



THE COMPUTERWORLD HONORS PROGRAM

CASE STUDY

LOCATION:
*Fairfax, Virginia,
United States*

YEAR:
2006

STATUS:
Laureate

CATEGORY:
*Government and Non-Profit
Organizations*

NOMINATING COMPANY:
Nortel

ORGANIZATION:

International Association of Fire Chiefs

PROJECT NAME:

National Fire Fighter Near-Miss Reporting System

Summary

The National Fire Fighter Near-Miss Reporting System (www.firefighternearmiss.com) was created to turn near-miss experiences into lessons learned for everyone in the fire service community. The goal of the National Fire Fighter Near-Miss Reporting System is to improve firefighter safety by collecting, sharing and analyzing near-miss experiences. The reporting system collects information that can assist in formulating strategies to reduce the number of firefighter injuries and fatalities. The reporting system is voluntary, confidential, non-punitive and secure.

Introductory Overview

Dr. H.W. Heinrich stated that for every worker fatality there are 10,000 unsafe acts. Near-miss reporting concentrates on analyzing these unsafe acts by sharing information and identifying patterns that exemplify systemic problems. For the purposes of this project, a near-miss is an unintentional unsafe occurrence that could have resulted in an injury, fatality or property damage if not for a fortunate break in a chain of events.

Firefighter injury and fatality statistics have steadily increased over the last 15 years when compared to a decrease in the number of structure fires. Improvements in personal protective gear, equipment and training have not impacted the rate of firefighter injuries and fatalities. In fact, better protection, aggressive tactics, lighter weight construction and improved handling capabilities of heavy apparatus are putting firefighters at greater risk.

The National Fire Fighter Near-Miss Reporting System is modeled after the Aviation Safety Reporting System (ASRS). For more than 30 years, ASRS has analyzed near-miss incidents and used the information to address reported hazards, conduct research on operational safety problems and facilitate an understanding of aviation safety-related issues. ASRS has been used as the model for near-miss reporting in other industries such as medicine, maritime, rail and the military. These industries credit the study of near-miss experiences as significant contributors to a reduction in errors, injuries and fatalities.

The International Association of Fire Chiefs (IAFC) was awarded a grant from the Department of Homeland Security's Assistance to Firefighters Grant Program to create a national near-miss



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reporting system for the fire and emergency service. A supporting grant was awarded from Fireman's Fund Insurance Company. Additional support was given by Deputy Chief Billy Goldfeder and Gordon Graham, founders of FirefighterCloseCalls.com. The National Fire Fighter Near-Miss Reporting System is administered by the IAFC in consultation with the National Fire Fighter Near-Miss Reporting System Task Force, chaired by noted fire service author and icon in the American fire service, Mr. Dennis Smith.

In January 2005, IAFC signed a contract with Nortel Government Solutions Incorporated (formerly known as PEC Solutions) for the custom development and database management of the National Fire Fighter Near-Miss Reporting System. This included the creation, testing and launching of the Web site, www.firefighternearmiss.com. This was accomplished in about 100 calendar days.

There are two major components to the reporting system: an end-user application and an administrator application.

The end-user application is the Web site, www.firefighternearmiss.com. From the home page, users have the following options:

1. **Submit Your Report:** There are five sections in the reporting form. It was important that the reporting form be easy to use for all users regardless of their computer competence. It was equally important for users to quickly navigate the reporting form and have it not take more than 10-15 minutes to submit a report. The first section asks seven questions about the demographics of the report submitter. The second section asks eight general questions about the near-miss experience. The third and fourth sections are narrative sections for the event description and lessons learned. The fifth section is for optional contact information.
2. **Print Blank Report:** Visitors to the site can use this menu option to open an Adobe Acrobat form version of the reporting questionnaire. This form can be completed and then mailed or faxed. It is then manually entered into the reporting system.
3. **Search Reports:** Visitors to the site can search previously submitted reports while selecting varying parameters such as event type, department type, state, etc.
4. **Links:** This page contains useful Web links for the fire service community.
5. **FAQ:** This page contains the answers to frequently asked questions.
6. **Contact Us:** Visitors can send suggestions, comments or questions to project administrators.

The administrator application is secure and only accessible via a Virtual Private Network. The administrator application offers several options including:

1. **Report Validation:** When a report is submitted, it sits in a queue until Reviewer #1 opens it. Reviewer #1 de-identifies the event description and lessons learned narrative sections by removing all identifying characteristics such as department name, individual names and company numbers. Reviewer #1 also has access to the report submitter contact information if follow-up questions are necessary. Reviewer #1 codes the report into the administrator database which involves a separate set of questions and picklists. The report is then placed in a queue for Reviewer #2 to review the report and insure that the de-identification process has been completed and the coding has been done correctly. The contact information and the original narrative sections are deleted from the database in order to protect the report submitter's identity. The de-identified



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report is then posted on the Web site.

2. Statistical Reports: Administrators use this function to access web statistics such as server reports, time online, loyalty, traffic and referrals.

3. Picklist Maintenance: Administrators can manage the drop-down pick lists from the first two pages of the reporting form. They can also modify the coding system used by report reviewers.

4. User Maintenance: Administrators can manage the user-rights of reviewers and administrators.

The reporting system was tested from April 22-July 31, 2005 by 38 fire departments. The national launch of the Web site occurred at IAFC's annual conference, Fire-Rescue International in August 2005. As of March 2006, the Web site has posted 623 reports and has recorded 29,000 unique visitors.

Benefits

The fire service community at large does an exceptional job studying and analyzing Line of Duty Deaths. Many fire departments collect data on injuries. But until now, very little information was collected and analyzed regarding near-miss incidents. Based on the success of other industry near-miss reporting systems, it is believed that the study of near-miss incidents within the fire service will reduce firefighter injuries and fatalities.

The two methods of reaching the goals of this project include the sharing of information and the identification of patterns occurring in near-miss experiences. Sharing of information found on www.firefighternearmiss.com is occurring on a daily basis. The "Search Reports" feature of the Web site is by far the most popular component of www.firefighternearmiss.com. Another popular feature of the program is the "Report of the Week." Once a week, report reviewers identify a report of significant interest and provide training questions based on the report. The report and training questions are then e-mailed to users for daily drills, posting on station bulletin boards, etc.

The identification of patterns is in the preliminary stages. It is important to note that this reporting system is not a quantitative reporting system; rather it is a qualitative reporting system. It will not answer the question "how many near-misses occur in the fire service" because it is a voluntary reporting system. However, fire service experts will be able to analyze groups of similar near-miss reports and provide recommendations on changes in the fire service. For example, an upcoming article in Fire Engineering magazine examines situational awareness in reported fire emergency event near-misses and provides recommendations on addressing this issue in training.

Individual fire departments have expressed interest in studying near-misses within their own departments. In previous years, fire departments did not talk about near misses and if they did, they did not share the information outside of their own departments. The culture of the fire service is changing and the National Fire Fighter Near-Miss Reporting System is a contributing factor in this cultural change.



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The Importance of Technology

Information technology is at the core of this project for the end-user, report reviewers and system administrators. The reporting system had to be accessible by firefighters regardless of the computer technology available to them. It was equally important to allow report reviewers to securely access reports remotely for the de-identification, coding and posting process. System administrators had to be able to conduct overall system maintenance and generate reports from remote locations.

The following technologies were used in the development of the National Fire Fighter Near-Miss Reporting System: Windows Server 2003, SQL Server 2000, Java 1.4, Crystal Business Objects, Apache Tomcat Web Server, Cisco Pix Firewall, Eclipse, Tapestry, GNL, Spring, Hibernate and Open Source.

Originality

Prior to the National Fire Fighter Near-Miss Reporting System, lessons learned from near-miss experiences seldom made it past a firehouse kitchen table. The lessons learned from these experiences would at times be passed along to the next shift or perhaps another station but it oftentimes stopped there. Firefighters from across the country can now learn from others and add to the rolodex of information to refer to when faced with a similar situation. This will not only increase the safety culture within the fire service but will allow the fire service to better serve their communities.

Although modeled after the Aviation Safety Reporting System, the main difference between the two programs is that the National Fire Fighter Near-Miss Reporting System is available on-line. By making the reporting system available on-line, anyone in the fire service community with access to a computer can now learn from the experiences of other firefighters. The National Fire Fighter Near-Miss Reporting System is the only reporting system for the fire service to share lessons learned in a voluntary, confidential, non-punitive and secure manner.

Success

The Aviation Safety Reporting System received about 500 reports during its first year. The National Fire Fighter Near-Miss Reporting System has already surpassed that milestone as it approaches its one year anniversary. It is estimated that there are about 1.2 million firefighters in the United States. The recommendations which will be created based on the evaluation of near-miss reports may affect every firefighter.

Project administrators have heard from many in the fire service community about the usefulness of the program. Some of the comments are listed below:

“The National Fire Fighter Near-Miss Reporting System will be beneficial to firefighters all over the world.”

Edward A. Kelly President

Boston Firefighters Local 718 (MA)

“The National Fire Fighter Near-Miss Reporting System is a systematic, grass-roots approach to distill data and provide a laser like focus on cause, which will go a long way in not only chang-



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ing unsafe behaviors, but also ultimately in saving lives. “

W.H. “Bill” Halmich

Fire Chief

Washington Fire Department (MO)

“The Near Miss Reporting System is a monumental achievement in the history of fire service safety. Finally the fire service now has a place to document, analyze and learn from our rich history of “kitchen table stories.” Some day, when firefighter fatalities are but a memory in the American fire service the Near Miss System will certainly be one of the major forces behind the change in safety culture.”

David Daniels Chief

Fulton County Fire & Rescue Services (GA)

“The National Fire Fighter Near-Miss Reporting System helps link departments across the nation and helps us all identify common and unique situations that can cause a safety concern. Having a resource such as firefighternearmiss.com can help keep us aware and focused on potentially hazardous situations and help us fulfill our goal of ‘everyone goes home.’”

Will Schwisow Firefighter

Hobbs Fire Department (NM)

“I read a report on firefighternearmiss.com about an airbag which had not deployed after a vehicle crash and that night I responded to a similar situation. I recognized the danger and warned my crew, the police department and ambulance personnel. As a result of reading the near-miss report, I was able to pass along information about a potential hazard.”

Kip Stanger Commander

Marietta Fire Department (GA)

“While we have always known that firefighters have had near miss-and direct hit events, there has never been a systematic and analytical way of determining what the issues really are. Actually, it seemed that few even wanted to talk about it...until now. The National Firefighter Near-Miss Reporting System is helping bring us closer to the solutions that will significantly reduce firefighter injury-and death. With now over 500 documented cases,the foundation to the solution is well formed.”

Billy Goldfeder Deputy Chief

Loveland-Symmes Fire Department (OH)

The reporting system is fully operational and plans are in the works to enhance the program with additional features. In the Spring of 2006, a new section will be added called “Resources” which will offer visitors to the Web site downloadable videos, photos, training presentations, in-depth near-miss investigations and other information. Visitors to this section will also be able to upload documents which will then be quarantined in the Administrative application prior to being uploaded on the end-user application. Also, visitors to the Web site will have the opportunity to e-mail near-miss reports to colleagues. In the Summer of 2006, the “Google-Mini” tool will be added to the Search Reports feature to allow users to conduct key word searches on



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event description narratives.

Monthly statistics indicate a steady increase in the number of reports submitted and the number of visitors to the Web site. The Web site continues to grow in popularity through a comprehensive marketing and promotion campaign. The International Association of Fire Chiefs was awarded the 2006 Award of Excellence in the Associations Advance American award competition sponsored by the American Society of Association Executives. All involved consider the first year of this program as highly successful and look forward to building upon this success in future years.

Difficulty

The greatest obstacle in the first year of this program was the aggressive timeline due to the federal grant deliverable schedule. The program had to be fully operational in less than four months to allow for a three month testing program before the national launch. This obstacle was overcome by the dedication of the Nortel Government Solutions Incorporated and IAFC project teams.

The project is now in the second year of funding by grants from the Department of Homeland Security and Fireman's Fund Insurance Company. The third year grant is pending and long term funding is uncertain. It took decades for the aviation industry to embrace the Aviation Safety Reporting System. With more than 100 firefighter fatalities occurring each year, approximately 100,000 firefighters suffering lost time injuries, and an unknown number of lesser injuries each year, the fire service community cannot afford to wait decades to make changes to reduce the number of firefighter injuries and fatalities. Studying near-miss experiences is the key to accomplishing this goal.