activate their safety device (Wilson, 2010, para. 11).

Training is another area of concern found by the firefighter's survey. Only 32 percent of the firefighters have been trained on the Grace T-PASS system in the last year.

Fifty-six percent of the firefighters have been trained on the Clinton Fire Department accountability SOP in the last year. Training is an important part of any accountability system, not just classroom. Firefighters, company officers and battalion chiefs need to train with the accountability system in a simulated emergency to become efficient in the operation and procedures (Reilly, 2012, para. 9).

The company officer's survey revealed that none of the officers made sure that the firefighters assigned to their crew activated their T-PASS device prior to entering an IDLH atmosphere. Only one company officer activated their T-PASS device prior to entering an IDLH atmosphere. The Clinton Fire Department's accountability SOP states that the company officers are responsible for policy compliance by their crew and their crew activate their T-PASS devices at all incidents. The fire department can have well written SOP, they can have accountability system training, but if they don't enforce the use of the system on every call it will be for naught (Reilly, 2012, para. 10).

NFPA 1561 Standard on *Emergency Services Incident Management System* requires that an accountability system be in place at every incident. All members' location and status be monitored, especially where special protective equipment is required (2008, p. 7). Two of the three battalion chief's surveyed indicated they did not make sure the Grace T-PASS system was used at every incident. Chief Schutte of the Camanche Fire department stated his department did not use the Grace T-PASS system during every incident.

The author believes many factors lead to the Clinton Fire Department not using the Grace T-PASS system. The fire department's accountability SOP needs to be updated

to make sure it still meets the department's operations. The lack of real life training with the system has caused members to believe the incident accountability is not important.

Every member of the department has appeared to become complacent with the system. Every member of the department needs to be held accountable for their role in a successful accountability system. The fire department has not kept up with the technology implemented by Grace Industries, Inc. to make the T-PASS system more effective for smaller departments.

Recommendation

The recommendation for the Clinton Fire Department to better utilize their electronic accountability system when firefighters enter an IDLH atmosphere is to develop a committee to review the accountability system. The committee should consist of members from all ranks of the department to help get consensus on the best revisions of the system. The committee should look at the following issues:

- Technology changes to the Grace T-PASS system
- Updated standard operations procedures to make sure they meet the current department's operations
- Training on the accountability SOP
- Training on the NFPA standards 1500, 1521, 1561
- Real life training on the electronic accountability system
- Put a system in place for the enforcement of the SOP and the use of the Grace T-PASS system

The implementation of these recommendations by the Clinton Fire Department will improve the electronic accountability system. The firefighter will be able to operate

safer when entering an IDLH atmosphere. The recommendations will help the fire department be more compliant with the NFPA standards.

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Appendix A

Clinton Firefighter's Personal Accountability System Survey

1. Have you received training on the CFD firefighter's accountability standard operation policy during your probationary training?

   Yes_____ No_____

2. Have you received training on the CFD firefighter's accountability standard operation policy in the last year?

   Yes_____ No_____

3. Have you been issued a Grace-T PASS device by the Clinton Fire Department?

   Yes_____ No_____

4. Did you receive training on the Grace-T Pass system when you first were issued the Grace-T PASS?

   Yes_____ No_____

5. Have you received training on the Grace-T PASS in the last 12 months?

   Yes_____ No_____

6. Do you activate your assigned Grace-T PASS device prior to entering an immediate dangerous to life and health atmosphere (IDLH)?

   Yes_____ No_____

7. If you answered no to question #6, why don't you activate your PASS device prior to entering an IDLH atmosphere?

   _____

   _____

   _____

   _____

8. How often do you test your Grace-T Pass device?

   ____ Prior to the start of each shift

   ____ Prior to the start of the work cycle

   ____ Monthly

   ____ Quarterly

   ____ Six Months

   ____ Annually

   ____ Only during incidents

9. Please add any additional comments about activating your PASS device prior to entering an IDLH atmosphere or the Clinton Fir Department's accountability policy.

   _____

   _____

   _____

   _____

Appendix B

Clinton Fire Department's Company Officers Personal Accountability System Survey

1. Have you received training on the CFD firefighter's accountability standard operation policy during your probationary training?

   Yes_____ No_____

2. Have you received training on the CFD firefighter's accountability standard operation policy in the last year?

   Yes_____ No_____

3. Have you been issued a Grace-T PASS by the Clinton Fire Department?

   Yes_____ No_____

4. Did you receive training on the Grace-T Pass system when you first were issued the Grace-T PASS?

   Yes_____ No_____

5. Have you received training on the Grace-T PASS in the last 12 months?

   Yes_____ No_____

6. Do you always activate your assigned Grace-T PASS device prior to entering an immediate dangerous to life and health atmosphere (IDLH)?

   Yes_____ No_____

7. If you answered no to question #6, why don't you activate your PASS device prior to entering an IDLH atmosphere?

   _____

   _____

8. Do you make sure your company members activate their PASS devise prior to entering an IDLH atmosphere?

   Yes_____ No_____

9. If you answered no to question #8, why don't you make sure your company members activate their PASS devices prior to entering an IDLH atmosphere?

   _____

   _____

   _____

10. How often do you test your Grace-T Pass device?

____ Prior to the start of each shift

____ Monthly

____ Quarterly

____ Six Months

____ Annually

____ Only during incidents

11. Please add any additional comments about activating your PASS device prior to entering an IDLH atmosphere or the Clinton Fire Department's accountability policy.

   _____

   _____

   _____

Appendix C

Clinton Fire Department's Battalion Chief's Personal Accountability System Survey

1. Have you reviewed the CFD firefighter's accountability standard operation policy in the last year?

   Yes_____ No_____

2. Has your shift received training on the CFD firefighter's accountability standard operation policy in the last year?

   Yes_____ No_____

   Comments:_____

   _____

   _____

   _____

3. Do you always make sure the Grace-T PASS system is activated when firefighters are entering an immediate dangerous to life and health atmosphere (IDLH)?

   Yes_____ No_____

4. If you answered no to question #3, why don't you make sure the Grace-T PASS system activated prior to firefighters entering an IDLH atmosphere?

   _____

   _____

   _____

5. Do you make sure all members of your shift follow the CFD accountability policy when working in an IDLH atmosphere?

   Yes_____ No_____

6. If you answered no to question #5, why don't you make sure all members of your shift follow the CFD accountability policy when working in an IDLH atmosphere?

   _____

   _____

   _____

7. Do you assign an accountability officer at every incident?

   _____ Yes ____ No

8. Please add any additional comments about operating the Grace-T PASS system prior to allowing firefighters to enter an IDLH atmosphere or the Clinton Fire Department's accountability policy.

   _____

   _____

   _____

Appendix D

Personal Accountability System Interview

Name and rank of person being interviewed: Chief David Schutte Camanche Fire Department Camanche, Iowa

What is the type of fire department does Camanche have: Combination

Number of members: 3 Career and 23 volunteers

What is the population of the community the fire department protects? 4,400

1. Does your fire department have an electronic accountability system? Yes

2. What type of electronic accountability system does your department have?

   A Grace T-PASS3 electronic accountability system

3. Does your department have a written Sop/SOG on the operation of the electronic accountability system?

   Yes

4. How often does your department review the written SOP/SOG on the operation of the electronic accountability system

   We review are accountability SOP yearly.

5. Do you make sure all members of your department follow the SOP/SOG accountability policy when working in an IDLH atmosphere?

   No, In smaller and shorter duration incidents sometimes the T-PASS units are not activated and the command base unit is not brought out. It is used more consistently during large scale events.

6. Do you assign an accountability officer at every incident?

   No, I assign an accountability officer at larger incident.

7. How would you rate your electronic accountability system on it operations during an emergency incident:

   Excellent, it works well tracking firefighters.

8. Are there any other additional comments about operating the electronic accountability system?

   The electronic system is used with a manual tag system to maximize safety.

Appendix E

201.04 Incident Accountability System

CLINTON FIRE DEPARTMENT
Standard Operating Guidelines

TITLE: Incident Accountability System	**SECTION/TOPIC: General Incident Response**
NUMBER: 201.04	**ISSUE DATE: May 15, 2007**
	REVISED DATE:
PREPARED BY: X _____ Preparer	**APPROVED BY:** X _____ Approver
These SOPs/SOGs are based on FEMA guidelines FA-197	

1.0 POLICY REFERENCE

CFD/City	CFD SOG 201.01 Box Alarm Assignments CFD SOG 200.01 Command Procedures
NFPA	
NIMS	IS-100; IS-200; IS-300

2.0 PURPOSE

The purpose is to establish uniform procedures to account for personnel at the scene of emergency incidents.

The Personnel Accountability System gives Incident Commanders a fast, effective, and efficient means to account for all fire rescue personnel at any point during an incident. In order to ensure the effectiveness of this system and the subsequent safety of all personnel, accountability procedures will be strictly adhered to at all times.

3.0 SCOPE

This SOG pertains to all personnel in this organization. It will be the responsibility for all members and chain of command officers to maintain a working knowledge of the Personnel Accountability System.

4.0 DEFINITIONS

These definitions are pertinent to this SOG.

5.0 PROCEDURES/GUIDELINES & INFORMATION

Guidelines:

The Grace Personnel Accountability Safety System (PASS)

Every member of the CFD will be issued a Grace Accountability/PASS Device that will be programmed with his/her name.

The PASS Device will consist of a GRACE Systems PASS module, a ring/snap fastener with a personal activation key and lanyard with snap hook.

PASS Activation Key and lanyard.

Each PASS Device shall be equipped with a PASS Activation Key and Lanyard.

The Pass Activation Key and lanyard will "clip" onto each PASS device to place the unit in an "off" mode.

The Pass Activation Key and lanyard shall be attached to each PASS device while not activated for use at an incident scene. Upon activation of the PASS device the Activation Key and lanyard will remain affixed to an anchor hook or selected location within each apparatus.

Apparatus

A fixed-point attaching device shall be fastened to each unit and the PASS device's Activation Key Lanyard clip secured to that fixed point. Upon exiting the apparatus, the anchored lanyard will cause the attached Activation Key to pull-free of the PASS device, thereby, turning the unit "on."

Each member shall keep their assigned PASS Device in their assigned locker when not on duty or assigned to a unit or, if maintained in employees' personal possession, with his/her protective gear when not on duty or assigned to a unit.

Each member shall monitor the battery status of their assigned PASS Device to ensure their unit has an adequate charge to fulfill its designed function.

Each member shall ensure that their PASS Device is present and placed in appropriate location to facilitate activation upon exiting apparatus.

Any member reporting for duty without their assigned PASS Device is required to immediately notify his/her immediate supervisor. All Devices are uniquely programmed to each user and are not interchangeable

Any loss, damage, or destruction of an employee's PASS Device shall be immediately reported to their immediate supervisor and on-duty District Chiefs for replacement and accountability.

Spare (loaner) units are available through the District Chief and must be reprogrammed into all Command Base modules.

At the discretion of the Battalion Chief; a "Spare" PASS Device may be temporarily assigned to an individual with immediate notification made to all personnel that the employee's name is assigned as "Spare".

Personnel Accountability Tag (PAT)

Every member of the CFD will be initially issued a PAT that will be printed with his/her name and be color coded by rank.

Black	Firefighters
Black	Driver-Operators
Yellow	Lieutenants
White	Battalion Chiefs and above

IMPLEMENTATION

Level I Accountability:

Level I Accountability is the normal day-to-day operations of the Clinton Fire Department.

PASS Devices:

Each member shall attach his/her PASS Device to their bunker gear with the Activation Key lanyard.

The Company Officer shall be responsible for PASS Policy compliance for all personnel riding on the apparatus.

The Company Officer shall assure that each member has attached his/her PASS device to the anchor point.

Post arrival at the scene of an incident, the Driver-Operator shall ensure that prior to closing apparatus doors; all Activation Keys and lanyards are free of impingement.

Administrative staff personnel, command officers, and any additional personnel arriving via private vehicle(s) shall report to the command post having immediately activated their PASS units upon leaving vehicle.

Each member shall ensure upon exiting fire apparatus and/or Rehab that their PASS Device is "on" and the indicator LED lights are flashing.

PAT System:

Each member shall attach his/her PAT to the unit collector ring on his/her assigned apparatus at the beginning of the shift. If a member is reassigned to another unit during the shift, he/she shall attach his/her PAT to that unit.

The Company Officer shall be responsible for accounting for all personnel riding on the apparatus including students or riders.

Spare color coded PAT's will be maintained on each apparatus to facilitate accountability for Students, Riders, or to make a temporary replacement PAT for department personnel.

The Company Officer shall assure that each member, student, or rider has attached his/her PAT to the unit collector ring at the beginning of each shift.

The Company Officer shall collect all PATs on the collector ring and place the ring on the fixed point located in the cab of the apparatus.

At the order of the Incident Commander, the Company Officer will bring or have brought to the command post the collector ring once set-up is complete.

On mutual aid calls, CFD Company Officers will assure that their collector rings are delivered to the Incident Command/Accountability of the jurisdiction that you are aiding.

Administrative staff personnel, command officers, and any additional personnel arriving via private vehicle(s) shall report to the command post to have their PATs collected. Personnel arriving prior to the command post being established may leave their PAT at the unit that has assumed command (IC) and is already on the scene until the command post has been set up for placement on the Command Assignment Board.

It shall be the responsibility of each member to ensure that his or her PAT is removed from the collector ring at the completion of the shift/incident.

Level II Accountability:

Level II Accountability is used when the Incident Commander has the need for a stricter accountability for personnel operating on a scene. For example, a multi-alarm fire, Haz Mat incident, or confined space rescue. These incidents are typified by the factors of multiple companies, long duration, and multiple tasks being performed.

At any time during the course of an incident, the Incident Commander (IC) has the option of directing units to account for the personnel operating with that company by calling for a Personnel Accountability Report (PAR). The IC shall announce a PAR check by either calling for a PAR of a single unit or for all units assigned to an incident. The IC shall call for a PAR check at benchmarks (all clear, under control, loss stopped), changes in conditions (offensive to defensive, flashover, collapse) or no more than thirty-minute (30) intervals during a working incident.

Company Officers shall immediately respond to a PAR check by either visually accounting for each member of their crew and reporting to the IC their unit number and PAR; or by reporting their unit number and PAR – "except for member's name" who is assigned to another unit, located at the pump panel, or missing.

PASS Devices and PAT System:

At the order of the Incident Commander, all collector rings that have not been collected already (staged, special call), will be brought to and maintained at the command post.

All Students or Riders will be instructed to proceed to the Command Post for accountability.

The collector rings will be organized at the command post by utilizing an Accountability Control Chart and the Command Assignment Board.

Company Officers shall ensure that all personnel assigned to their unit are accounted for prior to leaving the incident scene.

Each Driver-Operator shall ensure that the Activator Keys and Lanyards are not in danger of being crushed by closing apparatus doors while on scene or before leaving the incident.

Each Driver-Operator shall ensure that the collector ring is returned to his/her unit at the completion of the incident or before leaving the incident scene.

Level III Accountability:

Level III Accountability is used when access to the scene must be controlled. For example, a large multi-story structures fire or a level III HAZMAT incident.

When the Incident Commander determines that the incident requires more stringent accountability, he/she will implement Point of Entry control. A "time benchmark" will be set for the amount of time to be spent in the hazard area (should include time for entry, work, and exit).

To implement Point of Entry control, the designated officer(s) will monitor all points of entry into the structure, confined space, or areas involved. These individuals will be referred to as "Entry Control." Entry Control will ensure that each member's name, company number, duration of air supply, time of entry, and assignment is recorded on an Entry Control Chart. The time benchmark shall be recorded on this chart.

Entry Control shall ensure that members are relieved as appropriate.

As members exit a control point, the time of exit shall be recorded. Members who must exit at a point remote from the control point shall inform Entry Control personnel of their exit from the building.

Entry Control shall inform the Incident Commander that search and rescue operations are needed for unaccounted personnel.

Firefighter Personal Emergency Alarm Signaling

While the PASS Device is in the "on" mode, the Firefighter may transmit a personal distress or alarm signal to the Incident Commander by manually pressing the alarm button on the front of the PASS Device. When in ALARM, the yellow wig-wag display is replaced by a rapid pulsing of two red LED's accompanied by a rapid modulated loud audio "Alarm Signal" and an electronic radio transmission is sent to the Command Base Receiver. This signal alerts the Incident Commander that a specific Firefighter is in need of assistance.

Upon receipt of an ALERT Signal, the Incident Commander shall immediately initiate a PAR Check of the specific Firefighter as displayed on the Command Base Screen.

The Command Base Screen may be cleared of transmitted ALARM signals by pressing "key 1, then key C and then key C again."

Command Evacuation Signaling

A building evacuation (or an evacuation of any incident location) may be ordered by the Incident Commander or by the Safety Officer.

A building evacuation may be ordered to immediately remove all fire rescue personnel from a hazardous area. Examples of hazardous conditions would include exposure to extremely toxic fumes, a possible explosion, or deteriorating building conditions, which suggest an imminent collapse.

When the decision to evacuate personnel is made the Incident Commander or the Safety Officer shall do the following:

Notify dispatch of the order (by radio)

Utilize the GRACE Command Module to generate electronic PASS Device evacuation notification to all or appropriate personnel.

Notify all personnel of the order (by radio or face to face).
Designate a person to sound the air horn and make the announcement.
Designate at least one company to serve as a rescue team.

Radio Dispatch

When the order to evacuate a building is given, there are two sets of actions to be taken simultaneously. They are:

The dispatcher shall be notified of the decision to evacuate the Building.

Example: "Dispatch, 25th Street Command, Inform all personnel to evacuate this Building."

The dispatcher shall sound Tone 2 (an electronic warble sound) and announce the evacuation.

Example: Tone 2—"All personnel at 800 25th Street- 25th Command has ordered an evacuation of the building." (Repeat tone and announcement.) The tone and order shall be broadcast on all Tactical channels to ensure that any personnel on an incorrect channel will hear the order.

The address must be included so that the dispatcher does not inadvertently evacuate a different fire location.

On-scene Apparatus Air Horn

An apparatus air horn shall be sounded with three (3) short blasts, one (1) pause, and three (3) short blasts. The cycle of 3:1:3 will continue until advised by Command to cease.

Grace Command Module

The Evacuation function may be activated by the Incident Commander from the Command Base Module at any time. When the Evacuation signal is received by the FF's PASS Device, both amber LEDs flash rapidly and is accompanied with a loud chirping audio alarm tone. The Evacuation alarm tone is easily differentiated from other audio tones with minimal training.

To facilitate an "Evacuate All" order, the Incident Commander will access the Evacuation Screen by pressing the "red #2" button

Evacuate all by pressing the "red star" button

Individual members may be electronically prompted to evacuate by pressing "red key #9" and selecting desired member.

When the Evacuation alarm signal is received by the FF's PASS Device, it automatically sends an electronic acknowledgment that the signal was received by the PASS Device.

The Firefighter will then immediately evacuate the area. The Firefighter must manually acknowledge receipt of the Evacuation signal by momentarily pressing both PASS Device side buttons when the firefighter is clear of the area. This manual acknowledgement will cause the flashing LED's and loud chirping audio tones to cease.

An estimate of the time required for specific Company or member's "Evacuation" must be determined and their progress monitored to ensure the structure has been cleared.

Post Evacuation of all personnel, the Incident Commander will complete a Personnel Accountability Report (PAR) Check/Assessment.

To "Clear" all PASS Device ID's from Evacuation Screen upon completion of PAR Check, the Incident Commander may press the "red OPER or 0 key."

When a building evacuation is ordered all fire rescue personnel shall immediately leave the building or indicated location and move to a safe area. "Immediately leave" means that personnel shall stop what they are doing, unless performing a rescue, rapidly exit the building, and leave equipment that cannot be carried out without impeding rapid exit.

Immediately following an evacuation, each company officer shall account for his/her personnel and shall report, in person, to their division leader, their group leader, or to the Command Post. All division and group leaders shall then report the status of all companies under their command to the Incident Commander. This accounting of personnel shall be the first and only action of officers until all personnel are accounted for.

At least one additional company shall be immediately assigned by the Incident Commander to assemble near the Command Post or appropriate specified location to serve as a rapid intervention team.

The Incident Commander (or his/her designee) shall conduct a written roll call following a building evacuation order.

All on-scene agencies or individuals associated with the response (such as Utilities, LEA, Red Cross, Media, Riders, or requested Specialists) shall be accounted for in the evacuation and written roll call.

Rehabilitation Procedures

The Incident Command may elect to establish a Rehab area for responders.

Upon reporting for Rehab, Firefighters will confirm with Incident Command their arrival at Rehab. Post confirmation from Command, Firefighters will doff their SCBA and affix the Grace PASS Device to the Rehab's Accountability Lanyard and Key, then turn PASS Device to "off" position.

Prior to reporting for next assignment post completion of Rehab, Firefighters will disconnect PASS Device's Accountability Lanyard and Key from the Rehab and ensure PASS Device is in the "on" function. Each Company Officer will announce "PASS ON" as an audible safety check prior to re-engaging in incident operations.

Use of Repeaters

Repeaters for enhanced signal processing in large structures may be assigned.

The location of Repeater placement will be identified through pre-incident planning. The determination of locations for repeater placement will be a recognized component of pre-planning efforts.

Each unit assigned a repeater shall be responsible for the retrieval of their Repeater Device post deployment.

The use of Repeaters may be requested through Incident Command System to address PASS Device reception difficulties.

Firefighter Compliance

The PASS Device shall be considered an issued item of personal protective equipment.

All members will secure their PASS Device in their provided locker or secured in their personal control when not on duty. Staff personnel assigned vehicles may secure their PASS Device units with other assigned PPE in their vehicle.

If a PASS Device is non-functioning, a replacement shall be obtained as soon as possible from the Battalion Chief.

The Sharing or borrowing of a PASS Device is prohibited as each device is specifically programmed to reflect a specific individual.

Each member's PASS Device shall be inspected upon reporting for each duty shift at a minimum and when the member's personal protective clothing is inspected.

Any deficiencies will be reported to the immediate Supervisor, the Battalion Chief shall be contacted to facilitate replacement or resolution of deficiency.

Members shall ensure their devices are equipped with a battery with sufficient charge through inspection prior to reporting for duty each shift. Replacement batteries may obtained through supply.