

Running Head: Air Force Space Command Wildland and Urban Interface Threat

Organizing, Training and Equipping Air Force Space Command Installations

To Meet the Wildland and Urban Interface Threat

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Certification Statement

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expression, or writings of another.

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Abstract

Several Air Force Space Command Fire Emergency Services organizations provided wildland fire protection services on their respective installations. The wildland fire threats varied from prairie-type grasslands to mountainous terrain with scrub oak to the Manzanita-covered, hilly terrain common in southern California. The challenge was to ensure that these Air Force Space Command installations had sufficient staffing, the appropriate levels of training and certification and the proper equipment to meet these threats. The problem was that there was no definitive Air Force guidance establishing an all-encompassing program to meet the wildland and urban interface problems faced by these installations. The purpose of this research is to identify who is best suited to receive manpower for wild land and urban interface issues, who should receive the required training to meet this threat and what process can be identified to ensure that the teams are properly equipped. To identify the most viable options, this research needed to determine (a) who was responsible for wildland and urban interface management; (b) who was responsible for combating both wildland and urban interface fires; (c) what training standards that needed to be met, and (d) what was the most economical process to properly staff and equip these teams. By using the descriptive research method, this research provided a clear path to properly organizing, training and equipping Fire Emergency Services organizations to meet these threats. Use of interviews, regulatory guidance reviews, planning documents and equipment allowance standards clearly pointed a way ahead for appropriate policy development. Recommendations included developing appropriate funding avenues to organize, train and equip fire fighting teams for wildland management and fire fighting, and urban interface management, and to develop a common process to pay for outside agency wildland fire fighting support services.

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Organizing, Training and Equipping Air Force Space Command Installations to Meet the
Wildland and Urban Interface Threat

In December 1977, the fire chief and one assistant chief of operations from the Vandenberg Air Force Base (AFB) fire department, the Vandenberg installation commander, and a dozer operator from the Vandenberg Natural Resources flight were killed when the Honda Canyon wildland fire overran their positions. While they were properly equipped and trained, questions remain to this day about whether an adequate organizational structure existed to support this type of operation (Valencia, J. , n.d.). Vandenberg AFB is an Air Force Space Command base.

Air Force installations were very similar in nature to medium-sized communities with airports. One significant difference was that the airports on Air Force installations frequently handled high-performance aircraft that carried bombs, rockets, missiles and bullets. However, compressed within the confines of each installation you would typically find office space, business occupancies, places of public assembly, dining facilities, residential occupancies and dormitories much like those found in many other towns across America. Similarly, the Air Force had the responsibility of being good stewards of the environment within the confines of their installation (Department of the Air Force, 2004). This responsibility carried over when an event on an installation spilled over to an area off the installation (Department of the Air Force, 2007a).

Establishing appropriate policy and guidance to organize, train and equip fire fighting units at some Air Force Space Command installations to meet the wildland or urban interface threat was necessary to provide for the health and safety of the personnel, facilities and mission

of these installations (Department of the Air Force, 2008). The problem was that there was no definitive Air Force guidance establishing an all-encompassing program to meet the wildland and urban interface problems faced by these installations. While there was limited guidance that split responsibilities across two or more organizations, there was no definitive guidance on how to ensure that an all-encompassing program was established (Department of the Air Force, 2008). It is important to note that not all Air Force installations have either a wildland or urban interface threat, but for those that do, consistent policy and guidance is imperative. Even following the tragic loss of four personnel in the wildland fire incident at Vandenberg AFB, CA in December 1977, the Air Force continued to avoid establishing a solid program. The purpose of this research was to identify definitive guidance issues for establishing an all-encompassing program to meet the wildland and urban interface problems.

In 2008, the Air Force completed Program Budget Decision 720, which directed the transformation of Air Force Fire Emergency Services organizations (Troyer, D. August 2008). Part of this report mandated a reorganization of fire emergency services organizations, and reduced available staffing in the process. One result of this action was a revisit and redefinition of Air Force Fire Emergency Services core responsibilities (Troyer, D. August 2008). Wildland and urban interface fire fighting on Air Force installations was limited to a few locations, and Air Force departments relied heavily on mutual aid. Similarly the Natural Resources flights on Air Force installations were actively conducting prescribed burns to control excess vegetation, helping to ensure that uncontrolled growth did not encroach on built-up areas (Department of the Air Force, 2004). These actions on the part of the Natural Resources flights provided a necessary buffer zone reducing concern on the part of the installation leadership.

Further complicating the issue, Air Force Instruction 32-2001 identified wildland fire fighting as a responsibility of the Fire Emergency Services flight yet provided no guidance on how to staff or equip these teams (Department of the Air Force, 2008). Similarly, Air Force Instruction 32-10140 established funding guidance for Fire Emergency Services flights at Air Force installations covering structural, airfield rescue and fire fighting, hazardous materials and confined space response, but did not provide an avenue for funding wildland fire fighting (Department of the Air Force, 2010a). Finally, no provisions existed for wildland trucks in Allowance Source Codes, those documents used to identify criteria for authorizing equipment and vehicles necessary to meet a mission requirement. Without these fundamental support documents, fire emergency services organizations on Air Force Space Command installations were struggling to properly appropriate funds to support the wildland or urban interface fire fighting mission specific to their installation.

There are very tight controls on how Air Force units can appropriate and expend funds (Department of the Air Force, 2005). If a vehicle authorization does not exist in an Allowance Source Code, an Air Force unit cannot legally expend funds to purchase that vehicle (Department of the Air Force, 2005). Unfortunately, there was a loophole in the appropriation guidance contained in Air Force Instruction 32-7064 that allowed for the purchase of vehicles and equipment using funds from timber sales (Department of the Air Force, 2004). The disadvantage to this funding method was there was no method for sustaining or replacing these types of purchases (Department of the Air Force, 2001). During those years when timber sales fell below expectations, the wildland fire fighting mission continued unabated. If Air Force vehicle authorization and acquisition practices were followed, sustainment and replacement became part of the normal Air Force budgeting process, relieving the local installation of the

responsibility to provide operations funds for vehicle support (Department of the Air Force, 2001).

Recognizing that the Fire Emergency Services core mission statements did not include wildland fire fighting, fire fighting remained the responsibility of the Fire Emergency Services flight at Air Force installations (Department of the Air Force, 2008). Providing for the proper organization, training and equipping of Fire Emergency Services flights was the responsibility of the owning Major Air Command (Department of the Air Force, 2008). Establishing consistent policy and guidance across the Air Force would help ensure appropriate organizing, training and equipping to meet the wildland or urban interface threat at Air Force Space Command installations.

Background and Significance

To standardize the response capability of emergency response agencies across America, President Bush signed Homeland Security Presidential Directive 5, on February 28, 2003. This document established guidance for organizing responses to domestic incidents, whether they are terrorist related, major disasters, or other emergencies (Homeland Security Presidential Directive 5, 2003). From this document rose the National Incident Management System, the National Response Framework, and the adoption of a standardized Incident Command System (Homeland Security Presidential Directive 5, 2003). Homeland Security Presidential Directive 5 defined the roles of federal agencies in emergency response, and all federal agencies and departments were required to comply (Homeland Security Presidential Directive 5, 2003). Further solidifying the adaptation of the concepts contained in Homeland Security Presidential Directive 5, on November 29, 2005, then Secretary of Defense Donald Rumsfeld signed a policy memo

directing the Department of Defense to "...implement procedures consistent with NIMS and ICS" (D.H. Rumsfeld, personal communication, November 29, 2005).

Public Law 104-113, Section 12 (a)(3) states that "...Federal agencies utilize standards adopted or recognized by the Federal Government and to coordinate the use by Federal agencies of private sector standards, emphasizing where possible the use of standards developed by private, consensus organizations" (National Technology Transfer and Advancement Act, 1995). Other Code of Federal Regulations outlined similar requirements, with only very specific military exemptions defined and outlined in 29 CFR § 1960.2(i) (Basic Program Elements for Federal Employees OSHA, 1980). Department of Defense Instruction 6055.6, paragraph 6, required Department of Defense fire departments "Comply with the relevant standards promulgated by the Department of Labor-Occupational Safety and Health Administration, National Fire Protection Association (NFPA) National Fire Codes..." (Department of Defense, 2006).

The Air Force organizational structure was fairly clear and straightforward. Headquarters Air Force was at the top of the Air Force organization structure (Department of the Air Force, 2011b). A Major Air Command, situated directly under Headquarters Air Force, was comprised of multiple installations having a specific role or geographic area of responsibility, and generally commanded by a four-star General (Department of the Air Force, 2011b). Air Force Space Command, a Major Air Command, was responsible for America's Spacelift, Satellite and Cyber missions. A Major Air Command had the responsibility to organize, train and equip installations within that command (Department of the Air Force, 2004). Organize, train and equip generally meant the responsibility to provide sufficient staffing, training and equipment to ensure the

mission of the installation could be met without encountering unnecessary impediments (Department of the Air Force, 2011b).

Directly below the Major Air Command lay the Numbered Air Force. Air Force Space Command had two Numbered Air Forces, one responsible for Space Lift and Satellites (14th Air Force) and one responsible for the Cyber mission (24th Air Force), both commanded by General officers (Department of the Air Force, 2011b). Within each Numbered Air Force were individual installations, and on each installation resides a wing (Department of the Air Force, 2011b). An Air Force wing, usually commanded by a Colonel, was designed to fill a specific mission at a specific base. Typically, within a wing were a headquarters and four groups; a mission support group, a maintenance group, an operations group, and a medical group (Department of the Air Force, 2011b). Each group was further sub-divided into squadrons, with each squadron having a more specific role or mission, very similar to a task force. Within these squadrons were individual flights, with the flights having very targeted roles similar to a strike team (Department of the Air Force, 2011b). Fire Emergency Services flights resided within Civil Engineer squadrons on each Air Force installation and were structured similar to our civilian counterparts (Department of the Air Force, 2004). Air Force Instruction 32-7064 stated that Fire Emergency Services flights at each installation had responsibility "...to provide fire prevention and protection, fire fighting, rescue, and Hazardous Materials (HazMat) response capabilities to prevent or minimize injury, loss of life, and damage to property and the environment." (Department of the Air Force, 2004)

According to Department of the Air Force, 2004, the Natural Resources flight, also a part of Civil Engineers, was responsible "...to sustain, restore, and modernize natural infrastructure to support mission capability" (Department of the Air Force, 2004, p.6). Those broad

responsibilities included establishing a Wildland Fire Management Policy for those installations that have a wildland threat. This wild fire management plan was to include critical information such as wildland fire history, critical fuel factors, mission impact considerations and other similar areas (Department of the Air Force, 2004). Natural resources flights conduct prescribed burns on approximately 110,000 acres per year on Air Force Installations (D. Burkett, personal communication, 2008).

The wildland or urban interface threat varied between Air Force Space Command bases. Vandenberg Air Force Base (AFB) near Santa Maria, California was over 98,000 acres, much of which was undeveloped with broad expanses of various fuels (Department of the Air Force, 2011c). On the opposite end of the spectrum, Schriever AFB near Colorado Springs was only 4300 acres with open expanses of grasslands (Department of the Air Force, 2011a). Cheyenne Mountain Air Force Station, also near Colorado Springs, had a significant urban interface threat of scrub oak that, if burning, could cut off access to this critical installation (Department of the Air Force, 2007b). Each of these installations played a critical role in our national defense, and an uncontrolled wild fire could threaten mission capability. Due to the varied wildland and urban interface threats, sufficient latitude had to be provided to ensure that adequate capability was available locally.

In calendar year 2010, Air Force Space Command Fire Emergency Services flights responded to 63 wildland fires. Several were extended operations requiring extensive mutual aid to include air support. A few threatened mission critical structures including those critical to continued space lift capability (Department of the Air Force, 2010b). The Bear Creek wildland fire at Vandenberg AFB, CA in 2010 caused over \$1.6 million in damages, not to mention the

nearly \$7 million in additional associated costs due to a delayed rocket launch (Department of the Air Force, 2010b).

Incident command during multi-agency responses at Air Force installations was the responsibility of Fire Emergency Services flights (Department of the Air Force, 2007). With this additional responsibility, it was imperative that the appropriate level of training was provided. Further compounding the issue, oftentimes wildland fires on Air Force installations involved mutual aid, which in-turn required trained incident commanders familiar with the unified command structure and processes (Department of the Air Force, 2007).

The Command Fire Chief for Air Force Space Command was responsible to ensure all 580-plus firefighters at each of the twelve Fire Emergency Services flights were properly organized, trained and equipped to meet the various threats faced by a fire department (Department of the Air Force, 2008). As the command Subject Matter Expert, Air Force Instruction 32-2001 states that the person filling this position "...serves as the senior FES advisor to senior leaders and is the spokesperson for the command at forums where FES is an issue. The Command Fire Chief is delegated authority to manage the command's FES program." (Department of the Air Force, 2008, p. 6).

This research provided a comprehensive review of existing laws, guidance, decisions, etc., to overcome existing conflicts and provide a way ahead for properly organizing, training and equipping Air Force Space Command installations to meet their respective wildland or urban interface threat. This research relates to the fifth United States Fire Administration's operational objective which is to respond appropriately in a timely manner to emerging issues. Additionally, this research relates to promoting risk reduction during emergency scene operations and exercises.

Literature Review

A comprehensive literature review was conducted on the wildland and urban interface subject with an eye towards both public and military references. Of particular interest was that no study or literature was located refuting the need for an effective wildland and urban interface fire fighting program. Reviewed literature included the Federal Appropriations Law guide, applicable public laws, Department of Defense Instructions, Air Force Instructions, the National Fire Protection Association research website, the National Fire Academy Learning Resource Center, personal communications with peers and other interested persons across the Air Force, and from other sources pertinent to the purpose of this research.

To avoid potential security classification issues, adequate measures were taken to ensure there was no compromise of classified information. The literature review consisted of research and review of unclassified documents only. Additional efforts were taken to ensure there were no violations of the Freedom of Information Act during this review. Of significant note, this research was unable to find a single reference relieving the Air Force from providing wildland fire fighting on Air Force installations.

In 1995, the five principle Federal land management agencies responsible for our nation's public lands and forests came together and published joint guidance specifically aimed at wildland and wildland fire management (Bureau of Land Management, 1995). While the Department of Defense did not participate, the report specifically stated "...the Department of Defense and other Federal entities also manage a significant amount of wildland and may choose to adopt the fire management strategies and policies contained in this report" (Bureau of Land Management, 1995, p. 1). This landmark document established nine guiding principles for

developing sound wildland and wildland fire management plans and practices (Bureau of Land Management, 1995). This document was revised in 2003 and again in 2009. The 2009 revision altered the policy regarding two kinds of wildland fire; "...planned ignitions (prescribed fire), and unplanned ignitions (wildfire) by revising the "Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy" and rescinding the "3 Kinds of Wildland Fire" Memorandum (2003)" (NWCG Letter, 2009).

In early 2008, the Headquarters Air Force Environmental flight again identified the disconnect in responsibilities and recommended a team be formed to develop definitive guidance for wildland fire fighting on Air Force installations (D. Burkett, personal communication, 2008). This document specifically identified issues with the methods used to fund vehicle and equipment purchases in that funds from timber sales provided the funding source. Unfortunately, without the specific authorizations for these vehicles and equipment, sustainment and replacement would become the responsibility of the using organization (Department of the Air Force, 2005).

The National Technology Transfer and Advancement Act of 1995, Section 12 (a)(3) required that Federal agencies use standards adopted or recognized by the Federal Government and required the use by Federal agencies of private sector standards, emphasizing where possible the use of standards developed by private, consensus organizations (National Technology Transfer and Advancement Act, 1995). The NFPA standards clearly fall under the above definition and have been widely recognized and adopted for use in Department of Defense (Department of Defense, 2006).

Mr. Stan Rogers, Air Force Space Command Natural Resources Program Manager, expressed concern about the lack of definitive policy and guidance for organizing, training and

equipping wildland firefighters on Air Force installations (S. Rogers, personal communication, 2011). One of his specific concerns was that "there was no designated office with primary responsibility for issuing policy and guidance, planning, programming, and budgeting for appropriated Operations & Maintenance funds for wildland fire management" (S. Rogers, personal communication, 2011). He also stated that "installation functions must work with several organizations including Fire Emergency Services, CE Operations, and Natural Resources to secure adequate funding and equipment" resulting in varying levels of capability across installations. Lastly, he was concerned that "wildland firefighter training and qualifications were not adequately managed above the installation level" which resulted in lack of visibility and inability for the Air Force to leverage resources within a region or nationally for large-scale incidents" (S. Rogers, personal communication, 2011).

An additional concern regarding funding came to light through a personal communication from Mr. Kevin Porteck. There apparently is no method for installations to reimburse outside agencies that respond to requests for assistance in combating wildland fires on installations (K. Porteck, personal communications, 2011). The discussion centered around the fact that Department of Defense assets were used to combat wildland fires off-installation and that there should be some method for consideration that would eventually provide a "net due" price to the Department of Defense for civilian assistance rendered to installations (K. Porteck, personal communications, 2011).

While public laws required compliance with national consensus standards, the Department of Defense also required compliance with these standards starting with Department of Defense Instruction 6055.6 (Department of Defense, 2006). This direction was followed throughout lower level guidance such as Air Force Instruction 32-2001 (Department of the Air

Force, 2008). AFI 32-2001 specifically referenced NFPA Std. 1051, *Wildland Firefighter Professional Qualifications*, which clearly outlined certifications and qualifications required for members that respond and combat wildland fires (Department of the Air Force, 2008). The National Fire Protection Association (NFPA) produced two additional national consensus standards directly related to wildland and urban interface management and firefighting. NFPA Standard 1143, *Standard for Wildfire Management* outlines the best practices in wildland fire management through mitigation, prevention, preparation and suppression; and NFPA Standard 1144, *Standard for Reducing Structure Ignition Hazards from Wildland Fire*, addressed basic criteria for planning development in areas that may be threatened by wildfires.

Air Force Instruction 32-2001 addressed not only the mission of Air Force Fire Emergency Services flights, but also addressed the requirements for wildland firefighter certifications (Department of the Air Force, 2008). This reference placed the responsibility for determining the number and types of certifications required to meet the installation threat squarely on the shoulders of the installation fire chief. It further indicates that the Wildland Fire Management Plan "...may assist in determining required suppression resources to respond to installation wildfire hazards" (Department of the Air Force, 2008, pg. 14).

Air Force Instruction 32-7064 not only referenced compliance with NFPA Std. 1051, but also NFPA Std. 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications* (Department of the Air Force, 2004). Furthermore, this instruction also stated that:

The purpose of the installation Wildland Fire Management Plan is to reduce wildfire potential, protect and enhance valuable natural resources, and implement ecosystem management goals and objectives on AF installations. The WFMP will directly support

the AF mission and be consistent with installation emergency operations plans (Department of the Air Force, 2004, pg. 40).

It then goes further to establish goals and objectives, an organizational structure, and other objectives consistent with the National Wildfire Coordinating Group standards.

Each Air Force Space Command installation was asked to supply a copy of their Wildfire Management Plan. Air Force Instruction 32-7064 required a Wildfire Management Plan on Air force installations only if a valid wildland fire threat existed on that installation (Department of the Air Force, 2004). Of the twelve Air Force Space Command Fire Emergency Services flights, five identified valid wildland fire fighting requirements.

Jack Cohen, a noted forest researcher, wrote that the wildland urban interface is not new at all (Cohen, 2008). His examples went back as far as the Peshtigo fire in 1871 through history up to the 2007 Angora fire that destroyed 245 homes. He then goes on to state that "...given an extreme wildfire, the home ignition zone principally determines the potential for a WUI fire disaster" (Cohen, 2008, p. 24).

Stewart, Radeloff and Hammer (2005) found that vegetation on many military installations clearly fall within the areas defined as a significant wildland urban interface (Stewart, S., Radeloff, V., Hammer, R., 2005). And in the case of Cheyenne Mountain, the problem identified in their Wildfire Management Plan as housing encroachment without an adequate clear zone threatened access to this critical installation (Department of the Air Force, 2007b).

A test search and review of available Allowance Source Codes revealed no authorizations for wildland fire fighting vehicles. Air Force Instruction 24-301 addressed how to establish special vehicle allowances and authorizations (Department of the Air Force, 2001) This is a

critical component to ensuring proper vehicles are authorized and available to support wildland management and fire fighting efforts (Department of the Air Force, 2008).

During the literature review, a controversial subject related to funding wildland fire fighting was uncovered. Air Force Instruction 32-7064 requires the Natural Resources flight to develop interagency support and mutual aid agreements (Department of the Air Force, 2004). However, in a series of personal communications, it was discovered that there was no clear funding avenue for payment of services rendered (K. Porteck, personal communication, 2011).

Procedures

The research questions were formulated following an examination of the purpose and problem statements. This process allowed for more accurate and relevant information as it related to the Air Force. The wealth of publicly available information and research in the private sector was especially helpful in measuring established community standards.

Literature Research

This phase began with a review of known sources and then was expanded to search for additional literature by conducting searches through both online and Air Force-centric search engines. The availability of non- Department of Defense sources covering this subject was quite extensive. To keep this project unclassified, special efforts were taken to ensure all supporting documentation, literature and data came from unclassified sources, and only unclassified source documents were included in the review.

It is important to recognize that all Department of Defense agencies' authority, policy, guidance and governance are deeply rooted in public law. Similarly, there is a hierarchy to Service specific policy and guidance. The highest level of guidance is public law followed by Department of Defense Instructions, Air Force Policy Directives, Air Force Instructions and then

Air Force Manuals. Through guidance provided in various directives, both the Department of Defense and the Air Force recognized NFPA standards as compliance guidance unless there was a conflict with existing fiscal law (Department of Defense, (2006). In some instances, the Air Force would issue Technical Implementation Guides for an NFPA standard to ensure they were implemented in accordance with Air Force principles and practices (Department of the Air Force, 2008). A Technical Implementation Guide explained specific interpretations or exceptions to a particular standard.

There were a number of non-military research papers and references, including Executive Fire Officer Program Applied Research Projects, available that all seemed to point in the same general direction as the Department of Defense and Air Force directives. These were particularly helpful in determining that the problem was not specifically limited to the Department of Defense or the Air Force.

Personal Observations

While working on the project, it became increasingly difficult to disregard the author's thirty-eight years of Department of Defense firefighting experience. As part of this experience, his participation as a member of the Air Force Fire Protection Council, a group of peers that recommended and developed policies and practices for the Air Force fire protection career field, came into play.

Interviews

An interview was conducted with Mr. Stan Rogers, the Air Force Space Command Natural Resources lead who had extensive experience in both leading Major Air Command Natural Resource programs and understanding and working with the administrative processes in

the Air Force. Mr. Rogers responsibilities extended across all Air Force Space Command installations. At the time of the interview, he had decades of experience in this particular field.

Limitations

Limitations encountered in the course of a research project can significantly impact the results. Great care was taken in an effort to avoid prejudicing the outcome. Keeping this project unclassified did not hinder the development of realistic conclusions and recommendations.

Results

Research Question 1: Who is responsible for wildland and urban interface management?

Air Force Policy Directive 32-70 states “The Air Force will conduct its activities according to national environmental policy” (Department of the Air Force, 1994, p. 1). Air Force Instruction 32-7064 implements Air Force Policy Directive 32-70 (Department of the Air Force, 2004). As part of establishing an environmental policy, Air Force Instruction 32-7064 identified the purpose of a wildfire management plan as “...to reduce wildfire potential, protect and enhance valuable natural resources, and implement ecosystem management goals and objectives on AF installations” (Department of Air Force, 2004, p. 40). It went on to direct that the Wildfire Management Plan would directly support the Air Force mission and be consistent with emergency operations plans (Department of the Air Force, 2004). The goals and objectives for the Wildfire Management Plan were identified as:

describing the organizational structure, establishing interagency mutual aid agreements, smoke management and air quality, safety and emergency operations, risk assessment/decision analysis processes, wildland fire history, natural and cultural

resources considerations, mission impact, wildland fuel factors, monitoring requirements, and public relations (Department of the Air Force, 2004, p. 41).

AFI 32-2001, *Fire Emergency Services Program* states that the mission of Air Force Fire Emergency Services is to "...provide fire prevention and protection, fire fighting, rescue, and Hazardous Materials (HazMat) response capabilities to prevent or minimize injury, loss of life, and damage to property and the environment (Department of the Air Force, 2008, p. 8). The Scope of Services is described as "Firefighters respond to emergency events on AF or Joint Base installations that poses risk to personnel or property and employ management actions within the limits of available resources. These include natural or man-made incidents requiring fire suppression..." (Department of the Air Force, 2008, p. 8).

Air Force Instruction 32-7064 clearly established the environmental program while Air Force Instruction 32-2001 clearly established the fire emergency services program for Air Force installations. Clearly the responsibility for wildland and urban interface management is with the Environmental Flight.

Research Question 2: Who is responsible for combating both wildland and urban interface fires? Air Force Instruction 32-2001 established the fire emergency services program at Air Force installations (Department of the Air Force, 2008). However, Air Force Instruction 32-7064 also lists qualification standards for environmental employees so they may participate in combating wildland and urban interface fires during prescribed burns (Department of the Air Force, 2004). In clarifying roles and responsibilities, Air Force Instruction 32-2001 provided qualification standards for firefighters when firefighters were required to "...combat wildland fires beyond the incipient stages..." (Department of the Air Force, 2008, p. 13). Staffing for Air Force fire emergency services flights was typically insufficient to conduct anything beyond

incipient wildland fire fighting (Department of the Air Force, 2008). This staffing challenge was also recognized in Air Force Instruction 32-7064 in that the environmental flight was tasked with establishing interagency support and mutual aid agreements (Department of the Air Force, 2004). Air Force Instruction 10-2501 implemented Homeland Security Presidential Directive 5 and established the Air Force installation fire chief as the incident commander for all multi-agency responses (Department of the Air Force, 2007a). Under the umbrella of these three directives, while fire fighting actions for prescribed burns were the responsibility of the environmental flight, fires that extended beyond the incipient stages were the responsibility of the Fire Emergency Services flight, to include incident command.

Research Question 3: What training standards need to be met? Air Force Instruction 32-2001 stated that all Air Force firefighters "...will be certified according to DoD 6055.06-M, *DoD Fire & Emergency Services Certification System, (FESCS)*" (Department of the Air Force, 2008, p. 18). Department of Defense 6055.06-M, in establishing the Department of Defense firefighter certification system, followed the recommendations of various NFPA qualification standards (Department of Defense, 2010).

Focusing on the training standards required for wildland firefighting, Air Force Instruction 32-2001 additionally stated:

When firefighters are required to combat wildland fire fighting beyond the incipient stages, training will be provided to meet NFPA Std. 1051, *Wildland Firefighter Professional Qualifications*, certification standards and may also be required to meet additional National Wildland Coordinating Group (NWCG) Wildland Fire Qualification Subsystem Guide (PMS 310-1/NFES 1414) qualifications (Department of the Air Force, 2008, p. 14).

These same wildland firefighter training standards were mirrored in Air Force Instruction 32-7064 for environmental employees (Department of the Air Force, 2004). Air Force Instruction 32-7064 further required, “Personnel mobilized to participate in wildland fire management activities on federal properties not under DoD jurisdiction, either through mutual aid agreement or other means, must be certified for the expected level of involvement under NWCG standards” (Department of the Air Force, 2004, p. 39). It is clear that not only must Air Force firefighters and employees meet certain qualification standards, but those coming on the installation for the purposes of wildland fire management needed to meet the same standards.

Therefore, it is clear the Air Force had established training qualifications and standards for all responders expected to participate in wildland fire fighting activities.

Research Question 4: What is the most economical process to properly staff and equip these teams? Staffing and equipping the wildland firefighting teams presents an entirely different set of challenges than the training and responsibility pieces of this research.

Air Force Instruction 32-10140 established the basic guidelines for funding fire emergency services (Department of the Air Force, 2010a). While specifically outlining various fire fighting functions and processes, it further stated that “For guidance on funding of Fire Protection Operations on unimproved lands (wild/forest fires), refer to AFI 32-7064, *Integrated Natural Resources Management*. AFI 32-7064 outlined different funding scenarios for wild/forest fires” (Department of the Air Force, 2010a, p. 11). Air Force Instruction 32-7064, paragraph 12.5.13.2., stated, “Wildfire suppression, prescribed burning and other wildland fire management activities to support training, range use, munitions testing and evaluation, or other mission activity will be supported by the responsible activity through direct funding or reimbursement” (Department of the Air Force, 2004, p. 42). Mr. Stan Rogers explained that the

intent of this paragraph was that the activity responsible for a particular range was also responsible for providing funding for wildland fire firefighting on the range (S. Rogers, personal communication, 2011). Unfortunately, Air Force Instruction 32-7064 contained no further definitive guidance on funding processes for wildland fire fighting (Department of the Air Force, 2004).

Staffing wildland fire teams was addressed in both Air Force Instruction 32-2001 and Air Force Instruction 32-7064. Air Force Instruction 32-2001 stated, “Manpower authorizations determined by using Air Force Manpower Standard (AFMS) 44EF, *Fire Emergency Services Manpower Standard* are based on fire ground capabilities. The number of authorizations is predicated on managing one major FES event at a time.” (Department of the Air Force, 2008, p. 20). However, since wildland fire fighting goes beyond the normal Air Force Fire Emergency Services mission, Air Force Instruction 32-7064 anticipated the need for interagency support and mutual aid agreements, levying the requirement for establishing these agreements on the Environmental Flight (Department of the Air Force, 2004). Much like a structural or aircraft fire, the staffing required to successfully combat a wildland fire was dependent on the scope of the fire.

A thorough text search and review of existing Allowance Source Codes revealed no authorizations for wildland fire trucks. Air Force Instruction 24-301 states: “Allowance Standards 019 through 032 prescribe the maximum allowances (not authorizations) to accomplish organizational and functional missions. Establish special allowances to meet unusual mission requirements when properly justified” (Department of the Air Force, 2001, p. 45). Without this completing this critical support piece, funds cannot be properly appropriated to purchase, sustain or replace vehicles (Department of the Air Force, 2001).

Discussion

It was very clear that the five principal Federal agencies responsible for the nation's public lands and forests were taking a pro-active approach to managing and using wildland fire to maximize opportunity in controlling fuels. Similarly, through the recognition that the Department of Defense managed large tracts of open land with wildfire potential, this joint effort invited the Department of Defense to adopt the same or similar management policies.

Both Department of Defense and Air Force Instructions outline responsibility for providing wildland fire fighting on Air Force installations. While on the surface the responsibility seemed to be split across two functional areas, once an in-depth review was complete, it became apparent that the responsibility was really split between wildland management in Natural Resources and wildland fire fighting in Fire Emergency Services. Air Force Instruction 32-7064 levied overall responsibility to Natural Resources as the wildland management piece is really a natural and cultural resources responsibility (Department of the Air Force, 2004). Air Force Instruction 32-2001 levied fire fighting responsibility to the Fire Emergency Services flight (Department of the Air Force, 2008). This research showed that despite the seeming split of responsibilities, it was clear the Air Force intended to provide both a quality natural and cultural resources program (Department of the Air Force, 2004) and a fire emergency services program that provided a full range of fire fighting and emergency response services (Department of the Air Force, 2008). It was also readily apparent that several Air Force Space Command installations had valid wildland fire fighting missions. The Wildland Fire Management Plans provided clearly articulated the problems faced at those installations. Development of these plans was a joint responsibility of Natural Resources and Fire Emergency Services and clearly demonstrated the team approach and resources necessary to meet this type

of threat. In the case of Vandenberg, the vast expanses of volatile vegetation drove the installation to maintain very close cooperative agreements with off-base agencies to better gain the necessary advantage when a wildland fire starts (Department of the Air Force, 2011c).

During the literature review, two sources were discovered identifying qualification and training standards for wildland fire fighting, and no references were discovered disputing the need for adhering to these qualification standards. The National Fire Protection Association produced national consensus standards that clearly outlined the qualification standards for wildland fire fighting which aligned with the National Wildland Coordinating Group. The Air Force directives for both Natural Resources and Fire Emergency Services stipulated training and qualification compliance with both the National Fire Protection Association standards and the National Wildland Coordinating Group requirements. Requiring the appropriate qualifications, certifications and training is consistent with Department of Defense policy and guidance contained in Department of Defense 6055.6-M (Department of Defense, 2010).

Unfortunately, there was no clear approach to providing appropriated funds to equip wildland fire fighting teams. Air Force Instruction 32-10140 discussed funding avenues available to support various Fire Emergency Services programs, but specifically excluded funding avenues to support wildland firefighting (Department of the Air Force, 2010a). Conversely, Air Force Instruction 32-7064 directed the Natural Resources flight to develop funding avenues to support various wildland management activities, but only discussed funding wildland fire fighting in support of range activities (Department of the Air Force, 2004). This instruction specifically excluded discussing funding support for areas on an installation other than a range. Further complicating the issue was the personal communications of Kevin Porteck discussing the difficulties Air Force installations were encountering when attempting to pay

outside agencies that assisted in combating wildland fires on Air Force installations (K. Porteck, personal communication, 2011). Finally, the lack of wildland fire truck authorizations hindered the proper appropriation of funds to purchase, sustain and replace these necessary assets.

Recommendations

Since the Department of Defense had directed adoption of national consensus standards, commercial practices, etc., and since the Air Force is part of the Department of Defense, there was little doubt the Air Force was compelled to comply with these standards and commercial practices. Proper management of our natural and cultural resources is critically important so that our children and our children's children have unfettered access to these areas. Additionally, the proper management of these resources helps ensure our environment remains stable and secure affords protection to our homes and in some instances, helps ensure our national security. The Department of Defense manages large tracts of open land, so it too must have well established programs in place for these processes.

Responsibility for the management of wildland was the responsibility of the Natural Resources flight and wildland fire fighting responsibility resided with Fire Emergency Services. These two areas of responsibility were appropriately spread across two agencies with the necessary expertise to perform their respective missions. As the current guidance was written, these two flights were already aligned within the same squadron so working together should be a seamless process.

Since the Fire Emergency Services flight is responsible for wildland fire firefighting, the Air Force should consider revising Air Force Instruction 32-10140 to provide an appropriate funding mechanism. Recognizing that Federal agencies must be good stewards of taxpayer

dollars, the use of interagency agreements and mutual aid agreements to supplement fire fighting capability should be continued. This action will help prevent additional staffing, equipping and training for seasonal employees and will capitalize on outside resources. Additionally, the Air Force also needs to identify a mechanism to allow for payment to outside agencies when those services are provided. Similarly, the Air Force needs a common method of billing when providing wildland fire fighting services off-installation. Unfortunately, none of the Air Force Instructions addressed the issue of funding wildland fire fighting on areas other than ranges; this issue needs to be properly addressed.

Establishing the appropriate allowances for wildland fire trucks in Allowance Source Code 019 would help ensure that appropriate procedures are used to purchase, sustain and replace these critical assets. The allowances should be focused on those installations that have a validated wildland fire threat identified in an established Wildland Fire Management Plan. By establishing these allowances, the cyclic budgeting process can be used to ensure these assets are available on installations with a valid threat, and the process for sustainment and replacement can also be ensured.

Since these recommendations impact several organizations within the Air Force and potentially other Federal agencies, I recommend establishing a cross-functional team to address these issues and develop clear processes moving forward. While the problem especially exists in Air Force Space Command, it is beyond the command's authority to change processes and procedures at the Air Force level. It is clear that a wildland fire threat exists on several Air Force Space Command installations, and there is potential that the threat exists on other installations in other Major Air Commands, so an Air Force approach should produce the best product to correct these deficiencies.

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