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April 20, 2006

**Via: Regular U.S. Mail and E-mail to:
NIOCINDOCKET@cdc.gov**

John Howard, MD
Director
National Institute for Occupational
Safety and Health
200 Independence Ave, SW
Washington, DC 20201

NIOSH Docket Office
Robert A. Taft Laboratories, M/S C34
4676 Columbia Parkway
Cincinnati, OH 45226
Voice: 513.533.8303
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**Re: Comments for the Progress and Future
Direction of the NIOSH FFFIPP
Docket Number NIOSH-063**

Dear Dr. Howard:

I submit the following comments and supporting documentation on the National Institute for Occupational Safety and Health Fire Fighter Fatality Investigation and Prevention Program (NIOSH FFFIPP) for consideration with the hope they will be accepted as suggestions for enhancing the impact of the program. I was a member of the FFFIPP staff from 1999 to 2000. I feel that my tenure gives me a unique perspective into the administration of the program.

I am also taking this opportunity to place the contents of my personnel file into the public domain as a means to foster a public conversation. By taking this action I hope this information can be used to get a glimpse into the management ethos and research culture that influence the FFFIPP. The example of Personal Protection Equipment (PPE) that was not properly scrutinized during a January 2000 investigation is offered here as a proxy to highlight the fact that when model investigative procedures¹ are not followed, sentinel event(s) are missed and critical time is lost. In this case, when managers of the FFFIPP instructed investigators not to document critical components of PPE such as turnout gear and clothing;² the possibility to understand how this equipment performed in context with these fatalities and other similar events was squandered. In this tragic example it has taken five years between the time firefighters first started to report not hearing Personal Alert Safety Systems (PASS) device activation in actual rescue incidents such as this one in January 2000, until the time NIOSH established a formal process to openly ask for assistance from the fire service community³ in December 2005. In short, no plausible justification can be offered and the fire service cannot afford to wait another five years for the next missed sentinel event to be reported.

¹ NIOSH – Division of Safety Research (1997). Fatality Assessment and Control Evaluation (FACE) Model. National Institute for Occupational Safety and Health Centers for Disease Control, Public Health Service, U. S. Department of Health and Human Services, Morgantown, West Virginia.

² Memorandum of Performance Guidance dated March 14, 2000, from D. Castillo, Branch Chief, to Eric R. Schmidt, Safety Engineer, Division of Safety Research, National Institute for Occupational Safety and Health, Centers for Disease Control, Public Health Service, U. S. Department of Health and Human Services.

³ NIOSH – National Personal Protective Technology Laboratory (NPPTL) public notice (n.d.). Retrieved April 14, 2006, from <http://www.cdc.gov/niosh/npptl/usermoics/pdfs/pass.pdf>

The suggestions here are made so that all future information available to investigators is documented and not squandered.

- The Director of NIOSH is asked to affirm that the management ethos and research culture that influence the FFFIPP provide the American Fire Service with a work product that meets the requirements of a "Gold Standard" within the epidemiological and research communities. By definition, research that cannot be independently verified and/or does not follow written procedure(s) does not qualify as "Gold Standard" work product. If this affirmation cannot be immediately made, the Director of NIOSH is asked to outline what steps will be taken and when the American Fire Service can expect to see a work product that meets "Gold Standard" requirements.
- The Director of NIOSH is asked to develop a Sentinel Event Notification Procedure to formally alert the fire service community within 90 days of an incident that would meet sentinel event criteria. The example -- where NIOSH management has had substantial knowledge⁴ for five years that many firefighters reported not hearing PASS devices during actual rescue incidents -- cannot be repeated.
- The Director of NIOSH is asked to develop a schedule of document retention to permit meaningful retrospective studies. The ability to go back and consider the information gathered during these investigations in aggregate after several similar events are studied is critical. Currently the reports published by the FFFIPP are labeled as "A summary of a NIOSH firefighter fatality investigation." In many cases, proposed retrospective studies need information of greater depth than what is contained in the summary as published. During my tenure at NIOSH, supporting documents were routinely purged just prior to the release of the summary. Undoubtedly, safeguarding this information in a confidential format is essential and may require further rule making. Without a process to retain detailed information, the ability to produce meaningful retrospective studies is lost.

⁴Letter dated October 2, 2000, from Eric R. Schmidt, former Safety Engineer, to Linda Rosenstock, MD, Director, National Institute for Occupational Safety and Health, Centers for Disease Control, Public Health Service, U. S. Department of Health and Human Services.

- As follow-on to the previous suggestion, the Director of NIOSH is asked to develop a schedule of bi-annual program review. An impartial scientific body, such as the National Science Foundation (NSF), should conduct this review with guidelines established by national fire service organizations. This process would be, at the very least, but not be limited to, an appraisal the caliber of information gathering during the course of the field investigation, report development and recommendation follow-up. The findings of NSF would be reported to all interested fire service organizations and congressional oversight committees.
- The Director of NIOSH is asked to publish all FFFIPP reports in the Federal Register prior to releasing them for publication. The practice during my tenure at NIOSH was to have the fire department that suffered the firefighter fatality, and, in some limited cases, organized labor locals, review portions of the report but not the recommendations. Recommendations can be considered as successors to findings. It is important the complete report be made available for review and public comment so that fire service, fire research and academic and labor organizations have a means to offer specific and cogent input.
- The Director of NIOSH is asked to consider the publication of an Amalgamated Anonymous Annual Report. Often for reasons of sensitivity, information is not included in the reports because no true mechanism exists for protecting the identity of specific communities or individuals. Unfortunately, important lessons are lost, specific examples that would be suited for this report are investigations where inadequate training, under-funding that leads to a lack of proper equipment and staffing played a role in the fatality. This report should also identify emerging short-term research needs.
- The following recommendation is offered truly in the hope to lessen the trauma and pain of the families and departments involved in these tragic line-of-duty deaths. To publish the date and state of this loss, without the names of the firefighters involved, is only a comfort to those who do not appreciate the American Fire Service. Every firefighter knows where to find the name of the fire department and those who lost their lives. In fact, the United States Fire Administration has a website with direct links to specific NIOSH-FFFIPP reports. Please consider the image of a child too young to understand reading a NIOSH-FFFIPP report years later, trying to comprehend the reason for the loss of a loved one, only to have their

father or mother referred to as "the Victim" or even worse as "Victim #4." The Director of NIOSH is asked to use the names of the fallen as a matter of respect to them and their families.

- In the alternative, if CDC/NIOSH cannot accept or implement needed change in the FFFIP, then another process for this needed process should be considered. The Director of NIOSH should assist the fire service community to relocate this effort to another agency or organization.

In closing, the suggestions made are not specific by design. They were not intended to solve problems as I see them, but instead to foster much needed frank discussions. I request my comment and supporting documentation to published in its entirety, along with all other comments in the Federal Register and posted on the NIOSH Public Docket website with appropriate hyperlinks from the FFFIPP website. If the readers care to review the specifics of the supporting documentation, an event timeline and table of inconsistent work direction can be found on the following pages of this public comment.







Best regards.

Sincerely



Eric R. Schmidt, P.E.

Documentation Time Line

Date	Event / Document
FY1998	Congress mandates that CDC/NIOSH investigate all Fire Fighter Fatalities. The use of the FACE Model is specified as required investigative tool.
6/20/1999	Eric Schmidt is hired as a Safety Engineer to assist with Investigations of Fire Fighter Fatalities.
6/21/1999	 1999-06-20 Position Description.pdf Section 1
	 1999-06-20 Conducting the FACE evaluation.pdf Section 2
	 1999-06-20 FACE narrative report.pdf Section 3
	 1999-06-21 nondisclosure agreement.pdf Section 4
2/7/2000	Mid-Year Review by NIOSH Supervisor
	 2000-02-07 Mid Year Review.pdf Section 5
2/14/2000	NIOSH Supervisor provides written "Performance Guidance"
	 2000-02-14 Performance Guidance.pdf Section 6

6/9/2000 NIOSH Supervisor outlines justification for the termination of Eric Schmidt



2000-06-09 DC memo to file.pdf

Section 7

6/16/2000 Eric Schmidt is terminated during Probationary Period



2000-06-12 Termination Notice.pdf

Section 8

10/2/2000 Eric Schmidt advised NIOSH Director of Technical Concerns and specifically suspicion that a piece of Fire Fighter Personal Protection Equipment did not performed as expected. This piece of equipment is called a PASS device. It sounds an alarm when it senses a fire fighter has stopped movement. (i.e. – in need of rescue.) [Last paragraph on first page of memo]



2000-10-02 ERS Technical Concerns.pdf

Section 9

12/5/05 NFPA Notice to users



2005-12-05 NFPA PASS.pdf

Section 10

12/6/05 NIOSH Notice to users



2005-12-06 NIOSH PASS.pdf

Section 11

3/1/06 NIOSH Posts a notice for program input into Federal Register



2006-03-01 Federal Register Notice.pdf

Section 12

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2006-03-01 NIOSH FFFIPP Background.pdf
Section 13

4/22/06

Written comment period closes for NIOSH - 063

Table of Inconsistencies

Work Direction	Requirement to address issue
<u>Performance Guidance</u> , "...your persistence in gathering complete autopsy reports, rather than simply getting information from the report on the cause of death." Also "...for injury death investigations, the cause of death is <u>typically</u> all that is needed."	FACE Narrative Report, page 33, paragraph V Previous recommendations made* NIOSH FACE report 99F10, rec. #5 NIOSH FACE report 99F11, rec. #3 NIOSH FACE report 99F17, rec. #3 NIOSH FACE report 99F19, rec. #5 USFA Fire Fighter Autopsy Protocol *files available on web sites.
<u>Performance Guidance</u> , measurements of burned area of hose	Position Description, Factor 4 – Complexity. Conducting the FACE evaluation, page 19-20, <i>The Role Of The Investigator At The Incident Site</i> . FACE Narrative Report, page 31, paragraph IV
<u>Performance Guidance</u> , specifics and shape of turnout gear	FACE Narrative Report, page 31, paragraph IV, sub-paragraph A.3.
<u>Performance Guidance</u> , if those who spend their time helping us to understand the case are upset.	Position Description, Factor 3 – Guidelines.
<u>Performance Guidance</u> , minimize your fact gathering during investigations.	Position Description, Factor 3 – Guidelines. Conducting the FACE evaluation, page 21, 6 th paragraph from top of page.
<u>Performance Guidance</u> , verbal contact rather than through formal correspondence	Conducting the FACE evaluation, page 18, 5 th paragraph from top of page.
<u>Termination Notice</u> , a 500-page matrix...This matrix appears to required substantial amounts of your time, however the utility and necessity of the matrix is not clear.	Position Description, Factor 4 – Complexity.

Eric R. Schmidt

From: Eric R. Schmidt [ericrschmidt@adelphia.net]
Sent: Thursday, April 20, 2006 5:42 AM
To: niocindocket@cdc.gov
Subject: Public Comment for NIOSH Docket - 063 NIOSH FFFIPP



NIOSH 063 Public
Comment Email...

Hello,

Please accept my attached public comment for the record. My contact information is

Eric R. Schmidt, P.E.
2 Wyndale Drive
Walkersville, Maryland 21793
301.606.5672
ericrschmidt@adelphia.net

I grant permission to disclose my name in association with this public comment.

If any concern is noted with this public comment please contact me. I will also send along a paper version of this comment if need, please advise if that is the case.

Best regards,

Eric Schmidt

Safety Engineer, GS-803-13

Introduction

This position is located in the Trauma Investigations Section, Surveillance and Field Investigations Branch, Division of Safety Research. The mission of the Division is on file in the Human Resources Management Office, Centers for Disease Control and Prevention.

Major Duties

Serves as the technical expert on safety engineering techniques and methods for studying fire fighter work-related injuries to develop intervention and prevention strategies. Provides engineering interface with internal and external professionals in the study and development of engineering designs, practices, protocols, recommendations, aimed at reducing fire fighter fatalities. Also, proposes recommendations for new or modification of existing fire fighter research directions or projects to further the mission of DSR and NIOSH. [25%]

Develops and writes technical documents and manuscripts for publication and presentation based on the results of research for dissemination in peer review journals, NIOSH publications and other appropriate sources. Also, conducts technical reviews of scientific work conducted by others (internal and external), participates in inter-branch or inter divisional projects/teams, and provides technical expertise as required to meet the mission and goals of DSR, NIOSH, and CDC. [25%]

Applies the Fatality Assessment and Control Evaluation (FACE) Model to conduct fatality investigations of fire-related incidents involving fire fighters. Prepares written reports from the investigative findings along with recommendations which contain engineering solutions which could prevent similar work-related traumas in the future. [25%]

Provides safety engineering expert advice on fire fighter work-related injuries to the Division and the Institute as well as other government agencies, non-government and private agencies and organizations, and the public. This includes working independently as a NIOSH representative with organizations such as the Department of Labor, state departments of health, National Safety Council, trade associations, labor unions, academia, etc. [25%]

Factor 1: Knowledge Required by the Position

Comprehensive knowledge of the principles and practices of safety engineering, including the application of engineering controls and safe work practices for reduction of traumatic occupational injury of fire fighters and emergency responders that result from motor vehicle related incidents.

In-depth knowledge of occupational safety and health principles, practices, and requirements for safe and healthful working conditions, and a working knowledge of the etiology of workplace injuries and illnesses.

Skill in evaluating and incorporating the latest developments, methods and devices needed to make recommendations for establishing NIOSH policy and for furthering the Institute's objectives in preventing occupational traumatic injuries.

Working knowledge of the current literature, both national and international, in the area of occupational traumatic injury, epidemiology and statistics.

Comprehensive knowledge of existing fire-related safety and health standards (mandatory and consensus), regulations, and legal requirements for the protection of workers in all industries.

Knowledge of available sources of occupational injury and illness statistical data and specific needs for such data used in occupational injury risk assessment; familiarity with statistics on accidents, injuries, rates of injuries, and related data.

Knowledge of surveillance and research design and statistics required to review work and comment on research studies proposed by other Branch staff.

Skill in oral and written communication.

Factor 2: Supervisory Controls

The incumbent works under the administrative supervision of the Section Chief. Administrative direction entails assignments in terms of broadly defined missions or objectives. Director is generally limited to approval of staffing, project and facility funding, requests for large equipment and broad NIOSH policies. The incumbent has full responsibility for independently planning and conducting the assigned work. The incumbent's work is accepted as technically accurate. The supervisor reviews work for adherence to assigned mission or objectives; to determine if advice and recommendations made by the incumbent had positive influence on the overall program; and/or if the incumbent's work made a contribution to the advancement of injury prevention technology.

Factor 3: Guidelines

General guidelines include institute policies as well as current Federal regulations, appropriate technical literature, and recent developments in safety engineering and injury intervention and prevention strategies. Other guidelines such as technical reference texts and manuals, specifications, practices, procedures, etc., cover certain aspects of the work, but often are very general and involve large blocks of data which contain critical gaps which are controversial or unknown. These guidelines are often inadequate because of the critical gaps which exist in the availability of work in the assigned area. The incumbent is expected to apply a high degree of imagination and creativity in developing new and novel theories, methodologies or solutions to complex safety engineering problems of significant importance in the area of fire fighter work-related injuries.

Factor 4: Complexity

The safety engineering problems addressed by the incumbent typically involve new concepts and varied problems which are difficult to define, often require original or innovative approaches, and sophisticated state-of-the-art in safety engineering techniques. These problems cover a broad range of engineering and scientific disciplines involving complex interactions between scientific variables, human behavior, and work environments. The incumbent is independently responsible for exercising a high degree of originality and ingenuity in defining and developing safety engineering solutions and designs based on sound judgement and experience by either selecting or synthesizing methods and techniques best suited to the specific problem. The incumbent will have mastered a thorough knowledge of these interactions and has the analytical and theoretical skills needed to determine the nature and scope of such engineering problems.

Factor 5: Scope and Effect

The purpose of the work conducted by the incumbent is to identify and study causal factors common to fire fighter injuries and fatalities; to develop prevention and intervention strategies; and to evaluate the effectiveness of those interventions. The result of this work will contribute to the reduction and prevention of fire fighter work-related injuries and fatalities in these US industries. The results will directly affect the policy directions of NIOSH. Research results from studies will potentially impact other National industrial work populations. Study reports are published in widely disseminated journals, trade publications and NIOSH reports, and are used in the safety and health profession.

Factor 6: Personal Contacts

Personal contacts include research personnel within and outside NIOSH including representatives of the International Association of Fire Fighters, professional engineering organizations, organized labor, trade associations, academicians, and national safety organizations.

Factor 7: Purpose of Contacts

The overall purpose of contacts is to gain information, coordinate activities, gain cooperation from employers, employees, and government officials, and maintain communication while constantly disseminating information. The incumbent will provide technical expertise to employers, workers and their representatives, associations, and other governmental agencies; maintain awareness of new developments and literature in the field; obtain input from other safety professionals; identify research needs of NIOSH customers; and, present the results of research projects to employees, employers, professional groups and OSHA.

Factor 8: Physical Demands

Most of the office work is sedentary, although there may be some manual activity associated with performing field investigations. The manual activity requires some lifting, handling, and

transporting of equipment up to 50 pounds. The incumbent may be walking, climbing, and physically active during the field investigations with possible exposures to certain workplace hazards, for which personal protective equipment is provided.

Factor 9: Work Environment

The work requires exposure to a varied work environment which may require safety and health precautions as well as personal protective equipment. Work is mainly performed in an office or laboratory setting, at work site locations where field tests or experiments are being conducted, and at a variety of nationwide meeting places where research results are discussed.

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INVESTIGATION -- CONDUCTING THE FACE EVALUATION

A. PRE-INVESTIGATION PROCEDURES:

1. OSHA OR OTHER REPORTING AGENCY CONTACT:

Upon receiving initial notification of the fatality, at least the following information should be obtained from the reporting agency and entered onto the NIOSH-approved First Report of Fatality, if at all possible; the name of the victim, the type of fatality, the time the incident occurred, the location of the incident, the name, address (if different than incident site), and telephone number of the employing facility, an employer contact, the names of any witnesses that were on site, and a short synopsis of the incident. To assure that this information is obtained during the initial notification, inform your reporting agencies what information will be necessary when establishing your surveillance network.

2. EMPLOYER CONTACT

As soon as possible upon notification of the incident, the employer should be contacted to establish a time to conduct the FACE evaluation. You should identify yourself as an employee of the State Health Department (or other appropriate agency) and your affiliation with the National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR). Explain the FACE program and its function within your state. Make two points very clear; 1) the FACE program is not affiliated with OSHA, and, 2) you are not a regulatory agency, you are interested in research and the prevention of similar incidents. You are not interested in assessing fault or culpability, only gathering data on the incident. Tell the employer that you will provide a report on the incident that will contain recommendations for the prevention of such incidents. Let the employer know that this report will contain no personal or company identifiers. Establish at least one other employer contact at this time, in the event your initial contact is not able to attend your scheduled opening conference.

It is possible that, because of the time of the incident, a request for immediate assistance, or proximity of the incident site, that you will have to visit the site prior to employer notification. If this situation occurs, advise the employer during your initial contact.

Prepare a package of FACE publications that can be given to the employer during your initial visit. This package can consist of material published by the state, NIOSH, or both. If access to

the site is denied, inform the employer that you will send a package of information to let them see the work being accomplished by the FACE project.

3. CONTACT WITH OTHER AGENCIES

Prior to traveling to the site, contact the appropriate agencies, e.g., the state or local police, the county sheriff, and the county coroner, medical examiner, the emergency medical service, fire departments, or labor organizations to explain the FACE program, schedule a meeting, and request their respective reports. These contacts should always be made, even if these agencies have not had time to prepare a report. Useful information can still be gathered, and you will let people know who you are and apprise them of the FACE program. This could lead to additional reporting agencies.

If OSHA was not the notifying agency, no matter what the elapsed time between the event and the notification, contact OSHA at this time. If notification occurs immediately after the event, an OSHA compliance officer probably has yet to be assigned. The chance exists, however, that your call will notify OSHA of the fatality. Once the OSHA compliance officer has been identified, they should be contacted and made aware of your interest in the case, if they are not already aware of the FACE program. If notification occurs days after the event occurred, your call to the compliance officer will allow you to obtain information regarding the case along with names of employer contacts, investigating law enforcement personnel, coroners, or any other contacts relevant to the case.

It is important not to draw conclusions as to how or why the incident occurred from this preliminary information. It may be incorrect. Although this preliminary information may be useful, conduct your investigation before drawing any conclusions.

Prepare form letters requesting each of these agencies' (e.g., medical examiner, police, OSHA, county coroner, fire department, or emergency medical service) reports and carry them with you on your investigations. If the agencies' reports are not complete, leave these letters in a self-addressed stamped envelope so that the report can be mailed to you upon its completion. These letters should be standardized and should be NIOSH approved.

4. TRAVEL ARRANGEMENTS

Your travel should be planned to assure that you arrive at any scheduled meetings on time. It is a good idea to have all meetings planned prior to travel. Time spent on the telephone prior to the investigation can save valuable time in the field

and can help an investigation run very smoothly in the field. If overnight accommodations are necessary, make reservations in close proximity to your meeting site. This will provide you with access to a telephone, an alternative meeting site, and a quiet place to conduct interviews or discussions, if necessary.

5. BASIC EQUIPMENT TO HAVE AT IMMEDIATE DISPOSAL

You should have the following equipment packed and ready for immediate departure:

Survey Instruments

PPE for the Investigator (minimally a hard hat, safety glasses, steel-toed shoes, gloves, and coveralls)

Camera Equipment

- Polaroid camera
- 35mm camera
- Telephoto lens
- Wide angle lens
- Flash
- Extra film for all cameras
- Extra batteries for flash and cameras

Linear rangefinder

- 12 or 25 foot tape measure
- 50 or 100 foot tape measure

Flashlight with extra batteries

Colored flags or markers to be used as reference markers

Tape recorder with extra batteries and blank tapes

Video camera with extra tapes and battery packs.

Upon return from the investigation, all supplies should be replenished.

The Role of the Investigator at the Incident Site

Upon arrival at the site, take time to walk around the perimeter of the site and conduct a site survey. Note the position of any equipment or article that might have been a factor in the incident or that might be used as a reference point in future

discussions. This would be an opportune time to place colored markers as deemed necessary around the site to use as reference points or to mark measurements. Do not be afraid to take as many measurements between reference points throughout the incident sites as possible. It is better to have a dozen measurements that you might not use than to not to have taken one that you need. Remember, you are going to be investigating this incident by evaluating the relationship of man, machine, and environment relevant to the pre-event, event, and post event time phases of the incident. Take your photographs, and make your measurements accordingly once the event is reconstructed in your mind.

Reconstruction of an incident in one's mind does not denote re-enactment of an incident. There are documented cases of investigators being seriously injured while re-enacting an incident. It is not necessary to do so physically, and is not recommended. If you feel it is indeed necessary to "re-enact" the incident, do so on a series of sheets of paper.

If witnesses are present, ask questions to clarify any questions that you might have. This is not to say that their answers will be accurate, but it might provide you with a solid starting point. This would be a good time to take a few polaroid pictures of the incident site and make notations of questions that might be asked of witnesses at a later time.

If you have arrived at the scene as first responder or in a situation where first responders are present, identify yourself and offer your assistance in securing the scene, to assure that evidence is not disturbed and to allow the investigation to begin as soon as possible in an orderly fashion.

Remember, safety first during the investigation. Don't do anything that might place your safety in jeopardy. If there is a question as to how to address a situation, consult other investigators or competent persons at the scene before proceeding. If this is not possible, photograph questionable situations so that they may be discussed with the appropriate people at a later date. Make sure that all existing and potential hazards (e.g., downed powerlines, falling materials, toxic atmospheres) are identified and that all persons at the scene are alerted to the existence of these hazards.

Evidence should be photographed (see photography section appendix) thoroughly, but should not be disturbed until all parties have completed their investigation.

There will be times that a coroner's office or police will impound evidence prior to your site visit. If this occurs, approach the proper authorities, identify yourself, and ask to view the evidence. If access is denied, ask what steps need to be taken to allow you to view the evidence. Consult the NIOSH

State-Based FACE project officer to determine whether these steps are feasible to follow. It may be more appropriate to view photographs taken by police or OSHA investigators immediately after the incident occurred.

Conducting the Employer Interview

Opening Conference

Plan to arrive at least 10 to 15 minutes prior to your scheduled meeting time with the employer. If for some reason you cannot make the scheduled appointment time, call the employer and explain the reason for the delay and schedule a new time.

If the site for your meeting seems like it might be difficult to find, or is in a very congested area, it would be a good idea to locate it the night before the meeting.

Introduction to the employer should include: stating your name, your agency/department, display of your identification credentials, exchange of business cards, purpose of your visit, discussion of the research study, which should include the prevention aspect of the study. This will let the employer representative know that, although the meeting will be conducted in a business like manner, there is no reason for apprehension. If only one employer representative is present, ask for the name of an additional contact in case your contact is not available should you have to make a follow-up visit.

The exchange of business cards is a good practice; these can be maintained in the case file to provide an instant reference should you need to contact the employer. It is also recommended you leave your business card with other persons involved in the case: the medical examiner, county coroner, police unit, OSHA personnel, EMS units. This not only provides a means of contact for this investigation, but provides a means with which these individuals can contact you in the future.

Once introductions are completed, explain the FACE program and purpose of your visit, again emphasizing the fact that your purpose is research, not to conduct a compliance visit. Note: You may want to explain the basic differences between a compliance visit and a research study, e.g., the purpose of a compliance inspection is to cite violations of the code, while a research investigation looks at the man, machine, and environment relevant to the time phases of pre-event, event, and post-event. You may have already explained the FACE program to some extent

during your initial contact; however, this is a good time to provide more in-depth information regarding FACE, especially if more than one employer representative is present. Inform the employer of other activities of the NIOSH, Division of Safety Research, such as respirator certification, and research into topics such as ergonomics, protective clothing, and homicide at work. Let the employer know that technical information on safety and health subjects can be obtained by calling 1-800-35-NIOSH. Provide the employer with copies of NIOSH or state publications, and let the employer know of any activities of interest that are being undertaken by your organization.

Again, let the employer know that you will provide a copy of the investigation report that will contain a summary of the sequence of events with recommendations for prevention of similar occurrences in the future, and no personal or company identifiers will be used in the report or kept on file.

After all questions are addressed, ask the employer questions that will supply the information necessary to complete your survey instrument. You may ask the employer to explain the circumstances surrounding the incident and extract your information from that, or, you may ask the questions directly. Flexibility will be necessary during an investigation because not all investigations will follow a set formula or equation.

It is important not to draw conclusions and convey opinions from the information presented by the employer because in most instances the employer representative will be relaying second-hand information; however, the employer representative will be best equipped to provide you with information on witness names, daily operations, the task being performed by the victim at the time of the incident, and the established work procedures, if any, that the victim should have been following at the time of the incident. Since most workers are not trained observers, and the events leading up to the incident were probably commonplace, witnesses probably will not have exact details as to what events lead up to the incident. The employer's explanation of everyday operations will provide the investigator with a basis of what might have been occurring prior to the incident.

If the employer has a written safety program, written safe work procedures, or written training materials, ask for a copy. Not only will these confirm that they actually exist, they may come in handy in the future while you are developing recommendations for similar investigations.

Once your interview is complete, or even during the interview, tell the employer you would like to visit the incident site. If the event occurred in-house, ask the employer to walk you through the facility, making sure you ask questions that will allow you to fully understand the company operation. Observing the

operation first hand will be valuable in preparing your report. If you see something that you feel might expose an employee to a hazard, inform the employer immediately (be tactful - the employer is already being investigated and monitored by other agencies). It would also be a good idea to discuss any potential hazard you may see with the OSHA compliance officer assigned to the case, especially if you feel strongly that a hazard exists and the employer was not receptive to your observation. If the event occurred off-site, ask if an employer representative might accompany you to the site to explain, to the best of their knowledge, what occurred.

Closing Conference

It is possible that, after all witnesses are interviewed, a follow-up visit to the site will be necessary to clarify some points. Do whatever is necessary to answer all questions that you may have pertaining to the incident.

Once the interview and site visit are complete, offer any assistance possible to the employer to assist in the investigation of the incident. You can briefly go over the information you have collected - do not offer conclusions, opinions or find fault.

Preparing to Interview the Witness

Once you have received a list of witnesses from the employer, or a first responder such as an investigating police officer, the process of interviewing the witness is ready to begin. This process should begin as soon as possible after the incident occurs.

Prior to taking a verbal statement from the witness, it is advisable for the investigator to survey the incident site and environment. Using the information that has been received prior to the interview, the investigator should develop a probable scenario. Knowing what the incident site looks like, what equipment or machinery was being used, or any difficulties the workers were having performing their task before the incident occurred, will help the investigator prioritize the information received during the witness interview(s).

As the investigator views the incident site, open-ended questions (requiring a comprehensive, not yes or no answer) to be asked of witnesses should be formed and written down. Questions should address who, what, when, where, and why. Witnesses may be more comfortable during interviews if they feel the investigator has

knowledge of the incident, the task being performed, or the problems being encountered during the performance of the task. Witnesses can often be made more comfortable by hearing the reason for your investigation, and that your purpose is to identify problems, not assess blame. Asking the witnesses for their help will make them feel that they are important to the investigation. Speaking to them is the most important thing to be done at the moment and time is not a factor. The investigator should be relaxed, receptive, and objective.

The personality of witnesses may affect the manner in which the interview progresses. The investigator may encounter witnesses who are timid, open, hostile, or egotistical, or who fear retribution. No matter what type of witnesses is encountered, the investigator must remain open and objective. Try to find a common ground during the interview, and let the witness talk freely.

Timid witnesses can usually be put at ease by a friendly, concerned, and compassionate manner. The investigator should ask the witness if he or she has any problems resulting from the incident, and offer to help if possible. This can help establish a trust between the witness and the investigator. Once timid witnesses open up, they usually provide valuable information. Assure the witness that this will be an interview, not an interrogation, and that it will remain private and confidential.

An open witness will gladly discuss anything you want to discuss. Sometimes an open witness will get carried away and make statements that don't fit with other evidence. Often an open witness will offer personal conclusions as to what occurred that may conflict with other testimony and evidence. If this occurs, statements made by this type of witness must be interpreted with caution.

A hostile witness will be easily identifiable early in the interview. Facial expressions and lack of direct eye contact, and body language such as clenched fists or nervous feet may be signs of nervousness or hostility. The hostile witness will usually be quick to assign blame and will have a single-minded opinion of what caused the incident and will be quick to express it. If no progress can be made with the hostile witness, it might be wise to terminate the interview. There is nothing to be gained by prolonging a bad situation, and information given by the witness will probably be biased.

An egotistical witness will know everything that occurred and more. Often, it is discovered that this person was not in the immediate area of the incident site. This type of witness may make statements such as: "well, so and so says this or so and so says that." Again, careful evaluation of these statements is necessary.

There will be times when a fatal incident is unwitnessed. When this occurs, it is important that the investigator work with other investigating bodies to formulate the most likely scenario. The possibility always exists that another investigator may have picked up on some type of evidence that the other investigators had missed.

People who had been on-site but did not observe the incident, often have detailed knowledge of the job routines and procedures which the victim may have followed. These workers can be useful to help reconstruct typical scenarios and corroborate existing physical evidence.

When the investigator is ready to begin the interview, it is essential that a non-threatening location be selected in which to conduct the interview. Witnesses will be best able to recall their observations and provide the most useful information when they feel comfortable and secure.

The investigator will have to evaluate the emotional state of the witness to determine the most desirable site for an interview. If possible, conduct the interview at the incident site. The incident site will allow the witness to give the investigator locations of workers, equipment, or machinery in use during the incident. If the emotional state of the victim is such that the interview cannot be conducted at the incident site, a quiet waiting room, lunch room, or small office at the employer's facility could be used. If the witness would feel more comfortable off-site, a restaurant, or other public place could be used. When conducting off-site interviews, it is best if the investigator has already visited the incident site. Polaroid photographs or sketches of the incident site are useful during these interviews. The investigator should use his or her best judgement when selecting an interview site.

Upon meeting the witness, the investigator should introduce himself or herself, show identification, and explain the FACE program and its interest in the incident. The investigator should assure the witness that the purpose of the investigation is not to assess blame but to identify hazards and prevent similar incidents. The witness should also be assured that the information gathered during the interview will remain confidential. The witness should also be told that a copy of the formal report of the incident will be available. At all times, the witness should be treated with courtesy and respect. Remember, this person has recently been through a traumatic experience, and may still be emotionally shaken. Additionally, it is not uncommon to have to speak to relatives that have witnessed the incident. This is especially true of fatal agricultural incidents.

To begin the interview, the investigator can ask for routine information such as the witness's name, job title and description, amount of experience at the job, and any training the witness may have received while working for his or her present employer. Routine questions such as these will help the witness relax, and will allow the investigator time to evaluate the emotional state and attitude of the witness.

After these routine questions, the investigator should ask the witness to relate what occurred prior to, during, and after the incident. The investigator should allow the witness to freely relate the circumstances surrounding the incident, and should not lead the witness into statements that would support investigator theories.

The investigator should not rely on memory for total recall of the witness's comments. Notes taken during the witness interview can be used to restructure the events leading up to the incident. This will assist the investigator in report writing. Since constant writing could become a distraction to the witness, only evidence essential to the investigation should be noted. The investigator should tell the witness that notes will be taken, but should assure the witness that personal identifiers will not be used. If witnesses speak too fast, do not ask them to stop for a moment, or they may lose their train of thought. Record only essential points that can be clarified by follow-up questions after the witness has stopped speaking. The witness may feel more comfortable seeing the notes out in the open, but notes should not be taken in a manner that becomes distracting. If the witness has no objections, the interview may be recorded. This would help the investigator with information partially missed during the interview. Investigators should not discourage or interrupt pauses by the witness. Sometimes the witness requires time to gather thoughts before continuing. Silence can also be a good prompt.

If follow-up questions are necessary, ask questions that require more than a yes or no answer. Questions that call for the witness to make an assessment or offer second hand information are not appropriate. Sufficient questions should be asked of witnesses to provide the investigator with all information necessary to complete the survey instruments and write the investigative report.

Polaroid snapshots taken during a site visit can be extremely helpful during witness interviews, especially if the interviews are conducted away from the incident site. The investigator should not hesitate to use them to clarify points. The witness will become more involved in the interview by being allowed to view the photographs. Encourage the witness to suggest an additional sketch or diagram that is necessary to clarify a point. These can also be used in future witness interviews.

The investigator should note the witnesses attitude and actions during the interview. This might help the investigator analyze the comments of witnesses, especially if contradictory evidence exists.

During the interview the investigator should ask questions that would provide the following information:

- o Date, time, and location of the incident
- o Environmental factors during the pre-event, event, and post-event phases of the incident. These factors might include wind, rain, temperature, lighting, etc.
- o The location of workers, equipment, and machinery, or any other significant landmarks that might have affected the incident
- o The names of other witnesses present at the incident site - this may lead to the identification of additional witnesses
- o The name of the witnesses and telephone numbers at which they can be reached
- o Whether or not anything was taken from or repositioned at the incident site during the three phases of the event
- o What attracted the witness's attention to the incident
- o The address of the witness(es) who requested a copy of the investigative report.

In closing the interview, the investigator may want to go back over the important points covered during the interview to assure that everything is clear in his or her mind.

To conclude the interview, ask the witness(es) for suggestions on preventing similar incidents. Information such as additional safety training or alternative ways to perform the task that was being performed at the time of the fatal incident, may prove helpful in developing recommendations that would reduce worker exposure to hazards while performing their jobs.

After interviewing the witnesses and analyzing their comments, complete the appropriate survey instrument.

THE FACE NARRATIVE REPORT

Each FACE investigation of in-scope injury is documented by a narrative report describing the incident in detail and offering recommendations for prevention of similar occurrences. A recommended report format and a typical DSR report are included in this section.

Prior to finalizing the report, DSR recommends requesting review of the draft by the OSHA compliance officer assigned to the case. This will assure that any regulations referenced in the report are cited correctly.

As reports are finalized, they are transmitted to the DSR contact person for Investigative Operations via E-mail as a WordPerfect 6.0/6.1 attachment. Final reports are also distributed to the victim's employer, the OSHA compliance officer assigned to the case, and other entities targeted for dissemination.



DSR RECOMMENDED FACE REPORT FORMAT

(Outline for Construction of a FACE report)

I. SUBJECT

A phrase describing:

- A. Incident type
- B. Victim's job title
- C. Jobsite
- D. Location of incident (state)
- E. Victim's activity

II. SUMMARY

- A. Single paragraph giving brief description of incident including:
 1. victim data
 - a. age
 - b. sex
 - c. job title
 2. victim's pre-event activity
 - a. victim's task prior to event
 - b. PPE if used
 - c. other safety equipment/devices
 3. victim's action during event
 - a. describe victim's activity during event
 - b. identify energy source or agent causing injury
 - c. how was energy source or agent contacted
 - d. nature of fatal injury, results of energy contact of agent

4. post-event activity
 - a. did first responders expose themselves to hazards or risk
 - b. did actions of first responders increase the risk to the victim
- B. Recommendations, bulleted list following incident description:
 1. each recommendation should relate to a specific hazard or risk factor documented in the summary
 2. list recommendations in ranked order beginning with most incident specific

III. INTRODUCTION

- A. First paragraph; notification, victim data, and investigation activities including:
 1. date of incident
 2. victim data
 - a. age
 - b. sex
 - c. job title
 3. date of notification of incident
 4. notifying entity/official
 5. date of site investigation
 6. job titles of investigators
 7. sources of information
 - a. persons interviewed
 - b. entities contacted
 - c. photographs reviewed or taken
 - d. other reports obtained, (e.g., coroner, medical examiner, newspaper, police)
- B. Subsequent paragraphs; background information of employer and victim including:
 1. description of employer's business
 - a. type of business
 - b. total number of employees
 - c. number of employees of victim's occupation
 - d. number of years in business
 - e. number of employees at the site of incident

- (if different from total)
 - f. is business seasonal or continuous throughout the year
 - 2. description of safety program
 - a. designated safety director
 - b. written program/policy
 - c. are there written safe work procedures specific to the victim's task
 - d. are a pre-employment physical and drug screening required
 - e. frequency of safety meetings/tailgate talks
 - 3. description of training program
 - a. new hire training
 - b. refresher training
 - c. task-specific training
 - d. how is training provided (e.g., OJT, classroom, jobsite talks)
 - 4. statement of fatal incident/injury history for employer
 - 5. victim experience, training
 - a. victim's experience/history with employer
 - b. victim's experience at task performed at time of incident
 - c. was victim trained in the task?
 - d. was victim certified/licensed to perform task?

IV. INVESTIGATION

A detailed narrative description of incident including:

A. Conditions surrounding incident:

- 1. type of work company was performing at jobsite at time of incident
- 2. victim's assigned task
- 3. description of PPE and/or safety equipment used or available
- 4. description of the jobsite (illustrations may be used to help clarify the description)
- 5. description of other equipment involved

B. Pre-event activities:

1. victim's and co-workers' activities prior to incident listed in chronological order
 2. number of co-workers involved in the incident
 3. location of co-workers in relation to victim (especially if within line-of-sight of victim)
- C. Activities during event; circumstances surrounding victim's contact with energy source or agent:
1. how and why did victim contact energy source or agent
 2. did the energy source or agent display signs of prior damage, override, or abuse
 3. were there reports of problems prior to the incident
 4. were controls in place
 5. what was victim's reaction
 6. what were the injuries
 7. describe the information (eyewitness accounts, physical evidence, etc.) which leads the investigator to conclude that the incident occurred as reported
 8. reference any illustrations or photographs included at end of report
- D. Post-event activities:
1. victim's condition immediately following the incident
 2. individuals/organizations responding to incident (e.g., co-workers, emergency medical squad, fire company)
 3. time of emergency response
 4. actions of first responders
 - a. was CPR or first aid administered, if so by whom
 - b. were rescuers exposed to hazards
 - c. did their actions increase the risk to themselves or the victim

5. victim's condition after incident
 6. transport of victim (where)
 7. victim's condition after transport
 8. time between incident and death
- E. Document any conditions which make the investigation's conclusions suppositional or inferential rather than evidentiary

V. CAUSE OF DEATH

Medical Examiner or attending physician's cause of death:

- A. Include cause of death determined by coroner or listed on death certificate
- B. Include other pertinent data from coroner's or autopsy report (if available) such as:
 1. burn marks or wounds which support cause of death determination
 2. toxicology reports

VI. RECOMMENDATIONS/DISCUSSION

- A. Statement of recommendation:
 1. list in ranked order beginning with most incident specific
 2. state each recommendation exactly as stated in the summary section of report
 3. each recommendation should address the management of hazards, or risk factors identified in the investigation section of the report as having contributed to the occurrence of the incident
 4. each risk factor or hazard described in the investigation section should have a corresponding recommendation for prevention
 5. use non-regulatory language, (e.g., use "should" rather than "shall," "must," etc.)

6. recommendation should have prevented incident if implemented
7. non-compliance with OSHA standard should be documented

B. Discussion of recommendation .

1. supporting paragraph listed after associated recommendation
2. avoid simply repeating the recommendation in different language
3. documents specific hazard or risk factor
4. describes how recommendation would have prevented the injury or incident
5. includes references to applicable standards when appropriate
6. documents employer's corrective action if already implemented by the time of investigation

VII. LIST OF REFERENCES

Included if references are noted in discussion; use a standard bibliographical format

VIII. ILLUSTRATIONS (optional)

Drawing(s), sketch(es), or photograph(s) that:

- A. Have a title to relate illustration to incident, including figure number that is referenced within the report text
- B. Show location of victim and co-workers at time of incident
- C. Include the location of conditions/hazards surrounding incident (give measured distances when possible)
- D. Clearly label all information pertaining to incident

- E. Include circuit diagram for electrocutions showing victim's point of contact with the energy source and path to ground
- F. State whether or not drawing is to scale

IX. SIGNATURE PAGE

- A. Signature and title of field investigators
- B. Signature and title of person responsible for information release

X. COMMENTS ON STYLE, PUNCTUATION, SPELLING

A. Style

The report should be written in the past tense (e.g., the employer was a municipal waste water treatment facility...)

B. Spelling and punctuation

1. NIOSH uses Webster's Third International Unabridged Dictionary (1976) as the standard source for spelling
2. The Government Printing Office (GPO) Style Manual (1984) is used as the standard reference for punctuation, expression of numerals, compounding of words, and other stylistic parameters

NONDISCLOSURE AGREEMENT

The success of CDC's operations depends upon the voluntary cooperation of States, of establishments, and of individuals who provide the information required by CDC programs under an assurance that such information will be kept confidential and be used only for epidemiological or statistical purposes.

When confidentiality is authorized, CDC operates under the restrictions of Section 308(d) of the Public Health Service Act which provides in summary that no information obtained in the course of its activities may be used for any purpose other than the purpose for which it was supplied, and that such information may not be published or released in a manner in which the establishment or person supplying the information or described in it is identifiable unless such establishment or person has consented.

"I am aware that unauthorized disclosure of confidential information is punishable under Title 18, Section 1905 of the U.S. Code, which reads:


'Whoever, being an officer or employee of the United States or of any department or agency thereof, publishes, divulges, discloses, or makes known in any manner or to any extent not authorized by law any information coming to him in the course of his employment or official duties or by reason of any examination or investigation made by, or return, report or record made to or filed with, such department or agency or officer or employee thereof, which information concerns or relates to the trade secrets, processes, operations, style of work, or apparatus, or to the identity, confidential statistical data, amount or source of any income, profits, losses, or expenditures of any person, firm, partnership, corporation, or association; or permits any income return or copy thereof or any book containing any abstract or particulars thereof to be seen or examined by any person except as provided by law; shall be fined not more than \$1,000, or imprisoned not more than one year, or both; and shall be removed from office or employment.'

"I understand that unauthorized disclosure of confidential information is also punishable under the Privacy Act of 1974, Subsection 552a (i) (1), which reads:

'Any officer or employee of an agency, who by virtue of his employment or official position, has possession of, or access to, agency records which contain individually identifiable information the disclosure of which is prohibited by this section or by rules or regulations established thereunder, and who knowing that disclosure of the specific material is so prohibited, willfully discloses the material in any manner to any person or agency not entitled to receive it, shall be guilty of a misdemeanor and fined not more than \$5,000.'

"My signature below indicates that I have read, understood, and agreed to comply with the above statements."

Eric R. Schmidt
Type/Printed Name


Signature

6/21/55
Date

Center/Institute/Office

YEE NAME: ERIC SCHMIDT
 SR HCR#3
 RY SCORE: 325 - FULLY SUCCESS

SSN: 569-59-
 CLASSIFICATION: GS-0603 13/06 SAFETY ENGINEER
 PERIOD FROM: 5/1/99 TO: 5/31/00

YEAR-GROUP: 1999 - 190 HOURS: 80
 SALARY: 65,142
 TOTAL WEIGHTS - CRITICAL: 90
 NONCRITICAL: 10

MENT	CRITICALITY	WEIGHT	RATING
BER	NONCN)	FACTOR	LEVEL
1	C	20	3
2	C	25	3
3	C	12	3
4	N	10	4
5	C	16	3
6	C	15	4

DESCRIPTION:
 ENGR METHODS DEVELOP STRATEGIC
 CONDUCT FACE INVESTIGATIONS
 DEVELOP/WRITE TECH DOCUMENTS
 RECONDS MODS OF CURR RESEARCH
 CONDUCTS TECHNICAL REVIEWS
 REPRESENTATION

NOTES:
 RATING LEVEL OF 5, 2, OR 1
 FOR ANY ELEMENT MUST BE
 ACCOMPANIED BY
 WRITTEN JUSTIFICATION.

RATING CATEGORIES
 441-500 5-OUTSTANDING
 386-440 4-EXCELLENT
 286-385 3-FULLY SUCCESS
 186-285 2-MARG SUCCESS
 100-185 1-UNACCEPTABLE
 IN CURRENT GRADE SINCE:
 06/20/1999

LAST WITHIN GRADE:
 06/20/1999(NEXT=2001)
 LAST DSII:

PERSONAL COPY

provided input to my rating (please check one) Yes No
 EMPLOYEE SIGNATURE: [Signature]
 DATE: 5/31/00
 COMPUTER FORM -- CDC Q.1101 & CDC Q.1102

RATING OFFICIAL: [Redacted]
 DATE: 5/31/00
 REVIEW OFFICIAL: [Redacted]
 DATE: [Redacted]

Employee Performance Appraisal
Eric Schmidt
June 20, 1999- December 31, 1999

Critical Element #1 (Weight= 20)

Applies engineering techniques and methods for studying work-related injuries to develop intervention and prevention strategies. Provides engineering interface with internal and external professionals/partners in the study of and development of engineering designs, practices, protocols, recommendations etc.

Still becoming integrated into program.

Critical Element #2 (Weight=25)

Conduct FACE investigations (independently or as a Team Member), making contact, conducting investigations, and preparing a written summary report from the investigative findings and other appropriate sources. The summary report should include the sequence of events in accordance with the epidemiologic model of man, machine, and environment relevant to the phases of pre-event, event, and post-event. The summary report should also include recommendations which could prevent similar work-related traumas.

- *Participated in 5 FACE investigations*
- *Primary author for 2 investigations- reports are in draft form*

Critical Element #3 (Weight=12)

Develop and write technical documents and manuscripts for publication and presentation based on the results of research for dissemination in peer-reviewed journals, NIOSH publications and other appropriate media.

Investigation reports are accurate and appropriately documented. As Mr. Schmidt becomes more integrated in the project, there will be the need and opportunities for additional writing tasks summarizing specific types of hazards and/or prevention recommendations.

Non-critical Element #4 (Weight=10)

Proposes recommendations for new or modifications of existing research directions or projects to further the mission of DSR and NIOSH.

- *Initiated the development of Lifeline Session series- toolbox talks*
- *Proposed analysis of data from [REDACTED] Discussed potential analyses and worked with epidemiologists and Fellows who would analyze the data.*
- *Created database of prevention recommendations made in fatality reports as a possible tool by Team members*

Mr. Schmidt has demonstrated initiative in proposing new activities, tools and products for the Fire Fighter Project. The Lifeline Sessions series may be a useful tool for getting prevention messages directly to firefighters.

Critical Element #5 (Weight=18)

Conducts technical reviews of scientific work conducted by others (both internal and external to CDC), participation in inter-branch or interdivisional activities, and providing technical expertise as required to meet the mission and goals of DSR and NIOSH.

- *Reviewed reports authored by Team members.*

Critical Element #6 (Weight=15)

Serves as a representative for the Division and Institute with government agencies, nongovernment and private agencies and organizations, and the public. This includes working independently as a NIOSH representative with representatives such as National Fire Protection Association, U.S. Fire Administration, International Association of Fire Fighters, American National Standards Institute, and local fire departments and unions.

- *Arranged for Team members to observe a large fire department in action.*
- *Proposed membership on the NFPA 1500 Committee (Committee on Fire Service Occupational Safety and Health)*

Mr. Schmidt demonstrates initiative in making and establishing outside contacts.

EE NAME: ERIC SCHMIDT
 SR HCCB83
 SSN: [REDACTED]
 TIMEKEEPER: [REDACTED]
 CLASSIFICATION: GS-0803 13/06 SAFETY ENGINEER
 YEAR-GROUP: 1999 132
 SALARY: 62,750 HOURS: 80
 REVIEW OFFICIAL: 7/7/1999
 EMPLOYER SIGNED: 7/7/1999
 REVIEW OFFICIAL: 7/7/1999

PERIOD	DATE	LAST DAY WORKING UNDER PLAN	WEIGHT	HEIGHT	FACTOR	RATING LEVEL	DESCRIPTION	NOTES
C	0		20	X		3	ENGR METHODS DEVELOP STRATEGIC	RATING LEVEL OF 5, 2, OR 1 FOR ANY ELEMENT MUST BE ACCOMPANIED BY WRITTEN JUSTIFICATION.
C	0		25	X		3	CONDUCT FACE INVESTIGATIONS	
C	0		12	X		3	DEVELOP/WRITE TECH DOCUMENTS	RATING CATEGORIES
M	0		10	X		3	RECORDS MDDS OF CURR RESEARCH	SUM RATINGS
C	0		18	X		3	CONDUCTS TECHNICAL REVIEWS	441-500 5-DISTANDING
C	0		15	X		4	REPRESENTATION	386-660 4-EXCELLENT
						SUM		286-385 3-FULLY SUCCESS
								186-285 2-MARG SUCCESS
								108-185 1-UNACCEPTABLE

IN CURRENT GRADE SINCE:
 06/20/1999
 LAST WITHIN GRADE:
 06/20/1999 (NEXT-190)
 LAST QSI:
 LAST AWARD:
 SPECIAL ACT:
 PERFORMANCE:

REVIEW OFFICIAL _____
 DATE _____
 COMPUTER FORM -- CDC D.1101 & CDC D.1102

Self Evaluation for
Eric R. Schmidt

Engineering Methods Develop Strategies

Self Rating 3 - Fully Success full

Conduct Face Investigations

Participated in six face investigations since 6/99. Served as primary author for two investigations, one of which contained recommendation a substantial addition to a national standard. Served as team lead on two investigations.

Self Rating 3 - Fully Success full

Develop / Write Technical Documents

Self Rating 3 - Fully Success full

Initiated the development of "Lifeline Session" series. A series of toolbox talks the will permit senior fire department personnel to deliver a face-to-face message to fire fighter on methods that will help to reduce the rate of injury and loss of life.

Recommendations for new modifications of existing research

Self Rating 3 - Fully Success full

In the process of developing a series of proposals for FY01.

Conducts Technical Reviews

Self Rating 3 - Fully Success full

Have reviewed reports prepared by others on team of offered suggestion as necessary.

Representation

Self Rating 4 - Excellent

Have arranged for member of the Team to obtain training and actual emergency exposure with the [redacted] Fire Department at no cost to the Government (except transportation). Have submitted necessary paper work needed to advance membership on the NFPA 1500 Committee. (Committee on Fire Service Occupational Safety and Health). Have offered to attend 1999 IAFC meeting.

Date: February 14, 2000

To: Eric Schmidt

From: Dawn Castillo

Subject: Performance Guidance

As we discussed, the purpose of this memorandum is to give you guidance for focusing your performance in the conduct of fatality investigations, a critical element of your performance plan. It is essential that you have concrete guidance so that you can demonstrate successful performance in your position prior to the end of your probationary period, in June 2000.

My concerns about your performance in the conduct of fatality investigations first surfaced in December, and then again in January— during the multiple fatality investigation in In both instances, I provided you with guidance on the scope and procedures of the Fatality Assessment and Control Evaluation (FACE model), the model followed by traumatic injury investigators in the Division of Safety Research.

Improvement will be needed in several areas for you to demonstrate successful performance in the conduct of FACE investigations by the end of the probationary period: the identification of the types and level of detail of information that should be collected during the investigation; following standard procedures in gathering the information; and, working effectively as a Team member on investigations.

Identification of the types and level of detail that should be collected during the investigation:

It is very important that during the conduct of FACE investigations, information is gathered that is useful in summarizing the chain of events leading to death and/or making recommendations for the prevention of future similar events. Summaries of investigations should be concise, yet cover all points relevant to understanding direct contributors to the event and providing justification for recommendations for preventing future similar events. The FACE model does not go into depth on ancillary contributors— those whose contributions to the death were not directly relevant or for which there are no directly relevant prevention implications.

On occasion, you have expended your time and that of others in collecting information which is not of direct use in the investigation and summary report— collecting details which are not necessary or used in summarizing the chain of events leading to death and/or making recommendations for the prevention of future similar events. An example of this is your persistence in gathering complete autopsy reports, rather than simply getting information from the report on the cause of death. As we discussed, for injury death investigations, the cause of death is typically all that is needed. Other examples are your insistence on gathering exact measurements of the burned area of a fire hose in the investigation in January, as this information is not necessary for describing the chain of events, and the specifics and shape of the turnout gear and clothing, as it is unlikely this information will have implications for recommendations for the prevention of future similar events.. The collection of detailed

information not of likely use in an investigation is an inefficient use of your time, a burden on those who help us in gathering the facts of the case, and a potential liability to the program if those who spend their time helping us to understand the case are upset by the absence of information that they helped provide in the summary report. You need to minimize your fact gathering during investigations to those pieces of information which are needed to summarize the chain of events or that have direct implications for prevention recommendations. When in doubt, please seek guidance from _____ and/or me.

Following standard procedures in gathering information:

Given limits on NIOSH's ability to protect information that is provided to us during the course of investigations, efforts are made to minimize information in our files with direct identifiers of individuals. For this reason, efforts are made to collect information in the field and through verbal contact rather than through formal correspondence that might help an outside requestor in the identification of individuals involved in specific cases.

You frequently use formal correspondence to request documentation (at levels which are not needed) when other investigators are able to collect pertinent information through verbal contacts. You need to increase your efforts to get information in the field and through verbal contacts to minimize formal correspondence which might be used to identify individuals in specific cases. In at least one example that I am aware of, in January, Mr. _____ in response to reviewing a formal request for a coroner's report, was able to get cause of death information, all that was needed for the report, through a phone call.


Work effectively as a team member:

At the current time, most fatality investigations are conducted by teams rather than individuals. Team work is critical for maximizing the quality of the investigation and report, and for positively representing NIOSH in the field.

An area for improvement is to work effectively as a team member in investigations and in the office. At times you appear inflexible and inconsiderate of issues or perspectives raised by team members. There were concrete examples in the _____ investigation, in which your answers to a team members inquiry as to why you felt certain information was needed for the report, were curt, and you demonstrated no attempt to understand or assimilate his perspective.

I truly hope this guidance is useful to you in focusing your conduct of fatality investigations. I would like to meet again on Monday, March 13, at 9am to assess progress and performance.

Sincerely,


Dawn Castillo

June 9, 2000

The purpose of this memorandum is to document my reasons for recommending the termination of Mr. Eric Schmidt from his position of Safety Engineer, GS-0803-13, during his probationary period. Mr. Schmidt entered into duty on June 20, 1999. Mr. Schmidt was hired at the step 6 level because it was anticipated that his unique blend of experience and expertise in fire fighting and safety engineering would be a tremendous asset in investigations of fire fighter fatalities, and the development of recommendations to prevent future incidents. I am making the recommendation for termination because of Mr. Schmidt's marginal performance in the conduct of fatality investigations and report preparation- a major duty of his position, and one of the critical elements of his performance plan. My efforts to provide guidance to Mr. Schmidt so that he could successfully perform his job, and an illustrative example of his marginal performance despite this guidance, are detailed below.

My concerns about Mr. Schmidt's performance first arose mid-December 1999 in relation to a fatality investigation he led at the beginning of December. I met with Mr. Schmidt and provided verbal guidance on standard procedures for collecting information, and the need to restrict information gathering during fatality investigations to those pieces of information which are needed to summarize the chain of events or that have direct implications for prevention recommendations. I also discussed with Mr. Schmidt the need to concentrate on fatality investigations rather than other research endeavors proposed by Mr. Schmidt during this conversation. Based on input from the Team Leader and other team members on the December investigation and previous investigations, I had concerns about Mr. Schmidt's abilities to work effectively as part of a team. I chose not to address this with Mr. Schmidt as I was operating solely on hearsay and I recognize that interpersonal dynamics are influenced by each individual's personality and perspective.

Because my concerns about Mr. Schmidt's performance arose at the end of the rating period which I also considered to be a training period for Mr. Schmidt, I thought the only fair and appropriate action for his performance evaluation was to give him a fully successful performance rating overall; and, for the conduct of fatality investigations specifically. I determined, however, that it was critical for me to directly observe Mr. Schmidt's performance during a fatality investigation, so that I would be in a better position to assess his performance and provide him with concrete guidance for improvement, if needed.

I accompanied Mr. Schmidt and two other investigators on a fatality investigation on January 18-20, 2000. My concerns about Mr. Schmidt's performance in the conduct of fatality investigations and his ability to interact effectively as a member of a Team were heightened by this direct observation. I discussed my concerns verbally with Mr. Schmidt and followed up with written guidance on February 14, 2000. The purpose of these discussions and written documentation was to provide Mr. Schmidt with concrete guidance for him to improve his performance. Areas identified for needed improvement were: identification of the types and level of detail that should be collected during an investigation; following standard procedures in gathering information, and working effectively as a Team member. It is noteworthy that the

written guidance states that one of the consequences of being unfocused when conducting an investigation is inefficient use of time. *It was explicitly stated in the verbal and written guidance that Mr. Schmidt would need to improve his performance in order to demonstrate successful performance prior to the end of his probationary period.*

In the written guidance to Mr. Schmidt, a meeting was prearranged for a month later to assess progress and performance. Mr. Schmidt and I met on March 17, 2000. At this meeting I pointed out that it was difficult for me to assess progress in the areas outlined in the February 14 written guidance because I did not have a product to evaluate. This was despite the fact that Mr. Schmidt, at a meeting of the investigating team and Team Leader following the January site visit, suggested that a draft would be available by the end of February. I indicated to Mr. Schmidt that I would provide feedback on a dry run of a forthcoming presentation he was to give on the NIOSH Fire Fighter Fatality Investigation and Prevention Program, and after receiving a draft report of the January fatality investigation. Mr. Schmidt gave the dry run presentation in April; I provided feedback to him that the presentation was satisfactory. A draft report of the January investigation was not provided until the beginning of June, and only after I imposed a deadline for some version of a draft.

At various times beginning in February, I and the Team Leader emphasized to Mr. Schmidt the need for a report to be drafted on the January investigation. At my March 17 meeting with Mr. Schmidt, he noted that he had just gotten dispatch tapes from the fire department. I expressed concern at that point as to whether the dispatch tapes were needed based on my involvement in the investigation. Although dispatch logs are routinely collected during investigations, dispatch tapes are not. Obtaining the dispatch tapes did not in my opinion seem like a fruitful area of inquiry. In late April/early May, Mr. Schmidt reported that he had received the transcriptions of interview tapes. I noted my concern about the decision to transcribe the tapes, and the delay introduced by awaiting these tapes. Though previously discussed for other investigations, taped interviews had never been transcribed before-- the time for transcription was always one of the factors in these discussions. At a May 2 Team meeting, Mr. Schmidt reported that a draft report from the January investigation would be circulated around the third week of May. On May 30, I inquired of Mr. Schmidt as to when I could anticipate a draft of the January investigation. He noted that it would not be available for several weeks, as he had only recently received the final interview transcripts, and he had scheduled travel in which he would participate in two new investigations, and conduct additional interviews associated with the January investigation. I questioned the decision to participate in additional investigations since a report for the January investigation had not been drafted. The scheduling of travel to participate in new investigations apparently arose out of a misunderstanding from a team meeting in which tentative teams were identified for pending investigations. It may not have been recognized by all Team members that scheduling of these investigations was not to be initiated until adequate progress had been made on pending reports. I also inquired as to the additional interviews that needed to be conducted for the January investigation. I agreed with the potential need for one of the interviews with a police officer who had been on the scene, but not the interviews of dispatchers which Mr. Schmidt proposed. I explicitly asked if there was any version of a draft of the January investigation that I could review. Mr. Schmidt replied that he had not initiated a draft of the

report, but instead had been putting together a matrix of information from the transcribed interviews that would be useful in establishing a timeline for the fatal event.

I followed up with Mr. Schmidt on May 31 to inform him that I had decided he needed to cancel his travel for the new investigations and additional interviews associated with the January investigation, and concentrate on drafting the report from the January investigation. I provided guidance that in the draft report, he should note areas of uncertainty and missing information. I asked for some form of a draft report, which could include detailed outlines, by close of business on June 2, 2000.

On June 2, Mr. Schmidt provided me with three items that are described below, along with my assessment or concerns regarding each item:

- a 1-page outline of potential contributing factors to the fatal event. This outline was developed shortly after the January site visit. There does not appear to have been further refinement of the outline, including the development of draft recommendations suggested by these potential contributory factors.
- a 500 plus page matrix, which Mr. Schmidt indicated was a work in progress. The matrix included information from the transcribed interview tapes, reordered in an approximate time line. This matrix appears to have required substantial amounts of Mr. Schmidt's time. The utility and necessity of such a matrix is not clear, however. It is not clear that this matrix is necessary for sufficiently describing the sequence of events leading to the fatalities, or in identifying contributory factors for the purposes of developing recommendations to prevent future events. I am concerned that Mr. Schmidt has expended inordinate amounts of time on this exercise, in the absence of making progress on describing the sequence of events leading to the fatalities, and developing recommendations for the prevention of future similar events.
- a 2-page summary of the event. A summary is one component of the standard fatality report- it typically includes recommendations; this summary did not. Other parts of the fatality report were not provided, nor was an outline of proposed content provided. Missing components included the introduction, investigation, cause of death and recommendations/discussion sections.

It is not possible to assess from what has been provided by Mr. Schmidt whether he has minimized his fact gathering, per the February 14 written guidance, to those pieces of information which are needed to summarize the chain of events leading to the fatality, or that have direct implications for prevention recommendations. I have concerns, based on my involvement in the initial investigation, about Mr. Schmidt's continued inquiry into issues regarding the dispatchers and the potential presence of volatile materials on the deceased fire fighters' turnout gear. Though Mr. Schmidt did not tell me when I inquired about the additional interviews he had planned, he did share with a fellow investigating team member that he planned to conduct additional interviews to assess whether the deceased fire fighters might have had volatile materials on their turnout gear from their earlier response to a motor vehicle collision. In my verbal counsel to Mr. Schmidt following our January site visit, I discussed with him that even if the turnout gear was contaminated with volatile materials, available evidence suggested this was not a contributor to the fire fighter deaths. Information gathered during the investigation

indicated that the three fire fighters were killed during a significant fire event, probably a flashover. I discussed with Mr. Schmidt that it was unlikely that the presence of volatile materials on the turnout gear would have made the difference between life and death given the extreme temperatures to which the fire fighters were exposed. I also discussed with Mr. Schmidt that while there might be merit to fire fighters changing their turnout gear subsequent to responding to motor vehicle crashes, such a recommendation would have limited utility in preventing future deaths when fire fighters respond to a structure fire with the possibility of an event such as a flashover. I also discussed with Mr. Schmidt the variety of other contributing factors which were clearly related to the deaths, and recommendations which could help prevent future similar events, such as doing a "size up" of the fire scene, establishing and transferring incident command, establishing a system to account for all fire fighters on the scene, training, and adequate staffing.

It is clear that Mr. Schmidt has spent substantial amounts of time developing the matrix which is of questionable utility and necessity. He has also demonstrated poor judgement in delaying drafting of the report while awaiting dispatch tapes and transcribed interviews, and pursuing new investigations when the draft for the January investigation had not even been initiated.

Recognizing that the complexity of each case and other duties influence the time needed to complete each fatality investigation report, I have not dictated a mandatory time for development of a draft fatality investigation report. However, the importance of releasing reports in a timely fashion is continually emphasized to all investigators. Reports have been drafted by other staff for similarly or more complex events investigated in late December and January. Lead authors for these investigations, similar to Mr. Schmidt, have juggled multiple investigations and duties. One of these staff is a more junior level employee, the other the Team Leader. As well, the National Fire Protection Association, who conducted an investigation of the event at the same time as us and participated in our fire fighter interviews, reportedly is nearing completion of their report.

As discussed above, one of the areas in which I counseled Mr. Schmidt in January and February was the need for him to improve in how he worked with other team members. Most fire fighter fatality investigations are conducted by teams rather than individuals. Team work is critical for maximizing the quality of the investigation and report. It initially appeared that Mr. Schmidt had improved his effectiveness in working as part of a Team. I had not observed any negative interactions with other staff, nor had any been reported to me by the Team Leader or team members. However, recent events and information raise these concerns again, and are specific to the January investigation.

The investigation team consisted of two other investigators in addition to Mr. Schmidt. Although I accompanied the investigating team, it was clear that my role was as an observer. One of the investigators retired a couple of months ago, leaving Mr. Schmidt and a junior investigator as the investigating team. It is noteworthy that one of the consequences of not having an earlier draft report is that opportunities were missed to get input on the investigation findings and recommendations from the retired senior investigator. The junior investigator made

substantial contributions to the January site visit, and unlike Mr. Schmidt, participated in all of the fire fighter interviews and took extensive notes. (Mr. Schmidt was sick the day of the fire fighter interviews and spent the day in his hotel room). I had incorrectly assumed that Mr. Schmidt and the junior investigator had routinely gotten together to talk through the investigation findings, recommendations, and the development of the report. In following up with the junior investigator, however, I learned this was not the case. Particularly telling was that the junior investigator was not involved in discussions about the need to conduct additional interviews. Mr. Schmidt scheduled travel to conduct the interviews without seeking the junior investigator's input on whether additional interviews were needed, nor inquiring as to the junior investigator's interest and availability to participate in these interviews. Mr. Schmidt did ask the junior investigator if there were questions or areas of inquiry the junior investigator would like Mr. Schmidt to pursue. However, it appears that the junior investigator was not completely informed as to the scope and rationale for these additional interviews; he was informed about the planned re-interviews of some fire fighters, but not the interviews of the police officer or dispatchers. As lead investigator, Mr. Schmidt should have actively involved the junior investigator in the development of investigation findings and recommendations. The failure to adequately involve the other investigator contributes to inefficiency, especially since the junior investigator was directly involved in a critical aspect of the investigation that Mr. Schmidt was not, the fire fighter interviews, and potentially compromises the quality of the report by not taking advantage of the other investigator's observations, expertise, and perspective.

I consider performance on the January investigation seminal for several reasons: the assignment was made at a time when I believed that Mr. Schmidt should no longer have been in training mode; the investigation was more complicated than previous investigations led by Mr. Schmidt, but not exceedingly complex; I and the Team Leader clearly identified this as a high priority investigation; I had direct knowledge on which to base my assessment of Mr. Schmidt's performance; I provided Mr. Schmidt with concrete guidance on areas for improvement; and, the investigation has spanned across nearly 5 months, and encompasses the bulk of the period for which forthcoming midyear evaluations will be based.

Performance on the January investigation is illustrative of deficiencies evident in other investigations, but is not entirely representative of his performance in the conduct of fatality investigations throughout the year. Taken as a whole, I consider Mr. Schmidt's performance in the conduct of fatality investigations and report writing marginal throughout the year. Since entering into duty, Mr. Schmidt has been assigned to 9 active investigations, serving as lead author on 4 of these investigations. Of the reports on which Mr. Schmidt has served as lead author, one of the reports has been finalized, another is nearly final. Both of these reports are good, though relatively straightforward. Mr. Schmidt demonstrated some excellent work in one of these reports, developing a recommendation for a National Fire Protection Association standard setting committee and proposing follow-up activities. The other report was for the December investigation on which I first counseled Mr. Schmidt. This was an extremely straightforward case, with one recommendation. The amount of time for completion of this report, 6 months, is long for a report of such limited scope. The two remaining reports on which Mr. Schmidt has been assigned lead authorship are the January investigation, chronicled in detail

above, and an investigation conducted in late March/early April, for which I do not have direct observations or products on which to assess progress. The issue of Mr. Schmidt being unfocused in investigations does not appear to come into play in investigations in which he is not the lead author. Working effectively as a team member has been an issue in several investigations involving different team members. It is not apparent that Mr. Schmidt is making substantive contributions to investigations and reports led by other staff, as would be expected based on his extensive knowledge and expertise.

At the GS-13 level, Mr. Schmidt should be able to perform relatively independently. Mr. Schmidt should not require close monitoring and supervisor input to ensure he focuses on priority activities, uses good judgement, works effectively with team members, and works efficiently. As well, Mr. Schmidt's contributions to fatality investigations should consistently be at a higher level than junior level investigators in terms of quality, complexity, and innovation. Unfortunately, this is not the case. I consider Mr. Schmidt's performance throughout the year in the conduct of fatality investigations marginal for a Safety Engineer, GS-13, Step 6. Because the conduct of fatality investigations is such a critical part of Mr. Schmidt's position, I am recommending termination during the probationary period.

Dawn Castillo
Chief, Surveillance and Field Investigations Branch
Division of Safety Research



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control
and Prevention (CDC)
Atlanta GA 30341-3724

JUN 12 2000

Mr. Eric R. Schmidt
Division of Safety Research
National Institute for Occupational
Safety and Health
Centers for Disease Control
and Prevention (CDC)
Morgantown, West Virginia 26505

Dear Mr. Schmidt:

This is notice that you will be terminated during your probationary period from your position of Safety Engineer, GS-803-13, at 3:30 p.m., Friday, June 16, 2000. The reason for this termination is your inefficient performance of duties. The specific facts are outlined below.

You entered on duty with this agency on June 20, 1999, under a career-conditional appointment. As indicated on the SF-50, Notification of Personnel Action, your appointment was subject to a one year initial probationary period beginning June 20, 1999.

One of your principal duties as Safety Engineer in the Surveillance and Field Investigations Branch is to conduct fire fighter fatality investigations, and subsequent preparation of summary reports of these investigations. The model followed by traumatic injury investigators in the Division of Safety Research is the Fatality Assessment and Control Evaluation (FACE) model. The FACE investigations are conducted independently or as a member of a team (either as team member or lead investigator). Since entering on duty, you have been assigned to 9 active investigations, serving as lead investigator on 4 of these investigations. Of the investigations on which you have served as leader, one report has been finalized and another is nearly final. Both of these reports were relatively straightforward and are reflective of acceptable performance although one report required 6 months for completion. The two remaining reports on which you were assigned leadership, which were investigated in January 2000 and March/April 2000, have not been completed.

As a GS-13 Safety Engineer, it is expected that you perform your duties relatively independently and without close supervision. In January 2000, you were assigned as lead investigator of a fatality investigation in Your supervisor, Dawn Castillo, accompanied you and two other investigators to observe your performance as lead investigator and the performance of the team. Following this investigation, Ms. Castillo provided you written guidance concerning aspects of your performance needing improvement (memorandum dated February 14, 2000, subject: Performance Guidance). In this

Page 2 - Mr. Eric R. Schmidt

memorandum, Ms. Castillo informed you that you needed to improve your performance in conducting FACE investigations with specific attention to the following:

- 1) the identification of the types and level of detail of information that should be collected during the investigation;
- 2) following standard procedures in gathering information; and
- 3) working effectively as a team member.

In the months following the February counseling another aspect of your inefficient performance concerning your ability to focus on priorities became evident. At a meeting of the investigative team following the January site visit, you indicated that a draft report would be available by the end of February. On March 17, 2000, your supervisor met with you to assess your progress in the areas outlined in the February 14 memorandum, however because you had not completed the draft report by this date she did not have a product to evaluate. Only after your supervisor imposed a deadline for a version of the draft did you submit the draft report of the January investigation on June 2, 2000. The product you finally submitted consisted of the following three items:

- 1) a one page outline of potential contributing factors to the fatal event. Inasmuch as this outline was developed shortly after the January site visit, it did not appear that you had further refined the outline to include recommendations warranted by the potential contributory factors;
- 2) a 500 plus page matrix, which you indicated was a work in progress. This matrix appears to have required substantial amounts of your time, however the utility and necessity of the matrix was not clear. Moreover, more important aspects of the report, such as describing the sequence of events leading to the fatalities and developing recommendations for prevention of future similar events became secondary to the development of the matrix which you apparently deemed a higher priority; and
- 3) a two page summary of the event which did not include recommendations. The summary also omitted other components, such as introduction, investigation, cause of death, recommendations and discussion sections.

It is recognized that the complexity of each case when factored with other duties influence the time needed to complete each fatality report. However, the importance of releasing reports in a timely fashion has been continually emphasized to all investigators. Other staff members similarly situated to yourself and who have served as lead investigators for similar

or more complex events have drafted acceptable reports while juggling multiple investigations and regular job duties.

Lastly, inasmuch as most fatality investigations are conducted by teams rather than individuals, team work is critical for maximizing the quality of fatality investigations and final reports. You lack the ability to interact effectively as a team member. At times you appeared inflexible and inconsiderate of issues or perspectives raised by team members. Working effectively as a team member was an issue in several investigations involving different team members.

In sum, employees at the GS-13 level are expected to focus on priority activities, use good judgement, work efficiently and work effectively with team members, and produce high quality work products. Your performance has not met these expectations, therefore, your termination during your probationary period is considered reasonable and warranted.

You have the right to appeal this decision to the U.S. Merit Systems Protection Board (MSPB) under Subpart H of Part 315, Title 5, Code of Federal Regulations (CFR). However, you may only appeal to the MSPB if you allege that this action was based in whole or in part on partisan political reasons or your marital status. An appeal to the MSPB must be filed within, but not later than, 30 calendar days after the effective date of this action. Your appeal rights to the MSPB are outlined in the enclosed copy of the MSPB's regulations at 5 CFR, Chapter II, Parts 1200 and 1201. You may use the enclosed appeal form (Optional Form 283) although it is not required that you file your appeal using this form. If you appeal, your appeal should be addressed to the Regional Director, Merit Systems Protection Board, U.S. Customhouse, Room 501, Second and Chestnut Streets, Philadelphia, Pennsylvania 19106-2987.

An appeal to the MSPB should inform the Board that the records of your case may be obtained by writing to the Director, Human Resources Management Office, ATTN: Work Force Relations Branch (MS-K17), Centers for Disease Control and Prevention (CDC), 4770 Buford Highway, Atlanta, Georgia 30341-3724.

If you believe that the action taken against you was based in whole or part on discrimination because of race, color, religion, sex, age, national origin, or physical or mental disability, you may file a discrimination complaint with the CDC Office of Equal Employment Opportunity (OEEO) under the provisions of HHS Personnel Instruction 1613-3. To do so, you must first consult with an Equal Employment Opportunity Counselor within 45 calendar days after the effective date of this action.

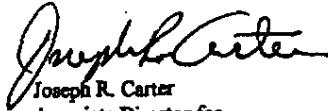
You may not appeal an allegation of discrimination because of race, color, religion, sex, age, national origin, or physical or mental disability to the MSPB unless you also allege that the

Page 4 - Mr. Eric R. Schmidt

action was based in whole or part on partisan political reasons or your marital status. In that event, you may appeal all allegations of discrimination to the MSPB.

A Standard Form 50 effecting your termination will be forwarded to you when available.

Sincerely yours,



Joseph R. Carter
Associate Director for
Management and Operations

Enclosures

XXXX XXXXXXXX XXXXX
XXXXXXXXXXXX, XXXX XXXXXXXX XXXXX
XXXX-XXXX-XXXX

October 2, 2000

Dr. Linda Rosenstock, M.D., M.P.H.
Director, NIOSH
Hubert H. Humphrey Bldg.
200 Independence Ave., SW, Room 715H
Washington, DC 20201

Dear Dr. Rosenstock,

I have only recently been informed that you may not be fully aware of the information contained in the enclosed documents. Thus, I am ethically obligated to bring this information to your attention. I was terminated as a Safety Engineer, before the end of my probationary period on June 16th of this year. The termination is a related but separate issue that is being addressed independently of this letter. I am using this opportunity to advise you of my technical concerns pertaining to the administration of the Fire Fighter Fatality Investigation and Prevention Program in Morgantown, West Virginia.

On February 7th I shared these and similar concerns with Ms. Dawn Castillo during what I believed to be a privileged "mid-year review" session. On February 14th Ms. Castillo again met with me, whereupon she furnished me with a copy of a memorandum, which she refers to as "Performance Guidance." I cannot fathom that Ms. Castillo wrote this memorandum without the knowledge, advise, and consent of the Director and Deputy Director of the Division of Safety Research, (DSR), Dr. Nancy A. Stout and Mr. Tim Pizatella respectively. Only one illustration of the my technical concerns stemming from the memorandum of February 14th is;

"Other examples are your insistence on gathering exact measurements of the burned area of a fire hose in the xxxxxx investigation in January, as this information is not necessary for describing the chain of events, and the specifics and shape of the turnout gear and clothing, as it is unlikely this information will have implications for recommendations for the prevention of future similar events."

- First, the failure of a fire hose during a fire attack places the crew in a critical predicament. (Failure of a tool.)
- Secondly, during my brief visual inspection, I took note this gear may have been the subject of a recall, due to concerns with a protective layer within the garment; something that warrants further investigation. (Failure of Personal Protective Equipment.)
- Lastly, fire fighters involved during the initial fire attack and subsequent rescue do not report hearing an activated PASS device. A PASS device is indented to assist others locate and rescue a fire fighter in distress. Another issue that warrants further investigation. (Failure of Personal Protective Equipment.)

Dr. Linda Rosenstock, M.D., M.P.H.
October 2, 2000
Page 2

The remainder of Ms. Castillo's memorandum can only be taken by those who read it; as direction to minimize the investigations to generic, non-specific issues that frankly have been well documented by the fire service to date. Clearly, this memorandum is misguided, not what Congress intended when these funds were appropriated and does not inspire the caliber of work product that NIOSH is capable delivering.

When Ms. Castillo prepared documentation for Mr. Joseph R. Carter, she discounted the information contained in the event matrix. This matrix specifically documents and organizes considerations such as, but not limited to, other equipment failures and shortages, (i.e. lack of spare air cylinders, inadequate communication equipment). I repeatedly attempted to advise, Ms. Castillo the matrix is a precursor to an event time line, which when collaboratively evaluated, can be used to identify specific contributing factors and buttress definitive recommendations.

Ms. Castillo never substantiates her position outlined in the February 14th memorandum. Nor did she ever afford me the chance to explain any of these issues during any form of a mutual information exchange in a professional setting. Continued defense by CDC/NIOSH of this memorandum and subsequent documentation prepared by DSR is going to significantly undermine the credibility of CDC/NIOSH within the Fire Service Community.

This is but only one example where the managers of this Program in Morgantown repeatedly instruct staff to omit critical facts because of "potential liability to the program." These managers have shown little, if any regard, for the fact that fire fighters will continue to actually suffer injuries and death in part because NIOSH fails to document critical aspects of these incidents.

I know your time at NIOSH is short, but this situation warrants your attention. In closing, simply put, this is nothing less than a betrayal of public trust, an abuse of process, and wrongful discharge of powers.

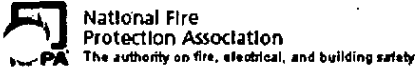
Dr. Rosenstock, I truly hope that you seize this opportunity to review this situation by way of a clear and impartial point of view with the goal to ensure that NIOSH provides the most accurate information to the American Fire Service.

Sincerely,



Eric R. Schmidt, P.E.

Enclosures



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PASS alarm signals can fail at high temperatures

Exposure to high temperature environments may cause the loudness of PASS alarm signals to be reduced. This reduction in loudness could cause the alarm signal to become indistinguishable from background noise at the incident scene. This problem was brought to the attention of the NFPA Technical Committee on Electronic Safety Equipment by the National Institute for Occupational Safety and Health's (NIOSH) Fire Fighter Fatality Investigation and Prevention Program.

NIOSH reported that during the investigation of four fire fighter fatalities that occurred from 2001 to 2004, the PASS alarms were not heard or were barely audible. The PASS had been certified as compliant to NFPA 1982, Standard on Personal Alert Safety Systems (PASS), 1998 Edition, and involved both stand-alone PASS and SCBA-integrated PASS.

Initial laboratory testing of PASS by the National Institute for Standards and Technology's (NIST) Fire Research Division has shown this sound reduction may begin to occur at temperatures as low as 300° F (150° C) and could affect all PASS. Additional work is required to better characterize the thermal conditions (temperatures and exposure durations) that contribute to alarm signal degradation.

While the NFPA Technical Committee on Electronic Safety Equipment has been working to develop appropriate revisions to NFPA 1982 to address this issue, adequate solutions have not yet been presented. The Committee, in cooperation with NIOSH and NIST, will continue to study the issue and will incorporate revisions into NFPA 1982 as solutions are developed and consensus around addressing the issue is achieved.

PASS has always been a "last resort call for help" for emergency services personnel who are unable to otherwise notify others that they are in distress. Fire fighters should continue to activate and wear PASS whenever in hazardous areas of any incident, but should also be aware that high temperatures could cause degradation of the alarm signal. Incident command should continue to apply all personnel accountability measures at all incidents to assure the safe entrance and exit of personnel from hazardous areas. Direct supervision of operating companies or teams should provide for the safe operating locations of personnel and ensure that members do not "freelance" on the incident scene.

Emergency services organizations and emergency response personnel should report any PASS malfunctions and other problems with PASS functioning directly to both the certification organization whose certification mark appears on the PASS, and to NIOSH-NPPTL. Be sure to give your contact information so they can respond to you.

SEI, the Safety Equipment Institute (certification organization), can be reached by e-mail (info@seinet.org).

- NIOSH-NPPTL, the National Institute for Occupational Safety and Health – National Personal Protection Technical Laboratory, can be reached by e-mail (NPPTL_PASS@cdc.gov).

> [PASS alarm signals can fail at high temperatures](#)

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Dear Submitter,

Please fill out the required information listed below. This mailbox exists specifically as the NIOSH receiving point for information related to a Dec 5, 2005, National Fire Protection Association (NFPA) notice entitled; "PASS alarm signals can fail at high temperatures." The notice pertains to integrated and stand-alone personal alert safety systems (PASS) certified to NFPA 1982 Standard on Personal Alert Safety Systems (PASS). If you submitted information related to any other issue, we would ask that you would redirect it to appropriate mailboxes at either NIOSH, or SEI.

Submission of field reports on PASS performance should first be made to the certification organization. The certification organization information is listed on the product label. In the case of certified PASS that organization is Safety Equipment Institute (SEI) and the email address is info@seinet.org.

The National Institute for Occupational Safety and Health (NIOSH) – National Personal Protective Technology Laboratory (NPPTL) established this email address for fire and emergency services personnel to submit information on performance issues related to their PASS systems in support of NFPA. NPPTL will assist SEI in evaluating information on in-service PASS performance issues for presentation to the NFPA Technical Committee on Electronic Safety Equipment. This committee is working on the revision to the current edition NFPA 1982 standard.

The purpose of this message is to acknowledge your e-mail submission to NIOSH-NPPTL. If not included in your original e-mail please send the following information to NPPTL_PASS@cdc.gov so a more complete assessment and follow-up contact can be made if needed.

You may also submit a hard copy to:
National Personal Protective Technology Laboratory
626 Cochran Mill Road
Pittsburgh, PA 15236
Attn: PASS

Contact Information

Your Name:
Department/Organization:
Position:
Mailing Address:
Email Address:
Phone Numbers:

PASS Identifying Information

SCBA manufacturer:
PASS Manufacturer:
Is PASS integrated into SCBA?:
Product Name:
Model:
Serial Number:
NFPA 1982 Certified to What Year Edition?

Explanation of Problem: Design, functionality, operational use, quality, or other

Repeatability: One time occurrence
Repeated occurrence

Repair: Was repair needed to restore unit operation?

What repairs/operational checks were conducted to ensure unit is operational for next use, and who performed that service?

Both NIOSH and SEI value and seek the perspective and experience of PASS and SCBA users. An individual response may not be provided in all instances, but be assured that any information you volunteer will be evaluated, and where appropriate, further action will be taken to help assure user safety and user confidence in their important personal protective equipment

The Director, Management Analysis and Services Office, has been delegated the authority to sign Federal Register notices pertaining to announcements of meetings and other committee management activities, for both the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry.

Dated: February 23, 2006.

Alvin Hall,
Director, Management Analysis and Services Office, Centers for Disease Control and Prevention.

[FR Doc. E6-2836 Filed 2-28-06; 8:45 am]

BILLING CODE 4183-18-P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

[Docket Number NIOSH-063]

National Institute for Occupational Safety and Health Meeting

The National Institute for Occupational Safety and Health (NIOSH) of the Centers for Disease Control and Prevention (CDC) announces the following public meeting:

Name: Stakeholders' Meeting to Seek Input on the NIOSH Fire Fighter Fatality Investigation and Prevention Program (FFFIPP)

Meeting Date and Time: March 22, 2006, 9 a.m.-5 p.m.

Place: Washington Court Hotel, Atrium Ballroom, 525 New Jersey Avenue NW., Washington, DC 20001.

Status: This meeting is hosted by NIOSH and will be open to the public, limited only by the space available. The meeting room will accommodate approximately 120 people. Interested parties should make hotel reservations directly with the Washington Court Hotel (202-628-2100 or 800-321-3010) and reference the NIOSH Fire Fighter Meeting. Interested parties should confirm their attendance to this meeting by completing a registration form and forwarding it by e-mail to the NIOSH Event Management Office, npplvents@cdc.gov or fax (304-225-2003). A registration form may be obtained from the NIOSH Web site: <http://www.cdc.gov/niosh/fire/pdfs/registration.pdf>.

Purpose: The public meeting will seek stakeholder input on the progress and future directions of the NIOSH FFFIPP to ensure that the program is meeting the needs of the stakeholders, and to identify ways in which the program can be improved to increase its impact on the safety and health of fire fighters across the United States. NIOSH will compile and consider all comments received at the meeting and through the NIOSH docket and use them in making decisions on how to proceed with FFFIPP.

Background: NIOSH convened a similar stakeholders' meeting in January 1998 to seek input to help guide the planning for the

FFFIPP. The input provided by stakeholders at that meeting was very valuable in providing insight into stakeholder needs and in helping to establish the FFFIPP. The March 2006 meeting will be held to again seek stakeholder input.

A document, "National Institute for Occupational Safety and Health (NIOSH) Fire Fighter Fatality Investigation and Prevention Program, 1998-2005" may be obtained from the NIOSH Web site <http://www.cdc.gov/niosh/fire/progress.html> or <http://www.cdc.gov/niosh/fire/pdfs/progress.pdf>. This document summarizes FFFIPP progress, possible future directions, and specific areas of NIOSH interest for stakeholder input. Copies of the document will also be available at the March 22, 2006 stakeholders' meeting.

Format of Meeting: The NIOSH Director, Dr. John Howard, will provide opening remarks, followed by NIOSH presentations that provide an overview of the FFFIPP and possible future directions. Representatives from seven stakeholder groups have accepted invitations to give 15-minute presentations on the usefulness of the FFFIPP and program products in their efforts to improve fire fighter safety and health, and their suggestions for enhancing the impact of the program and future directions. Stakeholders who will be giving presentations represent the United States Fire Administration, National Volunteer Fire Council, National Fire Protection Association, National Fallen Firefighters Foundation, National Wildfire Coordinating Group, International Association of Fire Chiefs, and International Association of Fire Fighters.

An opportunity to make oral presentations will be provided to other interested parties, given available time on the agenda. The agenda currently includes time for fifteen 5-minute presentations from other stakeholders. Requests to make such presentations at the meeting should be made by e-mail to the NIOSH Event Management Office (npplvents@cdc.gov). All requests to present should include the name, address, telephone number, relevant business affiliations of the presenter, and a brief summary of the presentation. Oral presentations will be limited to 5 minutes. After reviewing the requests for presentation, NIOSH Event Management will notify each presenter of the approximate time that their presentation is scheduled to begin. If a participant is not present when their presentation is scheduled to begin, the remaining participants will be heard in order. The meeting will end with an interactive session providing the opportunity for clarification of stakeholder comments.

Written comments without an oral presentation are also encouraged, and should be submitted to the NIOSH Docket Office as outlined in the next section.

Docket: Written comments on the usefulness of the FFFIPP program and products for improving fire fighter safety and health and suggestions for enhancing the impact of the program and future directions should be mailed to: NIOSH Docket Office, Robert A. Taft Laboratories, M/S C34, 4676 Columbia Parkway, Cincinnati, Ohio 45226, Telephone 513-533-8303, Fax 513-533-8285. Comments may also be submitted by e-

mail to niocindocket@cdc.gov. E-mail attachments should be formatted in Microsoft Word. Comments should be submitted to NIOSH no later than April 22, 2006, and should reference the Docket Number in the subject heading.

For Additional Information: Logistical Contact: NIOSH Event Management, 3604 Collins Ferry Road, Suite 100, Morgantown, West Virginia 26505-2353, Telephone 304-590-5941 x138, Fax 304-225-2003, E-mail npplvents@cdc.gov; Technical Contact: Dawn Castillo, Chief, Surveillance and Field Investigations Branch, Division of Safety Research, 304-265-6012.

The Director, Management Analysis and Services Office, has been delegated the authority to sign Federal Register notices pertaining to announcements of meetings and other committee management activities, for both CDC and the Agency for Toxic Substances and Disease Registry.

Dated: February 23, 2006.

Alvin Hall,
Director, Management Analysis and Services Office, Centers for Disease Control and Prevention.

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DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Proposed Collection; Comment Request; Educational Needs Assessment of International Drug Abuse Researchers

SUMMARY: In compliance with Section 3506(c)(2)(A) of the Paperwork Reduction Act of 1995 concerning opportunity for public comment on proposed collection of information, the National Institute on Drug Abuse (NIDA), the National Institutes of Health (NIH) will publish periodic summaries of proposed projects to be submitted to the Office of Management and Budget (OMB) for review and approval.

Proposed Collection: Title: The NIDA International Program Research Training Modules for International Application Needs Assessment Survey. Type of Information Collection Request: NEW. Need and Use of Information Collection: This is a request for a one-time clearance to undertake an educational needs assessment survey of NIDA's collaborating international drug abuse researchers. The purpose of this survey is to more precisely define the educational needs of the international drug abuse research community before proceeding with the development of formal distance learning programs. Reviews of distance education programs in the developing world often reveal that, "systematically organized learning

Section 13
NIOSH FFFIPP Program Background



National Institute For Occupational Safety And Health (NIOSH) Fire Fighter Fatality Investigation And Prevention Program, 1998 - 2005

The National Institute for Occupational Safety and Health (NIOSH) is an agency of the United States government located in the Department of Health and Human Services, and is part of the Centers for Disease Control and Prevention (CDC). NIOSH is responsible for conducting research and making recommendations for the prevention of work-related illnesses and injuries. In fiscal year 1998, NIOSH initiated a new program entitled, NIOSH Fire Fighter Fatality Investigation and Prevention Program (FFFIPP). NIOSH is seeking public comments on the progress and future directions of this program. A summary of the progress and possible future activities for this initiative are provided in this document.

This document is also available in PDF format.

[progress.pdf](#)
(16 pages, 71kb)



Related Resources:

[Fire Fighter Fatality Investigation and Prevention Program](#)

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Background

The United States currently depends on approximately 1.1 million fire fighters, three out of four who are volunteers, to protect its citizens and property from losses caused by fire. Data from recent years indicate that approximately 56 fire fighters die each year from fatal traumatic injuries and another 46 die from cardiovascular-related disease in the line-of-duty. Approximately 95,000 fire fighters are injured at work each year. Traumatic injuries include internal trauma, asphyxiation, crushing injuries, burns, drowning, electrical shock, etc. The number of fire fighters experiencing nonfatal cardiac events each year is unknown.

In fiscal year 1998, Congress recognized the need for further efforts to address the continuing problem of occupational fire fighter fatalities and appropriated funds for NIOSH to: "...conduct fatality assessment and control evaluation investigations to gather information on factors that may have contributed to traumatic occupational fatalities, identify causal factors common to fire fighter fatalities, provide recommendations for prevention of similar incidents, formulate strategies for effective intervention, and evaluate the effectiveness of those interventions."

In January 1998, NIOSH convened a stakeholders' meeting in Washington, DC to obtain input on this new NIOSH program. In attendance were representatives from across the fire service, including a number of fire departments, union representatives, fire service organizations and federal agencies. This stakeholder meeting was useful in helping NIOSH plan the appropriate direction for this initiative. The primary message communicated to NIOSH at this meeting was the need to focus the program on conducting line-of-duty investigations to identify factors contributing to fire fighter fatalities, and to disseminate this information to fire departments across the country. Throughout the initiative NIOSH has strived to encourage the use of investigations and associated recommendations in fire fighter safety and health efforts.

NIOSH is again seeking input from stakeholders to ensure that the NIOSH FFFIPP is meeting the needs of stakeholders, and to identify ways in which NIOSH might improve upon the program to increase its impact on the safety and health of fire fighters across the United States. A stakeholder meeting will be held March 22, 2006 in Washington, DC. Input will be sought at this meeting and through a public docket.

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Investigations

NIOSH is notified of fire fighter line-of-duty deaths by the U.S. Fire Administration (USFA). Individual fire departments and unions sometimes also notify NIOSH of deaths and serious injuries of fire fighters in the line-of-duty, and specifically request investigations.

NIOSH staff conduct on-site investigations to gather facts on the incident and potential contributory factors. Investigators interview fire department personnel, take photographs and measurements at the site, and review all applicable records (e.g. standard operating procedures/guidelines (SOPs/SOGs), dispatch records, training records, medical records, and coroner/medical examiner reports). In cases in which the function of respiratory protective equipment may have been a factor, NIOSH conducts laboratory evaluations of the performance of self-contained breathing apparatus (SCBA). In select cases, when warranted, NIOSH seeks expert evaluations of other types of fire service equipment, including oxygen regulators that have caught on fire, diving suits in underwater incidents, and personal alert safety system (PASS) devices that were not heard or barely heard by nearby fire fighters or rescue crews. NIOSH has also supported the development, by the National Institute of Standards Technology, of computerized fire simulation models for some investigations. These computerized models have helped to explain and verify fire conditions and have been useful tools for testing the validity of recommendations.

A report is completed for each investigation summarizing the sequence of events that led to the fire fighter death or injury and making recommendations for preventing future deaths and injuries under similar circumstances. An important feature of the NIOSH investigation model is that investigations do not seek to place blame on fire departments or individual fire fighters or officers; rather, the goal is to identify steps that could be taken for prevention in the future. No identifiers are included in the report, as this information is not necessary to meet prevention goals, and inclusion of such information might discourage participation of fire departments and personnel in the NIOSH investigation.

Since the inception of the FFFIPP through February 2006, NIOSH, with the cooperation of fire departments and fire fighters around the country, has conducted 324 fatality investigations in 48 states. These 324 investigations accounted for 368 fire fighter deaths. Additionally, nine nonfatal injury investigations were conducted involving 19 fire fighters. Based on data reported by the U.S. Fire Administration (USFA) on the annual number of fire fighter fatalities, the FFFIPP investigated 44% of fire fighter fatalities for the period 1988 to 2004, excluding the fire fighter deaths associated with the 2001 World Trade Center attacks. The fatality investigations were conducted at 183 career and 141 volunteer fire departments. Traumatic injury incidents accounted for 175 of the investigations (71 structure fires, 53 motor vehicle-related, 18 training, 15 wildland, 9 falls, 8 explosions, and 5 "others" (i.e., helicopter crash, electrocution, homicide, drowning, and fireworks)). Cardiovascular/medical incidents accounted for 149 investigations. The investigations have taken place in all states except Idaho and Rhode Island.

In addition to conducting investigations of line-of-duty deaths and nonfatal injuries of fire fighters, the NIOSH FFFIPP has conducted 20 Health Hazard Evaluations (HHEs) in the fire service in the past 8 years. NIOSH HHEs are similar to line-of-duty fatality and injury investigations in that they frequently involve on-site visits, interviews of personnel, review of records, and recommendations for prevention. However, there are also methodologic differences between HHEs and line-of-duty fatality and injury investigations. HHEs frequently involve collection of data and medical testing of workers not reporting symptoms or illnesses, whereas line-of-duty fatality and injury investigations focus on fire fighters who died or were injured. Additionally, HHEs use epidemiologic approaches to assess if associations exist between workplace exposures and symptoms and illnesses reported by employees. HHEs conducted through the FFFIPP have addressed acute respiratory effects of smoke, exposure to diesel exhaust, exposure to blood borne pathogens, and cancer clusters. [Appendix I](#) lists a finalized HHE report and another document including reports for several HHEs conducted in the fire service. More information on the HHE program is available at: <http://www.cdc.gov/niosh/hhe/HHEprogram.html>.

When multiple NIOSH investigations identify common safety and health concerns, NIOSH develops educational documents that summarize the hazard and recommended prevention measures. Examples of hazards addressed by these educational documents include: structural collapse, live-fire training in acquired structures, dive training, and hazards of working alongside roadways. A listing of these educational documents as well as other FFFIPP publications is provided in [Appendix I](#).

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Recommendations

Prevention recommendations are a capstone of the investigative reports and NIOSH summary documents addressing specific hazards faced by fire fighters. Recommendations draw upon and cite consensus and mandatory standards such as those promulgated by the National Fire Protection Association (NFPA) and Occupational Safety and Health Administration (OSHA), fire fighting practices recommended in fire service texts, and findings and recommendations in the safety and medical literature.

Recommendations which have been made most frequently have been directed to fire departments and can be grouped into ten general categories:

- cardiovascular health (e.g. ensuring that medical evaluations screen fire fighters for coronary artery disease risk factors),
- fitness and wellness programs (e.g. implementing mandatory fitness programs that are positive, non-punitive and individualized),
- standard operating procedures/guidelines (e.g. developing and enforcing written procedures/guidelines and ensuring that all officers and fire fighters are trained and knowledgeable of the procedures/guidelines),
- communications (e.g. ensuring that two-way communication is established and coordinated between incident management and fire fighter crews),
- incident command (e.g. ensuring that the Incident Commander is clearly identified and maintains the role of directing operations and scene management),
- motor vehicle-related (e.g. enforcing policies that require all fire personnel riding in emergency vehicles to be seat-belted),
- personal protective equipment (e.g. ensuring that SCBA are properly inspected, used and maintained),
- strategies and tactics (e.g. suspending defensive exterior fire fighting operations prior to switching to interior fire fighting operations to

- minimize hazards to fire fighters working inside structures),
- rapid intervention teams (e.g. ensuring that a properly trained and equipped rapid intervention team is in position when other fire fighters enter a dangerous environment, such as a burning structure), and
- staffing (e.g. ensuring that adequate personnel and equipment are on scene in accordance with NFPA standards).

Recommendations in NIOSH fatality investigative reports and summary documents may be used by individual fire departments, unions, state governments, and public and private fire service agencies to identify and advocate for needed changes in: fire department policies and procedures to better protect fire fighters and ensure well-being; training to ensure that fire fighters have the necessary knowledge and skills to work safely; and consensus and mandatory standards to establish minimum conditions for fire fighter safety and health.

NIOSH recommendations have also been targeted to:

- manufacturers to enhance safety aspects of fire service equipment,
- municipalities to address organization and coordination of fire services as well as safety requirements related to buildings and structures,
- standard setting bodies to modify or develop new standards, and
- research organizations to enhance and develop technologies to improve fire fighter safety.

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Dissemination

Dissemination of the NIOSH FFFIPP products is accomplished through a myriad of venues. A primary venue is the NIOSH Web site, designed specifically for the fire fighter program, which is available at: <http://www.cdc.gov/niosh/fire/>. The Web page contains links to all investigative reports and NIOSH publications. The Web page provides a section where users can subscribe and be automatically notified when a new product is available. There were more than 55,000 visits to the Web page in the ten-month period from January to October 2005, and the Web page was the 16th most popular page on the NIOSH site during that period. Additionally, the Web page provides links to other fire fighter related organizations and pages, including the International Association of Fire Fighters (IAFF), International Association of Fire Chiefs (IAFC), National Volunteer Fire Council (NVFC), National Wildfire Coordinating Group (NWCG), National Fire Protection Association (NFPA), and the USFA. Also, the previously listed fire-related organizations and others provide links to the NIOSH FFFIPP Web site.

The FFFIPP has partnered with a number of fire service trade journals including *Firehouse*, *Fire Rescue*, *Fire Chief*, *NFPA Journal*, *Responder Safety*, *Responder Magazine*, and *Wildland Fire Journal*. These journals have reprinted over 70 fire fighter fatality report summaries in the past 18 months. The total monthly combined circulation for the six magazines is approximately 300,000, reaching a potential audience of over 1,400,000 fire service professionals per month.

NIOSH conducts periodic mass-mailings to all 30,000+ fire departments in the United States. The mass mailings are typically done once per year and may contain a packet of five to six reports addressing a variety of situations in which fire fighters have died in the line-of-duty, or a single report thought to be of particular import for the fire service as a whole. Examples of individual reports that have been distributed to all fire departments in the United States include a warehouse fire in Massachusetts that ended in the deaths of six fire fighters ([Report No. F99-47](#)) and a training incident in California in which an instructor fell to his death demonstrating an escape procedure portrayed on a training video marketed to the fire service ([Report No. F99-25](#)). The escape procedure, which was not recommended by any fire service organization (such as the NFPA, USFA or the International Association of Fire Instructors), involved the potentially dangerous maneuver of exiting a window head first down a ladder.

The NIOSH FFFIPP also disseminates findings and products at meetings and conferences. NIOSH personnel have given more than 50 presentations at fire service, public health, and occupational medicine conferences. Most of these presentations have been at national fire service meetings (e.g. annual meetings held by the IAFC, IAFF, NFPA, and NVFC; IAFF Redmond Symposiums, Fire Department Instructors Conference, and Firehouse Conference and Exposition) and have provided an overview of the NIOSH FFFIPP, current findings, and information on specific cases. In addition, the NIOSH FFFIPP regularly has informational booths with products for distribution at many of the fire service conferences mentioned above. NIOSH personnel have also presented FFFIPP findings at public health, occupational medicine, and safety conferences (e.g. annual meetings of the American Public Health Association, American Occupational Health Conference, National Safety Congress, American Society of Safety Engineers and National Occupational Injury Research Symposiums). Examples of specific topics presented at these meetings include medical requirements for fire fighters, changes to NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*, safety hazards with oxygen systems, motor vehicle incidents, structure fire incidents and fatal carbon monoxide poisonings of fire fighters.

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Outreach

NIOSH has conducted an extensive outreach effort to the fire service, including the formation of partnerships with fire service and other federal agencies to increase the use of the FFFIPP findings and prevention recommendations. The FFFIPP staff also provide information to and participate on committees developing standards and tools for fire fighter safety. The following paragraphs highlight some of these outreach efforts.

NIOSH partnered with the International Association of Fire Chiefs and numerous other fire service organizations in a June 2005 "stand down" for

safety. The purpose of this initiative was to encourage fire departments to set aside time specifically for safety and health training. NIOSH fatality investigative reports were identified as useful tools for such training. NIOSH is currently participating on a NVFC panel administering its Healthy Heart Program. NIOSH has provided, among other things, input on how best to communicate to fire fighters regarding their risk of cardiovascular disease morbidity and mortality.

NIOSH has held several peer-review meetings to have fire service experts in cardiovascular disease critique the NIOSH FFFIPP work related to cardiovascular disease, and to provide input into future directions. Outcomes from these critiques include development of a database from NIOSH investigations of fire fighter cardiovascular deaths, and increased NIOSH involvement in NFPA and USFA committees addressing fire fighter cardiovascular health. NIOSH is exploring opportunities for research suggested by these meetings, including studying the cost-effectiveness of various fire fighter medical screening and fitness/wellness programs, improving processes to identify fire fighters needing exercise stress testing, and studying the effect of low levels of carbon monoxide on fire fighters.

The NIOSH FFFIPP recently entered into a memorandum of understanding (partnership) with the USFA to identify collaborative efforts to improve safety and health conditions for fire fighters throughout the United States. The primary focus of the agreement involves fostering the use of NIOSH FFFIPP products and recommendations in USFA fire fighter training materials and programs. NIOSH personnel also are participating on a USFA panel updating guidance on fire fighter autopsies. NIOSH was asked to participate based on experience and expertise developed while reviewing autopsy reports during fatality investigations.

NIOSH has worked collaboratively with other agencies to leverage resources when addressing issues of common interest. For example, in July 1998, the IAFF requested that NIOSH investigate a number of non-fatal injuries involving oxygen resuscitation systems. These incidents involved the flashing of regulators used to control the flow of oxygen on these systems, resulting in burn injuries to fire fighters and emergency medical technicians. NIOSH worked collaboratively with the Food and Drug Administration (FDA) that regulates these devices, and with the National Aeronautics and Space Administration (NASA) that has a long history of relevant expertise in oxygen safety. Investigation into these events revealed that aluminum in the regulator was a contributing factor to the flash fire incidents, and that there were a number of safe handling techniques which fire fighters and emergency medical technicians could use to reduce the risk of regulator fires. NIOSH and FDA developed a joint public health advisory (<http://www.fda.gov/cdrh/oxyreg.htm>) that was widely distributed to the fire service, and a training video on safe handling of oxygen systems. Most of the reported flash fire incidents involved a single manufacturer who voluntarily recalled regulators and offered trade-ins with non-aluminum regulators. Although this problem with oxygen regulators was known to the FDA for a number of years, the NIOSH investigations helped to more clearly identify and document the problems and proposed solutions.

Another example of the NIOSH FFFIPP leveraging resources is a joint publication with the Federal Railroad Administration (FRA) and Operation Lifesaver. NIOSH consulted with the FRA in fire fighter fatality investigations involving trains colliding with fire apparatus. An outgrowth of this consultation was a joint publication between NIOSH, FRA, and Operation Lifesaver (a nongovernmental program dedicated to eliminating injuries from train collisions), *Your Safety - 1st - Railroad Crossing Safety for Emergency Responders* (NIOSH Publication No. 2003-121). This publication leveraged expertise, funding and distribution networks to develop relevant guidance specific to emergency response and to broadly disseminate the publication to the fire service and communities.

NIOSH personnel have actively participated on the NFPA Occupational Safety and Health Technical Committee since 2001. NIOSH personnel played an important role in the development of the 2003 edition of NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*, ensuring that findings and recommendations from NIOSH investigations were reflected in the revised standard. NIOSH is currently participating in the development of another revision scheduled for release in 2006. NIOSH also provided technical support in the 2005 edition of NFPA 1581, *Standard on Fire Department Infection Control Program* and is providing technical support in an ongoing revision of NFPA 1584, *Recommended Practice on Rehabilitation of Members Operating at Incident Scene Operations and Training Exercises*.

In April 2005, NIOSH notified the NFPA of several fatality investigations in which PASS devices were not heard by fire fighters working near fallen fire fighters or by rapid intervention teams searching for the fire fighters. NIOSH identified potential reasons why the PASS devices may not have performed as designed, and recommended that the NFPA committee revising NFPA 1982, *Standard on Personal Alert Safety Systems (PASS)* consider modifications in testing and performance criteria. NIOSH staff from the National Personal Protective Technology Laboratory who participate on this committee are providing technical support to address these issues in the revision. The NFPA and International Association of Fire Fighters recently posted notices on their Web sites (<http://www.nfpa.org/ItemDetail.aspx?categoryID=136&ItemID=266068&URL=Codes%20and%20Standards/NFPA%20News&cookie%5F1ste1> and <http://www.iaff.org/across/news/archive2005/113005pass.html>, respectively) warning fire fighters that PASS devices may not function as intended under high temperature conditions based on issues raised by the NIOSH investigations and initial testing by the National Institute for Standards Technology.

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Research

Although the primary focus of the NIOSH FFFIPP has been fatality investigations, based in large part on input that NIOSH received at the January 1998 stakeholders' meeting, NIOSH has undertaken different types of research as part of the NIOSH FFFIPP, both to advance fire fighter safety and health and improve the impact and relevance of the NIOSH FFFIPP. These research efforts have frequently involved leveraging of resources from other NIOSH and CDC programs. The following paragraphs highlight some of these research efforts.

FFFIPP personnel have written journal articles on a variety of topics related to fire fighter safety and health based on data analysis and literature reviews. A listing of these publications is provided in [Appendix](#). Fire fighter safety and health issues addressed by these articles include flashing of oxygen regulators, risk factors for injury in structure fires, and estimates of occupational transmission of bloodborne pathogens to fire fighters.

and emergency response personnel.

NIOSH investigations of emergency medical service workers fatally injured in ambulance crashes helped elucidate inadequate occupant protection in the patient compartment, especially given the inability for personnel to attend to patients while restrained using lap seat belts that are commonly provided in ambulance patient compartments (Report Nos. FACE 2001-11, FACE 2001-12, and Report No. F2003-33). These investigation findings helped spawn and inform research largely funded through NIOSH's National Occupational Research Agenda (NORA) program and partners in the U.S. and Canadian governments, including USFA, that demonstrated the potential of certain types of occupant restraints to provide crash protection for emergency medical services personnel while allowing them the mobility to attend to patients. These research findings have spawned additional research, again funded largely through the NIOSH NORA program, to evaluate human factors issues related to these restraints and other modifications that can be made to the patient compartment to improve safety of fire fighters and emergency medical services personnel. The NORA program is also funding a pilot project to evaluate and compare the effects of wearing bunker boots/bunker pants with wearing a station uniform in manipulating the accelerator and brake pedals of a mock-up emergency apparatus cab, and to determine if future research is needed in this area. This pilot project was proposed based on hypotheses that bulky turnout gear may negatively impact the ability of drivers to operate fire apparatus.

Beginning in 2005, NIOSH began a follow-back survey to elicit stakeholder input on line-of-duty cardiovascular disease death investigations. The survey is mailed with a copy of the final report to the fire department, union (if applicable), and the victim's family member most involved with the investigation. Input received from this follow-back survey will be used to help focus line-of-duty investigations of cardiovascular disease deaths and the final reports.

In November 2005, NIOSH was granted approval by the Office of Management and Budget to proceed with an evaluation of the NIOSH FFFIPP. The evaluation includes a nationwide survey of fire departments and a number of focus groups consisting of front-line fire fighters. The study will determine the extent to which the program's reports, recommendations, and other products are being utilized by the fire service for training, policies, practices, and other prevention efforts. The evaluation will provide insight into the impact of the FFFIPP program and help to identify enhancements that might further the program's impact. Data collection began in February, 2006. NIOSH is conducting the study, largely funded by CDC, in conjunction with RTI International (a non-profit research organization).

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Impact/Feedback

NIOSH has received numerous examples of how the NIOSH FFFIPP has positively impacted fire fighter safety and health. These impacts include:

- influencing or supporting federal and state legislation to improve fire fighter safety and health,
- influencing NFPA standards,
- examples of fire service agencies taking action based upon NIOSH recommendations and using FFFIPP products in fire fighter safety and health training, and
- in some cases, assisting surviving family members to understand the events surrounding the loss of their loved one.

Examples of some of these impacts that have not been previously described are provided in the following paragraphs, and examples of feedback provided by stakeholders are included in [Appendix II](#). Much of the information that NIOSH has on the impact of the FFFIPP is anecdotal and has not been collected in a systematic fashion. NIOSH is looking forward to more quantitative input from the evaluation project noted above to guide enhancements to the FFFIPP to increase impact on fire fighter safety and health.

Findings from NIOSH fatality investigations have been referenced or used to develop both federal and state legislation aimed at improving fire fighter safety and health. Descriptive statistics from the NIOSH line-of-duty cardiovascular disease death investigation database detailing sudden cardiac death triggered by heavy physical exertions during fire suppression were used by congressional staff sponsoring the Hometown Heroes Survival Act which extended benefits to survivors of fire fighters suffering cardiac death in the line-of-duty. The NIOSH investigation of the 2001 death of a fire fighter in New York ([Report No. F2001-38](#)) was cited in the justification for a 2003 New York law, *Bradley's law*, prohibiting the use of people playing the role of victim in live-fire training.

NIOSH findings and recommendations have also been used in the development and revision of voluntary consensus standards issued by NFPA. In addition to examples described previously in the "Outreach" Section, NIOSH investigative findings have been used in the development of *NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*. This standard recommends staffing based on the types of emergency response fire departments are likely to encounter. Mr. Richard Duffy, the Secretary of the Technical Committee that developed this standard, reported that NIOSH fatality investigation reports were used extensively in development of this standard. Many provisions of this standard are also included in a counterpart for volunteer departments, *NFPA 1720*.

NIOSH has received feedback on a variety of ways in which the fire service, public safety departments, and universities are using fatality investigation reports from the NIOSH FFFIPP to improve fire fighter safety. For example, several fire departments across the country have reported using NIOSH fatality investigation reports in their fire fighter safety training. These fire departments include Baltimore City, Maryland; Howell Township, New Jersey; Mentor, OH; and, Portland, Oregon. State fire training academies, including those in Pennsylvania, West Virginia, and Tennessee also consider findings and recommendations when reviewing and developing new curriculum. For example, in Pennsylvania, the training academy instructed 1,200 local instructors to incorporate training on "accountability" into their classes based on a series of NIOSH investigations making recommendations for improving accountability on the fire scene. NIOSH is also aware of fatality investigative reports being

used in university fire safety curriculums, including courses at West Virginia University and Northern Virginia Community College.

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Potential Future Directions and Specific Requests for Stakeholder Input

The NIOSH FFFIPP is asking for stakeholder input to improve the program and enhance impact on fire fighter safety and health. Information provided to NIOSH at the forthcoming March 22, 2006 stakeholder meeting and through the established docket will be used to refine the program to ensure it meets the needs of stakeholders. Similarly, data collected from the forthcoming evaluation will be used to determine if adjustments to the program are needed or would be beneficial in increasing the impact of the FFFIPP on fire fighter safety and health. Pending consideration of input provided by stakeholders and data collected through the formal evaluation, in the following paragraphs NIOSH proposes general directions for the NIOSH FFFIPP for consideration and comment by stakeholders. Specific areas that NIOSH would appreciate stakeholder input on are identified, though any input will be welcomed and considered.

Investigations

NIOSH proposes that the primary focus of the NIOSH FFFIPP continue to be fatality investigations, but that the intensity of investigations be modestly reduced to support personnel increasing involvement in other activities described in the Dissemination, Outreach and Research Sub-sections below.

The NIOSH FFFIPP does not have the resources to conduct investigations of every line-of-duty death. Many NIOSH investigations are finding similar contributory factors, and consequently repeating prevention recommendations made in previous investigations. Efforts have been made to prioritize deaths for investigation. For example, priority consideration has been given to events that account for large numbers of deaths (e.g. motor vehicle incidents and cardiovascular disease), investigations likely to result in new types of recommendations (e.g., investigations of cardiovascular disease deaths of fire fighters less than 40 years of age and deaths involving new technologies), and investigations that feed into and inform current prevention efforts of other groups (e.g. investigations that may inform standard setting, such as current revisions to NFPA 1982, *Standard on Personal Alert Safety Systems (PASS)*). Stakeholder input is requested on whether fatality investigations should continue to be the focus of the FFFIPP, with modest decreases in the intensity of fatality investigations to support more outreach and research. Stakeholder input is also requested on the types of investigations that should receive high priority for investigation, and how and when prioritization should change over time.

Dissemination

NIOSH proposes increasing efforts to develop educational documents summarizing specific hazards encountered across multiple investigations. Examples of such documents that are currently under development include NIOSH Alerts addressing cardiovascular deaths, motor vehicle-related events, training incidents, and risk versus gain decisions on the fireground. NIOSH is interested in stakeholder input on the value and need for such summary publications, how NIOSH might make such documents more useful to the fire service and occupational safety and health community, and suggestions for specific topics to address in these educational documents.

NIOSH also proposes to continue to seek novel ways to disseminate findings and products, such as working with trade journals to further disseminate NIOSH reports and findings, and the biweekly quiz on the NIOSH FFFIPP Web site that directs users to answers in NIOSH publications. NIOSH is interested in specific suggestions from stakeholders on dissemination of NIOSH reports and publications focused on fire fighter safety and health.

Outreach

NIOSH proposes to continue to aggressively conduct outreach and partnership activities to foster increased use of NIOSH FFFIPP findings and products by fire service organizations and to pursue activities that complement and support prevention efforts of others. NIOSH is interested in specific suggestions from stakeholders as well as recommended areas for concentration, e.g. participation on standard-setting committees.

Research

NIOSH proposes conducting more routine and in-depth analyses of available data on fire fighter deaths and injuries (e.g. fatality data collected and reported by USFA and NFPA, data from the National Fire Incident Reporting System, and data from occupational injury and illness databases such as the Bureau of Labor Statistics' Census of Fatal Occupational Injuries and the Consumer Product Safety Commission's National Electronic Injury Surveillance System based on a nationally representative sample of hospital emergency departments). Such analyses would be used to guide NIOSH fatality investigations; add to knowledge about patterns of fire fighter injury and illness, risk factors for injury and illness, and levels of risk experienced by fire fighters; and, identify needed improvements in available surveillance data. NIOSH is interested in stakeholder input on the value and need for NIOSH to conduct these data analyses.

Additionally, NIOSH proposes to increase efforts to foster research that builds from NIOSH investigation findings and recommendations, and to leverage resources to conduct such research. This includes seeking funding opportunities through initiatives such as NORA, as well as pursuing funding through other federal agencies and the private sector. This also includes identifying partnerships in which NIOSH would conduct formal evaluations of specific intervention efforts at the national, state or local level. Examples of such research related to cardiovascular disease were provided in the Outreach Section and include research into factors determining compliance with NFPA standards. Examples of such research related to injuries include evaluation of injury prevention interventions, such as novel comprehensive injury prevention programs in a single fire department or state-wide interventions to address a leading cause of death and injury, such as motor vehicle-related events. NIOSH is interested in stakeholder input on whether NIOSH should increase efforts to foster and conduct research that is not centered on fatality investigations, specific research that stakeholders feel is needed, and opportunities that stakeholders are aware of for NIOSH to evaluate specific interventions.

Program Evaluation

NIOSH is currently considering objective means of measuring the performance of the FFFIPP and its impact on fire fighter safety and health.

Assessing trends in fire fighter deaths and injuries is a potential performance measure; however, this measure has limitations since NIOSH is a research agency without a direct role in making changes in the workplace. In addition, nearly half of the fire fighter deaths each year result from cardiovascular disease which develops over decades. Current efforts to improve fire fighter cardiovascular health may not be realized for years and cardiovascular disease-related deaths may not decline for decades. NIOSH is interested in stakeholder input and suggestions for measuring the performance and impact of the FFFIPP.

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Appendix I - Publications from the FFFIPP

NIOSH Health Hazard Evaluation Reports

Hales TR, Baldwin T (2001). Health Hazard Evaluation Report: Madison Fire Department, Madison, WI. Cincinnati, OH: US Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health, NIOSH Report No. HETA 2001-0043-2844.

NIOSH (2004). Issues related to occupational exposure to fire fighters, 1990-2001. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2004-115.

NIOSH Fact Sheet

NIOSH (1997). NIOSH Fact Sheet: Exploding flashlights: Are they a serious threat to worker safety? Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 97-149.

NIOSH Workplace Solutions and Hazard IDs

Braddee R, Washenitz F (1999). NIOSH Hazard ID: Fire fighting hazards during propane tank fires. Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 99-129.

McFall M, Schmidt E (2001). NIOSH Hazard ID: Traffic hazards to fire fighters while working along roadways. Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2001-143.

Romano N (2002). NIOSH Hazard ID: Fire fighter deaths from tanker truck rollovers. Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2002-111.

Cortez K, Mezzanotte T (2002). NIOSH Hazard ID: Fire fighters exposed to electrical hazards during wildland fire operations. Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2002-112.

Tarley J, Proudfoot S, Husting E (2004). NIOSH Workplace Solutions: Divers beware: training dives present serious hazards to fire fighters. Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2004-152.

Tarley J, Guglielmo C (2004). NIOSH Workplace Solutions: Preventing deaths and injuries to fire fighters during live-fire training in acquired structures. Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2005-102.

NIOSH Alerts

Pettr T, Dunn V, Main G (1999). NIOSH Alert: Request for assistance in preventing injuries and deaths of fire fighters due to structural collapse. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 99-146.

Merinar TR, Braddee RW, Washenitz F, Mezzanotte T, Dunn V, Brannigan F (2005). NIOSH Alert: Request for assistance in preventing injuries and deaths of fire fighters due to truss system failures. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2005-132.

NIOSH Publications with Other Agencies

Food and Drug Administration, NIOSH, FDA/NIOSH Public Health Advisory: Explosions and fires in aluminum oxygen regulators. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Food and Drug Administration, February 1999.

NIOSH, Federal Railroad Administration, Operation Lifesaver (2003). Your safety 1st: Railroad crossing safety for emergency responders. Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2003-121.

Peer-reviewed Scientific Journal Articles

Washenitz F, Stoltzfus J, Newton B, Kubinski L [2001]. Fire incidents involving regulators used in portable oxygen systems. *Injury Prevention* 7(Suppl 1): 34-37.

Hodous T, Washenitz F, Newton B [2002]. Occupational burns from oxygen resuscitator fires: The hazard of aluminum regulators. *Am J Industr Medicine* 42(1): 63-69.

Fabio A, Ta M, Sbrötzmeyer S, Li W, Schmidt E [2002]. Incident-level risk factors for firefighter injuries at structural fires. *JOEM* 44(11):1059-1063.

Hales T, Boal WL, Ross CS [2002]. Hepatitis C virus (HCV) infection among public safety workers (PSW) (letter). *J Occup Environ Med* 44:221-4.

Hodous TK, Pizatella TJ, Braddee RW, Castillo DN [2004]. Fire fighter fatalities 1998-2001: overview with an emphasis on structure related traumatic fatalities. *Injury Prevention* 2004; 10(4): pp 222-228.

Boal WL, Hales T, Ross CS [2005]. Blood-borne pathogens among firefighters and emergency medical technicians. *Prehospital Emerg Care* 9(2):236-47.

Trade Journal Articles

Baldwin T N [2001]. Basement Fires: A Lethal Trip. *American Fire Journal*, May 2001, pp. 12-16.

McFall M [2001]. Roadway Assistance. *Fire Chief Magazine*, 45(3):62-64

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Appendix II - Examples of Feedback Received by the NIOSH FFFIPP

Fire department member: "I want to extend my thanks and appreciation for your professionalism conducting during the investigation and fact-finding process. ... Preventing and reducing fire fighter fatalities should be a top priority goal for every department, and to accept objective recommendations from beneficial sources and organizations such as yours. WE are currently taking your recommendations to heart with the following actions already in process for completion....."

Fire department member: "After receiving your voice mail message late yesterday afternoon, I wanted to re-read your report in its entirety before responding. Having done so I want to express my sincere appreciation for your diligence and thoroughness in the preparation of your report. Having been able to experience, first hand, your level of professionalism and compassion I am a true believer in the commitment and competency of you and your organization, NIOSH. I want to personally thank you on behalf of the [FD, Union, and deceased's Family] for your commitment and dedication to Firefighter's safety."

Spouse of fatally injured fire fighter: "On behalf of myself and Steve's entire family, I would like to thank you for writing such a comprehensive and informative report. I would especially like to thank you for placing the conclusion to "ensure that the authority to conduct firing out or burning out operations is clearly defined in the SOP and the IAP" in the first position. It pleases me greatly. Above all, I want for other firefighters to learn from the factors that may have caused my husband's death. In my opinion, the rouge backfiring was the most important one."

Parent of fire fighter who had a fatal cardiac event: "I am very pleased and grateful in the manner in which this investigation was handled with regards to myself and my son. Everyone who I was in contact with was not only professional, but also polite and caring. Thank you for being so kind during this process."

Congressman James McGovern (after release of NIOSH Report 89-F47 based on a Massachusetts event resulting in the deaths of 8 fire fighters): "The value of this report goes far beyond Worcester."

Deputy Fire Marshal, Colorado: "I used the Firefighter Fatality reports published by your organization. These are invaluable as case studies to represent to our young rookies the true hazards of their job. These reports bring the aspect of safety into a reality for them. I know they are safe for having reaped the rewards from the hard work your staff puts into the reports. This is a great and invaluable service to my profession."

Staff member from Training division of Ohio Fire Department: "I would also like to express my department's appreciation in providing the NIOSH Firefighter, Death in the Line of Duty Reports. We recently printed dozens of the reports for the National Stand-down for Firefighter Safety for our firefighters to review. ... The reports, on many occasions, hit close to home in regards to the similarities in our department. The reports stimulate changing an attitude of "it wouldn't happen here" to a attitude and belief that "it COULD happen here". I thank NIOSH for the countless lives they have saved. I believe the NIOSH reports are preventing deaths and serious injury by opening the eyes of those who are involved in the fire service."

Information on reader response card to NIOSH publications: "Good publication. Mandatory for all potential incident commanders!"

Information on reader response card to NIOSH publications: "I find the NIOSH Reports and Alerts on fire fighter deaths very informative. We

utilize the information to change attitudes.

Information on reader response card to NIOSH publications: "Information was shared with all members of my fire department. Fire fighters safety is my main priority. Thank you."

Information on reader response card to NIOSH publications: "Thank you very much. Very informative and easy to be used in our training program."

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Section 13
NIOSH FFIPP Program Background



National Institute For Occupational Safety And Health (NIOSH) Fire Fighter Fatality Investigation And Prevention Program, 1998 - 2005

The National Institute for Occupational Safety and Health (NIOSH) is an agency of the United States government located in the Department of Health and Human Services, and is part of the Centers for Disease Control and Prevention (CDC). NIOSH is responsible for conducting research and making recommendations for the prevention of work-related illnesses and injuries. In fiscal year 1998, NIOSH initiated a new program entitled, NIOSH Fire Fighter Fatality Investigation and Prevention Program (FFFIPP). NIOSH is seeking public comments on the progress and future directions of this program. A summary of the progress and possible future activities for this initiative are provided in this document.

This document is also available in PDF format.

FFFIPP.PDF
(16 pages, 71kb)



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Related Resources:

[Fire Fighter Fatality Investigation and Prevention Program](#)

Background

The United States currently depends on approximately 1.1 million fire fighters, three out of four who are volunteers, to protect its citizens and property from losses caused by fire. Data from recent years indicate that approximately 56 fire fighters die each year from fatal traumatic injuries and another 46 die from cardiovascular-related disease in the line-of-duty. Approximately 95,000 fire fighters are injured at work each year. Traumatic injuries include internal trauma, asphyxiation, crushing injuries, burns, drowning, electrical shock, etc. The number of fire fighters experiencing nonfatal cardiac events each year is unknown.

In fiscal year 1998, Congress recognized the need for further efforts to address the continuing problem of occupational fire fighter fatalities and appropriated funds for NIOSH to: "...conduct fatality assessment and control evaluation investigations to gather information on factors that may have contributed to traumatic occupational fatalities, identify causal factors common to fire fighter fatalities, provide recommendations for prevention of similar incidents, formulate strategies for effective intervention, and evaluate the effectiveness of those interventions."

In January 1998, NIOSH convened a "stakeholders" meeting in Washington, DC to obtain input on this new NIOSH program. In attendance were representatives from across the fire service, including a number of fire departments, union representatives, fire service organizations and federal agencies. This stakeholder meeting was useful in helping NIOSH plan the appropriate direction for this initiative. The primary message communicated to NIOSH at this meeting was the need to focus the program on conducting line-of-duty investigations to identify factors contributing to fire fighter fatalities, and to disseminate this information to fire departments across the country. Throughout the initiative NIOSH has strived to encourage the use of investigations and associated recommendations in fire fighter safety and health efforts.

NIOSH is again seeking input from stakeholders to ensure that the NIOSH FFFIPP is meeting the needs of stakeholders, and to identify ways in which NIOSH might improve upon the program to increase its impact on the safety and health of fire fighters across the United States. A stakeholder meeting will be held March 22, 2006 in Washington, DC. Input will be sought at this meeting and through a public docket.

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Investigations

NIOSH is notified of fire fighter line-of-duty deaths by the U.S. Fire Administration (USFA). Individual fire departments and unions sometimes also notify NIOSH of deaths and serious injuries of fire fighters in the line-of-duty, and specifically request investigations.

NIOSH staff conduct on-site investigations to gather facts on the incident and potential contributory factors. Investigators interview fire department personnel, take photographs and measurements at the site, and review all applicable records (e.g. standard operating procedures/guidelines (SOPs/SOGs), dispatch records, training records, medical records, and coroner/medical examiner reports). In cases in which the function of respiratory protective equipment may have been a factor, NIOSH conducts laboratory evaluations of the performance of self-contained breathing apparatus (SCBA). In select cases, when warranted, NIOSH seeks expert evaluations of other types of fire service equipment, including oxygen regulators that have caught on fire, diving suits in underwater incidents, and personal alert safety system (PASS) devices that were not heard or barely heard by nearby fire fighters or rescue crews. NIOSH has also supported the development, by the National Institute of Standards Technology, of computerized fire simulation models for some investigations. These computerized models have helped to explain and verify fire conditions and have been useful tools for testing the validity of recommendations.

A report is completed for each investigation summarizing the sequence of events that led to the fire fighter death or injury and making recommendations for preventing future deaths and injuries under similar circumstances. An important feature of the NIOSH investigation model is that investigations do not seek to place blame on fire departments or individual fire fighters or officers; rather, the goal is to identify steps that could be taken for prevention in the future. No identifiers are included in the report, as this information is not necessary to meet prevention goals, and inclusion of such information might discourage participation of fire departments and personnel in the NIOSH investigation.

Since the inception of the FFFIPP through February 2006, NIOSH, with the cooperation of fire departments and fire fighters around the country, has conducted 324 fatality investigations in 48 states. These 324 investigations accounted for 368 fire fighter deaths. Additionally, nine nonfatal injury investigations were conducted involving 19 fire fighters. Based on data reported by the U.S. Fire Administration (USFA) on the annual number of fire fighter fatalities, the FFFIPP investigated 44% of fire fighter fatalities for the period 1988 to 2004, excluding the fire fighter deaths associated with the 2001 World Trade Center attacks. The fatality investigations were conducted at 183 career and 141 volunteer fire departments. Traumatic injury incidents accounted for 175 of the investigations (71 structure fires, 53 motor vehicle-related, 18 training, 15 wildland, 9 falls, 8 explosions, and 5 "others" [i.e., helicopter crash, electrocution, homicide, drowning, and fireworks]). Cardiovascular/medical incidents accounted for 149 investigations. The investigations have taken place in all states except Idaho and Rhode Island.

In addition to conducting investigations of line-of-duty deaths and nonfatal injuries of fire fighters, the NIOSH FFFIPP has conducted 20 Health Hazard Evaluations (HHEs) in the fire service in the past 8 years. NIOSH HHEs are similar to line-of-duty fatality and injury investigations in that they frequently involve on-site visits, interviews of personnel, review of records, and recommendations for prevention. However, there are also methodologic differences between HHEs and line-of-duty fatality and injury investigations. HHEs frequently involve collection of data and medical testing of workers not reporting symptoms or illnesses, whereas line-of-duty fatality and injury investigations focus on fire fighters who died or were injured. Additionally, HHEs use epidemiologic approaches to assess if associations exist between workplace exposures and symptoms and illnesses reported by employees. HHEs conducted through the FFFIPP have addressed acute respiratory effects of smoke, exposure to diesel exhaust, exposure to blood borne pathogens, and cancer clusters. [Appendix I](#) lists a finalized HHE report and another document including reports for several HHEs conducted in the fire service. More information on the HHE program is available at: <http://www.cdc.gov/niosh/hhe/HHEprogram.html>.

When multiple NIOSH investigations identify common safety and health concerns, NIOSH develops educational documents that summarize the hazard and recommended prevention measures. Examples of hazards addressed by these educational documents include structural collapse, live-fire training in acquired structures, dive training, and hazards of working alongside roadways. A listing of these educational documents as well as other FFFIPP publications is provided in [Appendix J](#).

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Recommendations

Prevention recommendations are a capstone of the investigative reports and NIOSH summary documents addressing specific hazards faced by fire fighters. Recommendations draw upon and cite consensus and mandatory standards such as those promulgated by the National Fire Protection Association (NFPA) and Occupational Safety and Health Administration (OSHA), fire fighting practices recommended in fire service texts, and findings and recommendations in the safety and medical literature.

Recommendations which have been made most frequently have been directed to fire departments and can be grouped into ten general categories:

- cardiovascular health (e.g. ensuring that medical evaluations screen fire fighters for coronary artery disease risk factors),
- fitness and wellness programs (e.g. implementing mandatory fitness programs that are positive, non-punitive and individualized),
- standard operating procedures/guidelines (e.g. developing and enforcing written procedures/guidelines and ensuring that all officers and fire fighters are trained and knowledgeable of the procedures/guidelines),
- communications (e.g. ensuring that two-way communication is established and coordinated between incident management and fire fighter crews),
- incident command (e.g. ensuring that the Incident Commander is clearly identified and maintains the role of directing operations and scene management),
- motor vehicle-related (e.g. enforcing policies that require all fire personnel riding in emergency vehicles to be seat-belted),
- personal protective equipment (e.g. ensuring that SCBA are properly inspected, used and maintained),
- strategies and tactics (e.g. suspending defensive exterior fire fighting operations prior to switching to interior fire fighting operations to

- minimize hazards to fire fighters working inside structures),
- rapid intervention teams (e.g. ensuring that a properly trained and equipped rapid intervention team is in position when other fire fighters enter a dangerous environment, such as a burning structure), and
- staffing (e.g. ensuring that adequate personnel and equipment are on scene in accordance with NFPA standards).

Recommendations in NIOSH fatality investigative reports and summary documents may be used by individual fire departments, unions, state governments, and public and private fire service agencies to identify and advocate for needed changes in: fire department policies and procedures to better protect fire fighters and ensure well-being; training to ensure that fire fighters have the necessary knowledge and skills to work safely; and consensus and mandatory standards to establish minimum conditions for fire fighter safety and health.

NIOSH recommendations have also been targeted to:

- manufacturers to enhance safety aspects of fire service equipment,
- municipalities to address organization and coordination of fire services as well as safety requirements related to buildings and structures,
- standard setting bodies to modify or develop new standards, and
- research organizations to enhance and develop technologies to improve fire fighter safety.

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Dissemination

Dissemination of the NIOSH FFFIPP products is accomplished through a myriad of venues. A primary venue is the NIOSH Web site, designed specifically for the fire fighter program, which is available at: <http://www.cdc.gov/niosh/fire/>. The Web page contains links to all investigative reports and NIOSH publications. The Web page provides a section where users can subscribe and be automatically notified when a new product is available. There were more than 55,000 visits to the Web page in the ten-month period from January to October 2005, and the Web page was the 16th most popular page on the NIOSH site during that period. Additionally, the Web page provides links to other fire fighter related organizations and pages, including the International Association of Fire Fighters (IAFF), International Association of Fire Chiefs (IAFC), National Volunteer Fire Council (NVFC), National Wildfire Coordinating Group (NWCG), National Fire Protection Association (NFPA), and the USFA. Also, the previously listed fire related organizations and others provide links to the NIOSH FFFIPP Web site.

The FFFIPP has partnered with a number of fire service trade journals including *Firehouse*, *Fire Rescue*, *Fire Chief*, *NFPA Journal*, *Responder Safety*, *Responder Magazine*, and *Wildland Fire Journal*. These journals have reprinted over 70 fire fighter fatality report summaries in the past 18 months. The total monthly combined circulation for the six magazines is approximately 300,000, reaching a potential audience of over 1,400,000 fire service professionals per month.

NIOSH conducts periodic mass-mailings to all 30,000+ fire departments in the United States. The mass mailings are typically done once per year and may contain a packet of five to six reports addressing a variety of situations in which fire fighters have died in the line-of-duty, or a single report thought to be of particular import for the fire service as a whole. Examples of individual reports that have been distributed to all fire departments in the United States include a warehouse fire in Massachusetts that ended in the deaths of six fire fighters (Report No. F99-47) and a training incident in California in which an instructor fell to his death demonstrating an escape procedure portrayed on a training video marketed to the fire service (Report No. F99-25). The escape procedure, which was not recommended by any fire service organization (such as the NFPA, USFA or the International Association of Fire Instructors), involved the potentially dangerous maneuver of exiting a window head first down a ladder.

The NIOSH FFFIPP also disseminates findings and products at meetings and conferences. NIOSH personnel have given more than 50 presentations at fire service, public health, and occupational medicine conferences. Most of these presentations have been at national fire service meetings (e.g. annual meetings held by the IAFC, IAFF, NFPA, and NVFC; IAFF Redmond Symposiums, Fire Department Instructors Conference, and Firehouse Conference and Exposition) and have provided an overview of the NIOSH FFFIPP, current findings, and information on specific cases. In addition, the NIOSH FFFIPP regularly has informational booths with products for distribution at many of the fire service conferences mentioned above. NIOSH personnel have also presented FFFIPP findings at public health, occupational medicine, and safety conferences (e.g. annual meetings of the American Public Health Association, American Occupational Health Conference, National Safety Congress, American Society of Safety Engineers and National Occupational Injury Research Symposiums). Examples of specific topics presented at these meetings include medical requirements for fire fighters, changes to NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*, safety hazards with oxygen systems, motor vehicle incidents, structure fire incidents and fatal carbon monoxide poisonings of fire fighters.

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Outreach

NIOSH has conducted an extensive outreach effort to the fire service, including the formation of partnerships with fire service and other federal agencies to increase the use of the FFFIPP findings and prevention recommendations. The FFFIPP staff also provides information to and participate on committees developing standards and tools for fire fighter safety. The following paragraphs highlight some of these outreach efforts.

NIOSH partnered with the International Association of Fire Chiefs and numerous other fire service organizations in a June 2005 "stand down" for

safety. The purpose of this initiative was to encourage fire departments to set aside time specifically for safety and health training. NIOSH fatality investigative reports were identified as useful tools for such training. NIOSH is currently participating on a NVFC panel administering its Healthy Heart Program. NIOSH has provided, among other things, input on how best to communicate to fire fighters regarding their risk of cardiovascular disease morbidity and mortality.

NIOSH has held several peer-review meetings to have fire service experts in cardiovascular disease critique the NIOSH FFFIPP work related to cardiovascular disease, and to provide input into future directions. Outcomes from these critiques include development of a database from NIOSH investigations of fire fighter cardiovascular deaths, and increased NIOSH involvement in NFPA and USFA committees addressing fire fighter cardiovascular health. NIOSH is exploring opportunities for research suggested by these meetings, including studying the cost-effectiveness of various fire fighter medical screening and fitness/wellness programs, improving processes to identify fire fighters needing exercise stress testing, and studying the effect of low levels of carbon monoxide on fire fighters.

The NIOSH FFFIPP recently entered into a memorandum of understanding (partnership) with the USFA to identify collaborative efforts to improve safety and health conditions for fire fighters throughout the United States. The primary focus of the agreement involves fostering the use of NIOSH FFFIPP products and recommendations in USFA fire fighter training materials and programs. NIOSH personnel also are participating on a USFA panel updating guidance on fire fighter autopsies. NIOSH was asked to participate based on experience and expertise developed while reviewing autopsy reports during fatality investigations.

NIOSH has worked collaboratively with other agencies to leverage resources when addressing issues of common interest. For example, in July 1998, the IAFF requested that NIOSH investigate a number of non-fatal injuries involving oxygen resuscitation systems. These incidents involved the flashing of regulators used to control the flow of oxygen on these systems, resulting in burn injuries to fire fighters and emergency medical technicians. NIOSH worked collaboratively with the Food and Drug Administration (FDA) that regulates these devices, and with the National Aeronautics and Space Administration (NASA) that has a long history of relevant expertise in oxygen safety. Investigation into these events revealed that aluminum in the regulator was a contributing factor to the flash fire incidents, and that there were a number of safe handling techniques which fire fighters and emergency medical technicians could use to reduce the risk of regulator fires. NIOSH and FDA developed a joint public health advisory (<http://www.fda.gov/cdrh/oxygen.html>) that was widely distributed to the fire service, and a training video on safe handling of oxygen systems. Most of the reported flash fire incidents involved a single manufacturer who voluntarily recalled regulators and offered trade-ins with non-aluminum regulators. Although this problem with oxygen regulators was known to the FDA for a number of years, the NIOSH investigations helped to more clearly identify and document the problems and proposed solutions.

Another example of the NIOSH FFFIPP leveraging resources is a joint publication with the Federal Railroad Administration (FRA) and Operation Lifesaver. NIOSH consulted with the FRA in fire fighter fatality investigations involving trains colliding with fire apparatus. An outgrowth of this consultation was a joint publication between NIOSH, FRA, and Operation Lifesaver (a non-governmental program dedicated to eliminating injuries from train collisions), *Your Safety - 1st - Railroad Crossing Safety for Emergency Responders* (NIOSH Publication No. 2003-121). This publication leveraged expertise, funding and distribution networks to develop relevant guidance specific to emergency response and to broadly disseminate the publication to the fire service and communities.

NIOSH personnel have actively participated on the NFPA Occupational Safety and Health Technical Committee since 2001. NIOSH personnel played an important role in the development of the 2003 edition of NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*, ensuring that findings and recommendations from NIOSH investigations were reflected in the revised standard. NIOSH is currently participating in the development of another revision scheduled for release in 2006. NIOSH also provided technical support in the 2005 edition of NFPA 1581, *Standard on Fire Department Infection Control Program* and is providing technical support in an ongoing revision of NFPA 1584, *Recommended Practice on Rehabilitation of Members Operating at Incident Scene Operations and Training Exercises*.

In April 2005, NIOSH notified the NFPA of several fatality investigations in which PASS devices were not heard by fire fighters working near fallen fire fighters or by rapid intervention teams searching for the fire fighters. NIOSH identified potential reasons why the PASS devices may not have performed as designed, and recommended that the NFPA committee revising NFPA 1982, *Standard on Personal Alert Safety Systems (PASS)* consider modifications in testing and performance criteria. NIOSH staff from the National Personal Protective Technology Laboratory who participate on this committee are providing technical support to address these issues in the revision. The NFPA and International Association of Fire Fighters recently posted notices on their Web sites (http://www.nfpa.org/itemDetail.asp?categoryID=136&itemID=28606&URL_Codes%20and%20Standards/NFPA%20News&cookie%5Fiesi=1 and <http://www.iaff.org/across/news/archive2005/113005pass.html>, respectively) warning fire fighters that PASS devices may not function as intended under high temperature conditions based on issues raised by the NIOSH investigations and initial testing by the National Institute for Standards Technology.

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Research

Although the primary focus of the NIOSH FFFIPP has been fatality investigations, based in large part on input that NIOSH received at the January 1998 stakeholders' meeting, NIOSH has undertaken different types of research as part of the NIOSH FFFIPP, both to advance fire fighter safety and health and improve the impact and relevance of the NIOSH FFFIPP. These research efforts have frequently involved leveraging of resources from other NIOSH and CDC programs. The following paragraphs highlight some of these research efforts.

FFFIPP personnel have written journal articles on a variety of topics related to fire fighter safety and health based on data analysis and literature reviews. A listing of these publications is provided in [Appendix I](#). Fire fighter safety and health issues addressed by these articles include flashing of oxygen regulators, risk factors for injury in structure fires, and estimates of occupational transmission of bloodborne pathogens to fire fighters.

and emergency response personnel.

NIOSH investigations of emergency medical service workers fatally injured in ambulance crashes helped elucidate inadequate occupant protection in the patient compartment, especially given the inability for personnel to attend to patients while restrained using lap seat belts that are commonly provided in ambulance patient compartments (Report Nos. [FACE 2001-11](#), [FACE 2001-12](#), and [Report No. F2003-33](#)). These investigation findings helped spawn and inform research largely funded through NIOSH's National Occupational Research Agenda (NORA) program and partners in the U.S. and Canadian governments, including USFA, that demonstrated the potential of certain types of occupant restraints to provide crash protection for emergency medical services personnel while allowing them the mobility to attend to patients. These research findings have spawned additional research, again funded largely through the NIOSH NORA program, to evaluate human factors issues related to these restraints and other modifications that can be made to the patient compartment to improve safety of fire fighters and emergency medical services personnel. The NORA program is also funding a pilot project to evaluate and compare the effects of wearing bunker boots/bunker pants with wearing a station uniform in manipulating the accelerator and brake pedals of a mock-up emergency apparatus cab, and to determine if future research is needed in this area. This pilot project was proposed based on hypotheses that bulky turnout gear may negatively impact the ability of drivers to operate fire apparatus.

Beginning in 2005, NIOSH began a follow-back survey to elicit stakeholder input on line-of-duty cardiovascular disease death investigations. The survey is mailed with a copy of the final report to the fire department, union (if applicable), and the victim's family member most involved with the investigation. Input received from this follow-back survey will be used to help focus line-of-duty investigations of cardiovascular disease deaths and the final reports.

In November 2005, NIOSH was granted approval by the Office of Management and Budget to proceed with an evaluation of the NIOSH FFFIPP. The evaluation includes a nationwide survey of fire departments and a number of focus groups consisting of front-line fire fighters. The study will determine the extent to which the program's reports, recommendations, and other products are being utilized by the fire service for training, policies, practices, and other prevention efforts. The evaluation will provide insight into the impact of the FFFIPP program and help to identify enhancements that might further the program's impact. Data collection began in February, 2006. NIOSH is conducting the study, largely funded by CDC, in conjunction with RTI International (a non-profit research organization).

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Impact/Feedback

NIOSH has received numerous examples of how the NIOSH FFFIPP has positively impacted fire fighter safety and health. These impacts include:

- influencing or supporting federal and state legislation to improve fire fighter safety and health.
- influencing NFPA standards;
- examples of fire service agencies taking action based upon NIOSH recommendations and using FFFIPP products in fire fighter safety and health training, and
- in some cases, assisting surviving family members to understand the events surrounding the loss of their loved one.

Examples of some of these impacts that have not been previously described are provided in the following paragraphs, and examples of feedback provided by stakeholders are included in [Appendix II](#). Much of the information that NIOSH has on the impact of the FFFIPP is anecdotal and has not been collected in a systematic fashion. NIOSH is looking forward to more quantitative input from the evaluation project noted above to guide enhancements to the FFFIPP to increase impact on fire fighter safety and health.

Findings from NIOSH fatality investigations have been referenced or used to develop both federal and state legislation aimed at improving fire fighter safety and health. Descriptive statistics from the NIOSH line-of-duty cardiovascular disease death investigation database detailing sudden cardiac death triggered by heavy physical exertions during fire suppression were used by congressional staff sponsoring the Hometown Heroes Survival Act which extended benefits to survivors of fire fighters suffering cardiac death in the line-of-duty. The NIOSH investigation of the 2001 death of a fire fighter in New York ([Report No. F2001-36](#)) was cited in the justification for a 2003 New York law, *Bradley's law*, prohibiting the use of people playing the role of victim in live-fire training.

NIOSH findings and recommendations have also been used in the development and revision of voluntary consensus standards issued by NFPA. In addition to examples described previously in the "Outreach" Section, NIOSH investigative findings have been used in the development of *NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*. This standard recommends staffing based on the types of emergency response fire departments are likely to encounter. Mr. Richard Duffy, the Secretary of the Technical Committee that developed this standard, reported that NIOSH fatality investigation reports were used extensively in development of this standard. Many provisions of this standard are also included in a counterpart for volunteer departments, *NFPA 1720*.

NIOSH has received feedback on a variety of ways in which the fire service, public safety departments, and universities are using fatality investigation reports from the NIOSH FFFIPP to improve fire fighter safety. For example, several fire departments across the country have reported using NIOSH fatality investigation reports in their fire fighter safety training. These fire departments include Baltimore City, Maryland; Howell Township, New Jersey; Mentor, OH; and, Portland, Oregon. State fire training academies, including those in Pennsylvania, West Virginia, and Tennessee also consider findings and recommendations when reviewing and developing new curriculum. For example, in Pennsylvania, the training academy instructed 1,200 local instructors to incorporate training on "accountability" into their classes based on a series of NIOSH investigations making recommendations for improving accountability on the fire scene. NIOSH is also aware of fatality investigative reports being

used in university fire safety curriculums, including courses at West Virginia University and Northern Virginia Community College.

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Potential Future Directions and Specific Requests for Stakeholder Input

The NIOSH FFFIPP is asking for stakeholder input to improve the program and enhance impact on fire fighter safety and health. Information provided to NIOSH at the forthcoming March 22, 2006 stakeholder meeting and through the established docket will be used to refine the program to ensure it meets the needs of stakeholders. Similarly, data collected from the forthcoming evaluation will be used to determine if adjustments to the program are needed or would be beneficial in increasing the impact of the FFFIPP on fire fighter safety and health. Pending consideration of input provided by stakeholders and data collected through the formal evaluation, in the following paragraphs NIOSH proposes general directions for the NIOSH FFFIPP for consideration and comment by stakeholders. Specific areas that NIOSH would appreciate stakeholder input on are identified, though any input will be welcomed and considered.

Investigations

NIOSH proposes that the primary focus of the NIOSH FFFIPP continue to be fatality investigations, but that the intensity of investigations be modestly reduced to support personnel increasing involvement in other activities described in the Dissemination, Outreach and Research Sub-sections below.

The NIOSH FFFIPP does not have the resources to conduct investigations of every line-of-duty death. Many NIOSH investigations are finding similar contributory factors, and consequently repeating prevention recommendations made in previous investigations. Efforts have been made to prioritize deaths for investigation. For example, priority consideration has been given to events that account for large numbers of deaths (e.g. motor vehicle incidents and cardiovascular disease), investigations likely to result in new types of recommendations (e.g., investigations of cardiovascular disease deaths of fire fighters less than 40 years of age and deaths involving new technologies), and investigations that feed into and inform current prevention efforts of other groups (e.g. investigations that may inform standard setting, such as current revisions to NFPA 1982, *Standard on Personal Alert Safety Systems (PASS)*). Stakeholder input is requested on whether fatality investigations should continue to be the focus of the FFFIPP, with modest decreases in the intensity of fatality investigations to support more outreach and research. Stakeholder input is also requested on the types of investigations that should receive high priority for investigation, and how and when prioritization should change over time.

Dissemination

NIOSH proposes increasing efforts to develop educational documents summarizing specific hazards encountered across multiple investigations. Examples of such documents that are currently under development include NIOSH Alerts addressing cardiovascular deaths, motor vehicle-related events, training incidents, and risk versus gain decisions on the fireground. NIOSH is interested in stakeholder input on the value and need for such summary publications, how NIOSH might make such documents more useful to the fire service and occupational safety and health community, and suggestions for specific topics to address in these educational documents.

NIOSH also proposes to continue to seek novel ways to disseminate findings and products, such as working with trade journals to further disseminate NIOSH reports and findings, and the biweekly quiz on the NIOSH FFFIPP Web site that directs users to answers in NIOSH publications. NIOSH is interested in specific suggestions from stakeholders on dissemination of NIOSH reports and publications focused on fire fighter safety and health.

Outreach

NIOSH proposes to continue to aggressively conduct outreach and partnership activities to foster increased use of NIOSH FFFIPP findings and products by fire service organizations and to pursue activities that complement and support prevention efforts of others. NIOSH is interested in specific suggestions from stakeholders as well as recommended areas for concentration, e.g. participation on standard-setting committees.

Research

NIOSH proposes conducting more routine and in-depth analyses of available data on fire fighter deaths and injuries (e.g. fatality data collected and reported by USFA and NFPA, data from the National Fire Incident Reporting System, and data from occupational injury and illness databases such as the Bureau of Labor Statistics' Census of Fatal Occupational Injuries and the Consumer Product Safety Commission's National Electronic Injury Surveillance System based on a nationally representative sample of hospital emergency departments). Such analyses would be used to guide NIOSH fatality investigations; add to knowledge about patterns of fire fighter injury and illness, risk factors for injury and illness, and levels of risk experienced by fire fighters; and, identify needed improvements in available surveillance data. NIOSH is interested in stakeholder input on the value and need for NIOSH to conduct these data analyses.

Additionally, NIOSH proposes to increase efforts to foster research that builds from NIOSH investigation findings and recommendations, and to leverage resources to conduct such research. This includes seeking funding opportunities through initiatives such as NORA, as well as pursuing funding through other federal agencies and the private sector. This also includes identifying partnerships in which NIOSH would conduct formal evaluations of specific intervention efforts at the national, state or local level. Examples of such research related to cardiovascular disease were provided in the Outreach Section and include research into factors determining compliance with NFPA standards. Examples of such research related to injuries include evaluation of injury prevention interventions, such as novel comprehensive injury prevention programs in a single fire department or state-wide interventions to address a leading cause of death and injury, such as motor vehicle-related events. NIOSH is interested in stakeholder input on whether NIOSH should increase efforts to foster and conduct research that is not centered on fatality investigations, specific research that stakeholders feel is needed, and opportunities that stakeholders are aware of for NIOSH to evaluate specific interventions.

Program Evaluation

NIOSH is currently considering objective means of measuring the performance of the FFFIPP and its impact on fire fighter safety and health.

Assessing trends in fire fighter deaths and injuries is a potential performance measure; however, this measure has limitations since NIOSH is a research agency without a direct role in making changes in the workplace. In addition, nearly half of the fire fighter deaths each year result from cardiovascular disease which develops over decades. Current efforts to improve fire fighter cardiovascular health may not be realized for years and cardiovascular disease-related deaths may not decline for decades. NIOSH is interested in stakeholder input and suggestions for measuring the performance and impact of the FFFIPP.

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Appendix I - Publications from the FFFIPP

NIOSH Health Hazard Evaluation Reports

Hales TR, Bakwin T (2001). Health Hazard Evaluation Report: Madison Fire Department, Madison, WI. Cincinnati, OH: US Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health, NIOSH Report No. HETA 2001-0043-2844.

NIOSH (2004). Issues related to occupational exposure to fire fighters, 1990-2001. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2004-115.

NIOSH Fact Sheet

NIOSH (1997). NIOSH Fact Sheet: Exploding flashlights: Are they a serious threat to worker safety? Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 97-149.

NIOSH Workplace Solutions and Hazard IDs

Braddee R, Washenitz F (1999). NIOSH Hazard ID: Fire fighting hazards during propane tank fires. Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 99-129.

McFall M., Schmidt E (2001). NIOSH Hazard ID: Traffic hazards to fire fighters while working along roadways. Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2001-143.

Romano N (2002). NIOSH Hazard ID: Fire fighter deaths from tanker truck rollovers. Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2002-111.

Cortez K, Mezzanotte T (2002). NIOSH Hazard ID: Fire fighters exposed to electrical hazards during wildland fire operations. Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2002-112.

Tarley J, Proudfoot S, Husting E (2004). NIOSH Workplace Solutions: Divers beware: training dives present serious hazards to fire fighters. Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2004-152.

Tarley J, Guglielmo C (2004). NIOSH Workplace Solutions: Preventing deaths and injuries to fire fighters during live-fire training in acquired structures. Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2005-102.

NIOSH Alerts

Petta T, Dunn V, Main G (1999). NIOSH Alert: Request for assistance in preventing injuries and deaths of fire fighters due to structural collapse. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 99-146.

Merinar TR, Braddee RW, Washenitz F, Mezzanotte T, Dunn V, Brannigan F (2005). NIOSH Alert: Request for assistance in preventing injuries and deaths of fire fighters due to fruss system failures. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2005-132.

NIOSH Publications with Other Agencies

Food and Drug Administration, NIOSH, FDA/NIOSH Public Health Advisory: Explosions and fires in aluminum oxygen regulators. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Food and Drug Administration, February 1999.

NIOSH, Federal Railroad Administration, Operation Lifesaver (2003). Your safety 1st: Railroad crossing safety for emergency responders. Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2003-121.

Peer-reviewed Scientific Journal Articles

Washenitz F, Stoltzfus J, Newton B, Kubinski L [2001]. Fire incidents involving regulators used in portable oxygen systems. *Injury Prevention* 7(Suppl 1): 134-37.

Hodous T, Washenitz F, Newton B [2002]. Occupational burns from oxygen resuscitator fires: The hazard of aluminum regulators. *Am J Industr Medicine* 42(1): 63-68.

Fabio A, Ta M, Strömeyer S, Li W, Schmidt E [2002]. Incident-level risk factors for firefighter injuries at structural fires. *JOEM* 44(11):1059-1063.

Hales T, Boal WL, Ross CS [2002]. Hepatitis C virus (HCV) infection among public safety workers (PSW) (letter). *J Occup Environ Med* 44:221-4.

Hodous TK, Pizatella TJ, Braddee RW, Castillo DN [2004]. Fire fighter fatalities 1998-2001: overview with an emphasis on structure related traumatic fatalities. *Injury Prevention* 2004; 10(4): pp 222-226.

Boal WL, Hales T, Ross CS [2005]. Blood-borne pathogens among firefighters and emergency medical technicians. *Prehospital Emerg Care* 9(2):236-47.

Trade Journal Articles

Baldwin T N [2001]. Basement Fires: A Lethal Trap. *American Fire Journal*, May 2001, pp. 12-16.

McFall M [2001]. Roadway Assistance. *Fire Chief Magazine*, 45(3):62-64

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Appendix II - Examples of Feedback Received by the NIOSH FFFIPP

Fire department member: "I want to extend my thanks and appreciation for your professionalism conducting during the investigation and fact-finding process. ... Preventing and reducing fire fighter fatalities should be a top priority goal for every department, and to accept objective recommendations from beneficial sources and organizations such as yours. WE are currently taking your recommendations to heart with the following actions already in process for completion....."

Fire department member: "After receiving your voice mail message late yesterday afternoon I wanted to re-read your report in it's entirety before responding. Having done so I want to express my sincere appreciation for your diligence and thoroughness in the preparation of your report. Having been able to experience, first hand, your level of professionalism and compassion I am a true believer in the commitment and competency of you and your organization, NIOSH. I want to personally thank you on behalf of the (FD, Union, and deceased's Family) for your commitment and dedication to Firefighter's safety."

Spouse of fatally injured fire fighter: "On behalf of myself and Steve's entire family, I would like to thank you for writing such a comprehensive and informative report. I would especially like to thank you for placing the conclusion to "ensure that the authority to conduct firing out or burning out operations is clearly defined in the SOP and the IAP" in the first position. It pleases me greatly. Above all, I want for other firefighters to learn from the factors that may have caused my husband's death. In my opinion, the rouge backfiring was the most important one."

Parent of fire fighter who had a fatal cardiac event: "I am very pleased and grateful in the manner in which this investigation was handled with regards to myself and my son. Everyone who I was in contact with was not only professional, but also polite and caring. Thank you for being so kind during this process."

Congressman James McGovern (after release of NIOSH Report 99-F47 based on a Massachusetts event resulting in the deaths of 8 fire fighters): "The value of this report goes far beyond Worcester."

Deputy Fire Marshal, Colorado: "I used the Firefighter Fatality reports published by your organization. These are invaluable as case studies to represent to our young rookies the true hazards of their job. These reports bring the aspect of safety into a reality for them. I know they are safe for having reaped the rewards from the hard work your staff puts into the reports. This is a great and invaluable service to my profession."

Staff member from Training division of Ohio Fire Department: "I would also like to express my department's appreciation in providing the NIOSH Firefighter, Death in the Line of Duty Reports. We recently printed dozens of the reports for the National Stand-down for Firefighter Safety for our firefighters to review. ... The reports, on many occasions, hit close to home in regards to the similarities to our department. The reports stimulate changing an attitude of "it wouldn't happen here" to a attitude and belief that "it COULD happen here". I thank NIOSH for the countless lives they have saved. I believe the NIOSH reports are preventing deaths and serious injury by opening the eyes of those who are involved in the fire service."

Information on reader response card to NIOSH publications: "Good publication. Mandatory for all potential incident commanders!"

Information on reader response card to NIOSH publications: "I find the NIOSH Reports and Alerts on fire fighter deaths very informative. We

utilize the information to change attitudes.

Information on reader response card to NIOSH publications: "Information was shared with all members of my fire department. Fire fighters safety is my main priority. Thank you."

Information on reader response card to NIOSH publications: "Thank you very much. Very informative and easy to be used in our training program."

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