FROM HEAD TO TOE: ENCOURAGING PUERTO RICAN FIREFIGHTERS TO WEAR THE PERSONAL PROTECTIVE EQUIPMENT

EXECUTIVE LEADERSHIP

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CERTIFICATION STATEMENT

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

Signed: ____________________________
Carmen Rodríguez Díaz
Abstract

The problem was that not all the Puerto Rican Fire Fighters (PRFF) wear the complete personal protective equipment (PPE) during the emergency response (ER), thus putting their occupational safety and health (OSH) at risk.

The purpose of this applied research project (ARP) was to identify what reasons the PRFF have for not wearing the complete PPE during the ER, and to develop strategies to increase the use of this protective equipment.

The descriptive method was employed to (a) determine if the PRFF do know what a complete PPE is, (b) identify the incidents and what reasons the PRFF have for not wearing the complete PPE, (c) determine what training do the PRFF receive in wearing the PPE, and (d) research what other fire departments (FDs) do to increase the use of PPE.

The procedures were (1) a survey among 638 PRFF, (2) evaluation of the National Fire Protection Association (NFPA) 1500 Code, (4) review of PPE research projects, policies, magazines, publications and (5) personal communications with experts in that matter.

The results revealed that 85.4% of the firefighters (FFs) know what is a complete PPE and 57% answered that they always use it. Twenty percent (20%) of the FFs said that the PPE components that they less like to wear are the gloves, the cape and the new structural boots (Figure 1), especially in grass fires, car accidents and rescues. Mobility limitations, heat stress and fixing problems, were the most frequent reasons for not wearing the PPE (Figure 2). Fifty two percent (52%) of the FFs received PPE basic training only and the PRFD does not have a continuous PPE training program.
The recommendations were (1) education, (2) a written PPE policy, (3) listen to the FFs opinions, (4) discipline, and (5) the leaders example.
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Introduction

The PPE is the protection from head to toe for FFs against injuries, illnesses or death in hazardous environments. The complex and unexpected hazards, in which the FFs are exposed, require an adequate and complete PPE.

The problem is that not all the PRFF wear their complete PPE during emergency incidents, thus putting their OSH at risk.

The purpose of this ARP is to identify what reasons the PRFF have for not wearing the complete PPE during emergency responses, and to develop strategies that will help increase its use.

A descriptive research method is employed in this ARP to answer the following questions:

1. Do the PRFF know what a complete PPE ensemble is?
2. At what type of incidents and what reasons do the PRFF give for not wearing their complete PPE?
3. What training do the PRFF presently receive in the use of the PPE?
4. What are other FDs doing to increase the use of PPE?
Background and Significance

Over the past 20 years, as Press and Public Information Director, I have dealt with countless fires and emergencies. I have seen FFs sustaining injuries, or smoke inhalation because they were not wearing their complete PPE. During the last 10 years, I lost three FFs friends on the line of duty. One FF died after a ladder truck accident on the way to a fire. The second FF died after smoke inhalation in a grass fire and, for this, he got a heart attack. The third FF died when a car driven by a drunk driver in front of the fire scene hit him.

The fatalities and injuries can be prevented or reduced if the basic health, safety and PPE policies are followed. There are always FFs who take dangerous health and safety risks in their jobs by not wearing the PPE from head to toe.

The PPE “shall be used whenever the member is exposed or potentially exposed to the hazards for which it is provided” (NFPA, 1997, [1500-5-1.2]). The FD “shall provide each member with the appropriate protective clothing and protective equipment to protect the FFs from the hazards to which the member is or is likely to be exposed” (NFPA, 1997, [1500-13]). The FD “has the responsibility to provide the PPE, but also the responsibility to train the FF in the care, use, inspection, maintenance, and limitations of the protective clothing and protective equipment assigned to them or available for their use” (NFPA, 1997, 5-1.3).

The reasons why the PRFF risk their health and safety by not wearing the PPE need to be identified in order to solve the problem and decrease this dangerous conduct.
The FFs lives that can be saved and the injuries that could be avoided by doing this ARP motivate and justify this study. The PRFD leaders must be involved and committed to solve this problem.

The problem presented in this ARP is related with the National Fire Academy (NFA), Executive Fire Officer’s Program (EFOP), Executive Leadership Course.

My ARP supports the United States Fire Administration (USFA) operational objective to reduce the loss of life of FF from fire (NFA, 2003).

Literature Review

The National Fallen Firefighters Foundation (NFFF) and the USFA announced on April 2004 a release of the Firefighter Life Safety Summit Initial Report detailing initiatives and recommendations for drastically reducing FFs fatalities and injuries (Appendix A). Among other recommendations, the NFFF suggest that, the FD must empower FFs to stop unsafe practices and make safety a primary consideration in the design of apparatus and equipment (USFA, NFFF, 2004).

The Occupational Safety and Health Administration (OSHA) mentioned in their OSHA Fact Sheet 2002 the meaning of PPE, our responsibilities as an employer, and how the PPE can protect the workers from head, foot, leg, eye, face and hand injuries, hearing loss, and respiratory injuries (OSHA, 2002).

The term PPE refers to clothing and respiratory apparatus designed to shield an individual from chemical, biological, and physical hazards (Chemical and Biological Terrorism, 2004). The National Institute for Occupational Safety
and Health (NIOSH) describes general levels of protection for chemical and biological agents: Level A provides maximal protection against vapors and liquids. Level B is required when full respiratory protection is required and danger to the skin from vapor is less. Level C utilized a splash suit along with a full-faced positive negative pressure respirator (a filter-type gas mask) rather than an SCBA or airline. Level D is limited to coveralls or other work clothes, boots, gloves (Chemical and Biological, 2004, ch.3, p.1).

The New Jersey Department of Health and Senior Services wrote in their Standards for Firefighting that, the employer should provide, and assure the use of protective clothing (New Jersey Standards, 2004). Also, the employer shall assure that protective clothing protects the head, body and extremities, and consists of at least body protection, eye, face and head protection (New Jersey Standards…2004, [sub ch.10]).

The PPE is necessary and “fire departments are responsible for the health and safety of their employees under state and federal law” (Hall, 1999, p.21). Hall said that it is the duty of FDs leaders to provide for the health and safety of their FFs (Hall, 1999, p. 21). However, said Hall, many legally mandated requirements incorporate specific NFPA standards and the chief officer would do well to bear in mind that even voluntary standards are frequently used in courts of law when considering fire service cases (Hall, p. 22).

There are disciplinary procedures for members found to be in violation of the Conover Fire Department PPE Policy (Hall, 1999, pp. 36-37). The disciplinary actions include for the first offense that the FF or Department’s member shall be counseled by a commanding officer to determine why the
violation occurred. The second offense, said Hall, shall require a written account of the incident, circumstances leading to the violation, and a complete description of the policy requirements. The FF also “should appear before the full membership during the monthly business meeting to present report, so that others may learn from each others mistakes”. However, at the third offense, the member should be suspended without compensation for one week, and any violation of the PPE policy within 90 days shall be considered grounds for immediate dismissal, said Hall.

Battalion Chief Tim Eckles, from the California Department of Forestry & Fire Protection (personal communication, February 2005) sent me a model of their PPE Program (California…Forestry & Fire Protection, 2003). Chief Tim Eckles is a 4th Year Student from the NFA’s Executive Fire Officer Program.

The California Code of Regulations, Title 8, Section 3401, contains requirements for a PPE Plan covering the safe use, maintenance, utilization, care and replacement of this protective equipment. This Code of Regulations also contains the selection, use, cleaning, and decontamination, storage, inspection, repair, and retirement of the PPE. This PPE Program explains how manufacturers of protective fibers, fabrics, and garments are being flooded with inquires from the fire service on how to clean and maintain PPE (California Department of Forestry, 2003). This Program mentioned that the Southern Area Fire Equipment Research (SAFER), the Northern Area Fire Equipment Research (NAFER), the Central Area Fire Equipment Research (CAFER), and the Fire Industry Equipment Research Organization (F.I.E.R.O.), meet monthly or bi-monthly to network together among fellow fire service personnel with manufacturers and
vendors about equipment health, and safety concerns (California…Forestry & Fire Protection, 2003).

Jim Linardos (Linardos, 1989), in his ARP titled *Personal Protective Equipment for Truckee Meadows Fire Protection District*, wrote that, “There is not much thought or commitment when they purchase and train their personnel about protective equipment and clothing. The low morale is a factor for some problems in that Fire District. Linardos said that, “The fire department leaders are involved in the PPE purchases and they must be sensitive with this aspect”. Without bid specifications, said Linardos, “the problems with PPE sizes, like improper fitting, and lack of instructions about the use and maintenance creates a lack of respect for the PPE” (Linardos, 1989). Linardos learned in the NFA Strategic Analysis of Fire Department Operations Course that, “The fire officer has a responsibility to improve health and safety in the fire service” (Linardos, 1989, pp. 1, 2, 5 and 6).

The July 1997 edition of Occupational Hazards Magazine (OHM) presented the results of a survey, showing that 38% of the readers reported that at least one employee at their facility or company had been saved from serious injury or death by the use of PPE (OHM, 1997). The OHM readers, mostly managers, selected the training as “the most favored method and technique used to encourage employee use of PPE” (OHM, 1997, p.33). This survey also asked managers about their facility compliance with the general requirement of OSHA Subpart I. This PPE standard calls for employers to “train workers, at a minimum, on; when PPE is necessary; what PPE is necessary; how to properly don, doff, adjust and wear PPE; the limitations of the PPE; and the proper care,
Jeffrey O. Stull, express in his article *PPE: The Right Kit for Every Occasion* that, “the types of hazards which firefighters face on the fire ground or emergency scene can also include: physical, environmental, chemical, biological, electrical, radiation and other hazards created by the PPE they are wearing” (Stull, 2003, p. 7). Stull describes the primary hazards at the fire scene including (1) immediately dangerous to life and health atmospheres, (2) extreme heat and potential for flame contact (high radiant heat, flashovers), (3) exposure to steam or scalding water, contact with hot surfaces, solids and molten metal, (4) severe physical hazards created by the destruction of the structure (i.e., broken glass, fallen debris), (5) the possibility for disorientation and entrapment within the structure due to poor visibility, and (6) the stress from high ambient heat and near encapsulating clothing. Stull also mentioned that several other hazards might exist depending on the nature of the fire, including contamination from blood or body fluids, and contact with live electrical power lines. “Firefighters may also fall from heights, be hit by on-coming traffic outside the structure, or sustain any number of strains and sprains given by the rigorous physical activity required during fire ground operations” (Stull, 2003, p. 7).

Wayne Vanderhoof wrote an article for the December 2004 edition of Occupational Health and Safety Magazine (Vanderhoof, 2004) titled, *PPE: How to Get Workers to Wear It*, explaining, “It is a never ending battle to get workers to wear any type of personal protective equipment”. Vanderhoof also explains that the managers and supervisors will support the safety philosophy following the requirements of the safety procedure.
The training component, encouraging, and enforcement are the next steps to train employees on the safety and health philosophy of a company (Vanderhoof, 2004). With this, the workers must understand that, “there is no job, no production schedule, no customer’s request, and no manager’s decision more important than the safety and health of the worker”. Part of the suggested training includes that “the employees must understand why the PPE is required, a hazard analysis and the simple step to make sure that when the procedure and subsequent training is instituted, the specific PPE is in the hands of the employee”. When the supervisor sees a worker wearing the proper PPE component, he must say something positive to encourage the worker (Vanderhoof, 2004).

The Firefighter Life Summit Initial Report (NFFF, 2004), the Conover FD PPE Policy (Hall, 1999), the ARP titled, PPE for Truckee Meadows Fire Protection District (Linardos, 1989), the article, PPE: The Right Kit for Every Occasion (Stull, 2003), and the article, PPE: How to Get Workers to Wear It (Vanderhood, 2004), confirmed that this problem is a great concern among diverse fire and protection executives, fire protection organizations, and fire journals editors.

The variety of opinions, laws, regulations and policies founded to solve this problem, influenced this ARP (NFA, 2003) in a positive way. The compiled information helped in the evaluation and recommendations to solve the problem.

Procedures

The first procedure was the delivery of a survey (Appendix B) among firefighters. The sample was arranged using the Table for Determining Needed
Size of Randomly Chosen Sample available in the NFA Executive Development Student Manual (NFA, 1998a, EDSM). The purpose of this survey was to, (a) determine if the PRFFs do know what a complete PPE is, (b) identify the incidents and what reasons do PRFF give for not wearing their complete PPE, (c) determine what training do the PRFF presently receives in donning off the PPE, and (d) search what other fire departments (FD) do to increase the use of PPE. The survey was delivered among 11 fire districts covering the 97 fire stations in the Island.

The ARP Proposal for this ARP was reviewed frequently to keep focused on the problem statement, purpose, research questions, and the research method.

The NFA Learning Resource Center (LRC) was visited to find out what other Executive Fire Officer’s Program (EFOP) students already wrote about the PPE policies. The LRC web site is, http://www.lrc.fema.gov/lrcwebhints.html.

The NFPA 1500, 1997 standard was evaluated to find a guide for the PPE policy. Firefighters from the EFOP and other FDs representatives were contacted to find what incentives they recommend to encourage the FF to wear the complete PPE during emergencies.

Be sure to organize, analyze, and document the collected data in detail (NFA, 1998a, [EDSM II-27]).

Results

A survey among firefighters was conducted (Appendix B). The PRFD has a population size of 1800 FF and the recommended sample was 317. Four hundred surveys were delivered expecting at least 20 % non-response rate (NFA,
Then, 238 additional FFs wanted to participate, and I received back about 638 surveys, which represents 35% of the firefighters. One hundred one (101) surveys with additional comments included were received and 25 of them were presented as additional findings on Appendix C of this paper.

Ninety-five percent (95%) of the participants had the rank of FF, 3% were sergeants, 1.9% lieutenants, and one participant doesn’t indicate his/her rank.

Seventy-three percent (73%) of the FFs who participated in the survey have 10 years of service (YS) or less. Seventy-five of the participants had from 11 to 20 YS, representing 9.5%, and 52 of the participants had from 21 to 30 YS, representing 8.1 percent. Forty-six FFs doesn’t indicate their YS, representing 7.2% and one participant had more than 31 years of service.

Five hundred forty five (545) FFs identify the components of the PPE as the helmet, boots, cape, pants, hood, gloves and S.C.B.A. This finding means that, 85.4% of the FF knows what a complete PPE is, and 14.6% do not.

Fifty seven percent (57%) of the FFs answered that they always wear the PPE. The FFs less like to wear the gloves, selected by 20% of the participants, followed by the turnout coat with 10% and the structural boots with 7%, as shown on Figure 1.

The most common reasons why they don’t like to wear those PPE components were the mobility limitations with 14%, heat stress with 10% and fixing problems with 8% (Figure 2).

Fifty one percent (51%) of the participants had more problems in wearing the PPE when responding to grass fires, 24% responding to car accidents, and 15% responding to rescues.
Except for the basic training offered to the new FFs the PRFD is not offering continuous training related to the PPE use and maintenance.

Students Eric L. Hall (Hall, 1999) and Jim Linardos (Linardos, 1989) made investigations about the need of PPE programs. Articles in Occupational Hazards Magazine and Occupational Health & Safety publication had information about PPE wearing problems and “how to get workers to wear it” (Vanderhoof, 2004).

James D. Edwards, from Oakland FD (personal communication, January, 2005) answered my question about what incentive his FD do to increase the use of PPE. Edwards said that, “The incentive for not wearing proper protective equipment is discipline”. Edwards also said that, “All personnel are required to wear the proper PPE based on the type of incident and the policies are written in accordance with OSHA, NIOSH, and Department of Transportation (DOT) requirements as well as NFPA standards”.

Ronald Morales, President of the International Association of Hispanic Firefighters (personal communication, April 19, 2005) said, “Training, standard operations procedures and progressive disciplines are the recommendations to increase the use of PPE”. 
Figure 1. Which PPE components FF do not like to wear?

Note: N=638. The figure represents answers to question No.4 of the FFs PPE survey (Appendix B). Fifty seven percent (57%) of the FF answered that they always wear the complete PPE.
Figure 2: What reasons FFs presents for not wearing the PPE?

Note: N=638. Figure 2, represents answers to question No. 5 of the FFs PPE survey (Appendix B). The components that the FFs do not like to wear are the gloves, cape and structural boots as shown on Figure 1, p.17).
Discussion

No commanders or captains participated in the survey. I received one letter from a captain giving complaints and questioning the reasons for this survey. For future research, the PRFD leaders responsible to implement the PPE policies can be addressed in a special survey to compile their ideas and solve this problem.

It is a “never ending battle to get workers to wear any type of personal protective equipment” (Vanderhoof, 2004). The PRFD must start that “battle” to protect our FFs life and safety and also, the Department have the responsibility to comply with the State and Federal safety and health regulations.

The NFFF release of the Firefighter Life Safety Summit demonstrates our Nation’s concern about the FFs safety. The initiative number 4 (Appendix A) recommends that, “we must empower all FF to stop unsafe practices”. Not wearing the complete PPE is an unsafe practice and the PRFD needs to do something to stop this unsafe practice.

The OSHA Fact Sheet (OSHA Fact, 2002) explains specific information that can be used on PPE training. This OSHA Fact Sheet recommends to, “train employees who are required to wear the PPE on how to (1) use PPE properly, (2) be aware of when PPE is necessary, (3) know what kind of PPE is necessary, (4) understand the limitations of PPE in protecting employees from injuries, (5) don, adjust, wear and doff PPE, and (6) maintain PPE properly (OSHA, 2002)”. Firefighters also must “recognize the general levels of protection for chemical and biological agents”.

Eric L. Hall (1999) wrote in his ARP that, “it is the duty of leaders to provide for the health and safety of their FF”. The leader in charge to persuade
the FF to wear his or her complete PPE must have the qualities of a transactional leader. This leader must make sure that the FF “have the resources” or PPE he or she needs to be protected, provide the information “needed to effectively plan and do the job” in a safe way helps the FFs “get the training they need to perform their jobs efficiently, supports and encourages FFs to use the PPE, and discuss the goals about safety (NFA, 2000, ELSM 2-13)”. Also, this leader must “reward FFs fairly for their efforts, express appreciation when a FF wear the complete PPE, and make sure that he or she knows what to expect in return for accomplishing goals” (NFA, 2000, ELSM).

The FF must wear the PPE at all times and must follow the department’s PPE policy, but we can include rewards to encourage he or she in its use. Also, the communications and credible leadership can help in “paying close attention of what others said” about what are the FFs needs and “act in a way consistent with your words” (NFA, 2000, ELSM 2-14) giving the example by wearing the complete PPE at all times when required. If the leader is breaking the safety rules constantly, he or she cannot make the employer wear the PPE.

The disciplinary procedures for members found to be in violation of the Conger FD (Hall, 1999 pp. 36-37) that require the violator to “submit a written account of the incident” allows the FF to review the consequences of his/her actions. Giving an opportunity in the first offense is adequate because the goal is to train and protect them, not to punish them. The third offense with a “suspension without compensation” (Hall, 1999) demonstrates that the supervisor is serious about the policy. I think that in these disciplinary procedures, the leader must evaluate each FF as equal.
The friendship, YS sex, religion, race, or political affiliation must not interfere with the disciplinary procedures.

Jim Linardos said that, “the leaders are involved in the PPE purchases and suggest that they must be sensitive with this aspect” (Linardos, 1998). He also said that, “without bid specifications the problems with PPE sizes, like improper fitting, and lack of instructions about the use and maintenance affected the FF and create a lack of respect for the PPE”. The following comment given by the participant No. 239 in this ARP’s survey (Appendix C-2, p. 35) coincides with what Linardo said about the PPE purchases personnel:

“Please change the whole Purchases Division personnel.

They demonstrate that have no experience and they don’t know the necessities of the FF. Is the FD risking the health and safety of the FF knowing the OSHA regulations? Who knows? The personnel responsible to measure the PPE sizes have no idea of the difference between a man FF and a woman FF. I don’t use any PPE because my health and safety will be in more danger if I wear it. Where are the filters of the S. C. B. A. masks? Is this an illegal practice from our collective agreement? I wish that after analyzing this survey the FD could take special attention to these suggestions for the better health and security of the firefighters”.

Real experiences and statistics about the percent of FFs saved from injuries by wearing the PPE could be a persuasive tool.
The July 1997 edition of Occupational Hazards Magazine reported that during 1996 “38 percent of their readers reported at least one employee at their facility or company had been saved from serious injuries or dead by the use of PPE”.

The statistics in the FD can represent a good evidence to “arrive to the point where we ourselves are prepared to persuade” (Conger, 1998, p. 44). This evidence “should make clear how advantageous for them the course you are recommending would be”. Of course, this data will not only convince the FF, but also “convince us to convince others” (Conger, 1998, p. 45).

It is necessary to include the description of the hazards that the FFs face on the fire ground or emergency scene as part of the PPE training. Jeffrey O. Stull presented the hazards information in his article, *PPE: The Right Kit for Every Occasion*. Stull indicated that “other hazards not included in his article may also exist depending on the nature of the fire, including contamination with blood or body fluids during rescue, and contact with live electrical power lines (Stull, 2003)”.

Without this information, the training about the importance of the PPE will be incomplete.

As described by Wayne Vanderhoof, “is a never ending battle to get workers to wear any type of personal protective equipment and there is no job, no production, schedule, no customer’s request, and no manager’s decision more important than the safety and health of the worker” (Vanderhood, 2004). The PRFD have the responsibility to demonstrate that FF’s safe and health is important for the Department.
“The supervisors must say something positive to encourage the workers that always wear the PPE,” said Vanderhood.

After all this ARP investigation, it is recommended that the PRFD write the PPE policy and develop a training program, in accordance with the NFPA 1500 and OSHA regulations.

Recommendations

The recommendations to solve this problem are to (1) educate, (2) write a PPE policy, (3) hear the FFs opinions, (4) enforce discipline, and (5) give the example. This system can be called (but is not necessary to be called) the EPODE System.

Education: The most important part of an effective PPE is Education. When there’s no OHSO designated to deliver the safety information we must designate the most appropriate person to do the job, study the information, prepare the educational material and deliver the training. In the PRFD, there’s no OSHO, and the FFs don’t have the adequate education about the use of their PPE. The NFPA and OSHA PPE codes and standards must be included in training to refresh the FF’s knowledge about the PPE responsibilities for the employer and the worker. The OHSO will include in the training why PPE is necessary, when PPE is necessary, what PPE is necessary and the proper care, maintenance, storage, useful life and disposal of PPE (OSHA Facts, 2002).

Policy: The purpose of the PPE policy is to have an official document that shows specific PPE health and safety regulations (Sherman Safety, 2004). The policy will include NFPA Codes and OSHA Standards, and the maintenance of the PPE. This policy must be discussed and written by a designated number of
administrative and union members from all ranks. The policy “will include the purpose, responsibilities, hazard assessment and the selection of PPE training” (Sherman Safety, 2004, p. 3).

Opinions: “Do not try to ram new policies or procedures down the throats of people without listening to the other side first” (NFA, 1998a, EDSM 5-28). The PRFD must evaluate the quality and years of use of the gloves, turnout coats structural boots and other PPE equipment that the FFs doesn’t like to wear and the reasons that they expressed in this research. This is about the search in order to know the FF acceptance or disagreements about the comfort, quality and convenience of any new PPE components or their opinion about the need of a PPE policy. A good supervisor or manager must be a “good listener” (NFA, 1998a, EDSM-5-28). Accepting the FF opinion would be a motivation for wearing the PPE and, also, a reduction of the complaints about its wearing.

Discipline: The enforcement of the rules and regulations related to the PPE will show that the supervisor is serious about the problem. If the regulations are not enforced, then a lack of leadership can create low morale and desire to work. The leader in charge of the OHS program should be safety oriented, well prepared and educated. The OHSO should always wear the proper PPE in front of the FF during the emergency response and be ready to supervise and not only give the proper reprimand to members that omit the PPE policy compliance, but also “express appreciation” when a FF comply with it (NFA, ELSM, 2000)”.

Example: The subordinates always evaluate our actions. Three percent (3%) of the FF said that the supervisor doesn’t wear the PPE. If a leader were not wearing the PPE during an emergency, probably the FF would think that he or she
couldn’t order them to wear it. Firefighters will respect, admire and follow the leaders that comply with the PPE policy or any other FD policy or regulation.

Identify short-term recommendation to enforce discipline in the use of PPE and give a warning to the FFs about the policy that the FD is going to write and enforce. This can be discussed in a staff meeting or written letters.

Eliminate all the obsolete PPE and give new equipment to FFs wearing old and deteriorated protective equipment. A designation of an OSHO who can start leading a PPE committee in writing the PPE policy is need immediately. The OSHO will be in charge to evaluate the policy and recommend the appropriate training.

The OSHO and the FD leaders can study the following recommendations to develop the PPE program:

1. Present credible evidence: Follow the “components of successful persuasion” (Conger, 1998, pp. 43-46). “The foundation of effective persuasion is our credibility”. The FF with the OHSO roll must present credible evidence and information about the importance of wearing the PPE, dangers and penalties for not wearing it. It is important the FF “trust the person” (Conger, p. 44) that is going to deliver the training and information about the use of PPE.

2. Demonstrate your common ground: “Never assume that our listeners understand the advantage to them of what we are trying to persuade them to do” (Conger, p. 44). Is not only trying to convince, but explain with the credible evidence and information
in order to let the FF trust you and convince them of the proper use of PPE.

3. Demonstrate your shared ground: The OHSO, leader or designated safety officer “must demonstrate that what he is trying to persuade them of is of shared concern both to them and to him” (Conger, p.44) as a member of the fire department.

4. Present compelling evidence: The OHSO in charge of the PPE training must “think carefully about his co-workers and decide what type of evidence they will find compelling” (Conger, 1998, p. 45). Your evidence should convince them about the advantages for wearing, and the disadvantages for not wearing the PPE, the Federal Laws that requires its use, and the benefits that the FF could lose by not complying with those.

6. Emotional Commitment: The FF participating in the PPE training wants to see that the educator is emotionally committed (Conger, 1998, p. 45). This commitment is connected to the audience emotions concerns, aspirations and fears. The OHSO can give lived experiences about the advantages for wearing and consequences for not wearing the PPE. When the OSHO or educator “connects to his emotions,” the persuasion will have great appeal (Conger, p. 45). Presenting a FF injured in the line of duty talking to the audience will help.
7. Remember, “When the supervisor sees a worker wearing the proper PPE component, he must say something positive to encourage the worker” (Vanderhoof, 2004).

8. Incentives like, t-shirts, caps, movie tickets, baseball or football tickets or time off, can be used as incentives for wearing the complete PPE.

Definitely, the FF must comply with all the PPE policies, regulations and safety requirements in his or her department. The FF can be fired or suspended without compensation if he or she disobeys orders. To sanction a FF is not always the right decision, but if, after a good PPE program, the FF continues the improper or dangerous conduct of not wearing the proper PPE, as written in the PPE policy, he can be sanctioned.

With the recommended education, policy, opinions, discipline, good example, and the policy enforcement, PRFD would encourage FF to wear the personal protective equipment. After this program implementation, the FD can expect to increase the use of PPE “from head to toe” from 57% (Figure 1) to 85% in the next two years and to 100% in the next 5 years.
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Firefighter Life Safety Summit Report

Fire Service Organizations Release Initial Report Following Firefighter Life Safety Summit

Release Date: April 14, 2004

First Steps Underway in Major Campaign to Save Firefighters' Lives

Emmitsburg, MD - The National Fallen Firefighters Foundation (NFFF) and the United States Fire Administration (USFA) are pleased to announce the release of the Firefighter Life Safety Summit Initial Report. The Report details initiatives and recommendations for drastically reducing firefighter fatalities and injuries.

Organized by the NFFF, the Firefighter Life Safety Summit held March 10-11, 2004 in Tampa, Florida, was a first of its kind gathering of more than 200 fire and emergency service representatives from over 100 organizations and departments nationwide. The Summit was convened to support the USFA's stated goal of reducing firefighter fatalities by 25 percent within 5 years and 50 percent within 10 years.

The Summit Initial Report identifies and provides additional background on the 16 initiatives that were formulated by the Summit participants. The initiatives are:

1. Define and advocate the need for a cultural change within the fire service relating to safety, incorporating leadership, management, supervision, accountability and personal responsibility.
2. Enhance the personal and organizational accountability for health and safety throughout the fire service.
3. Focus greater attention on the integration of risk management with incident management at all levels, including strategic, tactical, and planning responsibilities.
4. Empower all firefighters to stop unsafe practices.
5. Develop and implement national standards for training, qualifications, and certification (including regular re-certification) that are equally applicable to all firefighters, based on the duties they are expected to perform.
6. Develop and implement national medical and physical fitness standards that are equally applicable to all firefighters, based on the duties they are expected to perform.
7. Create a national research agenda and data collection system that relates to the initiatives.
8. Utilize available technology wherever it can produce higher levels of health and safety.
9. Thoroughly investigate all firefighter fatalities, injuries, and near misses.
10. Ensure grant programs support the implementation of safe practices and/or mandate safe practices as an eligibility requirement.
11. Develop and champion national standards for emergency response policies and procedures.
12. Develop and champion national protocols for response to violent incidents.
13. Provide firefighters and their family’s access to counseling and psychological support.
14. Provide public education more resources and champion it as a critical fire and life safety program.
15. Strengthen advocacy for the enforcement of codes and the installation of home fire sprinklers.
16. Make safety be a primary consideration in the design of apparatus and equipment.

Publication authorized by: Mary Ellis
National Fallen Firefighters Foundation
January 5, 2005

Puerto Rico Fire Department
Fire Department Zones

Dear Firefighters:

With this letter, you will find a survey related to the use of the Personal Protective Equipment (PPE). This is a must as part of the National Fire Academy Executive Fire Officer’s Program, which I am part of. This survey is part of an applied research project with the idea to improve the safety and health area in our Fire Department.

The work is titled, “From Head to Toe”. This particular topic is to identify what reasons the Puerto Rican Firefighters have for not wearing the complete PPE during the emergency response (ER), and to develop strategies which can help increase the use of this protective equipment. The findings in this project can help reduce the Firefighters injuries and fatalities on the line of duty.

Instructions for filling the survey:

This survey is completely voluntary.
You may write in pen or pencil.
The survey should be returned by January 24, 2005.
The results can be reviewed by the month of June 2005.
Please do not write your name or the district in which you work, in order to keep this survey confidential.

Thank you for your cooperation.

Sincerely,

Carmen G. Rodriguez Diaz
Student
Executive Fire Officer Program
National Fire Academy
Feed Back Instrument: Personal Protective Equipment (PPE) survey.

This survey is part of an applied research project, of the Executive Fire Officer's Program of the National Fire Academy. Answer the questions and return the questionnaire by January 24, 2005. Follow the instructions given at the back of this paper. Thank you.

1. Circle the letter that describes your rank:
   a. Firefighter
   b. Sergeant
   c. Lieutenant
   d. Captain
   e. Commander

2. Number of years of service: _________

3. Write the components that you think are part of the complete PPE:

   ____________________, ____________________, ____________________,
   ____________________, ____________________, ____________________,
   ____________________, ____________________, ____________________.

4. Which are the three (3) PPE components that you do not like to use?

   ____________________, ____________________, ____________________

5. Circle the three letters that describes the reasons why you do not like to wear the components described in question #4:

   a. It is not required
   b. The supervisor doesn’t wear the PPE
   c. Almost nobody wear the PPE
   d. We respond to small emergencies
   e. Heat stress
   f. Allergies, rash or skin abrasions
   g. Fixing problems or inappropriate size
   h. Mobility Limitations
   i. Other reasons
Appendix B-3

(Cont.) Feed Back Instrument: Personal Protective Equipment (PPE) survey.

6. Indicate (mark) in what kind of incident or situation, you do not like to wear the PPE:
   a. Grass or forest fires
   b. Hazardous materials incidents
   c. Residential fires
   d. High rise building fires
   e. Rescues
   f. Car accidents

7. Indicate (mark) what kind of PPE training you has received?
   a. Cadet’s training at the Fire Academy.
   b. Cadet’s training, refreshment or additional training.
   c. I had never received this kind of training.

Thank you.
<table>
<thead>
<tr>
<th>Participant Number</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>“My bunker suite and helmet are broken”.</td>
</tr>
<tr>
<td>70</td>
<td>“I don’t use the S.C.B.A. because the compressor room is in bad conditions and we have bad quality air”.</td>
</tr>
<tr>
<td>89</td>
<td>“As a FF and ex supervisor from OSHA, I have noticed that many co-workers have their PPE badly damaged and they don’t have its original protective qualities due to the use time of more than 5 years. Also, the S.C.B.A. doesn’t have the security sensors and they don’t receive maintenance”.</td>
</tr>
<tr>
<td>90</td>
<td>“As a FF for many years, I think that the first person that must use the PPE is the supervisor official (lieutenants, captains and commanders). With this practice, they could feel the heat stress where we are exposed while using this equipment for a long time and, specially, they must wear the equipment to demonstrate more moral”.</td>
</tr>
<tr>
<td>105</td>
<td>“I have 5 months as a FF and I receive my first PPE two weeks ago”.</td>
</tr>
<tr>
<td>120</td>
<td>“When you are going to buy equipment for the FF, please take attention to the quality and not the price. We are the one who is going to use the equipment and we suffer the inconveniences”.</td>
</tr>
<tr>
<td>127</td>
<td>“The gloves are so cheap that they got wet and they shrink”.</td>
</tr>
<tr>
<td>180</td>
<td>“The gloves are too dry, hard and are difficult to work”.</td>
</tr>
<tr>
<td>Participant Number</td>
<td>Comments</td>
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</table>
| 228                | “The S.C.B.A. is the most important PPE component, but the last priority for the FD. We, the sergeants of the PRFD have many responsibilities, but the Administration didn’t include us in the collective agreement. After some years, the PRFD must change the PPE and they never change this equipment. We don’t have filters for the masks to wear at the forest fires and the best equipment is in the metropolitan area (San Juan, PR). When the PRFD decide to have the truly intention to train the FF and see the necessities that we have, and then we would “see the light at the end of the tunnel”. While the FD continues the political game, the general immobility of the Agency will continue. We have to live the situation one day at a time? I’m not afraid to talk”.
| 229                | “The PPE must be substituted for a new one. I never received adapters or masks with filters. I always use the available equipment. The FD must put professionals to work in the purchase of this equipment. My PPE is too small for me. I expect that the FD take these recommendations in the survey. Please do something.” |
| 239                | “Please change the whole Purchases Division personnel. They demonstrate that have no experience and they don’t know the necessities of the FF. Is the FD risking the health and safety of the FF knowing the OSHA regulations? Who knows? The personnel in charge to take the -measures for the PPE have no idea of the unique or different sizes and the difference between a male FF and a woman FF. I don’t use any PPE because my health and safety will be in more danger if I use it. Where are the filters of the S. C. B. A. masks? Is this an illegal practice from our collective agreement? I wish that after analyzing this survey the FD could take special attention to these suggestions for the better health and security of the firefighters”.
| 242                | “The PPE is our life protection device. The specification for the life of this equipment is 5 years. A change for a new PPE could be for our safety”.

<table>
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<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>243</td>
<td>“At forest fires I use only the pants, gloves and the boots. The PPE is our safeguard. This equipment has an effectiveness of 5 years. It will be very interesting that an equipment change will be evaluated. This can prevent danger to the FF health”.</td>
</tr>
<tr>
<td>259</td>
<td>“I don’t like to wear the gloves. The FD must buy equipment that goes with the tropical weather and of good quality, even if they pay more money. You are not interested for FF to be more educated in relation of new techniques of fire suppression, and any kind of rescue. Is very unfortunate that the Department of Education of Puerto Rico or the United States does not certify us. We expect that you take these comments into consideration”.</td>
</tr>
<tr>
<td>271</td>
<td>“The boots are uncomfortable and the gloves make impossible my hands mobility. I never received new equipment and when they gave me the PPE it was a used turnover gear. I always use the PPE to protect myself from fires, but this one is not safe for my health”.</td>
</tr>
<tr>
<td>279</td>
<td>“Our equipment has seven years of use. As I understand after these years the PPE can loose effectiveness. It doesn’t mean that I don’t like to use the PPE, but the FD must check all the equipment to see if they need to be substituted. I’m not sure if I received the training about PPE during the cadets Academy, but I’m really sure that I never received training about this”.</td>
</tr>
<tr>
<td>330</td>
<td>“Many FF friends, and I, have an incomplete PPE, and we would use it more if, once the emergency is called, they let us wear the PPE to drive the truck”.</td>
</tr>
<tr>
<td>361</td>
<td>“The change of the PPE and new rubber boots are needed”.</td>
</tr>
<tr>
<td>Participant Number</td>
<td>Comments</td>
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<tr>
<td>395</td>
<td>“We also need a good salary rise in this year. I hope that this wish come true”.</td>
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<tr>
<td>462</td>
<td>“We must have a PPE adequate for our climate. Our PPE must be light”.</td>
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<tr>
<td>556</td>
<td>“The personnel are not receiving training and the FD is not giving the adequate PPE, because if it is broken or obsolete, we write the equipment request and they ignore it. They change the broken or obsolete PPE for used PPE in better conditions but this is not healthy. The S.C.B.A. needs the required evaluation. We have to use the S.C.B. A. when it is strictly necessary”.</td>
</tr>
<tr>
<td>599</td>
<td>“The reason why I’d never being in training is that the FD has some favorites. They always send the same FF to training and some of them take the same training two or three times. The FD must give the same training opportunities for every FF. With this, we will comply with our work commitment”.</td>
</tr>
<tr>
<td>625</td>
<td>“We need radio communication for the FF. We need more flexible gloves for more mobility. The PPE must be changes each 5 years”.</td>
</tr>
<tr>
<td>626</td>
<td>“Thank you very much for this questionnaire. Other important points for a better PPE could be, (1) buy light equipment with all the protection regulations, (2) take care of the years of use for each PPE component, (3) buy more communication equipment to deal with situations when a FF is far from the other and needs to get out from the emergency”.</td>
</tr>
<tr>
<td>627</td>
<td>“The PPE must be changed each five years and assign a person to inspect this equipment at least once a year. The FF must have portable radio communication in every fire station for a better work coordination in the emergency area”.</td>
</tr>
</tbody>
</table>