After months of planning and preparation by the staff of the IAFF Division of Occupational Health, Safety and Medicine, the Nineteenth Symposium on the Occupational Health and Hazards of the Fire Service was held October 21 - 25, 2007 in Chicago, Illinois. The IAFF's Symposium was attended by more than 1,500 fire fighters, physicians, scientists, lawyers, manufacturers, and government officials. The attendees were from the United States, Canada and a number of international fire service organizations. The Chicago Fire Department, IAFF Local 2, assisted with this major IAFF educational event which is biennially co-sponsored by the IAFF's John P. Redmond Foundation, the IAFF Division of Occupational Health, Safety, and Medicine and the United States Fire Administration.

A major focus of the symposium was the issue of wireless communications for emergency responders. Fire service communications have become more complicated over time and the impact of communications systems on the safety of fire fighters is significant. Properly designed and operated communications systems can enhance fire fighter safety. The importance of communications to the Redmond attendees was reflected in the number of individuals that chose to attend the communications workshops.

The most highly attended workshop of the entire symposium was entitled “Fire Service Communications”. The workshop was held in one of the largest rooms in the hotel and it was filled to overflowing for the offerings of the workshop. Despite the size of the room and the fact that each session was set for 250 attendees, the demand exceeded the supply of seats.

The moderator and members of the panel that presented the communications workshops were fire service professionals from Phoenix, Arizona, Montgomery County, Maryland, and Memphis, Tennessee.

The program included information on the importance of wireless communications to the safety of fire fighters, conventional and trunked radios systems, system design and operation, a systems approach to fire service communications, the importance of adequate system design and contingencies, life cycle costing and the commitment that is needed to support the ongoing operations of the communications system, interoperability, and other communications system issues.

The moderator and members of the panel shared real-world experience with the attendees and answered questions from the audience. The interest in the
workshop was demonstrated by the number of attendees that remained after the presentation was over to discuss issues with the panel members and to ask supplemental questions.

The quality of the workshop was reflected in the high marks given by the attendees. Overall, the workshop was rated 8.5 on a scale of 10 by the attendees. Some of the comments received from attendees included: excellent, the best workshop of the Symposium, information that we can use as soon as we get home, outstanding presenters, really know the topic, real world experience. When asked if more information on communications should be provided at future Symposia, over 95 percent of attendees agreed.

**Monday October 22, 2007**

IAFF General President Harold Schaitberger kicked off the first day and thanked the 1,500 registrants attending this symposium. He discussed a growing concern for the number of line of duty deaths each year across the United States and Canada. While he stressed that the total numbers of fire incidents have declined over the years due to advances in technology, more stringent fire codes, and sprinkler systems, the number of LODD has remained essentially the same. The IAFF suffered five multiple line of duty deaths this past year alone. General President Schaitberger discussed looking at other countries that have lower fatality rates such as Sweden who has lost one fire fighter in the past seven years. We can all draw different conclusions asking how they fight fires. Do they do more defensive and less offensive? What about fire fighters per 1,000 population? We must look at what we can learn from them and make adjustments. The United Kingdom for example has had 7 fire fighter fatalities in four years. The IAFF has had 114 fatalities, 84 of which were trauma deaths. This is 12 times UK’s rate. President Schaitberger further stressed that the fire service needs to get back to the basics when identifying risk verses benefit analysis’s making sure we are not going into an unoccupied structure that is scheduled to be torn down only to loose members. It is a fire fighter’s job to protect the public they serve; it is our job to protect our members. Change will only take place through team work, leadership, and training the fundamentals.

Colonel Michal Mullane provided the keynote address. Colonel Mullane is retired from the Air Force and served in Viet Nam. He also was a mission specialist on three space shuttle missions. His speech focused on comparing NASA to the fire service and developing team building and leadership. There were two catastrophic shuttle missions, the Challenger and the Columbia; both incidents were preventable. He spoke of normalization of deviance, which means creating short cuts or the lowering of a standard of performance. This can be characterized by the Challenger catastrophe. Experts in the field knew there were problems with the redundant flexible O-Rings between the different sections of the solid rocket booster tanks. The standard of performance was developed
10 years prior to the Challenger incident. It was established as a criticality devaliance. If there were any signs of damage to the O-Rings the fleet would be grounded. The fuel burns at 5,000 degrees and exerts 1,000 PSI. Steel boils at 5,000 degrees, hence the importance of the gaskets performing correctly. When it was discovered that there were problems with the flexible gaskets, prior to the Challenger tragedy, experts determined that because nothing bad happened the damaged O-Rings became the new acceptable standard. This works much the same in the fire service. If we take a shortcut and it works with no one getting injured or killed, it is looped into our memory banks and it will become our new standard of performance. All this creates is a predictable surprise just as it did with the Challenger. A good example of this is seat belts. Many firefighters haven’t had to wear a seat belt for 30-40 years and nothing bad happened so it must be okay. We need to recognize that we are vulnerable. We have only lost two firefighters in the line of duty so we assume we are much safer than other firefighters. Is this really true? Think of the close calls we all have had over our careers. Colonel Mullane also discussed trusting your instincts. If something doesn’t look or feel right take a minute to see if there is something you’ve missed. He also suggested that we review “near misses” to learn from others mistakes. Plan the work and then work the plan. Next he discussed responsibility. Don’t just become a passenger. Just because a more senior or higher ranking person makes a decision doesn’t mean it is the correct decision. If you see or sense something wrong, bring it to their attention. He asked the attendees to remember one person with courage forms a majority. Stay focused and accept those things you can’t change.

Since its founding in 1918, the International Association of Fire Fighters has worked to protect the working conditions of its members, including their health and safety on the job. IAFF Assistant to the General President Richard Duffy, Health and Safety Director Patrick Morrison and IAFF Medical Advisor James Melius, MD gave the attendees at the Symposium an update on health and safety issues for fire fighters. The presentation included a detailed briefing of all the health, safety and medical activities that the IAFF has been involved in and worked on during the two years since the last Redmond Symposium. Also addressed were the day-to-day action and affiliate activities; health and safety standards and legislation; wellness and fitness; protective clothing and equipment; staffing for health and safety; and new initiatives to protect our members health and safety. The presentation concluded with an overview of this, the 19th IAFF John P. Redmond Symposium.

Jeffrey B. Kindler, Chief Executive Officer and Chairman of the Board of Pfizer Inc. addressed the fact that fire fighters confront hazards regularly that pose serious threats to the bronchial, pulmonary, cardiovascular and neurological systems. It is the determination of the IAFF that smoking is incompatible with the duties of a fire fighter and that it imposes a substantial additional risk beyond those risks fire fighters already face as a result of their inherently hazardous occupation. Opinion poll after opinion poll shows that Americans revere fire
fighters as much as any profession. Pfizer is one of the world's leading health care companies, with special competencies in tobacco use risks and smoking cessation. Mr. Kindler announced a new initiative in that the IAFF and Pfizer have agreed to form a joint smoking cessation program aimed at making the IAFF the first tobacco-free union in North America. We jointly recognize that smoking remains one of the greatest threats faced by fire fighters and emergency response personnel. Smoking is a leading cause of premature death and is a significant contributor to heart disease, lung disease and cancer. It is also the leading cause of fire, including a number this year alone that claimed the lives of IAFF members. As part of our effort, the IAFF and Pfizer will work together to disseminate educational materials on the hazards of smoking and the many ways available to help smokers quit. The IAFF will use its bargaining powers to promote smoke-free fire departments, and work to assure that health plans provide group health coverage to its members and their dependents including smoking cessation as a covered benefit in accordance with the CDC National Clinical Guidelines.

Chief Bobby Halton (ret.), Editor in Chief of Fire Engineering, addressed the single greatest threat to American fire service; which is the steady drifting away from the standards, processes, policies, and conditions that made our work safe. This slow steady movement has been marked by small seemingly insignificant changes, insignificant compromises, and concessions that when viewed in isolation appear to be inconsequential. However, when they combine they set the stage for disaster. This sliding toward disaster often goes unrecognized until disaster highlights the failures. Then, it is often too late. Chief Halton explained that adding to our difficulties is the widespread mistaken belief that technology is making fire fighting safer, that it can replace critical elements of our safety envelope. This illusion places fire fighters in extremely compromised positions. Today, we have an incomplete understanding regarding our own technology, and we are redefining the boundaries we must face and conquer when involved in structural fire fighting.

John B. Tippett is the Program Director for the IAFC where he is responsible for the National Fire Fighter Near-Miss Reporting System. Chief Tippett explained that stagnated fire fighter fatality and injury statistics in the face of technological advances in apparatus and equipment call for the fire service to explore innovative methods to affect change, through this program which the IAFF has partnered. Early analysis of reports submitted and users surveyed indicates that fire fighters realize the value of reporting near misses and the benefit gained from reviewing reports submitted by other fire fighters. This presentation highlighted how this program can be used to help foster an increase in the safety culture in your department. It introduced attendees to the concept and value of near-miss reporting and demonstrated the features of the National Fire Fighter Near-Miss Reporting System so attendees were comfortable to make the system part of their department's fire fighter safety training program(s).
Colonel Mark L. Malatesta represented the Joint Program Executive Office for Chemical and Biological Defense and addressed the U.S. military's role in developing and acquiring the proper protection for the war fighter, fielded personal protective equipment and operational equipment, and equipment fielded with troops in Iraq and Afghanistan. He also addressed Consequence Management, National Guard Civil Support Teams (CST), equipment (COTS) and interaction/support to local fire and emergency services; USAR - Reconnaissance and Decontamination Teams & Capabilities; Military Installation protection; and the technical challenges our military also faces with CBR Personal Protective Equipment

Jeffrey Stull, President of International Personnel Protection, Inc. explained how the IAFF is in the process of bringing its Project HEROES™ (Homeland Emergency Response Operational and Equipment Systems) initiative to the field for improving fire fighter safety and health. This work has been supported by the Technical Support Working Group (TSWG) with funding from the Department of Homeland Security (DHS) and the Defense Threat Reduction Agency (DTRA). As a result of this work, a new, innovative structural fire fighting PPE ensemble has been developed that provides front line fire fighters protection from chemical, biological, radiological, and nuclear (CBRN) agents with a minimum impact on their comfort and functionality. While these protective qualities account for today's new threats from potential terrorism incidents, the new Project HEROES™ protective ensemble also provides enhanced protection for structural fire fighting through features that keep fire fighters safer from thermal exposures, hazardous liquids, and skin toxic chemicals found in most fires. This new protective ensemble is virtually indistinguishable from current structural fire fighting gear and represents the first new technology that passively provides CBRN protection that will meet the new optional CBRN requirements of the NFPA 1971 standard on structural fire fighting protective clothing. The presentation will provide a detailed description of the Project HEROES™ ensemble, the materials used in its construction, and the process by which it was developed and evaluated. This will include information that highlights the involvement of several different organizations in evolving Project HEROES™ including Total Fire Group, which provided the principal design of the ensemble, the NIOSH National Personal Protective Technology Laboratory for evaluating ensemble physiological and ergonomic impacts, W.L. Gore & Associates as principal supplier of the key CBRN barrier materials, and International Personnel Protection, Inc. for assisting the IAFF in evaluating key parameters of the ensemble. The presentation also covered several different evaluations of prototype ensembles in both laboratory settings and at different field sites. Prototype ensembles will be demonstrated during the presentation.

Joseph M. Fleming, a Deputy Chief with the Boston Fire Department presented the fact that perhaps one of the most dangerous activities a fire fighter can undertake is to search for possible victims in a residence were the fire has been burning for some time. The chances of this occurring increase when there is no
working smoke detector or the smoke detector operates too late and the victim is trapped. Chief Fleming presented research by the Boston Fire Dept., based on testing by the Federal Government and others that indicates that the use of photoelectric technology, whether alone or in a combination detector, can greatly reduce the probability of this occurring for two reasons: 1) photoelectric smoke alarms are much less susceptible to nuisance alarms, thus reducing the probability it will be disabled, and 2) in smoldering fires, which typically occur while victims are sleeping, the photoelectric alarm may respond 30 minutes earlier and the ionization may not respond until the smoke is too thick to prevent egress. According to the USFA almost 40% of all fire fatalities occur with working smoke alarms and another 20% occur with disabled smoke alarms. As a consequence, Chief Fleming explained that any solution to these two problems can have a huge impact on fire fighter safety as well as the safety of fire fighters' families.

Donald O. Hewitt is the Program Manager with The Research Knowledge Base, the trusted, integrated, Internet-based source of equipment-related information, funded by a grant from the Department of Homeland Security. Mr. Hewitt’s presentation provided highlights on the features and use of this free resource, which the IAFF has supported as a partner since its creation in 2003.

Scott Goudeseune, the President and Chief Executive Officer of the American Council on Exercise addressed the continuation of the Joint IAFF-IAFC-ACE Peer Fitness Training Certification Program and provided highlights of recent program successes.

Monday’s Session also had some very important guests. On the Saturday prior to the symposium, the IAFF with the Chicago Fire Department and IAFF Local 2 hosted IAFF Fire Ops 101 program. This program is designed to communicate to local, state, provincial and federal decision makers, through experience, “what fire fighters and emergency medical responders do”. The event hosted State Representatives, several mayors and city council members and the news media. Suzette Cook, Mayor of the City of Kent, Washington and Robert Lovero, Alderman from the City of Berwyn, Illinois went through the FireOps and presented their experiences.

Fire Fighters in the State of Illinois have long benefited from a presumptive heart, lung and cancer bill for pension purposes. On the first day of the symposium, a historic event also took place that benefited all fire fighters in the State of Illinois. Governor Rod Blagojevich signed into law, from the stage of the symposium, a bill that now provides worker’s compensation benefits for heart, lung, cancer, hernia and hearing loss for fire fighters.

Tuesday October 23, 2007

Plenary Session
The second day of the symposium began with a plenary panel which addressed current fire fighter occupational medical issues. It was chaired by Melissa McDiarmid, MD, Professor of Medicine/Director of Occupational Health Project at the University of Maryland.

**Tom Hales, MD, MPH,** Senior Medical Epidemiologist with the National Institute of Occupational Safety and Health, addressed fire fighters and heart disease deaths that he has investigated. He explained that sudden cardiac death is the most common cause of an on-duty fire fighter fatality. Since 1998, NIOSH has been investigating these deaths. This presentation reviewed workplace exposures that put fire fighters at risk for heart disease; highlighted important findings from the fatality investigation program; summarized the evidence that these deaths are triggered by workplace exposures; and provided recommendations to minimize the risk of injury and death to fire fighters from cardiovascular events.

**David Prezant, MD** is the Medical Officer with the Fire Department, City of New York. Dr. Prezant responded on 9/11/01 to the World Trade Center and was present during the collapse and its aftermath. Since that day, he along with Dr. Kerry Kelly (FDNY’s Chief Medical Officer at the Bureau of Health Services) initiated a multi-million dollar medical monitoring and treatment program for FDNY fire fighters funded by FDNY, the Centers for Disease Control and Prevention (CDC) and the National Institute for Occupational Safety and Health (NIOSH). Dr. Prezant presented the major research he is conducting to determine the mechanisms responsible for accelerated decline in longitudinal pulmonary function and/or airway hyperreactivity in fire fighters after WTC exposure. Other interests he presented were the mechanisms responsible for the increased incidence of sarcoidosis in fire fighters after WTC exposure.

**Gregory Bussell, MD** is the Medical Advisor with the Richter Foundation which has provided an increased focus on the ill effects of diesel exposure on the human body. Diesel exhaust exposure is known to be an exacerbating factor of nasal, sinus, and throat disorders as well as a potential cause of lung and bladder cancer. Fire fighters are a group of people that are at highest risk of diesel related illness because of prolonged exposure to diesel fumes. Fire fighters serve in repeating 24 hour shifts in diesel exposed environments and Dr. Bussell reported a large number of fire fighters with problems related to this exposure. He further described the effects of diesel exposure on the sino-nasal passages (diesel induced rhinitis) in 27 fire fighters that have presented to his office since 2001. Dr. Bussell made specific recommendations on how to treat this unique group of patients.

At the conclusion of these presentations, Dr. McDiarmid let the panel in further discussions.
The morning session ended with a presentation by a special guest of the IAFF. **Mr. Augie Nieto** spent 28 years living his dream of business and personal success; a diagnosis of ALS left Augie Nieto, one of the founders of today's modern fitness industry, reeling. He had spent his life staying fit while trying to spread the word of fitness to others. How could he be cursed with such a disease? One, which at that point, had no known cause or cure. Waiting to die, however, is not what Augie is all about. He soon came to grips with the diagnosis and within months he recruited stars, athletes and fitness heroes to kick off Augie’s Quest, a non-profit arm of the Muscular Dystrophy Association, to raise funds and awareness and to underwrite research to find a cure. In 2006, the MDA announced that new research, indeed funded by Augie’s Quest, had in fact discovered abnormalities in genes that seemed to be behind ALS. Could this stop Nieto’s condition? Perhaps not, but that’s another unknown. Meanwhile, Nieto has now focused on creating a legacy through his global efforts and described his goals to the attendees.

**Workshop Sessions**

The second day of the symposium closed with Workshop Sessions A. These workshops were repeated allowing participants to attend two sessions.

George Cruz from the Los Angeles County Fire Department moderated the **I Am Alive: New IAFF Wellness Initiatives** workshop. Panelists included Dr. Kerry Kuehl from the Oregon Health and Science University and Kurt Becker from the Professional Fire Fighters of Eastern Missouri. The workshop covered three topics, cost justification, challenges with program implementation within a small Department and highlights of the WFI, 3rd Edition. The information presented discussed the immediate reduction of occupational injury/illness claims and costs among fire departments that implemented the WFI as compared to fire departments that had only partially implemented. A second presentation targeted how smaller organizations can successfully implement the initiative through public/private partnerships. Further, the panelists showed how Local Presidents can ensure that their membership avoids common pitfalls and how Union Leaders can help dispel concerns and myths that are associated with the WFI. Lastly, the presentation highlighted the newest and most important changes to the WFI.

William Ostiguy from the Boston Fire Department moderated the **IAFF Behavioral Health: Best Practices** workshop which explored the history of how fire fighters traditionally cope with traumatic incidents and how intervention techniques have progressed over time. The panelists told of their experiences in their own departments assisting their members to understand the evolution of peer counseling models from a CISM lens to a model that has proven to fit better with its members. The Panel explored work conducted pre and post-9/11 in New York City, post Katrina/Rita/Wilma in the Gulf Region, and most recently after the
fatal fire in Charleston, South Carolina. Facilitators conducted an interactive discussion using examples of what has both worked and failed after traumatic incidents. The workshop also provided participants with tools for implementing peer counseling programs in other departments and information about how to address behavioral health issues as they emerge in the lives of their members. The workshop panel included Ron Tapscott from the Phoenix Fire Department, Frank Leto from the Fire Department, City of New York and Danny Adams, the First Responder Coordinator from the Louisiana Spirit Hurricane Recovery Program.

Bartholomew Siciliano, an Occupational Safety and Health Assistant with the International Association of Fire Fighters moderated the workshop on The New CPAT: Orientation, Mentoring and Practice. This presentation provided attendees an overview of the 2nd Edition of the IAFF Candidate Physical Ability Test, including information on how to design and implement a CPAT orientation, mentoring, and practice sessions for your department’s candidate hiring program. The attendees were told that it is now required that all those licensed to use the CPAT, fully implement the mentoring, orientation and pre-test procedures. Further, the IAFF has developed and has now provided to each licensee a secure web-based data collection and reporting system for CPAT entitled the CPAT Administrator. As a condition of continued licensure, all licensees shall now use this program and report to the IAFF database on an annual basis. Panelist included Sue Shepherd of the Indianapolis Fire Department, Jill Craig of the Austin Fire Department and Michael Cacciola from the Fire Department, City of New York.

Ian Crosby from the Calgary Fire Department moderated the IAFF Rehabilitation Through Functional Fitness Assessment workshop which examined the various tools and techniques that can be used to ensure the proper level of rehabilitation and training, and be used as a screening assessment to return to work. The workshop examined various techniques to help reduce or minimize fire ground injuries, and also defined functional assessment and the progressive assessment that isolates a muscle or group of muscles to enable injury rehabilitation. The panelists explained how a program like this is delivered by Peer Fitness Trainers and also based upon the individual’s functional assessment, which will be used to form a personal rehabilitation program. Facilitators provided educational materials for workshop attendees, as well as physically performed progressive exercises that will improve muscular function. The workshop panel included Orlando Gomez from the Portland Fire Department and Jamie Yakemchuk from the Edmonton Fire Rescue Service.

Kevin Rader, Director, from the International Association of Fire Fighters Department of Education, moderated the IAFF Protect Your Members: Navigating Presumptive Disability Laws workshop which provided the workshop attendees with the resources to navigate these laws in order to best represent their members. The panelists explained how all too frequently law
makers fail to understand why presumptive disease statutes are necessary for the welfare of fire fighters, or worse, they disregard the scientific data that fire fighters are prone to certain occupational hazards. The panelists spoke on how presumptive disease laws that are enacted throughout the US and Canada are the result of providing scientific data, having important allies, and forming hard fought political battles. Facilitators conducted an interactive discussion on the different meanings of legal terms such as “clear and convincing evidence”, “preponderance of evidence”, and “medical certainty”, how these legal terms can dictate how to prove presumptive when challenged, and how these legal terms also become the basis for court cases. The workshop also provided examples of cases where the union representative or pension trustee must decide if the evidence provided is truly substantial. The workshop panel included Alex Forrest, President of Local 867, from Winnipeg, Manitoba; Larry Petrick, Director of Health, Safety, and EMS, from Columbus, Ohio; and Keven E. Rojecki from the Washington State Council of Fire Fighters in Olympia, Washington.

Lori Moore-Merrell, Assistant to the General President at the International Association of Fire Fighters, moderated the **IAFF New Visions for the Future of the Fire Service: Helping Fire Departments Assess and respond to Risks** workshop which focused on how to evaluate fire department response to emergency events using NFPA 1710 and the IAFF projects addressing Standards of Cover. The workshop also provided the tools to address inadequate staffing and to justify crew size with case studies and application standards. The panel explored the project presented in this workshop as it relates to fire fighter safety and deployment of resources and sought to enable fire departments and city/county managers to make sound decisions regarding optimal resource allocation and service based upon scientifically-based community risk assessment, strategic emergency response, system design and the local government’s service commitment to the community. The facilitators discussed the project research plan’s three phases and how each has multiple tasks and subtasks to be completed over multiple years. The workshop panel included Jonathan Moore, Director of Fire & EMS Operations, from the International Association of Fire Fighters, and Thomas J. Wieczorek, Executive Director for the Center for Public Safety excellence, from Chantilly, Virginia.

**Wednesday October 26, 2005**

The third day of the symposium opened with Workshop Sessions B. These workshops were repeated allowing participants to attend two sessions.

Michael Wieder, the Assistant Director & Managing Editor of Fire Protection Publications, moderated the **IAFF Fire Apparatus and Roadway Operations Safety** workshop which explored the prevention of injuries and deaths from vehicle-related incidents through outreach programs from the IAFF on Emergency Vehicle Safety Initiatives. The Panel provided participants with tools
for implementing the IAFF’s comprehensive training program titled: *Improving Apparatus Response and Roadway Operations Safety in the Career Fire Service*. Panelists presented an overview of the highlights of that program, case study information on several recent apparatus crashes, and information on several recent apparatus crashes, and information on ambulance safety. The Panel presented strategies for enhancing transport safety and reducing risk of injury. The workshop panel included Ralph Craven, Apparatus Investigation Expert; Nadine Levick, Chief Executive Officer of Objective Safety; and Kevin Roche, Assistant Fire Marshal for Phoenix Fire Department.

Bruce Teele, Senior Safety Specialist from the National Fire Protection Association moderated the **IAFF Personnel Protective Technology Advances for Improving Fire Fighter Health and Safety** workshop. The facilitators presented current developments and issues surrounding fire fighter’s protective clothing and equipment for all mission areas that entail structural/proximity fire fighting, emergency medical services, hazardous materials operations, CBRN response, technical rescue, and water operations. This workshop covered new research, product demonstrations, developments in PPE standards and purchasing strategies and care/maintenance approaches to obtain the best gear for members. Some of the specific areas the Panel focused on included: changes to structural gear for affording better protection and less stress; options for protecting fire fighters from bloodborne and airborne pathogens; industry changes in hazardous materials response PPE; new developments in SCBA and other respirator options for fire fighters; emerging technologies for improved first responder CBRN protection; and evolving options for technical rescue and water operations protective clothing and equipment. The workshop panel included William Haskell from NIOSH/NPPTL, Glenn Jirka, Deputy Chief of Operations in Miami Township Division of Fire/EMS, Angie Shepherd from NIOSH/NPPTL and Jeff Stull, President of International Personnel Protection, Inc.

Nick Del Re from Fire Department, City of New York, moderated the **IAFF Leadership for Safety** workshop which focused on defining strategies fire fighters can employ to ensure their own safety – in the fire station, en-route to/from, and at emergencies. The Panel provided background on the new IAFF Frontline Safety program and presented the philosophy behind the course and a summary of current project achievements. The facilitators provided participants with a complete overview of this new IAFF program including objectives, an overview of content and the resources being used, including the NIOSH Fire fighter Fatality & Prevention Program and the Fire Fighter Near-Miss Reporting System. An interactive discussion was facilitated to obtain feedback on this program. The Panel introduced a sample activity that included a Near-Miss case study and distributed information about the course. The workshop panel included Richard Blohm from Hoboken Fire Department and Adam Thiel, Fire Chief of Alexandria Fire Department.
Tim Hill from the Phoenix Fire Department moderated the IAFF Fire Service Communications workshop which delved into the unique needs of fire service communications and how in-depth knowledge is required in order to design and build a reliable radio system which allows for safe and effective firefighting. The panel consisted of John Freeburger from the Montgomery Fire Department, Michael Worrell from the Phoenix Fire Department, and Billy Freeman from the Memphis Fire Department. The group explored how applying the right technology, not necessarily the application of new technology, can overcome system weaknesses. Participants were informed that firefighter safety will continue to be placed at risk until the issues of interoperability can be solved and the issues of expense and system design flaws must be addressed by federal agencies, fire departments and firefighters in order to achieve safe fire ground communications.

Derek Alkonis from the Los Angeles County Fire Department moderated the IAFF Fire Fighter Self-Survival, Preparing Before the Alarm workshop. The premise of the discussion centered on self-survival techniques which are used if fires and other types of emergency incidents don’t go accordingly as planned. Firefighters must have the ability to recognize when immediate personal assistance is needed and must know what actions to take to alert rescuers of what they can do to assist in improving their chance of survival. The panel discussed a number of factors that are critical to understand, including sizing-up a fire or emergency scene prior to making any fire ground decisions. The group also drew from personal experiences on the job in order to convey their message of self-survival. The panel consisted of Jim Mason from the Chicago Fire Department and Geoff Boisseau from the Toronto Fire Department.

Melissa McDiarmid, MD, MPH moderated the IAFF Health, Safety, and Medical Data Collection and Cancer Registry workshop which focused on how mortality studies have found that firefighters are at risk for a wide array of cancers as a result of the work. In addition, the IAFF is now in the implementation phase of a new cancer registry for its members and this will serve as a surveillance tool for cancer in the fire service. The online registry will include details of the cancer diagnosis and a detailed report of the exposures as well. The panel consisted of Carrie Dorsey, MD from the University of Maryland, Donald Stewart, MD from the Fairfax County Fire and Rescue Department, and Katie Rusk, MS, PA-C, from the San Diego Fire Department. Data collection and storage procedures for respective departments and program were discussed.
**Plenary Session**

The third day of the symposium ended with a plenary panel which addressed current fire fighter operational issues. It was chaired by Dr. Jim Melius.

**Michael Peck, MD**, the Chair of the IAFF Burn Foundation's Medical Advisory Board, explained that burn injuries are a direct occupational hazard for IAFF members. The likelihood of a fire fighter incurring a burn injury during the course of their career is almost 100%. However, the specialized care that a burn injury requires in order to prevent further injury, disability or death is becoming more difficult to access. Burn units throughout North America are closing at a drastic rate due to a lack of funding, and our members are suffering further harm as a result. He acknowledged that the IAFF Burn Foundation represents first responders to the burn care community and is working with burn care professionals, national legislators and IAFF members across the US and Canada to ensure the best treatments and facilities are available to our members and those we serve.

**Sandy Bogucki, MD, PhD**, the Senior Medical Advisor with the Office of the Assistant Secretary for Preparedness & Response at the Department of Health & Human Services presented issues directed at fire ground rehabilitation. She explained that fire fighting and tasks associated with fire fighting are among the most physiologically taxing activities that can be performed by humans. During the course of their work, fire fighters are exposed to physiological stresses in the form of strenuous physical work. This work is most often performed within the confines of heavy structural fire fighting personal protective clothing which further stresses the fire fighter. The work is time-sensitive and is often performed under the psychological stressors of danger to the fire fighter and others, the desire to do a good job, and the desire on the part of the fire fighter to make an individual contribution to the work effort. She explained that understanding and implementing emergency scene rehabilitation ensures that members who may be suffering the effects of metabolic heat buildup, dehydration, physical exertion, and/or extreme weather (hot or cold) receive evaluation and rehabilitation during emergency and non-emergency operations. Most heat and cold emergencies and injuries are entirely preventable. Rehab assists the incident commander with monitoring the health of fire fighters and controlling the work/rest cycle to prevent environmental injuries. In recognition of the importance of organized rehab during fire fighting and training activities, the NFPA 1500 Committee on Fire Service Occupational Safety and Health has taken a stronger position on it. NFPA 1584 was previously a "Recommended Practice" on rehab, but the committee has rewritten much of it. One of the most important changes is that, if it is passed by the membership and the Standards Council next month, it will become the **Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises**. The new standard describes the responsibilities of incident commanders, company officers, and EMS relating to rehab. The equipment and supplies needed for rehab are listed, and sample
SOP’s are included. Some of the strengths and weaknesses of this standard were discussed.

Michael McEvoy, PhD, an EMS Coordinator and Clinical Associate Professor for Critical Care Medicine at Albany Medical College addressed fire fighters and carbon dioxide exposures. Carbon Monoxide leads poisoning deaths worldwide and recent evidence of harm from low level CO exposure makes CO suspect in fire fighter deaths. This talk will review effects of CO exposures, medical devices that detect CO exposed patients and fire fighters, and how to confidently clear CO alarms when atmospheric monitors fail to detect the presence of CO. Hydrogen cyanide (HCN) is now believed the leading cause of fire fatalities, which in North America are presently double those in Western Europe and Japan. Prompt recognition and treatment with a new, safer antidote can be expected to reduce deaths from fire and smoke inhalation.

James Lockey, MD, MS, a Professor with the Division of Occupational and Environmental Medicine at the University of Cincinnati College of Medicine addressed the University of Cincinnati study on Cancer Risk Among Firefighters: A Review and Meta-analysis of 32 Studies. The study on fire fighters was undertaken to quantitatively and qualitatively determine the cancer risk using a meta-analysis. Articles were identified through a comprehensive search of computerized databases and bibliographies. The pattern of meta-relative risks, study type, and heterogeneity testing were the three criteria used to assess the probable, possible or unlikely risk for 21 cancers. Results of this study indicated that fire fighters had a probable cancer risk for multiple myeloma, non-Hodgkin’s lymphoma, and prostate cancer. Testicular cancer had the highest summary risk estimate. Eight additional cancers were listed as having a ‘possible’ association with the fire fighting profession. These results confirm previous findings of an elevated meta-relative risk for multiple myeloma among fire fighters. Results of our study also indicate a probable association with non-Hodgkin’s lymphoma, prostate and testicular cancer.

Les Boord, the Director of NIOSH’s National Personal Protective Technology Laboratory presented issues concerning fire fighters and this NIOSH facility. NPPTL was established by direction of the U.S. Congress to advance state of the art technology for personal protective equipment (PPE), including fire fighter PPE. The strategic direction of the laboratory is to conduct research, perform technology development and implement test programs to support the development of national and international PPE standards is making significant contributions to improve the performance, quality and availability of personal protective equipment for workers. NPPTL is now engaged in several projects to specifically support improvement in fire fighter PPE standards. For example, NPPTL is part of the IAFF Project HEROES team to conduct physiological testing and assist in developing appropriate protection criteria for next generation fire fighter ensembles with chemical/biological protection. NPPTL has also launched several efforts to assist in facilitating the introduction of new protection
technologies. It is through the application of new technologies that NPPTL is delivering on the NIOSH role to prevent work related injuries, illnesses and deaths.

Dr. Melius and the panel completed the day with the full panel discussing the fire service operational issues.

**Thursday October 27, 2005**

**Jon Howard, MD** presented an overview of the traumatic injury component of the NIOSH Fire Fighter Fatality Investigation and Prevention Program. He addressed the fact that in 2006 NIOSH undertook two complementary efforts to seek data and feedback to guide future directions of this important fire fighter program. NIOSH sought stakeholder input at a public meeting and through a public docket, and conducted a national survey of U.S. fire departments focusing on the use of NIOSH recommendations and information products. NIOSH is making several modifications to the FFFIPP based on stakeholder input and survey results. The intent of these modifications is to ensure that the FFFIPP meets stakeholders’ needs and to increase the impact of the FFFIPP on fire fighter safety and health.

Based on the stakeholder input and survey results, Dr. Howard reported the following future directions and goals for the FFFIPP:

- Continue to make the main focus of the program performing fatality investigations and maintain investigative activity at or near the current level;
- Make the prioritization of investigations transparent by posting the program’s decision flow chart on the FFFIPP Web site (this chart has been posted and may be found at [http://www.cdc.gov/niosh/fire/pdfs/FFFIPP DecisionChart.pdf](http://www.cdc.gov/niosh/fire/pdfs/FFFIPP DecisionChart.pdf));
- Address the issue of safety “culture” by looking more thoroughly at the incident department’s occupational safety and health program; strive to make recommendations more straightforward and practical;
- Increase references to “best practices” and standards in reports and recommendations;
- Explore modifications to the FFFIPP fatality reports to make them more user friendly and to enhance messages, including formatting changes and the development of training aides for reports; and
- Increase coordination with other NIOSH Divisions conducting research on fire fighter safety and health, including the NIOSH National Personal Protective Technology Laboratory.

IAFF Assistant to the General President, **Lori Moore-Merrell** presented the IAFF study on Contributing Factors to Fire Fighter Line of Duty Deaths: A Six-Year
Analysis. The objective of this study was to analyze retrospective data from the years 2000-2005 (six years) to identify and quantify the major factors that contribute to fire fighter line-of-duty death (LODD) in the United States. The identified contributing factors were to be examined for frequency of occurrence and clustering with other factors. Results are to be used to develop risk management programs for fire departments.

Ninety-seven and one half percent of all fire fighters LODD occurring between the years of 2000-2005 are attributable to an identifiable cluster of contributing factors. Approximately half of all fire fighters LODD that occurred between these years are attributable to a cluster of three factors that are under the direct control of the individual fire fighter and chief officers. The information revealed in this study imposes a considerable burden on decision makers and fire service leaders, as well as fire fighters themselves. It offers substantial guidance for shaping local fire department policy decisions and operational priorities.

Speakers then described the details of fire operations that killed fire fighters in New York City, New York, Charleston, North Carolina; Esperanza, California; Winnipeg, Manitoba; Contra Costa, California; Boston, Massachusetts; New York City, New York, and Baltimore, Maryland followed by the recommendations that stemmed from subsequent investigations.

**Battalion Chief Philip Gaetani** and **Battalion Chief Brian Lanci** were prepared to discuss the fire that occurred in August of 2006 where a rookie fire fighter who served with the U.S. Marines in Iraq and a veteran lieutenant were killed when the floor in the one-story building gave way beneath them, trapping the two and three others in the basement. The three-alarm fire broke out in a building that housed a 99-cent store and left 21 fire fighters, from a battalion chief to rank-and-file fire fighters, with smoke inhalation and other injuries. Due to legal constraint, specifics from the fire could not be addressed, however both chief officers presented their roles in fire fighter fatality investigations.

**Roger Yow**, President of IAFF Local 61 provided an overview of the tragic fire that on June 18, 2007, nine Charleston, South Carolina fire fighters lost their lives in a fire at a warehouse furniture store with a lightweight truss roof. It was the largest loss of fire personnel in a single incident since the September 11, 2001, terrorist attacks. The Charleston Nine were killed doing their jobs with selfless dedication and, sadly, were following orders and department policies that are truly arcane in this modern day – and which egregiously failed to protect their safety. Since the night of the fire, Roger Yow, president of Charleston Local 61, has sought to make changes to protect his membership and ensure that such a tragedy never happens again. Media and bloggers have followed the investigation into the fire and are exposing what IAFF members and Local 61 have known — and been working to change – for years: changes must be made to department leadership to bring this department up to modern and safe fire department and fire fighter standards.
Captain Paul VanGerwen with the California Department of Forestry and Fire Prevention address the October 26, 2006 wildland fire where five United State Forest Service fire fighters were entrapped while engaged in structure protection operations on the Esperanza Fire in Riverside County, California. Three fire fighters were killed at the scene, one died en-route to the hospital and the fifth died on October 31. All deaths were the result of burns received at the incident. The fire was located in the San Jacinto Mountains in Riverside County. The burn over site was located on a prominent knob in a bowl, near the top of an "un-named" drainage. This drainage is located west of the Twin Pines Drainage and runs from the desert floor in a north east alignment with a rapid elevation increase to 3,240 feet above sea level. Initial attack fire apparatus were dispatched from the California Department of Forestry and Fire Protection (CalFIRE). Captain VanGerwen will address the deployment and operations at this fire and address investigation findings including lookouts, communication, escape routes, safety zones and standard wildland fire fighting orders.

Captain Russ Morrow of the Winnipeg Fire Department addressed the fire where Captain Harold Lessard and Captain Tom Nichols of the Winnipeg Fire Department were tragically killed. These Captains died after responding to a fire which had started in an attached garage. While searching the second floor of the private residence for any potential trapped civilians, a firestorm engulfed them and their crews. Only the brave actions of the Captains and the rapid intervention of rescue crews prevented further deaths.

Ramoth Iverson, a Fire Inspector with the Contra Costa County Fire Protection District, addressed the fire where on July 21, 2007, two fire fighters became the first line-of-duty deaths in the 43-year history of the Contra Costa Fire Protection District. Fire Captain Matt Burton and Fire Engineer Scott Desmond were killed as they attempted a rescue of two elderly residents who also perished in the blaze. The men had responded as members of a truck crew to a report of a single-story, single-alarm house fire. When they arrived, the home was fully engulfed. Fire Inspector Iverson provided the details on the fire operations at this incident.

Fire Fighter Edward Kelly addressed the fire which occurred on August 29, 2007 where two veteran Boston fire fighters were killed at a four alarm fire in a commercial restaurant. Within minutes after arriving on the scene, the restaurant exploded into flames, trapping the two fire fighters. Early indications are the fire may have smoldered in a drop ceiling where kitchen grease had accumulated. Then to further fuel the fire, a roof-top air conditioner partially fell through, sending a burst of air and causing the building to flash.

James Slevin, Vice President of IAFF Local 94, addressed preliminary information on the August 18, 2007 incident where two veteran New York City fire fighters were killed in a fire at the abandoned Deutsche Bank building on
Liberty Street in the Ground Zero area of Southern Manhattan. The building was in the process of being dismantled after it was damaged beyond repair during the destruction of the World Trade Center in 2001. The fire started on the 17th floor, allowing the fire to burn out of control as it consumed construction materials, equipment and scaffolding, which fell to the street below. The two fire fighters became trapped in the building and died of cardiac arrest resulting from exposure to carbon monoxide, which occurred after they ran out of air.

**Stephan G. Fugate**, the president of IAFF Local 964, addressed the training incident that occurred on Friday, February 9, 2007, where recruits in Baltimore, Maryland participated in a “live burn” training session that escalated out of control and ended tragically. Baltimore fire cadet, Racheal Wilson, 29, collapsed as she tried to extinguish a fire set by instructors in a group of townhouses as part of a live fire training exercise. Firefighter Wilson was transported to the Maryland Shock and Trauma Center but succumbed to her injuries suffered during the training event. The catastrophic events that led to Racheal Wilson’s death cannot be undone, however, due to this tragedy, the Baltimore Fire Department is instituting changes and improvements in the way it conducts recruits training and live fire exercises. Violations of safety standards and protocols that occurred during this training exercise were reviewed and discussed. The goal of this presentation was to educate fire department personnel as to the current regulations for live fire evolutions to ensure that this deadly tragedy is not repeated.

**Symposium Adjournment**

Participants from IAFF locals across North America attended the 19th Redmond Symposium. On behalf of General President Schaitberger, IAFF Chief of Staff Peter Gorman and IAFF Assistant to the General President Richard Duffy closed the symposium by thanking Chicago Local 2 President Tom Ryan, their Executive Board, and members of Local 2 for their work toward the event. They also thanked the Redmond Board of Trustees, the Chicago Fire Department and the IAFF staff. The Nineteenth Biennial John P. Redmond Symposium was enormously successful and fulfilled the objective of providing an educational event that stressed the importance of health and safety in the fire service.

As part of the Redmond Symposium, fire service manufacturers and fitness companies exhibited their products from Sunday, October 21st through Tuesday, October 23rd. All vendors reported considerable interest in their products or information from the attendees. Further, the IAFF, with the cooperation of a number of fitness companies, set up a working 6,000 square foot gymnasium. The gym was staff for 6 days with IAFF Peer Fitness Trainers who assisted the hundreds of attendees looking for a good workout. Additionally, fitness classes were provided in the early morning and late afternoon on each day of the symposium.
Additionally, informal roundtable sessions were held each afternoon. These sessions allowed direct discussion from the attendees, and once again were highly successful, with each session full to room capacities. The roundtables addressed the following:

- **Writing Grants Roundtable: FireAct, SAFER and Beyond.** Attendees were taught the fundamentals of how to apply for grant funds that are available to help fire departments pay for safety and health equipment, and programs, apparatus, staffing and training.

- **Ask the Trainer: The PFT Roundtable.** The IAFF has certified over 4,000 Peer Fitness Trainers. These open roundtables provided the opportunity to network and discuss successful strategies for fire department fitness and wellness programs.

- **Building Codes and Construction Roundtable: Consequences to Fire Fighter Health and Safety.** Attendees were informed on how building codes could effect their work environment and why they should care and participate in code development. Discussions were also held on the effect of "green" building activities.

- **Ask the Doc: The Physician Roundtable.** This open roundtable discussion addressed the medical needs and physician involvement in fire department occupational health and medical programs. This provided the opportunity to further address issues addressed by physicians that Presented presenting during this symposium.

- **Fire Apparatus Design and Safety: Beyond the IAFF Initiative.** This roundtable provided a further opportunity to get answers to questions from the experts on apparatus specifications and procurement, standards development, accident investigations and components of the IAFF and USFA programs.

As an additional service to our members and the fire service as a whole, all Redmond Symposium plenary sessions were broadcast live as video on demand (VOD). Interested individuals were able to select from 28 plenary presentations on fire fighter health and safety, operational issues, the Wellness Fitness Initiative, CPAT and line-of-duty death reports. These sessions remain viewable on the IAFF website. Additionally, individuals could also “sit-in” on the workshops, expert panels and roundtable discussions to gain the knowledge and find the resources needed to better protect frontline fire fighters. All these session were immediately available, and remain so, to download as audio only mp3 files to be played on one’s computer, iPod or mp3 player. Finally, the IAFF is completing a DVD video package of the entire Redmond Symposium. This was the first time that we provided this service and found it to be very successful.
Thousands of fire service members followed the symposium live, and sessions continue to be watched and downloaded.