ANALYSIS OF THE ENFORCEABILITY OF NFPA STANDARDS

Recommendation or Regulation: Analysis of the Enforceability of the National Fire Protection Association Standards on the Merced Fire Department

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Abstract

The distinction of whether or not National Fire Protection (NFPA) standards were voluntary or enforceable has been lost in translation. This has created a situation, whereby, the Merced Fire Department, and the fire service as a whole, has been exposed to preventable liability by not having had standardized approaches to personnel safety, operations, and minimum training requirements. The purpose of this research was to conduct analysis into the enforceability of NFPA Standards to determine: (a) how NFPA standards are adopted, (b) which NFPA standards have been adopted and are applicable in Merced, (c) legislation and other precedents that have enabled the enforcement of NFPA standards, (d) if fire agencies have been cited for failing to adhere to NFPA standards, and (e) which NFPA standards provide the greatest degree of liability protection to fire agencies. The descriptive research methodology for this project included: data collection and analysis, document collection and analysis, and structured interviews. Results found that NFPA standards have been used to cite and/or litigate against fire departments throughout the Nation. The enforceability of the standards has been developed through: (a) direct adoption of NFPA standards, (b) issuance of special orders, (c) comparison to national standards to determine prudent actions, and (d) the application of the General Duty Clause or the California Illness and Injury Prevention Program (IIPP). NFPA standards have also been used to establish the standard of care in negligence cases against fire departments. Recommended improvements included: (a) conduct a self-assessment to determine which NFPA standards apply to the Merced Fire Department, (b) prioritize the NFPA standards based on the degree of liability protection they represent, (c) educate stakeholders and obtain buy-in, (d) develop and roll-out an implementation plan, and (d) conduct regular evaluations to measure the ongoing compliance with the identified NFPA standards.

Table of Contents

Appendices

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Standards have made it possible for humans to communicate, learn, compare, and be creative; standards "are the code in which human collaboration and discovery is written" (Buckingham & Coffman, 1999, p. 124). If it were not for standards, language would not exist; it would not possible to determine how well something meets a specific need or desire; nor would it have been possible to determine creativity as compared to the accepted norm or standard (Ibid.). In the fire service, standards have been developed and adopted at all levels: agency, regional, state, and national. From a legal standpoint, standards have been defined as voluntary guidelines that do not carry the weight of law, yet many fire agencies have implemented the guidance of consensus standards to protect their agencies from liability (Comstock, 2009; Varone, 2007). Whether a standard has been interpreted to be a recommendation or a regulation has greatly varied based on the subject of the standard being discussed, the setting of the debate, and the positions the personnel held within the organization. In a recent forum posted on the *Fire Engineering* website (Aptt, 2008), several fire service professionals, each with a different background, responded to the inquiry, which asked if the NFPA standards can be enforced as law. The responses varied from yes to no, with a wide array in the middle, which asked: Can fire departments be cited for not following NFPA standards?

The research problem was that the Occupational Safety and Health Administration's (OSHA) ability to cite fire departments for violations of National Fire Protection Association (NFPA) standards was not clear, potentially exposing fire agencies in OSHA states to preventable liability. The purpose of this research was to conduct analysis into the enforceability

of NFPA Standards by OSHA to clarify the scope and applicability of the Standards and to fully ascertain if the Merced Fire Department can be found liable for non-compliance.

Descriptive research was employed to study the situation and formulate a foundation to address the problem. The research methodology for this project included: data collection and analysis, document collection and analysis, and structured interviews. The research questions included the following:

1. How were the National Fire Protection Association (NFPA) standards adopted by governmental agencies?
2. Which National Fire Protection Association (NFPA) Standards have been adopted in California and are applicable in Merced?
3. What were the laws, regulations, directives, ordinances, precedents, or interpretations that enabled the enforcement of National Fire Protection Association (NFPA) Standards?
4. Have any fire agencies been cited by the Occupational Safety and Health Administration (OSHA) for a failure to adhere to National Fire Protection Association (NFPA) Standards and what were the outcomes?
5. Which National Fire Protection Association (NFPA) Standards provide the greatest level of liability protection from the Occupational Safety and Health Administration (OSHA) to fire agencies?

Background and Significance

The City of Merced (CA) is located in Merced County in the heart of California's Central Valley approximately one hundred ten miles southeast of San Francisco. Incorporated in 1889, the City was the county seat for Merced County and a Charter City that operated under a Council-Manager form of government. The City was nearly twenty square miles in size and has

continued to grow as a result of annexations. Since the early 1980's, Merced's population has continually grown faster than the State average (City of Merced, n.d.; Merced California, n.d.). In 2005, the City became the home of the newest University of California campus; this addition has altered Merced's image from being a quaint agricultural town in California's Central Valley, to a city that is the home of one of the top educational institutions in the Country. Merced is a diverse community that is home to 80,608 persons (Ibid.). The population of Merced is made up of 23,000 total households; seventy-three percent of which are occupied by families. Twenty-two percent of Merced families live below the poverty level. Twenty-three percent of the population was born outside of the United States and thirty-six percent are either non-English speakers or rarely use English (United States Census Bureau, 2006). Economically, the City has been significantly impacted by the economic down-turn and the housing crisis. Currently, there are two thousand eight hundred vacant residences within the City limits as a result of defaults, incomplete construction, and foreclosures. According to the Bureau of Labor Statistics (2009), the unemployment rate for the City was 17.4% in 2009. Out of the 369 assessed metropolitan areas within the United States, the Merced Metropolitan Statistical Area was ranked 366th, only four areas reported higher levels of unemployment. The City of Merced is supported by an economy that is based on agriculture, tourism, manufacturing, and retail (Ibid.).

The Merced City Fire Department was initially established as the El Portal Hose Company on November 3, 1873, and has evolved into a state-of-the-art, Insurance Services Organization Class 2, fire department. The MFD has been a fully-professional organization that, on a daily basis, staffed five engine-companies and one truck-company. The Department consisted of one fire chief, three division chiefs, three battalion chiefs, eighteen captains, twenty-one engineers, thirty-six firefighters, and administrative support and fire prevention staff

(Merced Fire Department, 2009). The MFD has been an all-risk emergency management entity with response disciplines in fire suppression, emergency medical services, hazardous materials, technical rescue, and aircraft rescue firefighting. The MFD was nearly one-hour from a comparable city fire department, which has contributed to a lack of outside knowledge that would have been typically obtained through osmosis. Line and management personnel with the MFD have demonstrated the significance of the research problem through their comments and lack of understanding of the role NFPA standards have played around the nation. For example, personnel have asserted that NFPA standards are recommendations that the department does not need to follow, yet the MFD requires its apparatus, protective clothing, and equipment to meet NFPA requirements (B. Donnelly; S. Raney; K. Mitten; L. Franco; D. Long; M. Akers; T. McCall; J. McMillen; J. Whitehead; J. Hakola; M. Madruga; S. Henry, personal communication, June 10, 2009). This is just one example; however, a majority of the personnel interviewed represent management. Their lack of understanding of the importance of NFPA standards and the degree of liability protection the standards represent exemplifies the problem of this project.

The MFD's Occupational Health and Safety Officer has applied himself to enhance the safety culture within the department by sharing personal experiences of line of duty deaths and his extreme passion to never have to relive those experiences (S. Raney, personal communication, August 10, 2009). He has also stressed that the fire service needs to seek out ways to reduce the unacceptable number of injuries and deaths to firefighters. In the report *The United States Fire Service*, NFPA (2009c) presented the fire and emergency response statistics from 2007. The report stated that in the United States there were 1,148,800 firefighters from 30,185 departments, and less than 6% of total U.S. call volume was due to actual fires. In 2008, there were 103 line of duty deaths, which is the same number as 2007; 36 were cardiac related

and 29 firefighters died on the fireground. Furthermore, there were 80,100 firefighter injuries; 48% of which occurred on the fireground (Ibid.).

The National Fire Protection Association (NFPA) was established in 1896 and has embraced its mission to reduce the negative impacts of fire and other hazards by developing and disseminating consensus codes and standards, conducting fire-related research, developing and providing training, and providing public education (NFPA, 2009a). The NFPA identified that it has more than 75,000 members from more than one hundred countries around the world. Further, NFPA has produced more than three hundred codes and standards that were developed to diminish the impact of fire by establishing minimum criteria for building, processing, design, service, and installation in the United States (Ibid.). NFPA is the only fire organization that has developed a comprehensive set of standards that were designed to support fire ground operations and enhance the health and safety of firefighters (Litevich, 1998). Specifically addressing fire and emergency responses, NFPA has produced standards that enveloped a range of topics, including: occupational safety and wellbeing of firefighters, design and use of personal protective equipment (PPE), design and use of fire apparatus, minimum training requirements, resource deployment and staffing, and fireground operations (Ibid.). Standards developed by NFPA Technical Committees have been considered to be minimum consensus standards: they do not carry the weight of law, unless they have been specifically adopted by a federal, state, or local agency (Sturtevant, 2003). On the other hand, approved consensus standards have been used by investigating agencies or introduced in a court of law to determine reasonable behavior, otherwise known as the Standard of Care (Sturtevant, 2003; Varone, 2008). The significance and the identified need for this research stemmed from the aforementioned conflicts: consensus standards only apply if they are adopted by a governmental agency, yet standards that have not

been adopted have been used during an investigation to determine the Standard of Care. Without formal adoption, are NFPA standards recommendations or regulations?

The purpose of this project has been developed to clarify existing discrepancies and misconceptions, insofar as to provide clarity to fire departments and their management teams. In recent years, legislators and courts have undertaken actions to increase the accountability for governmental entities (Aptt, 2008; Bennett, 2008; Carroll, n.d.; Colorado Firecamp, 2006; Goldfedder, 2009; Hogan, 2000; Varone, 2007). There has been an increase in the number and severity of citations/decisions against fire departments including but not limited to: criminal charges and assessed (Ibid.). The potential future impacts on the fire service from the unclear applicability of NFPA standards included: (a) an increase in liability for firefighter injuries and illnesses, (b) a widening gap between the perceived Standard of Care based on NFPA standards as compared to the actual level of care being provided, and (c) the potential for adoption of specific NFPA standards which could result in significant economic and operational impact to fire agencies.

This project directly correlated with the following goals and objectives of the United States Fire Administration: 1.1 – "Encourage State, local, and tribal adoption of risk reduction, prevention, mitigation, and safety strategies," 2.3 – "Enhance the fire and emergency services' performance in response to all hazards," and 3.2 – "Advocate a culture of health, fitness, and behavior that enhances emergency responder safety and survival" (USFA, 2009). This project has directly correlated to these objectives as they were developed to improve firefighter safety through the adoption, advocacy, and enhancement of cultures, strategies, and standards. This project was developed to clarify inconsistent information about the applicability and enforcement practices of NFPA standards. Additionally, the research project was correlated with the

following terminal objective of the *Executive Analysis of Fire Service Operations in Emergency Management* course: "The students will be able to identify the documentation required for a critical risk incident to ensure reimbursement, to conduct post incident analysis, to meet legal challenges, and to comply with Federal and State statutory requirements" course within the Executive Fire Officer Program (EFOP) (FEMA, 2009). The problem and purpose of this project, and the identified need to clarify the applicability and enforceability of NFPA standards were developed to enhance interoperability and standardized approaches to emergency management, and developed a direct correlation to the EFOP objectives.

Literature Review

Title 8 of the California Labor Code directly correlated with the California Occupational Safety and Health Act (Cal-OSHA), which legally obligated employers to provide and maintain a safe and healthful workplace for employees (Fred Pryor Seminars, 2005). The primary mission of the fire service has been to respond to and mitigate situations that threaten life, property, and the environment (IFSTA, 2008). This literature review was completed to ascertain the breadth and depth of knowledge and information that existed about codes, standards, regulations, and practices regarding occupational safety and health within the Merced Fire Department (MFD). The literature review was organized according to the research questions of the project. The aspects of codes, standards, regulations, and practices within the City of Merced that are not currently in any written documents are included in the Results Section of this report.

The first benchmark of this project was to ascertain how the National Fire Protection Association (NFPA) standards have been adopted by governmental agencies. Standards have been defined as "something established by authority, custom, or general consent as a model" (Mariam-Webster, 2009). More relevant to problem and purpose of this research, Varone (2007,

p. 15) defined standards as: “voluntary guidelines and recommendations that do not carry the force and effect of law.” The most relevant definition to address the purpose of this research, Varone defined consensus standards as: “standards that are developed through a formal process, such as required by American National Standards Institute (ANSI), and represent generally accepted industry-wide practices and recommendations” (Ibid.). An interview with the former chairperson of the technical committees for NFPA 101 – *Life Safety Code* and NFPA 1500 - *Standard on Fire Department Occupational Safety and Health Program,* John Sharry (personal communication, May 26, 2009) stated that the standards were voluntary and have not had the force of law unless they were adopted through and ordinance, law, or regulation. The NFPA standards have been referred to as voluntary consensus standards based on the five-step process that has been used to develop them (NFPA, 2009). Before a standard has been researched, debated, or published, NPFA has appointed a consensus body who has been delegated the responsibility of developing a standard. The consensus bodies, which have been identified by NFPA as technical committees, were comprised a wide array of technical experts and stakeholders, who represented a balance of interests. The first step in the process was to call for proposals for new standards or revisions to an existing standard. The second step consisted of the technical committees meeting, drafting and/or revising a standard and opening the proposal for public comment. The third step included the committees meeting to reconcile the public comments, applying them to the proposal, and developing a report on comments which was also published for public review. Step four is the adoption process by the membership during the Association’s Technical Meeting. Step five: If the proposal was adopted, the Standards Council issued the new/revised standard (Ibid.). To better understand how standards and consensus

standards have affected the fire service, the process for creating and enforcing laws has been outlined below.

Laws have been defined as: “That which must be obeyed subject to sanction or consequences by the Government” (Varone, 2008, p. 4). Laws have been developed and enforced at many different levels in the United States. The highest level of law was developed by the Founding Fathers in 1791: the United States Constitution (Skousen, 2006; Varone, 2008). The Constitution was developed to provide overall guidance to a developing nation, under which all other laws will comply. Constitutions and Constitutional Amendments have been established and approved by the people. Governing bodies have been delegated the responsibility to uphold the Constitution through the creation, revision, and enforcement of laws within the scope of their jurisdiction. At the Federal level, laws have been developed through bills, resolutions, and statutes, which must be adopted by the House of Representative and/or the Senate (Ibid.). Individual states are organized similar to the Federal government, except the area of enforcement is confined to the state’s boundaries. All states in the Nation have also adopted state constitutions, which have outlined the highest law within each specific state (Ibid.). At the local level, the people within many jurisdictions have adopted charters that have defined the highest level of law for that area. Within local jurisdictions, the elected officials have developed, revised, and adopted regulations and ordinances to effectively govern their communities (Ibid.). Laws have also been developed through precedents that were the result of case law. Case law has been defined as the reported decisions of appeals courts and other courts, which have made new interpretations of existing laws and, therefore, can be cited as precedents (Georgetown University Law Library, 2001). Case law has not been developed from court decisions; the cases, most typically, must reach the appellate level in order for a precedent to be established (Varone,

2007). The enforcement of the laws has typically been divided into two categories: criminal and civil (Hogan, 2000). Criminal cases have been defined as those where the state has brought charges against an individual who has committed a wrongdoing against society. Whereas, civil actions have been defined as a process where an individual can file for compensation from another as a result of an action or inaction that resulted in damages (Ibid.)

Beyond elected governing bodies, administrative agencies have been developed to assist with administration and management of adopted legislation (Demby, 2009; Hogan, 2000; Varone, 2008). Administrative agencies have been created through statutes that are adopted by congress or state legislatures that authorized the creation of an agency with the legal authority to operate; this approval process was referred to as enabling acts. Most of the administrative agencies have been granted the authority to pass laws within their area of authority or discipline. The laws that have been developed by administrative agencies were referred to as regulations (Ibid.). The Code of Federal Regulations (CFR) has contained these laws at the federal level, and the California Code of Regulations (CCR) for the State of California (Ibid.).

The United States Occupational Safety and Health Administration (OSHA) was developed in 1970 as a result of Congressional action to reduce the number and severity of workplace injuries and illnesses in the United States. The *Occupational Safety and Health (OSH) Act of 1970* was signed into law by President Nixon in 1971 (Tompkins, 1993; Fred Pryor Seminars, 2005; Sturtevant, 2003). The *Act* was the first of its kind in the United States: a statute that was specifically adopted to protect employees from the health hazards that existed in an occupational setting (Tompkins). OSHA's goals have been accomplished through the adoption of safety regulations, enforcing the regulations through inspections and investigations, and by issuing citations (Varone, 2007). The *OSH Act* excluded self-employed persons, farms, and state

and local governments from its scope. More specifically, Title 29 of the Code of Federal Regulations, Section 652(5) has prohibited Federal OSHA from being able to investigate or inspect state or local agencies, including fire departments (Tompkins, 1993; Varone, 2008). On May 1, 1973, the California State Plan was approved by OSHA (DOL, 2008). This plan placed California as one of twenty-two states that operated a state plan that covered both private and public sector employees. There have also been four additional state plans adopted, that only cover public employees (DOL, 2009). Cal-OSHA has been identified as the only agency in California that can adopt, amend, or repeal safety and health standards regarding occupational exposures (DOL, 2008). Cal-OSHA regulations apply to fire departments and all other occupations when an employer-employee connection has been established (Sturtevant, 2003).

OSHA standards have been formally adopted in one of two ways: the legislative branch of the federal government has adopted a standard, or OSHA adopted the standard through a rule-making process (Varone, 2007). In the absence of formal adoption, OSHA has been able to hold employers accountable for consensus standards through Section 5(a) of the *OSH Act of 1970*, which has been referred to as the General Duty Clause (OSHA, 1970). The General Duty Clause of the *OSH Act* demanded employers to: "furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees" (Ibid., 29 USC 654). Varone (2007) stated that the Clause placed the burden on employers to protect the employees, regardless if an OSHA regulation exists or not. He noted that the failure, on an employer's part, to follow nationally recognized standards could be grounds for OSHA violations under the General Duty Clause. As aforementioned, OSHA has not been granted the authority to enforce its safety

standards on local governmental agencies; therefore, in most states, other administrative agencies have been delegated this responsibility.

In an interview with Dave Strickler (personal communication, July 14, 2009), the Senior Safety Engineer for the California Division of Occupational Safety and Health (DOSH) Consultation Services for Northern California, he asserted there are four ways that that NFPA standards can be adopted and/or enforced by governmental agencies in California (See Appendix A for the Structured Interview Questions). The first means he identified was through direct adoption. Strickler identified direct adoption as the process where a specific standard or sections from a standard, and the edition are specifically cited in an adopted resolution. He continued by noting that when direct adoption occurs, the standard becomes law (Ibid.). John Sharry (personal communication, May 26, 2009) stated that he has been called upon to assist jurisdictions that have adopted ordinances that stated "NFPA Codes;" by doing so, the jurisdictions were required to comply with all NFPA standards and codes. Sharry cautioned that jurisdictions need to specifically articulate which standards and codes they are adopting and avoid general ordinance language. The second means of adoption that Strickler identified was through a special order. Special orders have been issued when an employer has exposed its employees to a severe hazard that was outside the scope of California Title 8. In these cases, the Enforcement Unit of Cal-OSHA issued a Writ of Mandamus (a special order) that mandated the employer to meet specified consensus standards (R. Roxson, personal communication, September 4, 2009; J. Sharry, personal communication, May 26, 2009; D. Strickler, personal communication, July 14, 2009; C. Varone, personal communication, September 5, 2009). The third method of implementation and enforcement of NFPA standards was identified as being through the adoption of an Illness and Injury Prevention Program (IIPP) that was required by Title 8 of the

California Code of Regulations (CCR), Section 3203 (D. Strickler, personal communication, July 14, 2009). Strickler stated that "employers must protect their employees at all times, period!" The IIPP section of the CCR identified that all employers are required, at a minimum, to address all known workplace hazards (CCR, 2009; Fred Pryor Seminars, 2005; Varone, 2008; DOSH, 2009). Strickler (personal communication, July 13, 2009) continued by stating that NFPA standards may be the only recognized means for protecting firefighters during emergency operations. The fourth and final method identified by Strickler was the application of industry standards. He stated that in the absence of direct adoption, a special order, and specifics within an IIPP, that Cal-OSHA has referenced industry standards, including instruction/user manuals that accompany equipment and tools, to determine if an employer has adequately addressed all recognized hazards (Ibid.). Strickler added that unless a regulation or interpretation has specifically stated so, no organization or individual is exempt from complying with the general industry regulations within Cal-OSHA. The information provided by Dave Strickler was confirmed by Mike Manieri, Principal Safety Engineer for the Cal-OSHA Standards Board (personal communication, August 17, 2009), and by Joel Foss, Principal Engineer for the California Division of Occupational Safety and Health (personal communication, August 17, 2009). Furthermore, the United States Fire Administration (USFA), and the Federal Emergency Management Agency (FEMA) have asserted this point for more than thirteen years in *Risk Management Practices in the Fire Service* (FEMA, 1996, p. 53):

> Where there is no specific regulation, most regulatory agencies have the ability to refer to a consensus standard that addresses a specific issue. An agency may also refer to an established consensus standard that establishes a reasonable standard of care if it is more specifically applicable to a subject or situation than the regulation that is in force.

When an NFPA standard has not been adopted by an agency, all applicable national consensus standards have been introduced to determine what is reasonable for a given situation (Sturtevant, 2003). In other words: “The fact that there is no specific OSHA regulation that addresses a particular issue is not a defense” (Varone, 2008, p. 88). Interpretations have varied from one person to another, which reinforced the problem and purpose of the research; this was clearly demonstrated on the *Fire Engineering* website forum where the responses from the Bloggers covered the entire spectrum of recommendation to regulation (Aptt, 2008). Attempts have been made to enhance firefighter safety by clarifying the research problem of this report. As an example, the September 11, 2007 Federal Register (OSHA, 2007) recognized that elements of responder health and safety had been addressed by OSHA, but most aspects had not. The report referenced the Hazardous Waste Operations and Emergency Response Standard, personal protective equipment requirements, the Respiratory Protection Standard, the Confined Space Standard, and the Bloodborne Pathogens Standard; however, the report’s summary concluded by stating that a comprehensive emergency response standard does not exist. The report proposed revisions to 29 CFR 1910 to include the adoption of NFPA standards and National Institute of Safety and Health (NIOSH) recommendations to enhance responder safety in the following areas: personal protective equipment, training and qualifications, medical evaluation and health monitoring, and safety management (Ibid.). Extensive attempts were made to follow-up on the proposal contained in the Federal Register; the research was unable to locate any additional references to the proposal following the date of the report itself.

An analogous federal regulation was adopted on February 9, 2006, which has established a precedent for the fire service and its implied need to comply with NFPA standards: 10 CFR 851 - Worker Safety and Health Program (DOE, 2009). Historically, the United States

Department of Energy (DOE) has utilized Orders to establish the minimum criteria under which all DOE contractors must comply. DOE contractors include, but are not limited to the national research laboratories: Lawrence Livermore National Laboratory and Los Alamos National Laboratory. Both of these labs have been required to maintain fire departments within the scope of their contracts with DOE (Ibid.). An identified limitation to the DOE Orders was that they lacked the force of law; therefore, enforcement of the Orders for workplace safety issues was limited. Since both DOE and OSHA are federal agencies, OSHA regulations do not apply to DOE facilities and operations (Ibid.). Regarding fire service impacts, the adoption of 10 CFR 851 has required all DOE contractors, including the fire departments, to comply with all applicable NFPA standards under the full force of Federal law (Ibid.).

Several means have been identified that demonstrated how the NFPA standards are adopted by governmental agencies. The next point of reference in the research project was to identify which NFPA standards have been adopted in California and are applicable within the Merced Fire Department. The approach to this research question was multi-faceted, as the adoption of NFPA standards have not been limited to California's DOSH (Cal-OSHA). The California Code of Regulations (CCR) has been developed by Cal-OSHA to cover a wide array of workplace hazards and working conditions (Office of Administrative Law, 2009). Within the CCR, eleven regulations have been identified, which address firefighting. The sections were included in Title 8 – *Industrial Relations* of the CCR, specifically in Article 10.1 – *Personal Protective Clothing and Equipment for Fire Fighters*. The eleven sections were included within §3401-3411, and covered the following topics: application, definitions, head protection, eye and face protection, ear and neck protection, body protection, hand and wrist protection, foot protection, respiratory protection, wildland firefighting requirements, and private fire brigades

(Ibid.). The research identified the following as the only directly adopted NFPA standards by DOSH. §3401- Application, Section: (c)(1), required all personal alarms purchased after January 1, 2006 to comply with the 1983 edition of NFPA 1982 - *Standard on Personal Alert Safety Systems (PASS)* (Ibid.). §3402 – Definitions, identified that the coats and trousers of turnout clothing, must comply with the 1981 edition of NFPA 1971 - *Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting* (Ibid.). §3403 – Head Protection, identified that all in-service structural firefighting helmets must be labels as meeting the 1985 edition of NFPA 1972 – *Standard on Structural Fire Fighters' Helmets* (Ibid.). Sections §3404 – Eye and Face Protection and §3405 – Ear and Neck protection, did not encompass any NFPA standards; the specifications outlined therein were based on ANSI standards (Ibid.). §3406 – Body Protection, required that the "performance, construction, testing, and certification of fire fighter turnout clothing be at least equivalent" to the 1981 edition of NFPA 1971 - *Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting* (Office of Administrative Law, 2009, p. 3406(b)). None of the remaining five sections (§3407 through §3411) contained any reference to, nor directly adopted any, NFPA standards (Office of Administrative Law, 2009). Interviews with Dave Strickler (personal communication, July 13, 2009), John Sharry (personal communication, May 26, 2009), and Randy Bradley (Personal communication, June 10, 2009) addressed the edition dates of the adopted NFPA standards (See Appendix A for the structured interview questions). They stated that based on regulatory requirements, any proposed changes would have required Cal-OSHA to pay for a department to comply; therefore, the standards have not been revised to capture more recent editions. Additional research of the CCR failed to reveal the adoption of any other NFPA standards (CCR, 2009). In a frequently asked questions report that was produced jointly between the International

Association of Fire Chief and the International Association of Firefighters (n.d.) it emphasized that the 1997 edition of NFPA 1500 - *Standard on Fire Department Occupational Safety and Health Program*, directly correlates with OSHA's respiratory protection regulation. Although the correlation was emphasized, the paper continued by noting that although NFPA and OSHA complemented one another in this instance, there have not been any regulations adopted which would require compliance with this consensus standard (Ibid.).

Outside of OSHA and Cal-OSHA, the Department of Homeland Security (DHS) has adopted numerous NFPA standards (DHS, 2006). DHS has identified three paths under which the consensus standards have been adopted: direct adoption by the Department, through the National Incident Management System (NIMS), and through the Assistance to Firefighters Grant Program (AFGP). Since 2004, the DHS has adopted twenty-seven NFPA standards as a basis to enhance the safety, procurement, and operational decisions (ANSI, 2004; NFPA, 2007; NFPA, 2008; Occupational Safety & Health, 2007; USFA, 2007; USFA, 2008). The adopted standards covered a wide spectrum of emergency response criteria: professional qualifications, safety and health, fire apparatus, personal protective equipment, rescue tools, hazardous materials, and equipment (See Appendix B for a listing of NFPA standards that have been adopted by DHS). In an article in *NFPA Journal* (Nadile, 2009) the deputy director for the Tests & Evaluation Standards Division, Dr. Bert Coursey, was interviewed about DHS's role in the adoption of NFPA standards. He began by noting that the DHS has relied on NFPA standards to provide common ground through the entire department. Furthermore, he said that the overall goal of adopting the standards has been to enhance the national emergency response infrastructure as it pertains to the current threats facing the Nation (Ibid.). Coursey was asked if other departments were being encouraged to adopt these standards. He identified that outside of FEMA, the Coast

Guard, and Customs and Border Protection, the standards to not directly impact any other agencies and local adoption would be required. He also noted that the adoption of the NFPA standards would be integral criteria used when determining grant awards (Ibid.). A phone interview with Peter Shebell (personal communication, September 3, 2009), the Standards Policy Manager within the Science and Technology Division of the DHS, revealed that although the Department has adopted NFPA standards, that the Science and Technology Division does not have ability/authority for enforcement (See Appendix A for the structured interview questions). Shebell stated that the intent was to influence agencies and manufacturers to move toward complying with the standards so as to enhance interoperability within DHS and to enhance national preparedness. He also avowed the intent in adopting the standard was not to "bring the hammer down," but to guide everyone in the same direction. He cautioned that although DHS cannot enforce compliance with the adopted NFPA standards, they have been used to establish minimum levels of performance and the basis for guiding agencies in one direction. He added that the potential implications include the ability of DHS to deny or withdraw grant funding from agencies who have failed to meet the adopted standards (Ibid.). A subsequent interview with Bill Troup (personal communication, September 3, 2009) who worked in the National Fire Programs within the USFA concurred with Shebell. Ultimately, Troup stated that the DHS adoption of NFPA standards and their ability to be enforced was somewhat philosophical with no real clear answers (Ibid.).

The second path used by DHS to adopt NFPA standards has been through the requirements defined in the National Incident Management System (NIMS). In January 2007, FEMA issued a fact sheet that identified that two NFPA standards had been adopted to assist agencies with NIMS implementation (NIMS Implementation Center, 2007). The fact sheet

recommended that state and local government voluntarily adopt NFPA 1561 – *Standard on Emergency Services Incident Management System*, and NFPA 1600 – *Standard on Disaster/Emergency Management and Business Continuity Programs* (Ibid.). In support of the adoption of the NFPA standards to enhance NIMS implementation, the NIMS Compliance Assistance Support Tool (NIMSCAST) addressed many of the areas covered in the standard (FEMA, 2009). Grant funds have been directly connected to a jurisdiction's ability to accurately complete NIMSCAST and update it on an annual basis having demonstrated their ability to comply with NIMS.

The third and final path that DHS has used to adopt NFPA standards is through the Assistance to Firefighters Grant Program (AFGP). The AFGP had four grant options to enhance firefighting operations and firefighter safety. The Assistance to Firefighters Grant (AFG) was developed to assist agencies to fund projects that will enhance the safety of responders and the public from the risks of fire (FEMA, n.d.). The AFG required much of the equipment that has been purchased with grant funds to meet NFPA requirements. Since the inception of the AFG, the MFD has received four grants that have been used to procure equipment to enhance its ability to respond to emergencies (DHS, 2009b). According to the Fire Grant Support website (FEMA, n.d.), the Staffing for Adequate Fire and Emergency Response (SAFER) Grant was created to help fire departments increase the number of trained frontline firefighters. The grant embraced NFPA standards within the funding priorities section of the Program Guidance document stating: "The goal of SAFER is to enhance the local fire departments' abilities to comply with staffing, response and operational standards established by NFPA and OSHA (NFPA 1710 and/or NFPA 1720 and OSHA 1910.134)" (DHS, 2008, pp. 3-4). Furthermore, the SAFER Program required all personnel hired with grant funds to have received pre-employment physicals in compliance

NFPA 1582 - *Standard on Comprehensive Occupational Medical Program for Fire Departments* and to have been trained to the minimum levels identified in NFPA 1001 - *Standard for Fire Fighter Professional Qualifications* (DHS, 2008; FEMA, n.d.). In 2006, the MFD applied for and was awarded a SAFER Grant to hire nine personnel. The quarterly performance reports for the grant have required specific information about the Department's ability to comply with the deployment of resources section of NFPA 1710, and the ability to have met the training standards defined by NFPA 1001 (DHS, 2009c). In July, the MFD applied for the Assistance to Firefighters Fire Station Construction Grants (SCG). According to the 2009 SGC Guidance (DHS, 2009a) the priority for the grant was "to fund projects expanding fire protection coverage to meet increased service demand in compliance with NFPA 1710" (p. 4). Additionally, the SCG required the applicants to clearly demonstrate how they were going to meet NFPA 1500 regarding station design parameters. The application also inquired about the percentage of line personnel who were trained in compliance with NFPA 1001 (Ibid.).

In contrast to the limited number of NFPA standards adopted by Cal-OSHA, Oregon OSHA has adopted a posture to support numerous standards, including but not limited to: NFPA 1500 - *Standard on Fire Department Occupational Safety and Health Program*, NFPA 1403 - *Standard on Live Fire Training Evolutions*, NFPA 1975 - *Standard on Station/Work Uniforms for Emergency Services*, and NFPA 1982 - *Standard on Personal Alert Safety Systems (PASS)* (Oregon OSHA, 2008). Oregon has also implemented the OR-OSHA Fire Fighters Advisory Committee that has been charged with drafting, reviewing, revising OSHA rules that pertain to the fire service, and to proactively address emerging health and safety issues (Ibid.).

Research into regional, county, and City of Merced records did not reveal any formal or informal actions toward adopting NFPA standards. This also included fire and life safety codes,

as the City has adopted the California Fire Code, which was developed by the International Code Council (ICC) (California State Fire Marshal, 2009). An assessment of the MFD Policies and Procedures Manual (2009) identified four NFPA standards that the department has met in their entirety, one that it met portions of, and one that was in the process of implementation. Through its policies and practices, the MFD has fully adopted and complied with the requirements of NFPA 1403 - *Standard on Live Fire Training Evolutions*, NFPA 1581 - *Standard on Fire Department Infection Control Program*, NFPA 1901 - *Standard for Automotive Fire Apparatus*, and NFPA 1911 - *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus* (Ibid.). The MFD also adopted portions of NFPA 1500 - *Standard on Fire Department Occupational Safety and Health Program*, especially in the areas of facility safety inspections, occupational health and safety committee roles, and the procurement practices of the department (Ibid.). Lastly, Merced has been working to fully implement the Safety Clothing Program in regards to NFPA 1851 - *Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting* through the adoption of policies and procedures (J. Franklin; S. Raney, personal communication, September 2, 2009).

The next research question was developed to fully ascertain what laws, regulations, directives, ordinances, precedents, or interpretations that have enabled the enforcement of National Fire Protection Association (NFPA) Standards. Outside of the fire service related sections in 8 CCR §3401-3411, there were not any other references to NFPA standard found in Title 8 or any other California regulation (CCR, 2009). As aforementioned, in the interview with Dave Strickler (personal communication, July 13, 2009), he stated that there are four ways an NFPA standard can be applied by Cal-OSHA during an investigation of a fire agency. The first

means identified was direct adoption, which was previously expanded upon. The remaining three options were Special Orders, the application of industry standards, and through the California regulation which required every employer to implement an Illness and Injury Prevention Program (Ibid.). The purpose of a special order was defined in the California Division of Occupational Safety and Health *Policies and Procedures Manual* (DOSH, 2008) as: "to correct an unsafe condition, device, or place of employment which poses a threat to the health or safety of an employee and which cannot be made safe under an existing Title 8 Safety Order" (p. C-3). Strickler (personal communication, July 13, 2009) clarified the purpose of a Special Order as it has given Cal-OSHA the authority to apply and hold organizations accountable for compliance with consensus standards. Similarly, Strickler, Roxson (personal communication, September 4, 2009), and Varone (personal communication, September 5, 2009) identified that in the absence of a regulation and a special order, Cal-OSHA has referred to national standards, such as NFPA, to determine if an organization has been prudent in their actions/inactions (Ibid.). Lastly, Strickler and Roxson referred to Title 8, Section 3203, which requires all employers in California to establish, implement and maintain an effective Injury and Illness Prevention Program (IIPP) (Ibid.). Accordingly, Strickler and Roxson stated this has opened another door for Cal-OSHA to introduce certain NFPA standards as the benchmark that needed to be complied with (ibid.). Similar to California's IIPP requirement, through the adoption of the Occupational Safety and Health Act of 1970, Section 5, the United States OSHA has what has become known as the General Duty Clause. This Clause required employers to provide employees with a workplace that is free from recognized hazards, which in turn, established the foundation under which California's IIPP was developed (OSHA, n.d.; Smeby, 2005). The guidelines within the General Duty Clause and the IIPP were based on the reality that it would nearly impossible to write and

enforce a set of standards for every profession and potential hazard; therefore, these regulations were designed to protect employees by holding employers accountable for protecting employees from a known hazard (Tompkins, 1993). Within Title 29, Section 1915, many references to NFPA standards regarding firefighting and fire ground operations were cited (OSHA, 2009a). Section 1915 outlined the OSHA standards for shipyard employment. Section 1915.505 addressed fire response under the umbrella of shipyard fire protection. This OSHA section specifically identified nineteen NFPA standards that have been adopted and were applicable to all fire response operations in a shipyard setting (Ibid.). Moreover, numerous OSHA Standard Interpretations were identified that specifically addressed NFPA standards and their applicability toward the training and fire ground operations (OSHA, 2009b). The topics of the interpretations included: hazardous materials, respiratory protection, aircraft rescue firefighting, personal protective clothing/equipment, and fire service occupational health and safety programs (Ibid.). A standard interpretation was published on July 25, 2003 regarding the relevance of NFPA 70E - *Standard for Electrical Safety in the Workplace* and OSHA requirements (Swanson, 2003). It stressed that under the General Duty Clause, consensus standards have been used as evidence to prove that that a hazard was known and; therefore, should have been addressed. The interpretation concluded by asserting that consensus standards have been used by employers as guides toward mitigating hazards; consequently, OSHA enforcement actions have applied the guidance of standards to ascertain if the employer acted in a reasonable fashion (Ibid.).

On March 12, 2009 a bill was proposed to the Congressional Committee on Science and Technology; the purpose of the bill was to adopt an act that would increase fire department conformity with national voluntary consensus standards. The proposed act has become known as the *Firefighter Fatality Reduction Act of 2009* (Committee on Science and Technology, 2009).

The proposed language of the *Act* stressed the importance of reducing firefighter injuries and death through the application and enforcement of standardized approaches to emergency operations. Within the auspices of the *Act*, national consensus standards were defined as the latest editions, so as to prevent the need to revise and/or update legislation (Ibid.). Correspondingly, a proposal that was presented to the National Fire Academy Board of Visitors in 2005 revolved around the establishment of a national credentials system whereby a minimum set of competencies would be established to ensure proficient and capable personnel would be available to respond to federally declared disasters in a safe and effective manner (USFA, 2005). This report was developed through a joint effort between fourteen associations that included fire chiefs, firefighters, training officers, wildland disciplines, and national response entities. The committee recommended that the DHS should adopt and employ the *National Fire Service Responder Credentialing System* (NFSRCS), to include including the minimum competencies that have been articulated in NFPA standards (Ibid.). In March 2006, DHS issued a report titled: *Review of DHS' Progress in Adopting and Enforcing Equipment Standards for First Responders* (2006). This report confirmed what was stated previously in the literature review: DHS' Science and Technology (S&T) directorate does not have regulatory authority to compel agencies to meet the previously adopted NFPA standards. The report asserted that the Office for Domestic Preparedness (ODP), through the management of the grants programs, has the authority to hold agencies accountable for meeting the adopted consensus standards (Ibid.). Additionally, the report cited previously adopted legislation as the precedent for using and enforcing NFPA standards. The *National Technology Transfer and Advancement Act of 1995* (Morella, 1995) directed local, state, and federal agencies to apply the guidance contained in the voluntary consensus standards so as to ensure a standardized approach to safety, equipment, and

operations. Moreover, the report clearly stated that all purchases with DHS grant funds must be compliant with and listed on the Approved Equipment List (AEL). The AEL was developed in response to Presidential Directive-8 which directed DHS to establish and adopt standards for fire responder equipment. The report concluded by stating: "DHS Grant Programs serve as the means for standards compliance enforcement" (DHS, 2006, p. 20). This revelation has closed the loop between the adoption of NFPA standards by S&T and their ability to hold organizations accountable for following them.

NFPA 70E – *Standard for Electrical Safety in the Workplace* has establish a precedent in general industry as it has been utilized by OSHA to establish the standard of care and to cite employers as a result of electrical injuries that occurred in the workplace. In discussing the connection between OSHA and NFPA 70E, Sheila Kennedy (2004) found that although OSHA has not mandated compliance with the standard, it has found the standard to be an effective step-by-step guide for worker safety from electrical hazards. Kennedy concluded by asserting that the General Duty Clause was developed as a catch-all to ensure employers protected their employees. Within the auspices of the Clause, Kennedy stated that OSHA has applied consensus standards to determine if employers acted in a reasonable manner for a specific hazard (Ibid.). The March/April 2006 edition of the *NFPA Journal* (Colonna, 2006) affirmed the findings and conclusions of Kennedy regarding the applicability and enforceability of NFPA standards by OSHA. A number of articles were published by SafetyXChange concerning citations for not following consensus standards. In the first, John Klingler (2005) began by asking if an employer can be cited for not following voluntary standards: The answer was yes. He stated that most OSHA regulations have defined what an employer must do, but have not addressed how they should do it. Conversely, consensus standards alone cannot direct an employer to comply, but

they have established an outline of how employers can keep employees safe in particular situations (Staff, 2006). Both articles concluded that although voluntary standards have not been adopted by OSHA, they were developed through a consensus process of stakeholders and have defined what experts consider to be safe. Hence, OSHA has used standards to determine if an employer was reasonable in their efforts to protect employees from all foreseeable hazards (Staff, 2006; Klingler, 2005). In an article in *Fire Chief*, Jeff Lindsey (2009) drew a correlation between NFPA 1584 - *Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises* and OSHA regulations that have required employers to protect their employees from heat-related illnesses. He cited a ruling by the New Jersey Occupational Health Surveillance Program that found that firefighters needed to be provided supervised rest periods; the ruling was based on the recommendations on the NFPA 1500 and 1584 standards. In *A Manager's Guide to OSHA*, Neville Tompkins (1993) found that "OSHA does not develop new standards or revise existing standards in a vacuum" (p. 9), but rather, they have utilized nationally recognized consensus standards to develop the foundation upon which the new regulations are built. Tompkins specifically addressed that the recommendations developed by the National Institute of Occupational Safety and Health (NIOSH), following the investigation of an occupational injury or fatality, which have directly lead to the enforcement of consensus standards by OSHA.

NIOSH, through their Fire Fighter Fatality Investigation and Prevention Program, has conducted hundreds of independent investigations into the causative factors of firefighter line-of-duty deaths. Overall, NIOSH was developed to conduct research activities related to occupational diseases and injuries (Sturtevant, 2003). The results of the NIOSH investigations have been published in report form that included: a summary of the incidents, introduction,

investigation methods utilized, background, and recommended actions (NIOSH, 2009). According to Dave Strickler (personal communication, July 13, 2009), the NIOSH firefighter fatality investigation reports have served two critical functions that all fire departments should heed. The first was that NIOSH has specifically recommended the adoption and/or application of specific NFPA standards to protect firefighters from known hazards. The second critical function was that the reports have placed all fire departments on notice about fire service workplace hazards. Strickler stressed that through the General Duty Clause on a federal level and through the Illness and Injury Prevention Program requirements in California, employers have been mandated to mitigate all known hazards; NIOSH reports have published and made identified hazards known. Strickler emphasized that since NIOSH has made fire service workplace hazards known, departments must take action to address the hazards or run the risk of having subjected themselves to OSHA citations, criminal prosecution, and/or civil liability (Ibid.). The research to capture the breadth and depth of NIOSH recommendations included reviewing more than fifty-five *Death in the line of duty…* reports from states throughout the nation (NIOSH, 2009). The reports ranged from single to multiple firefighter fatality incidents that included driving, fire ground operations, training drills and exercises, and fatalities that occurred during states of inaction. The assessment revealed that every report identified hazards and made recommendations to mitigate them. Furthermore, a vast majority of the reports recommended the application of specific NFPA standards to mitigate the identified hazards. The fifty-five reports reviewed identified fourteen NFPA standards that have been recommended for adoption by NIOSH (See Appendix B for NIOSH Recommended NFPA Standards). The most commonly recommended NFPA standards were: NFPA 1500 - *Standard on Fire Department Occupational Safety and Health Program*, NFPA 1582 - *Standard on Comprehensive Occupational Medical*

Program for Fire Departments, and NFPA 1583 - *Standard on Health-Related Fitness Programs for Fire Department Members* (NIOSH, 2009).

Within *Risk Management for the Fire Service*, the USFA (FEMA, 1996) concluded that a fire department that has adopted NFPA standards and has conscientiously made an effort to implement the guidance contained therein would have been identified as approaching risk management and personnel safety in a proactive and responsible manner. Lawrence Bennett (2008) strongly recommended that every fire department in the nation assign a specific officer to read, dissect, and implement the recommendations from every NIOSH Fire Fighter Fatality Investigation and Prevention Report to better protect its members and to minimize its exposure to preventable liability.

Outside of OSHA and DHS enforcement parameters, research has identified that both criminal and civil penalties have been based on NFPA standards. An interview with Randy Roxson (personal communication, September 4, 2009), a practicing attorney who specialized in fire-related litigation and served more than twenty years as a California Deputy State Fire Marshal, affirmed that in order for an organization be cited for failing to follow an NFPA standard, the standard needed to have been previously adopted by a governing body. However, Roxson expanded by including how NFPA standards have been used in court proceedings. He stated that he has often used NFPA standards as an “expert witness” as they have been able to communicate a consensus point of view in a written format. He continued by stating that NFPA standards have been used to determine the standard of care for fire-related liability.

In a separate interview with Curtis Varone (personal communication, September 5, 2009), NFPA’s Vice President of Public Fire Protection and a practicing attorney, affirmed Roxson’s statements about NFPA and the standard of care, and introduced another legal

consideration: negligence. NFPA standards and other nationally recognized consensus standards have proven to be essential in asserting the standard of care for a given situation. In his book: *Fire Officer's Legal Handbook*, Varone (2008) committed an entire chapter defining the standard of care element of negligence. Negligence was defined as: "the failure to exercise the care that the reasonably prudent person would have exercised under the same circumstances" (Varone, 2008, p. 238; Hogan, 2000, p. 79; Brodoff & Foley, 2002). For negligence to be proved, the following elements must have been present: (a) a duty to act, or a legal duty; (b) an act or omission; (c) injury or damages; and (d) a breach of the standard of care (Ibid.). A duty to act or legal implied that one party had a legal obligation to another. The relationship has included healthcare professionals to a patient, parent to a child, and employer to an employee (Varone, 2008). Further, the public-duty rule required fire departments and other public entities to have had an obligation to the public as a whole, not simply to an individual; this rule has been used to define the duty to act for fire service agencies (Brodoff & Foley, 2002). The second element: act or omission, implied that in order for negligence to have occurred, the party with the legal duty failed to respond. The third element: injury or damages implied that in order for negligence to have occurred, someone or something would have to have been damaged, destroyed, or otherwise lost as a result. The fourth and final element: breach of the standard of care, implied that in order for negligence to have been proven, the party with the legal duty did not perform as expected based what the community expects from anyone in the same circumstances (Ibid.). Once an individual or organization undertakes an act, the law required them to do so with a reasonable degree of care (Brodoff & Foley, 2002). Varone (2008) included an additional aspect to the standard of care: the professional standard of care. He asserted that the professional standard applied to professionals who have been trained and have obtained experiences, which

enable them to be able to perform in a certain manner that the general public cannot be expected to have done. The test of the standard has also been measured by the testimony of another professional who had similar training and experiences. The evidence to support a breach of the professional standard of care has been previously established through: expert witness testimony; learned treatises – authoritative books or journals; the application of laws and regulations; and the application of industry-wide standards, such as NFPA standards (Ibid.). A vast majority of negligence cases that have involved fire departments typically have revolved around a summons to respond and render aid to another. However, the interviews with Varone (personal communication, September 5, 2009) and Roxson (personal communication, September 4, 2009) revealed that organizations have also been subjected to negligence allegations based on the General Duty Clause and the legal basis to protect their employees from all known workplace hazards. A failure to protect the employee, in conjunction with damages and the failure to have applied the appropriate NFPA standards could have resulted in upholding a negligence ruling (Ibid.).

Thus far the project has provided how NFPA standards are adopted by governmental agencies, which NFPA standards have been adopted in California and are applicable in Merced; and the laws, regulations, directives, ordinances, precedents, or interpretations that enable the enforcement of NFPA standards. This benchmark has been developed to determine if any fire agencies have ever been cited by the Occupational Safety and Health Administration (OSHA) for a failure to adhere to NFPA standards and to outline the results of these citations. For Fiscal Year 2007-2008, the top ten citations issued by the United States OSHA included: scaffolding, Hazard Communication Standard, fall protection, respiratory protection, lockout/tagout, electrical, powered trucks, ladders, machine guards, and electrical system design (Kuzmanich, 2009).

Further, the highest assessed penalties by OSHA were for the following violations: fall protection, scaffolding, control of hazardous energy, machines, General Duty Clause violations, powered trucks, walking-working surfaces, and process safety management (Ibid.). The severity of the penalty was based on the type of citation issued. According to Princeton University (2007), there were five levels of severity upon which OSHA could penalize an employer for a violation. The different levels, in order of severity, were: Other than Serious Violation, Serious Violation, Willful Violation, Repeated Violation, and Failure to Abate. In regards to the fire service, OSHA investigations have occurred after firefighter fatalities or serious line-of-duty injuries (Bennett, 2008). For example, Coos Bay (OR) Fire Department was cited by Oregon OSHA for a number of violations, including a failure to meet: NFPA 1404 - *Standard for Fire Service Respiratory Protection Training*. In this instance the violations were deemed to be serious as a result of the line-of-duty deaths that resulted (Ibid.). Similarly, another Oregon fire agency was cited for a serious violation following a near-flashover incident during an acquired structure training burn (Goldfedder, 2009). The premise behind this citation was the failure to adhere to the guidance of NFPA 1403 – *Standard on Live Fire Training Evolutions*, as required by the Oregon Rules for Fire Fighters standard OAR 437-002-0182(10)(c) and the new mandatory Appendix C to 437-002-0182(10)(c), titled: Minimum Requirements for Live Fire Training (Oregon OSHA, 2005). On February 13, 2005, a California Fire Captain was electrocuted by 12,000 volt dropped electrical line while operating at the scene of a residential structure fire. This tragedy resulted in department being issued a $250,000 citation issued by Cal-OSHA for a failure to protect its members from all foreseeable hazards; the department did not have any policies in place to address electrical hazards at the scene of emergencies, and for failing to follow the requirements contained in NFPA 1500 – *Standard on Fire Department*

Occupational Safety and Health Program, and NFPA 1561 – *Standard on Emergency Services Incident Management System* (Carroll, n.d.; NIOSH, 2009). The article stated that this citation was the first issued to a California fire department in more than five years. OSHA has also issued citations in two significant wildland fire incidents in recent years: the South Canyon Fire in 1994 (Colorado Firecamp, 2006) and the Thirtymile Fire in 2001 (OSHA, 2002). In both instances, Serious and Willful Violations were issued as a result of the managing agency's failure to furnish employees employment and a place of employment which is free from recognized hazards: the General Duty Clause. The South Canyon Fire resulted in one Serious and one Willful violation; however, no penalties have been proposed since OSHA does not have the authority to assess penalties against other federal agencies in this case the US Forest Service (USFS) (Colorado Firecamp, 2006). Similarly, in the case of the Thirtymile Fire, OSHA cited the USFS for three Serious and two Willful violations as a result of the 2001 firefighter fatalities. Although neither of the citations referenced NFPA Standards, a precedent was established through the application of nationally recognized wildland firefighting standards that were developed by the National Wildfire Coordinating Group (Colorado Firecamp, 2006; OSHA, 2002). In the case of the Thirtymile Fire, the Incident Commander (IC) was criminally charged with manslaughter and was convicted for his actions and/or inactions that resulted in the deaths of fellow firefighters (O'Hagen, Cornwall, & Bowermaster, 2006). Ken Weaver, the father of one of the firefighters who perished, was quoted in the article: the IC is "being charged with ignoring all of the safety rules in the book and abandoning commonsense" (Ibid.).

The Sofa Super Store fire in Charleston, South Carolina resulted in the line-of-duty deaths of nine firefighters and has resulted in the fire department and the City being closely scrutinized by the entire nation (Campbell, 2009). The South Carolina OSHA (SCOSHA)

investigation resulted in three violations against the City of Charleston: one Willful and three Serious (SCOSHA, 2008). The violations were issued for the failure to effectively command the incident, account for all personnel, for the lack of departmental procedures about the special hazards associated with metal truss roofs, lack of proper PPE use, and the lack of proper respiratory protection. For each of these violations, the maximum penalties within South Carolina were assessed against the department: $9,000 (Ibid.). The Report committed considerable effort to define and expand upon SCOSHA's General Duty Clause. It stated that OSHA does not, and cannot, address every possible hazard in the workplace. Furthermore, the report asserted "When there is a serious hazard present in the work place and OSHA has no standard for addressing it, court precedent has shown that OSHA can hold employers to compliance with a nationally recognized consensus standard" (p. 3). The Report also defined that the following conditions must have existed for OSHA to cite the General Duty Clause: there must be a hazard, the hazard must be recognized, the hazard caused or is likely to cause serious harm or death, and the hazard must be correctable (Ibid.). On another note, the Mayor of Charleston, Joseph Riley, has publicly denounced the SCOSHA citations as the fire department has taken voluntary actions, including the adoption of NFPA standards, to prevent future tragedies from occurring (Staff, 2007). Likewise, Gordon Routely (2008) was appointed to lead a team to conduct an independent investigation into the Sofa Super Store Fire tragedy. The conclusion reached by the Routely team identified that the fire department operations did not comply with federal OSHA regulations, did not comply with NFPA consensus standards, nor were they consistent with modern day fire service expectations. Summarily, the report found that the department failed to manage the incident according to accepted practices (Ibid.). As a result of the findings, the report recommended that the Charleston Fire Department adopt NFPA

standards to address operational and safety areas that were insufficient to protect it members, including but not limited to NFPA 1001, *Standard for Fire Fighter Professional Qualifications*, and NFPA 1021, *Standard for Fire Officer Professional Qualifications* (Campbell, 2009; Routely, 2008).

As discussed previously, the adoption of 10 CFR 851 was intended to enforce U.S. Department of Energy contractors to comply with all applicable NFPA standards (DOE, 2009). On July 14, 2007, the fire department from the Idaho National Laboratory responded to a very smoky vegetation fire where two firefighters were shocked by electricity that was transferred from a sixty-nine kilovolt power line (Guevara, 2008). The investigation into the causative factors of the incident revealed that the smoke conditions created a conduction pathway, which resulted in an arc to ground situation. The Preliminary Notice of Violation found that the actions and inactions on the part of the Idaho National Laboratory were in direct violation of 10 CFR 851. The violation was issued as a result of improper/lack of application of NFPA 1143 – *Standard for Wildland Fire Management*, NFPA 1500 – *Standard on Fire Department Occupational Safety and Health Program*, NFPA 1561 – *Standard on Emergency Services Incident Management System*, and 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* (Ibid.). The cited violations to these NFPA standards were listed as follows: (a) NFPA 1143 required the IC to determine the extent of the fire and its potential, including special hazards; (b) DOE asserted that neither the hazards, nor their potential were identified nor understood; (c) NFPA 1500 required the IC to identify and mitigate all risks, including the ongoing process of conducting risk assessments, DOE asserted that the risks were not identified, mitigated, nor was there any evidence that a risk assessment was completed; (d)

NFPA 1561 required the IC to maintain command and control of personnel, including the management and mitigation of risks, DOE asserted that the risks were not mitigated and the electrical shock was the result; and (f) NFPA 1710 required that prior to the initiation of an attack on a wildland fire, the fire department shall establish lookouts, communications, escape routes, and safety zones (LCES), DOE asserted that LCES was not in place prior to or during the response to the wildland fire on July 14, 2007 (Ibid.). As a result of the aforementioned violations to the four NFPA standards, Idaho National Laboratory was assessed a $250,000 fine within the parameters of 10 CFR 851 (Ibid.). Interviews with Randall Bradley (Personal communication, June 10, 2009) and John Sharry (Personal communication, May 26, 2009), former Fire Chiefs of the Lawrence Livermore National Laboratory in California and chairpersons of NFPA technical committees, revealed their concern about the violations and the assessed penalties. The initial concern they communicated was the demonstrated enforcement of NFPA standard with the maximum penalties having been assessed. However, their overall concern/interest was to understand how this violation may have established a precedent for non-DOE fire departments (See Appendix A for structured interview questions).

In October 1999, legislation was adopted and signed by Governor Gray Davis, which made all of the Cal-OSHA regulations applicable to local government, including fines and criminal penalties; this legislation was known as AB1127 (Citygate Associates, 2005; Schoonover & Dowdle, 2007; Cal-OSHA, 2005). Upon the adoption of AB1127, the language was captured in the California Labor Code, Section 98.7; and involved changes to the California Occupational Safety and Health Act (Labor Code, Section 6300 et seq.). AB1127 created an environment where public entities were to be treated the same as private employers. Under the AB1127 changes, the Santa Clara Fire Department was cited for the line-of-duty death of a fire

captain, as noted above, and was assessed a $250,000 fine, which was previously unheard of within California and the fire service (Citygate Associates, 2005).

Regarding OSHA violations for failing to comply with NFPA standards, Dave Strickler (Personal communication, July 13, 2009) stated that he is not aware of a department being cited other than those mentioned above. However, Cal-OSHA does not track the references used to determine a citation, nor has it tracked special order or IIPP violations. Dave Strickler (Personal communication, July 13, 2009), John Sharry (Personal communication, May 26, 2009), Curt Varone (Personal communication, September 5, 2009), Raymond Bizal (Personal Communication, September 4, 2009), and Randy Roxson (Personal communication, September 4, 2009) all agreed that NFPA has been frequently referenced by OSHA to determine if an employer was reasonable in their actions, and for establishing the Standard of Care for a fire department in alleged negligence cases. Additionally, Varone and Roxson stated that they have used NFPA standards during litigation because the standards have been developed through a consensus process by recognized professional experts. They concluded by noting that they know cases have been decided by the impact of the introduction of NFPA standards. However, most cases are settled in superior court and not appealed; therefore, the details of the rulings have not been published and case law has; therefore, not been established (Ibid.).

In order to develop a proactive approach to the identified changes in the fire service, the final benchmark of this project was developed to identify which NFPA standards provided the greatest level of liability protection to fire agencies. The abovementioned section on NIOSH recommendations has established the foundation for this benchmark. As noted, under the General Duty Clause and the California IIPP requirements, employers have the legal obligation to protect their employees from all known hazards (Cal-OSHA, 2005; OSHA, 1970). Precedents have been

established through NIOSH investigation reports by making hazards and corrective actions known to the fire service (NIOSH, 2009). A review of NIOSH investigation reports identified numerous recommendations to implement NFPA standards (see Appendix C for the NIOSH recommended NFPA standards). Of these recommendations, NIOSH most frequently recommended organizations to implement NFPA 1403 - *Standard on Live Fire Training Evolutions*, 1500 - *Standard on Fire Department Occupational Safety and Health Program*, 1582 - *Standard on Comprehensive Occupational Medical Program for Fire Departments*, and 1583 - *Standard on Health-Related Fitness Programs for Fire Department Members*. Their recommendations have been based on identified hazards and hazardous trends that have either killed or significantly injured firefighters (Ibid.). The Minnesota State Colleges and Universities (2007) issued a report that focused on the need for periodic firefighter physical examinations. The premise of the report was based on OSHA regulations for employees to demonstrate fitness for duty and to develop a proactive approach to minimizing firefighter deaths and injuries. The report concluded that, although, NFPA 1500 and NFPA 1582 do not directly carry the weight of the law, the contents and frequency of firefighter physicals should be based on the requirements in these standards (Ibid.). The National Institute of Standards and Technology (NIST) published a report, which dissected the costs associated with firefighter injuries as compared to the costs associated with preventative measures (TriData Corporation, 2005). The report itemized a list of direct and indirect costs, and applied these costs to hypothetical scenarios that were a hybrid of actual events. In every instance, the direct and indirect costs of a line-of-duty injury exceeded the costs of measures that would likely have reduced the severity or entirely prevented the situation that lead to the injury. The report recommended solutions that included the implementation of a fitness program that was based on NFPA 1582 and 1583, and an occupational safety and health

program that was based on the requirements of NFPA 1500 (Ibid.). In the *Chief Fire Officer's Desk Reference*, William Jenaway (2006) addressed the significance of NFPA and the role they have filled in regards to the health and safety of firefighters. He stated that although the standards alone do not constitute a safety program, they are a consensus-based foundation upon which every fire department should build their programs. Specifically, Jenaway listed NFPA 1201 – *Standard for Providing Emergency Services to the Public*, NFPA 1500 – *Standard on Fire Department Occupational Safety and Health Programs*, and NFPA 1521 - *Standard for Fire Department Safety Officer* as the minimum standards that every department should implement (Ibid.). Brodoff and Foley (2002) summarized by affirming that the health and safety of firefighters must be an officer's top priority, and proactive officers have embraced codes, standards, rules, and regulations to ensure the safety of their personnel.

The information obtained through the Literature Review has codified the problem statement of this project. As an example, consensus standards were identified as voluntary, unless they were specifically adopted by an agency or organization. Yet, the research also found that a fire department can be cited for failing to meet NFPA standards that had not been previously adopted. This coupled with the increasing levels of liability imposed on fire departments and fire officers has emphasized the need to clarify the scope and applicability of the standards and to fully ascertain if the Merced Fire Department can be found liable for not complying with NFPA standards.

Procedures

The qualitative methods utilized to address this research project were organized into two phases that were developed to further define the problem, refine the purpose, and ultimately to develop a conclusion as to the enforceability of NFPA standards on the Merced Fire Department.

The first phase was employed to prove the research problem which was that the Occupational Safety and Health Administration's (OSHA) ability to cite fire departments for violations of National Fire Protection Association (NFPA) standards was not clear, potentially exposing fire agencies in OSHA states to preventable liability. Additionally, this phase established a foundation to clarify the scope and applicability of the standards and to fully ascertain if the Merced Fire Department can be found liable for non-compliance. The first phase was divided into four equally important elements, which allowed the research to fully dissect and focus on each subject area. This approach prevented each of the areas from overlapping and contributing to the lack of clarity that has become widespread throughout the fire service, and has fostered the root cause of the research problem. The approach to each element was to fully research and answer the first four research questions of this project: How are the National Fire Protection Association (NFPA) standards adopted by governmental agencies; which National Fire Protection Association (NFPA) Standards have been adopted in California and are applicable in Merced; what laws, regulations, directives, ordinances, precedents, or interpretations that enabled the enforcement of National Fire Protection Association (NFPA) Standards; and have any fire agencies been cited by the Occupational Safety and Health Administration (OSHA) for a failure to adhere to National Fire Protection Association (NFPA) Standards, and what were the outcomes? This phase was conducted using a detailed analysis of existing raw data in the areas of OSHA, Cal-OSHA, NFPA standards, citations, and liability. Crawford (2008) stressed that decisions should be made on empirical evidence and statistics; otherwise, the plans and actions would not be based on the facts of a situation. This portion of the research was also developed to specifically identify how NFPA standards have been adopted and how they have been enforced by governmental agencies: in particular, how has OSHA

enforced the standards? Building upon the results of the first research question, the next element in the research involved refining the information already obtained and conducting additional research to fully ascertain which, if any, NFPA standards are directly applicable within Merced. The next element involved identifying case law, interpretations, and other precedents that have resulted in a notable increase in the enforcement of NFPA standards by governmental agencies and civil litigators. The last element in this phase was established to identify specific instances where fire departments have been cited for a failure to comply with NFPA standards. This element not only included citations by governmental agencies, but also sought out civil litigation and other fines that have been levied against fire departments. The order of these elements was purposefully designed to establish the order of enforcement from how NFPA standards have become enforceable to how Merced is impacted by the regulations and precedents. The final element was implemented to ultimately answer the problem and purpose: has a department ever been cited for a failure to apply NFPA standards to a specific situation?

The methodology of the first phase included a keyword search through the National Fire Academy's Learning Resource Center (LRC). The keywords included: OSHA, NFPA, Cal-OSHA, OSHA citations, NFPA violations, NIOSH and NFPA, OSHA and NFPA, general duty clause, Code of Federal Regulations, California Code of Regulations, NFPA rulings and case law, and Merced, CA. Additional keyword searches were completed on Google Scholar, Google, and various fire sites, including: Fire Engineering, Fire Chief, Firehouse, California Office of Administrative Law, US Department of Labor, California Department of Industrial Relations, and other occupational health and safety websites. Keyword searches were also completed at the Merced County and Tuolumne County Law Libraries. To validate, expand upon, and/or nullify the data captured through the literature review outlined above, numerous interviews were

conducted with subject matter experts from OSHA, DHS, NFPA, private law practices, fire chiefs, and Cal-OSHA. The methodology to conduct a survey was ruled out as there was considerable written documentation that supported that the problem identified within this project existed throughout the fire service.

The results compiled in the first phase of the project were essential in determining if the second phase would have been applicable to the project. This phase was designed to identify which National Fire Protection Association (NFPA) Standards provided the greatest level of liability protection to fire agencies from the Occupational Safety and Health Administration (OSHA). If the first phase revealed that NFPA standards were merely recommendations or guidelines that cannot be enforced, the second phase would not have been relevant to this project. The methodology employed in this phase involved the analysis of the raw data captured in the first phase so as to identify patterns and ultimately define risk management recommendations through the application of specific NFPA standards. Furthermore, this phase was designed to carry the analysis to a higher level to provide departments with limited resources, a means of identifying which standards they should consider employing first based on the relative degree of risk associated with a failure to comply.

The limitations identified in this project were a result of the surfeit of information about risk, OSHA, and NFPA that existed and the ability to differentiate the information that specifically addressed the problem and purpose of this project from the information, which discussed other aspects of NFPA and OSHA. Another limitation of the research was that additional original research was not required to address the problem. Via interviews with the Merced Fire Department administration, it was clear that misconceptions about NFPA standards existed. Additionally, extensive information was obtained through the Literature Review and

through structured interviews. The existing data and knowledge obtained was sufficient, but it required further analysis, organization, and refinement to develop new conclusions. The results of the analysis addressed the problem and purpose of the research.

Results

As described in the background and experience section of this research project, there has been much confusion conveyed about the enforceability of NFPA standards on fire departments, specifically, the Merced Fire Department. One side strongly asserted that an NFPA cannot be enforced unless it has been adopted by a governing body (Sturtevant, 2003), while others disagreed by noting that NFPA standards have been used to determine if a fire department operated in a reasonable manner (Bennett, 2008; Varone, 2008). The research problem was that the Occupational Safety and Health Administration's (OSHA) ability to cite fire departments for violations of National Fire Protection Association (NFPA) standards has not been clear, thereby having potentially exposed fire agencies to preventable liability. The purpose of this research was to conduct analysis into the enforceability of NFPA Standards by OSHA, to clarify the scope and applicability of the standards, and to fully ascertain if the Merced Fire Department can be found liable for non-compliance.

The first research question was established to identify how the National Fire Protection Association (NFPA) standards have been adopted by governmental agencies to establish a legal basis for enforcement. The research involved in answering this research question included an extensive literature review to develop a complete understanding of how NFPA standards have been adopted. It also involved numerous interviews to corroborate the literature and to refine, clarify, and expand upon to processes employed to adopt the standards. To set the foundation upon which to build this project, there needed to be an understanding of what a standard was. A

standard has been defined as “something established by authority, custom, or general consent, as a model” (Mariam-Webster, 2009). From a legal perspective, standards have been defined as “voluntary guidelines and recommendations that do not carry the force and effect of law” (Varone, 2007). However, Curtis Varone defined consensus standards as: “standards that are developed through a formal process…and represent generally accepted industry-wide practices and recommendations” (Ibid., p.15). Moreover, the NFPA has defined a five-step consensus process for approving their standards (NFPA, 2009b). Their technical committees have been comprised of stakeholders from a wide array of experts on a particular topic, who have worked together to develop a draft standard. From this point, all standards are subjected to two public comment periods, and then adopted by all members on the floor at the NFPA’s Technical Meeting (Ibid.). With the adoption and implementation of the United States *Occupational Safety and Health Act of 1970* (Fred Pryor Seminars, 2005; Sturtevant, 2003; Tompkins, 1993) and the approval of the California State Plan in 1973 (DOL, 2008; DOL, 2009) employee safety in the workplace became a high priority for all employers. OSHA regulations only apply to occupational settings where an employer-employee relationship has been established (Sturtevant, 2003). OSHA regulations have been adopted in one of two ways: through the legislative branch of the government, or through agencies that have adopted regulations through a rule-making process (Varone, 2007). An interview with Dave Strickler (personal communication, July 14, 2009), the Senior Safety Engineer with the California Division of Occupational Safety and Health, revealed that there have been four-ways in which NFPA standards have been adopted and/or enforced by Cal-OSHA: (a) direct adoption into a regulation, (b) a special order that has been issued to abate an extremely hazardous condition, (c) through California’s requirement for an occupational Illness and Injury Prevention Program, and (d) comparison of actions or

inactions to a nationally recognized standard. In this first instance, an NFPA standard would have been specifically identified by name and edition in the language of the proposed and adopted regulations. In these instances, the NFPA standards have been itemized in the law and their enforceability carried the full weight of the law (Varone, 2008). As a result of a Cal-OSHA investigation or inspection where an extreme hazard has been identified, Cal-OSHA has issued Special Orders that have required an employer to comply with NFPA standards to mitigate the hazard. In this case, the Special Order only applied to the specific employer; however, it has also established an OSHA enforcement precedent for other agencies (Fred Pryor Seminars, 2005; CCR, 2009; Varone, 2008; DOSH, 2008; D. Strickler, personal communication, July 14, 2009). In California, the Illness and Injury Prevention Program (Cal-OSHA, 2005; DOSH, 2009) was parallel to the General Duty Clause in Title 29 of the Code of Federal Regulations (Tompkins, 1993; Varone, 2008; OSHA, 1970). Both of these regulations required employers to protect their employees from all known hazards, regardless if the hazard has been identified in a regulation or if it has been previously addressed by OSHA (Cal-OSHA, 2005; DOL, 2008; DOL, 2009; DOSH, 2009; J. Foss, personal communication, August 17, 2009; Fred Pryor Seminars, 2005; M. Manieri, personal communication, August 17, 2009; OSHA, 1970; D. Strickler, personal communication, July 14, 2009; Varone, 2008). In *Risk Management for the Fire Service* (FEMA, 1996), the USFA asserted that in the absence of a regulation, agencies have had the ability to apply consensus standards to determine if a department operated in an appropriate manner. Additionally, Curtis Varone (2008) stated that the absence of an OSHA regulation during an investigation or inspection has not been a sufficient defense for a department or agency against a citation. A corresponding regulation which was adopted on July 9, 2009: 10 CFR 851 required all U.S. Department of Energy (DOE) contractors to fully comply with all applicable NFPA

standards. This regulation has not been applied to non-DOE entities; however, it has established a precedent upon which future legislation and litigation could be based.

The answer to the research question: How are the National Fire Protection Association (NFPA) standards adopted by governmental agencies, has been identified to have four components. The first component was identified as direct adoption whereby a governing body or regulatory agency directly cited a specific NFPA standard within the language of a regulation (J. Sharry, personal communication, May 26, 2009; D. Strickler, personal communication; C. Varone, personal communication, September 5, 2009). If the regulation was adopted, the NFPA standard contained therein would carry the full weight of the law in regards to enforcement. The second component was NFPA implementation through a Special Order by OSHA or Cal-OSHA. In these instances, an egregious hazard would have existed, whereby OSHA was bound to direct the employer how to correct the issue (DOSH, 2008; Hogan, 2000; OSHA, 1970; Varone, 2008). The third component was the implementation of NFPA standards through the requirements of the Illness and Injury Prevention Program or the General Duty Clause. In this component, an employer has been charged to protect all employees from all known hazards. NFPA standards have been inclusive in this component as there have not been OSHA regulations adopted to address all known hazards; therefore, employers have needed to employ the guidance of NFPA standards to prudently mitigate the identified hazards. Lastly, in the absence of a regulation, a special order, and/or the circumstances surrounding an occupational injury have been deemed to be outside the parameters of an IIPP or the General Duty Clause, OSHA and Cal-OSHA, have been granted the authority to refer to national standards to determine how an employer should have acted in a given situation (Ibid.). Even when an NFPA standard has not been adopted by an

agency, any national consensus standard can be introduced to determine what is reasonable for a given situation (Sturtevant, 2003).

The second research question was developed to specifically identify which National Fire Protection Association (NFPA) Standards have been adopted in California and are applicable in Merced. Within the California Code of Regulations (CCR, 2009), there were eleven regulations identified that specifically addressed firefighting. Each of these regulations pertained to the personal protective equipment; none referenced operations, fireground safety, training requirements, or any other fire related topics. Within the eleven regulations that have been adopted in California to address firefighting, there were a total of three NFPA standards included therein: NFPA 1971 – *Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*, 1983 edition; NFPA 1972 – *Standard on Structural Fire Fighters' Helmets*, 1985 edition; and NFPA 1982 – *Standard on Personal Alert Safety Systems*, 1983 edition (Ibid.). Interviews with Dave Strickler (personal communication, July 14, 2009) and Randy Bradley (personal communication, June 10, 2009) revealed that the aforementioned NFPA standard editions have not been updated nor has there been additional standards directly adopted by Cal-OSHA as they would have been responsible for funding all upgrades to enable fire departments to become compliant.

In addition to Cal-OSHA, the U.S. Department of Homeland Security (DHS) and the Federal Emergency Management Agency (FEMA), through the National Incident Management System (NIMS) have adopted NFPA standards which have become applicable in Merced. Since 2004, DHS has adopted twenty-seven NFPA standards that were focused on improving firefighter safety, procurement of approved equipment, training requirements, and operational decision making (ANSI, 2004; NFPA, 2007; NFPA, 2008; Occupational Safety & Health, 2007;

USFA, 2007; USFA, 2008) (See Appendix B for a listing of the DHS Adopted NFPA Standards). Dr. Bert Coursey was interviewed by *NFPA Journal* (Nadile, 2009) to define the purpose and scope of DHS' adoption of the NFPA standards. Dr. Coursey conveyed that the DHS does not have enforcement authority to mandate fire departments to comply, but rather, the DHS has focused the adoption of particular standards to enhance the national emergency response infrastructure by encouraging departments to comply with a standardized approach. Dr. Coursey and Peter Shebell (personal communication, September 3, 2009) both asserted that the adoption of the NFPA standards by fire departments has become integral criterion in determining Assistance to Firefighters Grant Program awards. In most cases, the requirements of the AFG program required departments to purchase equipment that has met NFPA requirements, such as: personal protective equipment, hose, ladders, fire apparatus, and fitness programs (Ibid.). In regards to Merced, for each of the AFG grants awarded to the department, the grant applications and the subsequent equipment purchased were compliant with the applicable NFPA standards. The Merced Fire Department has also been awarded a Staffing for Adequate Fire and Emergency Response (SAFER) Grant (DHS, 2009b; FEMA, n.d.). As such, on a quarterly basis the MFD has been required to report its compliance with the resource deployment sections of the current edition 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* (Ibid.). Moreover, during the SAFER Grant application process, the MFD was required to attest that it would provide training to all personnel, hired with grant funds, to the levels prescribed by NFPA 1001 - *Standard for Fire Fighter Professional Qualifications*, and provide entry level medical examinations in conformance with NFPA 1582 - *Standard on Comprehensive Occupational Medical Program for Fire Departments* (Ibid.). In July 2009, the

MFD applied for the Fire Station Construction (FSC) Grant to add a sixth station and improve its levels of service to the community. An integral portion of the application required the MFD to document how the FSC would enable the department to comply with NFPA 1710. The application criteria also required specific documentation as to how the construction, lay-out, and operations of the new facility would meet or exceed the requirements set forth in NFPA 1500 (Ibid.).

The MFD, through its Policies and Procedures Manual has adopted all or portions of six NFPA standards. The MFD has adopted in their entirety: NFPA 1403 - *Standard on Live Fire Training Evolutions*, NFPA 1581 - *Standard on Fire Department Infection Control Program*, NFPA 1901 - *Standard for Automotive Fire Apparatus*, and NFPA 1911 - *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus* (Merced Fire Department, 2009). The MFD also adopted portions of NFPA 1500 - *Standard on Fire Department Occupational Safety and Health Program*, especially in the areas of facility safety inspections, occupational health and safety committee roles, and the procurement practices of the department (Ibid.). Lastly, the MFD has been working to fully implement NFPA 1851 - *Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting* through the adoption of policies and procedures (J. Franklin; S. Raney, personal communication, September 2, 2009). Research conducted at local, county, and regional levels revealed that NFPA codes have been adopted as they relate to building construction, fire protection systems, and life safety; however, research failed to reveal any formal or informal actions relating to the adoption of any NFPA standards. Although federal OSHA regulations do not apply and cannot be enforced on local governments, 29 CFR 1915 included an additional nineteen NFPA standards that have been directly adopted.

The second research question found that three National Fire Protection Association (NFPA) Standards have been directly adopted in California and are applicable in Merced. Furthermore, through its Policies and Procedures Manual, the MFD has directly adopted all, or portions thereof, of an additional six NFPA standards. The research also revealed that the Department of Homeland Security has adopted an additional twenty-seven NFPA standards. In total, there were thirty-nine NFPA standards that have been directly adopted by governmental agencies that were directly or indirectly applicable to the Merced Fire Department.

The first two questions were developed to first ascertain how NFPA standards are adopted, and then to identify which standards were applicable in Merced. The third question was formulated to identify what laws, regulations, directives, ordinances, precedents, or interpretations that enabled the enforcement of National Fire Protection Association (NFPA) standards. According to Dave Strickler (personal communication, July 14, 2009) and the California Division of Occupational Health's *Policies and Procedures Manual* (DOSH, 2008), Special Orders have been issued to correct deficiencies that have posed a life safety threat to employees that could be corrected under any other Title 8 regulations. The issuance of a special order would have directed an employer to fully comply with a specific prescription to mitigate the hazard, which may have included the requirements contained in NFPA standards (Ibid.). According to Strickler and Cal-OSHA, an investigation into an occupational injury or fatality where neither a Title 8 regulation nor a special order has been identified, Cal-OSHA has referenced and applied the requirements identified in national standards, such as NFPA, to determine if the employer adequately addressed the workplace hazard. The fourth means by which Cal-OSHA has utilized NFPA standards during the course of an investigation is through the Illness and Injury Prevention Program (IIPP) regulation contained in 8 CCR §3203 (DOSH,

2009). Dave Strickler (personal communication, July 14, 2009) stated that the IIPP was designed to be a "catch-all" regulation that required "employers to protect all of their employees from all known hazards, period." When asked how Cal-OSHA has identified if a particular hazard was known to an employer, specifically a fire department, Strickler responded by noting the NIOSH reports about firefighter line-of-duty injuries and deaths have served to advise the department about an identified hazard. He also stated that a fire department that has failed to recognize and implement the recommendations from NIOSH has violated the requirements of the IIPP and has subjected themselves to OSHA citations, criminal prosecutions, and/or civil liability (Ibid.). Subsequent interviews with Raymond Bizal (personal communication, September 4, 2009), Curtis Varone (personal communication, September 5, 2009), Randy Roxson (personal communication, September 4, 2009) all confirmed the enforceability of NFPA Standards through the California IIPP regulation. Research of more than fifty-five NIOSH *Death in the line of duty…* reports revealed that every individual report identified hazards and made recommendations to protect firefighters from those hazards. In total, the NIOSH reports analyzed within this project have recommended the adoption of fourteen NFPA standards as a means of reducing firefighter injuries and deaths (NIOSH, 2009).

For federal OSHA, the catch-all regulation has been identified as the General Duty Clause (OSHA, 1970; Fred Pryor Seminars, 2005; Tompkins, 1993). The General Duty Clause was outlined in Section 5 of the *OSHA Act of 1970* and stated that employers had a general duty to protect their employees from all known hazards (Ibid.). Similarly, the General Duty Clause was cited as the reason NFPA 70E – *Standard for Electrical Safety in the Workplace* has been used to determine if employers were prudent in the their actions to protect employees from

known electrical hazards (Demby, 2009; Swanson, 2003; Kennedy, 2004; Colonna, 2006; Staff, 2006; Klingler, 2005).

The *Firefighter Fatality Reduction Act of 2009* was proposed to a congressional sub-committee on March 12, 2009 (Committee on Science and Technology, 2009). The intent of the *Act* was to reduce firefighter fatalities through required compliance with national voluntary consensus standards. Within the *Act* the national consensus standards were defined as the latest published editions; thereby preventing the need to revise the *Act* at a future date (Ibid.). Two additional reports were issued within one year of each other: the *National Fire Service Responder Credentialing System* (USFA, 2005) and the *Review of DHS' Progress in Adopting and Enforcing Equipment Standards for First Responders* (DHS, 2006), both asserted the vital role NFPA standards fulfill in ensuring that fire service professional are trained, equipped, and kept safe in the line-of-duty. Furthermore, the overall theme of the reports emphasized the importance of standardization to support and reinforce interoperability (Ibid.). Correspondingly, the *National Technology Transfer and Advancement Act of 1995* (Morella, 1995) directed local, state, and federal agencies to apply the guidance contained in the voluntary consensus standards so as to ensure a standardized approach to safety, equipment, and operations. These reports have closed the loop between the adoption of NFPA standards by the Standards &Technology Division of DHS and their ability to hold organizations accountable for following them.

Aside from OSHA citations, an interview with Randy Roxson (personal communication, September 4, 2009) outlined how NFPA standards have been used in litigation. Roxson, who was identified as a practicing attorney with a specialization in fire related litigation, stated that NFPA standards have been used extensively in trials to establish the standard of care and/or to function as an expert opinion as to how something should or should not have been done. Curtis

Varone (personal communication, September 5, 2009) concurred with Roxson, but expanded on the impacts of not adhering to NFPA standards by adding negligence as another means of liability to fire departments. To prove negligence, a case must meet all four of the following elements: (a) a duty to act or legal duty, (b) an act or omission, (c) injury or damages, and (d) a breach of the standard of care. In his text: *Fire Officers' Legal Handbook*, Varone (2008) added an additional aspect known as the Professional Standard of Care. This Standard has been applied when someone has received specialized training and an expectation existed for them to perform in a specific manner. In these cases, expert witnesses and NFPA standards have been utilized to ascertain if the actions or inactions were prudent. The interviews with Roxson (personal communication, September 4, 2009) and Varone (personal communication, September 5, 2009) concluded by noting that a failure to protect an employee from injury/death, in conjunction with the failure to have applied the applicable NFPA standards could have resulted in the upholding of a negligence ruling.

To conclude, the third research question was formulated to identify what laws, regulations, directives, ordinances, precedents, or interpretations that have enabled the enforcement of National Fire Protection Association (NFPA) standards. The research identified sections within Title 8 of the California Code of Regulations, and sections within Title 29 of the Code of Federal Regulations that have specifically allowed for the inclusion of national consensus standards when an agency is determining the need to cite an organization. Other than by direct adoption, which was addressed by the first research question, NFPA standards have been enacted and enforced through special orders, through reference to national standards to determine reasonable actions, and through the administration of Illness and Injury Prevention Programs and the General Duty Clause. Furthermore, NIOSH has identified hazards and

recommended NFPA standards to mitigate these hazards, thereby placing fire departments on notice. Lastly, the civil liabilities and penalties associated with a negligence verdict have been known to be severe. In regards to NFPA standards, negligence has been based on a duty to act, an injury or damages, an act or omission, and a breach of the standard of care; NFPA standards have been identified as the standard of care in most cases involving firefighters.

The previous questions identified how NFPA standards are adopted and enacted, and how they have been enforced. The fourth research question was crafted to ascertain if any fire agencies have actually been cited by the OSHA for a failure to adhere to NFPA standards and to identify their outcomes. OSHA violations have been divided into categories, which were based on the severity of the infraction. The violations ranged from Other than Serious Violation (the least significant), Serious Violation, Willful Violation, Repeated Violation, and Failure to Abate (the most significant) (Kuzmanich, 2009; Princeton University, 2007; Bennett, 2008). Specifically related to the fire service, in 2002 the Coos Bay (OR) Fire Department was cited by Oregon OSHA as the result of a structural collapse that killed three firefighters. The citation included, among other elements, violations for failing to comply with NFPA 1404 - *Standard for Fire Service Respiratory Protection Training* (Bennett, 2008). A second Oregon fire agency was recently cited for a failure to follow NFPA 1403 – *Standard on Live Fire Training Evolutions* following a near-flashover incident during an acquired structure training burn (Goldfedder, 2009). In 2005, as a result of an electrocution of a fire captain, a California fire department was cited by Cal-OSHA and assessed a $250,000 fine (Carroll, n.d.). The citation against the department was based on violations of the IIPP requirements as the captain was not protected from all known fireground hazards that could have been mitigated through the application of the requirements of NFPA 1500 - *Fire Department Occupational Safety and Health Program*, and

the requirements of NFPA 1561 - *Emergency Services Incident Management System* (Carroll, n.d.; NIOSH, 2009). Both the South Canyon Fire in 1994 and the Thirtymile Fire in 2001 resulted in numerous OSHA violations; however, since the lead agencies were federal entities, OSHA did not have jurisdiction to assess fines (Colorado Firecamp, 2006; OSHA, 2002). Neither of these citations referenced NFPA standard, but both specifically identified wildland firefighting national standards that have also been developed through a consensus process (Ibid.). The Thirtymile Fire also resulted in a manslaughter conviction against the Incident Commander for his action/inactions that resulted in the deaths of personnel who were under his supervision (O'Hagen, Cornwall, & Bowermaster, 2006).

The Sofa Super Store fire in Charleston, South Carolina resulted in nine deaths and the actions/inactions on the part of the fire department have been closely scrutinized by the entire nation (Campbell, 2009). The subsequent investigation resulted in one Willful and three Serious Violations (SCOSHA, 2008). Numerous NFPA standards were referenced in the SCOSHA citation as well as by NIOSH (2009) in their *Fire Fighter Fatality Investigation and Prevention Program* report regarding the incident. The SCOSHA Report specifically stated that OSHA does not address every possible hazard in the workplace. Furthermore, the report asserted “When there is a serious hazard present in the work place and OSHA has no standard addressing it, court precedent has shown that OSHA can hold employers to compliance with a nationally recognized consensus standard” (p. 3). The Report also defined that the following conditions must have existed for OSHA to cite the General Duty Clause: there must be a hazard, the hazard must be recognized, the hazard caused or is likely to cause serious harm or death, and the hazard must be correctable (Ibid.). The conclusion reached by Gordon Routely’s (2008) team investigation identified that the fire department operations did not comply with federal OSHA regulations,

with NFPA consensus standards, nor were they consistent with modern day fire service expectations. Summarily, the report found that the department failed to manage the incident according to accepted practices (Ibid.). As a result of the findings, the report recommended that the Charleston Fire Department adopt NFPA standards to address operational and safety areas that were insufficient to protect its members, including but not limited to: NFPA 1001, *Standard for Fire Fighter Professional Qualifications*, and NFPA 1021, *Standard for Fire Officer Professional Qualifications* (Campbell, 2009; Routely, 2008).

As a result of the adoption of 10 CFR 851 to enforce all Department of Energy contractors to comply with all applicable NFPA standards, the Idaho National Laboratory was assessed a $250,000 fine for failure to properly enact NFPA 1143 – *Standard for Wildland Fire Management*, NFPA 1500 – *Standard on Fire Department Occupational Safety and Health Program*, NFPA 1561 – *Standard on Emergency Services Incident Management System*, and 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* (Guevara, 2008). The citation was the result of firefighters being electrically shocked as the result of an arc-to-ground incident that resulted from heavy, smoky, conditions (Ibid.). Interviews with Randall Bradley (Personal communication, June 10, 2009) and John Sharry (Personal communication, May 26, 2009), former Fire Chiefs of the Lawrence Livermore National Laboratory in California revealed their concern about the violations and the assessed penalties. The initial concern they communicated was the demonstrated enforcement of NFPA standards with the maximum penalties having been assessed. However, their overall concern/interest was to understand how this violation may have established a precedent for non-DOE fire departments.

In October 1999, AB1127 was adopted and signed by Governor Gray Davis, which made all of the Cal-OSHA regulations applicable to local government, including the fines and criminal penalties (Citygate Associates, 2005; Schoonover & Dowdle, 2007; Cal-OSHA, 2005). Under AB1127, the Santa Clara Fire Department was cited for the line-of-duty death of a fire captain, as noted above, and was assessed a $250,000 fine, which was previously unheard of within California and the fire service (Citygate Associates, 2005).

Regarding OSHA violations for failing to comply with NFPA standards, Dave Strickler (Personal communication, July 13, 2009) stated that he is not aware of a department being cited other than those that were previously mentioned. However, he stressed that Cal-OSHA does not track the references used to determine a citation, nor has it tracked Special Order violations or IIPP violations.

Dave Strickler (Personal communication, July 13, 2009), John Sharry (Personal communication, May 26, 2009), Curt Varone (Personal communication, September 5, 2009), Raymond Bizal (Personal Communication, September 4, 2009), and Randy Roxson (Personal communication, September 4, 2009) all agreed that NFPA has been frequently referenced by OSHA to determine if an employer has been reasonable in their actions, and for establishing the Standard of Care for a fire department in alleged negligence cases. Additionally, Varone and Roxson stated that they have used NFPA standards in court as they have been developed through a consensus process by recognized professional experts. They concluded by noting that they know cases have been decided by the impact of the introduction of NFPA standards. However, most cases are settled in superior court and not appealed; therefore, the details of the rulings have not been published (Ibid.).

The fifth and final research question asked: Which National Fire Protection Association (NFPA) Standards provide the greatest level of liability protection from the Occupational Safety and Health Administration (OSHA) to fire agencies? The results to this question required exploration into OSHA violations and NIOSH recommendations established the basis for making this recommendation. The premise behind this question was to be able to provide risk management guidance to fire departments. The results to this question were based on the frequency of which the certain NFPA standards were identified in OSHA citations and/or NIOSH recommendations. This methodology was designed to address the most frequently cited NFPA standards that would invoke the greatest level of risk management. The most commonly referenced NFPA standards recommended for enactment were: NFPA 1201 – *Standard for Providing Emergency Services to the Public,* NFPA 1403 - *Standard on Live Fire Training Evolutions,* 1500 - *Standard on Fire Department Occupational Safety and Health Program,* NFPA 1521 - *Standard for Fire Department Safety Officer,* 1582 - *Standard on Comprehensive Occupational Medical Program for Fire Departments,* and 1583 - *Standard on Health-Related Fitness Programs for Fire Department Members* (NIOSH, 2009; Minnesota State Colleges and Universities, 2007; TriData Corporation, 2005; Jenaway, 2006; Brodoff & Foley, 2002).

The results of this research find that misconceptions about NFPA standards exist. These misconceptions need to be addressed to protect firefighters, departments, and municipalities from injury, illness, death, and liability. NFPA standards are developed through a consensus process of subject matter experts to provide fire departments with direction as to how to best protect its members. A lack of understanding exists in regards to how NFPA standards can be enforced if they have not been directly adopted. The results demonstrate that fire service organizations

should adopt a proactive posture toward referencing and adhering to applicable NFPA standards in order to serve and protect its membership.

Discussion

The purpose of this research is to conduct analysis into the enforceability of NFPA Standards by OSHA to clarify the scope and applicability of the standards, and to fully ascertain if California fire agencies can be found liable for non-compliance. The research identifies that there is a wide spectrum of misinformation and opinions circulating about how NFPA standards are to be used and/or enacted within routine fire department operations. NFPA standards, also known as voluntary consensus standards, establish the foundation upon which the confusion is exacerbated (NFPA, 2009a; Comstock, 2009; Hogan, 2000; Klingler, 2005; Staff, 2006; Varone, 2008). Are NFPA standards enforceable by OSHA or are they voluntary guidelines that a department can choose to employ or not? The problem is that it cannot be both ways; either a department can be cited for a failure to comply, or they are voluntary without an expectation to comply. The conflicting language, understanding, and expectations in that standards are voluntary, yet agencies can be cited for violating the standards, clearly demonstrate the problem and purpose of this project.

The first question asks: How are the National Fire Protection Association (NFPA) standards adopted by governmental agencies? Numerous resources identify NFPA standard as being voluntary unless they are directly adopted by a governing body (Hogan, 2000; J. Sharry, personal communication, May 26, 2009; D. Strickler, personal communication, July 14, 2009; R. Bizal, personal communication, September 4, 2009; Smeby, 2005; Varone, 2008; C. Varone, personal communication, September 5, 2009). The premise behind this approach is very straight forward: if an NFPA standard is not specifically listed in a regulation, it is not enforceable.

However, as the problem statement identifies, it is not this simple. The research finds that NFPA can be enforced regardless if they have been previously adopted or not. Cal-OSHA has the authority to enforce NFPA standards if a significant hazard exists, if it cannot be abated by another Title 8 section, and if a Special Order has been issued (DOSH, 2008). From the perspective of employers, the enforceability of Special Orders would be as clear as direct adoption, since a written order exists that specifically articulates which NFPA standards must be complied with. Much of the confusion stems from the remaining two options: the Illness and Injury Prevention Program (IIPP) regulation, and the ability to utilize national standards to determine reasonable behavior (D. Strickler, personal communication, July 14, 2009). The more specific of the two, is the use of national standards by Cal-OSHA to be able to measure if an employer was reasonable in the actions and/or inactions that resulted in an occupational injury/death. In the absence of the Title 8 regulation and a special order, Cal-OSHA can refer to national standards, specifically NFPA standards, to be able to determine if a fire department was prudent in their duties (Ibid.). The last option that allows NFPA standards to be utilized by Cal-OSHA is through the requirements of the Illness and Injury Prevention Program regulation. This regulation requires employers to protect their employees from all known hazards (DOSH, 2009). The premise behind the relationship between Cal-OSHA and NFPA standards is that if a standard has been developed, a hazard must have been previously identified. For example, if a firefighter is injured in the line of duty where an applicable NFPA standard exists, but was not enacted or followed, the employer could be found in violation of the IIPP by not using recognized standards to mitigate known hazards (D. Strickler, personal communication, July 14, 2009; M. Manieri, personal communication, August 17, 2009; J. Foss, personal communication, August 17, 2009).

The second question asks: Which National Fire Protection Association (NFPA) Standards have been adopted in California and are applicable in Merced? Research to answer this question identifies that there are thirty-nine NFPA standards that are adopted, and are either directly or indirectly, applicable in Merced. There are three NFPA Standards have been directly adopted in California within Title 8 and are applicable in Merced (CCR, 2009). Furthermore, The MFD *Policies and Procedures Manual* (2009) identifies an additional six NFPA standards that are adopted. The research also reveals that the Department of Homeland Security has an additional twenty-seven NFPA standards that the MFD is responsible for complying with (ANSI, 2004; NFPA, 2007; NFPA, 2008; Occupational Safety & Health, 2007; USFA, 2007; USFA, 2008). In correlation with the first research question, any or all of the NFPA standards could be applicable if a firefighter was to be injured or killed in the line of duty and the department did not take reasonable actions to effectively mitigate the hazards (D. Strickler, personal communication, July 14, 2009; R. Roxson, personal communication, September 4, 2009; J. Sharry, personal communication, May 26, 2009; C. Varone, personal communication). In other words, while only thirty-nine of the more than three hundred NFPA standards and codes have been adopted, Merced could be cited for violating all applicable NFPA standards should a tragedy or near-miss occur and Cal-OSHA conducts an investigation. The answer to the second research question exemplifies the problem and purpose of this project. NFPA standards are voluntary unless they have been adopted by a governmental agency; however, in the absence of a California Title 8 regulation, Cal-OSHA can apply and enforce the standards regardless of whether they have been previously adopted or not.

The third question asks: What laws, regulations, directives, ordinances, precedents, or interpretations enable the enforcement of National Fire Protection Association (NFPA)

Standards? As stated above, between California Title 8 (CCR, 2009), the DHS (ANSI, 2004; NFPA, 2007; NFPA, 2008; Occupational Safety & Health, 2007; USFA, 2007; USFA, 2008), and the MFD Policies and Procedures Manual (Merced Fire Department, 2009), thirty-nine NFPA standards have been directly adopted. The intent of this question is to examine other means and precedents that exist, which allow the MFD to be held accountable for meeting the NFPA standards. NIOSH conducts thorough investigations into all firefighter fatalities and serious injuries to develop recommendations for fire departments to employ to prevent future tragedies from occurring (NIOSH, 2009). In doing so, NIOSH has established a formal process of notifying fire department of hazards that exist in the fire service workplace (D. Strickler, personal communication, July 13, 2009; C. Varone, personal communication, September 5, 2009). The NIOSH reports establish the basis upon which the General Duty Clause and the IIPP can become effective and enforceable in protecting firefighters from all known hazards (Fred Pryor Seminars, 2005; OSHA, 1970; Tompkins, 1993). Additionally, numerous studies, reports, and legislation are circulating that outline the relationship of NFPA standards in regards to first responder safety with a conscientious effort to reduce firefighter injuries and deaths. For example, the *Firefighter Fatality Reduction Act of 2009* (Committee on Science and Technology, 2009), the *National Fire Service Responder Credentialing System* (USFA, 2005), the *Review of DHS's Progress in Adopting and Enforcing Equipment Standards for First Responders* (DHS, 2006), and the *National Technology Transfer and Advancement Act of 1995* (Morella, 1995) all stress the importance of adopting NFPA standards, training to the levels prescribed in the standards, purchasing equipment that meets the standards, and complying with the operational guidance of the standards. The overall message conveyed by these reports is that if a department fails to follow and employ the guidance contained therein, it is falling short of ensuring the

optimal safety and operational levels for their personnel. In other words, not following the guidance could be interpreted as being a violation of the General Duty Clause or the California IIPP (Ibid.). In an extension to the aforementioned reports, interviews with D. Strickler (personal communication, July 14, 2009), R. Roxson (personal communication, September 4, 2009), and C. Varone (personal communication, September 5, 2009) identified that Cal-OSHA and OSHA can utilize NFPA standards to determine if a fire department is operating in a prudent manner based on nationally recognized standards. While this is inclusive in the General Duty Clause and the IIPP, it is also a key element measured when determining if an employer was negligent in their actions or inactions. The first element needed to prove negligence is there must be a duty to act. In the case of OSHA and Cal-OSHA, the General Duty Clause and the IIPP requirements state that a fire department has a duty to protect their personnel from all known workplace hazards. NIOSH (2009) reports, as well as numerous periodicals, notify fire departments of occupational hazards that have been identified as a result of tragedies and near-miss incidents. The duty to act element of negligence directly and indirectly requires fire departments to comply with NFPA standards to protect their personnel (Varone, 2008). The second element of negligence is if an injury or damage has occurred to someone or something; this can include firefighter injuries and deaths. The third element requires an action or inaction on the part of the department. This means that the injury or damages are a direct result of the department's actions or inactions in a given situation. The last element is a breach of the standard of care or the professional standard of care (Ibid.). Interviews with R. Roxson (personal communication, September 4, 2009), and C. Varone (personal communication, September 5, 2009) finds that professional expert testimony and the application of NFPA standards are used to establish a

foundation for the standard of care. They have both personally used NFPA standards in this capacity during various litigation venues.

As an example of how a fire department can be found negligent for not following NFPA standards, consider a firefighter who is injured while operating on a residential structure fire; the injuries are not life threatening, but they may impact the member's fitness for duty. In this instance, the firefighter's injuries are exacerbated by the fact that a codified personnel accountability system was not implemented at the scene nor are there procedures in place that required it to occur. Addressing the elements of negligence, an employer-employee relationship exists; therefore the General Duty Clause and/or the IIPP requirements apply and the department has duty to protect its firefighters from all known hazards, creating the department's duty to act. A significant injury to the firefighter has occurred, and it is in part a result of inaction by the department for not having an accountability system in place. Lastly, in the instance of personnel accountability, fire departments are on notice as a result of the NIOSH report following the nine firefighter fatalities in Charleston (NIOSH, 2009). This report recommended fire departments to "develop, implement and enforce written standard operating procedures (SOPs) for an occupational safety and health program in accordance with NFPA 1500" (p. 1). This includes the accountability of all personnel during an incident. NFPA 1500 requires departments to implement written procedures for personnel accountability at emergency scenes. Therefore, as the result of the department having a duty to act, an injury occurs to a fire department member, the department did not take action, and the department failed to meet the professional standard of care by not applying NIOSH recommendations and implementing requirements from NFPA 1500, this department could be found to be negligent in their actions. This scenario is not

farfetched. Fire departments from around the Nation are being cited and assessed fines for similar situations on an increasing frequency.

The fourth question asks: Have any fire agencies been cited by the Occupational Safety and Health Administration (OSHA) for a failure to adhere to National Fire Protection Association (NFPA) Standards, and what were the outcomes? Since 2002, two Oregon fire departments have been cited and assessed fines by Oregon OSHA for failing to meet the requirements of NFPA standards. One was cited for not complying with the requirements of NFPA 1404 – *Standard for Fire Service Respiratory Protection Training* (Bennett, 2008), while the other was cited for not complying with NFPA 1403 - *Standard on Live Fire Training Evolutions* (Goldfedder, 2009). In California, Cal-OSHA cited and levied a $250,000 fine against a career fire department following a line of duty death. The citation cited NFPA 1500 - *Fire Department Occupational Safety and Health Program*, and NFPA 1561 - *Emergency Services Incident Management System* as integral standards that could have prevented this tragedy. (Carroll, n.d.; NIOSH, 2009). The South Canyon Fire in 1994 and the Thirtymile Fire in 2001 were both tragic events with multiple firefighter fatalities (Colorado Firecamp, 2006; OSHA, 2002). The agencies with jurisdiction for both of these incidents received numerous OSHA citations; however, fines were not assessed or imposed as a federal agency cannot assess fines against another federal agency; a new message is being presented to the fire service, in the form of new liabilities (Ibid.). The incident commander of the Thirtymile Fire was charged and convicted of manslaughter as a result of his actions and inactions during this incident (O'Hagen, Cornwall, & Bowermaster, 2006). The Sofa Super Store Fire in 2007 resulted in four South Carolina OSHA (SCOSHA) violations against the fire department (Campbell, 2009; SCOSHA, 2008). The SCOSHA addresses numerous NFPA standards in their report and specifically asserts

that OSHA cannot have a regulation for every possibility; therefore, they can hold employers accountable for national consensus standards (SCOSHA, 2008). Gordon Routely (2008) recommends fire departments to adopt NFPA standards to address operational and safety areas to protect their members, including but not limited to NFPA 1001, *Standard for Fire Fighter Professional Qualifications*, and NFPA 1021, *Standard for Fire Officer Professional Qualifications* (Ibid.). The most recent example that has truly connected NFPA standards and citations is the electrical shock incident that occurred within the boundaries of the Idaho National Laboratory (Guevara, 2008). As a result of the adoption of 10 CFR 851, the Laboratory fire department was cited and fined $250,000 for failing to comply with the requirements of NFPA 1143 – *Standard for Wildland Fire Management*, NFPA 1500 – *Standard on Fire Department Occupational Safety and Health Program*, NFPA 1561 – *Standard on Emergency Services Incident Management System*, and 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* (Ibid.). The fire service is changing; sovereign immunity provides less protection that it once did. The adoption of AB1127 in California results in public entities, such as fire departments, being susceptible to investigations, citations, and fines in the same manner as private enterprises. Fire departments are no longer treated differently. Under AB1127, the Santa Clara Fire Department was cited for the line-of-duty death of a fire captain, as noted above, and was assessed a $250,000 fine (Citygate Associates, 2005). Precedents exist. Citations occur. Fines are assessed. Criminal charges are filed. Fire departments must take note and take reasonable actions to comply with applicable NFPA standards or suffer the consequences of their inactions (Routely, 2008; SCOSHA, 2008).

The fifth and final question asks: Which National Fire Protection Association (NFPA) Standards provide the greatest level of liability protection from the Occupational Safety and Health Administration (OSHA) to fire agencies? The research of periodicals, OSHA citations, and NIOSH recommendations cite the following standards most frequently: NFPA 1201 – *Standard for Providing Emergency Services to the Public*, NFPA 1403 - *Standard on Live Fire Training Evolutions*, 1500 - *Standard on Fire Department Occupational Safety and Health Program*, NFPA 1521 - *Standard for Fire Department Safety Officer*, 1582 - *Standard on Comprehensive Occupational Medical Program for Fire Departments*, and 1583 - *Standard on Health-Related Fitness Programs for Fire Department Members* (NIOSH, 2009; Minnesota State Colleges and Universities, 2007; TriData Corporation, 2005; Jenaway, 2006; Brodoff & Foley, 2002). As such, implementation of, and adherence to, the guidance contained in these standards would address the highest-frequency issues that have previously occurred. Fire department resources are not unlimited; therefore, proactive fire service leaders should prioritize risk management issues in the order of their frequency and the level of risk they pose. A fire department implementing the standards listed above is a department that has made a good start toward conscientious investment in the safety of its personnel.

Summarily, NFPA standards are applicable if they are directly adopted in regulations, if they are included in Special Orders, if the General Duty Clause or the Illness and Injury Prevention Program are applicable, and if OSHA or Cal-OSHA has a need to reference a national standard in the absence of an applicable regulation. The South Carolina OSHA Report best articulated the need for fire departments to refer to and apply NFPA standards whenever reasonable: “When there is a serious hazard present in the work place and OSHA has no standard

addressing it, court precedent has shown that OSHA can hold employers to compliance with a nationally recognized consensus standard" (SCOSHA, 2008, p. 3).

Recommendations

The results of the enforceability of NFPA standards applied research project identify that immediate action is necessary to correct misconceptions. This research project has solidly established that NFPA standards are enforceable, necessitating immediate action within the City of Merced to correct misconceptions about accountability and take action regarding implementation of appropriate standards in order to better protect personnel and the department from injury, deaths and litigation. The recommendations contained in this report are inclusive of the following process: data analysis, planning, implementation, and evaluation. The issue, identified as the problem of this research project, is whether OSHA or other governmental agencies has the ability to cite fire departments for not adhering to NFPA standards. The project identifies the root cause of the problem to be a combination of inconsistent terminology, past practices based on assumptions rather than facts, and a lack of a clear, codified system to ensure fire departments are kept fully informed about risk management issues, including the enforceability of NFPA standards. The options to address this issue are numerous; the challenge is in the paring down and prioritization of the options to determine the best course of action for the City to take. Based on the research, the following are the best options and the recommended plan of action:

First, conduct a comprehensive self-assessment to determine which NFPA standards apply to the Merced Fire Department. Based on the geographic and demographic make-up of the City, not all of the NFPA standards would apply to the operations of the MFD and/or the safety of the MFD personnel (City of Merced, n.d.). Without the information obtained through an

assessment, the MFD would not be successful with its efforts in being reasonable and proactive in their approach to personnel safety and the application of the standards. It is not possible for the MFD or any other organization to meet its goals and objectives if they are not clearly defined; this assessment would categorize the standards, which would enable the department to focus on specifics and not waste valuable resources on standards that are not applicable.

Second, prioritize the degree of risk and risk management each of the identified NFPA standards represent to the MFD. Once the self-assessment has been completed and a complete listing of all applicable NFPA standards are identified, they need to be prioritized so as to engage the MFD to establish a systematic approach toward compliance. This recommendation will require consultation with the City Attorney's Office and other risk management entities to ensure the department remains focused. The outcome of this step will be the development of a draft implementation plan that contains deliverables, timeframes, and projected budget line items. At a minimum, the MFD should refer to NFPA standards and include the guidance within the applicable standards in its policies and standard operating procedures.

Third, will be to educate all stakeholders and obtain input and buy-in to the NFPA standard implementation plan. The stakeholders include, but are not limited to: firefighters and operations staff, MFD chief officers, impacted City departments, the City's Risk Management Division, the City Attorney, the City Manager, and the City Council. Success of the plan is fully dependent on corroboration and participation by all stakeholders. A safe, effective, and efficient operation cannot occur if all stakeholders are not included in the process and kept informed.

The Fourth step will be the implementation of the plan, including, but not limited to: training of personnel, policy development, procurement practices, and any other identified needs. This step may take years to complete; during which the plan may need to be adjusted as the

needs of the City change. The overall implementation of NFPA standards could be quite costly in some areas; therefore, a direct limitation to this step is securing adequate funding sources. Furthermore, firefighter line-of-duty injuries and deaths, and the subsequent investigations will identify new hazards and make new recommendations that the MFD needs to proactively address.

The last step will be the ongoing evaluation and reassessment of the department's compliance with the identified NFPA consensus standards. This is an integral step to ensure the Merced Fire Department's success in complying with the identified standards and ensuring optimum safety levels for its membership. Ongoing analysis of the plan's implementation and its impact is essential for measuring strengths, weaknesses, and for making recommendations for improvement. Further, ongoing evaluations will work to prevent the department from losing focus and falling back into the "recommendations or regulations" trap that it is currently mired.

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Appendix A

Structured Interview Questions

1. Position title and background
2. What is the relationship between OSHA and NFPA?
3. Can OSHA cite fire departments for not complying with NFPA standards? How?
4. Federal Register proposed adopting NFPA for emergency responses (2008?). Status?
5. Has a FD ever been cited by OSHA for not complying with NFPA?
6. NIOSH consistently recommends NFPA 1500 and other standards, how does this impact OSHA?
7. How does the General Duty Clause come into play? What is the regulation number of the general duty clause?
8. Trained to recognized industry standards if no regulation exists – how does this apply?
9. Can and how does 10 CFR 851 – Department of Energy Worker Safety impact fire department?
10. How do NIOSH recommendations factor into enforcement? Can a department be cited for not implementing a NIOSH recommendation?
11. Cal-OSHA Citations (Labor Code 6317) - How has AB1127 impacted the fire service?
12. Other thoughts, recommendations for research, or contacts?

Appendix B
NFPA Standards Adopted by the Department of Homeland Security

- NFPA 472, S*tandard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents;*
- NFPA 473, *Standard for Competencies for EMS Personnel Responding to Hazardous Materials/Weapons of Mass Destruction Incidents;*
- NFPA 1000, *Standard for Fire Service Professional Qualifications Accreditation and Certification Systems*;
- NFPA 1001, *Standard for Fire Fighter Professional Qualifications;*
- NFPA 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications*;
- NFPA 1006, *Standard for Rescue Technician Professional Qualifications;*
- NFPA 1021, *Standard for Fire Officer Professional Qualifications;*
- NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*;
- NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*;
- NFPA 1901, *Standard for Automotive Fire Apparatus*;
- NFPA 1906, *Standard for Wildland Fire Apparatus*;
- NFPA 1912, *Standard for Fire Apparatus Refurbishing*;
- NFPA 1936, *Standard on Powered Rescue Tools*;
- NFPA 1600, *Standard on Disaster/Emergency Management and Business Continuity Programs*;
- NFPA 1851, *Standard on Selection, Care and Maintenance of Structural Fire Fighting Protective Ensembles*;

- NFPA 1852: *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus (SCBA)*;
- NFPA 1951, *Standard on Protective Ensembles for Technical Rescue Operations*;
- NFPA 1971, *Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*;
- NFPA 1975, *Standard on Station/Work Uniforms for Fire and Emergency Services*;
- NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services*;
- NFPA 1982 *Standard on Personal Alert Safety Systems (PASS)*
- NFPA 1991, *Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies*;
- NFPA 1992, *Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies*;
- NFPA 1994, *Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents*;
- NFPA 1999, *Standard on Protective Clothing for Emergency Medical Operations*;
- NFPA 2112, *Standard on Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire; and*
- NFPA 2113, *Standard on Selection, Care, Use, and Maintenance of Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire*

Appendix C

NIOSH Recommended NFPA Standards

NFPA 1001 - *Standard for Fire Fighter Professional Qualifications*

NFPA 1021 - *Standard for Fire Officer Professional Qualifications*

NFPA 1201 - *Standard for Providing Emergency Services to the Public*

NFPA 1403 - *Standard on Live Fire Training Evolutions*

NFPA 1404 - *Standard for Fire Service Respiratory Protection Training*

NFPA 1451 - *Standard for a Fire Service Vehicle Operations Training Program*

NFPA 1500 - *Standard on Fire Department Occupational Safety and Health Program*

NFPA 1582 - *Standard on Comprehensive Occupational Medical Program for Fire Departments*

NFPA 1583 - *Standard on Health-Related Fitness Programs for Fire Department Members*

NFPA 1584 - *Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises*

NFPA 1901 - *Standard for Automotive Fire Apparatus*

NFPA 1975 - *Standard on Station/Work Uniforms for Emergency Services*