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**MILITARY FIRST RESPONSE:
LESSONS LEARNED FROM HURRICANE KATRINA**

by

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Abstract

On August 29, 2005, Hurricane Katrina battered the central Gulf Coast near New Orleans, Louisiana. Over a twelve day period, some 72,000 men and women in uniform assisted federal, state, and local authorities in recovery efforts. Besides the multitude of federal and state issues regarding cooperation and coordination between the Federal Emergency Management Agency (FEMA), DHS, State, and local authorities, lessons from Katrina relief operations were also learned within our military. Mr. Paul McHale, the Assistant Secretary of Defense for Homeland Security, noted in his testimony to the Congressional Committee on Armed Services the need to: improve our ability to obtain timely and accurate assessment of damaged areas immediately after an event, examine ways to achieve effective coordination and unity of effort when multiple federal agencies converge on an affected area, enhance our ability to communicate with first responders on the ground, integrate fully both Active Duty and Reserve Components into pre-event and on-scene operational planning for catastrophic events, and re-examine the role of the DoD in responding to a catastrophic event.

Although the Air Force and Air National Guard provided an invaluable, life-saving service, there is still room for improvement. This thesis explores military involvement in domestic disaster response with particular emphasis placed on Hurricane Katrina relief operations. The analysis investigates how and when our military forces get involved in disaster response, lessons-learned from Hurricane Katrina, steps necessary for a quicker response and methods to provide information to first responders more quickly. In particular, the latter part of the thesis focuses on airborne intelligence assets, their contributions to disaster response, and a

comprehensive look at what the Air Force needs to do to improve response to future disaster relief operations.

Introduction

With a few individual exceptions, the Pentagon's preparations for this cataclysmic storm in the days before landfall were slow and unsure. Situational awareness was poor, and the Pentagon was hesitant to move necessary assets unless they were requested. Our military is superb at planning for different threat situations, but it appears that they did not do much planning in advance of Katrina to anticipate the challenges of an incident of national significance.¹

—Joseph Lieberman

Hurricane Katrina was the largest physical disaster this nation has suffered in modern history. The hurricane formed in late August during the 2005 hurricane season and caused devastation along much of the north-central Gulf Coast of the United States. The storm wreaked physical damage along its path, flooded the city of New Orleans, killed over 1,300 people, and became the most destructive natural disaster in American history.² Federal disaster declarations blanketed over 93,000 square miles of the United States, an area almost as large as Great Britain and left an estimated five million people without power.³ Furthermore, the combination of high winds, heavy rainfall, and storm surge led to the failure of the earthen levees that separate New Orleans from surrounding lakes resulting in parts of the city under 20 feet of water.

Natural disasters like Hurricane Katrina are uncommon. The devastation created by the storm was immense and spread across multiple states on the Gulf Coast. For most natural disasters, leadership of the affected region is managed and directed at the lowest level. Thus,

¹ "Military Role in Katrina Response Seemed Cobbled Together," *US Fed News Service, Including US State News* 2006, <http://www.proquest.com/>.

² House. *Improving the National Response to Catastrophic Disaster*, statement by Dr. Jay Carafano on September 15, 2005, 109th Cong., 1st sess. available online at <http://www.heritage.org/Research/HomelandDefense/tst091505a.cfm>.

³ President of the United States. Executive Office of Homeland Security. Assistant to the President for Homeland Security and Counterterrorism, *The Federal Response to Hurricane Katrina : Lessons Learned* (Washington, D.C.: White House, 2006), 1.

local responders are normally the first ones on the scene directing relief efforts. When local capabilities are exhausted, state emergency management officials, at the direction of the Governor, are normally available to provide prompt augmentation capability. Only after these local and state capabilities are exhausted will requests for federal assistance be submitted through a formal request process.

Hurricane Katrina was different from many other hurricanes and natural disasters in that it was almost immediately a regional *catastrophic* disaster. According to the National Response Plan, a catastrophic incident is, “any natural or manmade incident, including terrorism, that results in extraordinary levels of mass casualties, damage, or disruption severely affecting the population, infrastructure, environment, economy, national morale, and/or government functions. It almost immediately exceeds resources normally available to state, local, tribal, and private-sector authorities in the impacted area; significantly disrupts governmental operations and emergency services to such an extent that national security could be threatened.”⁴ In Katrina’s case, local and state authorities were indeed immediately overwhelmed. Without the ability to successfully communicate or conduct damage assessments, state and local leaders lost the ability to prioritize tasks and render proper assistance to stranded survivors in a timely fashion. Additionally, requests for much-needed federal assistance were delayed due to confusion and poor coordination between leaders at all levels of the response.

The subject of most public consternation following the storm was that of the perceived slow federal response and accompanying speed of rescue and relief operations. Shortly after the levees were breached, the federal government received scathing criticism of its response from many public figures regarding its immediate response efforts. The mayor of New Orleans, Ray Nagin, said in a radio conference with a local news station, “You mean to tell me that in a place

⁴ Dept. of Homeland Security, *National Response Plan* (Washington D.C.: Dept. of Homeland Security, 2004), 63.

where you probably have thousands of people that have died and thousands more that are dying every day, that we can't figure out a way to authorize the resources that we need? Come on man. Get off your asses and let's do something... I don't know whose problem it is. I don't know whether it's the governor's problem. I don't know whether it's the president's problem, but somebody needs to get their ass on a plane and sit down, and figure this out right now.”⁵ Public frustration and criticism continued to mount as the national media broadcast countless images of New Orleans' citizens stranded on roof tops in flooded areas begging for rescue and relief in the days following Katrina's landfall.

However, behind the public view, the United States military prepared for Katrina's arrival even before the storm made landfall. United States Northern Command (NORTHCOM) began its alert and coordination procedures days before Katrina's landfall. Coordination continued after the storm hit and on August 30, NORTHCOM established Joint Task Force Katrina (JTF-Katrina) at Camp Shelby, Mississippi under Lieutenant General Russel Honore. JTF-Katrina's mission was clear: to coordinate the Department of Defense (DoD) efforts in support of the Federal Emergency Management Agency (FEMA). Over a twelve day period, some 72,000 men and women in uniform assisted federal, state, and local authorities in recovery efforts – the largest in-country use of federal forces since the Civil War.⁶

Besides search and rescue, transportation, logistics, and evacuation, the military utilized airborne capabilities including fixed and rotary-wing aircraft, space-based imagery, aerial night-vision capabilities, and around-the-clock surveillance to provide assistance to the relief effort. For the first time, Air Force, Air National Guard (ANG), and Department of Homeland Security (DHS) intelligence, surveillance, and reconnaissance (ISR) assets including the U-2 Dragon

⁵ CNN.com, "Mayor to Feds: 'Get Off Your Asses,'" <http://www.cnn.com/2005/US/09/02/katrina.nagin/index.html>.

⁶ "McHale: Disaster Response Time Expected to Improve," *National Defense* 90, no. 630 (2006).

Lady, C-130 Scathe View, RC-26 Metro III, OC-135B, and Remotely Operated Video Enhanced Receiver (ROVER) were collectively called to domestic contingency service to provide imagery and full-motion video to military decision-makers and on-scene response providers. The vast majority of the imagery and information was fed directly to the NORTHCOM Joint Forces Air Component Commander (JFACC) for command situational awareness, not on-scene providers.⁷ Although an invaluable role in its response, limitations were found and lessons were learned.

Besides the multitude of federal and state issues regarding cooperation and coordination between the Federal Emergency Management Agency (FEMA), DHS, state, and local authorities, multiple lessons were also learned within our military. In particular, Mr. Paul McHale, the Assistant Secretary of Defense for Homeland Security, noted in his testimony to the Congressional Committee on Armed Services the need to: improve the ability to obtain timely and accurate assessment of damaged areas immediately after an event, examine ways to achieve effective coordination and unity of effort when multiple federal agencies converge on an affected area, enhance the ability to communicate with first responders on the ground, integrate fully both Active Duty and Reserve Components into pre-event and on-scene operational planning for catastrophic events, and re-examine the role of the DoD in responding to a catastrophic event.⁸

Although the Air Force and Air National Guard provided an invaluable, life-saving service, there is still room for improvement. The remainder of this thesis will explore military involvement in domestic disaster response with particular emphasis placed on Hurricane Katrina relief operations. This analysis will explore how and when our military forces get involved in disaster response, lessons-learned from Hurricane Katrina, steps necessary for a quicker

⁷ AF/A9, "Katrina/Rita by the Numbers: Air Force Support to Hurricane Katrina/Rita Relief Operations," (report prepared by Headquarters United States Air Force A9, 2006).

⁸ House. *Statement of Paul McHale, Assistant Secretary of Defense for Homeland Defense, House of Representatives, One Hundred Ninth Congress, First Session*, November 9, 2005.

response, and methods to provide information to first responders quicker. In particular, the latter part of the thesis will focus on airborne intelligence assets, their contributions to disaster response, and a comprehensive look at what the Air Force needs to do to improve response to disaster relief operations in the future. The theory is simple; through better training, improved communications, and a detailed National Response Plan and organizational structure, our airborne ISR assets can provide *real-time* imagery and full-motion video to on-scene providers, command and control authorities, and relief operators at all levels throughout the chain of command.

The Military Role in Disaster Response

How the “Normal” Disaster System Works

The United States has a tiered disaster response system. As mentioned previously, after disaster strikes, local leaders request state resources when they have exhausted their own. In turn, states ask the federal government for aid when their means are exceeded. Under normal circumstances, state and local governments have the necessary resources to initially respond to the crisis while federal resources are requested, gathered, and deployed. Although this process sounds very simple and expeditious, it was a major factor in the slow federal response during the initial days after Hurricane Katrina’s landfall. Ultimately the military did show up, but not fast enough for many critics of the federal response and the accompanying support. To better understand how military response can be improved in future disasters, it is first essential to comprehend the process of how and when the military gets involved.

The National Incident Management System (NIMS) and the National Response Plan (NRP)

After the tragic terrorist attacks on America in 2001, President Bush issued Presidential Directive (HSPD)-5 directing, “the ability of the United States to manage domestic incidents by

establishing a single comprehensive national incident management system”.⁹ HSPD-5 designated the Secretary of Homeland Security as the principal federal official for domestic incidents of national significance and eventually resulted in the establishment of the NIMS and the implementation of the NRP. The NIMS was established as a national guideline for integrating “existing best practices into a consistent, nationwide approach to domestic incident management that is applicable at all jurisdictional levels and across functional disciplines in an all-hazards context.”¹⁰ NIMS called for a systems approach to integrate existing processes and methods into a unified national framework for incident management. Built on the guidelines of the NIMS, the NRP provides:

...a consistent doctrinal framework for incident management at all jurisdictional levels, regardless of the cause, size, or complexity of the incident. The activation of the NRP and its coordinating structures and protocols – either partially or fully – for specific Incidents of National Significance provides mechanism for the coordination and implementation of a wide variety of incident management and emergency assistance activities. Included in these activities is Federal support to state, local, and tribal authorities; interaction with nongovernmental, private, donor, and private-sector organizations; and the coordinated, direct exercise of Federal authorities, when appropriate.¹¹

Again, these plans are built upon the preface that local and state resources, such as police, fire, medical, and public works, are generally the first responders. The National Response Plan allows it to provide assistance upon request from a governor when it becomes clear that state capabilities will be insufficient or have been exceeded or exhausted.¹²

One of the best suited responders that state governors possess and have the power to order is their respective state National Guard. The NRP recognizes that the governor is the

⁹ George W. Bush, "Homeland Security Presidential Directive/Hspd-5," (2003), <http://www.whitehouse.gov/news/releases/2003/02/20030228-9.html>

¹⁰ Department of Homeland Security, *National Incident Management System*, March 1, 2004, 3.

¹¹ Dept. of Homeland Security, *National Response Plan*. i.

¹² *Ibid.*, 8.

Commander In Chief (CINC) for state National Guard assets in a Title 32 status.¹³ This is especially appropriate because the National Guard routinely supports incident management operations and is a valuable resource in that it shares virtually all of the same operational characteristics and equipment as active duty military forces. Additionally, state Guardsmen are almost always available for immediate response, have long-established relationships with the communities, and possess knowledge, awareness, and expertise of the local area and conditions not normally afforded to federal responders.

However, the NRP does not alleviate the Department of Defense (DoD) and active duty (Title 10) forces from involvement in an Incident of National Significance (INS).¹⁴ The NRP recognizes that the DoD has significant resources that may be available to support the federal response to an INS and details the duties of the Secretary of Defense to authorize, “Defense Support of Civil Authorities (DSCA) for domestic incidents as directed by the President or when consistent with military readiness operations and appropriate under the circumstances of the law. The Secretary of Defense retains command of military forces under DSCA, as with all other situations and operations.”¹⁵ The processes by which these active duty military forces are brought to a region are traditionally lengthy and burdensome. When these forces arrive, they usually don’t have detailed local knowledge and are prohibited by law from performing law enforcement functions. In addition, there are two distinct military chains of command – one for federal troops and one for National Guard troops under state command.¹⁶

¹³ Ibid., 9. Title 32 refers to United States Code, Title 32 National Guard. State governors employ Title 32 soldiers but the federal government, through the DOD, provides the funding. Title 32 soldiers are also exempt from the Posse Comitatus Act and have law enforcement authority.

¹⁴ Title 10 forces refers to United States Code, Title 10 Armed Forces. Title 10 generally refers to the Active Component or Federal military forces or assets.

¹⁵ Dept. of Homeland Security, *National Response Plan*. 10.

¹⁶ House. *A Failure of Initiative : Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*, 201.

During Hurricane Katrina, over 50,000 National Guardsmen responded to the crisis under Title 32 activation. JTF-Katrina also activated and had operational control of an additional 20,000 Title 10 federal troops. The dual chain of command between federal and state activated troops resulted in a failure of unity of effort between the different forces. In fact, there were numerous instances of National Guard and federal troops assigned to the same operating area without knowledge of each others' assignments. Overall lack of a common unity of effort resulted in the inability to gain situational awareness and organize and execute the disaster response. Problems caused by the lack of unity of effort included a lack of timely damage assessments, communications problems, uncoordinated search and rescue efforts, unexpected logistics responsibilities, and force integration issues.¹⁷

Military Support to Domestic Emergencies

The military's primary contribution to the NRP is through Defense Support of Civil Authorities (DSCA) — also known as civil support. The basic DoD definition of civil support states, "Defense support of civil authorities, often referred to as civil support, is DoD support, including federal military forces, the Department's career civilian and contractor personnel, and DoD agency and component assets, for domestic emergencies and for designated law enforcement and other activities. The Department of Defense allows defense support of civil authorities when directed to do so by the President or Secretary of Defense."¹⁸ The NRP provides, "When requested, and upon approval of the Secretary of Defense, the Department of Defense provides Defense Support of Civil Authorities during domestic incidents." DoD's role in the NRP is contingent upon an official request for assistance (RFA) from another federal

¹⁷ CDR Katherine Mayer et al., "Joint Command, Control, and Communications Issues That Impacted Unity of Effort in Hurricane Katrina Disaster Relief Operations," (Joint Forces Staff College, 2006), 7.

¹⁸ Department of Defense, "*Strategy for Homeland Defense and Civil Support*," ed. Department of Defense (2005). 6.

agency, and upon approval by the Secretary of Defense. During Hurricane Katrina, the DoD process for receiving, approving, and executing missions was called bureaucratic by Louisiana officials and may have frustrated attempts by State and FEMA officials for federal assistance.¹⁹

The military also has several directives that provide basic planning and response guidelines for assistance to civilian authorities during domestic disaster response, but they are not specific in nature and provide only general direction and guidelines for military commanders involved in disaster response. These directives include: *Defense Directive 3025.1, Military Support to Civil Authorities (MSCA)*; *Defense Directive 3025.15, Military Assistance to Civil Authorities*; and the *Strategy for Homeland Defense and Civil Support*.

Defense Directives 3025.1 and 3025.15 are dated documents that provide only basic direction to the armed forces. However, the directives found use in Katrina relief operations because they authorize DoD and local military commanders the ability to, without prior approval, conduct necessary actions to “save lives, prevent human suffering, or mitigate great property damage under imminently serious conditions.”²⁰ These directives also give commanders the authority to provide “immediate response” to verbal requests from civil authorities. Some of the approved immediate response actions include rescue and evacuation, medical treatment of casualties, safeguarding of public health, restoration of essential public services, damage assessment, and interim emergency communications among others.²¹ Several military commanders involved in Hurricane Katrina invoked the “saving lives-prevent suffering”

¹⁹ House. *A Failure of Initiative : Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*, 205.

²⁰ Department of Defense, "Military Support to Civil Authorities (MSCA)," ed. Department of Defense (1993). 7.

²¹ *Ibid.* 8.

clause noted in these directives to accomplish missions that civilian relief agencies were either unable or unwilling to accomplish.²²

Finally, the *Strategy for Homeland Defense and Civil Support* is even more general in nature and is focused mainly on the Homeland Defense mission. In the end, the strategy provides practically no insight or specific guidelines for DoD's plans for civil support. Of particular interest in the strategy is the call to provide current and actionable intelligence, surveillance, and reconnaissance capabilities to address probable homeland defense threats. However, as discovered in Hurricane Katrina relief operations, ISR should not be relegated or contained only to homeland defense, but also to civil support operations.

NORTHCOM

After September 11, 2001, the DoD created the United States Northern Command, a new military Combatant Command focused on the continental United States. NORTHCOM's area of responsibility includes the continental United States, Alaska, and all air, land, and sea approaches within 500 miles of its borders. Its mission is to "conduct operations to deter, prevent, and defeat threats and aggression aimed at the United States, its territories, and interests within the assigned area of responsibility and, as directed by the President or Secretary of Defense, provide defense support of civil authorities including incident management operations."²³ When directed by the President or Secretary of Defense to support DSCA, NORTHCOM provides whatever augmentation may be requested from state authorities and the Federal Emergency Management Agency (under the DHS) to develop initial command and

²² Major Maximo A. Moore III, "Rescuing DoD from Too Much of a Good Thing: The Wrong Kind of Disaster Response," (School of Advanced Military Studies, United States Army Command and Staff General Staff College, 2006).

²³ United States Northern Command. "About Us. US Northern Command Vision. Our Mission.," http://www.northcom.mil/about_us/about_us.htm.

control, logistical, or other required capabilities that might be available to respond to the disaster effort.

NORTHCOM activated JTF-Katrina on August 30 under Army Lt Gen Russel Honore, 1st U.S. Army Commander, to coordinate DoD active-duty support for disaster relief efforts in the hurricane's aftermath. By the next day, the DoD began medical airlift operations and the USS Bataan medical ship arrived off the coast of New Orleans. As the situation within the city deteriorated, the DoD sent in additional federal active duty ground forces, including the 82nd Airborne and 1st Cavalry, which arrived on September 5. In all, the DoD had 49,200 National Guard members, 17,417 active duty personnel, 20 ships, 360 helicopters, and 93 fixed-wing aircraft in the JTF-Katrina area of operations by September 7.²⁴ Simultaneously, National Guard personnel flowing into Louisiana, Mississippi, Alabama, and Florida were under the control of their respective governors. The guardsmen remained under their respective governor's control enabling them to provide law-enforcement support in the regions – something Posse Comitatus prohibits active-duty forces from doing in the United States.

Post evaluations of NORTHCOM's response after Hurricane Katrina resulted in the Congressional finding that, "Northern Command does not have adequate insight into state response capabilities or adequate interface with governors, which contributed to a lack of mutual understanding and trust during the Katrina response."²⁵ Again, Title 10 and Title 32 issues played out in Louisiana which may have slowed the active duty military response and contributed to tension in the state-federal relationship. Additionally, the finding found that failure of the DoD, governors, and other state officials to actively participate in joint planning for

²⁴ United States Northern Command, "U.S. Northern Command Support to Hurricane Katrina Disaster Relief," <http://www.northcom.mil/pdfs/303C9335-D38A-7DBA-4DF6EE51466C94BF.pdf>.

²⁵ House. *A Failure of Initiative : Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*, 221.

emergencies, both natural and man-made, that occurred within NORTHCOM's area of responsibility contributed to the tension. There was too few "civilian authorities" in DoD's military assistance to civilian authority planning. As NORTHCOM bemoaned it did not have adequate insight into the states, the Gulf governors also lacked insight into the operations of NORTHCOM²⁶

Where We Go From Here

A Greater Military Role?

We cannot expect the Marines to swoop in with MREs every time a storm hits. We train soldiers to fight wars; you can't kill a storm.²⁷

—Tom Davis, Chairman, U.S. Representatives

Immediately after Hurricane Katrina struck, criticism began about the perceived slow federal response. However, response timelines from other similar natural disasters show that the military arrived at least at typical speed. What made Hurricane Katrina so much more different than other disasters was the sheer devastation created by the storm. As noted previously in this report, Hurricane Katrina was a *catastrophic* storm that impacted multiple states. State and local resources were destroyed or exhausted immediately which led to difficulty determining or communicating their needs.

In the aftermath of Katrina, President Bush asked Congress to consider a greater role for the military in response to natural disasters.²⁸ Debate followed and many speculated that the DoD should have lead responsibility in future catastrophic incidents due to the unique resources that the military can provide. Hurricane Katrina demonstrated the necessary capabilities exclusive to the military like a large workforce, reliable security, logistics, robust

²⁶ Ibid., 222.

²⁷ House, "*Hurricane Katrina: Preparedness and Response*," (2005).

²⁸ Dennis M. Thompson, "Command and Control of Homeland Security Response to Catastrophic Incidents", USAWC Strategy Research Project (Carlisle Barracks, Pa.: U.S. Army War College, 2006), 8.

communications networks, and medical support. Additionally, some argued a DoD lead role would provide better unity of command and command and control under a NORTHCOM unfettered by the bureaucracy of other federal agencies that was so prevalent during the Katrina response. However sensible this argument appears, there are many reasons why the DoD should not become the lead response agency to domestic disasters.

First, under the current law, state governors have command and control of response to disasters in their states. Federal assistance is assumed to be primarily a supporting role, and from the view of many state representatives, the military is meant to prepare for and win the nation's wars, not to serve as a first responder to state emergencies. On October 13, 2005, the National Governors Association issued a statement reasserting their authority when they said, "Governors are responsible for the safety and welfare of their citizens and are in the best position to coordinate all resources to prepare for, respond to, and recover from disasters."²⁹ The hesitancy to federalize state troops and apparent threat to state's rights was demonstrated during Katrina relief operations when Louisiana Governor Blanco declined the President's offer to place Lt Gen Honore under the joint command of NORTHCOM and Governor Blanco. Governor Blanco declined this offer, leaving Honore and NORTHCOM in charge of federal active troops and Blanco in charge of the Louisiana State National Guard. In the State Governors' opinions, they had confidence in state troops and saw no need for an added layer of command.³⁰ Others have surmised, "the prospect of a Republican president seizing control of a situation from a Democratic governor who explicitly resisted federalizing the military was deemed politically unpalatable."³¹

²⁹ House, "Hurricane Katrina: Preparedness and Response," (2005).

³⁰ House. *A Failure of Initiative : Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*, 222.

³¹ Katherine Peters, "Katrina Response: Calling in the Cavalry," *Government Executive* 37, no. 17 (2005).

For all of the benefits that could go along with a lead DoD role, there is also the undeniable fact that federal military commanders sitting at NORTHCOM lack the familiarity and detailed knowledge of local conditions to successfully direct first response efforts. Furthermore, there are valid concerns over whether the federal military can take on this additional mission when it is already encumbered with nearly all of its forces focused on the war on terrorism and operations in Iraq, Afghanistan, and other areas of the world.

Better Coordination

Rather than debating DoD lead for disaster response, the DoD, along with DHS and the States, must focus on improved coordination and communications necessary to successfully respond to future catastrophic disasters. In his speech to the nation on September 16, 2005, President Bush stated:

Many of the men and women of the Coast Guard, the Federal Emergency Management Agency, the United States military, the National Guard, Homeland Security, and state and local governments performed skillfully under the worst conditions. Yet the system, at every level of government, was not well coordinated and was overwhelmed in the first few days.³²

The lack of coordination at the federal headquarters level reflected confusing organizational structures in the field and was at the heart of the problems post Katrina.³³

The basis for disaster response is spelled out in the National Response Plan. However, as written, the NRP does not provide adequate guidance for regional incidents involving more than one state. Additionally, it lacks specific guidance as to how the DoD should be used and what resources it should provide in the event of a domestic natural disaster. The current NRP makes little distinction between the military response to smaller, regional disasters and the military

³² Christopher M. Clayton, *National Emergency Preparedness and Response : Improving for Incidents of National Significance*, USAWC Strategy Research Project (Carlisle Barracks, Pa.: U.S. Army War College), 4.

³³ President of the United States. Executive Office of Homeland Security. Assistant to the President for Homeland Security and Counterterrorism, *The Federal Response to Hurricane Katrina : Lessons Learned* (Washington, D.C.: White House, 2006), 53.

response to large-scale, catastrophic natural disasters. Given the substantial role the military is expected to play in a catastrophe - no other federal agency brings as many resources to bear - this lack of detailed planning represents a critical oversight.³⁴ The NRP must be rewritten with additional clarity to ensure an unambiguous chain of command with clear lines of authority and better coordination procedures, especially when military forces are involved.

Additionally, internal to the DoD and military, Defense Directives *3025.1, Military Support to Civil Authorities (MSCA)*, and *3025.15, Military Assistance to Civil Authorities* are obsolete, out of date directives that need to be updated concurrent with the rewritten NRP. The current DoD directives do not account for the full range of tasks and missions the military may need to provide in the event of a catastrophe and have little provision for integrating Title 10 and Title 32 component forces. They do not address the crucial questions of force integration, command and control, and division of tasks between National Guard resources under state control and federal resources under U.S. Northern Command's control. Moreover, the plans do not establish the necessary time frames for the response.³⁵ Revision of these DoD documents will ensure a means for integrating future crisis response and provide total situational awareness of all forces – those being deployed, those on the ground, missions already resourced, and those that still need to be completed.

Finally, to ensure that policies and practices are understood by all component levels of the response, better exercises between the DoD, DHS, states, and local responders must be initiated. According to the Committee on Armed Services, one underlying reason that insufficient plans existed at all levels of the Hurricane Katrina response is that disaster plans had

³⁴ Government Accountability Office. "Hurricane Katrina: Better Plans and Exercises Needed to Guide the Military's Response to Catastrophic Natural Disasters," in *GAO-06-808T* (2006), 10.

³⁵ *Ibid.*, 11.

not been tested and refined with a robust exercise program.³⁶ As a result, a general lack of understanding existed at all levels within the military, federal, state, and local levels. Admiral Keating, the NORTHCOM commander, based on the experiences of Hurricane Katrina, recognized this shortfall and has already put plans in place for at least five large-scale and thirty smaller-scale exercises each year to test new plans.³⁷ NORTHCOM has also held regular meetings with the National Governors Association, begun collaborative planning and preparation efforts with the adjutants general of all states, and is integrating “defense coordinating officers” into each FEMA region.³⁸ Continued discussion with these leaders along with parallel planning and annual exercises between all component levels – federal, state, and local responders - will result in realistic training opportunities for all agencies in incident management, improved strategic planning for future incidents, clearer lines of authority between the responders, and better communications procedures in future response.

Improved Communications

Finally, of all the major problems noted in this report, perhaps the greatest challenge to the responders of Hurricane Katrina was the lack of survivable, flexible, and interoperable communications. Communications are extremely important during disaster response because without functioning communications systems, first responders and government officials cannot establish unity of effort and command and control, nor can they develop the situational awareness necessary to direct the proper response and recovery efforts. Similarly, without the ability to call for help, citizens are unable to seek emergency assistance, alert responders, or receive updates or instructions from officials. According to the Final Report of the Select

³⁶ Ibid., 11.

³⁷ Christopher M. Clayton, *National Emergency Preparedness and Response : Improving for Incidents of National Significance*, USAWC Strategy Research Project (Carlisle Barracks, Pa.: U.S. Army War College), 11.

³⁸ Sara Wood, "Northern Command Integrating Lessons Learned from Katrina," American Forces Press Service, http://www.defenselink.mil/news/Mar2006/20060314_4485.html.

Bipartisan Committee investigating the preparation and response to Katrina, “Massive communications damage and a failure to adequately plan for alternatives impaired response efforts, command and control, and situational awareness.”³⁹ In particular, interoperability had the biggest effect on communications by limiting command and control, a common operating picture, and the ability of federal, state, and local officials to address problem areas.

Unfortunately, many of the military units involved in the hurricane response were left without the proper communications crucial to the recovery effort. Due to ongoing combat operations in Iraq and Afghanistan, several of the units returning from overseas left their gear in theater for follow-on forces, and what they kept locally was worn out from hard use in the combat zone. Additionally, many of the Guard troops were not issued SINCGARS radios, which are used nearly universally in the Army, making communications with active-duty troops even more difficult. Satellite communications was sparse and talking to civilian emergency responders was a challenge due to incompatible radios.⁴⁰ Those military units that did have sufficient radios found that they were unable to effectively communicate with local first responder organizations such as fire and police due to incompatibility problems. Ultimately, due to the destruction and incompatibility of communications systems in New Orleans and along the Gulf Coast, the National Guard and first responders were forced to rely on paper relays or face-to-face communications to convey critical information between emergency operations and the field.⁴¹

Catastrophic disasters have unpredictable consequences, but losing dependable emergency communications systems should not be one of them. In this technological age of

³⁹ House. *A Failure of Initiative : Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*, 163.

⁴⁰ Les Melnyk, "Katrina Lessons," *Soldiers* 61, no. 6 (2006): 30.

⁴¹ House. *A Failure of Initiative : Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*, 167.

satellite phones, portable cellular relay systems, and mobile military systems capable of connecting military and civilian networks, voice, data, Internet, and video uplinks worldwide, the total loss of communications is unacceptable.⁴² Modern day military units should not have to rely on “runners” to coordinate with state and local officials.

Future response efforts will be dependent on not only the ability to communicate, but also interoperability between counterparts at all component levels of the response. Communications must be reliable, flexible, survivable, and mobile. In this vein, the rewritten NRP suggested earlier in this thesis must demand a national, federally-mandated, common standard for communications used in disaster response. Moreover, because the DoD has a vast array of communications systems, a great deal of experience using them worldwide, and existing avenues for procuring, testing, and fielding communications systems, the military should be tasked to develop this interoperable emergency communications standard. Focus should be on readily available, commercial off the shelf systems that can function in an austere environment. As noted throughout this report, disaster response starts and ultimately ends at the local level. Agencies at the local and state levels must abide by these new standards written in the NRP and plan, program, and budget appropriately so that interoperable communications resources will be available for future incidents of national significance at all levels.

ISR Tools for the First Responders

Preliminary Damage Assessments

During the early stages of an incident of national significance, local and federal officials expend vast amounts of resources conducting damage assessments of the affected areas. These

⁴² “Most State Guard units maintain a Civil Support Team (CST). Each CST has a unified command suite – a mobile communications van that can connect military and civilian radio networks and provide voice, data, Internet, and video uplinks that allow the commander at an incident site to contact anyone he or she needs to talk to, worldwide.” Melnyk, "Katrina Lessons." 30.

preliminary damage assessment (PDA) teams are commonly transported by wheeled vehicle into the affected area to survey the extent of the damage. Team members collect specific data that their particular agency then uses to help allocate resources to the relief effort.⁴³ The NRP indicates that, “based on these teams’ findings, State Governors may request a Presidential declaration of emergency and define the kind of Federal assistance needed.”⁴⁴ One of the lessons learned from Hurricane Andrew in 1992, was that “a community hit by a major disaster that overwhelms its capabilities will need assistance as soon as possible to begin the damage assessment process which will then lay the foundation for appropriate response and recovery efforts”.⁴⁵ Unfortunately, this lesson learned was “lost” on Katrina and many of the damage assessments necessary for recovery efforts did not occur until days after the storm hit.

Preliminary damage assessments are nothing new to the military. In fact, what the NRP calls PDA is essentially the same as military reconnaissance. Reconnaissance is the active gathering of information to provide information to leadership in order to enhance the decision making process. Unfortunately, during Hurricane Katrina, the DoD’s planning did not *initially* call for the use of the military’s reconnaissance assets to conduct preliminary damage assessment. The GAO, in its report on Hurricane Katrina relief efforts, found that, “Because state and local officials were overwhelmed and the military’s extensive reconnaissance capabilities were not effectively leveraged as part of a proactive federal effort to conduct timely, comprehensive damage assessments, the military began organizing and deploying its response without fully understanding the extent of the damage or the required assistance.”⁴⁶ Ultimately,

⁴³ Major Maximo A. Moore III, "Rescuing DoD from Too Much of a Good Thing: The Wrong Kind of Disaster Response," Research report for CGSC (Monograph for SAMS, Ft. Leavenworth, KS), 38.

⁴⁴ Department of Homeland Security, *National Response Plan*, 91.

⁴⁵ House, *Back to the Drawing Board : A First Look at Lessons Learned from Katrina*, 109th Cong., 1st sess., 2005., 170.

⁴⁶ Government Accountability Office. "Hurricane Katrina: Better Plans and Exercises Needed to Guide the Military's Response to Catastrophic Natural Disasters," in *GAO-06-808T* (2006), 7.

military reconnaissance assets did show up on September 3 and throughout the remainder of the relief efforts to enhance situational awareness and aid recovery efforts.⁴⁷ Furthermore, in September 2005, considerable reconnaissance assets were made *immediately* available to assess damage from Hurricane Rita, largely because of the lessons learned from Hurricane Katrina.

Future disasters will require that the military assumes the PDA role in catastrophic situations and complements PDA Teams during other incidents of national significance. The military needs little training to conduct these assessments because it already performs similar missions during combat. Moreover, it is the only federal organization with the organic assets available to carry out this important mission of preliminary damage assessment. In order to ensure that the military is ready for this role, NORTHCOM, in concert with the Joint Forces Component Commander – ISR (JFCC-ISR) and Air Combat Command (ACC) must plan and train for catastrophic domestic response scenarios. Emphasis should be focused on the architecture of command response, the types of platforms utilized, surveillance products that can be utilized by responders, and intelligence distribution methods.

Wide-Area Military Surveillance Assets

After Hurricane Katrina, the U-2S Dragon Lady was called to domestic service for the first time to provide critical wide area imagery intelligence to agencies participating in the relief and rescue efforts. The U-2S is a long range, high altitude strategic reconnaissance aircraft that provides the capability for day and night, all-weather surveillance. The Dragon Lady has the capability to provide electronic intelligence (ELINT), communications intelligence (COMINT), or imagery intelligence (IMINT) to commanders, but it is its IMINT capabilities that make it an invaluable asset for disaster relief operations. Although national systems, such as commercial or

⁴⁷ AF/A9, "Katrina/Rita by the Numbers: Air Force Support to Hurricane Katrina/Rita Relief Operations," (report prepared by Headquarters United States Air Force A9, 2006).

military satellites, could carry out this important mission, the U-2 is best suited for a wide-area, Katrina-type scenario because of its ability to capture a large area while still providing the necessary detail for close analysis. Although extremely useful for wide-area surveillance and often employed for time-sensitive target requirements during combat operations due to COMINT and ELINT system flexibility and responsiveness, the long processing and exploitation times (up to 3 days) for wet film IMINT, lack of streaming video capability, along with high altitude operations preclude optimum use for localized missions such as search and rescue that require continuous imagery contact with individual personnel.

During Katrina relief, the 27th Intelligence Support Squadron (Beale AFB, CA) processed much of the U-2 imagery and uploaded hundreds of images daily to both secure and non-secure military web sites.⁴⁸ In the end, over 2,300 imagery and mapping products were made available for use by authorities to monitor the progress of certain areas as well as examine the extent of destruction of specific structures.⁴⁹ Unfortunately, much of this intelligence did not make its way to first responders in a timely manner. The Air Force still needs to look for better ways to improve the dissemination of U-2 imagery, particularly to those at the “lowest levels” of disaster response. According to Lt Col Michael Hill, Chief of the ACC Intelligence Directorate, “The most valuable lesson we learned from Katrina was to be able to provide timely imagery to civil authorities. Dealing with civil authorities quickly identified the need to support crisis operations at the unclassified level.”⁵⁰ Future dissemination of U-2 imagery must get to the lowest level as quickly as possible. With this in mind, NORTHCOM, ACC, and JFCC-ISR must plan as quickly as possible a dedicated communications architecture capable of providing information to

⁴⁸ George Cloutier, "U-2 Aids in Katrina Relief," Air Force Link, <http://www.af.mil>.

⁴⁹ Mark Haviland, "After Katrina: ACC's Intel Team Applies Lessons Learned," Air Combat Command Public Affairs, <http://www.af.mil>.

⁵⁰ Ibid.

all component levels during disaster response. The end result should be an unclassified, centralized Web-based area to provide U-2 imagery to users with Internet capability along with an alternative to those who don't have access in remote areas.

Although the U-2 is the military's most recognized provider of IMINT, the OC-135 Open Skies also provided wide-area IMINT during Katrina relief operations. The OC-135 is most often used for nuclear proliferation treaty verification and is equipped with a KS-87 framing camera used for low-altitude photography and a KA-91 pan camera to provide a wide sweep at high-altitude.⁵¹ Like the U-2, the OC-135 uses wet optical film and may take up to three days to process, exploit, and digitize. However, unlike the Dragon Lady, processing for OC-135 IMINT is normally conducted at the National Air and Space Intelligence Center (NASIC) at Wright Patterson AFB, OH. As planning progresses for an unclassified, centralized web portal for imagery access, it is imperative that NORTHCOM considers these disparate organizations and locations to assure integration and synchronization of both wide-area IMINT capabilities.

Real-Time Full Motion Video

Perhaps the greatest "weapon" in the military's arsenal for first responders' use is the commercially available Remotely Operated Video Enhanced Receiver. ROVER is a portable "manpack" terminal that provides the capability to receive real-time sensor data via FMV from multiple airborne platforms. These platforms include the MQ-1 Predator, P-3 Orion, AC-130 Gunship, C-130 Scathe View, multiple fighters utilizing the LITENING and SNIPER pods, and various small UAVs (Unmanned Aerial Vehicles) operated throughout all of the armed services. ROVER is currently being used in combat areas around the world to provide tactical ground forces a link to cameras mounted on close air support aircraft and UAV platforms. This link is streamed onto a laptop carried by the ground controller and gives forces the capability to view

⁵¹ Lt Col Bryan Ossolinski, Briefing subject: NORAD-USNORTHCOM ISR Briefing, 4/26/2006.

what the camera sees as it flies inbound for a strike. It enhances command, control, and coordination and ultimately allows the ground controller to assist the pilot in locating the target through a common picture where eyes on the target are required.

In addition to combat applications, ROVER was used successfully during Hurricane Katrina to provide situational awareness, civilian and military force protection, search and rescue, evacuation, surveillance of damage, and hazardous location identification. Airborne platforms including the C-130 Scathe View, AC-130H Gunship, P-3 Orion, RC-26 Metroliner, and Evolution Tactical Unmanned Aerial Vehicle were utilized to provide FMV to a Joint Terminal Air Controller (JTAC) team located in New Orleans. Initial attempts to use the Evolution Tactical UAV and MQ-1 Predator were restricted due to a flight restriction on UAV access to Federal Aviation Administration (FAA) airspace.⁵² Yet, even with these imposed restrictions, the JTACs persisted and provided a “work-around” by duct-taping the small Evolution UAV to the bottom of an UH-60 helicopter to provide streaming video to the ground.

Within 24 hours of storm landfall, ROVER enabled a 20 hour video network feed of continuous surveillance to the 3rd BDE Headquarters, NORTHCOM, and the Pentagon via the Global Broadcast Service (GBS) and the Evolution UAV. But even more important, the use of ROVER during relief operations provided real-time FMV from overhead platforms directly to first responders on the ground via the JTAC team. The real-time FMV stream from ROVER resulted in 36 people rescued, 26 fires located for first responders, 148 people evacuated, nine levee breaks identified, three sewage water line breaks located, 152 pets rescued, and 29 force

⁵² Restrictions were eventually lifted for the MQ-1 and MQ-9 Predator aircraft. A certificate of authorization, issued by the Federal Aviation Administration on May 18, 2006 allows the MQ-1 or MQ-9 to support relief operations by providing video and infrared search and rescue capability within specified flight restrictions. SSgt Amy Robinson. “FAA Authorizes Predators to Seek for Survivors,” *US Fed News Service, Including US State News* (2006), <http://www.proquest.com>.

protection situations monitored.⁵³ The end result, though only one JTAC team and five ROVER receivers were committed to the effort, is indicative of the great tool that ROVER provides to first responders.

ROVER is an extremely valuable capability that can provide real-time quality situational awareness directly to not only first responders on the ground but also leadership in detached operating locations. Operating modes for the receivers are extremely versatile and include C-Band, L-Band, Ku-Band, and S-Band (which is commonly used by local television crews and police departments to provide “eye-in-the-sky” feeds). Over 1,000 receivers have already been produced and delivered to organizations including the Air Force, Army, Marine Corps, Navy, Air National Guard, and other federal organizations. Additionally, ROVER operations were again successfully demonstrated and heralded during the July 2006 NORTHCOM exercise EAGLE RESCUE, a concerted domestic emergency response exercise involving the USAF, Coast Guard, FEMA, and local police and fire department first responders.⁵⁴

The capability that ROVER provides is proven. Future disaster responses will demand its application to provide better situational awareness and command and control at all levels – especially first responders on the ground. Yet, at this time, there are no existing plans to procure ROVER receivers solely for domestic response situations. NORTHCOM, in concert with DHS and State National Guard authorities, must remedy this capability gap and plan for future use of the ROVER capability in disaster response situations. Selected state National Guard Units should be equipped with ROVER receivers, organize dedicated teams for future disaster response situations, and train with other responders at the federal, state, and local levels. These proactive actions will ensure the critical situational awareness and necessary command and

⁵³ Lt Col Gregory Harbin, Briefing on, "Rover Impact on JTF Katrina Recovery Operation," (USCENTAF/A3, 2006).

⁵⁴ Ibid.

control capabilities so crucial during the first days of disaster response are in the hands of first responders immediately after an incident of national significance.

Conclusion

The sheer size and scale of destruction left by Hurricane Katrina was immense. The subsequent levee failures in Louisiana compounded the problem by flooding New Orleans with up to 20 feet of water within the city levee system with no area to drain. The result was thousands of victims either dead or awaiting much needed rescue and relief. Some have surmised that Hurricane Katrina was the “perfect storm” whose destruction won’t be seen again. However, history has revealed that domestic disasters are unpredictable and can strike anywhere, any place, and at any time with little or no notice. It is in this vein that authorities must plan for the next catastrophic domestic crisis, whether caused by earthquakes on the West Coast of the United States, tornadoes in a heavily populated Mid-Western city, or tsunamis in the Pacific Northwest. These scenarios - plus the very real threat of chemical, biological, nuclear, radiological, or high-explosives (CBRNE) release by terrorists that wish to threaten our country’s interests - compel our military to prepare for catastrophic events not only outside, but also within U.S. borders.

The federal military and National Guard response to Hurricane Katrina was both necessary and exceptional. Katrina demonstrated that no other organization maintains the manpower, resources, and capabilities necessary to execute large-scale disaster relief like the military. However, Katrina operations also demonstrated shortcomings within the military that need to be fixed to enhance relief and prevent problems during future responses.

A comprehensive analysis of Hurricane Katrina, the full military response, along with all of the lessons learned is beyond the scope of this thesis. Instead, this report has focused on three

primary topics: DoD involvement in disaster response through the NRP, primary military lessons learned from Katrina, and necessary steps to get information to first providers quicker.

Recommendations for the way-ahead include: a rewrite of the NRP and associated Defense Directives to clarify the military role in regional incidents of national significance; thorough planning and exercises between all component responders to ensure preparation, cooperation, and coordination in future responses; NORTHCOM integration and involvement with DHS and the States through planning and training; and better communications and interoperability standards mandated by the rewritten NRP and led by the DoD (through NORTHCOM).

Hurricane Katrina also demonstrated the exceptional value of military ISR assets for use in disaster relief operations. For the first time, Air Force, ANG, and DHS intelligence, surveillance, and reconnaissance assets were called to domestic contingency service to provide imagery and full-motion video to military decision-makers and on-scene response providers. However, work needs to be done to ensure that the significant intelligence provided by military ISR assets can be disseminated to all levels of the component response in a timely fashion. The military must utilize its extensive ISR capabilities to complement the local and state officials during initial preliminary damage assessments. NORTHCOM (as the functional lead), along with ACC, and JFCC-ISR must plan as quickly as possible a dedicated communications architecture capable of providing imagery intelligence gathered from IMINT providers like the U-2 and OC-135B to all component levels during disaster response through an unclassified, centralized Web-based. Additionally, authorities must utilize the off-the-shelf situational awareness that ROVER provides to ensure first responders are equipped with the latest in FMV capability. NORTHCOM, DHS, and State National Guard leadership must work together to procure, organize, and train selected units for use of the ROVER FMV capability.

Although first response is still inherently a local and state responsibility, Hurricane Katrina has guaranteed that the military must stand ready and will be called to respond during future catastrophic incidents. Proactive actions taken now will ensure the military is better organized, equipped, and trained for immediate action. The end result of these actions will resolve many of the critiques of the military response to Hurricane Katrina, but more importantly, will ensure a quicker response to relieve those in need of relief during future catastrophic incidents of national significance.

GLOSSARY

ACC	Air Combat Command
ANG	Air National Guard
BDE	Brigade
CBRNE	Chemical Biological Radiological Nuclear High Explosive
CINC	Commander in Chief
COMINT	Communications Intelligence
DHS	Department of Homeland Security
DoD	Department of Defense
DSCA	Defense Support of Civil Authorities
ELINT	Electronic Intelligence
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FMV	Full Motion Video
GAO	Government Accounting Office
GBS	Global Broadcast Service
HSPD	Homeland Security Presidential Directive
IMINT	Imagery Intelligence
INS	Incident of National Significance
ISR	Intelligence Surveillance Reconnaissance
JFACC	Joint Forces Air Component Commander
JTAC	Joint Terminal Air Controller
JTF	Joint Task Force
NASIC	National Air and Space Intelligence Center
NIMS	National Incident Management System
NORTHCOM	Northern Command
NRP	National Response Plan
PDA	Preliminary Damage Assessment
RFA	Request for Assistance
ROVER	Remotely Operated Video Enhanced Receiver
UAV	Unmanned Aerial Vehicle

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