ESF-8: PUBLIC HEALTH PREPAREDNESS AND RESPONSE IN FLORIDA

By

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To those who race towards the very things that others fear most

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LIST OF ACRONYMS

AAR	After Action Report
AHCA	(Florida) Agency for Health Care Administration
ALF	Assisted Living Facility
AMB	Ambivalent (EOP Personality Type)
AMI	American Media Incorporated
AOR	Area of Responsibility
BPR	Bureau of Professional Regulation
BRC	Bureau of Radiation Control
CBRNE	Chemical, Biological, Radiation, Nuclear, Energetic
CDC	US Centers for Disease Control and Prevention
CHD	County Health Department
CISM	Critical Incident Stress Management
COG	Continuity of Government
CS	Civil Service
DACS	(Florida) Department of Agriculture and Consumer Services
DCA	(Florida) Department of Community Affairs
DCF	(Florida) Department of Children & Families
DCHAT	Disaster Community Health Assessment Team
DEM	(Florida) Division of Emergency Management
DHHS	US Department of Health and Human Services
DHS	US Department of Homeland Security
DMAT	Disaster Medical Assistance Team
DMORT	Disaster Mortuary Operations Team

DOE	US Department of Energy
DOH	(Florida) Department of Health
DOT	(Florida) Department of Transportation
ECO	Emergency Coordination Officer
EMAC	Emergency Management Assistance Compact
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EPA	US Environmental Protection Agency
ESF	Emergency Support Function
ESF8	Emergency Support Function Eight
EU	European Union
FAMU	Florida Agriculture & Mechanical University
FCDA	Federal Civil Defense Administration
FDLE	Florida Department of Law Enforcement
FEMA	Federal Emergency Management Agency
FEMORS	Florida Emergency Mortuary Operations System
FHP	Florida Highway Patrol
FL	Florida
FMC	Federal Medical Center
HAZMAT	Hazard Materials
HRS	(Florida) Health & Rehabilitative Services
IC	Incident Commander
IMT	Incident Management Team

IND	Indifferent (EOP Personality Type)
LSA	Logistical Staging Area
MAD	Mutually Assured Destruction
MEMA	Mississippi Emergency Management Agency
MSA	Metropolitan Statistical Areas
MSDH	Mississippi State Department of Health
NDMS	National Disaster Medical System
NRC	US Nuclear Regulatory Commission
ODM	US Office of Defense Mobilization
OEO	Office of Emergency Operations
OPHP	Office of Public Health Preparedness
OT	Overhead Team
OVF	Operation Vaccinate Florida
PCR	Polymerase Chain Reaction
PHP	Public Health Preparedness
PIO	Public Information Officers
POD	Point of Dispensing
RDD	Radiological Dissemination Devices
RDSTF	(Florida) Regional Domestic Security Task Forces
RERA	Regional Emergency Response Advisor
RNA	Rapid Needs Assessment
RSS	Receipt, Stage and Store
SARS	Sudden Acute Respiratory Syndrome

SEOC	State Emergency Operations Center
SES	Senior Executive Service
SMRT	State Medical Response Team
SNS	Strategic National Stockpile
SpNS	Special Needs Shelter
TFR	Tallahassee Fire & Rescue Department
UM	Upward Mobile (EOP Personality Type)
UNSCOM	United Nations Special Commission
US	United States
USDA	US Department of Agriculture
USF	University of South Florida
VA	US Department of Veterans Affairs
VMAT	Veterinary Medical Assistance Team
WMD	Weapons of Mass Destruction

TIMELINE OF NOTABLE EVENTS

October 2001	“Amerithrax” Anthrax Attacks
August 2002	DOH begins hiring RERAs and PHP Planners
February 2003	Bioshield 2003
February 2004	Bioshield 2004
August 2004	Hurricane Charley
September 2004	Hurricane Frances
September 2004	Hurricane Ivan
September 2004	Hurricane Jean
July 2005	Hurricane Dennis
August 2005	Hurricane Katrina
September 2005	Hurricane Rita
October 2005	Hurricane Wilma
May 2006	Bioshield 2006
February 2007	Groundhog Day Tornados
March 2008	Sturrock leaves DOH employment
August 2008	Hurricane Gutav
September 2008	Hurricane Hanna
September 2008	Hurricane Ike
May 2009	CDC Utilizes SNS for H1N1 Response

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This work attempts to describe the unusual organizational structure of the Florida Department of Health's Public Health Preparedness and Response Programs. Unlike most other government agencies, the Florida Department of Health is not arranged as a traditional bureaucratic hierarchy. Rather, the Department utilizes structural aspects that may be referred to as organic or networked. According to the Environmental Organizational & Personality (EOP) model of organizational structure, the structure of the Florida Department of Health is logical and predictable based upon its technological and market environments. I will also show how the Department of Health organizational model adapts to challenges and can also serve to bridge the organizational structures of partner agencies at different tiers of government.

Additionally, this document will explain the functional and organizational approaches used by emergency management and public health professionals by telling stories about how specific agencies prepare for, and respond to, a wide range of natural and man-made threats within the State of Florida.

CHAPTER 1
INTRODUCTION

This is a story about people who came together to solve problems of enormous proportions, incredible technical complexity and great psychological stress. Although there are many heroic acts in this story, there are rarely individual heroes or villains. Rather, there are people who were asked to do difficult things and who did them to the best of their abilities. This is also a story about the government agencies that employed these people and the evolution of those agencies and disciplines in which they work. The fields of emergency management and public health have histories of protecting the public. Both fields have seen success and failure. Both fields attempt to conduct their work based on rational tools and concepts, yet both fields are prey to the multiple political and economic climates in which they exist. Despite these similarities, public health and emergency management descend from different traditions and exhibit different cultures and styles of operation. Until recently, each field has also operated separately from the other in the United States. Since September 11, 2001 events have forced these two different disciplines to combine efforts. Together, the unlikely partners have created systems to detect and stop natural disease outbreaks such as avian influenza and sudden acute respiratory syndrome (SARS). The disciplines work to protect the public against terrorists who may try to use pathogens such as anthrax and smallpox or chemical agents such as Sarin, VX or Cyanide. Public health and emergency management have also created alliances to respond to natural disasters including hurricanes, tornadoes and tsunamis.

From September 2002 until March of 2008, I was employed as one of seven Regional Emergency Response Advisors (RERAs) for the Florida Department of Health

(DOH). The position itself was new and its purpose was also fairly new to DOH. While working with other DOH employees and outside public health and emergency management personnel, I became aware of many of the differences between the involved disciplines. I also became aware of differences in the way these government agencies are structured.

Most government agencies are designed as mechanistic hierarchies with clear top-down lines of command and control. Responsibilities are sharply defined between units. Sometimes, the hierarchy will even control with whom a particular employee can and cannot exchange information. Hierarchies are very efficient and there are strong functional reasons why they have dominated the history of government. When the modern Florida DOH was established in 1996 it could have chosen to organize itself as a classical hierarchical government bureaucracy. However, it did not. Instead, DOH organized itself as a hybrid agency: a mixture of hierarchy and network. Rather than mechanistic, resembling a factory or a machine, the agency is organic. In some ways, DOH resembles living organisms and the relationships that occur between organisms in nature. The Department of Health employs over 15,000 people at two separate tiers of government across a large state with two time zones.

Why did DOH choose this organic approach? Because there are political boundaries of government and, yet, there is the need to address problems that do not recognize these boundaries. There are issues of sovereignty between democratically elected governments. There is the desire to be able to separate funding of assets from control of assets. There are many people in different locations that must collaborate. Additionally, there is the need for modern government agencies to change direction

rapidly and reconfigure themselves to best address the unexpected. More pragmatically, there was also specific political and resource baggage that surrounded the creation of the new agency and led it away from more traditional and limited organizational structures.

In this document, I will attempt to explain emergency response within the Florida Department of Health as well as how and why the Department is organized the way that it is. Moreover, I will attempt to educate the reader about the myriad of threats that modern public health and emergency management agencies strive to address. Finally, I hope to shine light upon the activities of dedicated and brave civil servants, people who toil daily to protect the citizens of the United States but are seldom recognized or appreciated.

The people, events and programs described in this document are real. With the exception of a few key public figures, I have changed the names of most of the people. However, the fictitious names in no way diminish the importance of the work that real people do or what they have accomplished. Clearly, I am proud of the Florida Department of Health. I feel that DOH is an important agency. It is an agency that tends to exist in the shadows of government, not by choice but out of habit. Ultimately an organization and its structure can either constrain or empower the people who work for it.

This is a story about those organizations and people.

CHAPTER 2
EVOLUTION OF EMERGENCY MANAGEMENT

> It becomes more or less: Is this your calling or is this your job? Because if it's your job, by that second storm, it was looking mighty nice somewhere else. But, if this was your calling and that fourth hurricane come, the bell rang and you didn't want to be anywhere else but in the middle of helping the citizens of this state.
>
> -Craig Fugate, Former FL Emergency Management Director

The Organization of Emergency Management

When people think of the protection of civilians against disaster, many think of fire departments. Fire fighting does have a long and distinguished history, with the first modern U. S. fire department set up to protect Boston in 1678. However, fire fighting is not emergency management. Although there is some overlap of skills and jurisdiction, emergency management, as a discipline, works at a higher level of organizational abstraction. Emergency management also addresses a wider range of threats, contemplates a greater scale of devastation and coordinates a broader set of resources – fire fighting being only one of them. As a crucial partner to the fields of public health preparedness and emergency management, fire fighters and paramedics will be discussed throughout the document.

A colleague of mine from Orlando was moved to become an emergency manager after watching Tommy Lee Jones portray the fictional emergency manager of Los Angeles in the movie "Volcano." In this movie, the lead character had an action packed job driving through the streets of L.A. from one volcano related incident to another. At each incident, the character personally directed the city's resources against the geological menace that threatened from under every man hole cover. Real emergency managers, including my colleague in Orlando, are a much quieter group of

professionals. Although emergency management is an interesting and even exciting pursuit, its area of activity is centered around a building known as an Emergency Operations Center (EOC) and activities are organized according to a schedule of meetings and briefings. The purpose of emergency management is to provide a location and organizational structure for response to complicated incidents. Some may claim that the term “emergency management” is a misnomer but emergencies can, in fact, be managed even if they cannot be prevented. After the 9/11 attacks, New York Mayor Giuliani was widely regarded as effectively managing the response and recovery operations at the World Trade Center. Subsequently, despite the personnel and resources, the Federal Emergency Management Agency was not seen as effectively managing Hurricane Katrina. Due to the complexity of disaster response, it is sometimes even difficult to decide if the emergency is, or is not, being properly managed. For example, President George W. Bush’s famous compliment to FEMA Director Michael Brown after FEMA’s initial response to Hurricane Katrina: “Brownie, You’re doing a heck of a job.” is only eclipsed in infamy by the banner in the background of Bush’s post-invasion of Iraq speech that read: “Mission Accomplished.” The lesson to be learned is never to declare victory prematurely.

Emergency management serves as the central organization that ties together all aspects of disaster response and recovery. Emergency management activities are carried out at all levels of government and are inherently interagency. For example, larger municipalities in Florida have a city emergency management program that should dovetail with the county emergency management office. All counties within Florida are required by State Statute to have an emergency management office and the discipline,

in Florida, is therefore centered on the county as the basic unit. The State of Florida Division of Emergency Management (DEM) undertakes emergency management programs and operations at the State Level and is, therefore, the counterpart to the Federal Emergency Management Agency (FEMA).

Due to the complexity of managing disasters, interdisciplinary and interagency cooperation are designed into the system. Traditionally, government agencies and private entities that assist with emergency management are organized into Emergency Support Functions (ESFs). The traditional Federal ESFs are listed in Table 2-1.

In addition to the lead agency, each ESF also has a number of supporting agencies that help accomplish missions tasked to that ESF. Despite the array of ESFs, not all disaster related functions are supported by the traditional twelve ESFs. Therefore some states, including Florida, have expanded their ESFs beyond the original twelve. Florida's 2004-2005 ESFs are listed in Table 2-2.

These State Level ESFs are propagated to the counties within the State. However, some counties have chosen to modify the ESFs. For example, some Florida counties have split ESF-8 into ESF-8, Medical Operations and ESF-18, Public Health. The City of Orlando recognizes ESF-18 as Business Continuity, ESF-19 as Damage Assessment and ESF-20 as Government Facilities. Additionally, the original list of ESFs has undergone revision. Florida DEM subsequently introduced ESF-18 as Business Stability and Affairs at the State Level while FEMA introduced ESF-13 as Public Safety and Security, ESF-14 as Long Term Recovery and ESF-15 as External Affairs at the Federal level. What started as standard designations have become muddled.

Despite the slight incompatibilities, the ESF system generally leads to standardization within Emergency Management. Essentially, anyone trained in ESF-8 operations in one location can usually figure out what their responsibilities are in another jurisdiction. Yet, there are other differences. For example, during Hurricane Katrina, it was discovered that although there was overlap between what Florida and Mississippi considered to be ESF-8, there were also differences. Additionally, not all jurisdictions have fully embraced the ESF system. A county may, in fact, organize itself differently but learn to interact with other jurisdictions and levels of government as if it used ESFs. Charades like this can function so long as there is no need for that jurisdiction to conduct serious mutual aid. However, if staff must move between the two systems it can be troublesome.

Another organizational system that is used in connection to emergency management is the Incident Command System (ICS). The Incident Command System is a management system intended to manage incidents in the field and is designed to handle complicated situations and resources from many disciplines and agencies. The roots of ICS are found in the California “Fire Scope” system that was devised to manage large wildfires. The system follows basic management ideas including: functional organization, management by objectives, clear lines of command and control and a defined span of control for each manager. Since ICS is popular as well as logical, and managing twenty ESFs can be complicated, many Emergency Operations Centers (EOCs) are organized using both ICS and ESF concepts. For example, the EOC may divide staff into the ICS standard Planning, Logistics, Operations and Finance sections. The Operations Section may then be divided into a Medical Branch, a Fire and Rescue

Branch and a Law Enforcement Branch. Each Operations Branch will then contain the ESFs that support that branch's functional domain. Both ICS and the ESF system are components of an over arching emergency management architecture known as the National Incident Management System (NIMS) however they have separate histories. NIMS and ICS will be discussed in greater detail later.

An additional organizational concept concerning disaster management involves direction of control. Nationwide, emergency management is conducted at the local level. When the local emergency management agency feels that its needs are beyond its ability, it is expected to ask the state for assistance. When a state feels that its needs exceed its ability, it will ask the Federal government for assistance. Because of the nature of many disasters, it is sometimes difficult to determine when outside assistance is needed. It may happen that an agency will ask for assistance that turns out not to be necessary. More frequently, due to issues of pride and expense, a locality may delay asking for outside assistance which, due to the long logistical time line necessary for outside resources, tends to amplify the initial problem.

Outside assistance is usually thought of as coming from the next higher level of government but emergency managers can also borrow resources from their peers. Within Florida, some resources needed by a particular county may be borrowed from another county within the state. Within the United States, an organization known as the Emergency Management Assistance Compact (EMAC) facilitates emergency management mutual aid between States. These EMAC resources may, or may not, be available more rapidly than Federally supplied resources but they are usually less expensive. Another way of looking at these resource supply structures is that the

County-State-Federal chain is a hierarchical system for acquiring assistance while EMAC provides a network approach to acquiring assistance. During a significant event, both systems are used.

Legislation and Finance

Within Florida, Emergency Managers are granted wide ranging powers as spelled out in Florida State Statute 252. Essentially, DEM is authorized to do what ever needs to be done in order to manage disasters within the State in as efficient manner as possible. In order for the emergency management system to be activated, a series of signals must be formally sent by the governments involved.

At the local level, a county must decide that an emergency exceeds, or is likely to exceed, their ability to reasonably respond. If the county decides that they require assistance they will declare a “Local State of Emergency.” The “Local State of Emergency” declaration allows the county to set aside certain procedural requirements regarding utilization and purchase of resources and may also empower local authorities to extend a curfew or otherwise modify the operation of society. The declaration also serves as a recognized signal to the State Government that this county is requesting outside assistance from the State. The State Level equivalent is known as a “Disaster Declaration.” This declaration allows the same types of activities at the State Level and serves to signal the Federal government that the State requests assistance.

If the Federal Government concurs with the State’s Declaration then the Federal Government will issue either a “Presidential Emergency Declaration” or a “Presidential Major Disaster Declaration.” It is also possible for the President to declare a declaration without a State Declaration, however this is extremely unusual.

Once the Presidential Declaration has been issued, assistance in the form of resources or money can be made available to the state under a variety of categories which may or may not be considered allowable for a particular situation. Additionally, the financial assistance is divided into two temporal phases: an initial 72 hour response phase and a longer term recovery phase. The concept is that in a fast moving event, the state should not be limited by how it can spend money. The response phase funding essentially consists of a grant for a particular amount of money with relatively few strings attached and limited oversight. The recovery phase funding is much more carefully controlled and audited. Typically, during a major disaster, the Federal government will pay 75% of the cost of recovery operations with the state paying for the remaining amount. However, this division of cost can vary and, in extreme cases, the Federal government may choose to pay for 100% of the costs. Because of the more complicated nature of recovery phase funding, total disaster spending may proceed at a rapid pace until the 72 hour deadline approaches, after which, spending slows to a more careful and deliberate rate since everything must be thoroughly documented and justified.

The Development of Civil Defense

The field of emergency management can trace its direct history to organized efforts at civil defense during World War I. Due to the possibility of surprise night attack from sea or air, European cities established blackout regulations. During World War I, the British built on these simple measures and developed anti-aircraft networks. The anti-aircraft systems relied on rudimentary reporting systems to direct military controlled aircraft and ground based guns. Although the weapons were controlled by the military, the observer component was typically staffed by the police and took reports from

citizens. A significant feature of the British air defense system came when Edward Ashmore developed a command center that dispensed with paper reports and depicted the battle space on a symbolic status board organized around a map. This command center is the direct ancestor of modern EOCs. By World War II, the anti-aircraft system had evolved in sophistication and was joined by a Home Defense Guard that was established to protect Britain against invasion. At that point, all units of British civil defense were essentially units under military control.

Civil Defense in the United States evolved along different lines. Due to its size and distance from harm, the United States civil defense efforts were typically organized by civilians. Additionally, the Nation's strong separation of authority between Federal, State and Local levels confounded the issue. In 1916, President Wilson created the Council on National Defense with representatives from the military and major civilian agencies (Krugler, 2006, p. 12). The Council began to encourage states and communities to set up similar councils. The Council also began propaganda campaigns, as well as speaking events, designed to promote national unity and emphasize the importance of participation in the war. However, before much actual planning got underway, WW I was over.

In 1940, Franklin Roosevelt resurrected the Council on National Defense and it, again, began a pro-war public relations campaign. The Council also worked with municipalities to help them solve issues involving housing and infrastructure due to wartime industrial production. Because of concerns that the Council was not providing enough direct technical advisement at the municipal level, Roosevelt created a new Office of Civilian Defense (OCD). The OCD was initially lead by New York Mayor

Fiorello La Guardia in 1941. La Guardia was joined by Roosevelt's wife, Eleanor, four months later. The OCD continued the Council's programs to better train and equip fire fighters in addition to new programs concerning sheltering and emergency notification techniques. Although the purpose of OCD was to provide technical information to communities, it soon began taking on other tasks. Aligned with her social beliefs, Eleanor Roosevelt felt that OCD should focus on social improvement and welfare. One of Roosevelt's projects was to lift the nation's morale by instituting entertainment programs. When it emerged that OCD was holding dance sessions led by Roosevelt's friend, the actress Mayris Chaney, political protest helped lead to the departure of both Roosevelt and La Guardia (Krugler, 2006, p. 13). The next OCD leader, James Landis refocused the agency on technical issues and expanded OCD's activities to training aircraft spotters and search and rescue teams (Krugler, 2006, p. 14). As the war progressed, it became clear that the chance of an attack on the U.S. homeland was growing ever more remote. The OCD ended most of its activities before the actual end of WW II.

After the Allied victory over Germany, Japan and Italy, teams traveled to conduct ground surveys of damage that had previously been recorded from the air. Impressed with the effectiveness of aerial bombardment using both conventional and fission-based nuclear weapons, officials felt the need to do something to improve the survivability of U.S. cities in case of future wars. Although the responsibilities of the old OCD were assigned to a new agency, the National Security Resources Board (NSRB), little civil defense activities took place. During the late 1940s, military and civilian thinkers such as Harold Bull and Ansley Coale advocated the reestablishment of civilian civil defense

programs, creation of additional search and rescue teams, the location of key industries underground, the geographical dispersal of facilities and government offices as well as developing full lines of succession for government officials (Krugler, 2006, p. 22). Meanwhile the Army Corps of Engineer's Lt. Col. David Parker and others authored white papers based on WW II damage survey results and concluded that trying to protect a city such as Washington D.C. in the nuclear age was essentially impossible (Krugler, 2006, p. 23). These beliefs were reinforced by experimental nuclear test shots that exposed different types of construction to the effects of weapons. Although it could be argued that it was possible to build nuclear resistant structures, the prospect of rebuilding the entire country to these standards proved daunting.

During the 1950s and early 1960s, a number of programs advocating shelters were implemented. While it was simply too expensive to construct specialized public shelters, the Federal Government lead an effort to identify buildings nationwide that could be used as emergency shelters. These facilities were placarded and stocked with emergency food, water, medical supplies and radiation detection equipment. Also, homeowners across the country were advised to build family bomb shelters under their homes or yards (Krugler, 2006, pp. 135-137). Despite the appeals and provision of blueprints, few families took up the challenge. Nevertheless, the Federal government did engage in some large scale hardened construction (Cooper & Block, 2006, pp. 45-46). The U.S. military centers in Cheyenne Mountain and Raven Rock as well as FEMA's Mt. Weather were designed and built during this era (Krugler, 2006, pp. 63-66). Simultaneously, The U.S. Military also embarked on defensively oriented capabilities. The Air Force stationed squadrons of interceptor aircraft around the country and the

Army started placing nuclear tipped ground-to-air missiles under the Nike program around major cities and industrial locations.

Because of the difficulty of hardening and defending cities, the idea of relocating industry and offices began to appear as the only feasible way to help ensure nuclear survivability. The major attempt to distribute government offices involved the Federal Relocation Arc program. The Arc was designed as a semi-circle of satellite cities and complexes to be built around Washington D.C. far enough away that they would survive a nuclear attack on the city or other parts of the Arc. The Arc was conceived as the future home for all essential Federal offices but this approach became diluted over time. At one point, only “war essential” agencies would move (Krugler, 2006, pp. 93-96,142-144). Subsequently it was decided that only new construction for war essential agencies would locate to the Arc. Later, it was decided that if an agency had a compelling reason not to relocate it would not be forced to do so. Although the Arc made sense from a survivability standpoint, few agencies were willing to leave the center of influence in Washington DC. Additionally, many agencies were worried about loss of personnel due to the commute. Communities located around the Arc were also concerned about the influx of so many new offices and people. Although the Arc was a failure from a civil defense standpoint, its heritage can still be seen today: Thriving Washington satellite cities such as Reston and Tyson’s Corner were originally incorporated as parts of the Arc.

The Arc was meant to be a Federal Continuity of Government (COG) strategy and, therefore, did not address protection of the civilian population. Instead, civilian populations were expected to simply evacuate in times of crisis (Krugler, 2006, pp. 132-

135,152-153). Although plans, and even exercises, were developed for the mass evacuation of major population centers, little was planned for the housing and support of those populations. Instead, the Federal government advocated the idea that the U.S. was a nation of neighbors and those neighbors would naturally come to each other's aid. There was a pamphlet produced by Federal civil defense authorities that reminded citizens that the family automobile could serve not only as transportation but as portable shelter. This idea did not address the fact that most families would be separated during the day and would have difficulty reuniting and evacuating rapidly. Much as in Hurricane Katrina, the needs of people without personal automobiles were largely ignored.

Ultimately, three factors doomed civil defense in the United States. 1.) The technical and financial enormity of the endeavor simply exceeded what the government was willing to invest. 2.) Psychologically, most American citizens were not willing to contemplate the possibility of a nuclear war, let alone the ramifications of post-apocalyptic survival. 3.) The development of fusion based thermonuclear weapons increased destructive potential and subsequent radiation and contamination exponentially. Simultaneously, the development of intercontinental ballistic missiles reduced warning of attack from hours to minutes. Although modern disasters are quite limited compared to the damage expected from an American-Soviet nuclear exchange, variations of these same three factors still occur in disaster preparedness today.

With the collapse of Civil Defense, U.S. nuclear defensive posture shifted to offence. The 1960s saw the rise of a doctrine known as Mutually Assured Destruction (MAD). Under MAD, the idea was that no nation would dare attack the United States or Europe because the U.S. nuclear arsenal was so robust that it would be able to survive

a first strike and still deliver a retaliatory blow capable of destroying the attacker. Despite the humorous acronym, MAD was effective and ushered in decades of nuclear détente between the United States and the Soviet Union. Unfortunately, MAD does not apply to natural disasters, accidents and malicious non-state actors.

The Creation of FEMA

Organizationally, Federal civil defense responsibilities passed from agency to agency like the proverbial “hot potato.” The year 1950 saw the creation of the Federal Civil Defense Administration (FCDA). In 1953, FCDA was relocated under the Office of Defense Mobilization (ODM). ODM was subsequently reorganized into the Office of Civil Defense Mobilization. During the 1960s, civil defense activities were merged into the Department of Defense and eventually found a home, during 1972, under the Defense Civil Preparedness Agency.

The Federal Emergency Management Agency was created in 1979 by Executive Order from President Jimmy Carter. Carter’s goal was to consolidate the myriad of Federal offices and programs that were involved in disaster response and recovery (Cooper & Block, 2006, pp. 47-49). The new agency ultimately took responsibility for the Federal Insurance Administration, the National Fire Prevention and Control Administration, the National Weather Service Community Preparedness Program, The General Service Administration’s Federal Preparedness Agency, Housing and Urban Development’s Federal Disaster Assistance Administration and the Civil Preparedness Agency.

Although FEMA is certainly a response agency, many of the programs and personnel that were consolidated to form FEMA were not, in and of themselves, response elements. Instead, most of the programs and personnel that were transferred

to FEMA were actually specialists in disaster related finance. As a result, FEMA was not initially seen as an agency that sent people to do things after a disaster, it was seen as an agency that sent people to pay for things after a disaster. Within the agency, FEMA waffled culturally. Some directors saw FEMA as the nation's disaster insurance fund while other directors wished to run FEMA as a paramilitary response agency (Cooper & Block, 2006, pp. 50-55,60-61).

When the Department of Homeland Security (DHS) was established in 2002, it was designed as a central home and coordinating agency for all Federal civilian emergency and security related organizations. The Department was an attempt to build a new "mega hierarchy" which would then take over existing hierarchical agencies, or at least components of those hierarchies. Despite the inevitable bureaucracy that was to occur, the DHS founders had a vision of a new type of agency, a vision symbolically represented in the DHS seal which depicts an eagle with its wing tips breaking out of the confining circle of the emblem. One of the ironies of DHS is that the very types of events and response problems which caused the creation of the organization usually involved the Federal Bureau of Investigation and the Central Intelligence Agency, neither of which were transferred to DHS. In many ways, FEMA became the central hub of DHS and was charged with coordinating response in ways that it never had been charged before. In addition to expanding FEMA's role, the DHS merger also involved transferring money and resources from FEMA to its newly created umbrella department (Cooper & Block, 2006, pp. 84-86). The expansion of FEMA's role and responsibilities did not come without cost, as FEMA began to concern itself with security and issues that were once the domain of the military, the personnel who traditionally focused on

disaster recovery logistics and finance were no longer able to concentrate on what was traditionally their specialty. Since its advent, FEMA was a broadly focused emergency management agency that had direct ties to the President. After DHS was created, it became embedded within, what is essentially, a law enforcement and investigative department and has no cabinet level access (Cooper & Block, 2006, pp. 88-90). Many of the problems that befell DHS and FEMA during the 2005 Hurricane Season are directly attributed to both agencies' vast responsibility and rapid growth. Although FEMA received deserved criticism after Hurricane Katrina, as an agency, FEMA is frequently in a "no win situation." For example, when the victims of various disasters needed immediate financial aid, FEMA switched from distributing checks to distributing pre-paid credit cards. Due to the magnitude of need during some disasters, FEMA was criticized for being slow and heartless when it came to verifying a victim's actual need. In response to its critics, FEMA relaxed the standards employed for determining financial eligibility. Unsurprisingly, many recipients of FEMA's financial assistance used their pre-paid credit cards to purchase liquor, jewelry and expensive meals at fancy restaurants (Widdicome, 2005). When American citizens abuse financial assistance, the agency overseeing the assistance cannot always be faulted. Sometimes the fault actually rests with politicians attempting to look responsive and with the citizens themselves.

Emergency Management in Florida

Compared to Federal efforts, State efforts towards civil defense were minor and frequently conducted by individual cities. Because of its exposure to sporadic and varied natural threats, the State of Florida's emergency management programs developed in an experimental manner. In 1941, Florida's Legislature conferred emergency coordination powers to a State Defense Council which was led and appointed by the

Governor. By 1951, the Legislature created a State Department of Civil Defense which was charged with organizing State Level disaster response as well as empowering city and county civil defense councils with disaster authority in their jurisdictions. In 1969, the responsibilities of the State Department of Civil Defense were transferred to a newly created Division of Emergency Government located within the Department of Community Affairs (DCA). The Division of Emergency Government was renamed to the Division of Disaster Preparedness in 1974. In addition to a name change, the Division was granted exclusive disaster response authority for the entire state and the local civil defense councils were abolished. In 1979, the Division of Disaster Preparedness was demoted to an office and moved under a new division within DCA, the Division of Public Safety Planning and Assistance. By 1984, emergency management functions had returned to the division level under DCA (WikiProject Disaster management, 2006-2010). More significantly, powers of emergency management were also returned to the counties of Florida. Essentially, in the span of forty years, emergency management moved from an ad-hoc arrangement to a networked organization with some central authority to a complete top-down hierarchy and back to a network of county agencies overseen loosely by a State Level agency.

Despite Florida's experience with severe weather events, when Hurricane Andrew made landfall in 1992 the destruction was unprecedented. Never had such a catastrophic storm impacted such a large urban area. Although Miami and South Florida had been targeted by tremendous storms in the 1920s, the area had grown in population and vulnerable infrastructure since then. Andrew was a Category 5 storm when it made landfall. Additionally, it was the first storm of the season so the population

had not had the benefit of other storms to focus their attention. Until Hurricane Katrina, Andrew was the most costly storm in U.S. history. Unfortunately, State and Federal response was slow and much of the problem was related to the Division of Emergency Management. Hurricane Andrew led to a complete overhaul of DEM and a dismissal of its senior leadership. The new DEM Director was Joseph Myers. Myers had been lured from North Carolina's emergency management agency and, according to old DEM hands, was given *carte blanc* to organize DEM as he saw fit. To fill senior positions, Myers recruited colleagues from North Carolina which resulted in transplanting virtually the entire North Carolina emergency management structure. In addition to changing personnel, Myers expanded DEM's field personnel and built a state of the art State Emergency Operations Center (SEOC). By 2001, command of DEM had passed to Craig Fugate, an emergency manager from Alachua County, FL.

Despite his direct social manner, Fugate has been blessed with the ability to inspire people and direct organizations in the face of true adversity. Fugate's style of leadership encourages a sense of pride and importance – the kind of pride that is contagious because you genuinely feel that you are part of a great campaign. Among Florida's State emergency management community, Fugate is probably best known for his three rules of response: 1.) Take care of the needs of the victims; 2.) Take care of the needs of the responders; 3.) See rule #1

Naturally, State-County rivalry exists and many local emergency managers feel that DEM has not been as responsive as they would like, yet none would ever claim that Fugate and DEM are incompetent when push comes to shove. The Division of Emergency Management was responsible for coordinating emergency response and

recovery across all 67 counties of Florida during the 2004 and 2005 Hurricane Seasons. Additionally, DEM support was critical during response to Hurricane Katrina in the State of Mississippi. During 2004 and 2005, DEM also faced an interesting organizational challenge. Day to day, DEM was a division of DCA, yet during disasters, DEM rose to prominence and practically ran the State of Florida directly under the Governor's control. It is therefore fitting that the latest organizational change to DEM moved it out from under DCA and has it permanently reporting to the Governor's office once as FEMA once did to the President. As DEM Chief, Fugate's operational and logistical abilities have been recognized beyond Florida. After Hurricane Katrina, Fugate was courted as a possible Director for FEMA. Although Fugate withdrew from contention, he subsequently accepted the challenge under the administration of Barak Obama. What Fugate's presence at the Federal level, or what his absence in Florida, may mean are yet to be determined.

Summary

Emergency management is a diverse discipline with a complicated history. In addition to direct involvement with the very things that ordinary people have no desire to face, emergency managers are also charged with cooperating with others in different agencies and at different levels of government. As if these conditions were not difficult enough, emergency management decisions must be made rapidly. If things go well, emergency managers are soon forgotten as they dissolve into the background. If things go badly, emergency managers are held to task. Unfortunately, the old emergency management saying "If things were going well, it wouldn't be called a disaster" is usually correct.

Another intriguing issue about emergency management is the difference in ability between the levels of government. Typically the Federal Government is perceived as the gold standard in particular disciplines, but in emergency management this is sometimes reversed. FEMA may command more money and resources than state level emergency management agencies. However, since “all emergencies are local” much of the pragmatic knowledge of emergency management is actually located at the state and local levels. A simple example of this is the use of ICS. While ICS is a Federally mandated standard for which FEMA serves as the guardian, ICS was originally developed by state and local agencies. These agencies are typically far better at implementing ICS than Federal agencies which traditionally work in organizational silos or detached mechanistic hierarchies.

In conclusion, despite the fact that emergency managers have been depicted in the occasional movie as heroic individuals, fighting on the front lines of disaster, most emergency management activities occur in EOCs and conference rooms. Emergency management is conducted far from the glory but not from the stress. Agencies such as DEM coordinate with a wide assortment of outside agencies. However, some of those outside agencies also retain their own in-house emergency management specialists. As an example, a major disaster involves many missions assigned to health and medical partners – the resources represented by ESF-8. Although ESF-8 personnel are clearly located in the realm of public health and medicine, they inherently share the same history and characteristics of emergency management specialists elsewhere. Later chapters of this document will discuss Florida’s Public Health Preparedness and emergency response community.

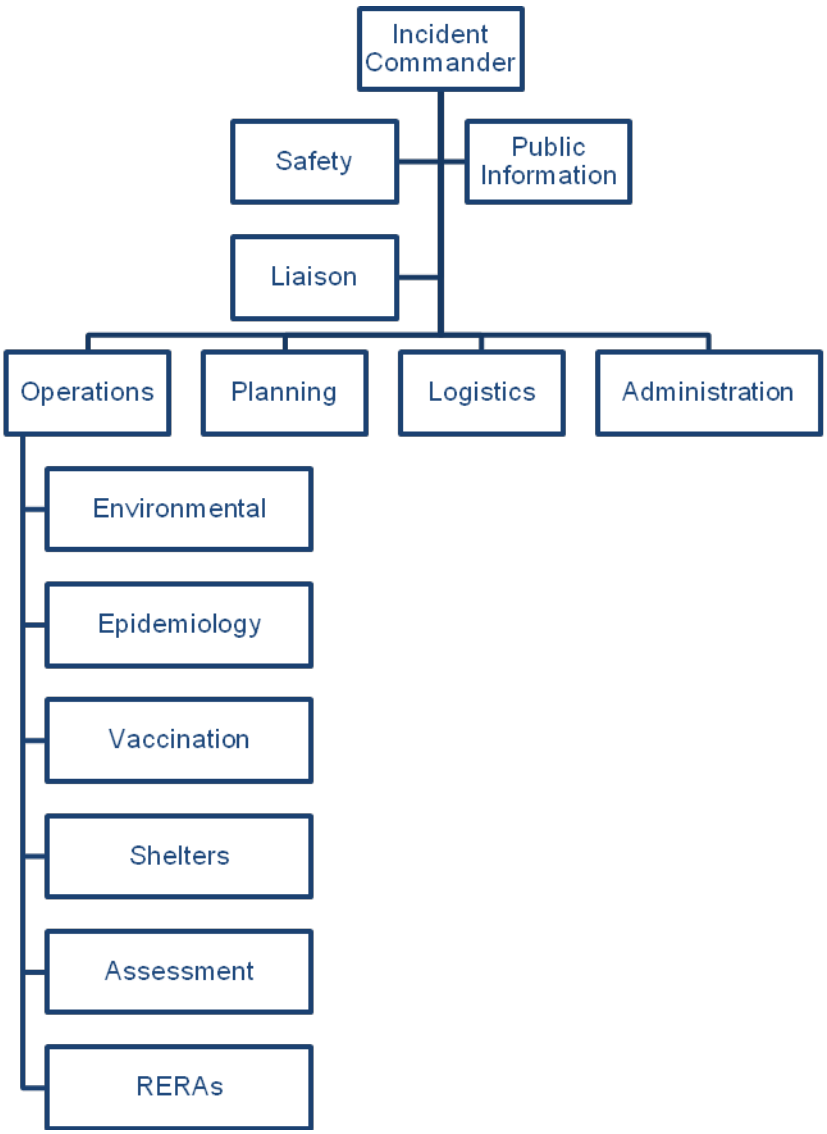

Figure 2-1. Example public health Incident Command System diagram

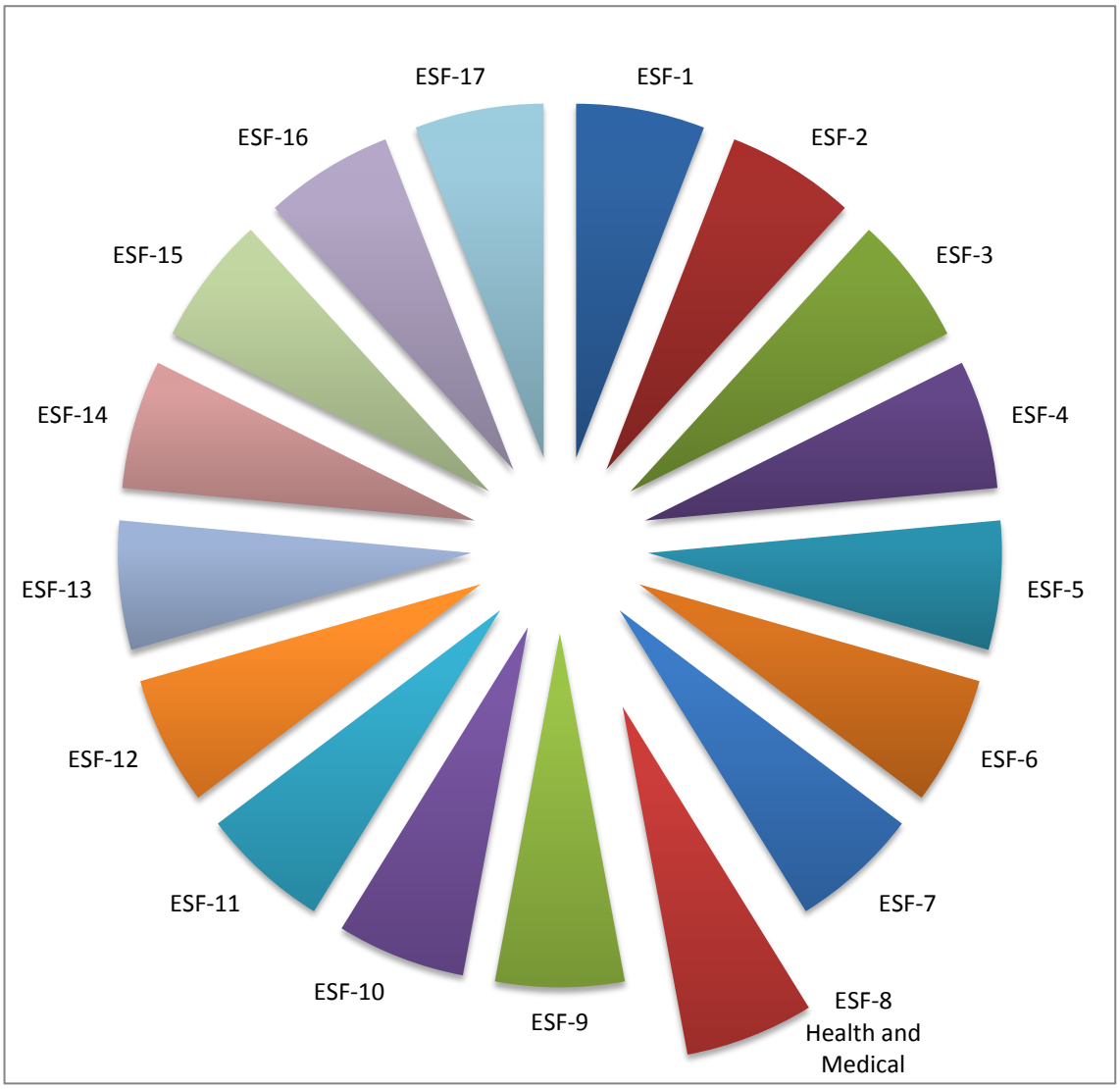

Figure 2-2. “Flat” Emergency Operations Center Emergency Support Functions

Table 2-1. Original Twelve Federal Emergency Support Functions

ESF Number	Function	Lead Agency
ESF-1	Transportation	U.S. Department of Transportation
ESF-2	Communications	U.S. National Communications System
ESF-3	Public Works	Army Corps of Engineers
ESF-4	Fire Fighting	U.S. Forest Service
ESF-5	Information & Planning	Federal Emergency Management Agency
ESF-6	Mass Care	American Red Cross
ESF-7	Resource Support	U.S. General Services Administration
ESF-8	Health & Medical	U.S. Department of Health and Human Services
ESF-9	Search & Rescue	Federal Emergency Management Agency
ESF-10	Hazardous Materials	U.S. Environmental Protection Agency
ESF-11	Food & Water	U.S. Department of Agriculture
ESF-12	Energy	U.S. Department of Energy

Table 2-2. Original Eighteen Florida Emergency Support Functions

ESF Number	Function	Lead Agency
ESF-1	Transportation	Fl. Dept. of Transportation
ESF-2	Communications	Fl. Dept. of Management Services
ESF-3	Public Works	Fl. Dept. of Transportation
ESF-4	Fire Fighting	Fl. State Fire Marshal's Office
ESF-5	Information & Planning	Fl. Division of Emergency Management
ESF-6	Mass Care	American Red Cross
ESF-7	Resource Support	Fl. Dept. of Management Services
ESF-8	Health & Medical	Fl. Dept. of Health
ESF-9	Search & Rescue	Fl. State Fire Marshal's Office
ESF-10	Hazardous Materials	Fl. Dept. of Environmental Protection
ESF-11	Food & Water	Fl. Dept. of Agriculture & Consumer Services
ESF-12	Energy	Fl. Public Service Commission
ESF-13	Military Support	Fl. National Guard
ESF-14	Public Information	Fl. Division of Emergency Management
ESF-15	Volunteers and Donations	Fl. Division of Emergency Management
ESF-16	Law Enforcement	Fl. Dept. of Law Enforcement
ESF-17	Animal Control	Fl. Division of Animal Husbandry

CHAPTER 3
EVOLUTION OF PUBLIC HEALTH

Public Health Background

As a discipline, public health has straightforward objectives. Public health seeks to monitor and prevent the spread of disease among populations through treatment of individuals and control of environmental factors. While there is overlap, public health traditionally contrasts with the practice of medicine in terms of its scope. Medical doctors are focused on a single patient along with the protection and treatment of that person. Although individuals form the basic building blocks, public health usually looks at the level of the society. Medicine is based around the application of biology, public health relies on both biology and epidemiology, which is the study of disease spread through populations. Rather than invest heroic effort in saving individual lives, public health, powered by epidemiological methods, is oriented towards saving as many lives as possible.

During the late 19th and early 20th century, public health was a major governmental institution in communities across the developed world. While medical doctors with little or no accreditation or training were conducting primitive hit-or-miss surgeries on a small number of patients, public health officers literally saved the lives of millions. Their guiding philosophy was a synergy of emerging concepts of disease transmission and a Victorian inspired sense of cleanliness and hygiene (Garrett, 2000, pp. 286-289). To implement these concepts, early public health practitioners wielded broad ranging legal authority. These powers included the ability to close businesses, detain people considered public health threats, deploy insecticides, influence public works projects,

pass regulations against particular behaviors and set standards for hospitals (Garrett, 2000, p. 276).

From the era of cholera to the campaigns which halted polio and smallpox, the history of public health is cited as one of the great accomplishments of civilization. However, despite its success, public health has dramatically declined in visibility and perceived importance. Most of the great infectious disease killers of the developed world have been stopped and the focus of many public health practitioners shifted to less acute and tangible issues such as the struggle against tobacco products and transfats, the promotion of exercise, the use of bicycle helmets and even interventions against domestic violence.

In addition to the types of specific threats that public health engaged, the scale of operations and the types of people changed as well. Early public health triumphs such as: eradicating malaria near Southeastern U.S. military installations, controlling yellow fever around the Panama Canal, eradicating the *anopheles gambiae* mosquito in Brazil and vaccination campaigns against small pox and polio were large scale projects that required tremendous organization and efficiency. These projects were run in a paramilitary fashion and were frequently connected with actual military objectives. The public health officers that conceived them were, not coincidently, paramilitary in their personality and nature.

For example, a famous story concerns Fred Lowell Soper, the director of the anti-*gambiae* campaign in Brazil. Soper managed a large network of field stations located throughout Brazil. When one of the stations was destroyed, the only surviving officer traveled back to Soper's headquarters to report the station's loss. Soper allegedly fired

the employee on the spot because he had abandoned his post. Soper was also single minded in his goal of controlling mosquitoes. As he said in his book:

> The clamor from the malaria-stricken population was so great that treatment of the sick could not be ignored, with the result that a large proportion of the budget was absorbed by the purchase of drugs and the distribution of quinine and atabrin. In spite of these difficulties, however, much useful work was done. (Soper & Wilson, 1943, pp. 84-85)

Clearly, Soper considered useful work to be the focused destruction of the vector and not to involve any kind of health care mission. In modern parlance, Soper objected to “mission creep” that would distract his forces from their objective. By contrast, today’s public health officers would step back and attempt to address the problem holistically and, specifically, tend to the suffering of the victims before attempting to modify the environmental factors.

Public Health Culture

By the 1960s, the generation of paramilitary health officers were long retired and many of the new public health specialists held different values - values that represented their generation. Public health officers of the hippie era were individually focused and wanted to do good deeds for society because it was the humane thing to do rather than a strategic objective. One public health specialist related to me that, like their generation, baby boomer public health practitioners also tended towards an anti-authority counter-culture world view. Yet, teamwork was still a respected concept. As a science based discipline, public health personnel also attempt to use scientific methods to achieve goals and, much as academics do, public health professionals prefer to analyze available data and reach conclusions based on consensus decision. As the pubic health discipline was shaped by its newest members, it tended to attract more like-minded people. While I was discussing disaster preparedness with one county

planner, the planner remarked that my expectations for the Florida Department of Health were unrealistic. The planner explained that health department staff should not be expected to perform as if they were paramedics, fire fighters or military officers. After all, if these employees wanted to be paramedics they would have become paramedics, not public health specialists. I became versed in the "public health culture" during my public health graduate classes, where consensus building team approaches were often used. Additionally, I attended the Department of Health Leadership Institute. The Institute attempted to instill the values of the public health culture into management within the Department through a series of lectures and workshops. In one particular workshop, we were divided into groups based on our Myers-Briggs personality types. I was categorized as an INTP type (Introverted Intuitive Thinking Perceiving). My group's decision making was very streamlined since I was the only one of that personality type at the Institute. One of our group's tasks was to use a piece of butcher block paper and a magic marker to write a definition of "good communication." The majority of the groups said something similar to the following:

> Good communication is the art of completely conveying a message from one party to another in a manner that incorporates everyone's opinions and concerns without conveying disrespect.

To the surprise of the reader, my group (of one) wrote the following definition of good communication:

> Good communication is accurate, timely and brief.

I feel that the differences between these definitions speaks volumes about the differences between public health personalities and many of those who work in public safety roles. In summary, all disciplines and agencies tend to reinforce their own cultures: and modern public health seems to have reached a stable form.

If a public health officer of the late 19th century was transported to a health department of the early 21st century there would be many familiar activities for him to observe. However, the general status of public health as a discipline would probably come as a surprise. Generations across the developed world have grown up in a world largely free of acute infectious disease threats and have no recollection of the importance of public health to their ancestors. Additionally, modern technology and training along with the incredible growth of the medical industry have led to the importance of medical doctors, and their focus on the individual patient rather than society as a whole. Due to its past success, public health drifted from its traditional core area and became dissipated. During this process, the discipline became associated with social services and welfare rather than the health arena – an arena now dominated by medical doctors. Although many of the older public heath laws remain on the books, the public health agencies and organizational culture that enforced those laws have transformed.

Perversely, the free market medical industry in the United States, along with increasingly sophisticated and expensive medical technologies, has created a growing divide between the portions of the population that can afford basic acute medical care and those that cannot. As a result, public health departments, along with emergency rooms, have also found themselves in the position of last resort medical care providers for the indigent and lower class populations. Since the most visible part of modern public health involves running medical centers, it is natural that many health departments are run by clinicians rather than traditional public health specialists. This further reinforces the idea that public health is simply medicine's step child.

At the National level, public health has also lost many of its traditional responsibilities. The National Institutes for Health and the Centers for Disease Control and Prevention both devote much of their budget towards chronic diseases and problems involving occupational health and safety. The U.S. Food and Drug Administration (FDA) is responsible for the safety of food and drugs that American citizens consume everyday, yet the FDA has insufficient inspectors and virtually no legal authority to deal with contaminated foods. Instead, FDA relies on food companies to voluntarily maintain standards and voluntarily comply with recall recommendations in case of a food related disease outbreak. In fact, food processing companies are generally not required to report contamination issues to the FDA (House Committee on Energy and Commerce, 2007). For example, during the 2008 salmonella outbreak involving contaminated peanuts, the contaminated factory was typically inspected by the FDA every ten years (Consumers Union, 2009).

The Florida Department of Health

Additional observations can be drawn from the Florida Department of Health (DOH). Until the 1970s, Florida's public health was provided by county health units which were largely independent but were loosely overseen by State health officials in Tallahassee. Although the minimum public health standards were uniform across the state, each county could modify the regulations and each county health unit tended to implement the regulations in different ways. Additionally, some types of public health services, such as septic permits, were provided by county agencies other than the public health unit. Each public health unit also had various relationships with other county agencies. For example, a long time Hillsborough County Health Inspector explained that a handful of health inspectors were actually trained in law enforcement

practices, including fire arms usage, by the City of Tampa Police Department. Since the county Health Inspector's law enforcement credentials were conferred by the City of Tampa, the credentials were not recognized in other parts of Hillsborough County and eventually the law enforcement credentialing was taken over by the County Sheriff's Office. According to the retired Inspector, "that was when public health actually had some balls."

During the 1970s, the Florida Department of Health and Rehabilitative Services (HRS) was established in an effort to streamline operations. Health and Rehabilitative Services was an enormous agency that managed a wide assortment of public health and social welfare programs. HRS included program offices that addressed: Public Health; Aging and Adult services; Alcohol, Drug Abuse and Mental Health; Children and Family Services; Developmental (Disorder) Services; Economic and Public Support Services; and Juvenile Justice. In many ways, HRS was a typical "big government" social agency that became popular during the Johnson Administration's great society programs of the 1960s.

The structure of HRS did make sense. The State of Florida observed that many of the customers of particular agencies were also customers of other agencies. HRS was an attempt to provide "one stop shopping." By synchronizing record keeping and procedures, customers could be handled more efficiently. Additionally, HRS allowed the centralization of certain infrastructure and support services. For example: payroll, IT support, purchasing and facilities maintenance could all be centralized which theoretically allowed for more efficient operations. From an emergency preparedness prospective, HRS employed emergency planners who were able to standardize

emergency protocols across the agency and utilize the organization's large and diverse resources.

Although HRS was composed of many program offices, some of those offices possessed more independent cultures. For example, the County Health Units frequently objected to their medical personnel reporting to non-medical supervisors at HRS. According to one source, the County Health Officers frequently engaged in a behind the scenes efforts through professional organizations and informal networking in an attempt to liberate public health from the HRS structure.

Ultimately, political lobbying, the unrelated and uncoordinated missions of HRS along with bureaucratic inertia led to the agency's downfall. As a result, the modern DOH was created as an independent agency in 1995 when it's parent agency was dismembered. Florida's Legislature hoped that the independent Department of Health, Department of Children and Families (DCF) and other smaller daughter agencies would prove leaner, less controversial and more effective.

HRS had, and DCF maintains, a hierarchical structure that involved offices at the State, Regional and County levels. Although each discipline-oriented subdivision of HRS tended to maintain some independence, all were still locked into the hierarchy and common support infrastructure. When DOH split from HRS it dramatically collapsed the agency's hierarchy and returned to an organizational model reminiscent of the pre-HRS structure. However, the new DOH maintained stronger centralized functions than the pre-HRS arrangement although it was not as strong centrally as the HRS structure. In doing so, the modern DOH created what was essentially a new form of government agency in the State of Florida.

The DOH administrators realized that the new agency did not have the resources required to successfully conduct modern pubic health activities. Additionally, it was felt that, to be successful, specific public health activities should be directed and organized at the Local level. However, there were still infrastructure, exotic service and policy functions that were best carried out at the State level. The result was the utilization of both County Health Departments (CHDs) and a Tallahassee based headquarters office, commonly known by the politically correct, and less domineering term “Central Office.” The regional level of HRS was removed and a new networked structure of 67 CHDs and a Central Office, with it’s attached resources, emerged.

Central Office oversees many specialized offices, bureaus and divisions. Some of these central functions include: Information Technology, Laboratories, Radiation Control and Emergency Medical Operations. Many of these Central Offices also have county equivalents. For example, the Division of Environmental Health in Tallahassee sets policy and provides support functions for environmental health specialists who are located within CHDs. The Bureau of Epidemiology does the same for CHD epidemiologists.

The CHDs are, themselves, novel entities. The CHD is a symbiotic agency that combines both county and state resources. Typically the tangible items in a CHD: land, buildings, vehicles and computers for example, are owned by the county. The personnel, however, are state employees. Additionally, the budget is provided by both county and state revenue. The proportion of the budget provided by each level of government varies depending upon the county. Normally, larger urban counties provide a larger percentage of their CHD’s budget than smaller rural counties. The CHDs are

led by the County Health Officer who is also known as the CHD Director or Administrator – the distinction being that a Director is a Medical Doctor and an Administrator is not. This difference in title, and pay, is yet another reminder about the perceived difference of importance between medical and public health functions within a public health department. In turn, the County Health Officers report to the State Health Officer in Tallahassee. However, because the State Health Officer has about 65 County Health Officers (Some smaller counties combine functions, including leadership.) the State Health Officer expects each County Health Officer to operate with minimal oversight. Because County Health Officers are legally and politically under the control of both state and local managers, they and their budgets are frequently beholden to local influence.

As a result, CHDs vary tremendously in regard to how they view themselves within the DOH network and to what extent they are inclined to follow advice from the Central Office. Although, by Florida standards, DOH is a highly decentralized State agency, its network structure is still more tightly coupled than those of many other state public health organizations. For example, many northeastern states utilize a system of municipal health departments which are highly independent and have little relationship with each other or the state. This distinction is typical across many public agencies where the governmental level of the county may have relatively little authority in the northeast versus much authority in the southeast or west.

Department of Health Responsibilities

The Florida DOH County Health Departments are charged with regulating environmental issues that relate to public health as well as managing clinics that provide low income medical treatment and counseling. Specifically, Florida statute defines ten

essential public health responsibilities for the Department of Health that mirror Federal tenets for Public Health. These include:

1.) Monitor health status to identify community health problems.
2.) Diagnose and investigate health problems and health hazards in the community.
3.) Inform, educate, and empower people about health issues.
4.) Mobilize community partnerships to identify and solve health problems.
5.) Develop policies and plans that support individual and community health efforts.
6.) Enforce laws and regulations that protect health and ensure safety.
7.) Link people to needed personal health services and assure the provision of health care when otherwise unavailable.
8.) Assure a competent public health and personal health care workforce.
9.) Evaluate effectiveness, accessibility, and quality of personal and population-based health services.
10.) Research new insights and innovative solutions to health problems.

From a regulatory standpoint, DOH is tasked with many responsibilities but the way that it implements and enforces regulations is different than many other regulatory agencies. Like many states, Florida does not have a single all encompassing “State Police Department.” Instead, each government agency which sets and oversees regulations is constitutionally permitted to field its own law enforcement arm. For example: There is the Highway Patrol (FHP), but the Department of Transportation (DOT) also has law officers who inspect and enforce trucking regulations. The Department of Agriculture and Consumer Services (DACS) has officers who inspect and enforce agriculture regulations – including goods shipped in vehicles. The Department

of Environmental Protection (DEP) has both park police as well as uniformed and plain clothes environmental crimes officers. The Fish and Wildlife Service has law enforcement officers as does the Florida Department of Law Enforcement, the State Fire Marshal's Office and the Department of Juvenile Justice. Each agency has the power to enforce regulations related to its unique jurisdiction. This mosaic of jurisdictional coverage creates a certain amount of overlap as well as occasionally leaves gaps within the system. Interestingly, one of the most visible law enforcement agencies - FHP – is largely redundant because it has no unique jurisdiction. Every function FHP performs and every road that it patrols is also in the jurisdiction of another law enforcement agency at the county or municipal levels of government. As one former FHP officer told me, FHP's job is to handle traffic problems so that other law enforcement agencies can worry about more important things.

With broad regulatory responsibilities and over 15,000 employees, the Florida Department of Health is the largest State regulatory agency without employees granted powers of arrest. Although the Department of Health is capable of levying fines, any issues that need a forceful response generally require the assistance of a partner agency that has assigned itself more effective powers of coercion. It may be argued that DOH does not need powers of arrest, impoundment or closure but it could equally be argued that other agencies, such as DEP, DACS or DOT do not need these powers either. Rather, the reason that Health does not have powers of arrest, other than limited pre-HRS exceptions, is because it has never sought them and it is, in fact, somewhat against modern public health culture to force citizens or businesses to comply with regulations. On the other hand, the alternate strategy of seeking partners to implement

public health enforcement duties matches the cooperative and consensus building public health culture very well.

Another factor confusing Health's regulatory function is that many of the responsibilities that traditionally belonged to public health as a discipline have been spread across numerous State agencies and are frequently shared between County, State and Federal levels of government. For example, if a citizen suspects that they have become sick from eating in a restaurant then the Department of Health may become involved in an investigation. However, the routine inspection of restaurants is not a responsibility of the Department of Health, instead it is handled by the Bureau of Professional Regulation (BPR) which is the same agency charged with encouraging business development in the State of Florida. A major reason why BPR gained the regulation of restaurants was because the various county health departments chose to implement hygienic standards differently. According to one former inspector, since many large restaurant corporations wish to maintain standard designs and procedures across the state, the CHD's varied implementation of regulations was seen as an impediment to business development. Another example of HRS era practices that annoyed business included the requirement for restaurant workers to maintain "health cards" which verified immunization and disease test results. Superficially, the concept made sense. However, many of the diseases addressed by the health card were not transmissible by food handlers so the concept was, much as with pre-marital syphilis tests, more of an institutionalized annoyance than genuine protection. To further confuse the situation, if a restaurant is actually an institutional dining facility then BPR does not inspect it, instead that inspection is still the responsibility of the Health

Department. If an ill diner appears to have been sickened by a food product itself rather than the preparation or storage of that product then the investigation involves DACS, unless the food product appears to have crossed state lines in which case the responsibility is also shared with the U.S. Department of Agriculture (USDA) and possibly the CDC.

Water and sewage issues are typically the responsibility of local public utilities but, here too, DOH shares certain responsibilities. If the water or sewage concern impacts a body of water then response is shared by county and state environmental protection agencies along with DOH. If the body of water is large or particularly important then jurisdiction may belong to either the U.S. Environmental Protection Agency (EPA) or the U.S. Coast Guard. Another traditional public health activity, the control of vectors such as mosquitoes, is conducted by county mosquito control boards in cooperation with DACS and potentially USDA.

The complexity of DOH responsibilities concerning the above mentioned environmental issues is duplicated in the arena of health care. Licensure of medical professionals is a DOH responsibility. However, in the case of fraudulent practice of medicine or allied professions, most of the investigation as well as the arrest of the unlicensed practitioner is conducted by local law enforcement agencies. The Department of Health's Bureau of Emergency Medical Services is responsible for accreditation and inspection of ambulances and emergency medical technicians and the oddly named DOH Office of Trauma is responsible for certifying certain aspects of large hospital emergency departments. However the state agency that is actually responsible for accrediting Florida hospitals is the Agency for Health Care Administration (AHCA). In

addition to AHCA, hospitals undergo an exhaustive accreditation process overseen by the national Joint Commission on Accreditation of Health Care Organizations.

Another major responsibility for DOH is to provide statewide laboratory services. The Department of Health laboratories are located in Jacksonville, Tampa, Lantana, Miami and Pensacola. Yet, here again, the reality of laboratory jurisdictions is far more complicated than it first appears. Most laboratory services in Florida are performed by hospital laboratories and private laboratory companies such as Quest or Lab Corps. Because of the complexity of a particular test or the nature of the agent, some biological tests are performed exclusively by DOH. In addition to private labs and DOH labs, other government agencies also have specialized laboratories. Specifically, DACS has a laboratory in Kissimmee and DEP has a laboratory in Tallahassee. The DEP lab focuses on environmental chemical tests and the DACS lab focuses on livestock pathogens.

Despite the agreed upon roles of the state laboratories confusion can still occur. If there was a chemical spill, environmental samples collected at the scene would be processed by DEP while clinical samples from possibly exposed humans would be tested by DOH in Jacksonville. If there was a concern about a biological terrorism incident involving anthrax, both environmental and clinical samples would be tested at the DOH laboratories. If, however, the concern was about natural anthrax in animals then the tests would be performed by DACS. As with other State Level responsibilities, there are also Federal laboratories, at the CDC and The U.S. Army Medical Research Institute for Infectious Diseases (USAMRIID) which serve as confirmatory laboratories for exotic disease agents. Further complicating laboratory response is the existence of a

number of advanced university laboratories. During the October 2001 anthrax event for instance, the Alachua County Health Officer considered sending samples to be tested at the University of Florida's Shands Hospital. Although Shands personnel were competent to test for anthrax they were not a CDC authorized Laboratory Response Network (LRN) partner. Shands also did not have access to approved reagents nor did they have training in evidence preservation and chain of custody issues. Additionally, the idea of potentially contaminating a major regional medical facility with a persistent, and deadly, agent such as anthrax did not make sense to most officials involved. In addition to the University of Florida, my former employer, the University of South Florida's Center for Biological Defense was also a partner with the DOH Bureau of Laboratories.

The Department of Health also has major partnerships with hospitals and medical care organizations through the Division of Disease Control and its subcomponents, which include epidemiology. Drug and pharmacy issues are covered by both the pharmacy group within DOH that supplies medications to the CHDs but also by the Board of Pharmacy which sets standards for the industry.

A final major responsibility of DOH is radiation safety. The Bureau of Radiation Control (BRC) is based in Orlando but has field offices around the Florida and an administrative presence in Tallahassee. The Bureau of Radiation Control is responsible for inspecting and regulating radioactive devices such as X-Ray machines, CAT scanner equipment, and industrial irradiators. The BRC is also charged with inspecting facilities that store and use radioactive materials over particular thresholds such as radio medicine suppliers and other industrial users. Although Florida is also the home of

three nuclear power plants: Crystal River, Port St. Lucie and Turkey Point - BRC is not responsible for regulating or inspecting nuclear power plants. Rather that job is performed by the U.S. Nuclear Regulatory Commission (NRC) which is a part of the U. S. Department of Energy (DOE). However, BRC is charged with working closely with the power plants to conduct monitoring and civilian protective actions in case of a nuclear power plant anomaly. In addition to the BRC, counties that are within the 10 mile ingestion zone surrounding nuclear power plants maintain county radiation safety officers who are responsible for coordinating nuclear power plant issues within their counties. Also, the Brevard and Polk County Health Departments each maintain independent radiation offices. Brevard's DOH radiation office is primarily charged with coordinating potential radiation issues with the Kennedy Space Center. Polk County's DOH radiation office focuses on radiation from mining operations. Both county radiation offices also conduct routine radiation inspections similar to those conducted by BRC in the other 65 counties.

Disaster Roles

Although it is interesting to look at the broad range of daily DOH responsibilities as well as the agency partnerships involved to accomplish these duties, it is important to realize that this day-to-day organization of DOH also affects the way that the Department fulfills its duties during a disaster. Following the Federal model and organization of Emergency Support Functions (ESFs), DOH is designated as the lead state agency for managing ESF-8 which handles health and medical issues. Many of DOH's partner agencies are then designated as supporting agencies for ESF-8. Additionally, DOH is a supporting agency for six additional ESFs (ESF-3 Public Works,

ESF-10 Hazardous Materials, ESF-11 Food Water & Ice, ESF-12 Energy, ESF-14 Public Information and ESF-17 Animal Protection.)

Some disaster roles are very different from day-to-day activities. For example, ESF-8 is charged with coordinating pre-hospital medical services. Although the DOH Bureau of EMS certifies EMS agencies, it has no normal responsibilities for running EMS agencies. The Department of Health is also charged with assisting hospitals, yet with few exceptions, DOH is not normally involved with hospital operations. The Department of Health may be involved in inspecting aspects of nursing homes but DOH does not normally deal with chronic care patients or the elderly. In fact, it could be argued that there are two faces of ESF-8: an acute medical response and sheltering component and a long term public health component. Unfortunately, both components offer unfamiliar challenges.

Over its history, the Florida Department of Health has swung like a pendulum from a loose organization of county health units to the tighter unified structure of HRS and back again to independence. We have also seen the Public Health Preparedness (PHP) effort arise as a centrally directed program but with planners located within each CHD. Public Health Preparedness has also renewed the concept of the region which was strongly dismissed post-HRS. One former HRS employee joked that he'd like to wait a few years and suggest to the Florida Legislature that a number of social programs could be more efficiently run if they were consolidated into a single agency that could provide "one stop shopping."

By combining aspects of centralization with independent county units, DOH continues to refine its approach to public health delivery by seeking to perfect a balance

between central control and flexibility. In fact, the re-integration of social services with public health has occurred in some counties. For example, Sarasota CHD is, from a county standpoint, tightly integrated with other agencies as a Health and Human Services Department. The degree of this kind of integration varies dramatically from county to county. As programs such as PHP emerge, and programs such as tobacco control disappear, the agency will continue to adjust. However, successful organizational adjustments will rely on ever changing DOH leadership looking beyond politics and fashion to remember some of the lessons from the past.

CHAPTER 4
THREATS ADDRESSED BY PUBLIC HEALTH AGENCIES

Weapons of Mass Destruction and Public Health

Previous sections have addressed the history and organization of emergency management and public health. This section will explain the technical details of some of the threats that these agencies cooperatively confront. In Florida, many of the threats that Public Health Preparedness (PHP) personnel plan for and respond to involve natural disasters such as hurricanes. However, the bulk of national PHP activities and funding have traditionally focused on combating exotic disease outbreaks and weapons of mass destruction (WMDs). Although some efforts to enhance PHP occurred before 2001, it was with the anthrax attacks of October 2001 that the funding flood gates opened. During this time of enhanced PHP funding, some long time public health workers complained that the field was becoming nothing but preparedness. Yet, others who had watched public health fall to increasingly marginalized status, felt that PHP indicated a hope for the future. Regardless of the outlook, most public health departments that received preparedness money attempted to use the funding to make a genuine effort to increase their ability to cope with emergencies and simultaneously build or rebuild infrastructural capacity that had been slashed during the previous decades of neglect.

The WMD threat may seem far fetched, but due to the tremendous destructive potential of these weapons and the documented use or attempted use of them, WMDs in their various forms capture much attention in the PHP community. From a funding standpoint, WMD preparedness also helps to combine public health priorities with National Defense priorities and spending. From a terminology standpoint WMDs are

also known as Chemical, Biological, Radiological, Nuclear and Energetic (CBRNE) weapons, the ironically named “B-NICE” (Biological, Nuclear, Incendiary, Chemical and Explosive) or simply “special” or “unconventional” weapons. Each term has its proponents that point out the subtleties in the wording. However, since WMD is the most familiar term, I will use it for this discussion. Due to the technical complexities of WMD preparedness, each class of threat will be discussed in considerable detail. What the section will demonstrate is that ESF-8 plays a role in almost any kind of event, but the specific roles vary tremendously.

Explosives

Explosive devices are the most commonly used type of WMD. Explosives are relatively easy to manufacture, deploy and control. Explosives can be tremendously powerful and, depending on the conditions, a small amount of explosive material can have a dramatic result. Although explosives generate a thermal impact, most immediate damage is done by over pressurization and a shock wave emanating from the device. Fragments of the device, imbedded projectiles and debris from the environment can then be hurled at high speed in every direction. According to a reference card distributed by the U.S. Bureau of Alcohol, Tobacco and Firearms: A full size sedan could carry 1,000 pounds of explosives in its trunk. The 1,000 pounds of explosives would generate a lethal air blast radius around the car of about 125 feet and the recommended minimum evacuation distance would be a third of a mile. The standard explosive benchmark, Trinitrotoluene (TNT), emits a detonation wave that travels at over four miles per second. Because of the power of high explosives, it is extremely difficult to build structures that can withstand them and still provide environments in which humans would want to work. Standard protective measures, such as restricting

adjacent automobile parking, are largely ineffective unless the isolation perimeter is enormous. The most powerful of conventional explosives, as well as more exotic designs such as fuel-air weapons, are, although physically larger devices per unit of yield, as powerful as some small nuclear weapons. The Vietnam era “Daisy Cutter” was used to level huge areas of jungle to create helicopter landing zones and destroy underground tunnels. The Gulf War era MOAB (Mother Of All Bombs) was specifically designed to penetrate and destroy underground bunkers as an alternative to nuclear weapons. In fact, while writing this document, my house in Destin, Florida, was shaken by conventional explosive weapons detonated at an Air Force testing range over 30 miles away.

Many older types of explosives, such as nitroglycerin, are inherently unstable and prone to detonate with minimal shock. One of the most useful inventions in history was the formulation of the first safe higher yield explosive: dynamite. The inventor of dynamite, the Swedish chemist Alfred Nobel, grew rich from his invention and used some of his wealth to establish the famous series of annual Nobel Prizes awarded in recognition of significant achievement in the fields of science and, later, other areas. The creation of dynamite allowed humans to safely and systematically utilize the power of explosives for all manner of activities including construction and mining. Although dynamite could be considered a weapon of sorts, its beneficial utility far exceeds any role it has had in conflict. However, Nobel’s work in explosives demonstrates the importance of science in the development of technology that could be used for destructive purposes.

From an ESF-8 standpoint, response to explosive events involves providing rapid movement of patients and acute treatment of burns, extraction of fragments and care for blunt force trauma. Little can be done to prepare in advance for explosive attacks and modern trauma centers and emergency departments are about as well equipped as they can be. Burn treatment is especially difficult because of the probability of infection. Although certain types of patients could be transported to distant facilities, the most medically fragile patients should not be evacuated because transporting them could put them at a higher risk than treating them at local facilities. Although the CDC maintained Strategic National Stockpile contains many materials that would be useful for a medical response to an explosive attack, those materials would take too long to arrive for immediate use. Therefore, medical response to an explosives incident must be managed with the locally available resources.

Radiological Weapons

Radiation consists of energy in the form of particles or waves emanating from a source. Although heat, light and sound are forms of radiation, in the case of WMD, the radiations of interest are described as Alpha, Beta, Neutron and Gamma radiation. These radiations are typically produced by unstable atoms. These unstable elemental forms usually differ from stable forms because they have a different number of neutrons contained in the nucleus. For example, physicists define each element based on the number of protons in the nucleus. Yet, there may exist different versions of a particular element that, although they possess the same number of protons, have a different number of neutrons. These different versions of the same element are known as isotopes. Some isotopes may be stable while others may not be. Additionally, there are some heavier elements with high atomic numbers that do not have a truly stable

configuration. Those elements, such as Uranium, are always unstable and therefore radioactive. In order to reach stability, these atoms release, or emit, their excess mass along with energy that was used to “bind” the mass in the nucleus of the atom. These emissions produce the different forms of radiation. Different radioactive elements tend to emit different types of radiation. Because radioactive elements often decay to lighter weight daughter elements, which might themselves be unstable and may emit different forms of radiation than their parent types, a given radioactive sample will emit a variety of radiations as depicted in Figure 4-1.

Alpha particles consist of two protons and two neutrons bound together. An Alpha particle is essentially equivalent to the nucleus of a helium atom. By radiation standards the Alpha particle is large. Alphas are also slow moving and possess a positive charge. Because of these qualities, Alpha particles lack penetration and are easily stopped. Therefore, externally generated Alpha particles are not usually considered a threat to health. However, an Alpha particle emitted inside of a person can cause significant damage due to the particle’s mass and charge. A Beta particle is a very small negatively charged particle – an unbound electron. Beta penetration is greater than Alpha penetration but Beta particles are still stopped by clothing. Neutron radiation consists of neutrons which are fairly large and have no electrical charge. Neutrons are highly penetrating and are best slowed by large amounts of medium density materials. Due to their non-charged nature, Neutron radiation is also difficult to detect. Gamma radiation is generally thought of as energy in the form of waves. Gamma and X-Ray radiation are similar except that X-Rays have a longer wavelength and are generated by electron movement between layers of the atom’s electron shells. Gamma radiation is generated

as a response to changes within the nucleus of the atom. Gamma radiation is best stopped by high Z materials such as lead.

The public is frequently confused by the difference between radiation and radioactive materials. Radioactive materials are unstable materials which emit the forms of radiation described above. In many cases, a radioactive material is an isotope of a stable atom so the radioactive atom is named with a number to describe the isotope in question. For example, Cesium, more specifically Cesium-133, is a stable non-radioactive element. Cesium-133 also has several isotopes: Cesium-134, Cesium-135 and Cesium-137 which are radioactive. Although radiation measuring devices detect radiation, that radiation comes from a source material. That source material is the substance that represents the contamination threat during a radiological incident. For example, a victim can be exposed to Beta radiation emitted from radioactive dust but cannot be contaminated with Beta radiation. Rather, a victim may be contaminated with Cesium or Cobalt dust or other particles which emit Beta radiation.

Radiological Dissemination Devices (RDDs), frequently known as “dirty bombs,” are devices that are designed to spread radioactive materials. RDDs are not the same as nuclear weapons which rely on nuclear reactions to generate tremendous explosions. Instead, RDDs inflict injuries through radiation exposure, radioactive contamination and, most importantly, RDDs create fear and panic. Although an RDD might be an explosive device containing radioactive material, an RDD could also involve the exposure of people to a point source or release radioactive material to the environment through a non-explosive mechanism.

In the case of a dirty bomb, the RDD would generate most of its damage through the explosive's thermal and shock wave. The inclusion of radioactive material would slow response, impede medical personnel and frighten citizens. Response to a dirty bomb would be similar to the response to a "regular" explosive but would involve additional decontamination steps and a considerable post-event monitoring and environmental clean-up effort. Although it may not be possible to completely clean the environment of aerosolized long half life materials after a dirty bomb attack, it is at least possible to detect and measure the contamination. From a patient standpoint, radioactive material ingestion can be difficult to treat. Since many radioactive materials are metals, chelating agents such as Prussian Blue can be used to extract some of the materials; however most hospitals have limited supplies. Although chelating agents are included in the SNS, the expertise to use the drugs is not common.

Perhaps the most complicated RDD after-effect is psychological. Some materials that are considered prime candidates for use in an RDD, such as Cesium-137, have relatively long half lives. Cesium-137 has a half life of about 30 years. This would mean that after 30 years, half of the dispersed Cesium-137 would have decayed to a stable isotope of Barium while the remaining Cesium-137 would continue to decay. After 60 years, a quarter of the Cesium-137 would still remain. Most people have an innate fear of radiation and its effects. Even if a particular area was cleaned of contamination to a point that it posed no risk to safety, citizens would remain reluctant to live, work or shop in the area. Real estate prices would plummet and the zone around the incident would potentially be abandoned. Although chronic health complications would probably occur

among the exposed, many more people would worry about the effects and connect their future health problems to their supposed exposure to the radiological contamination.

Response to a radiological incident would involve the same medical system support that ESF-8 would perform for an explosive but may also involve bringing in medical personnel who specialize in radiation exposure. In addition to ESF-8, the Florida Department of Health also contains the Bureau of Radiation Control (BRC). The Bureau's job would be to work with all levels of government and response agencies to monitor radiation and track contamination. BRC would also advice the first response community about radioactive precautions and techniques. Health physicists with BRC would also probably consult with hospitals and work with public information personnel to develop accurate messages.

If the release contains radioactive isotopes of iodine, then the Bureau of Radiation Control would work with CHDs to dispense Potassium Iodide (KI) to people who might be in the releases' ingestion zone. Potassium iodide serves to saturate the thyroid with non-radioactive iodine in an effort to block the absorption and storage of radioactive iodine. CHDs located near nuclear power plants must have a KI distribution plan and conduct exercises.

Nuclear Weapons

Nuclear weapons are dramatically different from Dirty Bombs. While RDDs utilize the naturally timed emissions of scattered radioactive materials to generate radiation, nuclear weapons utilize the instability of certain radioactive materials in a specific quantity to create an intense energy release. These materials undergo a rapid chain reaction involving the fission of large atoms, the fusion of small atoms or both fission and fusion.

For example, the Uranium gun-bomb used against Hiroshima contained about 150 pounds of Uranium, principally the Uranium-235 isotope, to generate an explosive force equivalent to about 13,000 tons of TNT (a 13 kiloton yield). The Plutonium implosion weapon used against Nagasaki produced an estimated 23 kiloton yield from about 20 pounds of Plutonium-239. Due to the density of Plutonium, the pit of the weapon was about the size of a grapefruit.

A gun bomb is essentially a cannon with a closed-off cannon barrel that uses an explosive charge to fire a large Uranium “bullet” so that it combines with a second Uranium “target” and thereby forms a critical mass of Uranium which is able to undergo a self sustaining nuclear chain reaction. In the Hiroshima design, the bullet was actually a set of Uranium rings that slid over a machined Uranium core target located at the end of the barrel. When the rings and the cylindrical core are “assembled” the reaction occurs. The implosion weapon works by compressing a core of Plutonium, Uranium or a combination. Under normal circumstances, the core of the weapon is not a critical mass but becomes one as the core is compressed and its density is increased. The act of assembly is accomplished by the use of specially shaped explosive charges which surround the core and are detonated simultaneously.

As discussed earlier, different isotopes of Uranium have different stability. Uranium-235 is unstable enough that the neutrons released from its nucleus can break apart other Uranium-235 nuclei which in turn will release more neutrons. If sufficient Uranium-235, the “critical mass,” is present then this neutron bombardment becomes a self-sustaining chain reaction which leads to a tremendous and rapid release of energy. As mentioned, Plutonium-239 can also be used as fissile material in a weapon and is

even more efficient than Uranium-235. However, Plutonium does not exist in nature and Uranium-235 is extremely rare.

In the natural world, less than one percent of all Uranium is Uranium-235; the rest is Uranium-238 which, although radioactive and fissionable, is incapable of creating a self-sustaining chain reaction. In order to build a weapon, the Uranium must be enriched so that the weapon's core consists of more than about 80% Uranium-235. Enrichment is difficult because the two isotopes of Uranium are, from a chemical perspective, identical. Isotope separation must rely on processes that exploit the miniscule mass difference between the two isotopes – a difference of three neutrons. Uranium that is enriched to a few percent of Uranium-235 is known as Low Enriched Uranium (LEU), Uranium that is enriched to the point that it could be used to build a nuclear weapon is referred to as Highly Enriched Uranium (HEU). As an artificial element, Plutonium must be manufactured within nuclear reactors where it is a byproduct of Uranium-238 that has undergone neutron bombardment.

A nuclear reactor is a device which places fuel rods consisting of LEU in a matrix where they can bombard each other in a controlled manner. Rather than explode as a nuclear weapon, reactors create heat. This heat is then typically carried away by water which usually heats a second water circuit through a heat exchanger. The second water circuit is allowed to boil into steam which drives turbines that generate electricity. Although nuclear reactors are usually powered by Uranium, they cannot explode like a bomb. Rather, reactors could malfunction in a way that creates uncontrolled heat and causes the core to melt. Any kind of accident that releases radioactive materials, such as a steam explosion, would lead to a release of dangerous contamination. Additionally,

since the United States has failed to create a central waste depository after several decades of nuclear power generation, there are enormous quantities of spent reactor fuel cooling down in casks and water pools at most reactor sites. Unlike the active core, the spent fuel rods are not required to be stored within a reinforced containment dome. The State of Florida has three nuclear installations: Crystal River in Citrus County, Port St. Lucie in St. Lucie County and Turkey Point in Dade County.

Despite the tremendous explosive power released by the World War II era nuclear weapons, they were fairly inefficient by modern standards. The gun bomb design achieved no compressive efficiency and featured a safety drawback since the two masses could be critically combined in an accident. As a result, few gun bomb designs were developed after the war. Implosion weapons like the Nagasaki design evolved to levitated, and later, hollow cores and also used smaller and simpler high explosive assemblies.

Levitated and hollow cores allow greater inertia to develop during the assembly stage so the reactive core components can slam together achieving a critical mass with less fissile material. The design allowed greater efficiency of assembly as well as lower cost. An additional benefit to hollow core designs is that the hollow pit provided a natural location to store tritium and deuterium (radioactive isotopes of hydrogen). The inclusion of reactive light nuclei created a fusion component within an otherwise pure fission design. A weapon of this nature, known as a “boosted” design, generates some additional energy directly from the fusionable fuel. However, the fusion reaction also creates a flood of neutrons which further interacts with the fissile fuel core causing additional fission far faster than the pure fission chain reaction would. This speed of

reaction is vital to achieving maximum efficiency in a device that, by design, happens to be explosively dismantling itself at the same time that it is creating the desired effect. Weapons with a fusion component are typically referred to as thermonuclear weapons because of the temperatures required to achieve fusion reactions. Additionally, in the popular vernacular, fission weapons have been called Atomic Bombs (A Bombs) while thermonuclear designs have been referred to as Hydrogen Bombs (H Bombs) due to their early use of hydrogen isotopes. However, most modern weapons, regardless of yield, are actually combined fission-fusion designs.

Since the light nuclei of a boosted design are typically stored as a gas in an external cylinder and introduced into the center of the core during arming, the yield of the weapon can be tuned by controlling the quantity of the gas introduced. The adjustable yield feature has been dubbed “dial a yield.” Additional amounts of light nuclei fuel can be added to the outer core of the design in order to cause a secondary reaction in a containment shell consisting of more economical Uranium-238.

The next evolution in nuclear weapon design involved the creation of so-called two-stage thermonuclear designs. A two-stage design utilizes a fission based “primary” core to activate a fusion based “secondary” core. Essentially, the radiation energy of the primary is channeled through a heavy containment material and is used to radioactively and thermally compress the secondary core’s light weight nuclear fuel. The light weight fusionable fuel, typically in the form of Lithium isotopes, is usually used to detonate a surrounding Uranium-238 housing which channels the radiation and, once again, creates the fission-fusion-fission cycle.

The United States and the former Soviet Union have used thermonuclear designs to create extremely large yields. For example, the United States has created bombs with yields of 25 million tons of TNT (25 megatons) and the Soviet Union has tested a bomb with 50 megatons of yield which was originally designed to produce up to 100 megatons of yield. Weapons of this size are usually considered to have no strategic benefit because the yield far exceeds what is required to meet any reasonable military goal. However, the same technologies that allow a weapon's yield to be scaled up also allow for the creation of very small and efficient lower yield weapons. Approximately, ten years after the Nagasaki attack, the U.S. had created a portable field rocket known as "The Davy Crockett," which yielded a quarter kiloton yield in a package about a foot long. As nuclear doctrine evolved to focus on Intercontinental Ballistic Missiles (ICBMs) and Multiple Independently-targeted Reentry Vehicles (MIRVs) compact weapon design became crucial. Although modern weapon design has not focused on building bombs that are as powerful as they could be, compared to WW II bombs, modern weapons are still enormously powerful. The original Minute Man III ICBM, subsequently modified, was designed to carry three warheads yielding 170 kilotons each (Norris & Kristensen, 2009, p. 61). In other words, each original warhead carried over eight times the power that destroyed Nagasaki. Although the United States has developed no new warheads since the 1980s, the configuration of its ICBMs continues to change in response to technology and treaties.

One of the challenges facing the evaluation of nuclear weapon threats is the assumption of program goals. For example, most nuclear weapon designers were affiliated with either the U.S. or Soviet programs. As mentioned, these programs

focused on the implementation of compact and efficient designs with the ultimate plan of creating vast arsenals. However, a given nation's nuclear program may not share these same design goals. For example, a terrorist group's or country's ability to have any nuclear capability at all over shadows the importance of having an efficient nuclear capability. As a result, new nuclear programs may focus on a different set of goals than U.S. or Soviet goals and efforts to reach those different goals may not be easy to recognize for classically trained weapon analysts. When the Apartheid Republic of South Africa decided to build a small nuclear arsenal, it chose to use Uranium instead of more efficient Plutonium because Uranium was readily available to that country (Richelson, 2006, p. 371). Other countries such as Israel, India and Pakistan worked with both Uranium and Plutonium because they had access to both as byproducts of civilian nuclear reactor programs. These reactors were frequently supplied under the U.S. program entitled "Atoms for Peace," which was an attempt to share nuclear technology with non-nuclear weapons states in an ironic attempt to discourage them from developing their own technology which could lead to weaponization.

When the Soviets built their first nuclear weapon, they initially built a duplicate of the U.S. Plutonium implosion bomb used against Nagasaki. In fact, despite having a more sophisticated Soviet design, Stalin insisted on a faithful reproduction of the U.S. design since it was considered a known entity (Richelson, 2006, p. 96). The first Chinese nuclear weapon was also an implosion bomb but was based on Uranium-235. The fact that South Africa used Uranium allowed them to pursue the relatively simple gun-bomb design. Similar to the U.S. Hiroshima design, gun-bombs are considered so inefficient that military-oriented analysts never expected anyone to bother developing

them again. In fact, the South Africans were willing to sacrifice three implosion bomb's worth of fissile material in order to build a single gun-bomb. Conclusive evidence of their program unexpectedly came from Soviet and U.S. reconnaissance imagery of preparations at the South African test range. Ironically, the gun-bomb design, especially as "overloaded" as South Africa's, is considered so reliable that no testing was actually necessary, except, perhaps as a show of force. In fact, the first complete U.S. gun-bomb was dropped on Hiroshima with no test shot and it functioned flawlessly. A proliferators' choice of technology has also surprised analysts in other ways. For example, Uranium enrichment is most efficiently carried out using modern gas centrifuge cascades. Because of this, the sales of equipment useful for building enrichment centrifuges is carefully monitored. However, when the Iraqis first attempted to start a Uranium enrichment program, they chose to use the electro-magnetic separation technique. Although the U.S. had used this technique during WW II, it was considered so inefficient that few analysts expected a modern program to use the technique, Consequently Iraq was able to acquire the equipment with little suspicion. The South Africans also developed an unusual enrichment process which, again, took analysts by surprise.

As mentioned previously in the section on emergency management, nuclear weapons are so incredibly destructive that it is difficult to plan for them in any meaningful manner. While a large scale US-Russian exchange could not be considered nationally survivable, a single lower yield detonation could be responded to effectively. The structural damage from a nuclear weapon would be similar to the structural damage from an earthquake. The fire and heat damage, however, would be more intense and

widespread than U.S. public safety agencies have ever encountered. Moreover, direct radiation exposure, as well as indirect exposure from fallout, would be very wide spread and would contaminate a large area depending on environmental conditions at the time of detonation. Due to the complexity of nuclear response, there are few nuclear themed field exercises held simply because the problems would be so daunting that responders could learn little from participation. Rather, nuclear themed exercises are conducted at the policy level in the form of “table top exercises.” Even at this level of abstraction, there are few usable lessons for local and state officials. Some Federal exercises have been oriented towards the simulation of a full nuclear exchange and have served to discourage informed officials from advocating nuclear weapon usage. In fact, one of the problems of post-nuclear weapon planning is that, since the details of weapon performance is classified, it is difficult to actually plan. For example, as reported in an interview with a former FEMA liaison, FEMA’s group that descended from military civil-defense organizations has access to specific weapon information but that group is traditionally isolated from the rest of FEMA which is actually in charge of disaster response.

Although there has always been a strong link between science and national defense, nuclear weapons programs created an unparalleled partnership between science, academia and the military. During WW II, Manhattan Project scientists viewed their work on nuclear weapons as patriotic. Most were uninterested in the actual human effects of the weapons that they were creating. According to Los Alamos Director Robert Oppenheimer, the Atomic Bomb project was appealing because it was “technically sweet.” (Polenberg, 2002, p. 46) In fact, the bomb was seldom referred to

as a bomb at Los Alamos, rather it was simply called “a gadget.” Although some of the nomenclature was for security, the people who used the term were all cleared, the name was simply an easy way to talk about something horrible while ignoring its actual purpose. Ironically, in England, the specialized computers designed to crack the German Enigma code were referred to as “bombs.” Although there were always some scientists who refused to work on the Atomic Bomb during WW II, after the war more attitudes changed. Many Manhattan Project scientists realized the danger of nuclear weapon proliferation and dedicated much of their future careers to trying to put the “nuclear weapon genie” back into the bottle.

Chemical Weapons and Hazardous Materials

Modern society is highly reliant on our utilization of substances which can be dangerous if improperly used or stored. Additionally, hazardous materials tend to be aggregated for particular applications and stored in large quantities. Moreover, these materials are not just used in place, they are routinely transported across the country through every community in the nation. The presence of hazardous materials can provide a direct threat to public safety and can also tremendously complicate response operations that would otherwise be relatively routine.

As an example from Florida, the Port of Tampa, consisting of facilities in an intermittent arc extending from the City of Tampa around much of Tampa Bay, contains the highest concentration of hazardous materials in the State. The Port of Tampa is also the fifth largest hazardous materials port in the United States. In addition to industrial chemicals, Tampa is also one of three Florida ports for unloading fuel, which includes every drop of fuel burned at Orlando International Airport. The Port of Tampa is located close to both Interstate 75 and Interstate 4, several rail lines, and is also a junction

point for buried pipelines which extend into central Florida. Ships traveling in and out of the Port of Tampa pass close by the cities of Tampa and St. Petersburg. In addition to its proximity to downtown Tampa, the Port is close to the entertainment district of Ybor City and hosts thousands of tourists who travel aboard cruise ships based at the Port. A common Hazardous Materials exercise scenario in the Tampa Bay area is the modeled detonation of a large liquefied petroleum tank, which some estimates claim has a one mile lethal blast radius. Located next to that is a large anhydrous ammonia tank with an estimated five mile long kill zone within its downwind plume. Although the tanks themselves were frequently mentioned potential targets, the pipelines from the port were not usually considered. On May 27 2003, an individual attempted to siphon anhydrous ammonia, for methamphetamine production, from a 6-inch underground pressurized pipeline in southern Hillsborough County. This accidentally caused a enormous release of noxious gas that lead to evacuations and school closures. Clearly, the extent of the Port's zone of influence was larger than expected while the attacker was less exotic than expected.

In addition to the types of industrial chemical threats outlined above which, although potentially dangerous, are useful to society: another category of chemicals has been created specifically because of its ability to kill. The use of chemicals to harm others found its greatest application on the battle fields of WW I. In fact, some military historians actually referred to "mustard gas" as "The Queen (or King) of the Battlefield." Mustard is in a broader category of agents known as Blister Agents or "Vesicants." These are skin permeating chemicals that react with water in living tissue to cause subcutaneous burning resulting in blister formation (Office of the United States Army

Surgeon General, 1997, pp. 204-212). Blister agents are commonly thought of as affecting exposed skin but they are also capable of attacking internal tissues, such as the lungs and throat. In addition to outright destruction of skin, blister agents are also powerful mutagens and can cause disease beyond the direct attack on skin. Blister agents were developed in two forms: Mustards based around sulfur or nitrogen compounds and Lewisite. The primary difference is that Lewisite has instant effects while the mustards have delayed effects. Lewisite additionally contains heavy metals which can cause their own, separate, poisoning effect. Although pictures from World War I frequently show victims of Mustard attacks with bandages wrapped around their eyes, few sufferers actually developed permanent blindness from Mustard agents. Typically Mustard sufferers died from pulmonary damage. Mustard was also capable of leaving other chronic and permanent damage even if the victim survived the attack.

Before mustard, choking agents such as chlorine and phosgene were the first commonly used battlefield chemical weapons. Their effects are straightforward and damage the lungs to prevent the victim's breathing (Office of the United States Army Surgeon General, 1997, pp. 255-260). Other chemical asphyxiants, such as cyanide, were not commonly used in combat but are used for a variety of industrial and pest control purposes. Shortly after the 9/11 attacks, the Mexican government reported the theft of a tanker truck of Cyanide. In response, hospitals across the United States purchased new and replacement cyanide antidote kits which caused a several month long shortage of the antidotes. Countless movies and books have depicted the gruesome nature of chemical weapons, one of the most famous of which was written by Wilford Owen:

Dulce et Decorum est

Bent double, like old beggars under sacks,
Knock-kneed, coughing like hags, we cursed through sludge,
Till on the haunting flares we turned our backs,
And towards our distant rest began to trudge.
Men marched asleep. Many had lost their boots,
But limped on, blood-shod. All went lame, all blind;
Drunk with fatigue; deaf even to the hoots
Of gas-shells dropping softly behind.

Gas! Gas! Quick, boys! An ecstasy of fumbling,
Fitting the clumsy helmets just in time,
But someone still was yelling out and stumbling
And floundering like a man in fire or lime.
Dim through the misty panes and thick green light,
As under a green sea, I saw him drowning.
In all my dreams, before my helpless sight,
He plunges at me, guttering, choking, drowning.

If in some smothering dreams, you too could pace
Behind the wagon that we flung him in.
And watch the white eyes writhing in his face,
His hanging face, like a devil's sick of sin;
If you could hear, at every jolt, the blood
Come gargling from the froth-corrupted lungs,
Obscene as cancer, bitter as the cud
Of vile, incurable sores on innocent tongues,
My friend, you would not tell with such high zest
To children ardent for some desperate glory,
The old Lie: Dulce et decorum est pro patria mori.

Although WW II did not see the utilization of chemical weapons in combat, it did see the creation of an entirely new class of chemical weapons. Known as chemical nerve agents, these weapons far surpassed the performance of previous chemical agents. Chemical nerve agents can be broken down into two main classes: G and V. The G agents include: Tabun (GA), Sarin (GB), Soman (GD) and Cyclosarin (GF). These agents were developed in Germany by Dr. Gerhard Schrader before, during, and after World War II. The V agents were developed by various researchers after World War II who, like Schrader, were researching insecticides. The V agents include: VX, Amiton (VG), "Russian VX" (VR), VS and VM. In general, the V series agents are considerably more powerful than the G series agents and are much more persistent. Other nerve agent types include experimental "GV" and the Russian "Novichok Agents." Of all of these agents, GA, GB, GC, GF, VR and VX are known to have been weaponized. Regardless of their name and precise structure, all chemical nerve agents and related insecticides operate in the same manner. They bind to and disable the enzyme acetylcholinesterase, which is responsible for cleaning up the chemical "trigger" acetylcholine after a nervous system chemical transmission. The result of this excess acetylcholine is a systemic over-stimulation which causes the standard nerve agent poisoning symptoms: salivation, emesis, tearing, urination, defecation, and depending on the exposure route, "pin point pupils." In short, the body becomes so over-stimulated that its systems fail. Sarin, for example, has a lethal skin exposure dose for about 50% of the population (LD50) of approximately 24 milligrams per kilogram of body weight; lethal inhalation quantities are much lower. Depending on amount of exposure, death from nerve agents can occur in a matter of minutes (Office of the United States Army

Surgeon General, 1997, pp. 132-134). As a result, nerve agent antidotes must be deployed extremely quickly. Chemical nerve agents provide an ideal weapon for any terrorist organization with the capability to develop them.

It should also be mentioned that although chemical weapons are popularly known as “gasses,” for example “nerve gas” or “mustard gas.” these weapons are more properly called “agents.” In other words, chemical agents can be deployed in different phases, not only as an aerosol or vapor.

The Aum Shinrikyo Attack

Despite the fact that chemical nerve agents are considered an unlikely threat by many, they are no less likely than an attack based upon a biological or radiological agent. In fact, they may be more likely to be deployed and have been used in one of the major terrorist attacks of the 20th century. During Monday morning rush hour, March 20, 1995, the apocalyptic Aum Shinrikyo cult (now known as the "Aleph" religious movement) carried out five separate releases of Sarin (GB) nerve agent in the Tokyo subway system. Each attacker, carrying approximately one liter of Sarin agent within a paper-wrapped plastic bag, dropped the bag in a pre-determined subway station or train, punctured the bag with the tip of an umbrella and fled (Harris & Paxman, 2002, pp. 250-251). From a tactical standpoint, Aum's attack was clumsy and inefficient, but from a terrorism standpoint, it was quite effective. The death toll from the March 20 attack was only twelve, but over a thousand people were injured, and about 5,500 people were seen and treated at hospitals. Within the treatment centers, the lack of barrier protection, vapor protection and decontamination allowed the Sarin off-gassing from patients to affect many medical personnel. Although the 1995 attack is well known, an earlier Aum Sarin attack occurred in the city center of Matsumoto on June 24, 1994,

which killed seven and impacted about 200. At the time, the attack was not connected to Aum. During a raid on Aum properties after the 1995 attack, Japanese Police forces found sufficient stockpiles of home brewed Sarin to kill up to four million people if utilized in a more efficiently executed operation. As an apocalyptic cult, Aum’s belief system involved a coming battle of forces that would usher in a new world of peace and stability. Aum felt that it was necessary to begin the upcoming war through any means necessary. Clearly, Sarin was part of Aum’s strategic intentions to begin the battle of Armageddon.

It can be argued Aum's attack was not as effective as it could have been but other groups have most likely learned from Aum's attack. Despite the exotic nature of nerve agents, the chemicals can be produced by moderately competent chemists. The relative ease of deployment, fast action, lethality, and horrific reputation make chemical nerve agents a serious threat and an important component in all-hazard planning efforts. Much as the case with radioactive contamination, the fear of chemicals could actually be considered one of the primary complications in response.

In addition to genuine nerve agent weapons, the closely related organophosphate and carbomate insecticides frequently used in agricultural settings can produce similar, although far weaker, results. Despite the fact that modern pesticides are less lethal than earlier generations of products, there are enough of them in use that accidents can occur. For example, in April 2003, twenty one orange grove workers in Eastern Manatee County, Florida, were exposed to an excessive concentration of the insecticide Carbaryl. During that incident, there was genuine concern that regional hospitals had

insufficient supplies of the antidote atropine. In case of a shortage, Tampa Bay's cache of military style antidote kits was prepared for air shipment.

Much as Manhattan Project scientists of World War II frequently took on an anti-war activism role after the end of the conflict, chemical weapons specialists during World War I also faced moral dilemmas. In particular, the story of Germany's primary Chemical Weapons crusader could serve as the basis for an opera. The story centers around Fritz Haber who was later awarded the explosives funded Nobel Prize in 1918 for developing a technique to extract nitrogen from the air for use in industry. Interestingly, large amounts of nitrogen are crucial for manufacturing both fertilizer and explosives. As a patriotic chemist, Haber joined the military at the beginning of the war and promoted chemical weapons as a way for the German military to drive the enemy from protective trenches. Similar to the later Manhattan Project scientists, there was debate within the scientific community about the morality of using science in ways that would harm humanity. Haber clearly felt that ending the war sooner, particularly if Germany was victorious, was morally acceptable. In a report on the use of chemical weapons, Haber went so far as to describe chemical weapons as "a higher form of killing." The esteemed chemist Clara Immerwahr, Fritz Haber's wife, felt that the use of chemical weapons was immoral. Haber's success after the Battle of Ypres in 1915 earned him a promotion to Army Capitan but lost him a wife. Haber celebrated his promotion by hosting a lavish dinner party. However, following an after-dinner argument with her husband, Immerwahr stepped into the couple's garden and used her husband's service issue pistol to end her life (Harris & Paxman, 2002, pp. 12-13).

Although actual chemical response may be limited from a public health standpoint, medical treatment advice and assistance with evacuation planning are ESF-8 duties. Additionally, some public health personnel, such as RERAs, are actually on hazmat teams and might have an operational role when dealing with chemical weapons or industrial chemical spills. Public Health Preparedness involvement in the matter of chemical agents also can occur before an incident. A major focus of county PHP Planners is to work with other members of the medical community to carry out planning and exercises. Chemical agents are a major focus of that effort. The Department of Health also provides logistical support by supervising the CHEMPACK program and has assisted with the purchase and distribution of protective equipment and antidotes to EMS crews.

Biological Agents

As previously mentioned, the main reason why modern PHP exists is because of the anthrax attacks of 2001. Yet, before 2001, there were fledgling, or perhaps even fringe, biological preparedness efforts at specialized programs around the country. For example, following the evangelical warnings of smallpox eradication veteran D. A. Henderson, the U.S. Centers for Disease Control quietly began the National Pharmaceutical Stockpile Program in 1999. Around the same time, academic research centers at Johns Hopkins University, The University of Texas at Austin (UT), Texas Tech, Washington University in St. Louis, the University of South Florida (USF), along with several others, also began to educate and prepare first response agencies against the most unusual of the WMD threats.

Biological agents are frequently referred to as “the poor man’s atomic bomb.” While biological weapons do not produce an explosive force that destroys infrastructure,

they are ideal at clearing out the people. Biologicals can also contaminate large areas for long periods of time which effectively destroys infrastructure. In particular, biological weapons and nuclear weapons share the distinction of being able to completely destroy society as we know it – albeit in different ways. In addition to their performance, biological agents are also relatively inexpensive and simple to prepare. For stealth attacks, biological agents do not require a dramatic event to disseminate the agent nor are the effects immediate. By the time people start showing symptoms of a biological attack, they have moved far from the original point of infection. This helps to spread the disease farther and makes tracking down the infection point, contamination and the perpetrators very difficult. Depending on the agent, a small amount of organism can go a very long way as each victim becomes an incubator and dissemination mechanism for the next wave of victims. The communicable nature of many diseases and the fear of invisible organisms has the potential to erode society's bonds and relationships. As the social fabric of the civilization unravels, confidence and trust in the government to protect citizens disappears.

Biological agents are typically categorized into bacteria, viruses and toxins. Although other types of biological agents, such as protozoa and prions, could theoretically serve as weapons, they are generally not well suited. The Centers for Disease Control has ranked potential biological agents according to their ease of manufacture, ease of dissemination, transmissibility, deadliness and ability to disrupt society. The most highly ranked organisms are considered part of CDC's "Category A" agent list. The Category A agents are as follows: Plague, Anthrax, Botulism, Smallpox, Tularemia and Viral Hemorrhagic Fevers such as Marburg, Lassa or Ebola.

Toxins such as botulinum and ricin are essentially chemicals that are produced by biological organisms. As such, dealing with toxins is much like dealing with chemical weapons. *Clostridium botulinum,* the source organism for botulinum toxin and the causative agent of botulism, is a fairly common bacterium that secretes a toxin when it is, itself, infected by a particular virus. Botulinum is an extremely powerful neurotoxin that causes a descending paralysis. When the paralysis reaches vital organs, such as the lungs, death occurs. Although a traditional cause of food poisoning, botulism as a disease is not terribly common since home canning has become less popular. Ironically, the paralyzing quality of the toxin is now used to relax the facial muscles in the beauty aid known as Botox. Ricin, another deadly toxin, is a natural product of the castor plant, a common ornamental. Ricin has a history of use as an assassination agent and seems to be favored by anti-government movements within the United States due to its ease of manufacture and power.

As the agent of “The Black Death,” the plague bacterium, *Yersinia pestis* has always been feared by society. Plague is deadly, transmissible through insects and, more importantly, people. An outbreak of plague has the potential to set up waves of concentric cases spreading out from every single person originally infected. Because plague is unusual in the Eastern United States, detection and proper treatment would probably be delayed. Plague is generally known by its two types: bubonic and pneumonic. Both types of plague are caused by the same agent but the route of transmission is different. Bubonic plague is transmitted by the bite of a flea which has picked up the bacteria from other animals such as rats or cats. Bubonic plague will circulate through the body causing a severe swelling of the lymph nodes. Eventually,

after the disease has spread systemically, the bacteria will reach the lungs. Pneumonic plague is transmitted by aerosol droplets from a person who already has plague in their lungs. Since pneumonic plague travels directly from the respiratory tract of one person to another, it has a much faster incubation period in the second victim. It is the pneumonic form of plague that most alarms Public Health Preparedness planners since the onset of disease is more rapid and aerosolized plague could be generated by a device to infect tremendous numbers of people.

Anthrax

Anthrax is the quintessential biological warfare agent. It is hardy, easy to grow, easy to spread, persistent and very deadly. Although it is not transmissible person-to-person, this quality actually makes the agent more controllable. The qualities of anthrax made it the primary organism developed for use by bioweapons programs across the globe. In addition to the United States, Soviet Union and Great Britain, anthrax was also developed and tested by Aum Shinrikyo. Anthrax can manifest itself in three ways: cutanious anthrax appears as a skin disease when the spore penetrates a cut or opening. The cutanious form of the disease presents as a black sore which is, in fact, where the disease gets its name. In rare cases, anthrax spores can also be eaten and will present as a gastrointestinal form. Lastly, and most dangerously, anthrax spores can be inhaled. As has been noted by others, some of the plagues of the Hebrew Bible do, in fact, resemble anthrax.

> The hand of the Lord will strike with a deadly pestilence your livestock in the field: the horses, the donkeys, the camels, the herds, and the flocks.
> Exodus 9.3

> So they took soot from the kiln, and stood before Pharaoh, and Moses threw it in the air, and it caused festering boils on humans and animals.
> Exodus 9.10

The cutanious version of anthrax is considered to have a 20% mortality rate if left untreated. Gastrointestinal and inhalational anthrax have death rates far higher. Traditionally, inhalational anthrax is considered to be 98% fatal. However, after the 2001 anthrax attacks it was discovered that patients could be saved if extreme medical resources were utilized. Unfortunately, in the case of a large outbreak, the kind of resources needed to save inhalational anthrax patients would probably not be available in sufficient quantity. In an inhalational anthrax attack, the spores of the organism have generally been milled to a little over one micron in size which will ease their passing into the lower long. Upon reaching the lower lung, the spores will germinate and begin their life-cycle. A natural part of the anthrax life-cycle is the production of toxic waste products. These toxins are responsible for the effects of the disease and will ultimately kill the victim. Since the disease is caused by the toxin, rather than the organism itself, anthrax can be a difficult disease to treat. Use of antibiotic drugs can kill the bacteria but will not reduce the toxins which are actually causing symptoms throughout the body. Care for an anthrax victim consists of supportive care, respiratory assistance and periodic draining of the lymph nodes located within the chest. From a preventative standpoint, if an individual can maintain a sufficient level of antibiotic within their system, the bacteria will be killed as soon as they germinate and before they can produce toxins.

Unfortunately, a single breath of anthrax spores can germinate at different times. Furthermore, host factors, such as the efficiency of the victim’s immune system, will also have a tremendous impact on the timing of pathology. As a result, prophylactic treatment for anthrax must begin as quickly as possible and should remain in use until

the last of the spores has germinated and died. How long the spores will remain viable in the lung is a point of debate. Although there is a vaccine for anthrax, the vaccine is complicated to dispense and has not been clinically proven to protect humans against the inhalational form of the disease.

Smallpox

Smallpox not only has the distinction of being one of humanity's greatest scourges, it also has the distinction of being the only disease agent that has apparently gone extinct in the natural world. The smallpox eradication campaign is considered one of the great triumphs of public health history. Not only was the campaign well organized and completely international in scope and cooperation, the individuals involved demonstrated tremendous ingenuity and bravery in implementing the campaign. Because of the incredible success of the smallpox eradication, the use of the agent as a weapon would be all the more ironic and criminal. With an average mortality rate of about 30%, smallpox is considered quite deadly, at least by modern treatment standards. However, it is most feared because it does something that modern humans consider even worse than death – it has the potential to make them ugly.

In past centuries, European "milk maids" developed the reputation of being beautiful women with attractive skin. This reputation was deserved because milk maids seldom contracted the disfiguring smallpox. Rather, milk maids contracted a milder, related, disease called "cow pox." English doctor William Jenner made the connection between cow pox and smallpox and crudely inoculated a boy. After exposing the boy to smallpox victims, the boy remained uninfected (Alibek & Handelman, 1999, p. 110). Although Jenner's experiment would not pass today's Institutional Review Board process, it did conclusively show a connection between the diseases and the ability to use exposure to

one to prevent the other. Smallpox vaccination became the first common vaccine and the name “vaccination” that we use for all antigenic prevention methods is named after the Latin word for “cow” in honor of Jenner’s cowpox inoculation. Jenner’s vaccination evolved into a technique that involved dipping a two pronged needle into a jar of vaccine and repeatedly jabbing the needle into the skin of the person undergoing vaccination. This vaccination proved its efficacy and was the primary tool used to eradicate smallpox during the WHO led campaign of the 1960s and 1970s.

Biological Defense

After the Anthrax attacks of 2001, many analysts in the domestic preparedness community thought that smallpox may be the next agent used for an attack. In addition to the dangers of smallpox, few in the United States were immune since regular vaccinations had halted by the late 1960s. After eradication, smallpox research reservoirs remained in the United States and the Soviet Union. However, the Soviets readily admitted that they moved the vaccine between facilities without WHO approval or monitoring (Alibek & Handelman, 1999, pp. 110-111, 118, 169-170). Furthermore, the final location, in 1994, for the Soviet smallpox library was within a facility, known as Vector, that belonged to the Soviet Bioweapons research apparatus and Soviet defectors mentioned the use of smallpox as a productionized biological weapon by the Soviet Union. Although smallpox has yet to make an appearance since the eradication campaign ended, concerns about it remain and the occasional false alarm activates full scale response.

When the author first started at the newly established USF Center for Biological Defense in early 2001, the idea of biological weapons seemed to many to be such a strange idea that it did not even deserve serious consideration. A number of academic

books and articles exploring the subject had been released and several novels, including Richard Preston's "The Cobra Event", had been written. Yet, the topic remained a niche pursuit within both national defense and public health. Although the interest of D. A. Henderson, Joshua Lederberg and other esteemed luminaries did draw some credibility to the subject in public health and medical circles, most public health professionals were consumed with fighting decreasing budgets and naturally occurring communicable diseases both new and old.

Traditionally, serious bioterrorism (BT) research had been conducted by the military. In fact, as in World War II, several of the modern university-based BT research centers, include the one at USF, were directly funded by the military. Specifically, USF, Texas Tech and UT Austin were joined as a consortium in a shotgun wedding by the U.S. Army's Soldier's Biological and Chemical Command (SBCCOM). Funding was eventually overseen by an entirely new military agency, the Defense Threat Reduction Agency (DTRA). This new agency was formed specifically to study and counter the threats of WMD and provide research to allow the United States and her allies to harden their forces and facilities against a broad spectrum of threats. In addition to conducting research, DTRA also worked to inspect foreign facilities, create tools for responders and work with other agencies to control and destroy materials that might prove useful for creating WMDs.

Military Biological Weapons

Similar to nuclear and chemical weapons, the initial concerns about biological agents were related to their history as the developments of military programs. Although biological agents as weapons can trace their history to attempts to spread plague by catapulting bodies into walled cities, contaminating water supplies and giving blankets

potentially contaminated by smallpox to Native Americans – the first real efforts to develop biological weapons came during World War II. Unknown to many, the American and British militaries were actively stockpiling anthrax bombs for use against Germany (Harris & Paxman, 2002, pp. 102-108). Fortunately for continental Europe, the war was going well enough for the Allies that they did not see the strategic need to deploy their anthrax arsenal. It is sobering to think about the loss of human and animal life following an anthrax bombardment. The effects of the attack would have been felt far into the future. For example, the Scottish Island of Gruinard was considered contaminated, and off limits from 1942 until 1990, due to anthrax spores buried in the surface soil during weapons testing (Cole, 2003, p. 25). The island was only considered safe after much top soil was removed and the entire island was soaked under inches of formaldehyde (Harris & Paxman, 2002, pp. 70-76). The post-war world would have been very different if much of Europe had been contaminated with anthrax spores. Perhaps Europe would have served as a giant Korean-style demilitarized zone over which the sentries of opposing nuclear armies would stare and dare not blink.

In addition to the United States and Britain, the Soviet Union also worked on a biological weapons program. In fact, an unusual outbreak during 1943 of Tularemia, a livestock disease, among the invading German Army, as well as some unlucky civilians, is frequently cited as a result of a Soviet bioweapons attack (Alibek & Handelman, 1999, pp. 29-31).

During the cold war, military biological weapons development dramatically increased but still managed to remain highly secret. While nuclear weapons had been used and were discussed and debated at all levels of society, biological weapons

continued to grow in the shadows and remained essentially unknown. Although nuclear weapons were controversial, biological weapons were even more controversial among the few people who knew of their existence. The laws of physics as applied in nuclear weapons seemed cold, mechanical and detached. Biological agents seemed much more personal and diabolical. Infectious disease had always been considered to be an enemy of man above virtually any other conflict. The idea of using germs and disease as tools of warfare seemed even less legitimate than nuclear incineration or chemical burning and drowning. Another factor concerning biological weapons had to do with the professions involved. Physicists never swore to “above all, do no harm” as had the doctors who worked on biological warfare agents. Biologists had generally studied pathogenic organisms as something to be conquered, not something to be used. While nuclear and chemical weapons may have been considered inhumane, biological weapons had the air of genuine repugnance.

The motivation for bioweaponeers was clearly varied. On both sides of the Atlantic, biologists may have considered the development of custom organisms and dissemination methods to be “technically sweet” in the same way that Oppenheimer and his colleagues did. In the case of Soviet scientists, there was even greater sweetness. Due to the official State policies inspired by Lysenko, Communist biologists and doctors were forbidden to research, or even consider, concepts of genetic transmission and expression (Alibek & Handelman, 1999, pp. 39-41) (Garrett, 2000, pp. 259-260). While western researchers were literally cracking the code of human biological diversity, Soviet researchers were forced to cling to a creaky ideology that, although wrong, was compatible with a “progress oriented” communist world view. However, researchers

involved in bioweapons development were in a different category entirely. Allowed freedom to travel and access to western publications, bioweaponeers clearly understood genetic engineering and the process of evolution – tools which allowed them to direct the evolution of disease agents into ever more deadly and ever more difficult to treat super organisms.

The major WW II concern, as in the nuclear weapons field, was that technically sophisticated Nazi Germany would develop and deploy biological agents first. However, the Germans were not actively pursuing biological weapons. Rather, the Japanese had launched a major bioweapon testing and development program. Furthermore, the Japanese military had gained actual field experience by using biological agents in China. In particular, Japan's "Unit 731" based in Manchuria, regularly tested biological agents, primarily anthrax, on human prisoners and ultimately conducted around a thousand autopsies documenting the results (Harris & Paxman, 2002, pp. 77-83).

The U.S. Bioweapons Program

The U.S. Biological Weapons program was divided between a University-based program run by the Department of Agriculture as well as a military program run by the U.S. Army. The program involved a number of research centers, the post-war establishment of Dugway Proving Ground in Utah as well as the construction of a major war-time production factory near Terre Haute, Indiana. The majority of the work was conducted at Camp Detrick, Maryland, where almost 4,000 people were employed to work on biological weapon development and production (Office of the United States Army Surgeon General, 1997, p. 427) (Miller, Engelberg, & Broad, 2001, p. 47).

Much post-war U.S. bioweapon work involved the testing of dispersal mechanisms and modeling efforts. In 1950, the military was conducting chemical releases to simulate

biological agents near Norfolk, Virginia. San Francisco was used as a testing location for *Bacillus globigii and Serratia marcescens.* By 1953 Minneapolis, Minnesota was targeted because its climate resembled that of interior Soviet cities. The first U.S. made cluster bombs filled with *Francisella tularensis* and *Brucella melitensis,* the causative agents of Tularemia and Brucellosis, were created in 1955. The same year also saw the release, from an aircraft, of the rickettsia that causes Q-Fever over a Dugway test range. The dissemination technique worked so well that sentries posted 50 miles from the release came down with Q-Fever (Office of the United States Army Surgeon General, 1997, pp. 428-429) (Harris & Paxman, 2002, pp. 158-161). During 1956, at Pine Bluff, Arkansas, the Army began full-scale production of Venezuelan Equine Influenza (VEE) virus and Q-Fever. These facilities joined the ones already built for producing bacteria such as *Francisella tularensis* (Miller, Engelberg, & Broad, 2001, p. 50) (Office of the United States Army Surgeon General, 1997, p. 429). In 1966, Army scientists released small amounts of *Bacillus subtilis* in the New York City subway to observe propagation patterns through the entire system (Harris & Paxman, 2002, pp. 161-162). By this time, however, the U.S. bioweapons program had undergone a conceptual evolution in that most American biological weapons were designed to incapacitate an enemy with illness rather than outright kill them. In addition to seeming more humane, it is aligned with a military concept whereby caring for an injured soldier consumes more enemy resources than caring for a dead soldier. Incapacitating biological weapons also provided a capability that was unavailable in the nuclear and chemical arsenals. From a defensive standpoint, since biological agents were difficult to control post-release, it was also considered safer to use a weapon that made people

sick rather than killed them since the victims may well be friendly forces or unintended civilian targets.

The U.S. offensive bioweapons program was dismantled by direct order of President Richard Nixon in 1972. In a moment of timeless eloquence, Nixon stated that “Mankind already carries in its own hands too many of the seeds of its own destruction.” With Nixon’s decision, all development work on biological weapons stopped. However, military scientists were permitted to continue studying biological agents for defensive purposes. Nixon’s dismemberment of the offensive bioweapons program corresponded with his international agenda and paved the way for the United States to sign and ratify the Biological Weapons Convention (BWC) in 1975. Under the BWC, all signatories agreed to stop the development, production and stockpiling of biological weapons. It may seem short sighted to cancel a major weapons program, but the goals of each nation must be remembered. The United States, which possessed an extremely reliable and powerful nuclear deterrent, as well as large stocks of chemical weapons, was not interested in investing in another technology that did not offer the flexibility of the other weapons and would be uncontrollable on the battle field. The Soviets, on the other hand, were less interested in biological weapons as a battle field tool but saw them as strategic weapons to be used on U.S. cities in addition to its nuclear arsenal. The United States military leaders tended to think in terms of combat superiority and relied on their nuclear option to destroy civilizations if necessary. The Soviets, perhaps worried about their nuclear parity, sought other means to develop strategic superiority. This is another example of an attempt by the United States to focus on what was perceived to be the most “efficient” weapon system while the Soviets focused on redundant weapon

systems. In addition to an effort to take the moral high ground, President Nixon's eagerness to ratify the BWC can, therefore, also be seen as a cost cutting measure.

In many regards, the BWC is similar to the 1993 Chemical Weapons Convention (CWC). The CWC allowed the United States to stop producing and maintaining expensive and dangerous nerve agent munitions. For example, GB filled M-55 rockets began to manifest severe leakage problems only a short time after they were produced. Clearly these rockets would need to be disposed of. However, replacing them with new nerve agent munitions would be expensive and controversial. Attempts during the Regan Administration to replace U.S. nerve agent munitions with binary agents which mixed safer components to create VX during flight, met with considerable domestic and foreign opposition. Signing the CWC, therefore, allowed the United States an honorable and economical retreat from the offensive chemical weapons business. As will be seen with the BWC, the CWC also allowed the Soviets to creatively continue work despite the treaty. For example, the Soviets were careful to hide their work on a new generation of nerve agents, known as the "Novichok Agents." Due to chemical differences between the Novichok agents and earlier nerve agents, the CWC does not specifically control them or their precursor chemicals (Smithson, 1994, p. 15).

The Soviet Bioweapons Program

After the BWC, the U.S. infrastructure of the former bioweapons program lay abandoned in place much as similar facilities constructed for unneeded chemical weapons and bypassed nuclear weapons programs did. Although the U.S. program ground to a halt, not all signatories to the BWC actually ended their programs. Principally, the Soviet Union's bioweapons program, always secretive, went further underground. In some cases, the Soviets actually expanded their program and tightly

integrated it with other biological research centers and production facilities across the continent (Alibek & Handelman, 1999, pp. x, 149-152). Although the United States suspected that the Soviets did not entirely abandon biological weapons, U.S. analysts had no idea how enormous the program actually was. Two major events were to give Western researchers a peek under the Soviet's veil of secrecy.

The first event was the Sverdlovsk (now Yekaterinburg) anthrax release (Alibek & Handelman, 1999, pp. 70-81). In 1979, workers at a biological weapons facility that processed anthrax spores to a fine size during the weaponization stage forgot to replace an air filter before the next shift change. As a result, the night shift ran the drying equipment unfiltered and released a quantity of weaponized anthrax. Since the release occurred at night, when most people were in bed, actual exposure was limited. However, there were arguably 77 cases with 66 deaths. The cases were arrayed neatly across a down-wind plume pattern from the facility. Although residents of Sverdlovsk were told little, they did note that the military arrived in force and began to sweep, wash and clean major portions of the city. When reports about the anthrax outbreak eventually emerged, the Soviets' claimed that the outbreak was due to contaminated meat purchased on the black market. Years later, after an international team of researchers were given access to archives, medical records and citizens themselves, the suspected bioweapons accident was proven (Guillemin, 1999, pp. 234-239).

Although Sverdlovsk was a horrific accident, that could have been much worse, it must be remembered that Sverdlovsk was only a single link in the many chains that made up the Soviet bioweapons industry. Hints about the full extent of the program had

to await defectors from the program, Sergei Popov, Vladimir Pasechnik and Ken Alibek, who provided Western analysts with an in-depth view.

While the rest of the world turned its back on disease causing agents as weapons of war, the Soviets felt that the field offered tremendous new opportunities. Although it is easy to malign the immorality of weaponizing an agent such as smallpox, especially after the Soviet Union played a leading role in eradicating that disease, the Soviets were not alone. After all, military weapon designers are looking for technologies that would prove effective. In the United States, after the Yellow Fever virus was vanquished from the Western Hemisphere, Camp Detrick scientists investigated the virus as a bioweapons and actually tested the mobility of particular mosquitoes by releasing them across the southeastern United States (Harris & Paxman, 2002, p. 169) (Miller, Engelberg, & Broad, 2001, p. 46).

As an example of the Russian effort, at its peak, the bioweapons program utilized four large scale factories exclusively for producing anthrax. The facility in Stepnogorsk, which was managed by Alibek, produced about 300 tons of anthrax during a yearly production cycle (Alibek & Handelman, 1999, p. 99). After the breakup of the Soviet Union, western researchers visited Alibek's plant in Kazakhstan and confirmed the incredible production ability at this single factory. The team toured test chambers, fermentation halls, and warhead filling rooms. The plant was dedicated to a strain of anthrax, invented by Alibek, that was three times as pathogenic as the strain that had escaped Sverdlovsk years before (Alibek & Handelman, 1999, p. 105). In comparison, U.S. Bioweaponeer Bill Patrick claims that the primary U.S. anthrax production facility was able to produce about one ton per year. The Soviet program also started

weaponizing smallpox in the late 1940s and continued up until the time of Alibek's defection. Plague, an agent also investigated by the United States, was perfected by the Soviets so that it no longer suffered from the long term stability problems encountered by the U.S. researchers. All in all, the Soviet program produced a staggering number of agents, deployed delivery systems and focused on lethal organisms that were dismissed as uncontrollable by the U.S. program.

Furthermore, the Soviet program reached its tentacles into dozens of government agencies and research laboratories. Since the Soviet program was developing weapons during the great biological revolution of the 1970s, 1980s and 1990s, Soviet weaponeers benefitted from leading edge genetic manipulation technologies. Rather than constrain themselves to the "moldy oldies," Soviet researchers developed organisms that offered increased virulence. Around the time of Alibek's departure, the program was actively investigating methods of combining characteristics of viruses like ebola with smallpox (Alibek & Handelman, 1999, pp. 259-260). Researchers also worked with anthrax to devise different surface proteins that would defeat traditional anthrax vaccines and spliced in plasmids to confer resistance to entire families of antibiotics.

There are three truly terrifying aspects of the Soviet Program. The first surprise is that the program was as large and complicated as it was. The variety of agents developed and stockpiled was enormous and dwarfed anything that the United States had produced during its offensive program. The second surprise was that the Soviet program remained largely hidden. Despite treaties and even inspections, the Soviets were able to hide their program – both underground and also "concealed in plain sight"

in a way that left it largely undetected for over 20 years. The third item of concern is that few people have any idea what happened to the program. The bioweapons program employed an estimated 60,000 researchers and workers at its peak who produced tons of product. A mere plastic sandwich bag could cart away billions of hardy spores representing the very best of Soviet designed anthrax. Where did the stockpile of agents go? Where did the specimen libraries go? Where did the people go? Where did the knowledge go? In many cases, we simply have no idea.

Iraq's Bioweapons Program

That last issue, spread of knowledge, is a continuing concern to biodefense specialists. Although, in retrospect, it is clear that Saddam Hussein's Iraq held no reserves of WMDs after the first Gulf War, it is absolutely certain that Iraq was engaged in a robust chemical, biological and nuclear weapons program during the time leading up to that conflict. Iraq released an April 1991 statement that it had never conducted nuclear or biological weapons development and that its chemical weapons development had been minimal. Of course, evidence from the Iran-Iraq war, as well as attacks on Kurdish civilians, clearly showed Iraq's possession of chemical weapons. In an effort to develop an understanding of Iraq's unconventional weapon history and status, the United Nations established the U.N. Special Commission (UNSCOM). Similar to the search for Iraqi nuclear weapons, the biological arm of UNSCOM found itself blocked at every turn. Stories changed and material was moved or hidden. Furthermore, potentially useful intelligence from espionage agencies was not provided to UNSCOM investigators which cost the team years of wasted labor and trips (Miller, Engelberg, & Broad, 2001, p. 130). In the end, sufficient evidence was collected to determine that the Iraqi's at one time had developed significant production capability for the manufacture of anthrax,

botulinum toxin and *Clostridium perfringens*. The Iraqi's produced numerous bombs and tanks loaded with biological agents, including sixteen botulinum warheads and five anthrax warheads to fit atop the same Scud missiles that Iraq launched against Israel during the war. To make up for the limited abilities of Iraqi missiles and the inefficient explosive driven dissemination technique of the warheads, the Iraqi bioweaponeers also devised a 2,000 liter spray tank that could be used to spread biological agents from aircraft (Miller, Engelberg, & Broad, 2001, pp. 185-187). Again, much as with the Soviet program, where did the specialists go after the war? Where did their libraries and product go?

By 2001, the bioweapon horrors of the past were slowly coming to light. National public health leaders were touting the possibility of biblical style plagues. Universities also started spreading the word among first responders. Researchers were thinking seriously about the ramifications of the Soviet bioweapons program. Meanwhile, the attacks of September 2001 completely shook the sense of security among most American citizens. As the dust, literally and metaphorically, settled after the Al Qaida attacks, domestic security specialists and the public wondered what would happen next. Suddenly, the other shoe appeared to drop.

Amerithrax

The October 2001 Anthrax attacks on the United States, known by the FBI case name "Amerithrax," are best remembered for the incredible confusion that surrounded the event. Although the basic facts remain that someone sent "Ames strain" anthrax contained in envelopes addressed to the media and politicians through the postal system, the motivations remain murky. The first officially noticed sign of Amerithrax was the infection of Robert Stevens. Stevens was a photograph editor for American Media

Incorporated (AMI). In his role, Stevens prepared pictures for use in tabloid newspapers sold in supermarkets across the country. While on vacation in North Carolina, Stevens, a normally active man of 63, began to feel tired and sick. His family wanted him to stop off at hospitals along the route of the trip but Stevens declined. After returning to his home in Lantana, Florida, on October 2nd, Steven's wife insisted that he go to the emergency department because his condition continued to deteriorate. Samples from Stevens were initially examined by hospital staff at John F. Kennedy Medical Center in Atlantis, FL. Since the samples looked suspiciously like anthrax, the samples were retested at the Florida Department of Health's main laboratory in Jacksonville, FL. After coming up positive for anthrax, the samples were verified by the Centers for Disease Control in Atlanta, GA.

Even before the results were confirmed, Dr. Jean Malecki, the Palm Beach County Health Department Director, along with local medical specialists began to suspect that Stevens was suffering from anthrax. In discussions with DOH epidemiologists and managers in Tallahassee, Malecki tried to press her case while the skeptical epidemiologists fought back with alternate explanations. Finally, the laboratory results settled, teams of investigators from both CDC and Tallahassee arrived in Palm Beach County to work with local CHD staff on a joint investigation of Steven's travels, property and workplace (Cole, 2003, p. 17).

There were numerous reasons to suspect that the anthrax infection might have been deliberate. Anthrax is the quintessential biological warfare organism and rarely infects people naturally. Even during human outbreaks, anthrax does not normally occur among suburban dwelling photo editors. Additionally, the community where Stevens

lived was also the same community that had unwittingly hosted some of the 9/11 hijackers while they attended flight school. In fact, the wife of one of Stevens' managers served as a real estate agent for some of the hijackers when they sought apartments. The very factors that made Stevens appear as an unlikely biological weapon victim could, in this case, be turned on their heads. In other words, immediately post 9/11, AMI seemed just as reasonable of a target as anything else.

What was not initially realized was that Stevens was not alone. Previous to Steven's hospitalization and death, Johanna Hudsen of the New York Post came down with an unusual skin infection, later determined to be cutanious anthrax. She was followed by cutanious infections of Erin O'Conner and Casy Chamberlain at NBC, as well as postal workers Teresa Heller and Richard Morgano in New Jersey. Next to fall victim was Steven's colleague Ernesto Blanco at AMI and Claire Fletcher at CBS in New York. Although these cases of anthrax occurred in rapid succession, they occurred independently and were seen, in most cases, by different doctors (Cole, 2003, pp. 47-69).

Medical professionals tends to follow an analytical process related to Occam's Razor. In other words, the simplest answer is generally deemed the correct answer. Exposure to anthrax is not normally deemed a simple answer. Even as word about the AMI and later the Senate letters emerged, some involved doctors became concerned that their patients were suffering from anthrax, but paternalistically chose not to inform the victims of their concerns. Holding back the suspicion of anthrax was also encouraged because of the tremendous public panic that was expected, and did in fact, ensue.

By the time that the New York cases were gaining recognition, focus switched to the Washington D.C. area. Tom Daschle's Senate office received a threatening letter with obvious white powder. Due to concerns about anthrax in New York and Florida, people who were possibly exposed to the powder were given prophylaxis and were tested with nasal swabs – a dubious technique previously used in the other states. Meanwhile, attention was paid to the actual delivery route. As the postal cases in New York were unfolding, postal carriers in the Washington area were coming down with anthrax simultaneously. Leroy Richmand, Thomas Morris, Joseph Curseen and Qieth McQue, all postal employees, were infected. Morris and Curseen died while Richmand and McQue survived due to strength, determination and heroic medical intervention. Of all those exposed, the postal employees faced the greatest danger and had the greatest losses. In addition to the four above, postal employees Norma Wallace, Jyotsna Patel and Patrick O'Donnell, along with David Hose, were also infected with anthrax.

The anthrax letters traveling through the mail system also contaminated other items of mail. Linda Burch in New Jersey appears to have been infected by cross contaminated mail. Ninety four year old Ottilie Lundgren in Connecticut was killed by anthrax after her mail had been exposed to other mail that had been exposed to the anthrax envelopes. Lundgren's neighbor, Oscar Haines, also received an anthrax contaminated letter, which proved to be a critical piece of evidence. Although Haines died, he appears to have died of heart complications rather than anthrax exposure. Most puzzling, Kathy Nguyen (Cole, 2003, pp. 95-104), a New York medical clerk, died of anthrax after no known exposure.

Amerithrax started as a public health investigation, albeit one with the shadow of terrorism cast over it. The primary public health goals were to create a case definition, map the outbreak, determine the method of infection and mitigate the risk of the outbreak spreading. The primary law enforcement priority was to find the person who did it and where the anthrax had come from. Although the possibility that the anthrax cases were caused by terrorism was high on most people's minds, CDC also had to follow through with a standard investigation in order to rule out any sort of natural transmission of the agent. Once spores were found in the AMI building and were associated with letters, it became clear that the outbreak was a criminal matter. When the leads started pointing to an intentional infection the jurisdiction of the investigation moved from the CDC to the FBI. Despite the fact that CDC already had teams in the field, in some cases containing FBI agents, and was charged with actually protecting the public's health, the FBI chose to behave territorially.

For example, the FBI decided to use the laboratory services of USAMRIID rather than of CDC. Like the FBI, USAMRIID was more interested in discovering where the agent came from, ironic or perhaps sinister in retrospect, and was much less interested in determining what kinds of risks might be posed to the public. Although the FBI recovered a number of letters and collected samples of the anthrax powder, none of this "evidence" was shared with CDC. As a science based organization, CDC wanted to know if the letters could leak spores while in transit through the mail system and if any spores from the letters might contaminate other things or people. The FBI and USAMRIID refused to cooperate with CDC. Despite the lack of information, CDC and other representatives of the Federal government attempted to reassure the public that

they were not in danger by down playing the risks of cross contamination and leaking envelopes (Siegel, 2002). As a result of this, the U.S. Postal Service continued to operate contaminated facilities, which further infected their own employees, and sent a second and then third wave of deadly mail to a public that was told it had little to fear.

The FBI also made its presence known at the local level. While CDC and DOH had a productive partnership, the FBI partnered with no local agencies. One absurd outcome of this dysfunction was that the DOH Secretary was prevented from holding a press conference concerning the attacks. It seemed that the FBI's approach was that if a public health disaster was caused by criminal activity then it was no longer considered as a public health disaster. This attitude was not entirely unexpected because many exercises, plans and joint projects have shown that government agencies frequently fail to cooperate. During Amerithrax, this failure to cooperate cost people their lives. Of the five Amerithrax deaths, it could be argued that four of them might have been prevented if the contamination of the mail system were more fully understood. After the 9/11 hijacking, the Federal government shut down the entire civilian air traffic system. Clearly, the precedence existed for radical measures but no action was taken.

Capitalizing on public fear and lack of information, an increased number of anthrax hoax letters appeared around the nation. Furthermore, due to concerns of Amerithrax, thousands of completely innocuous letters and packages were viewed in a completely new light. These threatening hoaxes and innocent pieces of mail almost overwhelmed the nation's public safety and public health laboratory system. In addition to the actual Amerithrax cases, "white powder calls" burned up hundred of thousands of man hours

across the country. Some of these incidents will be described in another section of this document.

Unfortunately, the response was not the only part of Amerithrax that was bungled. In mid-2008, after nearly seven years of investigation, the Justice Department settled a lawsuit with biologist Steven Hatfill. The biodefense scientist had been publicly declared a “person of interest” associated with Amerithrax. Hatfill had his home, his storage facility and the property around his neighborhood, including a pond, searched for evidence. Hatfill was harassed by government agents and the public. After numerous years of employment, Hatfill found himself without a job due to the metaphorical cloud of Amerithrax (Cole, 2003, pp. 192-195). Like Wen Ho Lee and Richard Jewell**,** Hatfill was trapped in a bizarre Kafkaesque no man’s land between unproven guilt and unprovable innocence.

After Hatfill’s settlement, the FBI announced that a different biodefense scientist, Bruce Ivins, was actually to blame for the Amerithrax attacks. Ivins, an employee of USAMRIID, had actually created vaccines against anthrax. As the investigative case focused more closely on Ivins, he began to act increasingly erratic. However, rather than lash out at the government as Hatfill did, Ivins chose to kill himself with an overdose of acetaminophen. With the primary suspect dead, the FBI was finally able to declare victory in the Amerithrax case. From all accounts, Ivins looks like the very sort of biologically savvy, loner and sociopathic individual that the FBI claimed might be responsible for the attacks (Kahn, 2008). However, the shadow of the long and tortured case, the bungling of Hatfill and the 9/11 hijacker coincidences leave doubts in the

minds of many. Unsatisfyingly, there are Amerithrax mysteries that may never be cleared up.

The Rajneeshee Attack

In retrospect, there were surprisingly few deaths and cases of anthrax associated with the letters of October 2001. However, at the time, nobody knew who was sending them or how many attacks may have been under way. It is interesting to compare the 2001 Anthrax attacks to a previous biological weapons event on U.S. soil. In September of 1984, the Rajneeshee cult in The Dalles, Oregon, carried out an attack using a subtype of *Salmonella enterica*. The cult members simply spread a slurry of bacterium over the salad bar, or poured the fluid directly into salad dressing containers. Over 700 people became sick and about 45 were hospitalized. The initial public health investigators, quite logically, concluded that it was unlikely that ten separate restaurants could have suffered salmonella contamination simultaneously. Therefore, the investigation focused on upstream suppliers rather than local contaminators. Additionally, the use of Salmonella as a weapon was novel and the affected victims did not appear to match any particular profile. The victims were simply regular people.

However, it turns out that the victims were potential voters. The Rajneeshee community in that area was attempting to gain control over county politics and therefore hatched a plot to throw a local election by making a significant number of non-cult voters too sick to visit the polls (Miller, Engelberg, & Broad, 2001, pp. 28-29). The salad bar attack was an experiment to determine the viability of a larger attack to be carried out in November. Fortunately, the November attack was not executed. Due to the cult's other activities and subsequent, unrelated, investigations, suspicions about the biological attack were raised. Approximately one year later, Bhagwan Shree Rajneesh

himself aired concerns about the possibility of an attack and invited law enforcement officials to investigate his organization. Investigators found that Rajneesh's Secretary, actually more of a deputy leader, had been responsible for devising the biological attacks as well as other heinous cult activities. In the end, investigations into the activities of Bhagwan Shree Rajneesh led to his deportation from the United States due to immigration violations. Investigations also led to the conviction of Rajneesh's Secretary, Sheela Birnstiel, on charges of attempted murder and immigration fraud. Although Birnstiel was sentenced to 20 years in prison, she was subsequently released after two and a half years and was deported to Switzerland. Investigators found elaborate biology laboratories that were set up by Birnstiel and witnesses who testified to her involvement in the biological attacks. Ironically, Birnstiel was originally trained as a nurse practitioner.

Crime versus Health

It would seem clear that public health officers have clear cut roles and responsibilities during disease outbreaks and bioterrorism events. Yet, Amerithrax served as an example for how these assumptions can be incorrect. Clearly, public health, as a discipline, does not have the expertise or authority to conduct criminal investigations but when a particular incident is both a criminal and a public health issue, it is strange that public health should take a role of secondary importance to criminal investigation. Many lessons were learned from Amerithrax. One of the more useful was the inclusion of public health personnel on counter-terrorism teams. Another involved cross training between public health and law enforcement.

As a result, Public Health Preparedness was dramatically enhanced. Since 2001, the CDC maintains a much more aggressive preparedness footing and has significantly

increased its response resources. At the local and state levels, lessons were also learned. The Florida Department of Health institutionally expanded its emergency planning and response resources. Individual Health Officers also instituted changes. Jean Malecki, for example, built what is arguably the finest Public Health Preparedness program in the State of Florida. Although many of the current PHP personnel were not employed by DOH during 2001, Amerithrax's shadow hangs over almost every task that they perform.

Extreme Weather

In contrast to WMD and technological catastrophes, when it comes to natural disasters, ESF-8 has well defined roles. Because so many ESF-8 activities in Florida are concerned with extreme weather, I will briefly introduce the subject in this chapter and provide additional details in following chapters. In the case of Florida, the primary type of ESF-8 disaster response involves hurricanes and other types of weather such as tornadoes, flooding and wild fires. The basic ESF-8 roles include supporting the hospital, EMS and broader medical systems as necessary. Another goal is to protect medically vulnerable populations by providing supplies, transport and care. For example, ESF-8 personnel are involved with assisting hospitals and other medical facilities with the decision of whether to evacuate before a storm. After storms, ESF-8 works with emergency management agencies and medical facilities to determine what kinds of personnel and resources may be needed to supplement the medical community. For example, it may be necessary to augment a busy hospital with a DMAT to handle simpler injuries.

In other cases, a facility may be sufficient but it needs staffing. In this case, personnel from the State, volunteers, U.S. Public Health Service personnel or staff from

the U.S. Veterans Administration may step into fill the void. Regardless, ESF-8 personnel are the ones to analyze the situation, craft the requests and track the performance of the assets. In extraordinary cases, an entire medical facility may be destroyed or taken off-line long enough that DMATs or Federal Medical Facilities (FMCs) may be the only option to provide medical care to the people who need it the most.

As examples, to be elaborated in the case studies, after Hurricane Charley disabled every medical facility in Charlotte County, Florida three DMATs provided most of the medical care in the county during the first few post landfall days. On a larger scale, DMATs provided definitive medical care for residents throughout southern Mississippi in the weeks after Hurricane Katrina. Some of those same teams were redeployed to South Florida in advance of Hurricane Rita in order to rapidly staff hospitals after local medical personnel were mandated to evacuate pre-storm. Other NDMS teams swarmed to meet Rita when she landed in Texas. After Hurricane Wilma crossed south Florida west to east, the same DMATs were sent to assist open, but stressed, hospitals. During the 2008 Atlantic Storm season, DMATs from around the Southern USA were staged for deployment in Tallahassee for Hurricanes Gustav, Hanna and Ike. After Ike tracked into Louisiana and Texas, some of the Tallahassee staged personnel boarded aircraft and headed west.

Moreover, in addition to assisting acute care medical facilities, ESF-8 also has the task of supporting allied services. For example, dialysis patients present a particularly challenging situation. In addition to electricity, dialysis patients typically require extremely clean water and other supplies. Many communities, particularly older and

lower income communities, have far more dialysis patients than would normally be expected. Each patient is on a particular schedule and, if their dialysis session is significantly delayed, can develop far more serious medical problems. On some occasions, ESF-8 has secured the supplies and equipment necessary for impacted dialysis centers to serve their patients. In other cases, particularly when buildings have been destroyed, dialysis patients can be transported from what used to be their regular dialysis center to another location. Naturally, scheduling a regular dialysis shuttle is expensive and significantly impacts the schedules of the patients, but it is often more cost effective and safer than trying to conduct dialysis in a tent or other makeshift facility.

Another problem occurs with the elderly and those incapable of living on their own. For example, after the storm passes, there may be Special Needs Shelter customers who would normally return home. However, if their homes are destroyed or incapable of supporting them then they may have to move into a long term care assisted living facility (ALF). One of the most heartbreaking things to see post-storm is senior citizens, who have lost practically everything they owned, forced to move into an assisted living facility because they simply had no other option and they had no ability to rebuild their lives from scratch. In addition to shelter customers, the regular population of ALF residents must also be cared for. Some ALFs are robust facilities located in safe areas and stocked with ample supplies and equipment to stay operational during the aftermath of a severe storm. Other facilities have emergency evacuation plans whereby they move their patients to other locations in cooperation with ALFs or hospitals within their ownership network with which they have agreements. If all goes according to plan, ESF-

8 should have little direct involvement with ALFs and nursing homes. In some cases things do not proceed according to plan. It is not unusual for ESF-8 assessment teams to visit ALFs and other facilities to check on their status. If a facility has not evacuated, but needs support, then ESF-8 field teams and EOC personnel can help coordinate fuel and food service or prioritize their electrical restoration. Within Florida, all ALFs must have an emergency plan and that plan is supposed to be reviewed by Health Department or emergency management personnel. Unfortunately, some parts of Florida have so many facilities and plans that a thorough review is difficult. Additionally, it is not uncommon for facilities to make agreements with the same emergency service providers. As a result, in a wide ranging disaster, it is entirely possible that good faith contracts will not be honored because of the demand for assistance.

ESF-8 also has responsibilities for environmental health issues which include drinking water and septic systems. Michael West vividly remembers parts of septic tanks emerging from the sandy beaches of the Florida Panhandle after Hurricane Opal in 1995. Each system had to be documented, repaired and inspected. Similar activities took place after the 2004 hurricanes when combined county teams of environmental health specialists checked and cleared septic and drinking water systems as well as emergency food providers.

Disease tracking and control also becomes a major enterprise after hurricanes. Communicable diseases are more easily spread in the close confines of shelters, particularly when the residents may already be medically vulnerable. Since the storm may impact air flow through shelters, respiratory ailments are easily spread. Moreover,

since food is shared and bathrooms succumb to days of continued use, the possibility of intestinal diseases also increases.

Beyond shelter residents, the collapse of septic, water and food storage systems increases disease threats to the general population. Additional storm related illness and annoyance can result from vectors such as mosquitoes that breed prolifically in standing water. The major focus of infectious disease monitoring and prevention concerns the general public but also deals with responders. Response personnel are vulnerable to the same problems as the general population plus other concerns, such as exposure to sewage, chemicals and the sick or injured members of the general public. ESF-8 personnel work to monitor responder health, update vaccinations and help to ensure that responders and the public have access to mental health and critical incident stress management (CISM) counseling. Since all of these issues fall under the domain of ESF-8, it is also ESF-8's responsibility to generate public service messages regarding safety issues after storms. Florida's Department of Health created an extensive "after the storm" handout in multiple languages which was popular with residents and media outlet centers during the 2004 and 2005 hurricane seasons. When Florida provided mutual aid support to Mississippi in 2005, Florida's Public Information Officers (PIOs) were forbidden to hand out the thousands of pre-printed information sheets because they featured Florida's State emblem. Regardless of the prohibition, Florida's PIOs covertly distributed the forms across Mississippi's coast because there was a tremendous need for the information. Eventually, Mississippi developed a similar product that was specific to their State. Not surprisingly, that document also proved to be popular.

Another key role for ESF-8 involves dealing with the dead. In Florida, Medical Examiners are typically connected to law enforcement. However, during non-criminal events, such as hurricanes, the Medical Examiners fit under the Health and Medical structure. Since Medical Examiners usually deal with a small number of bodies, most county morgues are not large and do not have an extensive staff. In order to supplement these resources, Florida has developed and deployed a sophisticated team known as the Florida Emergency Mortuary Operations System (FEMORS) which is made up of volunteer Medical Examiners, Funeral Directors and other related professionals. In addition to personnel, FEMORS also has the equipment to establish mortuary operations centers. FEMORS actually mirrors a national NDMS team concept known as the Disaster Mortuary Operations Team (DMORT). Similar to DMATs and their VMAT animal-care counterparts, the DMORTs are regional teams that can be deployed through DHHS. In addition to accurately and legally processing bodies and working with the bereaved, FEMORS and DMORTs have also been trained in law enforcement evidence preservation techniques, as well as methods to handle and store potentially contaminated bodies in case of a WMD incident or industrial accident. Despite the similarities between DMORTs and FEMORS, there is an important distinction since not all mass fatality incidents are considered Federal Disasters. Therefore, the State's FEMORS is a valuable State asset for instances when Federal assets may not be readily available or may be too expensive.

As discussed elsewhere, Florida has aggressively developed certain types of specialized State resources. In addition to FEMORS, Florida also implemented the multi-agency Hazardous Materials Emergency Response Team lead by the Department

of Environmental Protection. Florida also possesses Division of Emergency Management maintained communication vehicles, Regional Coordinators and field teams. The Department of Health maintains the State Medical Response Teams (SMRTs), Disaster Community Health Assessment Teams (DCHATs) as well as the Regional Emergency Response Advisors.

Roles and Organization

Clearly, the role of public health professionals varies tremendously depending on the event. In particular, two major factors shape the mission and organization of public health resources. The first factor consists of whether the particular problem requires that public health take command of a situation or simply provide a supporting role. Even though public health often supports other ESFs, it must be remembered that many events require extensive ESF-8 support. For example, during a typical hurricane, over 25% of all missions involve ESF-8 in some significant manner.

The second factor that relates to the organization of all response entities involves the “unfolding time.” If a event occurs suddenly, without warning, then immediate response relies entirely on local resources. The command and control organization tends to be, and remains, local. If an event takes longer to unfold, outside resources can be brought into the scene and those resources can be better organized from the outset.

Although it may seem that it would be more difficult to guide a large organization than a small one, we have seen, through repeated response operation, that it is usually easier to reduce the size of a State or regionally organized response down to a local response. Conversely, it seems to be more difficult to scale up response from the locals to a regional or State organized effort. If you have too many resources, many can be

sent home. This is important to do because too many resources can be difficult to organize and can overwhelm the local commanders who are already charged with running the incident.

Herein lies the difficulty of response – How far do you “lean forward” at each level of government? In fact, one RERA actually mentioned this as the most difficult problem facing her organization. If higher tiers of government are too aggressive then they will upset the locals, misroute resources and get in the way. If higher levels are not aggressive enough then the locals may exhaust resources and experience long delays before reinforcements arrive. Worst of all, a local response may never even effectively start. The next chapter will attempt to explain how Florida developed its planning and operational PHP culture by examining the history of the organizations, people and projects that became central to Florida’s ESF-8 efforts.

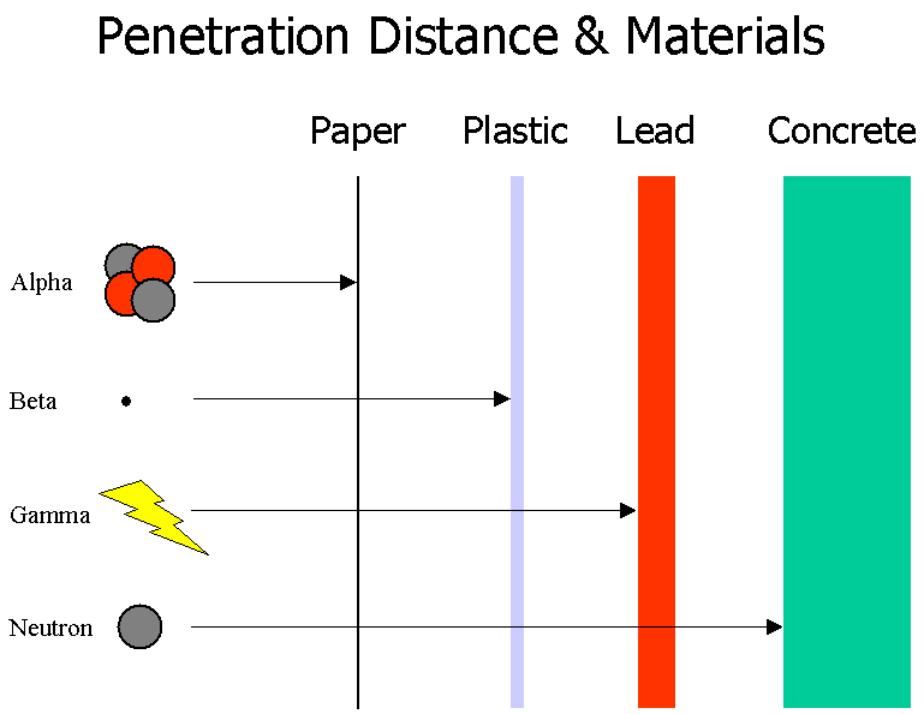

Figure 4-1. Types of Radiation and their penetrative qualities

CHAPTER 5
THE STRUCTURE OF PUBLIC HEALTH PREPAREDNESS

At the time of this writing, Public Health Preparedness activities within the Florida Department of Health are primarily divided between two offices with several other offices contributing specialized functions. Additionally, the work is carried out at State, Regional and Local levels with strong connection to Federal partners. In this regard, PHP, more than any other public health function exhibits an organic or networked structure. The two primary offices involved with PHP are the Office of Emergency Operations (OEO) and the Office of Public Health Preparedness (OPHP). Both offices currently reside within the Division of Emergency Medical Operations (DEMO) which also contains the Office of Trauma and the Bureau of Emergency Medical Services. As of 2010, there is discussion about how OEO and OPHP could be merged. If accomplished, this would be a logical consolidation.

The Office of Emergency Operations

As described in Chapters 2 and 3, during times of disaster, government agencies are organized into Emergency Support Functions (ESFs) and Health and medical issues are placed under the category of Emergency Support Function Eight (ESF-8). Although there are many agencies that work under ESF-8, the Department of Health is the lead agency in the State of Florida. At the Federal level, ESF-8 is led by the Department of Health and Human Services (DHHS) the parent department for the Centers for Disease Control and Prevention along with several other Federal agencies. Within the Florida DOH the office in charge of coordinating Department wide response in times of disaster is OEO, which staffs and organizes ESF-8.

The Office of Emergency Operations was created during the state emergency management reorganization that followed Hurricane Andrew and reported to the Deputy State Health Officer as an independent office. The original Director of OEO was a dynamic man named William Booth. Booth was considered by many to be brilliant but he also had the ability, unintentionally, to upset people. Because of William's personality, and the exotic and unlikely topics that OEO concerned itself with, the office was largely considered a backwater. Since Hurricane Andrew the office had gone through various stages of growth and reduction. The most recent growth occurred after the September, 2001 World Trade Center attacks and the October anthrax attacks that initially started in Florida. One observer commented "Over the years, they (DOH) stripped William's office down to almost nothing and then suddenly, like a phoenix from the ashes, he was reborn".

After October 2001, the CDC accelerated a program to fund state and local health departments and attempt to prepare them for terrorism as other types of Federal grants had funded police and fire departments. Unfortunately, public health as a discipline had been thoroughly cutback and reduced over the previous decades. As a result health departments not only needed to be prepared to combat terrorism and deal with disasters but also needed help just maintaining the provision of functional public health care for their communities. Suddenly, with the influx of CDC biological terrorism funding, public health departments nationwide found that they were being dragged out of the corners of government neglect and were now considered to be on the front edge of domestic preparedness. To many health department employees this came as a terrible and unwelcome shock. Public health agencies had grown comfortable with their

role as a nine to five consultant for people with embarrassing sexual diseases or who were too poor to go to the doctor.

Because of DOH's unfamiliarity with terrorism or disaster response, William Booth felt that it was important for the Department to employ full time specialists in emergency management rather than attempt to borrow and train personnel from other programs when an incident finally struck. William also realized that, like many state agencies, the DOH headquarters was out of touch with the conditions and the situations that were encountered in the field by DOH County Health Departments. William's solution to this problem was to hire Regional Emergency Response Coordinators - later renamed to Regional Emergency Response Advisors (RERAs). Because RERAs are a central part of Florida's modern PHP system, and I am extremely familiar with their activities, they will be discussed extensively in this work.

These personnel were to be located in each region of the State as defined by the new Florida Department of Law Enforcement (FDLE) regional domestic security task force structure. The RERAs were to be comfortable with both field and emergency operations center duties and were also to be trained and equipped as hazardous materials technicians. Although each RERA was expected to have unique skills and training, they shared enough common training such that they were known entities and could be assigned a wide variety of tasks as individuals or as a team. Eventually, organized small team tactics became a hallmark of RERA deployments. William's expectations for the RERAs were quite high and as a result, some around the state humorously called the seven RERAs "The Magnificent Seven."

Despite the grand title of the RERAs, OEO's influence extended only so far. The new RERAs were forced to search out office space in various DOH facilities as it was available. For example, one RERA's office was a corner of a break room. Another was assigned a cubicle in OEO's suite in Tallahassee. A third RERA scored an office within a State Laboratory. However, due to the nature of the job, most RERAs actually worked out of their homes and their trucks. The RERA trucks themselves were a frequent target for controversy. RERAs were regularly asked to leave equipment behind when they traveled to meetings so that they could carry more passengers to and from the meeting as well as to lunch. One RERA was loudly questioned in the lobby of his CHD by another employee as to why he, who was relatively new to the Department of Health, had been "given" a truck while she, a veteran clerk, had never been assigned a vehicle to drive to work.

In September of 2002 when I started with OEO as a RERA, my initial training was conducted in Tallahassee along with Julian Martinez a long-term DOH employee from Miami who had recently accepted the Miami RERA position. Our training was very informal and was led by OEO Training Officer Alan Montrose. Alan was a large man who was formerly a B-52 navigator. He was impressive in both his knowledge and the way he conducted and carried himself. The indoctrination that Alan provided for us was incredibly diverse and it ranged from billing overtime hours to procedures for ordering millions of dollars in resources through the State Emergency Operations Center (SEOC). Alan dressed casually and carried a large yellow Nextel cell phone that rang every morning at 09:00 with a text message containing a Pisces horoscope. Neither Alan, nor anyone he knew, was a Pisces but the phone was a Department hand-me-

down and someone in the long distant past signed up for the service. In many ways, that Nextel phone was symbolic of much of Emergency Operations at DOH.

At the time, OEO had a Tallahassee staff of about eight, plus the seven Regional Advisors. Although the RERAs were located in the regions, they were very much considered to be out-posted Tallahassee personnel. In some ways, this out-posted status kept the RERAs above the local politics and squabbling at the county level. In other ways, the Tallahassee command chain prevented RERAs from being accepted by the counties and their leadership. At the county level, RERAs were viewed as “Spies from Tallahassee” and were kept at arm’s length. Frequently, the reception that the RERAs received locally had much more to do with the County Health Officer’s feelings about William Booth than about their feelings toward the individual RERAs. The RERAs were a loosely connected entity – neither fish nor fowl. Neither headquarters nor CHD.

The Office of Public Health Preparedness

The Office of Public Health Preparedness was originally composed of Virgil Patton and Reggie Jones. Jones, an easy going guy with a perpetual smile eventually moved to grant management at CDC. Patton, a retired Army officer, maintained his military style and commanding personality. Their purpose was to administer the newly created CDC PHP Cooperative Agreement Grant. For the first actual year of the Cooperative Agreement, DOH received over $40 million for DOH preparedness activities and an additional $6 million from the U.S. Health Resources and Service Administration (HRSA) for hospital related preparedness activities. The Office of Emergency Operations and OPHP had a very complimentary relationship. Essentially, OPHP managed all aspects of the Cooperative Agreement while OEO was charged with the technical and operational implementation of PHP.

However, it soon became clear that the amount of money to be spent annually and the amount of work that needed to be accomplished were so great that more people needed to be brought into the program. Additionally, CHDs were becoming upset and distrustful of the fact that PHP planning and resources were concentrated at the State Level rather than at the County Level where most work really needed to be done. Although OEO had its team of RERAs, the number of RERAs was inadequate for the planning needs of the state and many aspects of planning did not cleanly fit into the job descriptions of the RERAs. Because of OEO's lack of popularity in DOH, many people were also concerned that the RERAs would not be responsive to individual county needs. As a result, OPHP went on a hiring spree and brought about 60 new employees into the PHP program at the county level.

The sheer quantity of money available to PHP was unprecedented. Because most DOH employees were continually asked to reduce their budgets and their programs, it proved very difficult to convince DOH managers to spend more money as it was essentially a foreign concept. One CHD PHP Planner told me about how CHD employees were once issued official notepads made from recycled documents and were given precise guidelines about how short a pencil should be before it was discarded. The entire DOH system was configured to save money and to spend money as slowly as possible, yet, grant requirements and national performance measures required DOH to burn through cash at a rapid rate. On one occasion, the RERAs were called individually and told to prepare "dream lists" which could include everything from detection equipment to mobile clinics and command posts. The idea was that OEO

wanted to have a list of purchases ready to submit when other DOH units failed to spend their allocations.

PHP Personnel

Because DOH hired PHP specialists in large quantities, it is important to discuss the qualities of PHP personnel. A PHP specialist needs to understand, not only, public health concepts but also emergency management concepts. The ideal PHP candidate would have knowledge of project management, budgets and planning. However, the most crucial part of a PHP planner's position involves communication both outwardly with the public and inwardly with the health department staff. So where could DOH find a workforce capable of carrying out Public Health Preparedness activities?

Due to the rapid expansion of PHP and the distributed and diverse nature of the Florida Department of Health, there was no standard criteria for how to hire a Public Health Preparedness planner, or even a standard expectation for what a PHP Planner does. This initial lack of standards became a key challenge in the Florida PHP system. As it was, many of the new PHP Planners came directly from another large soft-money funded project: tobacco prevention. Although tobacco prevention workers were typically unaware of PHP concepts they were conditioned to operating independently, conducting community outreach and existing in a fluid financial environment. Naturally, as the tobacco positions were cut, many of these workers were in search of new positions.

One of the main factors that complicated hiring for PHP is that most of the would-be supervisors had no knowledge or experience in the field of PHP itself. Influenced by the recently shut-down tobacco program, some DOH managers were skeptical about the long term viability of PHP and were therefore reluctant to invest much effort in the

program. In some cases, however, CHD Directors welcomed the PHP positions because the new positions were considered an additional staff member who could handle all manner of projects, regardless of their actual relation to PHP. Because of concerns that PHP was a passing fad, many CHDs did not want to move an employee that was considered truly knowledgeable and mission critical into a “marginal” soft-money position such as PHP. On the other hand, there were DOH personnel who prized the PHP positions as another salary incrementing lateral transfer.

The same problems occurred at the Federal level. When hiring people for the SNS program, the CDC frequently brought on staff who had been outreach workers in sexually transmitted disease control programs. Although it is uncertain what the professional skill set overlap between the two areas might be, there were a large number of STD employees at CDC who were eager to do something different. In many cases, an agency hires who it can, rather than some specific ideal – assuming that an ideal even exists for exotic new positions.

In addition to tobacco programs, another major source for PHP personnel was the military and paramilitary public safety agencies. Much as in the field of emergency management, ex-military personnel often ended up in PHP as a post-retirement job. At the Federal level, FEMA’s ranks have swollen with military personnel since the agency’s assignment to the Department of Homeland Security. Within the State, there are several reasons for a parallel effect: Florida has a large number of retired people, a number of military bases and many military employees are still quite young when they retire or leave service. Retired military personnel typically have pensions and health insurance so they are less selective about a job’s salary and benefits. In fact, some State Division

of Emergency Management (DEM) personnel do not even collect benefits from the State because their benefits are provided by the organizations from which they retired. Most importantly, the military is considered to be an institution which encourages the skills of organization, calm during crisis and knowledge of some of the very threat and protective issues associated with PHP WMD concerns.

With on-going wars in Iraq and Afghanistan, there tended to be both a pro-veteran hiring bias within government at the same time that there were also large numbers of people seeking to leave the military. This shows up in different ways, for example, at the State and Local government levels, there has been a strong post-9/11 “support the troops” spirit and this extends to hiring. At the Federal level, there is a formalized “veterans preference” system whereby a job seeker with lesser skills, but who is a military veteran, may be interviewed and hired in preference to their non-veteran competition with greater skills.

Many of the military associated traits are valid and some of the highest regarded Florida PHP Planners do, in fact, come from a military background. However, there are also dangers involved with using “military background” as a simple proxy for PHP relevant experience. As examples: Military personnel are accustomed to working in a hierarchical and clearly structured environment which is not the way that public health agencies are organized. Military personnel expect to treat people, and be treated, in a prescribed manner, which is certainly not standardized in civilian agencies. Despite the U.S. Army’s recruiting slogan of “An Army of One”, military personnel are traditionally a component of a larger system. By comparison, PHP personnel are often the only person in their department or community working on a particular task with no support. Lastly,

the military employs so many types of people that, unless a hiring supervisor is knowledgeable about military jobs, it is easy to hire an ex-military person from an unrelated area: a truck driver for example, to fill a planning position.

This is not to say that military structure and culture has no place in PHP. In fact many military attributes are appreciated among DOH emergency managers. However it must be recognized that the two systems are different and each has its place. A joke that circulated among DOH emergency managers who worked with the National Guard during disasters and exercises went as follows:

Q: “How many National Guardsmen does it take to load a truck?”
A: “About twenty.”
Q: “How many DOH people does it take to load a truck?”
A: “About two.”
Q: “How many National Guardsmen does it take to load a hundred trucks?”
A: “About twenty.”
Q: “How many DOH personnel does it take to load a hundred trucks?”
A: “DOH couldn’t load a hundred trucks no matter how many personnel.”

Because of OEO’s emergency management culture and function, many people within OEO were hired over from the State Division of Emergency Management and this served further to amplify the emergency management vs. public health cultural divide that had plagued OEO. Within OEO, DEM experience became a simply proxy for PHP skills the same way military experience was used at the county level. Relying on DEM experience also proved to have some of the same shortfalls. For example, most employees of DEM have both day-to-day jobs and emergency duty jobs. Therefore,

practically every employee at DEM has extensive emergency management experience but this does not guarantee that they are good at what they do. Additionally, DEM has a higher than usual employee turnover rate, as a result it was difficult to find out about a particular employee's skills because many employees were new to their position and many supervisors had changed as well. One DEM to DOH refugee confided to me that many DEM employees felt that they had an open invitation to come over to DOH whenever they wanted and could use this as leverage against their management at DEM. In fact, so many OEO hires eventually came from DEM that DEM Director Craig Fugate lodged a formal complaint with the Department of Health's Secretary. This incestuous overlap of staff and the stress over "poaching" of employees was to sour the relationship between the two agencies for several years.

Hiring Regional Emergency Response Advisors

The initial group of RERAs hired by OEO also reflected this emergency management, and military, hiring and cultural bias. Christopher Nazarene, Pensacola RERA, had served as a physical therapist with the Air Force before switching to the U.S. Department of Veteran's Affairs (VA) where he eventually retired as an ESF-8 Emergency Manager. Alistair Scott, the Tallahassee RERA, had served in many positions with State DEM having literally worked his way up from the call center. Mark Sterling, in Jacksonville, had been an officer with the Army's elite chemical weapons Technical Escort Unit before working for State DEM. I had a background in cultural anthropology and public health but had recently worked for an academic center that researched biological weapons defense. Stuart Marlin in Orlando was a young public administration graduate who had experience in emergency management and PHP at the county level. Luke Falcon, the Ft. Myers RERA, had served as an Army WMD

specialist and then worked for State DEM. Julian Martinez had served as an environmental health specialist in the Air Force and had worked many years in disaster planning at the Miami-Dade CHD.

By 2003, the lure of money, and dysfunction within OEO, led to a number of RERAs leaving, but their replacements also brought diversity to the team. Mark Sterling joined the VA as an Emergency Manager and was replaced with Laura Jackson. She was a long time DOH employee and, most recently, the PHP Planner for Duval County. Stuart Marlin left to become the Deputy Emergency Manager for the City of Orlando and was replaced by Jay Van Fleet. Although Jay graduated from law school, he decided to become a paramedic and had significant Federal Disaster Medical Assistance Team experience. Julian Martinez became a salesman for a company that wrote disaster related software and was eventually replaced by Isaac Brown in 2005. Isaac was a career infantry soldier who survived three tours of Vietnam and then, despite surviving five wives, became a marriage and substance abuse councilor. Isaac later became a PHP specialist in Monroe County and then worked on disaster issues with regional hospitals throughout Southeast Florida. I left DOH in early 2008 and was replaced by Lucy Thompson, a young woman with a public health background who had served as a Pinellas CHD disaster planner. Luke Falcon left later in 2008 to work for Mark Sterling at the VA and was replaced by Albert Lemoine, a former State DEM area coordinator for Southwest Florida.

An additional RERA was Michael West. Michael had actually been OEO's first choice for the Tampa RERA position, but did not accept the job because he had just retired as an Emergency Coordinator with DCF. However, in 2002, a little over a year

after West's DCF retirement, Ft. Myers RERA Luke Falcon deployed to Iraq along with his National Guard unit. Michael West was hired on to fill Falcon's place as a RERA during the 18 months that Luke served active duty in the military. West was actually an interesting product of the HRS/DOH/DCF relationship. When he started his State career, West served as an environmental health specialist, and later manager, with the DOH component of HRS. Eventually, West moved into an administrative position with HRS and, during the HRS split, was transferred to the newly independent DCF.

After DOH as an institution gained experience with PHP concepts, it became easier for managers to understand what they needed in a PHP employee. Simultaneously, DOH employees with PHP experience became more common and were therefore available to be hired as other various PHP positions were created. In some cases, PHP employees hopped from position to position seeking out new challenges, more money and better working environments.

Contractors

Many personnel and project decisions are based on the structure of finances. One staffing example is the use of contractors. A particular grant may include funding for staff but the agency may have insufficient "rate" (discussed later) available to hire people to accomplish the mission. To solve this problem, the agency may turn to an array of institutions and companies to hire the needed workers and administratively support them on the agency's behalf. These contractors actually fill a tremendous number of PHP positions. Naturally, these contracted companies and universities are not going to simply donate their administrative services. They get paid an overhead charge in addition to the salary needed to pay the subcontractor who will perform the job. In fact a number of colleges and universities such as Tallahassee Community

College (TCC), Florida Agriculture and Mechanical University (FAMU) and The University of South Florida (USF), along with numerous private contracting companies have come to specialize in providing workers for government programs that have the money but not the rate. Yet, despite the middle man, the employee wages and benefits should ideally remain competitive. Ultimately, the only solution is for the State to either pay more per position through a contracting agency or cut the amount of salary offered to the people who actually fill these specialized positions so the intermediary company can collect a share. If the agency pays less, the hired personnel are often of lower quality or have less experience. If the hiring agency keeps the offered salary competitive, then the government will have to pay more for the employee than if they were allowed to hire directly.

Unfortunately, even if well qualified, the contracted employee is often inadvertently relegated to a second-class status behind “real” government employees. As examples, contractors are not protected by the same civil service procedures as their peers, they are not granted the same tuition waivers for higher education opportunities and may find their employment contracts and benefits disrupted and moved from service provider to service provider each time the contract is re-negotiated. From the agency standpoint, contractors are often not eligible to perform certain extended hour or emergency functions. Additionally within the agency, contractors frequently are perceived as being less competent, less dependable or perhaps more mercenary than their otherwise identical civil servant colleagues. As a real example: When Florida’s CHEMPACK program exceeded all expectations of performance, the SNS Unit was encouraged to nominate the CHEMPACK Coordinator for a “Davis Productivity Award.” The Davis

Award is considered very prestigious and involves public recognition and sometimes a cash prize. Unfortunately, the Davis Award is only intended for genuine Civil Servants and not contractors. Since, like many PHP workers, the CHEMPACK Coordinator was a contractor, she was ineligible to receive the kind of recognition that her civil service counterparts were.

Another interesting difference between employee types concerns the distinction among actual “direct hire” government workers known as Civil Servants (CS) and Senior Executive Service (SES) employees. Under Florida’s State Government, SES employees are managers and CS employees are not managers. As a result, CS employees are not allowed to manage other CS employees and SES personnel must manage CS personnel as a condition of their employment. In traditional, mechanistic, organizations this distinction may be logical. However, in an organic organization, particularly one with matrixed personnel assignments such as PHP, it can lead to awkward outcomes. For example, a CS employee may be assigned to manage a project or program for reasons of technical expertise. Yet, that CS project manager is not allowed to supervise the other CS employees who work on the project. Rather, those CS employees must be supervised by an SES employee who may, or may not, have any connection to the project in question. If an SES employee is hired to work on a particular task, even if that task involves no other personnel, then that SES employee will be assigned CS employees from other, unrelated, projects to supervise.

On other occasions, a project may be contracted out to an external company or educational institution. These kinds of projects may involve exercise design, training, plan writing or assessments. In most cases, these out sourced projects run smoothly.

On other occasions, the contractor may be assigned a task for which it actually has no ability to complete. For example, a community college was awarded a contract to develop and deliver a statewide class to introduce CHD personnel, and others, to concepts such as WMD and terrorism awareness, emergency management and EOC operations. After the first installment of the award was paid, the community college admitted that they had nobody on staff who was capable of designing the material. Rather than risk having the course material be designed by incompetents, OEO decided to assign its own staff to develop the material for the community college. After the material was developed, the community college declared that it had no instructors of sufficient expertise to deliver the material that OEO had created. The Office of Emergency Operations then tasked RERAs to teach the material which OEO had developed. The community college's job reverted to reserving hotel and conference rooms for the class and catering lunch. The course was successful enough that the arrangement was repeated again the following year. In a way it was nice to have the community college arrange the course because, unlike state agencies, they could legally purchase food and coffee for the students. However, the fact remains that DOH paid a community college a significant amount of money to develop and deliver a course that OEO ultimately had to create and teach.

Public Health Preparedness is a new and evolving field and, like many other specialties, DOH has attempted to hire the best that it could from a pool that contains no "turn key" employees or contractors.

The RDSTF Co-Chairs as Networked PHP Leadership

In addition to the leaders of OEO and OPHP, virtually all PHP decisions were made by a group of County Health Officers known as the RDSTF Health and Medical

Co-Chairs. When FDLE found itself placed in charge of Florida's over-all domestic security, it created a planning and grant administration structure based on so-called Regional Domestic Security Task Forces (RDSTFs). These RDSTFs were based out of each regional FDLE field office. Although the RDSTF was initially touted as an operational response organization, and was mentioned as such in domestic preparedness documents, it never could have fulfilled that role because its resources belonged to other agencies – each with their own response roles. Nevertheless, the RDSTF became a highly useful preparedness organization because its creators realized that they must have interdisciplinary participation.

To accomplish this broad participation, each RDSTF was headed by the regional FDLE director and a prominent County Sheriff. These two were known as the RDSTF Co-Chairs. Additionally, representatives of each major preparedness discipline were also selected as a lesser ranked Co-Chair. As an example, each RDSTF recognized a County Health Officer from the region as a Health and Medical Co-Chair. Typically, Health and Medical issues also involved a second Health and Medical Co-Chair who came from a major regional hospital. In other words, these DOH representatives actually served as RDSTF Co-Co-Co-Chairs. Helpfully, in the majority of the regions the hospital Health and Medical Co-Chair played no active role and simply let the DOH Heath and Medical Co-Chair coordinate issues for the RDSTF. In one region, however, there was a rivalry between the DOH Health and Medical Co-Chair and the hospital Health and Medical Co-Chair which caused some confusion when planning for several major events.

Within DOH, these RDSTF Health and Medical Co-Chairs were frequently assembled to preside over PHP programs similar to a group of Cardinals in the Roman Catholic Church. The DOH Co-Chairs met quarterly to set broad PHP policy and oversee every line of every budget. Because of their authority and experience within DOH, most PHP program managers dreaded making an appearance before the assembled Co-Chairs. In addition to holding power collectively, each Co-Chair essentially oversaw PHP programs within their region. Although most Co-Chairs had been prominent regional personalities under HRS, once the regional level was abolished under DOH, they became, paradoxically, both fierce defenders of CHD sovereignty against Tallahassee and occasionally iron fisted about their own PHP authority over those CHDs within their respective regions.

Despite their commanding attitudes, the ability of the Co-Chairs to directly influence counties was limited because of the flat organizational structure of the CHDs. Although a particular Co-Chair might be influential, they possessed no direct command authority over the other CHDs in their region. In some cases, the most that they could do was to lead by force of personality, example and occasionally veiled budgetary threats. One regional planner remarked that, coming from the military, he was surprised because he was used to the idea that people who issued orders were actually supposed to be obeyed. However, the Co-Chairs exerted tremendous control over Headquarters programs and spending.

As traditional public health oriented County Health Officers, it was not unexpected that some Co-Chairs had an adversarial relationship with the emergency management oriented William Booth and OEO. The Co-Chairs seemed to take particular umbrage at

the idea that OEO controlled RERAs were running about “their” regions with no direct oversight from the Co-Chairs. Over time, OEO attempted to appease the Co-Chairs’ concerns about the RERAs but this was only successful to a point.

The Rise of the Division of Emergency Medical Operations

As the State of Florida began to focus on domestic preparedness, DOH PHP activities came under increased political scrutiny. One of the issues that the legislature found odd was that DOH had several offices that were all involved in PHP but their efforts were not organized under a single hierarchical management structure. In order to appease the legislature, the diverse and organic structure of PHP should be reformed to appear more mechanistic and hierarchical. As a response, the Division of Emergency Medical Operations (DEMO) was created. The Division of Emergency Medical Operations brought together OEO, OPHP, The Bureau of EMS and the Office of Trauma.

Initially, DEMO was directed by Steve Fletcher, a retired military doctor and epidemiologist with a passion for fast motorcycles. Fletcher realized that he needed an assistant who had an excellent understanding of budgets and Federal programs. Fletcher’s choice was Evelyn Elbert, a long time DOH employee who had been involved with administration. Elbert had previously served as a Regional Planning Coordinator for PHP efforts in RDSTF-2 so she had both PHP and business knowledge. Unfortunately, stress began to emerge within the Division. Fletcher, although appreciated for his intelligence, did not possess the kind of gentle management touch that an agency such as DOH required. The Bureau of EMS promptly underwent a leadership change under Fletcher. Simultaneously, William Booth decided to retire from OEO. Also, OEO and OPHP, which had been accustomed to a certain autonomy, were now required to

explain and justify things to a level of detail that had never been requested and to a management hierarchy that had never before existed. Not surprisingly, OPHP also underwent a transition. Director Virgil Patton felt his budget management responsibilities were preventing him from directly impacting PHP implementation the way he desired. As a result, Virgil Patton and Evelyn Elbert essentially swapped roles. In addition to being Fletcher's DEMO deputy, Evelyn took over direct control of OPHP and its vast budget while Patton took over centralized PHP planning in RDSTF-2. In short order, the nature of all PHP related Tallahassee offices changed.

Finances of PHP

When Evelyn Elbert took charge of PHP finances, she took on a complicated responsibility. Most projects relating to Public Health Preparedness are funded in the form of a Federal grant or appropriation which differ from more common State tax derived "general revenue." In addition to the conditions within the Federal contract, the Department of Health must also abide by any relevant State spending rules and, in some cases, the CHDs, who ultimately spend much of the money, must abide by county spending rules as well. Similar to many governments, the State of Florida operates on a fiscal year which starts July 1 and ends on June 30. Many grants, however, have different time frames. For example, the CDC PHP Cooperative Agreement traditionally started September 1 and ended August 31. This means that projects running during a single CDC grant year must cross two State fiscal years. Although this may appear as simply inelegant, in fact, the ramifications are very serious. We will now examine some of the fiscal factors that grow out of this complicated arrangement and affect the State PHP program.

As previously alluded, an important financial concept is the fiscal year. The fiscal year serves almost as a pulse that regulates all PHP activities and is not just a time frame but also a deadline. Money not spent by the end of the fiscal year, regardless of cause, must be returned by the County to the State, or from the State to the Federal Government, which is allowed to reallocate unspent funds for whatever it chooses. Not only could the program lose the money, but it also potentially sends a signal to those above that the program has too much money. It is therefore a concern to the unit in question that future budgets may be slashed due to its signaled lack of need. As a result, government units usually end up burning excess funds in a rush of last-minute spending for things like office supplies or equipment that can be purchased rapidly. In some cases it is possible to ask for funding to be carried forward, but this is a slow moving and tedious process, so it is best avoided unless the amount to carry forward is significant.

A second factor that impacts government spending involves funding categories: it is not enough to simply ask for money in a budget proposal, or to even explain roughly how the money will be used. Grant dollars must be allocated to particular funding categories. Examples of these categories include: salary, travel, equipment, supplies and contracts for outside services. Once the money is allocated to a particular category it is fixed and can only be moved with permission after a request for “redirect” has been filed with the granting agency. Depending on the layer of government a formal redirect may or may not be needed, but the basic process remains. In addition to categories of expenditures, the Cooperative Agreement grant also specifies that certain items can not be purchased and the CDC, or particular CDC, project officers often encourage the

purchase of other types of items. Much anguish occurs if funding is allocated to the wrong category. For example, equipment and supplies are similar, but different, and if the budget planner is not aware of the distinctions then money may sit unusable in an account. To further complicate matters, CDC has sometimes required that DOH create and submit the entire PHP budget proposal in an extremely short time frame which has resulted in occasionally incorrect allocations of funding. Allocations that could take months to rectify.

As an example, in order to have cached emergency supplies at the ready, CDC encouraged Florida to purchase a fleet of various “disaster trailers” which contained equipment and supplies that might need to be rapidly deployed. Unfortunately, compared to many agencies, DOH possesses relatively few vehicles, especially large ones capable of towing heavy trailers. The Cooperative Agreement specifically forbids DOH from purchasing vehicles, even though those vehicles are needed to build response capability. However, like most budget regulations, there are ways to get around the vehicle issue. The purchase of a tow vehicle could be buried within a broader purchase. For instance, a portable satellite down link station purchase could hide the acquisition of a tow vehicle as part of the over-all package. In other cases, vehicles could be rented. When the RERAs received new vehicles in 2007, those vehicles were technically leased with the lease structured in such a way that the “pay off price” at the end of the lease was such a small amount that it could be paid with other non-grant revenue. Of course, the price would have been lower and the process simpler if DOH had simply been allowed to purchase the vehicles outright.

Complications also arise at the State level. Traditionally, under the typical U.S. balance of power system, one branch of government, the Legislature, has authority over budget. Executive agencies then come to the Legislature to request budget money with which to conduct operations. Granting a department its budget conveys both resources and authority from the legislature to use those resources. However in the modern fiscal environment, financial resources can actually come from a variety of sources such as: local grants, Federal grants and contracts, donations and fees for services provided. CHDs being symbiotic State and County partnerships are particularly ripe for creative funding. However, to maintain its sovereign right to control financial resources, the State Legislature implements a couple of tools.

"Spending authority" is the mechanism that grants State agencies the permission to use money as outlined in their budgets. Suppose that a philanthropist passed away and donated half a million dollars to a CHD in order to conduct HIV prevention activities in the community. The CHD could not actually accept the money and use it without requesting the spending authority from the legislature to do so - an opportunity that occurs on a limited basis throughout the year. Projects with funding sources that arrive late in the fiscal year are especially prone to spending authority problems. Because of the mismatch between CDC Cooperative Agreement dates and State of Florida fiscal year deadlines (depicted in Figure 5-1), annoying financially based stoppages can, and do, occur. For example, DOH runs out of spending authority late in the fiscal year, even though it actually has plenty of cash because the Cooperative Agreement year is in mid cycle. After the new fiscal year, DOH units are granted a second block of Cooperative Agreement money from the still ongoing Cooperative Agreement Grant. However, by

August, the actual supply of Cooperative Agreement cash is coming to an end, even though DOH is in the middle of its fiscal year and still possesses spending authority. As a result, PHP related spending basically stops.

Further difficulty arises because the Cooperative Agreement Grant funding release is frequently delayed and the actual quantity of money in the next year's Cooperative Agreement Grant is never disclosed by CDC until the money itself is almost ready for release. Therefore, DOH was unable to budget precisely for the next Cooperative Agreement Grant allotment included in the current State fiscal budget that the Department submitted for approval to the State Legislature several months before. Compounding the budget problem is that the previous year's unspent money may be returned to DOH in the form of carry forward, however this carry forward money generally arrives at DOH during some point in the budget cycle that makes it difficult to utilize. Another interesting feature of carry forward is that when the money is returned from CDC to DOH, the original reason for that funding purpose can be removed. So carry forward funds can be reallocated to new or different projects. This ability to reallocate carry forward makes the process a useful way of "recycling" money so that it can be used on all manner of unexpected or unplanned projects. Although CDC disapproves of carry forward, the meshing of the fiscal and grant year often makes spending the allotted Cooperative Agreement Grant money difficult. Ultimately, one of the measures that CDC is graded on by the U.S. Congress is how much Cooperative Agreement Grant money is actually spent at the State level. Therefore, CDC has traditionally allowed the States a measure of flexibility when it comes to financial creativity as long as the budget is spent.

Another tool of legislative financial control is the previously discussed rate. Much like spending authority versus actual money, rate is a term describing allowed salary dollar usage. Even though DOH may have a need to hire employees and may, in fact, have the money to hire them. DOH may not have the Legislatively approved rate required to do so. Rate is a way ostensibly to prevent the government from getting bloated with employees or be left morally responsible for employees hired with temporary revenue. The rate system also allows the State Legislature to “speak out of both sides of its mouth” by allowing programs to exist with no funding provided or to fund programs with cash but forbid them to spend any of the resources. The rate system has been described as long-term financial protection. However, in the short term, the rate system can also be destructive.

For example, as detailed later, after William Booth left OEO and the office was temporarily under control of his assistant, James Ridge, DEMO decided to hire a new permanent OEO Director. A number of formal and, perhaps more importantly, informal searches eventually settled on Wes Biddle, but Biddle wanted a salary that exceeded what OEO could pay. The issue was not that OEO did not have sufficient cash to hire Biddle, rather, OEO had insufficient rate and therefore could not hire Biddle. However, fortunately for Biddle, the Orlando and Jacksonville RERAs left their positions and this increased OEO’s available total rate because the RERA positions were no longer consuming their rate allocation. Therefore, DEMO decided to move some of the unused RERA rate to build up the rate that was available for hiring Wes Biddle. Unfortunately, this meant that the replacement Orlando and Jacksonville RERAs would have to be offered a salary considerably lower than their counterparts. Arguably, the primary

hindrance to PHP programs are, in fact, the rate and spending authority limitations enacted by the State Legislature in order to allow them to micromanage Executive Branch programs.

Exodus of the RERAs

Although CHDs are a part of the DOH, and have overlapping budgets with headquarters, they are not always held to the same requirements. One of those differences involves the use of rate. As workers in hybrid State/County organizations, County Health Department employees are not counted against the total State DOH rate limit. After discussion within DEMO and OEO, it was decided that, in order to “liberate” rate, all of the RERAs would be transferred from OEO to CHDs within their regions and were to report to the RDSTF Health and Medical Co-Chair for that region. For instance, Christopher Nazarene was transferred to the Escambia CHD and I was transferred to the Hillsborough CHD. In addition to freeing up rate for Wes Biddle’s salary, additional headquarters employees could then be hired using the abundant PHP Cooperative Agreement grant dollars and the newly freed up RERA rate. Most of the budget for each RERA was allocated to the county which was then free to organize the funds however they saw fit. For example, a RERA’s large travel allocation might be co-mingled with those of other employees which allowed the other employees to utilize RERA funds for their own purposes. Once again, differences between CHDs caused complications. One RERA was issued a purchasing card that was only usable for travel while other RERAs held purchasing cards that allowed a wide variety of purchases. Fortunately, OEO maintained control of most RERA equipment, including the trucks, otherwise the equipment would have probably been “reassigned” once it became CHD property.

Transferring the RERAs also solved some of the political tension between OEO and the RDSTF Co-Chairs.

Tallahassee also used the same rate avoiding trick to hire “in posted” employees. This involved hiring a staff member at a CHD but then assigning that employee to Tallahassee. As a result, PHP and OEO had staff who belonged to CHDs that they had never actually visited. Between the newly hired civil servants and a myriad of contractors, OEO and OPHP swelled. Although there was certainly a substantial amount of work to be performed by these new employees some of them became known as “one trick ponies.” This was because their position was mandated by CDC to manage a single particular project, regardless of the complexity, or lack thereof, of the project.

From the RERA standpoint, morale reached an all time low. The RERAs collectively felt that they were being abandoned by OEO. Additionally, due to reports from outgoing Interim OEO Chief James Ridge, the RDSTF Co-Chairs were considered doubters of the RERA program. The new command and control structure dictated that the RERAs could be activated and returned to OEO’s direct control during any number of possible emergency or preparedness situations but OEO was to be absent from their day-to-day existence. Additionally, the RERAs who had been originally designated as “Regional Emergency Response Coordinators” were to lose that title and adopt the current title of “Regional Emergency Response Advisors.” This title switch was to emphasize that it was the Co-Chair’s job to “coordinate” resources and the RERA’s job to merely “advise.” The RERAs felt that the talented and cohesive team that they had

formed was being scattered to the winds. From the sidelines, William Booth felt that his vision of a reliable public health strike team was also dismantled.

The newly appointed Wes Biddle may not have understood the role that his hiring had on removing the RERAs from his control. Biddle did, however, immediately understand that the loss of RERAs meant a loss of OEO personnel and a loss of OEO's reach and ability to project power. Although the RERAs petitioned Steve Fletcher, Evelyn Elbert and anyone who would listen – it was to no avail. Elbert realized the anguish that the move was causing the RERAs and recognized the potential impact upon OEO's response and outreach abilities, but in the end she felt that the financial opportunity was too great to ignore. Additionally, Evelyn Elbert had faith in the RDSTF Co-Chairs. Evelyn's beliefs were not based on the uneasiness that the RERAs and the Co-Chairs experienced with each other, but came instead from working regularly with the Co-chairs at a more collegial level. In an effort to win the RERAs over to her view, Elbert arranged for ex-Interim OEO Director James Ridge to talk with us on a conference call. However by the time Ridge spoke with us, the RERAs were aware of Ridge's attempt to eject all OEO assets and turn the office into a non-operational consulting unit. To our ears, Ridge's line of reasoning and acquiescence to the plan sounded pathetic.

In the end, the RERAs settled into their new county positions and found that their situation was best described as "benign neglect." When visiting the OEO offices, the RERAs regularly found new staff who had never been announced to them. Additionally, many of the OEO staff never learned about the RERAs or understood that, at one point, half of OEO had in fact been RERAs. While the RERAs no longer received some of the

support that they previously had, most also received less intrusion. For their part, after the battle was won, the RDSTF Co-Chairs typically had no interest in directly managing their respective RERAs. Rather than be constrained as a point of stress between the RDSTF Co-Chairs and OEO, RERAs were actually better able to serve as liaisons between the counties and PHP personnel in Tallahassee. In retrospect, it is easy to dismiss the transfer of the RERAs as an example of financial or political horse trading. Perhaps a better organizational explanation is that RERAs represented a hierarchical command and control structure that intruded across other organizational boundaries. During times of emergency, that structure could be justified, but day-to-day the structure was out of place with the organic model that the new DOH adopted. In addition to flexibility and independence, the organic model was also proving to be an instrument of political compromise as it divorced financial connections from command and control connections. Yet, during a disaster, the system could rearrange itself as necessary. Similar to the model used by Special Operations units in the U.S. Military, the RERAs became the epitome of the networked PHP organizational structure.

Public Health Planning

Another issue with hiring, and the ultimate performance of, PHP Planners has to do with the underlying question of what actually constitutes the act of planning. Many newly hired PHP personnel come from a “planning background” but their planning experience may not overlap with the specific needs of PHP planning. If a particular CHD wishes to hire a planner, and the hiring supervisor is unfamiliar with the different types of planning, it is easy for the agency to hire the wrong sort.

Broadly speaking, planning, as a gerund, covers a wide range of activities which involve thinking through and documenting what actions should be performed for

particular contingencies. However, a common misconception about planning is that it should be focused on the documentation part of the equation. Fundamentally, the process of thinking through the plan is the more important activity. Dwight Eisenhower was reported to have said that “plans are nothing, but planning is everything.” However there are different depths of planning and different scales of planning. Plan scale is tremendously variable, as examples: Someone could write a plan that explains how to un-jam an office copy machine. Most buildings have a fire escape plan. During the cold war era, the US and Soviet militaries created plans for thermonuclear war and the invasion of Europe. However, a planner who has created an excellent series of fire escape plans may not be qualified to tackle thermonuclear war. At the same time, people trying to escape a fire may not want to skim several hundred pages in order to find the nearest exit.

The concept of “plan depth” overlaps with “plan scale” in that it refers to details covered by the plan. The difference is that “scale” refers to the size and complexity of the issues addressed by the plan whereas “depth” refers to the level of detail that the plan attempts to address regardless of the scale. When examining plans for similar contingencies, a reader will find tremendous differences in their nature and style. Some plans are extremely specific about what the reader is supposed to do during each step of response to a precisely defined problem. In some cases, too much energy is spent trying to perfect a particular plan. Along with Eisenhower, George Patton also had an opinion about planning which he expressed by saying “a good plan today is better than a perfect plan tomorrow.”

Other plans are essentially a broad strategic overview of a potential problem and require those who implement the plan to refer to other plans, procedures or common sense in order to solve the problem. The advantage of these broad plans is that they do not weigh the reader down with detail and allow them to fill in the specifics for their particular county or situation but they also do not hold the implementer's hand.

Eventually, the question became: "What sort of planners did DOH need?" Unfortunately, there is still no clear answer. During a Strategic National Stockpile (SNS) Workshop I attended during my last month at DOH, I was approached by a county planner who swore that he had no understanding of SNS or about how planning was conducted. Although the planner in question was obviously intelligent, I had to wonder how someone with no professed planning knowledge was hired as a CHD disaster planner.

Placement of PHP Personnel

As discussed earlier, Florida DOH houses PHP personnel at several hierarchical levels within the agency. Specifically, there are PHP personnel at headquarters, at the regional level and at the county level.

The Tallahassee tier of PHP is complicated and continually evolving. However, in general, the personnel at the State Level are largely concerned with setting programmatic standards, managing budgets and organizing State Level response during emergencies. When discussing Florida PHP, regions are defined as specific groups of counties that were selected to be aligned with the FDLE regions that were served by specific FDLE field offices. At the start of the domestic security boom in 2002, the FDLE "regions" were not aligned or numbered consistently with the analogous DEM

“areas” but they were subsequently synchronized in 2007 with the DEM areas changing to match the RDSTF regions.

Within the Department of Health, regionalization is a concept that has fallen in and out of favor. After the 1996 disintegration of HRS, DCF kept the regional structure but the Department of Health abolished the regional layer and designed a system whereby CHD oversight came directly from a single State Health Officer in Tallahassee: A single person with a 67 element span of control. To the typical County Health Officer, the overthrown HRS regional system represented a management annoyance and their new found independence out from under the HRS hierarchy and as a State-County symbiosis was cherished. Ironically, the new DOH structure, in some ways, resembled the very disconnected system that helped to justify the creation of the HRS hierarchy in the first place. Although, post-HRS, there remained regional organization schemes within the Department of Health, these schemes were not command and control oriented, instead, they typically organized how specialized resources like laboratories or radiation control personnel were to be shared between counties. Adding to the confusion, these DOH regional schemes were different between the bureaus. For example, the Bureau of Radiation Control used, and uses, a different regional organization than the Bureau of Laboratories. In the context of PHP, “The Region” is the RDSTF region which may mean very little to other DOH personnel.

PHP regional organization started as a way to share limited resources but later came to be embraced as a way for headquarters groups to project their influence downward. Some counties independently hired planning coordinators for their RDSTF region, a practice later institutionalized with money from Tallahassee. OEO hired

RERAs. The public information office hired regional Public Information Officers to synchronize and control public and media messages. Information Technology hired Regional IT personnel. The public health nursing office hired Regional Special Needs Shelter Coordinators. Yet, when the author started with DOH as a RERA in 2002, he was bluntly told by a rural Health Officer that he could not possibly be a “regional anything” since there was no such thing as a region within DOH anymore.

As we saw with the RERAs, a continual issue with regional positions involves who they actually work for. Some at the County Level believe that regional positions are simply headquarters personnel sent to spy on the counties. Others, more accurately perhaps, believe that regional people are simply headquarters people housed in the counties to keep them off of Tallahassee’s personnel roster for rate purposes. Yet others believe that regional personnel are employees of dominant CHDs sent out to spy on smaller CHDs. There is also the idea that regional personnel are just employees of dubious regional value hired by a dominant CHD or Headquarters and described as a shared resource to smooth over the funding request. Aside from personnel, it sometimes seems as if attaching the word “regional” to an asset is done purely for political reasons. Lastly, there is the confusion that results during a disaster when regional, networked, assets change command and control from local management to Tallahassee management.

There is a familiar saying in emergency management that “All emergencies are local.” It therefore follows that the best emergency planning should be accomplished at the local level, not the regional level. Additionally, whenever any kind of resource

appears, it is the nature of each organizational element to want a share of spoils. Public Health Preparedness personnel are no exception.

Initially, the only standard in the PHP program regarding planning personnel was the placement of about seven planners in each RDSTF. During the formative discussions involving PHP, Tallahassee officials mentioned to the Dade CHD Director that DOH was planning to hire several PHP planners. The Dade Director greeted this news with enthusiasm and asked how many were being hired and when they would show up in Miami. After Tallassee replied that they were hiring several for the entire state and that they would be based in Tallahassee, the Miami Director replied that he would need about seven just for RDSTF-7 alone. After further discussion, it was decided to place seven PHP Planners in each region regardless of the number of counties or the population.

Even if there were standards or agreements about what constituted PHP activities in general, each CHD still faced a unique set of challenges and opportunities. These would require some difference in the type and role of the PHP Planner hired and how those personnel were organized. Initially, RDSTF-1 PHP personnel were primarily based in Pensacola and covered counties that were some distance from their homes. RDSTF-2 planners originally worked within their counties even if they actually lived in Tallahassee. Later, RDTSF-2 PHP administration was consolidated to Leon CHD and supervision was shared with the other regional CHDs. Many counties in RDSTF-3 hired PHP personnel with a focus on training and outreach issues while PHP related planning was a secondary role or was conducted regionally. Region 3 PHP personnel were located throughout the region but tended to cluster around Duval and Alachua counties.

Duval is the largest county in the region and Alachua was the home of the RDSTF Co-Chair but also served as the traditional HRS regional hub for the western side of what became RDSTF-3. Region 4 originally placed its planners between its nine counties with two counties (Sumter and Hardee) sharing planners with a larger neighbor (Hernando and Polk). RDSTF-5 initially hired six planners and created three teams of two planners who each worked in three counties. Subsequently, this approach was modified. RDSTF-6 placed a planner in each county but smaller counties shared planners, as well as other CHD personnel. RDSTF-7 placed PHP personnel in each of its four counties but the majority were located in Miami-Dade.

Transitions of Command

After fighting battles for years, having his resources taken but still beating the drumbeat of emergency preparedness, William Booth must have looked at the rise of his office to prominence with a certain sense of irony. Booth had been hired away from the U.S. Public Health Service after Hurricane Andrew ten years before specifically to build response capability within DOH. Now that it was happening, William's retirement was drawing near.

William's deputy within OEO was the Operations Chief, James Ridge. Ridge had followed a similar career trajectory through the Department of Health and Human Services as Booth but was initially hired by DEM before William was able to bring him over to DOH after 9/11. Ridge's job at OEO was to assist Booth and run operational aspects, primarily the RERAs.

As will be discussed later, William Booth's retirement became controversial. However, his departure had more immediate effects on OEO. James Ridge, himself, remained with OEO as the Interim Chief. Ridge very much wanted to become the

permanent OEO Chief. In an effort to consolidate his control, Ridge also forbid his staff from talking to other people within DOH and typically passed only selective information on to his staff. In a manner of speaking, the networked, organic, nature of OEO began to revert to an insular and defensive hierarchy. However, the staff of OEO never actually stopped talking to outsiders as it was not really in their nature. Although Ridge wanted to run OEO, he did not desire to run a fiefdom in the same manner as Booth. In an apparent attempt to simplify his life and reduce his responsibilities, Ridge began to formulate plans for divesting OEO of its field assets, including the RERAs, the rolling stock and disaster supplies.

After Booth's departure, DEMO Director Fletcher wanted a change in direction at OEO. However lacking a clear path, Fletcher essentially put OEO and Ridge into a holding pattern. In response to the vague direction and signals from DEMO, Ridge continued to search out the combination of actions and appearances that would ensure his continued command of OEO while simultaneously trying not to rock the boat. The Division of Emergency Medical Operations held no fewer than three interview rounds for the OEO Director position, with Ridge applying to each round. Unexpectedly, the announcement came that the new OEO Director would be an outsider named Wes Biddle. After Biddle's selection, Ridge arranged to leave OEO the day before Biddle's arrival. The two men never met and there was no formal transfer of command or briefing by Ridge for Biddle.

Ridge had also tried to spread concern about Biddle before the new Director's arrival. In particular, Biddle allegedly promised DOH that he would do anything necessary to "fix" OEO's problems. For us, Biddle was something of an enigma. He was

unknown to anyone within OEO, and did not appear to be known to anyone's outside contacts. Biddle had worked for a number of preparedness organizations including FEMA, CDC and an emergency management agency within Georgia, although he apparently worked at none of them for very long. The story was that Biddle had approached a staff member working for the DOH Secretary at a conference and impressed her to the extent that the Secretary's office encouraged his hiring. However, this story, along with many other aspects of Wes Biddle, was shrouded in mystery and unconfirmed.

Biddle took the helm of OEO and immediately realized that much of OEO's situation as well as limits on his authority had been concealed from him when he agreed to the position. Biddle's relationship with DEMO Director Fletcher never solidified. An example of this was his role during the 2004 hurricane season. Rather than be allowed to coordinate State ESF-8 resources, Biddle was essentially sidelined. In fact, other than his reading of the NOAA prepared weather report on conference calls, Biddle seemed to have no real responsibility. Instead, most health and medical operations were run by a series of Incident Management Teams (IMTs) appointed by the Secretary of Health and DEMO. As the storm season progressed, Biddle would publicly lash out at staff members.

Strangely, he was found to horde vast quantities of food and snacks, provided for the late night ESF-8 staff, under lock and key in his office and even take OEO employee office chairs so that his unused personal conference room was equipped with a matched set of ergonomic seats. After the 2004 hurricanes, Biddle was suddenly relieved of any duties he retained. Biddle's interim replacement was Allison Cardinal

who also served as the Director for the Office of Public Health Nursing. Although not a nurse, nor an emergency specialist, Cardinal had cultivated the reputation as an excellent hard-nosed manager who enjoyed interesting challenges. Cardinal enforced order on OEO and helped to solidify the office for the next, permanent, OEO Director.

That Director was Phillip Remington. Although the result of Remington's hiring process was clearly pre-ordained, Remington proved to be a terrific choice to lead OEO. Ironically, Philip Remington first came to DOH in search of a quiet job where he would not have to manage any people or projects. Remington retired as a planner from the Tallahassee Police Department and then went to work for the DOH Bureau of EMS where he was assigned complicated preparedness projects. Impressed by his abilities, James Ridge had hired Remington for Alex Roberts's vacated OEO Plans Chief position. During the storms of 2004, Remington served as the Liaison between OEO and the IMTs. Unlike past OEO leadership, Remington was quiet and methodical. Remington listened carefully to the IMTs and won their trust. Rather than try to tell an IMT what it should do, Remington became a full participant in DOH's style of discussion-driven consensus-based decision making. In short, Phillip Remington was not like William Booth, James Ridge or Wes Biddle. After Remington's appointment as Director of OEO, there were no more schisms between the IMT and ESF-8, both worked together seamlessly under the guidance of Remington.

Aside from leadership of OEO and OPHP, other transitions were occurring in DEMO. After firing his predecessor, Director Fletcher decided not to keep Interim Director Steve Cohen at the helm of EMS. Cohen was soon hired on by Wes Biddle as OEO's Operations Chief. Fletcher himself grew weary of running DEMO and decided to

step down as Director. Evelyn Elbert temporarily ran DEMO until a new Director, Susan Lynn was appointed after a brief selection process. Lynn was the former Director of Seminole CHD and then moved to a hospital liaison position with OEO because her new husband had a position with FDLE that required him to live in Sarasota. After her husband's retirement, the couple moved to Tallahassee when Lynn was appointed as DEMO Director. Lynn was well regarded by all within DEMO. She has a pleasant attitude, past experience managing a CHD, had served as an RDSTF Co-Chair and worked with the Hurricane Charley Overhead Team. This made her an ideal DEMO Director. Despite Evelyn Elbert's role as Deputy Director of DEMO, there was technically no formal Deputy Director's position predefined within the hierarchy. As Lynn took over the Division, Elbert stepped down from DEMO leadership and assumed full time control of OPHP. Under Elbert's nurturing, the development of PHP activities within the State continued to flourish. However, the distinction between OPHP and OEO began to diminish as OPHP began to run the technical aspects of some programs and hire on subject matter experts – including former DEMO Director Steve Fletcher.

Extending the Structure – Federal Partners

Because of the complexity of medical missions and the need for exotic and expensive resources, ESF-8 tends to rely upon its Federal partnerships more than many other ESFs. The State emergency management system along with the allied Emergency Support Functions is a mirror of the systems in place at the Federal and County levels. In fact, the complexity of State ESF-8 organization is equaled, and at times exceeded, at the Federal level. As mentioned earlier, the lead Federal ESF-8 agency is the U.S. Department of Health and Human Services (DHHS). DHHS relies

upon the support of its subdivisions such as the FDA and the CDC as well as outside agencies such as the VA and the Department of Defense (DOD).

However, the Federal unit that has the strongest relationship with State ESF-8 operations is the National Disaster Medical System (NDMS). The NDMS started as a partnership between DHHS, VA and DOD which was charged with accounting for civilian hospital beds and resources so that in times of war, U.S. military casualties could be moved to civilian hospitals for medical treatment in case VA and DOD facilities were overwhelmed. An additional mission of NDMS was to facilitate the movement of civilian patients between national hospitals, including VA hospitals, in case of a disaster.

The most visible components of NDMS are the Disaster Medical Assistance Teams (DMATs). DMATs are composed of volunteer “intermittent” DHHS employees who deploy as a standard medical team and can conduct basic medical care from portable “MASH style” field hospitals. DMATs can be deployed by truck or air transportation and are trained to work with a minimum of outside support. Florida currently has six DMATs based within the State (Table 5-1).

Although these teams are Federal resources, they also promote themselves as Local and State resources. The history behind this marketing is that, traditionally, the DMATs were largely ignored by DHHS when they were not activated. In order to gain practice and money to support their efforts, the DMATs attempted to hire themselves out. Since it was not possible to simply rent a Federal resource, the teams started affiliated non-profit organizations. If a local event, such as a marathon, wanted a medical team to staff the event, they could contract with the non-profit. In addition to

DMATs, NDMS also contains specialized mortuary teams (DMORTs) and even veterinary care units (VMATs).

Understanding the value of DMATs, as well as their precarious financial situation, William Booth arranged to allocate a portion of the annual State PHP budget to support DMAT activities and also arranged meetings and occasional exercises for the Florida based teams. This outreach served to better connect the Florida DMATs to OEO and to each other. The camaraderie paid dividends during Florida's hurricanes. Although the DMATs were a part of the hierarchical DHHS ESF-8 system, they had also become networked with State and Local officials. This networking was enhanced by the fact that some of the DMAT personnel also held day-to-day positions of importance throughout Florida's health and medical community.

During Florida's Legislative investigations into State domestic security, the Legislature was especially intrigued with Florida's DMATs, but were disappointed that there was not a team in Tallahassee and that the DMATs were not under direct State control. As a result, DOH was ordered to create a Regional Medical Assistance Team (RMAT) to be based in Tallahassee. Although superficially sensible, this idea misunderstands the entire concept of NDMS. Even though NDMS assets are Federal, they are routinely requested by the State. Additionally, if an actual disaster occurred in Tallahassee, FL-1 or FL-4 could rapidly respond and any hypothetical RMAT volunteers might be required at their normal medically related jobs or even be among the victims. Despite Legislative interest, the first factor that killed the RMAT was the tremendous expense and effort involved in trying to purchase and maintain the equivalent of a Federal DMAT cache. The second RMAT killer was the lack of qualified personnel in

Tallahassee who were willing to volunteer for the RMAT and who had not already volunteered for either FL-1 or FL-4. Rather than add a structurally isolated RMAT to the State's balance sheet, the logical approach was to embrace the network of already networked DMATs. This was the approach used in the later State Medical Response Team concept – an improved successor to the RMAT.

Another major confounder concerning Federal ESF-8 response occurred in 2002. Among the many assets that were transferred to DHS were the NDMS and parts of the CDC's Strategic National Stockpile program. Although DHS had no experience or clear doctrine about how NDMS might be used, DHS did have money. As a result, the DMATs were showered with resources in the form of equipment, trucks, communications, supplies and even new uniforms. Despite the transfer of major ESF-8 operational assets to DHS, DHHS maintained its role as lead Federal ESF-8 agency. Imbedded among the transferred NDMS assets were also the very DHHS personnel that best understood ESF-8 operations. Rather than follow the individual DMATs' lead and attempt a networked command and control organizational structure, DHHS set up a replacement, parallel, hierarchical command and control structure. DHHS ran all non-DMAT ESF-8 missions and DHS coordinated DMAT specific ESF-8 missions. As a result, during the 2004 and 2005 hurricane seasons, there were essentially two, independent, Federal ESF-8 structures. Due to the relationships forged between DMATs, State ESF-8 and Federal ESF-8 officers in Florida, this parallel structure caused a minimum of problems within Florida. Essentially, each, separate, mechanistic Federal ESF-8 structure was tied together through the organic State ESF-8 "cloud." However, the complications of the split Federal ESF-8 system and the limitations of

DHS to support so many operational units simultaneously became apparent during response to Hurricane Katrina where there was no organic state ESF-8 network to smooth operations.

During 2007, NDMS and the SNS program were transferred back to DHHS. Initially, this was greeted with enthusiasm by the teams but the limitations of DHHS's ability to support the DHS-increased logistical foot print of the typical DMAT quickly arose. As it currently stands, the relationship between the voluntary DMATs and the full-time DHHS personnel continues to evolve. DMATs are a flexible and effective resource but how to best manage the 60+ voluntary DMATs distributed around the country within DHHS' career driven hierarchical bureaucracy remains to be discovered.

Summary

ESF-8 resources are typically depicted as a supply hierarchy. Counties at the bottom request resources from the State which will, in turn, request resources from the Federal government. Despite the greater resources of each higher level, the lower levels of the system are typically considered to be in the driver's seat. Only under exceptional conditions does the state "roll in and take over" a county's incident. Likewise, the Federal government is extremely sensitive about respecting a state's sovereignty. When the system fails it is often because a particular entity is unsure how, or unwilling to, call for assistance from higher up. In 1992, Federal response to Hurricane Andrew was delayed for days because the State of Florida was unaware how to request assistance and was concerned about costs. Federal response was, again, impacted in 2005 after Hurricane Katrina because both the City of New Orleans and the State of Louisiana severely underestimated their potential needs and delayed their specific resource requests (Cooper & Block, 2006, pp. 237-238).

Despite the traditional top down diagrams and organizational charts showing ESF-8 as a subunit of emergency management, ESF-8 is not, itself, a clean mechanistic hierarchy. Rather, ESF-8 response may be an organically generated and implemented operation. It may be a network of hierarchical organizations, it may be a hierarchy directing networks. Response may involve a network oriented patch around a broken or dysfunctional hierarchy. Regardless of uniforms, civilian public health responders are not paramilitary by nature. The ways that they organize for both response and day-to-day activities reflect their discussion-oriented and consensus-based model of decision making. Some ESF-8 agencies, such as Florida's DOH, embrace and formalize this tendency while others choose to reject it.

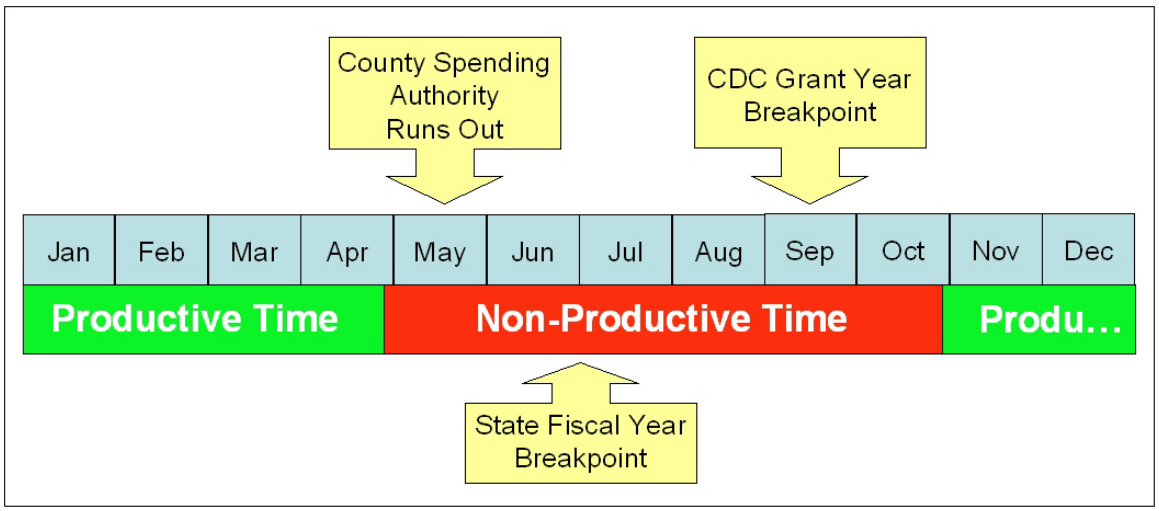

Figure 5-1. Annual PHP funding timeline and events

Table 5-1. Florida's DMATs

FL-1	Pensacola
FL-2	Punta Gorda
FL-3	St. Petersburg
FL-4	Jacksonville
FL-5	Miami
FL-6	Orlando

CHAPTER 6
HURRICANE CHARLEY

Chapters 6 through 13 will attempt to demonstrate how the various programs, offices and personel previously described combine in the context of real world incidents to carry out public health preparedness and response. I will then attempt to explain them, together, within a theoretecal framework in the final analysis chapter.

On Friday August 13th 2004 the orders were simple – I was to check in with the County Health Departments (CHDs) in my region and make sure that they had their plans and call lists up to date. I was also asked to check on shelter locations, operational status and census. Although I knew that my CHDs were as prepared as they could possibly be, Hurricane Charley, a compact but strong hurricane was aimed right up the West coast of Florida and it was going to create big problems. At the time it looked like Pinellas County would be the focus of my attention. Pinellas is Florida's most densely populated county and one of the most vulnerable to storm surge due to the fact that most of it is a peninsula located between the Gulf of Mexico and Tampa Bay. Additionally, Pinellas County is also one of Florida's oldest counties from a demographic standpoint which has earned it the nickname of "God's Waiting Room."

Fortunately, a mere 36 hours before, Tropical Storm Bonnie had struck the Florida Panhandle. Damage from Bonnie was light and the same state emergency management teams that were assembled for TS Bonnie were still in place for the landfall of Charley. Until landfall, there was little that could be done as all reasonable preparations had been taken. Winds and rain were building in the Tampa Bay area and by mid morning, my home had lost electrical power because the City of Tampa chose to shut off certain services in preparation for the storm. After the power loss, I drove to my

office at the Bureau of Laboratories building on the University of South Florida campus. The lab building still had electrical power as well as phone and internet access in addition to a backup power generator. I watched the news as people on the West coast of Florida continued to evacuate to inland counties and chatted nervously with my OEO colleagues about post-landfall strategy.

Charley Hooks Right

After an hour, I received word that Charley had, contrary to models, suddenly hooked east and was heading directly for Punta Gorda in Charlotte County (Figure 6-1). In addition to possessing two vulnerable cities along the harbor, Charlotte County's demographics were even more elderly than those of Pinellas. Fortunately, the population was much lower and less dense (Table 6-1).

I was also told that Luke Falcon, the Region 6 RERA, and his family had evacuated to the east coast. Since the Region 7 RERA position was still vacant that left me as the nearest outside ESF-8 resource for Charlotte County. Unfortunately, since the models had predicted a Charley strike farther north, counties in Southwest Florida were less prepared than the counties that had previously been in Charley's path.

As the hurricane turned east it also intensified from a Category 2 storm to what was later estimated to be a Category 4 storm with 145 MPH winds. The storm came ashore at 15:45 and generated storm surge of seven to thirteen feet along the Southwest Florida coast. Charley proceeded inland across Desoto, Hardee, Osceola, Orange, Seminole and Volusia Counties. The hurricane exited Florida near Daytona Beach around 23:30. Wind gusts of over 100 MPH were recorded as far inland as the Orlando Airport and the Daytona Beach Airport reported gusts of over 90 MPH. At the Charlotte County airport, the weather station recorded a gust of 111 MPH before the

machine was destroyed. Charley caused damage in 26 counties at an estimated insured loss of almost seven billion dollars. The storm also directly caused 32 fatalities across the state along with one suicide victim. Post storm, three people died from carbon monoxide poisoning associated with portable generators and one person died when their trailer caught fire from candles. Eight additional people were later killed by cleanup related accidents.

As a general rule, public safety vehicles are not allowed to drive in sustained winds over 45 MPH, therefore it was decided that I would wait for the winds to slacken before deploying south. Since Tampa Bay's Urban Search and Rescue (USAR) Task Force #3 was planning to head straight to Charlotte County, OEO decided to send me to Arcadia, the county seat of rural Desoto County. As I traveled down I-75 to State Road 70, I listened to the general emergency management satellite radio channel and heard the preparatory chatter of logistical support groups assembling in Tallahassee. Finally, I heard the voice of the DEM Area Coordinator assigned to the Desoto County EOC where he had ridden out the storm. He indicated that initial damage assessment teams were just starting to survey the county and the only communications out of the county was his satellite radio. Subsequent reports indicated that the hospital in Arcadia had lost parts of its roof and suffered other significant damage.

I crept along S.R. 70 dodging trees and debris as night fell and I found my way to the Desoto EOC. Arcadia was in complete darkness and my headlights barely made out the collapsed town water tower with its message welcoming me to Arcadia. Once in the EOC, I was happy to learn that a single land line telephone was now functional. I received an initial damage briefing from the DEM Area Coordinator and learned that,

essentially, nothing worked. The damage to the hospital was subsequently confirmed. After talking with the county's Emergency Manager, a staff member requested that I come to the phone. The Desoto EOC staff had called the ESF-8 desk at the State EOC to submit medical system damage reports and requested supplies and augmentation for the hospital. Unfortunately, the State ESF-8 representative refused to commit to any assistance and insisted on speaking with a local medical specialist rather than a mere Emergency Manager. When I took the phone, I was greeted with a shrill voice asking "Are you a doctor?" I recognized the voice as Mary Fairfield, one of my OEO colleagues. After clarifying who I was and getting the usual pleasantries aside, Desoto put in initial requests for basic medical supplies and potentially a Federal Disaster Medical Assistance Team. I also located the county ESF-8 representative from the Desoto CHD. Unfortunately, the ESF-8 staffer was able to tell me little that was not already evident. While formulating additional mission requests for submission, the ESF-8 representative asked if I could get him a couple of additional Blackberry cellular email devices. I explained that since the cellular system was damaged, a Blackberry would offer little to him for the foreseeable future. After a bit of thinking he replied that he understood the problem but had hoped that if he had a Blackberry then he might be able to receive any important or inspirational messages from the Secretary of Health or the DOH Public Information Officer. After trying to cheer up the ESF-8 guy, I drove to the hospital for an additional damage assessment and to figure out where to place a DMAT. I was then sent north to Hardee County.

In normal circumstances, the drive from Arcadia to Wauchula would take about 25 minutes but, due to downed trees, this night the drive took over an hour. While traveling

up S.R. 17, I talked about the road's condition with DEM logistics personnel who were planning to bring a convoy of semi tractor-trailers down S.R. 17 from the Logistical Staging Area (LSA) in Lakeland to Punta Gorda. Such a trip would be logical as they could drop supplies in Wauchula and Arcadia *en route* but tonight it was not possible for a convoy to get through.

Wauchula, also in darkness, looked like a war zone. I met my colleague Evan Straight, the Hardee County Emergency Manager. Straight briefed me about the county's situation, which although dire, was under control as much as possible. Straight was one of the true heroes of Hurricane Charley. Although he had few resources at his disposal, Straight had developed the reputation as an aggressive Emergency Manager. He had put together a small, but capable, county Hazardous Materials Team and organized the Hardee County EOC in a way that was quaint and low tech but very effective for a county like Hardee. Straight soldiered on and conducted hurricane operations following Charley, Frances and Jeanne which all impacted Hardee County. In addition to a stressful work situation, Straight's family was also impacted by the total loss of their home during Hurricane Charley. After his tremendous service during 2004, the Hardee County Commission decided that Straight had, in fact, conducted his job too aggressively and they forced him to resign. After discussing the situation with his wife, the Straights decided to leave Florida and Evan became a paramedic in the Great Smokey Mountains – far away from both hurricanes and his past life in Central Florida.

The hospital in Wauchula sustained little reported damage but reliable information would have to wait until daylight. After reporting into OEO, I was ordered to Punta Gorda where I was to meet up with Johnny Stork, the DEM Area 4 Emergency

Coordinator. After reaching Stork on the satellite radio, I was informed of mortality reports. Specifically, trailer parks were said to have bodies littering the streets guarded by Sheriff's Deputies and a partially collapsed condominium was reported to have bodies hanging from the windows. It was now midnight and I relayed the death reports to State ESF-8 and to the Florida Emergency Mortuary Response Team (FEMORS) leader.

The Incident Management Team

Little did I know, but while I was conducting operations in the field, an organizational battle was occurring at DOH in Tallahassee. By tradition, and State Statute, the responsibility for coordinating health and medical resources during a disaster falls to the ESF-8 Emergency Coordinating Officer (ECO). The OEO Director, formerly OEO Chief, is designated as the ESF-8 ECO. During the 2004 hurricane season, the OEO Director was the newly hired Wes Biddle, who as previously discussed, never seemed to gain the trust of many. Because of his concerns about Wes Biddle and the capability of the ESF-8 team, the Secretary of Health decided to create a separate Incident Management Team (IMT) which was commanded by Biddle's boss, DEMO Director Steve Fletcher. During the response phase, confusion reigned over who was actually coordinating Health and Medical issues: the ESF-8 Team or the newly conceived IMT? Ultimately, during recovery operations, ESF-8 focused on managing material deliveries and operating Tracker, the State's mission tracking software. The IMT focused on strategic objectives, primarily restoring the impacted CHDs to operational status. Regardless of State Law, given Fletcher and Biddle's managerial relationship, there was no question which team was in charge.

Charlotte

As I drove down I-75 towards Charlotte County, the storm damage became increasingly evident along the roadway. The usual trees and debris filled the road and signs and utility poles were snapped off or bent to the ground. Fortunately, Stork had reminded me of the landmarks to look for on the way to the EOC and actually talked me into the facility when I got close.

It was clear that the Charlotte County EOC was broken both physically and organizationally. During the peak of the storm, the roof of the EOC peeled off and the parking lot was full of metal roofing material and pink insulation. Inside the EOC, I sloshed my feet through puddles of water and admired the stars, undiminished by light pollution, shining through the holes in the roof. The EOC was a mad house with no briefing schedule, no order and no feeling of control. The ESF-8 desk was staffed by a retired hospital employee and the Charlotte CHD Disaster Planner. Despite the damage, the land line telephones worked and we were in contact with a single DOH nurse who was assigned to a shelter. This nurse and the Disaster Planner were, just about, the only employees of the approximately 50 person Charlotte CHD that were accounted for during the next 36 hours. By 04:30 I had learned little new about the situation in Charlotte County and reported this to both OEO and FEMORS. I then noted that my truck had a flat tire due to debris, crawled into the back of the struck and fell asleep.

Shortly after daybreak, I was awakened by Luke Falcon knocking on the window of my truck. He was holding a Styrofoam cup of coffee and smoking a cigarette. I crawled out of the vehicle, lit my own smoke and we began discussing the situation. Since little specific was known and Charlotte was Luke’s home county he was eager to start driving

around and surveying the hospitals, health department buildings and his own home. We walked back in the EOC but found that confusion and disorder still reigned. Luke left for his survey and I relieved the ESF-8 team and tried to piece together what information I could find.

The Overhead Team

Meanwhile in Tallahassee, the IMT grew ever more concerned about the lack of situational intelligence from Charlotte County and the lack of a CHD presence aside from the PHP Planner and the nurse. The IMT began to assemble a forward deployable Overhead Team (OT) which was staffed with specialists from several different CHDs across the state. The leader of the OT was the Alachua County Health Officer: Paul Driver. Driver was a veteran DOH employee known for his determination and gruff nature. Within Florida, Driver was also an ESF-8 legend. The OT's mission was to access the situation in its Area of Responsibility (AOR) which consisted of Charlotte, Hardee and Desoto Counties. The OT was also to re-establish public health services in Charlotte County and support the damaged, but operating, CHDs in Hardee and Desoto. Meanwhile, the other RERAs who had been assigned to help coordinate supplies at the State Logistical Staging Area in Lakeland were dispatched to Charlotte County to join Luke, myself and the incoming OT.

After contacting State ESF-8, I received word that several DMATs were on the way to the stricken area. FL-3, my home team, and FL-5 from Miami were traveling to Charlotte County and were to meet up with elements from the Punta Gorda based FL-2 DMAT. Simultaneously, FL-1 DMAT from Pensacola was *en route* to Arcadia and FL-6 from Orlando was *en route* to Wauchula. Jacksonville's FL-4 was ordered to stage in various locations around the state before finally returning home.

I then met with FEMORS. An initial FEMORS contingent had arrived in Charlotte County but was unable to make contact with anyone from the Medical Examiner's office. We subsequently learned that the Chief Medical Examiner was away on vacation but the morgue and the Examiner's staff was intact and attempting to start up operations. FEMORS requested refrigerated trucks for additional body storage and integrated itself with the Medical Examiner's team. It became clear later in the day that the mortality reports were tremendously exaggerated and FEMORS started to demobilize personnel. Outside DOH environmental health specialists also started to arrive in Charlotte County and by afternoon, OT members Paul Driver and past Seminole County Health Officer Susan Lynn arrived at the EOC. Luke Falcon soon joined us and told us that, in addition to the hospitals being off line, most CHD facilities were destroyed or heavily damaged. The good news was that Luke's home had emerged almost unscathed. Luke also performed a survey of fire and police agencies and confirmed the reduced fatality count. He was able to tell State ESF-8 that Charlotte County's request for hundreds of body bags had been premature. We were also informed that the other RERAs would be joining us in Sarasota.

The OT had acquired space in the largely evacuated hotels along the beach in Sarasota County and the Sarasota CHD had agreed to host the OT and recovery operation. Driver and Lynn soon learned all there was to know in Charlotte County and they and I next traveled north to Arcadia to meet the Desoto CHD administrator. We then traveled to Sarasota CHD and Driver convened the first OT briefing. The team was organized along classic ICS lines with a staff for each function. Additionally, a liaison was established for each of the three impacted county CHDs and representatives from

Environmental Health and Epidemiology were on hand. A special team was setup to deal with the enormous problem of Special Needs Shelters (SpNS). Driver proved to be a model commander. His meetings were fact filled and brief. Although Driver invited opinions and discussion, he was not hesitant to remind us who was in charge of the operation. The afternoon briefs were the major venue for OT communication and were considered mandatory.

Because of the demographics of Charlotte County a large number of medically needy citizens sought shelter in nursing supported evacuation shelters. After the storm passed, many of these SpNS occupants were unable to return home, yet, many of the SpNS facilities were no longer usable due to storm damage. Additionally, as the power remained off and supplies dwindled, non-evacuated nursing homes and assisted living residents were expected to start appearing at the already taxed SpNS facilities. In total, seventeen facilities for the aged with over a thousand residents were damaged by Charley. The largest of these facilities evacuated all 500 residents to a hotel in Pinellas County. These facilities did not include the numerous medically frail but independent citizens of the impacted counties who were in SpNS facilities. Soon, the growing shelter population was also increased by about 50 patients suffering from Alzheimer's disease and other forms of dementia. The OT decided to consolidate SpNS operations for Charlotte County's population by re-opening a shuttered nursing home in Venice and converting Sarasota's Robards Arena into a SpNS facility. These logistical miracles were possible because of the productive relationship between Sarasota CHD and the rest of their County's agencies. I realized that local preparedness was not just a factor that affected response within a county, local preparedness made a county a better

resource for all manner of regional and state response operations. I still feel today, that there is no better local cooperation than in Sarasota County. The aggressive time line for these centralized SpNS facilities was further accelerated when the SpNS facility in Arcadia was heavily damaged by a lightening strike during a storm on August 16th. This damage necessitated the evacuation of the burning shelter during the storm and then a return to the smoke filled building after the storm had passed.

Although Environmental Health and Epidemiology specialists were associated with the OT, these specialty team's command and control remained with their respective division leadership in Tallahassee. Cooperation between these teams, the OT and the impacted counties' own internal Environmental Health and Epidemiology personnel depended heavily on the personalities involved. Despite the non-standard command and control issues, these headquarters directed personnel did a fine job.

In the days after landfall, Luke Falcon continued to work closely with Charlotte County and helped to arrange the arrival of temporary facilities which included a mobile clinic and OEO's command and control truck known as the Mission Support Unit (MSU). As staff started to report for work, Charlotte CHD began to dig itself out of the rubble. Meanwhile, at the Charlotte EOC, tremendous FEMA and DEM resources, combined with an emergency management overhead team led by the EM director of Manatee County, brought order and procedure to the free-for-all.

Disaster Community Health Assessment Teams

The RERAs were assigned to a variety of assessment and ground truthing missions which included checking up on DMATs, assessing hospitals and nursing homes as well as conducting neighborhood health assessments. The neighborhood health assessment duty involved a special set of teams that DOH had assembled in

previous years known as Disaster Community Health Assessment Teams (DCHATs). The original DCHAT concept was to deploy small four person teams, including a nurse and an environmental health inspector, into an area to conduct a rapid survey concerning the health and medical needs of the community. Over time, the DCHATs lost some of their specialists but became equipped with radios, satellite telephones and Personal Digital Assistants (PDAs) equipped with a Global Positioning System (GPS) receiver. The PDA was used to enter standardized information into an electronic survey form which would then be sent to a central computer server. On the server, the data would be tabulated and then overlaid in a Geographical Information System (GIS) to assist in targeting relief efforts. Although several DCHATs had been established throughout the state, many DCHAT members also had other duties which prevented them from taking part in the first actual DCHAT deployments after Charley's landfall. Since the teams were still considered unknowns, DOH wanted to test the DCHAT's effectiveness but did not want the teams placed into harm's way.

Jacksonville RERA Laura Jackson and I, as one team, and Luke Falcon and Orlando RERA Jay Van Fleet, as another team, were therefore tasked with conducting a "windshield assessment" of Charlotte County and locating neighborhoods that looked as if they had been impacted enough to justify deploying a DCHAT, but not so impacted that the residents had left entirely or that the neighborhood was too dangerous for a DCHAT. We could actually learn a lot from looking at the map: post-Hurricane Andrew houses were built to a higher building code and were typically located in neighborhoods with curving streets and cul-de-sacs. Older, and more vulnerable, housing stock was located in neighborhoods built on grid organized streets. Our assessment included

driving the streets and talking to selected residents. We also located the logical borders of the community and recorded latitude and longitude coordinates for the survey area along with potential staging areas and other points of interest. The neighborhoods were drawn on a map and our observations were recorded for the use of the DCHATs and as situational intelligence for the OT and the county ESF-8 operation.

Actual deployments of DCHATs were significantly delayed by rallying and transportation issues. Once the DCHATs were deployed, they typically found that conditions in the neighborhoods had improved since Jackson and I did our initial surveys. In some instances, roads were completely cleared and power was restored. From a public relations and psychological standpoint, the DCHATs were a tremendous success. Citizens typically were pleased that the government cared enough to send an assessment team to their neighborhood. Although some DCHAT members felt that the neighborhoods that they visited were “too recovered”, most DCHAT members seemed to enjoy the experience and they felt that they were participating in an important component of disaster response.

From an operational standpoint however, the DCHATs were less successful. Each DCHAT was composed of 15 to 20 people who divided into smaller survey teams. These personnel had to be transported, fed, housed and paid which made the use of DCHATs an expensive and complicated undertaking. Also, due to the delay in deployment and their methodic strategy where every house was visited, the DCHAT findings were often already known or expired. Additionally, the survey that had been loaded into the PDAs two years previously was not field configurable and did not address the questions that ESF-8 staff wanted answered. This lack of utility was not

always apparent to the DCHATs themselves who would proudly present stacks of questionable survey results to the over worked county ESF-8 staff. As one DCHAT member stated, the DCHAT “had some purpose but didn’t accomplish much.”

The DCHATs and RERAs were not the only assessment teams deployed. County and Tallahassee controlled Environmental Health Teams and CHD community nurses also collected valuable information. Allied agencies, such as AHCA, deployed inspectors as well. Although AHCA was an ESF-8 supporting agency, AHCA assessments were not coordinated with DOH and, as a result, AHCA inspectors and RERAs sometimes annoyed local hospital management with redundant daily assessments. The CDC also sent a community assessment team. The CDC team came completely unprepared for field work and, in the words of OT Commander Driver, “it appeared to me that their primary role was to create a publication.” Driver was particularly annoyed that the first results he saw from the CDC team’s work were from an article published in the Morbidity and Mortality Weekly Report (MMWR).

Going Through the Motions

As the Charley recovery operations continued over the next two weeks, RERA duties changed on a daily basis but were frequently associated with reconciling and closing out mission requests in the Tracker system. During the initial response, incredible amounts of material were requested and allegedly sent to the impacted area. Unfortunately, little of it was documented and its whereabouts was frequently unknown. Laura Jackson and I would print old mission requests for things such as the 1,600 portable toilets deployed, dozens of hand washing stations, cases of baby food and numerous generators. We then spent the day trying to determine if the resource ever arrived and, if it did, where it had possibly moved. If we found the equipment, we would

note it in Tracker and update the mission's status. Jackson and I also had to deal with something of a spending spree. When DOH personnel realized that FEMA was going to reimburse them for supplies used during the storm, many CHDs attempted to replenish their non-hurricane supplies by entering requests in Tracker for things like pens, batteries and syringes. Not only were these requests potentially illegal, they were also wasteful because rather than use their purchasing cards to buy the supplies locally and receive repayment, they were requesting that we special order, and truck, things such as four packs of D cell batteries.

Much of RERA operations were not conducted from the Sarasota CHD or the incredibly busy Charlotte EOC. Instead we had been assigned to work out of the unified DEM/FEMA headquarters set up in an old Publix which became known as "Charley Command." One day, while working through a backlog of Tracker missions, I was approached by the DEM Director, Craig Fugate, and asked to come to a meeting with a young operations specialist. Fugate explained that he had received reports that Pine Island, a barrier island off the coast of Lee County, had sustained tremendous damage. Of further concern was that most of the residents of Pine Island were very low income migrant Mexican farm laborers, many of whom were presumed to be undocumented. Lee County emergency management claimed that there was no significant damage and that no outside assistance was necessary. The State did not want to intrude into Lee County uninvited, yet, DEM also had a responsibility to the people of Pine Island. Since the island was out of Charley Command's AOR, Fugate wanted to sneak an assessment mission on to Pine Island and decided that my DEM colleague and I, who were out of uniform and had long hair, would make an ideal non-threatening survey

team. We drove one of the unmarked rental cars over to Pine Island and I began talking to residents with my broken Spanish. We realized that the island had, indeed, received considerable damage. There was no electricity, little local food or water and some residents were living in make shift housing such as shipping containers. Unfortunately, it was hard for us to determine how much of the deprivation was caused by Hurricane Charley and how much of it was day-to-day poverty. The Division of Emergency Management took our report and arranged for food, water and ice shipments to be sent to Pine Island. A larger relief effort organized by a community activist colleague I knew from school furnished many additional resources and kept working with Pine Island residents after the State's attention shifted elsewhere.

Within the OT, missions and personnel were also transitioning. Although the RERAs were considered a "first in, last out" resource, other personnel were leaving and their replacements were arriving. Most of the original OT members had never responded to a disaster but they were hand picked and had the training and personality to get the job done. Replacement personnel were frequently untrained and it would take several days for them to become productive, by which time they were scheduled to transition out. In fact, Tallahassee considered the OT to be a great training opportunity and tried to send as many untrained people through as possible. At the time, many of us in the field thought that this was a mistake as it diminished our effectiveness. However, in retrospect, it was a good strategy and would pay dividends during the rest of the 2004 Hurricane Season and, little did we know, into 2005.

One aspect of operations that became problematic was the relationship between outside resources and local resources. Although the impacted counties were pleased to

have outside resources after landfall, at certain points the locals felt that they were capable of resuming full control of their operations. In Desoto and Hardee Counties, the CHDs were small and impacted but capable of conducting operations. The only problems with Desoto and Hardee would involve the occasional situation of an out-of-county team that was controlled by Tallahassee conducting operations in the county without coordinating the mission with the local CHD.

Local Reactions

Charlotte County presented a larger problem. It must be remembered that virtually all of the CHD's resources were destroyed and essentially nobody from the CHD was to be found for days after landfall. Realistically, Charlotte CHD personnel cannot really be blamed for not reporting to work after their entire county was devastated and many of the personnel and their families had evacuated across the state. In fact, relying on local responders who were also citizens was an issue in all hurricane stricken areas. Another problem was that, despite State requirements, Charlotte CHD did not have a functioning Continuity of Operations (COOP) plan and their leadership was completely absent. In fact, many aspects of Charlotte County's COOP plan were shallow and relied upon the express involvement of the very leadership personnel who did not show up. Additionally, Charlotte CHD appeared to have conducted no specific planning for this hurricane because the storm had been predicted to strike Tampa Bay. As the CHD began to return to operation over the week following landfall, its focus was entirely upon salvaging paperwork, equipment and supplies - not on conducting public health operations for the community. Despite the best diplomatic attempts of the OT liaison, the Charlotte CHD management saw the presence of the OT and outside personnel not as a benefit, but as an attempt by the State DOH to "take over" the county and place the

CHD in receivership. Eventually, as the acute public health needs were addressed and the medically vulnerable residents were moved to other counties, the OT began to stand down and the Charlotte CHD began to resume operational responsibilities. During the transition, daily telephone conference calls were held between all of the DOH agencies involved. The Charlotte CHD's Director would report the internal and recovery status and, usually, manage to launch a few verbal salvos at the OT. During the next year, Charlotte CHD's Director was eased into retirement. However, resentment lingered on both sides. In the words of one ex-military DOH responder "That guy is lucky he isn't in the army. We would have shot him for desertion."

Under the HRS system, Charlotte County's COOP plan would have been structured and checked according to standards created by the HRS district emergency planner. Since that specific responsibility now belonged to the county, prior to Hurricane Charley, there was no outside review of the internal CHD preparedness plans. Since the modern PHP program was started after the breakup of HRS, there was no opportunity for CHD PHP Planners to have learned the craft from the earlier generation and, from a cultural standpoint, it was unlikely that the modern CHDs would have been interested in anything left from the HRS era. If the impacted county personnel had looked however, they would have found that the HRS district plans provided: checklists for each type of employee, facility relocation suggestions, call down rosters, complete lines of institutional succession, plans for employee children's daycare, personal preparedness checklists and family emergency suggestions, EOC integration as well as top responsibilities for the unit after a storm. Unfortunately, the work of the previous regime was ignored.

Summary

Charley provided tremendous opportunities for Tallahassee and CHD personnel to learn about the counties that they visited. Public Health Preparedness personnel from Hillsborough were particularly surprised when they worked in Hardee County. While Hillsborough's EOC is fairly formal, Evan Straight's EOC briefings were informal and the discussion was controlled by passing a baton between the various EOC staffers who wanted to speak. When the staffer was finished speaking, the baton was passed to the next person. Larger EOCs typically allow ESF-8 to submit mission requests directly to the state, but in Hardee's EOC, access to the State's system was limited to a single staff member. As a small county, security at the Hardee EOC was initially relaxed because everyone knew each other. However, as more and more outsiders came to Wauchula, a National Guardsman was posted outside the door to keep strangers out of the building. When the new RDSTF-4 PHP Coordinator showed up unannounced, the Guardsman refused to let her in the door. The PHP Coordinator then attempted to bully the soldier by yelling and flashing her DOD credentials but the youngster with the unloaded rifle remained unmoved.

The strengths and weaknesses of DOH and its unusual organization structure were also apparent during disaster operations. Due to the number of CHDs and Tallahassee staff, it was possible to deploy large numbers of people to the disaster area and still leave enough staff to carry out regular operations in the unimpacted counties. Most of the deployed personnel were technical specialists who knew little about other public health disciplines. As a result, few people fully comprehended the magnitude of the challenge that faced DOH. Most of the deployed had little actual disaster experience, although that limitation was mirrored across the ESFs. The fact that DOH

culture is non-confrontational and geared towards partnerships and consensus building generally made cooperation across the different DOH units relatively easy. However, local counties were sometimes suspicious of the motivation and competence of personnel deployed from outside their counties. The fact that both Desoto and Hardee had functional CHDs greatly facilitated operations and decision making within those counties. On a broader level, the fact that DOH chose to implement a completely new IMT concept and failed to specify the relationship between the IMT and the traditional ESF-8 apparatus confused response. One aspect of organic systems, such as DOH, is that it is relatively easy to create new institutional components quickly. In many cases, this flexibility allows the organization to launch initiatives to address new threats or situations. However, sometimes these new components may be created without regard for their relationships to established components.

The DOH After Action Report (AAR) for Hurricane Charley cited many lessons learned and shortfalls of preparedness, however the one that seemed to merit the most discussion was the lack of resilient communication equipment. Although RERAs, DCHATs and selected others were equipped with satellite communications, most DOH personnel had come to be entirely reliant upon their cellular telephones and email devices. Although it could be argued that all response agencies suffered from lack of communications, most other agencies utilized a hierarchical command and control system along with documented procedures. As a result, these hierarchical agencies may have suffered from coordination problems but they were still clear about decision making authority. In their 2002 writings concerning “netwar,” Arquilla and Ronfeldt discuss the importance of constant high bandwidth communications to networked

agencies (Arquilla & Ronfeldt, 1996, p. 10). Due to communications failure, DOH personnel were robbed of the instant, multi-party, consensus oriented command and control process to which they had become accustomed. Since there was no intensive pre-planning, and State Level decision makers were far away in Tallahassee, DOH operations in the impacted area were uncoordinated until a strong and mechanistically oriented OT arrived in the area.

Damage to the state's electrical and communication system was vast. Some communities lacked electrical power for weeks. Other lingering impacts from Charley included rescheduling of the school year and planned elections. In some cases, such as cellular telephone service in Hardee County, the recovery was actually an improvement over what was there before. The August 20th State Emergency Management Situation report indicated that a week after landfall, 2.5 million gallons of drinking water, 12 million pounds of ice and over 700,000 meals had been dispensed to the public. There were also over 2,000 people still living in 23 public shelters in addition to the SpNS population cared for by DOH. Ultimately, FEMA created several large mobile home parks. One park was located along the interstate in Punta Gorda which was to last for three years. The manager of this particular trailer park was none other than former OEO Interim Director, James Ridge. Governor Bush also decided that open SpNS shelters were an embarrassment and ordered them to close by a specified date. As a result, the remaining SpNS shelters were reclassified as nursing homes and remained open until the last of their patients could return home or be placed in a permanent facility. As our attention was still focused on Charley recovery, we watched other storms in the Atlantic form, die out and strike the Carolinas. However, Hurricane Frances rapidly took hold of

our focus as we began preparations for that storm while still tending to the lingering Charley issues.

Figure 6-1. Hurricane Charley's Track [Generated with the National Oceanic and Atmospheric Administration Historic Hurricane Track tool.]

Table 6-1. Charlotte County Demographics

	Charlotte County	Florida	United States
Population	154,438	18,089,888	299,369,484
Population Density (mile^2)	204	296	80
Percent over Age 65	31	17	12

CHAPTER 7
HURRICANES FRANCES AND JEANNE

Hurricane Charley was unusual for a hurricane in that it was compact with very high winds and it moved rapidly east across Florida's peninsula. Many have compared Charley's effects to those of a very large tornado. While Charley certainly generated storm surge and rainfall, in the end, it was the winds that were most destructive. Frances and Jeanne were more traditional hurricanes: large, wet and slow moving. The winds and rain of these two storms pounded the landscape for hours on end as they crept across the state from the Atlantic westward. Hurricanes Frances and Jeanne are covered in the same section because the storms were similar. Additionally, my role in both storms was similar.

Organization of Field Teams

RERAs have day-to-day responsibilities in a particular region of the state but when we are activated by Tallahassee, we work where we are assigned. Nevertheless, the counties of a specific region tend to develop a relationship with their particular RERA and it is normal for those counties to expect to work with their RERA during an incident or disaster. Hardee and Polk counties were both located within my home region and both were significantly affected by Hurricane Charley. As a result, during the recovery process both counties looked to me for assistance. Yet, I was continually assigned to Charlotte County while a colleague was typically stationed in Hardee County and no RERAs were ever assigned to work in Polk County because of Hurricane Charley. I attempted to keep up with Hardee by taking a two hour detour to Wauchula some nights instead of driving directly back to Sarasota but most of my colleagues in Hardee worked the day shift. Because of my absence during Charley, when Hurricanes Frances and

Jeanne approached the east coast, I was assigned to remain in Tampa Bay and conduct damage assessments on the west coast. The plan was that after I had evaluated the west coast, I would travel east in subsequent days to relieve other RERAs who had been working in more heavily impacted areas.

Another difference between Charley response and Frances response was that we were formally assigned individual Federal ESF-8 partners. As discussed earlier, emergency management works under the concept that the locals will request resources from the State and the State will request resources from the Federal Government. Because of the complexity of health and medical issues, it can be difficult to determine exactly what resources are necessary at a particular location. Moreover, health and medical resources tend to be exotic and expensive as well as organized into particular set classes of assets. Due to the nature of the problems that health and medical assets are meant to address, their need is often immediate and mistakes in requests can have terrible consequences.

A hypothetical worst case scenario follows: A Florida County EOC might request ESF-8 assets from the State on behalf of a hospital. However, the State typically would not be able to fill the request and would pass the request to Federal ESF-8 partners. Due to the cost and complexity of the request, the State would send a representative, such as a RERA, to conduct an assessment of the hospital to verify the need before formally requesting the assets. When the Federal ESF-8 team receives the request, they also may be hesitant to approve of the request without also sending a Federal assessor to the hospital to verify the situation. Because of the layers of requests and repeated assessments, the resource arrival can be significantly delayed. Furthermore,

the hospital making the request becomes annoyed because they may be asked the same set of questions from three separate levels of government before receiving anything.

As mentioned, the packaging of health and medical assets can also be a challenge. For example, previous to Hurricane Charley, many hospitals were unaware of the existence of NDMS DMATs. After Hurricane Charley, every impacted hospital seemed to request a DMAT. However, many of these hospitals had intact infrastructure but needed staff augmentation. A self-supporting DMAT would be inappropriate in this case. Instead, an NDMS medical strike team consisting of a handful of specialists would solve the problem better and at far lower cost.

By creating two person teams with a RERA and a Federal ESF-8 specialist, the assessment and request process was dramatically accelerated. The assessment teams would stage where they could rapidly deploy to the impacted area and make contact with the County EOC as soon as possible. From there, the combined teams would travel to damaged facilities and conduct a joint assessment and submit their joint approval or disapproval to their respective chains of command simultaneously. Meanwhile, their direct supervisors were working together at the SEOC in Tallahassee and could create a comprehensive resource deployment plan that covered the entire area of operation. Since the Federal ESF-8 Coordinating Officers were on the team in Tallahassee there were minimal additional steps to accomplish before the request was submitted and filled.

The concept of teaming Federal and State personnel with the same overall mission makes sense. Despite the logic, it is seldom done effectively. Traditionally,

County, State and Federal agencies send field teams out to conduct assessments but they are run separately. From an organizational standpoint, each hierarchy sends out its own hierarchical sub-units which report back through independent communications chains to their superiors. During Hurricane Charley, many Federal and State decision making operations were conducted together under the organizational name of “Charley Command” but the coordination was not usually run all the way down to the field team level. What was interesting about Florida’s ESF-8 approach was that all aspects of the assessment operation were conducted jointly in a network fashion, yet we preserved the illusion of separate chains of command by issuing all reports and requests in parallel. The joint teams offered benefits for everyone. State personnel were able to learn about the resources and structure of the Federal ESF-8 partner agencies. Federal personnel were able to learn about the local communities and move around the impacted area with staff who were familiar with the region and the people working on the ground. Additionally, some of the Federal personnel had never been deployed to an active disaster so they gained that experience as well. As an example, some Federal team members were DMAT commanders from parts of the country that had never been exposed to hurricanes or truly wide spread devastation. The joint teams also allowed the DMAT commanders to get a feel for operations at a more abstract level of focus, above and beyond their team’s base of operations.

Yet another benefit of joint teams was that organizationally, during 2004 and 2005, Federal ESF-8 resources were split between DHHS and DHS so melding representatives from both Federal ESF-8 structures into a joint command also smoothed coordination between the two agencies from the ground up (Figure 7-3).

Lastly, as discussed, by reducing the time and confusion involved with requesting resources we were able to serve the impacted facilities and citizens better. As far as the author is aware, the joint ESF-8 teams were a unique organizational structure in disaster response and were used for each subsequent hurricane operation within Florida during 2004 and 2005.

Another exception, albeit minor, to the standard hierarchical field teams also involved State ESF-8 personnel. Traditionally, FEMA utilizes a post-disaster Rapid Needs Assessment (RNA) Team. The RNA is composed of FEMA personnel who are familiar with a variety of subjects and travel as a group across the impacted area. Because of long standing personal friendships, State ESF-8 personnel were often included as members of RNA missions within Florida. In this they were, again, unusual among State agencies. Unfortunately, the RNA format does not always lend itself to productive ESF-8 assessments. An RNA typically has a large number of members and the staging and moving of a large monolithic team impacts flexibility. Many items of interest to the RNA can be observed by simply driving through, or flying over, an impacted area. However, health and medical assessment requires that a team stop at each facility, talk to the staff and observe the types of patients. A team like the RNA is simply too slow moving and bulky for ESF-8 assessments. Nevertheless, there was the possibility that an RNA might prove valuable for ESF-8 support, particularly since the RNA frequently had access to air assets that the specific ESF-8 teams usually lacked. For example, if Key West or Pensacola were cut off due to bridge damage, the RNA could fly in and land. During some storms, the RERAs were split up: most RERAs were joined with Federal ESF-8 partners and others were assigned to the RNA. Splitting the

RERAs between approaches guaranteed that at least some of the RERAs would get through and further cemented the different Federal assessment teams and approaches from the ground up. During Hurricane Dennis, the RERA team was assigned to the RNA along with a group of Federal ESF-8 partners. The combined group rode out the storm in a high school in Ft. Walton Beach while the center of Dennis passed over a few miles away. Although the ESF-8 component split off of the main RNA mission for mobility reasons, the fact that there were FEMA, DHHS, DHS and State employees working together as a field team was unusual. The fact that the team was built based on long term friendship rather than operational doctrine, unfortunately, was not unusual. Rather, it was another organic organizational patch atop another mechanistic dysfunction.

Hurricane Frances

Not unusually, the worst part of Hurricane Frances was the waiting. The response to the storm's approach was tremendous and the impact of the storm was felt long before landfall. Because the storm was so slow moving, it appeared to hover in place for hours. Because the storm was so large, it impacted both coasts of Florida simultaneously. As frequently happens following a particularly strong storm, like Charley, the population and their government took the next storm more seriously than usual. After watching the destruction of Charley, almost two million citizens flowed out of the projected impact areas and sought refuge from Orlando north to Georgia. The freeways were full and a trip to Orlando that might take two hours now took all day. Gas stations ran out of fuel and empty hotel rooms were difficult to find. Although Florida's Frances evacuations were child's play compared to those in Texas before 2005's Hurricane Rita, it gave the State a number of interesting logistical problems to consider. Reminiscent of the plans to evacuate large cities in case of nuclear conflict, Florida had

developed a contra-flow plan whereby all freeway lanes would be run in one direction away from the impacted area. Although contra-flow was not implemented for Hurricane Frances, the State began to see what would happen if it had been implemented: There would be an enormous traffic jam in Orlando.

Hurricane Frances made landfall near Stuart on the east coast of Florida as a Category 2 storm at 01:00 on Sunday September 5th 2004 (Figure 7-1). The exact location and timing of landfall were largely irrelevant. Due to Frances' slow movement, parts of the Florida coast were clobbered by hurricane force winds for about 12 hours. The storm's sustained winds were around 105 MPH and surrounding areas saw sustained winds in the 80 MPH range. The storm's center took all night to come ashore and finally reached the middle of the state, in Polk County, by 14:00. By 20:00 the storm had reached Tampa and was subsequently downgraded from a hurricane to a tropical storm. T.S. Frances reached the Gulf of Mexico about 23 hours after it had first made landfall and then made a second landfall, still as a tropical storm, on the Eastern Florida Panhandle on September 6th. Contributing to the rainfall was the fact that the enormous size of Frances allowed the storm to draw moisture from both the Atlantic and the Gulf simultaneously. The slow movement of the storm was unprecedented and caches of fuel and supplies ran low.

Frances directly and indirectly caused 38 fatalities across the state and disrupted power for almost four and a half million customers. Several deaths related to Frances involved people not even located in the landfall counties. Two young males were killed in Alachua and Hillsborough Counties due to driving during the storm. A 69 year old Lee County man fell from his roof while trying to cover Hurricane Charley damage with a

tarp. In the landfall counties, a 33 year old woman was killed driving through an uncontrolled intersection and a 77 year old man refused to leave the boat he lived on and was drowned. A man working to secure boats in a Palm Beach marina was swept away and drowned and a number of elderly people fell inside their homes during the storm and died from their injuries. After the storm, four 21 year olds were killed when their two motorcycles hit a downed tree at high speed. Two victims died from portable generators running inside homes. As usual, “older people climbing on ladders with tools” claimed four victims and a mosquito spraying team was killed when their aircraft struck a tower.

The storm provided almost constant rain for over three days. The rainfall caused direct flooding as well as indirect flooding several days later as the over burdened rivers escaped their banks. Many citizens who could not evacuate, including many medically fragile citizens, moved into shelters. Not only did the sheltered population show up early, since the storm was moving slowly, the sheltered population remained under cover for far longer than expected. For example, on September 7th, the day after the storm crossed the state, there were over two thousand SpNS occupants under DOH care. Most of those occupants did not leave the SpNS shelters until the 10th by which time many shelters, located in public schools, were attempting to restart classes. Throughout the ordeal, the DOH nursing teams stood firm and cared for the thousands. When the power went out and food deliveries were disrupted, the nurses adapted. When unexpectedly overweight patients collapsed their cots, the nurses rigged up reinforcements or made them as comfortable as possible on the floor.

Despite their flexibility, the DOH SpNS teams never expected to have to care for so many patients for several days under poor conditions. Since the storm's impact was so extensive, many staff members spent their off time at the shelter since the roads were hard to pass and the shelters were far from their homes. When the staff lives within the special needs shelter, it becomes useless to talk about shifts or time off since the nurses were always working. In other cases, SpNS personnel spent their off time trying to repair their own homes. Some staffers had no choice but to bring their children to the shelters while they worked. Shelter staff worked intense rotations of eight to twelve hours and towards the end of their SpNS assignments, the staff was physically and mentally exhausted. The ever professional SpNS nurses expressed concern for their patients' safety since the staff was so fatigued. Once their shelter assignments were concluded, staffers then had to spend the next few days trying to recover and tend to their own storm related problems. Another SpNS staff point of grievance involved the fact that, although emergency duty is considered part of the job, many DOH employees had arranged to be exempted from shelter duty due to personal issues. After Frances, the exemption process was considered by many to be unfair for granting too many exemptions and pushing the work on those perceived as being less selfish. As with Hurricane Charley, some of the facilities selected for Special Needs Shelters were inadequate. For example, one shelter in St. Lucie County was not considered safe for a major storm, which was proven when the roof started to collapse.

Regardless of the staffing challenges, the networked DOH managed to assemble and assign SpNS teams that spanned county jurisdictional borders. After landfall, DOH attempted to assemble relief teams and to bring in outside personnel from the Federal

government and other states. Although the outside assistance arrived, the deployment of these assets was delayed and once they were in theater, housing had to be arranged. Since many citizens still lacked power and other response personnel had arrived, hotel space was difficult to find. As mentioned, some SpNS personnel had extensive commutes to their assigned shelters which dramatically increased their fatigue.

The RERAs and our Federal partners were staged above and below the projected track while Michael West, who was brought back for additional help, and I were to remain in Tampa. My Federal ESF-8 partner was a woman who commanded a DMAT in a western state and Michael's partner was a woman who commanded a DMAT in the northeast. My partner, Jenny Clearmont, was staying in a run-down motel near Busch Gardens while Michael's partner was accommodated in a high end hotel on a picturesque, but vulnerable, location south of Tampa called Rocky Point. Both reservations were made by the same travel office, but my partner got the worse deal – at least until the Rocky Point high rise hotel lost power during and after the storm. Michael and I decided that his team would head to Pinellas County post-storm and my team would head east into Polk County which was just west of the main RERA group's AOR.

Although we were staged and ready to go before the storm, we had to wait out the storm before we hit the road. Since our region was not heavily impacted, Michael and I were ordered to remain staged until daylight on September 6th, which proved agonizing. As predicted, damage to most of Region 4 was fairly light. Due to issues with the bridges to Pinellas, Michael and his partner, Melissa, visited Manatee County and then

traveled north to Pinellas. Although they found localized flooding, this portion of the region largely escaped the storm's effects and the CHDs and county emergency management agencies had the situation under control. As Clearmont and I drove through western Polk County and Lakeland everything looked fine, aside from some power loss. The Polk EOC was normally located in a small building on the grounds of a WW II army air base, but after Hurricane Charley, the EOC was too small for recovery operations so it was relocated to a USDA facility. After we checked into the Polk EOC, we were requested to travel to the town of Frost Proof and determine the status of a shelter. Polk County is, in some ways, a challenging place to work. The county is physically very large but, aside from Lakeland, has relatively small scattered cities and towns. The seat of County Government is located in Bartow but the influence of the County Government is sometimes weak and each town tends to consider itself as a separate entity rather than part of a larger county. Frost Proof is located in the south east corner of the county but, although it is only a 45 minute drive from Bartow, it seems much more remote. In fact, due to downed communication, little was known about the condition of Frost Proof and some of the status displays in the EOC had a blank column representing Frost Proof's statistics.

The Polk CHD's Disaster Planner, Joe Raven, was clearly a man with too many things on his plate. Raven was retired Air Force and had been involved with ground support operations for the F-117 Stealth Fighter squadron back when the aircraft was still experimental and completely secret. Raven was one of the workers who lived in suburban California but took an aircraft commute to a desert Air Force base for several days a week and then returned home. I first met Raven when he was the Safety Officer

for Bayfront Hospital in St. Petersburg. Raven developed the reputation as a no nonsense guy who got things done. At the hospital he was a valuable partner and worked extensively on public health and hospital preparedness projects throughout Pinellas. When Raven switched employment to the Polk CHD, I had my doubts about his future success. However, Raven managed to fit right in with the “good old boy network” common throughout Polk and also managed to raise the Polk CHD to amazing levels of disaster preparedness. Post-storm, Polk’s CHD was involved in coordinating water inspections over several hundred independent water systems, dealing with housing for nursing homes and ALFs as well as trying to take care of their own personnel. For example, Polk CHD was very proactive about establishing an employee day care center so that government employees with children had a safe place to put their children and were able to return to work. Regardless of his efficiency, Raven could only do so much so fast. Jenny Clearmont and I therefore headed to Frost Proof.

Although we were engaged in useful work, and were following our orders, both Jenny’s and my thoughts were elsewhere. Over the truck’s satellite radio we could hear the other assessment teams on the east coast conduct their operations. RERAs are used to working alone, scouting out situations and “calling in the cavalry” if necessary. However, as a medically trained DMAT commander, Jenny Clearmont was actually accustomed to being the cavalry herself. While monitoring damage reports from the east coast and listening to the numbers of hospitals and nursing facilities without power, Clearmont and I drove through the occasional flood waters and watched acres of orange trees glide by our windows. Once we reached Frost Proof, we found that some power had been restored and the shelter that had raised such concern in Bartow was, in

fact, closed down. Frost Proof actually looked much as it did any other day of the year. After talking to some residents and taking notes about the light damage and flooding we saw, we reported our findings to Raven over the satellite radio and headed south to Wauchula.

Jenny Clearmont enjoyed visiting Hardee County because she got to see some dramatic storm damage. However, much of the damage was caused by Hurricane Charley two weeks previously. This is not to imply that Frances did not also cause damage, but most Frances damage was to buildings that were already compromised by Charley. This phenomenon of double, and later with Hurricane Jeanne triple, damage was a problem in many parts of Florida. Construction teams typically prioritized repairing severe damage and lesser damage was left to later. Unfortunately, when Frances and Jeanne ripped through the county they turned lesser damage into severe damage and impacted buildings that were in the midst of repair. Ultimately, this caused an insurance nightmare because it became difficult to distinguish what damage was actually caused by which storm. Since insurance companies typically require homeowners to pay a deductible for each damage causing event, policy holders were sometimes forced to meet two and three deductibles to fix damage that was initially caused by Hurricane Charley but was exacerbated by subsequent storms.

When we reached the Hardee EOC, we received a briefing from Evan Straight, whose family was still living at the EOC since his house was destroyed by Hurricane Charley. Straight and the CHD staff told us about the county's situation but there was no new extensive damage and issues seemed to be under control. That evening, after submitting our report, we returned to Tampa which was still mostly dark. Fortunately,

Michael West's house had electricity and we all met there for dinner. Although Frances had passed Tampa, while over the Gulf of Mexico the storm picked up new moisture and the powerful rain bands radiating from the storm's center were still sweeping over the area. On the way to Michael's house, Clearmont and I drove through downtown Tampa and stopped to join crowds of citizens who were playing in the huge waves breaking over the sea wall along Bayshore Boulevard.

The next day Michael and Melissa were deployed east and Clearmont and I went to survey damage in Northern Region 4. Tallahassee, which had received tremendous rainfall when Frances came east of the city, was particularly interested in flooding issues around the state and wanted to make sure that any flood-related needs of counties, even if they were not dramatically impacted, were addressed. We knew from communications that Citrus County had, as usual, done a masterful job at response. So, we focused our effort on Hernando County. We met with Cindy Lebowski, Hernando CHD's disaster planner, and spoke with environmental health personnel. Since Tallahassee wanted flooding reports, Lebowski, Clearmont and I set out through rural Hernando County to check on locations that were traditionally flood prone.

Parts of Hernando were, in fact, heavily flooded and the power in the county was still out in places. As we surveyed neighborhoods and trailer parks we met with residents and told them about the kinds of things they needed to think about in a flood situation. We handed out DOH brochures and advised citizens about what to do with flooded wells and septic systems. Because parts of Hernando are lower income, some of the houses and trailers we visited were substandard from the start. Like Hardee, it was sometimes difficult to tell if a particular location had actually been damaged by

Frances or not. After a day of surveying Hernando, we looked forward to traveling east the next morning.

On September 8th, Clearmont and I headed to Kissimmee where we were to rendezvous with the RERAs and various other staged DOH strike teams. Since there was limited hotel space in the impacted area, many ESF-8 personnel were spending the night around Orlando. Laura Jackson's Federal partner had been reassigned and I had missed working with Laura, so Clearmont and I joined Jackson and we traveled to St. Lucie County together. *En route*, Laura briefed us about everything that had transpired on the east coast while Jenny and I worked the western part of the peninsula.

Our trip did have a bit of levity though as we listened to the satellite radio and heard Michael West and Julian Martinez, who was also reactivated for the storm, attempt to guide a convoy of vehicles. Because of safety concerns, and the fact that many outside resources did not know where they were traveling, Tallahassee had mandated that assets staged in Orlando would travel as a group to St. Lucie CHD. Even during ideal conditions, leading a convoy is difficult. In this case, the convoy was too large and the drivers had never participated in a convoy before. Furthermore, Martinez and West were not entirely sure of the route themselves. We could hear the frustration in Martinez's and West's voices as the convoy became strung out on the highway and intermixed with non-convoy traffic. Some drivers did not recognize the other vehicles in the convoy so when the convoy pulled off at a particular ramp, parts of the convoy continued down the interstate. Like a cowboy with red lights and sirens, West had to blast down the highway and corral the separated vehicles and then guide them back.

The St. Lucie EOC was a small building built like a bunker, it dated from the era when Florida's emergency management was structured at the regional level and civil defense was a primary concern. The EOC was so cramped that Clearmont and I left Jackson inside and hung around with the DMAT deployed nearby. After leaving the EOC we traveled to the St. Lucie CHD and met up with West and Martinez's convoy. After the strike teams received their assignments, Jackson and I realized that we should conduct follow up assessments with facilities located further down the coast. Because Clearmont, as a nurse, was more interested in shelter care and less interested in damage assessments, we decided that she would travel with a strike team and visit shelters while Laura and I did our assessments.

Since the strike team that Clearmont joined was based in Orlando I was not concerned about how she would get back to Orlando. Unfortunately, I did not make this idea clear to Jenny and when the strike team returned to Orlando, she stayed at the St. Lucie CHD to wait for me and Jackson. However, Jackson and I decided to head straight back to Kissimmee after our assessment since we figured Jenny would ride back to Orlando with the strike team. Fortunately, Jenny met with Michael and Melissa at the CHD and rode back with them. Jenny spent parts of her commute back to Orlando yelling at me over the telephone for abandoning her in St. Lucie. Although she was overly dramatic, in fact, I could not argue with Jenny because she was right. After our call, Jackson coyly remarked that she had never witnessed a man put up with such a high caliber of verbal abuse from a woman with whom he was not sleeping.

By September 9th, the Frances related RERA missions were wrapped up. Although many assets left the area, the CHDs were still maintaining SpNS shelters because there

were medically fragile patients that were not sick enough to be moved to hospitals but were unable to return to damaged homes without power. The dedication of these DOH nurses cannot be overstated as they soldiered on with their patients and continually ignored their own personal problems.

From a Tallahassee standpoint, Hurricane Frances operations were also conducted differently than those of Hurricane Charley. The parallel IMT and ESF-8 structures remained but the IMT was composed of different people than those who served on the Charley IMT. Fortunately, many of the Charley IMT members were available and coached the Frances IMT. The roles and responsibilities of the IMT and ESF-8 were also further ironed out. A common factor across storms was that Wes Biddle, the ESF-8 ECO still held no major role in the IMT. Additionally, the IMT further marginalized Biddle by directly sending IMT representatives to the State EOC rather than rely on the ECO to coordinate IMT and broader state level emergency management issues.

Another difference was that the IMT elected not to use the OT concept. Although the OT was a fabulous success from a tactical standpoint, some County Health Officers complained that the presence of an OT made them look incompetent. Additionally, it was not expected that any CHD would suffer the same level of devastation and confusion as Charlotte CHD did during Charley and, due to Frances' size, it would be difficult for an OT to coordinate tactical issues across such a large AOR. Instead, DOH sent individual County Health Officers who had experience on the Charley OT to work as partners with Health Officers in the impacted region. Ultimately, this partnership proved useful as the outside partner brought in expertise and could handle some of the

response issues while the local Health Officer could concentrate on restoring their CHD to full operation.

Although communications technology was better handled during Frances, keeping track of personnel hours and expenditures was not. During Hurricane Charley, the State of Florida still used a personnel time keeping system called “Time Direct.” A replacement for Time Direct, known as “People First!” had been under development for years but People First! deployment was seriously delayed. Unfortunately, Governor Bush mandated that People First! would go live shortly after Hurricane Frances made landfall. The new system was still not ready for real world use and the State’s employees were all working strange hours away from their offices with limited internet connectivity. So, in addition to working long hours under difficult conditions, many State employees had their pay disrupted and were pulled from response activities to attend training classes about the new time keeping system.

The RERAs were demobilized and sent home. Christopher Nazarene and Jay Van Fleet still had lingering active missions within their regions. Additionally, Jay, Laura and I were all assigned to work shifts at the newly established FEMA Disaster Field Office (DFO) located in Orlando. The DFO would support continued Federal recovery operations from a facility which was closer than Atlanta or Washington. The DFO was setup inside an empty office building and consisted of a labyrinth of cubicles and conference rooms. FEMA fit far more people in the DFO than had worked there when it was a commercial office so it was common to walk half a mile from an available parking space to the front of the building. Although most DFO staff were Federal employees, there were a few State of Florida personnel to represent their ESFs. For example, the

RERAs served as State ESF-8 liaisons. From an organizational standpoint, The DFO represented an extension of the FEMA hierarchy established in Orlando but it also contained networked resources from various State agencies which were plugged into the DFO hierarchy at different levels.

The first couple of days at the DFO were routine efforts to close out open missions and locate deployed assets. However, the DFO's attention soon focused on the next storm in the Atlantic: Hurricane Ivan. Ivan had actually been upgraded from a Tropical Storm to a Hurricane the day that Hurricane Frances made landfall, however the State's attention was focused on the problem at hand. As an event, Ivan was quite different from Frances or Jeanne so it is covered in a separate chapter.

Hurricane Jeanne

On September 14th 2004, Tropical Storm Jeanne was upgraded to a Hurricane. Despite this alarming situation, Jeanne was largely ignored because most attention was focused on Hurricane Ivan which had been upgraded during the Frances recovery phase and subsequently made landfall on September 16th near Mobile Alabama. Fortunately for the State of Florida, Jeanne proceeded to perform a slow 270 degree loop in the Atlantic before making landfall eleven days after becoming a hurricane. This delay allowed a largely uninterrupted response to Hurricane Ivan.

Like her slower sister Frances, Jeanne came ashore in the dead of night near Stuart as a Category 3 storm. Jeanne made landfall on September 25th shortly before midnight and had sustained winds of around 130 MPH (Figure 7-2). Surrounding counties saw sustained winds above 70 MPH and experienced gusts over 100 MPH. By luck, Jeanne arrived during low tide so the total storm driven tides were lower than they normally would have been.

There were seventeen lives lost in Florida related to Jeanne. Once again, the deaths show that although hurricanes themselves are incredibly dangerous, many storm related deaths are preventable with a measure of care and common sense. Despite the fact that Jeanne took fewer lives in Florida than the other individual storms of 2004, most of the deaths were completely avoidable. A 92 year old woman burned to death in her trailer while using candles. A 25 year old man burned to death after a candle ignited gasoline he was storing in his living room. Two men, 76 and 88 years old, fell from their roofs before and after the storm. A 56 year old man and a 43 year old man both fell from ladders and died of blunt trauma. The 43 year old man was also mauled by the chain saw he had been holding when he lost his balance. A 15 year old boy was killed by a falling tree branch while he was outside playing in the wind. A 66 year old man drowned when he drove his truck through rapidly moving water and the truck became submerged in a nearby canal. Nevertheless, the quality of U.S. housing, environmental protection and the advantages of our weather tracking and notification system were obvious. Before landfall in Florida, a weaker Hurricane Jeanne swept across Haiti where flooding and mudslides in deforested regions killed about 3,000 people. A storm itself can bring a certain level of devastation, but it is ultimately the human shaped environment that serves to mitigate or multiply the killing effect of nature.

As discussed, much damage from Jeanne arose because facilities had already been weakened by Frances and, in some cases, Hurricane Charley. The track of Jeanne was similar to the track of Frances, except that where Frances went over the Gulf of Mexico, Jeanne stayed over land and followed Florida's north west coast. Like Frances, Jeanne dropped tremendous amounts of rain on an already saturated area

causing flooding. Jeanne, too, was a slow moving storm and it relentlessly pummeled the state. When plotting the paths of Charley, Frances and Jeanne the three tracks form an X across Joe Raven's Polk County.

An important difference between Frances and Jeanne was the readiness of the responders, including CHDs, and the public. Since Jeanne was so similar to Frances, people knew what to expect from the storm and the recovery process. The Department of Health knew what worked well in Frances and what did not – as a result the response was more efficient. The impacted facilities were largely the same and the types of problems facing those facilities were better understood which allowed resources to be staged and deployed more rapidly. Although the general public was better prepared, some of the same issues did occur after Jeanne and would also occur the next year after Hurricane Wilma.

A major frustration of disaster recovery involves the way that citizens react post-storm. Before a storm makes landfall, people tend to stock up on goods and fuel. As a result, many commodities become scarce and, since the storm disrupts delivery schedules, remain scarce several days after the storm passes. Gasoline is a perfect example. Fuel becomes limited and, after the storm the fuel is still limited. Furthermore, during 2004 and 2005, many gasoline stations lacked electricity to pump the fuel even if it was in stock. Yet, simultaneously, citizens become bored sitting around their un-air conditioned houses with no electrical devices to entertain them. People then tend to amuse themselves by driving around the impacted area to observe storm damage and check on friends and relatives. Since most roadway signals are not functioning and many roads are impassable due to debris, the rubbernecking citizens clog the streets

and traffic comes to a halt. Meanwhile, the delivery, debris removal and utility teams needed for recovery become stuck in the same traffic. As citizens burn up their vehicle's fuel supply in gridlock, they begin to hunt for replacement fuel and thereby create enormous lines and additional traffic jams around the few functioning fuel stations. This causes a further waste of fuel as the citizens idle their air conditioned vehicles for hours waiting to replace the fuel that they are unnecessarily burning.

Another post-storm phenomenon involves emergency rations. Although the State of Florida publicly advises citizens to stock a three day supply of food and water, many citizens cannot or will not do so. To prevent the public from going hungry, DEM sets up dozens of Points of Distribution (PODs) around the impacted area much the same way that DOH sets up portable toilets and hand washing stations. The PODs are temporary drive through facilities that hand out military style Meal Ready to Eat (MRE) packages, jugs of water and bags of ice. The concept is that, although MREs are a loathsome substitute for food, the basic supplies from a POD will keep an unprepared family going until stores and banks are reopened and can provide food and access to money. The strange thing is that, although the POD supplies are meant as emergency rations, the citizens often look at them as a standard public service to which they are entitled. As a result, people who do not actually need the commodities from a POD will still drive to the POD, queue in line and take the supplies. PODs then exacerbate the already horrible transportation problems mentioned above.

Moreover, once businesses start to open, PODs begin to close since superior provisions are now available in stores. Yet, the public sometimes does not seem to understand the emergency nature of PODs. While surveying nursing homes after

Hurricane Frances, Jackson and I pulled our truck into the parking lot of an open grocery store. When we got out of the vehicle, we were approached by irate citizens who wanted to know why the government removed the free supplies that had been distributed from the store's parking lot and then further alleged that the grocery store had taken, and was now selling, the same stockpile of water and ice that had previously been free.

Due to its nature, ice is the most complicated commodity distributed by PODs. Surveys during 2004 showed that POD ice was not usually used to preserve food, as was its purpose, but was used to cool down water and soft drinks. Since ice was expensive to distribute, for the 2005 hurricane season, DEM decided to reduce ice distribution. However, there was tremendous public backlash. Citizens appeared on television complaining that they and their children refused to drink beverages unless they were served over ice. Other news reports showed citizens who spent their precious fuel driving to multiple PODs in order to stock up on tremendous quantities of MREs. Unfortunately, it is to be expected that during a disaster many supplies will be stolen or wasted.

In Tallahassee, the fourth DOH IMT of the season was established. Although the Jeanne IMT was able to overlap with the other IMTs, since recovery operations from the different storms were ongoing and conducted in parallel, the Jeanne IMT spent time and energy learning how to function. Although frustrating at the time, as noted during the Charley OT deployment, this was a temporary problem and ultimately lead to even more DOH personnel learning about disaster operations. These parallel IMTs are a fine example of how an organic agency can, constructively, reorganize scattered resources

to form a new functional structure designed to address a new threat as needed. However, despite institutional learning, some of the previous problems that affected DOH disaster response actually worsened.

During Hurricane Charley a number of DOH assets, such as Epidemiology and Environmental Health, were directed by their division leadership in Tallahassee. Although these assets should have been directly commanded by the OT, the remotely controlled assets did make an effort to coordinate their actions with the OT. Eventually, the leadership of the OT began to take precedence over the day-to-day divisional leadership. Unfortunately, in each subsequent storm, there was no OT with which the remotely controlled assets could coordinate. Additionally, as disaster related assignments became more common, Tallahassee DOH personnel began to feel as if the exceptional disaster related missions were in fact day-to-day business. As a result, Tallahassee divisions began to revert to their standard operating procedures for controlling field assets and stopped their close coordination with the IMT. Meanwhile, as each subsequent IMT relied upon less experienced personnel, the IMT was less certain of its role as a command and control organization. Each IMT lost another measure of "specialness."

As the storms continued, other organizational structures began to change their roles as well. During Hurricane Charley a daily conference call was held for all County Health Officers. The purpose of the call was purely to exchange information. However, in subsequent storms, the call participants began to talk about the resources that their CHDs needed. In some cases, Health Officers felt that mentioning their needs on the call was a substitute for submitting formal mission requests. As a result, sometimes a

list of mission requests was created in Tallahassee based on the call and submitted to ESF-8. On other occasions, no such list was submitted to ESF-8. Further confusing the issue was that some needs were mentioned on the call and submitted to ESF-8 by the call organizers and a separate request for the same resources was submitted by the CHD directly to ESF-8. The ESF-8 system, the IMT and the Health Officers' conference calls were all attempting to perform similar functions but there was poor communication between the three which resulted in some missions being lost and others being duplicated. In this case, the organic DOH effortlessly spawned another coordination component that, like the IMT itself, had poorly defined connections and responsibilities to the other involved response components. This is an example of how an organic organization's flexibility can be both constructive or destructive.

Although County ESF-8 systems, the IMT and the State Health Officer were all allowed to generate mission requests, the solitary State ESF-8 system was required to fill the requests. Since the hurricane related expenses were to be submitted to FEMA for reimbursement, it was critical that the missions were all entered into the Tracker system. Unfortunately, after running hard for six weeks, the State ESF-8 system was beginning to fall apart. As storm followed storm, thousands of missions flowed through State ESF-8. ESF-8 personnel all held other jobs within DOH but were assigned to ESF-8 during disasters. Some of those people needed to return to their regular jobs and others simply needed time off to recover. As a result, new and inexperienced personnel were assigned to ESF-8. Additionally, the exotic and specialized supplies and equipment that would normally be ordered by each DOH division's purchasing specialists were ordered by ESF-8 in order to qualify for reimbursement. The result was

that the wrong products were sometimes ordered and occasionally shipped to the wrong location. Furthermore, many of the products were back ordered so partial shipments were sent. Unfortunately, the inexperienced ESF-8 staff was digging through hundreds of partially filled orders and frequently failed to complete the open product orders. These incomplete orders resulted in the generation of new mission requests by the CHDs to complete the previous, still open, missions.

Ultimately, there were more SpNS patients housed during Hurricane Jeanne than during Hurricane Frances. However, despite using some of the same marginal SpNS facilities, DOH was more efficient in running SpNS and the shelters were not open for nearly as long as they were during Frances. From a RERA perspective, Jeanne was relatively simple. Combined RERA and Federal ESF-8 teams once again set out to survey facilities and hospitals in the impacted area but most tasks were completed the first day and the teams were demobilized. I was paired up with a different Federal partner and we essentially recreated the Polk and Hardee County trip that Clearmont and I performed after Hurricane Frances. The next day, my Federal partner was reassigned and Joe Raven in Polk County sent me out on a different scouting mission through eastern Polk County.

I traveled along the shores of Lake Kissimmee checking on a number of far flung neighborhoods, fish camps, nursing homes and children's camps. I also visited a large neighborhood clearly shown on Polk County maps. The status of the neighborhood was unknown and after I arrived I realized why. Although the neighborhood appeared on maps and did, in fact, possess the streets depicted – the community had never been completed. I drove across perfect wide roads that resembled airport taxi ways and

made note of the handful of houses sprinkled amongst rows of otherwise undeveloped suburban streets. The next day, other regional DOH personnel formed a DCHAT and went to survey Polk County as well.

I spent that day with Joe Raven, who was eager to leave the County EOC for a while. Raven and I checked in with neighborhoods and facilities north of Bartow. Among our stops was a trailer park that was covered in sewage and had no running water or power. The owners of the park had collected the rent and abandoned the residents to fend for themselves. After reporting the situation to Polk social services, the park was shut down and the residents relocated. Raven and I checked on numerous other flooded communities including a house that was now located on an island.

Hurricane Jean marked the end of Florida's 2004 hurricane season. The summer was completely unprecedented for DOH, the State and County Governments as well as the citizens themselves. Florida was impacted by four major hurricanes during a span of only six weeks and DOH deployed several thousand employees to serve a wide range of functions. Professional ESF-8 staff were joined by those who had never before considered working in a disaster. Although there were many things that went wrong, far more things went right. Rather than provide a serious hindrance to response, DOH's networked and organic approach allowed resources from across the state to combine forces to solve problems and then rapidly deploy with a completely different structure to solve a different problem in a different place by the next week.

Figure 7-1. Hurricane Frances' Track [Generated with the National Oceanic and Atmospheric Administration Historic Hurricane Track tool.]

Figure 7-2. Hurricane Jeanne's Track [Generated with the National Oceanic and Atmospheric Administration Historic Hurricane Track tool.]

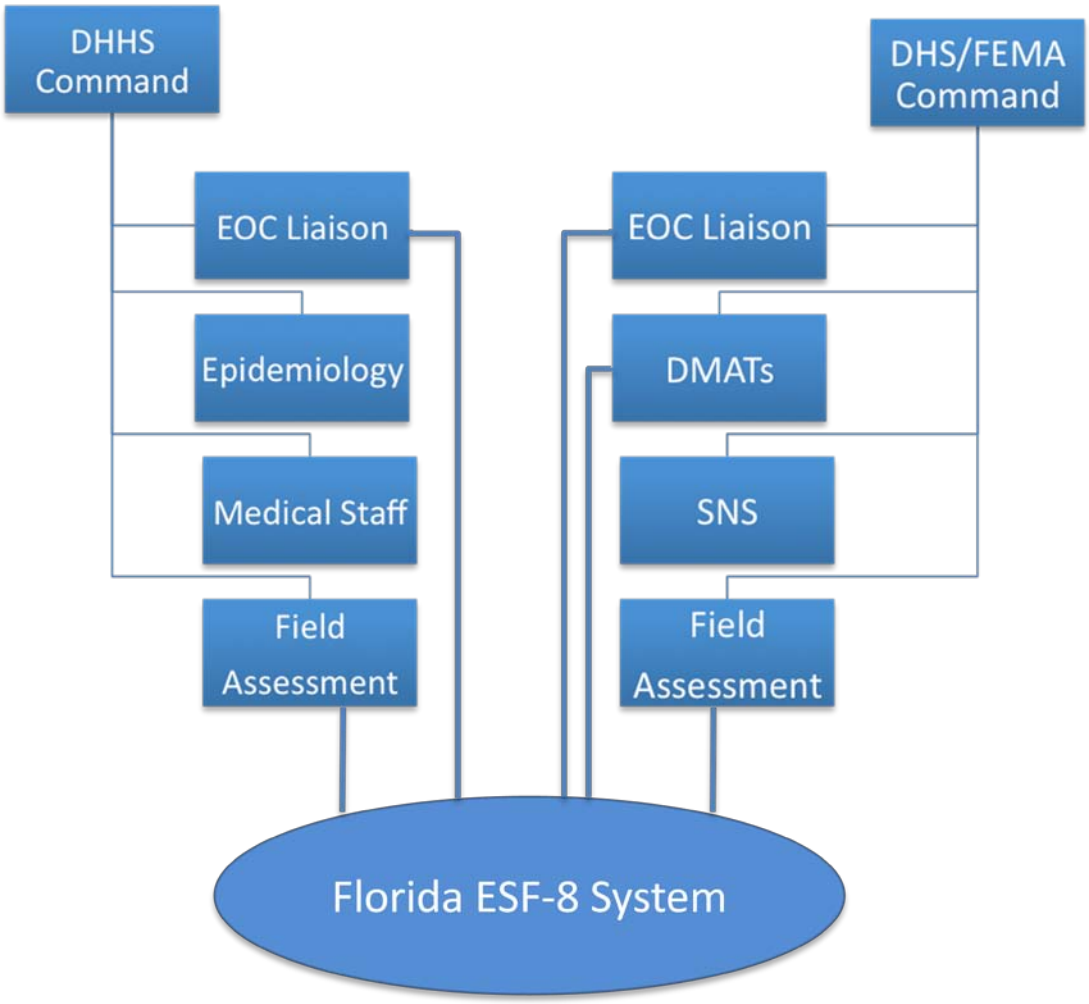

Figure 7-3. Florida ESF-8 network bridging isolated Federal hierarchies

CHAPTER 8
HURRICANE IVAN

For many DOH staffers, Hurricane Charley was a new and unusual occurrence. By the time Ivan, the third significant storm of 2004 came around, much of the novelty had worn off. Like others, I initially took numerous photographs of damage and bases of operation but in hindsight, pictures of damage become like pictures of bears taken during family vacations to Yellow Stone National Park. Each bear photo meant something special at the time it was taken but when looked at later, the meaning became blurred and the significance was lost. I stopped carrying a camera because I felt no need to document continued destruction and misery for posterity. I felt almost as if, by not recording the damage, I could help it go away faster since it would not be as well preserved.

Each storm blurred into the next as Charley recovery became Frances preparations. At some point, the header on the EOC presentations was updated to reflect the most pressing storm but the steps we went through seemed essentially the same. As a fellow RERA commented: "Well, we're going to dump the Frances victims to prepare for Ivan the same way that we dumped the Charley victims to go chase after Frances." The major thing that I remember about Ivan was, in fact, the lead up and preparations.

As with every other storm, the track of Ivan was uncertain and ever changing. Although storm tracking models have reached incredible levels of accuracy, they are not perfect and cannot be relied upon several days out. At one point after the 2005 season, the Department of Health and Human Services proposed to create a preparedness algorithm in order to dictate what major ESF-8 steps should be accomplished at various

hours before landfall. Unfortunately, in the time it takes to evacuate a hospital, or create a massive alternate treatment facility, the storm could shift its track a couple hundred miles in either direction. In other words, communities will never be able to prepare fully for a storm because the time it takes to prepare exceeds a storm model's margin of error.

The Super Shelter

Ivan, like his later sisters Katrina and Rita, started low in the Atlantic and was projected to sweep across the Caribbean and curve northward around Florida. Unfortunately where it was going to curve remained an unknown. Initial predictions placed Ivan's track directly up the Florida peninsula. Ivan was also predicted to be very large and would reach Category 5 status while still in the Caribbean. If Ivan went up the middle of the state it would cause havoc on east and west coasts simultaneously. Like Francis, the storm would feed on both Atlantic and Gulf warmth and moisture to keep it fueled until reaching the Georgia border. From an ESF-8 standpoint, we had shattered and shuttered facilities with exhausted personnel in the southwest and even more exhausted personnel in the southeast. In particular, there were still active Special Needs Shelters (SpNS) in the eastern counties after Frances while the western and inland counties had no SpNS facilities available at all after Charley.

Due to Ivan’s predicted path, borrowing staff from other counties would be difficult and would deprive their home counties of personnel in case Ivan shifted towards them. Additionally, all the staff in the world would be unable to help SpNS clients without a facility. The eventual solution was to put together what became known as the “super shelter” at the Orange County Convention Center. The Convention Center was rated to withstand a Category 3 hurricane and had plenty of space and supplies as well as

hardened electrical and utility connections. The Convention Center was already the emergency shelter for numerous fire department, police and EMS vehicles but the size was sufficient to accomodate our needs too.

We created a rough tally of current SpNS clients and care givers plus the expected numbers from the impact models for Ivan. The precise number we planned for was continually in flux and the planning process itself was split between State and Federal personnel in Tallahassee and at the Disaster Recovery Center (DRC) in Orlando. While working at the DRC, I, and the other RERAs assigned, felt that we were on the losing end of the proposition. Before we selected the Convention Center, Jay Van Fleet was assigned to find a suitable shelter location by driving around the Orlando area with officers from the Department of Homeland Security and DHHS, thereby representing the State and the parallel Federal ESF-8 structures. Laura Jackson and I took turns staffing the DRC itself and engaged in frustrating decisions with the Tallahassee IMT about how many thousands of shelter clients we might receive.

Tallahassee ESF-8 and the IMT were, in fact, doing the best that they could do with an ever shifting storm track along with striking a balance between economic and logistical issues. However, our discussions also highlighted some important cultural differences between Tallahassee planners and the RERAs. The planners attempted to be unconventional and “think big.” The planners felt that we were facing an unprecedented threat to the state and therefore all options were on the table. As field people, the RERAs were concerned with the details. For example, a lack of concrete planning numbers caused us discomfort. Once the numbers were set, how were we

going to line up ambulances and transport assets? How were we going to fuel the vehicles? What kind of time table were we looking at to move people?

The plan to collect the old and vulnerable in Orlando leaked out to various CHDs and the transportation assets for local movement of patients in Southwest Florida were lined up. Unfortunately, the next stage in transport had not been decided. At the DRC we had thought about using military aircraft to move SpNS clients, much as was already done to evacuate the medically fragile from the Florida Keys. However, the timeline for a Keys evacuation is longer, the distance much greater and the number of needed aircraft was smaller. We realized that with the projected landfall looming and the time required to accomplish the ground transportation segments we simply did not have the days required by the Department of Defense to configure more aircraft into medical transports. Moreover, we still had to decide upon short and medium haul ground transportation. One of my jobs was to try to determine what would be required to use plywood to convert school busses into medical transports. Since I knew nothing about carpentry or school busses, I suspect that my plans were unfeasible. They were not significantly less feasible, however, than many of our other planning efforts.

Ultimately, our scouting team settled on the Orange County Convention Center. The main problem was that the Orange County Commissioners were not in favor of the plan. The Commissioners felt that moving 8000, or even 4000, medically fragile people to the area ahead of a major storm would significantly stress their local transportation and medical infrastructure. Additionally, they were concerned about liability in case some of the SpNS clients were injured or died during transport or during the storm. Finally, the County Commissioners had the same question that school board members

across the state were asking DOH: "How long will it take these SpNS clients to move out and return our building to us?"

The Board of County Commissioners did agree, however, to rent the facility if they were asked to do so by the Governor. Although, under State Statute 252, the Division of Emergency Management or the Department of Health could simply seize the property, everyone involved preferred to come to a negotiated business solution. The discussions between State and County government were occurring in parallel with negotiations between the State and Federal government over costs and the division of expense. In a sequence reminiscent of Lawton Chiles' botched Federal requests after Hurricane Andrew twelve years before, the Federal government refused to commit resources without invitation from the State while the State refused to request resources without assurances that it would not be liable to pay for them all. Further complicating the negotiation was the fact that Ivan's track was still uncertain enough that the peninsula might not even be struck, in which case there may not have been a need to setup the shelter in the first place. Even worse, without a major hit there would be no disaster declaration which would free up Federal funding to pay for the still hypothetical shelter.

The ultimate solution lay in the roots of the problem. Since Florida would not have needed a super shelter except for the after effects of Hurricanes Frances and Charley, it was decided to tack the Ivan super shelter's expense onto the coat tails of the two previous storms. The Federal Government agreed to pick up the entire expense under the previous catastrophic declarations. Although some may claim that Florida's success at “working the system” related to the brotherly connection between Florida's Governor and the President of the United States, such insinuations are somewhat insulting. The

funding rationale did actually make sense and Florida's experience working with Federal partners extended across all aspects of emergency response: planning, operations, logistics and finance.

The super shelter became, essentially, a Federally run operation. Medical care was provided by Disaster Medical Assistance Teams (DMATs) that set up, complete with tents, inside one of the cavernous bays of the Orange County Convention Center. DHS brought in numerous logistics specialists and volunteers, including former OEO Chief William Booth. The Department of Health personnel at the shelter were limited to RERAs and a handful of Tallahassee liaison personnel headed by a mid-level manager who continually introduced himself, to one and all, as “Secretary of Health John Agwanobe's personal representative.” Despite the grand title, it was clear that “Secretary of Health John Agwanobe's personal representative” actually knew nothing about the shelter or ESF-8 operations. Subsequently, sources informed me that he was chosen for the assignment specifically because his lack of knowledge meant that he would be unlikely to show any personal initiative or to commit the Department of Health to any obligations. Less than a day after securing the facility, the super shelter was staffed and ready with cots, supplies and food for thousands. It was a truly impressive operation.

While Van Fleet, Jackson and I worked at the DRC, Luke Falcon was busy in Southwest Florida working with the Charlotte CHD and emergency officials to transport some of Charlotte's most vulnerable citizens to the county airport where they were due to be picked up by some, as yet unidentified, mode of transportation. On the east coast, State contracted ambulances began transporting the remaining Frances SpNS clients to

Orlando. As the transportation to the super shelter got under way, the National Hurricane Center adjusted its track. The westward course change that was subtly depicted on the previous track was now clear. Hurricane Ivan would miss the peninsula of Florida.

In the end, the super shelter which was set up for 4000 clients hosted about 200. Each client cost the Federal government well over $10,000 a day. Jay Van Fleet made several unplanned trips to the gas station in the middle of the night to fill up ambulances and Luke Falcon bought a dozen pizzas, on his government purchase card, in order to feed the potential SpNS clients left at the Charlotte County Airport waiting for transportation that never came. At the time, many of us felt that the entire super shelter event had been a waste. Yet, there were bright sides to the incident. Florida learned a lot about the logistics of setting up a massive operation and would know the ramifications if one were to be set up in the future. The Federal Government also learned lessons and utilized this knowledge several times during the next year in response to Hurricanes Katrina and Rita. Unfortunately, lessons such as the Super Shelter will be forgotten as the event recedes beyond the agencies' "horizon of institutional memory." We also succeeded in getting vulnerable SpNS clients out of southeastern shelters and allowed the facilities we were using to return to their duties as schools. However, the super shelter illustrates one of the fundamental dilemmas faced by emergency managers. Given the information that we had at the time, if Florida and NDMS had not stood up the super shelter we would have been negligent. Without question, it is better to look wasteful than to be negligent.

Ivan's Landfall

Although the peninsula had narrowly missed a significant hit, the state would only get a short reprieve as Ivan spun out over the Gulf of Mexico and slammed into the Panhandle of Florida. The RERAs took a few days off during Ivan's time at sea. However, for emergency responders, time off is usually spent taking care of the parts of life neglected during operations. For example, while Jay Van Fleet, Luke Falcon, Laura Jackson and I were working on pre-Ivan planning, we were also trying to prepare our homes and families for the hurricane's impact. As Ivan's track shifted further west, Van Fleet used his three days off to repair his roof damaged by Frances. I caught up on my sleep while Christopher Nazarene began to prepare his house which was located several hundred feet from the Gulf of Mexico in Navarre.

Christopher's preparations were not wasted. Hurricane Ivan came ashore around 03:00 on September 16th as a high-end Category 3 storm. The storm's landfall in Alabama placed Pensacola and Navarre squarely in the most intense area of the storm's path. Peak winds were recorded at 130 MPH (Figure 8-1). Escambia and Santa Rosa Counties experienced a storm surge of almost fifteen feet above sea level. Although the Saffir-Simpson hurricane categorization scale provides a convenient way to rate a hurricane's destructive potential, it can be misleading. For example, depending on the size and shape of the storm as well as the local environment around the storm, it could have extra powerful wind, or extra potent storm surge and rain. Hurricane Ivan carried powerful winds and, due to its size, spawned a number of tornadoes. Additionally, Ivan packed a tremendous amount of storm surge. The impact of a storm can also depend on the path of the storm compared to a given location. When Hurricane Dennis roared into the Pensacola area in 2005, the storm made landfall just

east of Pensacola, that meant that Pensacola missed the most punishing storm surge. Rather, the heaviest effects were felt in neighboring Santa Rosa County. Ivan, by contrast, came in west of Pensacola. Lastly, the rating of a Hurricane's power may be reinterpreted based upon the damage that the storm creates. For example, Hurricane Charley was initially classified as a Category 3 storm but was later reclassified as a Category 4 storm. Hurricane Ivan was also considered a Category 3 storm but since it was larger than Charley, its destruction was much broader. After damage from Ivan was studied, some specialists said that Ivan was a Category 3 hurricane with Category 4 storm surge.

Hurricane Ivan also became famous for its circuitous path. After tracking west from the Florida Peninsula and hitting the coast of Alabama, Ivan traveled north and east to cross over the Southeast United States and then exited into the Atlantic near Washington DC. Ivan then deteriorated and drifted south along the U.S. coast line as a tropical depression where it, once again, swung west to cross South Florida and reemerge in the Gulf of Mexico. Over the warm Gulf waters, Ivan strengthened to a Category 2 hurricane and eventually made landfall a second time near the Texas-Louisiana border as a Category 1 storm.

While Christopher Nazarene rode out the storm on the Panhandle, the other RERAs were deployed to Tallahassee where we checked our equipment and topped up our supplies at the small OEO warehouse. Otherwise we tracked Ivan from the State EOC and our hotel bedrooms. Around Tallahassee, the refugee population from the 23 evacuated counties to the west had filled every available hotel room, restaurant and fuel station. Our plan of attack was to head westward at three different latitudes -

corresponding to U.S. 98, S.R. 20 and U.S. 90. The concept was to rapidly sweep through the less impacted counties just west of Tallahassee and then focus our attention on Santa Rosa and Escambia Counties.

What Florida was not fully prepared for was the massive disruption of transportation leading to Pensacola. Part of the strategy for Ivan, based on experience with earlier storms was to aggressively preposition supplies east of the impacted area so that they could be moved in for use as rapidly as possible. Unfortunately, the three consistent west bound transportation arteries: U.S. 90, I-10 and U.S. 98 were heavily impacted. U.S. 98 was partially washed out and the bridge leading to Pensacola was damaged to such an extent that only light weight emergency response vehicles were allowed to travel over it. U.S. 90 was reduced from four lanes to two and had washed out bridge approaches, but, the most severe problem was that the I-10 bridge over Pensacola Bay was essentially destroyed. The east bound span had lost several segments leaving giant gaps. The west bound span was also heavily damaged but the spans had not completely fallen into the water as they had on the east bound side. Popular photographs at the time showed the back end of a tractor trailer sitting on the east bound span of I-10 with the rest of the vehicle torn off and hanging into the water below. After three weeks, the west bound side segments had been slid back into place and the span was carrying two way traffic. However, even with the bridge partially open, the trip through the area on I-10 could take an hour or more.

Although the Western Florida Panhandle was hardest hit, damage from Ivan occurred east until almost the Leon County border. Before leaving, the RERAs were once again paired up with NDMS partners to carry out joint assessments. I was amused

to find that I had once again been matched up with Jenny Clearmont. Jenny seemed to have forgiven me for abandoning her in Eastern Florida, however, there was a certain air of tension between the two of us. Nevertheless, we proceeded professionally. Our initial mission was to sweep through Washington and Northern Walton Counties. In both areas, the power was out. Walton County CHD personnel were leading a heroic effort to conduct environmental health surveys and get information about post-storm hygiene out to the public. Walton CHD's clinic had no power so an employee had brought a personal generator to the clinic to power the refrigerator in order to keep their small, but expensive, cache of vaccines cold. When power had not been restored by the end of the day, the employee took the vaccines home in an ice chest. Washington was in similar circumstances, they seemed to be, perhaps, better equipped than Walton but also appeared to be significantly under manned. We were told that many of the employees simply could not come to work because of the destruction to their, and their families' homes. Once again, the earlier problem of Charlotte County's post-event readiness was not an isolated event. However, the rural Panhandle CHDs were understaffed even during the best of times and it was clear that they were doing the most that they could with what they had. In addition to lacking the equipment to keep their facilities operational, some of the smaller CHDs simply did not expect Ivan to impact them so far to the east. Many employees had not prepared their own homes for the storm and lacked some of the basics. After dropping off a supply of water, MREs and clean "ESF-8" tee shirts, we headed south to check on Bay County.

As we drove the back roads of the Panhandle, we listened to chatter on the satellite radio and discussed strategy. The satellite radio was a RERA's "best friend"

and we relied on the technology extensively. Nevertheless, there were occasionally problems. One DMAT deploying to a field assignment during Ivan finished reporting its status and the radio operator then jammed the microphone into a dashboard storage hole. In the process, the microphone activation button was depressed which placed the satellite radio in transmit mode. As a result, nobody could communicate on that channel but we did get to enjoy the DMAT's choice of driving music. In addition to serving as radios, the satellite units could also serve as telephones. Sometimes, it was easy to forget the abilities of the units. For example, a responder working in an area with no cellular coverage would use the satellite radio to ask a second responder with a satellite radio, who also had cellular coverage, to place a call to a third person who did not have a satellite unit but did have a cellular telephone. Of course, the first responder could have simply used the telephone function of the satellite unit to call the third person directly on their cellular telephone. One of my favorite training activities was to teach DOH personnel how to use satellite telephones. Despite the fact that the satellite phone worked almost identically to a cellular telephone, unfamiliar personnel treated it as if it was alien technology. For example, nurses would hold the handset a foot from their face or even write the telephone number and key strokes out in advance rather than just push the buttons as they were needed. Nevertheless, alien or not, satellite telephones gave us a tremendous advantage and were critical to the flexible coordination of small dispersed teams

As we arrived in Bay County, I saw that it was in substantially better condition than I expected. Although traffic was very light, there were still a large number of citizens out and about. Furthermore, portions of Panama City actually had electricity. Perhaps

Panama City was simply lucky, although I suspect that it benefitted because more of its infrastructure had been hardened after Hurricane Opal about a decade before. Jenny and I went to the Bay County EOC to check in with ESF-8. We found the EOC activated but not particularly busy. Each ESF position was staffed with the exception of ESF-8. The EOC personnel did not know who, or where, the ESF-8 officer was. There was not even a note at the desk with a telephone number to call in case of need. I ran down the call list of emergency contacts for Bay County and failed to reach the first two people on the list. I did, finally, reach the CHD Director who told me that, although he did not really know what the county's status was, he had told the ESF-8 team not to go to the EOC because there was not anything important happening. Furthermore, we learned that the entire CHD was closed and would likely remain closed for the next several days. Although I felt that it was a mistake, not to mention embarrassing, for ESF-8 to be the only support function un-staffed at the County EOC, I did have to agree with the Director that nothing terribly exciting was happening in Bay County.

We headed west along U.S. 98 and ran past my family's house near Destin and then traveled on to Ft. Walton Beach where we met other RERAs, NDMS and ESF-8 logistics personnel. Coastal Walton County had obviously suffered from strong winds and the roads were full of debris. The power was out but there were already people cleaning up their properties and pulling the covers off of their windows. We also saw the usual American Flags and patriotic signs depicting post-storm cleanup as a national event akin to the taking of Iwo Jima. The damage intensified as we headed west. When we crossed the bridge into Ft. Walton Beach, the buildings and infrastructure looked sound but debris was scattered everywhere and several boats had been transported

from the Gulf and placed in the middle of U.S. 98 or on the north side of the road. We traveled to the Okaloosa Fairgrounds and met with the rest of our team. Several people had sheltered at the fairgrounds during landfall and had interesting stories to tell about how the building behaved during the storm. We also listened to reports from the other team members who visited their respective counties. Laura Jackson had traveled along S.R. 20 through Liberty and Calhoun Counties. The area around Blountstown had been ravaged by tornadoes generated by Hurricane Ivan. In fact, six people were ultimately killed by Ivan's tornadoes in the Eastern Panhandle. Citizens in the area did report, however, that many lives were saved by the actions of a single weatherman who overlaid the radar tracks of tornadoes atop a street map and constantly read off the detailed paths of the twisters live over the radio.

Clearmont started to work with the other Federal personnel and several RERAs suited up and went on an initial aerial reconnaissance mission over the impacted area. Jackson and I declined the opportunity to fly and instead began to compile our list of targets for the next day, when we hoped that we would be able to drive over to Pensacola instead of relying on UH-60s. After the return of our colleagues, we wrote up our notes and spent the evening at a hotel in Ft. Walton Beach where Christopher Nazarene pulled some personal strings in order to reserve a block of rooms. Miraculously, the hotel had power by the time we checked in for the evening. The next day would see us visiting Santa Rosa County and moving across Pensacola Bay to check our assigned facilities in the city.

The drive through the Eastern Panhandle did nothing to prepare us for the damage along the coast of the Western Panhandle. All of us had seen significant

damage during the previous two storms, but Ivan's damage pattern was different. Along the coast in Escambia and parts of Santa Rosa Counties the houses had been hit by a wall of water. Rows of buildings had their entire bottom floor blown through and washed away, leaving the bare structure of the walls supporting the upstairs floor. All of the contents of the bottom floor were deposited across the ground in the area behind the house which became a jumble of textiles, tools, toys and major appliances like refrigerators and stoves. The barrier islands were dramatically transformed as beach dunes were completely erased and the sand of those dunes was deposited inside of buildings. Some structures had their entire foundation washed away and what had previously been ground level was now hanging, cantilevered, over head. Other buildings were so full of sand that the ceiling was only a couple of feet above the sand inside rooms and hallways.

In addition to earth changes and building destruction, virtually the entire electrical system of the Western Panhandle was destroyed. After landfall, not a single customer in the area had electricity. The electrical system repair operation was a *tour de force* of logistics and teamwork. Approximately 4,000 outside electrical workers descended on the Western Panhandle and began repair operations. Since there were essentially no open hotel rooms, Gulf Power set up a series of "tent cities" for the workers to sleep in and be fed. Against all odds and expectations, after three days of solid work, about half of the Western Panhandle was receiving electricity. The rest of the area was restored bit by bit over the next two weeks. Such a response was phenomenal and I walked away from Hurricane Ivan thinking that the true heroes of the storm were the electrical crews that came from across the country and Canada.

Hurricane Ivan also caused thirty fatalities, although deaths were nothing close to what was expected from a storm of this size and violence. There were a number of people who died due to stress caused by the storm and the inability to receive medical care during periods of high winds. Seven people lost their lives due to direct water or wind action by the storm. In particular, several citizens along the coast were pulled out of their houses due to storm surge and were swept away. The usual, preventable, deaths involving cleanup activities and traffic accidents also occurred. Several people, frequently elderly, fell from roofs and trees, one person died of carbon monoxide from a generator. A 77 year old man was cleaning debris from his front yard and was killed by an out of control car that was attempting to drive past his property too fast for conditions.

Our first priority was to touch base with hospitals and medical facilities. In subsequent days, we were directed to conduct specific missions by both State ESF-8 as well as the Escambia County ESF-8 team. One of the most rewarding, and frustrating, assignments was to check on the houses of medically needy people who were sheltered in the SpNS facility. Although it took time to visit houses, the work was important and it helped Escambia County move people out of the SpNS. Our work often kept us out late at night. Escambia County was under a curfew for several days and, although there are always plenty of citizens who break the curfew, there was little traffic on the streets of Pensacola. In order to improve visibility, reassure citizens and perhaps allow police to better identify curfew breakers, response vehicles were asked to drive with their emergency lights activated. Many parts of Pensacola were still without power

and the city looked otherworldly from our perspective as the streets and houses were psychedelically painted with our truck's spinning red lights.

As in past storms, the SpNS operation was considerably larger and more complicated than anyone previously imagined. At the peak of Hurricane Ivan, Escambia County sheltered about 500 SpNS patients. There was only a single SpNS shelter set up in the county and an inexperienced CHD staff to run it. According to one regional PHP specialist, "DOH was on its own" and neither the CHD nor the SpNS shelter received any kind of support from the county emergency management structure. Although the CHD had contracts for food and supplies, the contractor was unable to provide supplies for the unexpectedly large number of shelter victims. Furthermore, the contractor had also agreed to support numerous other groups in the county and was ultimately unable to keep its commitments. At one County EOC meeting post-landfall, the Escambia CHD Business Director stood atop a chair and begged anyone in the room to help find food for the SpNS victims. After a moment of awkward silence, the meeting continued as if it had never been interrupted. Ultimately, Escambia CHD went to a local Quizno's sandwich shop and provided money and its own personnel as labor to crank out subs for the SpNS patients and staff.

In addition to problems at the SpNS, Ivan also exposed problems with the County ESF-8 structure. One of the major issues was that the ESFs, although a national standard for over ten years, had never been fully implemented in Escambia County until Hurricane Ivan. Emergency Support Function 8, in particular, was inexperienced and unsure of its precise role. Although County ESF-8 tried to assist the SpNS effort, the SpNS was controlled directly by the CHD Director who then had little time for traditional

ESF-8 tasks such as coordinating and supporting the pre-hospital and hospital system. In fact, there was essentially no effort to support the county hospitals until the EMS Medical Director stepped in to coordinate the work. This occurred despite the fact that the CHD Director had traditionally worked with the hospitals for all disaster related planning.

During Hurricane Ivan, we executed missions that were assigned to us by State ESF-8 as well as missions that were assigned to us by Regional PHP Coordinator Maurice Meyer. I really enjoyed working with Maurice. As a former Marine Officer, Meyer was all business. Maurice told us what he needed and asked us what we thought. His small ESF-8 staff was thoroughly overwhelmed and I think that he enjoyed having us available to check on things in the field for him. As Meyer and his staff became more comfortable with the situation, as well as their role within the system, they began to conduct some of the missions that were previously assigned to the RERAs. In many ways, Maurice Meyer learned from his experiences assigned to DCHATs after Hurricane Charley. Meyer modified the DCHAT concept, reinforced the teams with additional specialists and found them supplies which they could actually give to people in need. Since the Ivan DCHAT was made up of people from the area, they were able to maneuver around the county with ease and had excellent rapport with the citizens.

The Cavalry Arrives

Because much of Ivan's impact was limited to a single county, State DOH elected not to send in a controversial overhead team as they had done in Hurricane Charley. Instead, DOH sent in outside assets to work directly with the CHD Director and County ESF-8. Outside assets included the RERAs, additional SpNS nursing staff (who were actually flown in on helicopters), the NDMS and FEMA survey teams and a handful of

Environmental Health and Epidemiology personnel. All of these outside assets were deployed, and to some degree coordinated, by State ESF-8. We were also joined by a survey team from CDC that, much as in Hurricane Charley, was interested in conducting research rather than response. In addition to the above assets, two outside County Health Officers arrived in Escambia to work with the CHD Director. The first of these was a RDSTF-2 CHD Administrator named Michelle Lewis. Lewis was a personal acquaintance of the Escambia CHD Director and was also on friendly terms with the DOH Deputy Secretary. The second of the Health Officers was Hillsborough CHD Director Samuel Charger. As a medical doctor, Charger went to work in the SpNS which allowed the Escambia Director to work on other issues within his county. Working tirelessly at the SpNS, Charger saw and treated patients and even prescribed medications for those who had lost, or run out of, their necessary drugs.

There were two important differences between Lewis and Charger. First, Charger was dispatched through the State ESF-8 system and possessed a valid mission assignment number within the State's tracker system. Lewis essentially self-deployed and had no coordination with State or County ESF-8 nor with the emergency management structure. Second, Charger had a specifically determined mission: to work in the SpNS. Lewis had no specific mission in Escambia County. In the words of one Escambia ESF-8 staffer, "She came into the EOC wearing a pair of short shorts and a tank top. She then told us that she was from DOH and demanded gasoline for her truck. I thought 'get in line lady.' Nobody knew who she was or why she was even there."

After making her presence known, Lewis began to concern herself with tasks such as finding people to clean up the downed trees at the Escambia CHD facility. When

RERAs Jay Van Fleet and Christopher Nazarene reported into the ESF-8 desk at the Escambia EOC to drop off their assessment findings and clarify their next mission, Lewis attempted to order them over to the CHD building to empty out the break room refrigerator and help the maintenance crew straighten up the landscape. Van Fleet, never known for his diplomacy, exchanged sharp words with Lewis. Later in the day when Jackson and I reported to the Escambia EOC, Lewis stopped Jackson in the hallway and instructed Laura to “get out of her EOC.” The feud between Lewis and the RERAs continued through the next year as she pressed for Jay Van Fleet’s termination and attempted to call into question the value of the RERAs at every opportunity. One of the many Lewis initiated insults appeared in the DOH Inspector General’s 2004 Hurricane Season After Action Report (AAR) where the RERAs were criticized for not having clear roles and not acting in a coordinated manner with the Overhead Team during Hurricane Ivan. Headquarters personnel who read the report came away from it thinking that the RERAs were behaving like a bunch of irresponsible cowboys. In fact, the RERAs were deployed and acted under the direction of both State and County ESF-8. The RERAs possessed a valid mission assignment and number. Far from being “lone wolves,” the RERAs were the single most coordinated and disciplined group of Health and Medical responders in the field. Furthermore, there was no “Overhead Team” deployed during Hurricane Ivan with which to coordinate. There was only Michelle Lewis, a woman who, ironically in light of her complaints, had no mission assignment, acted outside of all ESF-8 channels and seemed mostly to be concerned with landscaping and the possibility of spoiled employee food.

As we saw with IMTs and “Director’s Conference Calls”: In an organic response organization without strong central coordination, it is easy for field units to operate at cross purposes unless these units make a concerted effort to develop and maintain a mutually agreed upon operational relationship. When new components are created, and deployed, outside of a standard framework, confusion can reduce efficiency.

Summary

Despite the Lewis incident, ESF-8 coordination and networking once again paid off in the field. Since State and Federal ESF-8 teams were combined, we could make use of Federal resources that would be more difficult to acquire separately – helicopters for example. Once again we were able to streamline our reports and requests up the State and Federal information chains simultaneously. We also benefited from excellent cooperation with DEM logistics. For example, the ESF-8 supplies were kept in the same warehouse as all the other humanitarian relief supplies and were distributed using a unified transportation architecture. In Tallahassee, joint State and Federal planning groups worked closely and ESF-8 performed more cohesively with both the supporting agencies such as AHCA and Elder Affairs as well as the Secretary’s IMT within DOH. NDMS medical assets were effectively used in the Panhandle. Within OEO, things also ran smoothly. Philip Remington effectively integrated OEO, ESF-8 and the IMT. Except when OEO Director Wes Biddle surprised the Secretary of Health by commanding Christopher Nazarene to “shut up” on a conference call, all interactions were polite and professional. It could be argued that DOH had become accustomed to handling disasters by the time of Hurricane Ivan. However, if one scratched the surface, it was not hard to realize that the State’s resources had been stretched to the breaking point. For example, it had been difficult for the State to move resources from the two previous

storms on the Peninsula over to the Panhandle, then back again. As a single agency, DOH's distributed design allowed it to activate and coordinate personnel and missions dynamically by using the employees assigned in each county. However, within DOH, the responders and planning teams were growing fatigued. Nine days after Ivan's landfall, Hurricane Jeanne came ashore as a Category 3 storm. In a repeat of the previous storms, we "dumped the Ivan victims to try to help the Jeanne victims." The large scale abandonment of the Panhandle was a move that did not go unnoticed by the officials of Florida's western most counties.

Figure 8-1. Hurricane Ivan's Track [Generated with the National Oceanic and Atmospheric Administration Historic Hurricane Track tool.]

CHAPTER 9
HURRICANE KATRINA

Katrina as a Symbol

Hurricane Katrina represents not only a major natural disaster, it represents the first time that many American citizens became familiar with their nation's emergency management system. Although many aspects of response to Katrina went badly, other parts of the enormous response went well. Unfortunately, the successes of Katrina were, to a large measure, lost in the roar of failure. In particular, FEMA was singled out for particular scorn. Yet the facts remain that Hurricane Katrina was an unprecedented disaster. Even if FEMA had performed beyond all measures of success, it would have still fallen short against the expectations of many. It must also be noted that although FEMA, as the lead Federal agency for emergency management, was the most visible component of the emergency management system, it was not alone. As mentioned previously, the Federal tier of emergency management rests atop a pyramid of emergency management entities which also includes state, county or parish and municipal emergency management agencies. If the state and local tiers perform well then they will provide precise guidance and a conduit for FEMA's efforts. If the locals are unable, or unwilling, to protect their own citizens then there is little that a Federal agency like FEMA can do to help them. In reality, without local support, FEMA operates from a position of distinct weakness both politically and technically.

Another important aspect of Katrina was that there were really two disaster areas. The "Prime Time Katrina" involved the images of a flooded New Orleans with her citizens stranded on roof tops awaiting rescue. The "Forgotten Katrina" involves the citizens of Mississippi and their quieter, largely un-broadcast, attempt to stoically piece

their lives together. Much has been written about the response and aftermath of New Orleans, my purpose is to talk about a remarkable partnership forged between the State of Mississippi and the State of Florida to help Mississippi's citizens living in her southern six coastal counties.

When I think back over Katrina, I realize that this storm was a turning point in my life. I had never before seen anything like Katrina and I hope to never see anything like it again. Working in Mississippi was an honor and the friendships that were forged between response personnel and their agencies will hopefully last through the years. After all, the next time that Mississippi and Florida responders work together may be in St. Petersburg.

Tracking a Monster

From the instant that Katrina posed a threat to the U.S. mainland, it was clear that the storm had serious potential. In many regards, Katrina looked, and from her name even sounded, like the big mean sister to 2004's Ivan. Like Ivan, Katrina was projected to pass over Cuba and then sail straight into Pensacola. However, it was not to be. Katrina actually swept up and across the lower peninsula of Florida after which she strengthened and headed west-southwest into the Gulf of Mexico. Katrina's behavior at the tip of Florida also changed her trajectory so that she would hook north later, and more gradually, causing her landing point to shift west. By August 28th 2005, Katrina had strengthened to a Category 5 hurricane and had grown enormously in size. The storm struck outer Louisiana and then made her second landfall in Plaquemines Parish, LA as a Category 3 hurricane early on August 29th. The storm then moved back over water and made a third landfall near the Louisiana-Mississippi border later on the morning of

the 29th (Figure 9-1). Although Katrina was rated as a Category 3 storm, it created, what was in effect, a Category 5 class storm surge.

We watched Katrina's predicted track move slowly out of Florida, towards Alabama, then Mississippi and then Louisiana. At the time it was impossible to tell where the storm might land. As a result, Florida's DEM decided to lean forward and stage tremendous assets across North Florida in preparation to head into the Panhandle if the storm struck there. As so often happens with storms, while we assembled and moved resources, Katrina's track continued to change.

Katrina Visits Florida

The primary concern about Katrina to the State of Florida was a Panhandle strike rather than a South Peninsula landfall. For example, there was no attempt to move RERAs into South Florida to assist Isaac Brown. The night of landfall, Brown went to bed expecting Katrina to strike Palm Beach County as a large tropical storm. In fact, Katrina came ashore further south as a fully fledged hurricane. Brown was awakened in the middle of the night by the State EOC which asked him to go assess the damage to Homestead Hospital. The roads into Homestead were so flooded that numerous cars had stalled out and were left abandoned in the middle of the road. However, Isaac knew the capabilities of his Tahoe so he crept the vehicle through the flood as the water lapped against the lower door sill.

Upon reaching Homestead Hospital, Brown found that the building's roof had dramatically failed and the rain had percolated through the walls all the way to the first floor. Since the first floor was flooded, the hospital was performing a so-called vertical evacuation where patients and critical functions were moved to higher floors. In addition to the flooding, the power to the region was disrupted and the hospital was only able to

use its emergency circuits powered by a backup generator. Despite the conditions, the staff in Homestead performed admirably. Aside from the primary problems, the hospital also suffered from secondary problems. As one example, the hospital had recently "upgraded" all of the building's toilets to use electric eye triggered automatic valves. Since the valves were not connected to the emergency power circuits, none of the building's toilets would flush. Moving on through the wet darkness, Brown continued his assessments at other facilities and reported his findings to Tallahassee through the night. Katrina's visit to South Florida would keep Isaac occupied for the next two days as Katrina continued across the Gulf of Mexico, building strength.

Mississippi

During 2004's Ivan, the worst part of the storm for the RERAs was waiting, penned up like greyhounds, in Tallahassee. This time, State ESF-8 decided to leave the RERAs at home until just before landfall. As the track shifted further to the west, Governor Jeb Bush's staff participated on a telephone call with representatives from Alabama, Mississippi and Louisiana. On that call, Florida's Governor extended an offer of mutual aid to the States west of Florida. The point of the message was that Florida had staged comprehensive resources in case of a Panhandle strike and they would be cataloged and made available to any other state that wanted the assets. Alabama's government, correctly, declined the offer because they felt that the storm would largely miss them. Louisiana reported that they had the situation under control and would not need our assistance. Mississippi, however, gratefully accepted the help and began a coordination process with Florida to see what resources we had that would be of use to them.

When a state's needs exceed its resources, one avenue for assistance is to ask the Federal Government. Another source for help is the interstate Emergency Mutual

Aid Compact (EMAC). Under EMAC, available resources from other states are listed and those resources can be requested and tasked as if they were state resources. The assisting states bill the requesting state, at an agreed upon rate, after the resource is deployed. EMAC expenses are refundable by FEMA the same way that a state's other disaster related costs are defrayed. All manner of resources, including but not limited to: police officers, ambulances, water, food and medical personnel are available through EMAC depending on what the assisting states make available.

While the mutual aid coordination was occurring, the RERAs were finally moved to Tallahassee and then farther west. Initially, Laura Jackson and Jay Van Fleet were sent to Navarre to spend the night with Christopher Nazarene and be ready to deploy. I was sent to my house near Destin and would catch up with the others in Navarre if necessary. However, as Jackson, Van Fleet and I were driving west from Tallahassee, we received new orders. Jay Van Fleet would continue to Navarre and meet up with Christopher while both Jackson and I would stop in Destin.

Whenever a mission tracking database is opened at the State EOC the first message in the database is always a declaration that the system has been activated, the Katrina EMAC mission database was no exception. The second message, and the first mission, placed into EMAC was the mission sending Laura Jackson and me to Jackson, Mississippi to assist in coordinating incoming ESF-8 mutual aid resources.

Although we did not think about it at the time, Jackson and I were only the first of thousands of people from Florida who would eventually be sent to Mississippi. We waited the night in Destin which, although over a hundred miles away, was receiving powerful winds from the edge of Katrina. Our plan was to proceed to Jackson as soon

as the winds subsided enough to move safely. On the night before landfall, we fully expected to depart at first light. However, when we awoke, the storm was still buffeting Destin and we remained in place for several more hours. The time was spent productively to double check our equipment and supplies. In addition to a full tank of fuel in each Tahoe, we both carried between ten and fifteen gallons of extra fuel in plastic tanks. In retrospect, we should have carried more. Our path to Jackson took us north through Alabama which, although obviously struck by tremendous winds, appeared in good shape. We crossed the Mississippi border south east of Hattiesburg and our route took us through that city. As we drove we would find the wind picking up from time to time and we would simply pull over and wait for a while. The closer we got to Hattiesburg, the more intense the damage became. At several points, downed trees forced us to drive the wrong direction on the divided highway. Fortunately there was little traffic and our emergency red lights improved our visibility.

Hattiesburg was severely torn up and major portions of the downtown were blocked by tornado damage. North of town, most of the major roads were clear of traffic and we could speed towards Jackson, dodging the occasional tree or abandoned vehicle. Along the interstate to Jackson we regularly saw signs indicating where hurricane evacuees could find shelter. The city itself was a disconcerting post-storm mix of empty streets, no power and the occasional bored person wandering around. By the next day, restlessness would get the best of the residents and, like the citizens of Florida, they would drive purposelessly around their city without traffic lights and hopelessly clog the previously empty streets while their cars ran out of fuel. Fortunately,

we were able to talk to a few sight seers who directed us to the main Mississippi State Department of Health (MSDH) office.

Jackson and I shoe-horned our trucks into the small parking lot in front of MSDH and found our way inside. The building was a center of determined activity as the MSDH employees tried to create an understandable post-storm information environment. Unfortunately, lack of communications prevented the staff from learning much first hand from the coastal counties. Instead, they were forced to piece together what they could from the media and other sources. We were directed to the office of Geoff Angle, the State's ESF-8 ECO. Angle held a position analogous to Philip Remington and, despite his incredible work load, he took time to graciously welcome his ambassadors from Florida. Angle briefed us about what he knew from Southern Mississippi. Unfortunately, he did not know much. His information came by way of satellite telephone from an assessment team on the ground. Unfortunately, the team had only a single satellite telephone and had split up to cover a large geographical area. Only after the team had traveled from a central point to their assigned areas and returned, could a complete report be made to Jackson.

We then met up with the NDMS team sent to Jackson and headed by a Coordinator who we knew from previous adventures. The NDMS Representative had a list of Federal assets and was trying to get information from the field in order to match assets to possible missions. Laura and I had a list of Florida assets and were attempting to do the same thing. In both cases, we were working with a team of tired and worried MSDH employees with too little information. Jackson and I had other concerns. The resource list sent from Florida did not always match our personnel knowledge of

Florida's ESF-8 resources. In particular, Florida seemed to have far more resources on paper than we thought that it actually had. In the coming days, Laura and I realized that we had actually been wrong and DOH had been working over time to assemble verified lists of deployable personnel and volunteers. Not surprisingly, Florida was able to muster more personnel for an operation in Mississippi than it had been able to for operations at home because few DOH employees suffered from storm related problems. Since DOH employees had few personal responsibilities related to Katrina, they volunteered *en mass* for Mississippi.

While Laura and I were trying to interpret lists of resources in Jackson, Florida's DEM was organizing a response *tour de force* which became known as "Task Force Florida" (TFF). Task Force Florida was a multiagency and multidisciplinary group led by FDLE and DEM officers and was designed to provide a core coordination group for all incoming Florida mutual aid. The initial TFF contingent, which included Alistair Scott, Jay Van Fleet, Luke Falcon and Christopher Nazarene traveled to the giant NASA Stennis testing facility located just east of the Louisiana border. This initial team was charged with working with a handful of Federal response personnel, NASA and a vast array of suppliers and transportation companies to begin relief operations. Although much deserved praise was directed towards small relief operations which would bring supplies into ravaged areas post-storm, the fact is that most relief supplies, across the board, were staged and transported by thousands of trucks sent from Stennis. Additionally, hundreds of storm victims had sought sanctuary at the NASA facility. The main administrative building was converted into a giant *ad hoc* shelter where entire families slept in the hot, steamy and unlit hall ways.

During our mission to Jackson, Laura and I had little else on our minds. We were not aware of the build up at Stennis, we did not know how badly Louisiana had been hit or how few people had evacuated. We did not know that the levees were about to fail and, although we would have predicted it, we did not realize that downtown New Orleans was about to be underwater. Despite the chaos around us, our world consisted of spreadsheets showing supplies and teams with faint pencil marks annotating them. We participated in conference calls and worked with MSDH to refine their mission requests to both Florida and the Federal Government. I vividly remember sorting through lists of Strategic National Stockpile (SNS) material to help create requests. Specifically, I recall my frustration over the fact that I knew the SNS inventory for bioterrorism events perfectly but I had never adequately learned the resources available for other types of events. Ironically, MSDH had been mere weeks away from conducting their first functional SNS exercise. They had already secured and mapped out an excellent staging facility and all of their planning came to fruition. Mississippi became the first state to actually request and deploy SNS assets. CDC was impressed enough with MSDH's performance that they allowed Katrina to count towards Mississippi's exercise requirement.

Towards nightfall, we were presented with an unexpected but welcome surprise. One of the night ESF-8 staff gave us a key to a room in a nearby hotel so we could shower and sleep. Even better, the hotel actually had electricity. We walked across downtown Jackson to get to our lodging and found the hotel lobby filled with throngs of humanity. As one of the few places in town with power, the hotel attracted people. Some of them were waiting for others to check out so that they could move into their

rooms. Laura and I caught a few hours of sleep and returned to MSDH feeling a little better about the world.

Upon our return, we followed up on the status of the missions we had worked to coordinate the day before. After getting off of the telephone with Tallahassee we were dismayed to discover that our missions had never been received at the Florida SEOC. We conferred with our NDMS colleagues and found the same problem with the Federally oriented missions. Something was blocking the missions and preventing them from finding their way to the people who were actively waiting to execute them. The resource request process in use was much like the process elsewhere. A mission was developed by a particular ESF in response to a need. The mission was then routed to a supervisor at the State EOC who then tasked the mission to the appropriate ESF or sent the request externally to the Federal or EMAC systems. The problem not only involved external requests, it appeared that all ESF-8 mission requests went nowhere. The Mississippi Emergency Management Agency (MEMA) was housed in a separate building from MSDH and was about a ten minute walk from MSDH. Laura and I decided to make the stroll to MEMA in search of our bottleneck.

It turns out that the problem could be determined by simply looking at the building that housed MEMA. The State of Florida's DEM is located in a small, but dedicated, hardened building on a State Government campus in Tallahassee. The focal point of Florida's EOC is a large operations room which has numerous tables organized according to "Branches." Each Branch table is then divided between the ESFs that fit within the Branch. Additionally, most ESFs possess "break out rooms" which are attached to the operations room but allow each ESF to have its own separate

workspace. Furthermore, most ESFs have additional work space located in other buildings. MEMA, however, was located in a portion of a large cold war architecture concrete office building that proudly proclaimed “Mississippi National Guard.” Although there is nothing wrong with sharing space, the symbolism spoke volumes.

MEMA was clearly not an agency that was deemed worthy of having its own building. The Mississippi EOC operations room was about a fifteenth the size of the Florida EOC operations room. It was also a fraction of the size of most large Florida County EOC operations rooms. To put it another way, the Mississippi operations room was about a fourth of the size of the City of Orlando’s EOC operations room. When we entered the MEMA EOC, we were greeted by a number of crammed desks and tables staffed by people frantically yelling requests at each other. The stations were not organized by Branches or ESFs, rather they were identified by the agency’s initials. Since Jackson and I were completely unfamiliar with the Mississippi agencies, let alone their names or the initials of those names: we simply moved from table to table until we found the function that we were looking for. We did eventually locate the person who was charged with entering MSDH missions but they were so overwhelmed that, despite their promise to check into the missions, we had little hope. Unfortunately, “disappearing missions” continued to plague MEMA and was one of the reasons why TFF elected to submit its missions directly through the State of Florida’s EOC and electronic mission tracking system.

It also became clear to us that a major part of Mississippi’s emergency planning architecture was reliant upon the Mississippi National Guard. However, like National Guards everywhere, many of their personnel had been tasked to fight “the Global War

on Terror." Dependence on the National Guard is a common theme in Emergency Management. Truthfully, the Guard is capable of providing some tremendous resources and disciplined individuals. However, as many state governors learn to their chagrin, the National Guard, although nominally under the governor's control, is actually a Federally paid, trained and equipped resource. When push comes to shove, the National Guard, as befits its name, follows Federal orders. Federal control of the National Guard was the rule during school desegregation of the 1960s and it was still true in the wars of the 21st century. The National Guard is a fabulous asset but it is no substitute for a robust civilian emergency management program.

Stennis

By the middle of our second day, Laura and I received word that we were to leave Jackson and head to the coastal counties to link up with the other RERAs and TFF. Our places were to be taken at MSDH by a former Region 2 CHD Administrator and Virgil Patton. It was a logical switch because Laura Jackson and I were essentially tactical specialists who could probably do more good in the field while the liaison duty between State and Federal agencies was better performed by higher ranked personnel. When the MSDH staff learned that we would be leaving, several of them approached us with special requests to try to find loved ones and friends who lived on the coast and had not been heard from.

Our chief concern about the trip south was, however, gasoline. Nobody at MEMA had a handle on gasoline resources and the stations with power had all been sucked dry by sightseeing civilians. We poured the gas from our emergency tanks into the vehicles but also knew, with the Tahoes' appetite, that we would not have enough fuel to reach Stennis. We initially wanted to leave one truck in Jackson but our request was

denied. Clearly, we would need both vehicles and their communications equipment when we got to the coast. Finally, Alistair Scott ordered us to proceed to Stennis but promised that if we ran out of fuel he would send Jay Van Fleet to find us with extra gasoline cans. Fortunately for Jay, we later found a gas station between Jackson and Hattiesburg that had been commandeered by the local police department and reserved for emergency vehicle use. We stopped over in Hattiesburg to try to locate the friend of a DMAT Commander who asked us for the favor. After navigating through missing road signs and downed power cables, we found the friend's house, but it was empty and had been on the market for months. Although most of the confusion from the tornadoes had subsided, our unfamiliarity with the town caused us to lose our way. At one junction, we puzzled over an intersection with U.S. highway 86 only to realize in a moment that the U.S. 98 sign had come loose and swung upside down on the post.

We eventually found our way to Stennis, where the sentry had resigned himself to simply waving anything official looking through the gate. We were supposed to rendezvous with the TFF assigned RERAs at the main administration building. After locating one of the DOH trucks, we parked near it to wait for Alistair. The NASA administration parking lot looked like a refugee camp which, in fact, it was. People in all manner of dress were wandering around in the hot sun, many looked as if they hadn't slept for days. Others were grilling out in the parking lot and giving food to their fellow evacuees. Some people slept on the ground under tarps tied to the backs of cars to shield them. Children played games while parents, some weary and others terrified, looked on and tried to act brave. Cutting through the voices was a loud nasal string of profanities. Accompanied by laughing, the cursing continued. As someone skilled in the

art of profanity, I was impressed how the words poured forth breathlessly but was surprised that they did not build on each other as artful cursing should. Finally, in a moment of desperate curiosity, I walked around the line of cars to find the curser: a parrot sitting in its cage under a lean-to shelter.

Laura and I met Alistair, Luke, Christopher and Jay coming out of the NASA Administration building. It was one of the moments when it seemed like there was everything to say, yet nothing to say. As Alistair Scott would later comment, “The outright devastation from Hurricane Katrina made the damage I saw during 17 years of work in Florida seem almost inconsequential.” Scott elaborated that even at its worst, in Florida, you could drive an hour and a half and usually find power and a hotel room. Not so in Katrina.

Each RERA had their own experiences once they reached Mississippi. Alistair and his assessment team, passed bodies in the streets of Bay St. Louis and were shot at by a desperate citizen allegedly guarding his apartment from robbers. Despite the fact that members of the assessment team were local law enforcement officers, they decided it was simply better to ignore the gunman than try to solve the public safety problem. Christopher Nazarene remembered the scene at the EOC in Bay St. Louis. The EOC just had several feet of mud shoveled out of it. Many of the staff, who had ridden out the storm, were now trying to fight fatigue and fear to make the place functional. Several police officers had escaped drowning by shot-gunning their way out of the police building’s roof. At Hancock Medical Center, Nazarene and Scott helped unload the so-called Bubba Ambulances, injured people transported in the back of pick up trucks, and tried to help out as best that they could while making notes about the facility for resupply

missions to come later. Christopher Nazarene described the hospital as “gutted, with jars holding blood lined up against the outside wall.”

As a native of the Gulf Coast, Nazarene had spent much of his life living in coastal Mississippi. During one assessment mission, he could not help himself and drove through his old neighborhood where he found everything flattened. The house he had lived in was gone. The church he had worshipped in was gone. The washing away of the past was a terrible and unprecedented thing for Nazarene, but how much more so for the people who currently called the area home? At that point, Nazarene stiffened his resolve, climbed in his truck and went back to work.

Luke Falcon shared his thoughts from a pragmatic perspective when he told me that it was time for the Federal government to dust off whatever plans they had for rebuilding Washington D.C. after a nuclear war and just execute them on the Gulf Coast. Of course, the irony was that, as discussed earlier, Washington D.C. never even benefitted from a comprehensive evacuation plan, let alone a post-apocalyptic recovery plan. There was simply nothing in anyone’s plans to guide what needed to be done to restore the coast of Mississippi and Louisiana.

As with Hurricane Charley in 2004, DOH headquarters realized that ESF-8 operations in Southern Mississippi were going to require a significant presence and on scene control. Therefore, the Overhead Team (OT) concept from Charley was resurrected and would be lead by none other than Paul Driver along with other prominent members of the Charley OT. Driver, Michelle Lewis and a small trained staff left Tallahassee and convoyed to Stennis. The convoy was escorted by RERA Isaac

Brown who assertively used his lights and sirens to slide the OT through the massive traffic along I-10.

TFF's activities at Stennis grew dramatically over the next 48 hours. When I arrived at Stennis, the nucleus of TFF was set up in a small field bordered by several decrepit buildings that had once served as an ammunition factory. Ghostly pipes, wires and conveyor tracks connected the buildings in an abandoned metal spider web. The sky was gloriously dark and flashlights were required to see more than a few feet. The DEM mobile command post was set up in the center of the field and the vehicles of the FDLE, Fire & Rescue and DOH personnel were parked irregularly around the DEM command vehicle. Most of the DEM personnel slept on the dock of a warehouse and our meals were grilled on the same dock by DEM personnel. After dinner and a quick briefing, each RERA would retreat to their truck and use the wireless network provided by the command vehicle to connect to the vehicle's satellite uplink. We would submit and check our mission requests and then go to sleep in the vehicle. The next morning, we would awake and hold a brief staff meeting with Paul Driver and then each go our separate ways. I remember awaking one morning and looking out of my truck's window to find Isaac Brown walking around in a perfectly pressed and starched ESF-8 uniform shaving himself with a battery powered razor. On the other hand, I had not shaved for a week and had been wearing the same clothes for what was probably four days. Brown always looked neat. He carried a selection of dry cleaned field clothes and had actually designed his own ESF-8 shirts and badge.

As each night came, more people would arrive at the ammunition factory. TFF, itself, grew with the addition of a tremendous number of forestry personnel. The Division

of Forestry's job was to staff warehouses, TFF ICS positions and help out in any way that they could. The forestry folks initially pitched their tents in the field around the DEM mobile command post. There were some hard feelings though as DOH and other agencies would come back from a day in the field and park their vehicles around the forestry tents. The collection of vehicles, RVs and generators created a cacophony of noise and exhaust which shattered what would have ordinarily been a very peaceful camping site. As the personnel increased, the infrastructure also grew. Food was made available in tent dining halls and the entire ammunition factory was illuminated all night by the horrible glare of portable spot lights. Eventually, the population at the ammunition factory became too great for the small bathroom and shower facilities available and most of the existing and incoming personnel moved to giant tent dormitories erected at another location on the Stennis property. The RERAs and the ESF-8 command personnel, however, remained at the ammunition factory and continued sleeping in their trucks and a series of RVs that had been rented. The arrival of the RVs was greeted with mixed feelings. The RVs were more comfortable than the trucks and provided bathrooms, refrigerators and air conditioned meeting space. Additionally, the RVs came with every drawer and cupboard stuffed with snacks and drinks. However, the RVs removed some of the simple romance and privacy of sleeping in one's own truck.

ESF-8 personnel increased from a handful of us to over a hundred. The majority of these new comers lived at the tent city but they typically arrived and checked in at the ammunition factory. Due to, perhaps exaggerated, security concerns the incoming personnel would arrive in giant convoys that stretched out over several miles. The trip was also slowed by the limited fueling options, heavy traffic and damaged road ways

and bridges. One rental truck, driven by Public Information Officer (PIO) Jerry Ora, was filled with a mixture of drinking water, lime and body bags. Since the convoy vehicles were different and were driven by people who were not accustomed to convoy driving, the trip from Tallahassee to Stennis was an agonizing all day affair. Ora's convoy, in fact, took eighteen hours to travel from Tallahassee to Stennis. The convoys typically left Tallahassee before dawn and arrived at Stennis after dusk. As a result, our logistics team had to really hustle to figure out where to park dozens of vehicles at Stennis, in the dark, so that the personnel could get where they needed to go without blocking the transportation routes around the base.

The ESF-8 personnel sent to Katrina ran the spectrum from experienced field people who had worked the 2004 storms to completely fresh DOH employees and volunteers. Some came prepared both physically and mentally and others did not. One evening the RERAs watched in amazement as an RV rocked from side to side while the obese volunteers struggled to climb down the steps to the ground. The incoming personnel would usually arrive in time for the nightly briefing between the deployed staff and Paul Driver. The mass of people would huddle in a semi-circle facing Driver who was eerily illuminated by lanterns in the falling dusk. Since many in the crowd were new, Driver would give them his "standard welcome speech" which seemed to get more extreme with each telling. Driver would warn the new troops about the standard dangers such as mosquitoes, sewage and rotting frozen chickens from a destroyed cargo shipment. He would then move on to talk about the dead bodies, the snakes in the trees and the lack of medical support. One evening, after a particularly dramatic briefing, the spell bound silence of the audience was broken by the sobs of a young woman who

decided that she wanted to go back home. Although some elements of Driver's stories were a little over the top, it would have been nice if more people had realized that the deployment was not for them before they arrived. Some aspects of a deployment are terribly boring and information or direction is not always available. Furthermore, resources tend to show up out of synchronization with need. One PHP Planner once remarked that anyone sent on deployment should be required to go through special training. The training would consist of showing up at an empty parking lot early in the morning and standing around all day with absolutely no information or instructions. The people who got upset about this situation would fail the training.

One nursing team that was deployed to Jackson County became dissatisfied with their assignment and went wandering off to do something they perceived as more useful. Because, nobody knew where the team went, it created a dangerous situation. Another issue involved matching people up with their specialties. For example, many of our volunteer nurses were public health nurses who had not worked in an acute medical environment for years, if ever. Sometimes, our standard convoy and check-in procedure caused significant delays. One medical team was forced to convoy from Tallahassee, drive past Biloxi, check-in at Stennis and then drive an hour back to Biloxi to begin working a night shift. An older woman, who had once served as a nurse, volunteered and was assigned to a team lead by a very aggressive person. However, the older volunteer was not able to keep up with the team and the leader was mean to her. We then had to arrange for the volunteer to be transported back to Tallahassee. Unfortunately for the lady, the only person heading back east at the time was the chain-smoking heavy metal-listening Luke Falcon.

Most incoming personnel had specific mission assignments. In some cases, by the time the person arrived, the mission they were requested to perform had already been completed or was canceled. Fortunately, with new missions continually arising, it was usually easy to find tasks for people to accomplish. Most missions were related to specific TFF requests, however, some missions were not originated by TFF but were instead created by DOH in Tallahassee. One problem with this approach was that the person sent by Tallahassee often did not know any details about what they were supposed to do, and neither did TFF since we never requested them. For example, a Public Information team was sent by Tallahassee even though we specifically did not request support of that nature. Ultimately, however, the PIOs more than proved their worth.

When it came to public information, we wanted to support Mississippi but also wanted to have Mississippi provide the public face of the response. The Mississippi State Department of Health clearly wanted to be perceived as the lead agency as well. When our Public Information team was deployed to Gulfport, it took a bit of tense negotiation until they settled in with the MSDH personnel. In some cases, the issues faced were silly. During previous storms in Florida, DOH had widely disseminated handouts about how to protect health after a flood or storm. Although the information in the handouts was perfectly appropriate for Mississippi, MSDH refused to let the handouts be distributed until a new version with Mississippi's logo could be designed and printed. Despite being told not to talk to the media, the Florida PIOs ensured that the appropriate messages get out by supplying each media outlet with correct information and pleading not to reveal from which state the information had come.

Over the next few days, the Florida PIOs were increasingly appreciated. The Mississippi State Department of Health did deploy a two person PIO team out of Jackson, one of the PIOs was a woman who was inexperienced with disasters and stumbled around the muddy impacted area in her business suit and high heels. The second MSDH PIO was a man who simply could not deal with the devastation and went home in short order. The high point of Florida's PIO involvement actually involved standing up for Mississippi in the face of the Federal Government. FEMA had assigned a new Emergency Coordinator to one area where Jerry Ora was operating. Because of the lawlessness reported out of Louisiana, the FEMA Coordinator had, without local request, arranged for a major public shelter to be "protected" by Federal Agents wearing body armor and carrying M-16 rifles. Not only was there no security need at this particular shelter, the show of force actually frightened the citizens. When Ora and the county's Medical Director arrived for a pre-arranged press conference, the FEMA Coordinator refused to allow the Medical Director to enter his own county's shelter. After listening for a few moments, Ora sprang to action and verbally tore into the FEMA man about how he and his Agents were neither needed nor requested and that he had absolutely no jurisdiction to prevent a sovereign county officer from entering a county shelter. Whether it was the force of Ora's personality or the validity of his argument, the FEMA Coordinator stood down and left, along with his Agents.

In other cases, a team's mission remained a mystery for a while. For example, the Florida DOH Secretary's office had decided to send a small team of strategists to work with the newly reactivated MSDH district headquarters to help them work through the process of planning for the recovery operations of the next few months. However, TFF

was either unaware of the mission's purpose or possibly chose to ignore the mission. As a result, the team members who were unaware of where they were meant to be deployed helped to unload trucks for several days until they learned about the location of the MSDH district facility. Once in place, the strategy team worked with MSDH, pharmacies, mental health service providers, military officials, hospital representatives and insurance companies to start planning for Mississippi's long term health care recovery.

Regardless of the team, one of the first things that struck personnel from Florida was that Mississippi was not Florida. This obvious statement is not a judgment, it is simply a fact. The Mississippi State Department of Health was organized in a manner reminiscent of the previous HRS structure in Florida. Specifically, MSDH was something of a monolithic State agency and was divided into districts. These districts then covered several counties. Some MSDH programs were organized within each county while others were organized around the district. Much like modern Florida DOH regions, the district approach allowed specialized resources to float between counties that might not normally afford them. Additionally, the county MSDH presence may consist of only a handful of people. In some cases, the counties did not always recognize MSDH as a county partner nor did they consider them as a potential resource. What this meant to us, however, was that a particular county's command and control was conducted from the district headquarters and, without a direct order from the district, few county MSDH personnel seemed motivated or able to respond to the storm. This phenomenon was most acutely felt in the smaller counties. Additionally, as in Florida's hurricanes, the

local MSDH personnel were themselves victims of Katrina and their ability to perform professionally was impacted by their personal tragedy.

RERAs in the Field

There were six heavily impacted southern Mississippi counties and a RERA was assigned to each with Alistair Scott serving as a coordination point at Stennis. Luke Falcon was assigned to Hancock County, Christopher Nazarene to Harrison County, Laura Jackson to Perl River County, Isaac Brown to George County, Jay Van Fleet to Jackson County and I was assigned to Stone County. In addition to our county assignments, each of us was assigned to particular special projects. As was typical, the tasks of the RERAs were similar, yet different. In fact, the roles of the RERAs were much like their roles within their home regions in Florida – they applied their standard emergency management and public health skills along with their own personalities to do whatever needed to get done.

When Laura Jackson reached Perl River County, she realized that many of the response personnel were unfamiliar with the Incident Command System (ICS) and the National Incident Management System (NIMS) along with the Emergency Support Functions (ESFs) that underpin modern emergency management. Although ICS and NIMS are mandated by Federal Law as standards, many agencies are at different points in adopting the systems. For example, NIMS was essentially unused in Mississippi beyond the fire services. Each Federal Agency also implemented NIMS to a varying degree while Florida was largely NIMS compliant. The different use of NIMS meant that each agency had difficulty relating to the others. As a result, Jackson taught a miniature NIMS class to some of the Perl River EOC staff. Jackson also sought to bring peace among the various agencies that were assigned to support ESF-8. For

example, because of the destruction of facilities, ambulances were frequently staged around the county rather than within fire houses or other buildings. Due to fuel shortages, most staged ambulances were shut off between calls and their crews sweated out the days and nights sitting outside playing cards or reading. One EMAC ambulance team from Florida, however, cited their agency policy to keep the ambulance running at all times to cool the equipment and personnel. The Perl River County paramedics and Florida paramedics almost came to blows over the fact that this one Florida agency was literally burning through the limited fuel supplies in order to keep their ambulances idling all night long when few actual calls occurred. Laura Jackson worked with Florida ESF-8 and agency heads to try to influence this one agency to conserve resources.

Another task Jackson performed was to coordinate mass care supplies. Although mass care is the responsibility of ESF-6, there is sometimes overlap with ESF-8. Laura worked to check inventories at the shelters in Perl River County and transfer supplies from Stennis to the shelters. For example, Laura and I regularly delivered supplies of baby food, water and MREs. Although what we could carry in our trucks was small compared to the regular shipments in larger trucks, every bit helped and the shelter residents were always grateful. The general population shelters during Katrina were challenging in many ways. Although Mississippi did not face a shelter on the scale of the New Orleans Superdome, there were hundreds of small shelters scattered across the southern six counties. Many of these shelters were *ad hoc* and completely unknown until responders found them. Even the official shelters were overwhelmed. The American Red Cross had identified some shelters but the staffing was completely

inadequate. In the days after landfall, the Red Cross sent large numbers of shelter volunteers but they frequently lacked experience and were not enough to meet the need. In most shelter plans, the population of a shelter is expected to decrease after landfall. However, in Mississippi, the shelter population increased. Shelter residents would go home to find that they no longer had a home so they came back to the shelter. Furthermore, shelter residents would sometimes bring friends and neighbors, who had ridden out the storm, back to the shelter so they could eat and sleep in a safe place. As the unofficial shelters closed, those residents moved to the official shelters. It was not unusual for a staff of two or three people to oversee a shelter housing hundreds of clients. Interestingly, in Stone County, the sheltering operation ended earlier than in other counties because Stone had relatively few residents, suffered less damage and most residents had nearby friends and family with whom they could stay. As we saw in Florida, the social fabric of rural areas frequently made them more resilient in some ways than urban areas.

Much as Luke Falcon and I experienced in Hurricane Charley, the Hancock County ESF-8 structure was largely nonexistent. The ESF-8 personnel themselves were unfamiliar with their roles at the EOC and many of the people assigned to the EOC were also needed in the field to do the actual response work. Falcon began working a number of all day shifts at the Hancock EOC where he basically served as ESF-8. It cannot be over stated how difficult Falcon's position was. He was serving as a coordinator for field personnel who had never really worked together during disasters and had little experience working with the EOC. Furthermore, the EOC personnel were struggling to work with resources that were foreign to them and were organized, as well

as requested, in unfamiliar ways. Falcon had to serve as an organizer, a voice for the personnel and the victims as well as a technical advisor. All the while, he had to learn an existing system, which was broken, and meld it with other systems to create a functioning synthesis. Luke would soon be joined by an emergency management OT from Florida that was assigned to assist the Hancock EOC and they, together, worked to bring the locals back to their rightful places of coordination within the county.

Christopher Nazarene also found himself in a familiar position within Harrison County. The county's Public Health Officer was relatively uninterested in the activities of the rest of MSDH and, in fact, was uninterested in disaster operations in general. As a result, Nazarene arose every morning at 04:00 so he could drive from Stennis to the early county emergency management briefing and would present the status of ESF-8 operations within the county. He would then visit the County Medical Director and convey the information as well as receive the Director's feedback and input. Nazarene would then go back to emergency management and work to implement the County Medical Director's ideas.

RERA Isaac Brown was assigned to George County, a "second row" county bordering Alabama. Brown, an ex-Army Sergeant had also served as: a psychological councilor, a County PHP Planner and a Regional Hospital Liaison before taking on the RERA position. As a result, Brown cultivated a chameleon capability to relate to practically anyone. Although he often chose not to, when he decided to be charming he was practically irresistible. Brown interfaced well with local responders as well as county government and helped to ensure that the county's needs were represented and addressed. Like all of the Southern Mississippi counties, Brown found that the primary

MSDH responsibility within the county seemed to be running the Women, Infants and Children (WIC) warehouse. The WIC Warehouse was essentially a grocery store where the food items were bought by government vouchers issued to low income families with children. A large percentage of the population utilized WIC services and the WIC supplies could theoretically also serve as food rations for the rest of the citizens as well. The local MSDH personnel wanted to open the WIC warehouse for use but were hesitant because they had no communication with the District Office in Gulfport. Brown suggested that, during a disaster, opening the WIC warehouse to the general public was the best possible thing that they could do. The staff went ahead and opened the warehouse and simply used a notepad to keep track of what supplies were given out to what families. As in most disasters, the local MSDH staff realized that it was frequently better to ask forgiveness than permission. Their actions alleviated much local suffering and anxiety.

Ultimately, Brown served the same sort of purpose as the RERAs in all of the counties: He reassured the locals that they were not facing this disaster alone. Although a single outsider may not have the resources or the inside knowledge to implement recovery operations, as Brown discovered in George County and Luke Falcon discovered in Hancock County, an outsider who is not shell shocked by personal disaster can provide an important touch point for locals. Sometimes the psychological effect can make a tremendous difference. Brown recalls fondly when he attended a county meeting the day after he arrived. When it was time to introduce himself, he loudly proclaimed “I’m Isaac Brown from the Florida Department of Health and I am

pleased and proud to be here to help the citizens of the Great State of Mississippi." Brown received an ovation complete with rebel yells and whistles.

In Jackson County, Jay Van Fleet used his knowledge as a RERA, paramedic and NDMS team logistician to carry out complete assessments of health facilities and work to order the resources required to bring the county's medical system back to operational status. However, it must be remembered that the task of requesting resources does not simply stop after the enter key is pressed on a computer. Rather, each mission must be individually tracked. At any point, someone in the ESF-8 process may have a technical, political or financial question or objection. If the mission's requestor does not regularly check on a mission, that mission's progress may halt due to a question. Because of the downed communication infrastructure, it was difficult for Tallahassee ESF-8 personnel to contact field personnel in order to clarify information and a mission may get left in limbo.

Missions

Like urban coffee shop cruisers, whenever a RERA found a functioning internet connection, it was not unusual to use the opportunity to check the status of scores of missions. Checking missions was also a ritual, akin to prayer, that would be performed each night before going to bed and every morning upon awakening. After all, Tallahassee ESF-8 personnel worked 24 hours a day and despite the fact that RERAs were usually working 18 hour days, we wanted to make sure that our 6 hours of down time was spent productively. Much like a Pacific Island Cargo Cult, sometimes your requests would be answered when you found that a particular resource had, in fact, arrived during the night and was now being put to use as intended. On occasion, things did not go exactly as planned. For example, a resource may be delivered to the wrong,

or an unexpected, location. Some of the delivered SNS assets, for instance, were sent to a second location where they were simply placed on shelves and forgotten until discovered later by accident. Typically a misrouted resource can simply be moved to the correct location but other times, the people who received the resource may not want to give it back. Another problem encountered is resources arriving without all of the accessories. When we initially requested a cache of vaccines for responders, the vaccines arrived without the necessary syringes. Another request for printers came without the data cables and paper needed to use the machines. In some cases these types of mistakes were caused by forgetfulness, in other cases the missing component resulted because personnel who were unfamiliar with the product's use requested or filled the mission. Regardless of the cause, in Florida it was a relatively quick process to get the needed accessories. In Mississippi, however, where our supply line crossed three states, the problem could keep the resource unusable for days. In addition to the resource itself, some types of equipment have special needs. For example, a generator may require an electrical installation team to hook it up and will usually require a fueling contract to keep it running. The installation team must know, in advance, the type of electrical system that the building uses and the correct type of fuel must be specified. RERAs soon learned the lingo of the electrical trade and made copious notes about the building and its power lines as well as taking numerous pictures of nearby transformers, the size of lines and the layout of electrical panels.

In addition to supporting Mississippi and Florida efforts, Florida's logistical supply lines also supported some Federal units. Immediately following landfall, several NDMS DMATs were sent to the Mississippi coast to set up emergency treatment stations. Most

of those teams were based in Florida but they were subsequently joined by teams and personnel from many other states. Although the DMATs were equipped with Federally supplied satellite telephones, many of those telephones did not function. Fortunately, the Florida teams were also equipped with satellite telephones supplied by the Florida Department of Health in case of deployment within Florida. In addition to the Federal medical supplies, the Florida DMATs also carried supplies purchased for them by the State of Florida. When supplies started to run out, Federal communications failed and the Federal ESF-8 infrastructure in Mississippi was essentially absent; it was the State of Florida that provided the logistical lifeline to the DMATs. Ironically, one of the results of the Florida DMATs relying on State of Florida supplied resources was that, after Katrina, NDMS emphasized that DMATs should, under no circumstances, deploy with non-Federally supplied equipment.

Although Laura and I had worked with Federal ESF-8 personnel in Jackson, there were very few along the coast to support the DMATs. One day I did, however, meet an NDMS field coordinator outside of the regional MSDH office in Gulfport. He was lost, had no communications and no idea where any DMATs were deployed. He asked if I could supply him with a set of maps that depicted Southern Mississippi. I offered him my highway atlas but he really wanted me to get him a custom map that depicted where fire stations, hospitals and other ESF-8 points of interest were located. Although the DEM mobile command post back at Stennis could create those maps, there was also a 48 hour queue at what was the only large format plotter available to responders. I just did not think it was my job to find this guy a custom map. The NDMS representative told me that he really needed a large-scale full-color map and he also needed to use my satellite

telephone to report back to Washington. Despite my professed inability to get him large-scale full-color custom maps, his hope sprang eternal and whenever I saw him in Gulfport over the next three days he would enthusiastically ask me if I had gotten his maps yet. When I asked if he had found any of his lost assets, the NDMS representative claimed that he was unable to leave Gulfport to conduct field work unless he had large-scale full-color maps. Maps which, it seemed, only I was able to supply him.

The NDMS representative was especially concerned with finding “Rouge DMAT Commanders.” These commanders allegedly struck out on their own and were freelancing in the disaster area without command and control from NDMS. Specifically, I was told that these rouge commanders did not even contact NDMS to issue reports or request updated orders. I attempted to explain the communications problems that the teams were facing but he was unimpressed. I tried to give the NDMS coordinator written directions for finding some of these so-called rouge teams, but he was uninterested. I also told him that he could drive to virtually any impacted town and ask where the DMAT was located. After a few days, I never saw the NDMS coordinator, nor anyone else from NDMS, again. Neither did any of the DMATs with which I worked.

In addition to the Gulfport NDMS representitive, there were other uncoordinated Federal personnel in Southern Mississippi. As in Charley and Ivan, DHHS and CDC both sent epidemiology and environmental health teams to Stennis. These Federal responders, however, consistently chose not to participate within the established Mississippi-Florida ESF-8 structure. Rather, they seemed to be following orders directly from Washington or Atlanta. While it was true that we had encountered, and would again encounter, unrequested and uncoordinated Federal personnel during Florida

storms as well. The difference was that, in Florida, we had an aggressive emergency management culture that would usually intercept wandering responders. In Mississippi, tight control was lacking so it was easy for undesired personnel to fit in among the thousands and do what ever they wanted to do.

As with the other RERAs, my main assigned task was to serve as a liaison to a particular county. My assigned county, Stone County, was predominantly rural and was also a fairly simple county from an ESF-8 standpoint. Aside from a major ALF and nursing home complex, there were essentially no medical facilities. My first stop in Stone County was at the EOC. The Stone EOC was co-located with the county public safety dispatch and the Emergency Manager essentially worked alone. He was very friendly and gave me the run down of the county's status. He also told me that the condition of MSDH was essentially unknown as he had not seen any MSDH personnel. As I was preparing to leave the EOC, I met an actual MSDH Public Health Officer walking to the EOC. Although the officer was not assigned to the MSDH office in Stone County, he was a resident of the county and knew all of the county MSDH personnel. He had also not heard from any of them either and was worried since, at this point, it was already three days after landfall. The officer and I proceeded to visit the closed MSDH office and clinic as well as the MSDH WIC program warehouse located near the EOC. While touring the town, he spotted the county Medical Director driving down one of the main streets. We activated our lights and sirens and proceeded to "pull over" the Director so that we could make contact. After recording her concerns and what she felt were immediate needs, I dropped the officer back at his darkened home and I returned to Stennis with my mission requests.

Subsequent days in Stone County were straightforward as I was sent to check on the ALF and follow up with the MSDH Director and Emergency Manager. Some of the missions I processed for Stone County included baby food and formula, tetanus/diphtheria vaccine and oxygen. Virtually all of the requests from Southern Mississippi were submitted to the Florida EOC in Tallahassee, were purchased by Florida personnel and funds (to be reimbursed later) and transported by Florida controlled vehicles. The six southern counties in Mississippi were treated exactly as if they were counties in Florida and their requests were all entered in a special database within the tracker system dedicated just to Mississippi Katrina missions.

In addition to working in a county, all RERAs were also assigned a number of special projects. One of Isaac Brown's projects, that I would later repeat, was to sneak across the state line into Louisiana to gather information about ESF-8 operations in the eastern most parishes. There were numerous comments that Mississippi was receiving better assistance than Louisiana. At one point, TFF was concerned that it might be requested to expand its area of responsibility across the river. After two unofficial reconnaissance missions, we determined that eastern Louisiana was, by that point, receiving adequate supplies and the local ESF-8 personnel felt that they had the situation under control.

My favorite special project, however, was actually to work with a special person. Among the second wave of TFF personnel was Michelle Lewis. The RERAs last worked with Lewis during Hurricane Ivan when she instructed Christopher Nazarene and Jay Van Fleet to clean out the employee refrigerators and help the landscaping crew at the Escambia County Health Department. After engaging in a verbal altercation with Van

Fleet, she attempted to extend her sovereignty over Escambia county by ordering Laura Jackson to leave “her EOC.” Following Hurricane Ivan, “Hurricane Michelle” began lobbying anyone who would listen against the RERA program and attempted to get Jay Van Fleet fired. The RERAs had reached an uneasy truce with Lewis through the efforts of Alistair Scott. However the truce held because we had not needed to interact with Lewis again - until now. Although I did not care for Lewis’s style, I had nothing but respect for her tenacity and energy. It was clear from her performance after Hurricane Charley that Lewis would, in fact, accomplish great things if we could only get her to work within the established emergency management process rather than break the system like the proverbial “bull in a china shop.” Therefore, it was decided that I would be assigned to assist Michelle Lewis.

Lewis’s first order of business upon arriving at Stennis was to check on the status of the medical team tending to the refugees sheltered at the main NASA administration building. A small team of us entered the building and found our way to the clinic where shelter seekers were waiting in a line out the door for medical attention. The clinic staff was treating everything from bruises and cuts to epilepsy and diabetes. Furthermore, as a small occupational health clinic, the facility had little in the way of medications and supplies. Lewis worked with the clinicians to develop an exhaustive list of the supplies and assistance that the staff would need to treat the vast array of refugees. I then snatched the list from Lewis and told her that I would ensure that the supplies were ordered and delivered. Lewis was happy as this freed her up to tackle the next project and it also made me happy because I knew that the supplies would be ordered and accounted for in the correct manner.

Although she was sometimes insensitive to the system of emergency management, Lewis was exquisitely capable of understanding complicated systems in other domains. As mentioned, one of the issues encountered in Mississippi was the reliance of county MSDH personnel on direction from the district office in Gulfport. Lewis quickly grasped the situation and made it a priority to reestablish a Gulfport district office. We started by working with local MSDH personnel to find an undamaged facility and then proceeded to locate a generator to provide power at the facility. Once the generator was hooked up, Lewis and I started to move the MSDH personnel into the new facility and gave them a little nudge towards establishing a briefing and planning cycle so that they could begin to restore the public health system of the district. Although some criticized Lewis at the time for focusing on an administrative center rather than working with hospitals or ALFs, Lewis realized that a functioning district operation was the corner stone that the entire MSDH system rested atop. The person assigned from Jackson to head up district operations was a clean-cut and confident MSDH Emergency Coordinator. Part of the Coordinator's aura was his almost military manner which was highlighted by the pistol he carried on his hip. Although some RERAs were rumored to carry firearms, it was strictly against Florida DOH policy and our team was somewhat envious of an openly armed Public Health Officer. Although Lewis and I spent time with the MSDH Emergency Coordinator and his team for a day or two, we soon backed away because the MSDH group stood up and took control very quickly. As we saw across Mississippi, MSDH was not "down and out" they were merely stunned by the disaster. After getting a helping hand, they had no trouble solving their own problems.

The quest for a generator was an excellent example of how Lewis and I worked well together. She had personally met and charmed the contractor hired to oversee generator deployments back at Stennis, so she instructed me to personally make contact with that contractor on her behalf to request the generator. I, in turn, documented the building's electrical configuration in notes and pictures. I then entered a properly formatted request for the generator into the tracker system. After that, I met with the contractor and introduced myself as Lewis's assistant. I also gave him a printout of the mission request that I had submitted. The contractor was then able to look at his inventory, select a generator and schedule a time to install the generator even before he received the official mission tasking. Since he told me which generator he was sending, I was then able to submit a second request for the appropriate fueling service to keep the generator running. When our generator request was approved and forwarded to the contractor, his team was on the road to Gulfport within ten minutes. Lewis and I used the same tag-team technique to solve numerous problems during Hurricane Katrina. The types of supplies we ordered ranged from insect repellant and hand sanitizer to oxygen, cots and snake bite anti-venom. The lesson to me from working with Lewis was a reminder that teamwork trumps individual talents. I, alone, could not have accomplished what Lewis and I accomplished together. The reverse was also true. When Alistair Scott was rotated home, I assumed his position as Operations Chief at Stennis. After Scott's several hour drive back to Tallahassee, he checked into the State EOC and the first question on everyone's lips was "What happened to Lewis?" When I left Michelle, she apparently reverted to form and began bombarding the logistics chain with a wide assortment of malformed, vague and incomplete mission

requests. Regardless, there was no stopping progress and it was clear that MSDH was back in the saddle.

MSDH's regional revival was only one of many signs that the corner had been turned. Stores were opening and cell phone reception was slowly reappearing. Every trip I made to Stone County introduced me to a new traffic light that had been fixed. Slowly, the Florida police cars and fire engines were replaced by those of other states and Mississippi itself. One day in Gulfport, I was leaning against my truck thinking about all that Mississippi had accomplished. Fatigue caused my eye lids to slowly drop shut. At some point, I was startled back to consciousness by the loud nasal call of a Eurasian Collared Dove that had landed in a tree above my head. Despite my lack of religious belief, I felt comforted by the presence of this dove after the flood. Perhaps God had not forgotten his or her children of the Gulf Coast.

The Structure of Stennis

At its peak, there were several thousand responders from Florida assigned to TFF and operating out of Stennis. The agency most visible at Stennis was the Florida Division of Forestry. As mentioned, the forestry personnel performed many key functions at Stennis. They also provided support for TFF as a whole. For example, housing was provided by forestry personnel and their contractors, as was food and fuel. Forestry teams also ran the enormous warehouses that handled disaster supplies. They directed traffic for the thousands of semi tractor-trailers that drove through Stennis daily. They kept statistics and they produced mountains of paper in the Administrative and Planning Sections. For a small self-supported team like the RERAs, the forestry personnel were an interesting group to watch. They were highly organized and, humorously for us, their presence at Stennis seemed to grow exponentially. For

example, forestry personnel supported many core TFF operations. Those forestry personnel, in turn, required more forestry people to support them. Those forestry people then needed even more forestry personnel to support the supporters. At times it felt as if Stennis had been invaded by an army of people wearing green and driving decrepit little pickup trucks. In addition to Florida forestry personnel, forestry people from other states arrived *en mass*. It reached the point that there were so many forest fire fighters at Stennis that platoons of them were walking around the NASA base picking up road side litter.

One of the hardest things to understand and explain about TFF was how it was organized. Although EOCs are typically arranged according to ESFs, and I have used the term ESF-8 as an overall descriptor for Emergency Health and Medical tasks, field operations are traditionally organized according to the Incident Command System (ICS). As described earlier, ICS arose from large scale fire fighting operations, however it is based on concepts from numerous other management systems utilized by business, government and the military throughout history. Under traditional ICS, a single Incident Commander oversees a particular event and is supported by a command staff which includes safety, liaison and public information personnel. The IC also oversees four sections which are devoted to Operations, Logistics, Administration and Planning. One of the benefits of ICS is that it is a scalable system that can be modified in order to fit different sizes of events.

For example, if the incident involves multiple jurisdictions or disciplines, several specialized commanders can work together to form a “Unified Command.” If the ICS structure must support operations that are spread across different geographical areas or

disciplines then a single Operations Section Chief can oversee a collection of Divisions or Branches that focus on specific sets of tasks. Although the Operations Section can have layers added under it in order to maintain a reasonable span of control, the other Sections within ICS typically do not expand as dramatically. For instance, the Planning Section is expected to conduct planning activities for all components and the Logistics Section is expected to supply all components.

If a particular operation becomes extremely large, a higher level structure known as “Area Command” is introduced. Area Command sets strategic goals for the entire set of operational units but does not exercise operational control. Rather, a series of ICS structures are set up under separate Incident or Unified Commanders and these commanders are then in communication with the Area Command. Task Force Florida operated under a variation of Area Command. The difference with TFF was that, instead of setting up separate ICS structures across separate geographical areas, the ICS structures were set up between disciplines. Therefore, the Fire and Rescue Commander oversaw an entire ICS structure devoted to Fire and Rescue, The Law Enforcement Commander had a structure devoted to Law Enforcement and Paul Driver oversaw a structure devoted to Public Health and Medical operations. Each discipline specific ICS structure possessed its own Planning, Administrative, Logistics and Operations Sections. It could be argued that slicing ICS up across disciplines would lead to lack of cooperation between the disciplines, but in most cases, the different disciplines deployed during Katrina had little to do with each other operationally.

The occasional run-ins across these structures did occur. As discussed, a group from DOH visited the medical team that was caring for refugees at the NASA

Administration Building. When we were leaving the building, we were approached by a California Forestry Incident Management Team. The leader of the team challenged us with a condescending “Who are you?” When we explained who we were and what we were doing, he proceeded to grill us about who we got our orders from and why we decided to go “freelancing” in the NASA building.

Although his attitude was completely unprofessional, it was easy to see why he was confused. The fact was that he had been brought to Mississippi from the Great Enlightened State of California at the request of the Florida Division of Forestry to assist them in running TFF support operations. Upon his arrival, he was introduced to the forestry officer who served as the “Incident Commander” for TFF Support. The Californian had been assigned by this IC to fulfill some minor logistics role and thought that this included providing medical support to the refugees in the NASA building. He was not aware that there were in fact several ICS structures, including a Medical Operations Section which was under the command of a completely different IC who then cooperated with his IC in a joint command. The Californian also probably felt that the activities of his immediate colleagues in forestry were the only game in town. In response to his continued badgering, I once again attempted to describe the structure of TFF and also explain that since the refugees were victims, their medical care was the responsibility of an Operations Section and not the responsibility of any Logistical Section – let alone his subsection. After all, the purpose of Logistics is to support the responders not the victims. The Californian looked at me with puzzlement and proceeded to lead his team into the NASA shelter to duplicate what we had just accomplished. I suspect that the shelter occupants would have preferred that the people

allegedly sent to assist them had not wasted time arguing over whose job it was to actually furnish that assistance.

The irony of the situation is that forestry personnel, and fire fighters in general, are considered to be the experts in ICS. The reason is obvious, ICS originated in the field of fire fighting and fire fighters are trained in its use, and practice its structure, from the moment they enter the fire academy. However, few rank-and-file fire fighters really understand the philosophy of ICS, nor do they understand how it can be expanded beyond an immediate incident to a larger scale disaster that involves a multitude of different agencies. The situation of most fire fighters and ICS is analogous to the syntactical knowledge of a native English language speaker. A native English speaker is generally able to recognize most structures as “good or bad grammar,” however, they are frequently unable to recognize special cases nor are they able to understand or explain why a particular structure is correct or incorrect. Like elementary school teachers, fire fighters are sometimes quick to correct what they perceive as others’ mistakes in ICS but may actually possess little deep understanding of the system.

Demobilization

As the days passed, tired personnel rotated out and fresh personnel rotated in. Hurricane activity was picking up in the Atlantic and there were concerns that Florida might be threatened by an East Coast strike. The RERAs were, one by one, transferred back to Florida so that they could face the next storm. Scott and Jackson went first, followed by Brown, Falcon, Nazarene and Van Fleet. I remained behind until Paul Driver transferred out and the IC baton was passed to new leadership. Despite the danger to Florida, TFF was expected to continue operations for 60 additional days. Each evening however, the Planning Section received instructions to plan for a shorter deployment

horizon. About a week after I left Mississippi, the remaining Florida DOH personnel were told that they would all leave within seven days. Most left. Some Florida DOH personnel did continue to pull operational assignments in Mississippi for months after Katrina when MSDH needed extra support or certain types of specialists.

The differences between Florida's DOH and Mississippi's MSDH provide fertile ground to compare and contrast organizational structure and response ability. Both agencies are the public health authorities within their particular states, however, a major difference is that DOH is also considered an authority at the county level. Because County Health Officers are both employed by the State and approved by their county's commissioners, they have the ability to move in both circles. As we discovered during Katrina, MSDH is often considered a pure state agency that simply maintains an office in the county. The Department of Health is an agency that has embraced networking both internally between components and externally with other agencies. In Katrina, MSDH appeared to lack such outside connections.

An additional difference is the roles and responsibilities of the agencies. Although, as discussed, DOH's role differs considerably from county to county, CHDs are usually engaged in a wider range of activities than MSDH personnel at either the county or the district level. As an example, the Florida Department of Health has many employees devoted to clinical care. The Mississippi State Department of Health has relatively few clinicians. Both DOH and MSDH oversee an array of social programs. For instance: Although WIC is an important responsibility of DOH, it seemed to be one of the premier programs of MSDH. Many current and former DOH personnel, including myself, resent the fact that DOH has had various powers and responsibilities stripped away from it

during the agency's evolution. However, DOH maintains enough responsibilities to keep most CHDs integrated with other county agencies. Due to fewer responsibilities and its state-oriented nature, MSDH seemed to exist in something of an organizational silo.

Another simple difference relates to resources. The Florida Department of Health is a far larger agency than MSDH and it operates in a considerably wealthier state. Florida's wealth and large population also leads to a compounding effect. Because many Public Health Preparedness grants are distributed according to population, DOH was able to hire more people and buy more equipment. Furthermore, the massive infusion of PHP money empowered DOH with clout and influence at both the State and Local levels. Since most county ESF-8 activities in Florida are coordinated by DOH, hospitals and EMS providers are cooperative. Additionally, EMS is regulated by DOH and both hospitals and EMS agencies receive limited, but important, funding from the agency. At the State level, the large vulnerable and elderly population along with the memory of the anthrax attacks encouraged Florida's DEM to grant DOH a significant role in all State disaster activities. The Mississippi State Department of Health has benefitted from neither the quantity of money nor the perceived emergency need that has leant credibility to DOH. In fact, in 2006, I was invited to speak to MSDH about the Cities Readiness Initiative rapid drug dispensing program in Florida. MSDH was surprised at the lead role that DOH maintained in each of our CRI municipalities rather than simply giving the CRI money to the Police or Fire Departments and letting them organize the program.

Organizationally, DOH and MSDH also differ. The Department of Health is an organic organization. Florida's DOH consists of many CHDs, Divisions and Offices

which orbit a central administrative authority with very little in the way of middle-level management or oversight. Yet, DOH is not a pure network down to the individual level. Some DOH personnel, such as RERAs are granted extreme levels of freedom, others are not. As an example, most CHDs are fairly egalitarian and their employees are empowered to solve problems and make decisions. However, a few CHDs are extremely hierarchical. As the State's SNS coordinator, it pained me to deal with particular CHDs because the PHP Planner had essentially no authority to accomplish tasks without approval from multiple levels of bureaucracy. In some counties, the CHD Administrator so micromanaged the staff that there appeared to be little room for independent or creative thought. While MSDH appears to be more hierarchical and mechanistic, that appearance might be deceiving. Although MSDH has a clear line from State to District to County, many functions are not carried out at the county level. Therefore, for those functions, the hierarchy appears to stop at the district level. Additionally, although MSDH may be organized hierarchically, it is a "thin hierarchy" from the standpoint that the agency has relatively few employees and those workers are spread out geographically. The employees at the County Level are actually free to carry out some operations independent of immediate supervision because the supervisors may be a significant distance away. Yet, other workers were unsure of their mission without district guidance. I am still unsure if this was because of genuine command and control issues or because few MSDH employees ever considered what their disaster roles might actually be. The Mississippi State Department of Health may be hierarchical but its staffing realities make it a less robust hierarchy than traditional public safety agencies.

Like most modern government agencies, DOH and MSDH are highly reliant upon communications technology. When DOH lost communications in 2004, it was difficult for the agency to carry out its preferred consensus-based strategic decision making process. Yet, most CHDs were able to work on their particular missions organized at the county level. During Katrina, Florida responders were routinely told by county MSDH employees that they were awaiting instructions from the district office because they were unsure about what they should do. Although it appears easy to draw a distinction between the agencies, again the truth is less clear. For example, no Florida counties received the level of devastation that Southern Mississippi did. The first Florida county to be severely damaged during 2004, Charlotte County, reacted the same way that counties in Mississippi did during 2005. In fact, Charlotte CHD is a larger agency than any of the county, or even district level, MSDH offices impacted by Katrina yet it performed no better. Internal organizational structure may explain some differences of response between DOH and MSDH. However, in this case, much more can be explained by a difference in resources, experience, integration with other agencies and disaster-related responsibilities.

The day before Paul Driver and I were planning to return to Florida, we walked across the ammunition factory and watched the Information Technology field team finish the installation of our portable satellite uplink system. The system allowed us to make telephone calls and access computer resources exactly as if we were in a DOH office back in Tallahassee. The Department had recently purchased several of the units and the capability was incredibly useful. Current protocols call for the units and the teams to be deployed immediately to disaster scenes. However, Paul looked at it with a certain

amount of disgust and said “I think it’s time for me to leave, there’s just too damn much infrastructure out here now.” I understood the feeling perfectly.

My deployment to Mississippi was for a little over two weeks. For everyone who was assigned to Katrina, it was a milestone event. For Mississippi, it replaced Hurricane Camille as the worst case scenario. Although working in Mississippi was logistically harder, in other ways it was actually easier. It was difficult to interface with different response agencies who used different techniques, but, it is also true that the complete devastation allowed us to set up response activities with a virtually clean slate. Another advantage was that we were not beholden to our own politicians, nor were we watched and criticized by our own citizens. Ironically, our own citizens were not generally aware of the activities of Florida’s emergency response community during Katrina. This is a shame because Florida’s assistance to her sister State of Mississippi is arguably one of our state’s finest accomplishments.

Figure 9-1. Hurricane Katrina's Track [Generated with the National Oceanic and Atmospheric Administration Historic Hurricane Track tool.]

CHAPTER 10
OTHER STORMS FROM 2005 THROUGH 2008

The 2005 Atlantic Hurricane Season

After the 2004 Atlantic Hurricane Season, Florida was braced for the worst in 2005. The worst came true for the Gulf Coast, if not for Florida specifically. The season began early with rain and flood events caused by tropical storm Arlene. Hurricane Cindy darkened New Orleans and caused surprising damage and beach erosion along the Florida Panhandle. The 2005 Atlantic Hurricane Season would see an unprecedented 27 named storms, fifteen of them hurricanes, along with a 28th unnamed storm that lasted for a single day and was not even recognized until after the season had concluded. The season produced five Category 4 hurricanes and a record four Category 5 storms. Moreover, the activity extended beyond the traditional end of season in November and continued through January of 2006. For the first time, the National Hurricane Center ran out of preselected storm names, mostly recycled from 1999, and resorted to Greek letters for the last five storms of the season. Hurricanes Rita and Wilma caused considerable damage to the United States, with Hurricane Wilma setting the record for the lowest central pressure and highest wind speed of any known Atlantic hurricane. Wilma's low central pressure served as a giant vacuum cleaner spinning the storm's winds up to 185 MPH and, simultaneously, drawing the eye wall tighter and tighter until it was only three miles across - another record in the Atlantic Basin. Although they did not strike the United States, Hurricanes Emily and Beta were also extremely powerful and destructive storms. Hurricane Emily was the earliest forming Category 5 storm in recorded Atlantic history. Emily, whose name will be reused for the 2011 season, was also the most damaging storm, so far, not to have its name retired.

Finally, there was Katrina. Although Katrina's rough trajectory was known for days, the hurricane killed almost as many Americans as the World Trade Center attacks of 2001. No other storm since 1928, well before the era of modern forecasting and transportation, comes close. The qualities of the storm combined with the social and technical vulnerabilities of the victims caused a "developing world style" fatality rate.

Florida's ESF-8 activities relating to Hurricane Katrina were documented in the preceding chapter. This chapter will discuss Florida's response activities for Hurricanes Dennis, Rita and Wilma. Additionally, I will describe the State's response to a large tornado event in 2007 as well as Federal ESF-8 activities related to the 2008 Hurricanes Gustav, Hanna and Ike.

Hurricane Dennis

When Isaac Brown and I were deployed during Hurricane Cindy to assist Christopher Nazarene in RDSTF Region 1, there were essentially no ESF-8 missions. Hurricane Dennis, however, was expected to strike Florida at full force and the entire RERA team was mobilized. As with many storms, Dennis continued to track west, therefore, the point of landfall continued to move west as well. However, the various weather modeling algorithms quickly converged on a projected path that would take the storm directly to Pensacola. Peaking at Category 4, Dennis was the strongest July Atlantic Hurricane on record. Fortunately, the storm slowed to Category 3 before striking the Pensacola area (Figure 10-1).

Although Dennis was expected to cause tremendous damage, an unknown was the exact path the storm would take relative to the city. If the storm passed to the west of the city then the counter-clockwise rotation of the winds would push storm surge directly into Pensacola Bay and the city itself. If the storm tracked slightly east, then the

storm surge would be significantly less. As it turned out, Dennis actually made landfall in Santa Rosa County east of Pensacola at about 14:30 on July 10, 2005.

The RERAs were linked up with the FEMA Rapid Needs Assessment (RNA) team which was staged in Ft. Walton Beach. In addition to FEMA personnel, the RNA also included personnel from a handful of other Federal agencies including DHHS and NDMS. As usual, the RERAs were the only non-Federal personnel assigned to the RNA which, once again, reflected the strength of individual networking rather than official agency cooperation. In retrospect, Okaloosa County was, perhaps, not the best place to ride out the storm. Ft. Walton Beach endured significant effects from Dennis as it made landfall about 20 miles away. We were sheltered in an, otherwise unoccupied, high school building. While we worried about the safety of our vehicles parked outside, we passed the time eating our deployment rations, planning assessment routes and watching the wind rip the cloth screens from the tennis court fences outside.

Our luck held and the vehicles remained undamaged. After the winds subsided, we left the school and most of us went on our assigned routes. Although we were staged with the RNA, we had realized from past experience that ESF-8 assessments are best done without the burden of a large team. On the other hand, had the storm been worse and the infrastructure impacted, as in Ivan, we could have used the RNA's air assets to get around.

My assignment was to drive the short distance over to the Okaloosa County EOC and meet up with the CHD Director and her team of ESF-8 staff, known within the CHD as "The Riders of the Storm." The CHD Director, was a former navy physician who had cultivated a reputation for intelligence and resourcefulness. Although she was a firm

advocate for PHP, her opinions of how it should be implemented sometimes differed from those of Tallahassee. Despite the occasional disagreements between the Okaloosa Director and my management, I had, personally, always found her to be correct in her views. I was therefore instructed to emphasize to her that, although there was a horde of DHHS, NDMS and OEO personnel staged in her county, nothing would be done within Okaloosa without her express permission.

After ensuring that her team was comfortable with the situation, the Director and I left the EOC in my vehicle and headed over to check on the Okaloosa CHD. While reiterating that nothing would be done without her permission, my satellite radio came alive with the voice of Christopher Nazarene. Nazarene was Okaloosa's RERA, but he also had the reputation of marching to his own drummer. True to form, Nazarene had not followed his agreed upon mission and had quickly swung by the Okaloosa CHD to conduct a simpler version of the assessment that the Director and I were about to perform. Although Nazarene's deviation was harmless, and Nazarene himself thought it was useful, aggravation welled up within me and my passenger.

We found the Okaloosa CHD to be in fine shape. Many of the investments the Director made in the facility now became apparent. Despite having no power service, the critical circuits in the building were supplied by a natural gas powered generator. Unlike gasoline or diesel generators, the natural gas generator was able to power the building for extended periods with no fueling contract or operations. Although more expensive, it was one of many examples of the Director's pragmatism.

Because of the fact that we were located so close to Dennis' landfall point and because Dennis arrived in the early afternoon, our assessment team was able to hit the

road and conduct much work before nightfall. Tallahassee benefitted by receiving essentially real-time intelligence.

The Big Mac

The majority of damage from Dennis was limited to Santa Rosa County and northern, rural, Escambia County. From our base of operations in Ft. Walton Beach, we planned our activities for the next day. My assignment was to proceed to the small, but well run, Santa Rosa County EOC and connect with Paul Driver and a small staff sent by Tallahassee. Our team was to interface with a Multiple Agency Coordinating group (MAC) which would be co-located with the County EOC.

Under the Incident Command System, a MAC has a very specific function. A MAC should be staffed by administrative representatives from each agency participating in a large incident in order to harmonize protocols and procedures. For example, despite serving under a single command structure, agencies working within ICS are not required to break their standard procedures. In the previous chapter discussing Hurricane Katrina, I described an EMS agency assigned to Perl River County that infuriated other agencies by running its ambulance engines at all times, regardless of the call volume. Since running the engines was that agency's protocol, they were technically allowed to continue the practice under ICS. However, idling ambulances is a trivial example of the problem. Some agencies allow their paramedics, for instance, to intubate patients and dispense particular classes of drugs while others do not. Different police agencies are allowed to escalate their use of force according to different trigger events. Fire and Rescue teams may be required to abort an operation at differing points depending on their agency policy. During day-to-day activities these differences may be amusing, but in a disaster involving many agencies, these differences can be confusing

and life threatening. The purpose of a MAC is, therefore, to iron out the differences so that all responders are using the same rules. However, the Dennis MAC was an animal of a different nature.

All of the personnel across State agencies who work with DEM during times of disaster are known as the State Emergency Response Team (SERT). Normally, the SERT is based in Tallahassee but, in certain situations, a small cadre of personnel is sent to the impacted area where they are known as the Forward SERT (FSERT). During Hurricane Charley, the FSERT merged with the Federal response team and operated under the name of “Charley Command.” In the case of Dennis, DEM elected not to deploy a large FSERT and intended to coordinate the disaster from the State EOC. However, the Florida Department of Law Enforcement (FDLE) was interested in trying its ability to coordinate and control assets in the field so they decided to establish the Dennis MAC as an alternative to an FSERT. As expected, the majority of the agencies that participated in FDLE’s MAC were law enforcement agencies. The exceptions were the Department of Environmental Protection (DEP), which also possess a large law enforcement unit, and the Department of Health. Absent were Emergency Management, Fire & Rescue and agencies from any ESF, other than ESF-16 (Law Enforcement), ESF-10 (Hazardous Materials) and ESF-8.

The Dennis MAC did work to standardize procedures and protocols, not unlike a NIMS compliant MAC. However, unusually, the Dennis MAC also had a very strong mission coordinating role. Traditionally, requests for assets would flow from the County to the State and the State would dispatch assets to the County. Those assets would then report to the local commanders and coordinate their activities. After a particular

mission was completed, the State assets would report their availability to Tallahassee which might bring them home or reassign them to another task. For ESF-16 assets, the MAC allowed the deployment and reassignment process to occur locally. Since many Santa Rosa County requests involved generic traffic control or security, the various State law enforcement agencies were essentially interchangeable. Additionally, due to the rapid pace of recovery, many ESF-16 missions were of short duration. Therefore, the Dennis MAC could efficiently deploy and redeploy a pool of law enforcement officers right on scene versus having ESF-16 at the State EOC do the task remotely. In many ways, the Dennis MAC performed some of the same functions as the DOH OT during Hurricane Charley.

Although the MAC proved useful for ESF-16 resources, there was little benefit for the ESF-10 and ESF-8 personnel involved. The ESF-10 representatives were essentially along for the ride with their DEP ESF-16 colleagues. The Department of Health decided to participate in the MAC because we wanted FDLE to perceive us as a team player and to gain experience with the process. Because ESF-8 missions were coordinated almost exclusively by DOH, we had no other partners with which to harmonize procedures or coordinate missions. Additionally, since few hurricane related ESF-8 missions require extensive ESF-16 support, we did not need that type of coordination either. However, participating in the MAC was useful as a learning experience. If the event had involved a Strategic National Stockpile deployment or quarantine activities then we would have tremendously benefitted from a Dennis-style MAC. Hurricane Dennis activities came to a fairly rapid close and the RERAs were able to head home and sit out Emily, Franklin, Gert, Harvey, Irene and Jose.

Hurricane Rita

Response to Hurricane Rita went very smoothly. Due to the large role the RERAs had played in previous storms, OEO decided to train additional PHP personnel in RERA activities. As a result, we had two additional team members. Specifically, I was teamed up with Cindy Lebowski from Hernando CHD. I had worked with Cindy for years and was very comfortable with both her talents and her personality. Although we did not expect a direct strike, the computer models projected that Rita would spin uncomfortably close to the lower Florida Keys (Figure 10-2). On the day that Rita was expected to make its closest approach, Lebowski and I were sent to Miami and instructed to make contact with the other RERAs and the NDMS Mission Support Unit (MSU) . While the combined State and Federal ESF-8 team assembled in West Miami, RERA Isaac Brown rode out the storm at the hardened National Oceanographic and Atmospheric Administration facility in Key West.

As Lebowski and I approached Miami, the weather continued to deteriorate. We faced tropical storm winds and lashing rains as we pulled into the hotel parking lot. In many ways, the MSU in Miami was a gathering of old friends, both State and Federal, who had cooperatively faced down some of the worst that Mother Nature could dish up. Inside the hotel lobby, we found Laura Jackson sipping her usual Diet Dr. Pepper. After trading a few observations, we walked into the conference room that NDMS had turned into a state-of-the-art miniature command center. After Hurricane Katrina, NDMS was pulling out all the stops to support the DMATs. Although impressive, the NDMS operation in Florida was a mere shadow of the effort occurring in Texas and Louisiana where the storm was expected to make actual landfall. Within two hours, the winds had

died down enough that Jackson and I felt comfortable heading into the Keys. We were joined by two NDMS personnel and would, as in earlier storms, conduct joint operations.

I did not look forward to the drive. As we headed farther out along the Keys, the wind and rain picked up again. Unfortunately, the Keys are connected by a single two lane road, U.S. Highway 1, which was prone to washouts from even minor flooding. One tremendous advantage for us, though, was the evacuation of citizens. Although evacuation orders were common for the Keys, many people never bothered to leave. In addition to the hassle of leaving one's home, since there was only one road, a large scale evacuation had the potential to create a, literally, hundred mile long traffic jam. However, after the continuous broadcast of Hurricane Katrina damage, the citizens of the Keys took the Rita evacuation order very seriously – as would the citizens of Texas. Aside from one washout, the trip to Key Largo was uneventful. U.S. 1 was empty and hardly a soul was evident. We did see the strange sight of hundreds of cars neatly parallel parked along the sides of U.S. 1. Since U.S. 1 was the highest point in the keys, and the farthest away from the water on both sides, citizens who evacuated in one vehicle had parked their other vehicles along the highway in an effort to protect them from flood waters.

It was dark when our team reached Marathon at the middle point of the Keys. We checked in at the Monroe County EOC. The Keys were facing something of a Catch-22 problem. The County Government did not want to lift the evacuation order until the power crews from the mainland could bring their trucks in and started repairing the electrical lines. However, the electrical crews could not begin work until the hospitals were active and ready to treat any electrical workers who might suffer an accident.

Meanwhile, the hospitals could not be opened until their staff, who had evacuated, returned. Theoretically, in case of severe trauma, a medical helicopter could be dispatched, but the delay of the helicopter and the terrible weather, which was expected to last through the next day, would prevent that from being a viable option. The hospital in Marathon was in excellent condition, it simply had nobody to staff it. A similar situation was expected 50 miles away in Key West. After some negotiation with the EOC, the hospital manager and the MSU (via satellite telephone) we arranged for a DMAT to leave before dawn and make the trip to both Marathon and Key West, assuming the roads south would be passable.

The Monroe CHD was a small but dedicated public health unit. However, they did not have a particularly robust ESF-8 group because they lacked the resources and, since the county's main emergency plan was to evacuate everyone, they did not face the same types of issues that a larger CHD might face. Nevertheless, the county ESF-8 desk was manned by a single CHD employee who had not slept in almost 24 hours. As our most experienced EOC operative, Laura Jackson generously took over the night shift and sent the ESF-8 officer home. The rest of us retreated across the street to the hospital and settled in for the night. By 04:30, we awoke and traveled to rendezvous with Isaac Brown in Key West. The situation in Key West was similar to Marathon. The main hospital was fully functional but unstaffed. After meeting with the hospital leaders, we arranged for a small NDMS strike team to travel to the hospital and operate the emergency department until the staff returned. The NDMS team was already heading to Key West before we even left the hospital. Since the roads were clear of hazards and the citizens had not been allowed to return to the county, Brown took advantage of the

completely empty U.S. 1 and lead our three vehicle convoy on a record breaking high speed trip back to Marathon.

As we arrived in Marathon, the first NDMS team was also arriving at the hospital. Jackson, joined by the other RERAs who spent the night in Miami, reported no events of significance during her ESF-8 vigil. In addition to snacks and fuel, the incoming RERAs also brought Isaac Brown a brand new ESF-8 uniform shirt. Tallahassee wanted Brown to look his best as he stood next to the CHD Director and the Governor during a press conference scheduled later in the day. Lebowski and I, having no appetite for press conferences, decided that we should get out of the Keys before the flood gates opened and the citizens came swarming back. As we drove from Marathon to Key Largo, we noticed with amusement that the FEMA RNA helicopter had finally been allowed to fly and was making a damage assessment reconnaissance along the same road that we had traveled about eight hours previously. By the time we reached Key Largo, the island was beginning to show signs of life and the shops were opening. We passed lengthy traffic jams heading south as we approached the mainland. Ultimately, we returned to Tampa less than 36 hours after we had left. It was a perfect mission.

Although Rita did little damage to Florida, it was a major event for Texas and Louisiana. After reaching the Gulf, Rita built up to the third Category 5 storm of the season. When it made landfall on the Texas and Louisiana border on September 24th, it had slowed to a Category 3. In Louisiana, New Orleans was evacuated and Rita's storm surge broke open Katrina's wounds causing a significant re-flooding of parts of New Orleans. Across the nation, citizens worried about even higher fuel prices if off shore platforms were destroyed. In Texas there were massive evacuations which, oddly

enough, included inland Houston. Millions of Texans, fearing Katrina-like devastation fled to the west and the north. Despite attempts to stagger the evacuees and the conversion of interstates to one-way roads, a process known as “contraflow”, the evacuation ground to a halt. Texas’ transportation infrastructure was simply overwhelmed. Motorists ran out of fuel and vehicles broke down in the sustained 90 degree heat. Tragically, 23 senior citizens were killed when the bus evacuating them from their assisted living facility caught fire and, fueled by the oxygen tanks on board, exploded in traffic.

Hurricane Wilma

Watching the track of Hurricane Wilma was like watching a toy top spin nauseatingly until it finally flopped over. In this case, however, Hurricane Wilma was the strongest hurricane ever measured during an Atlantic Hurricane Season. Wilma had come to life south of Cuba and had drifted up to the Yucatan Peninsula where its progress stalled. She began her top-like stagger and then set off to the northeast and headed for Florida. Wilma had lost significant power before it hit the southwest coast of the state, but she still came ashore near Naples with 120 MPH winds (Figure 10-3).

As in Hurricane Rita, I was joined by Cindy Lebowski. We met with Luke Falcon and Laura Jackson in Charlotte County, north of the projected path, early on October 24th. The plan was that Laura and Luke would head due south to Collier and Lee Counties after the storm passed while Cindy and I would head southeast towards Glades, Hendry and Western Palm Beach Counties around Lake Okeechobee. The other RERAs would converge on the southeast coast to work in the major urban centers after the storm exited the state.

Our little group said our farewells and chased after storm damage. Jackson and Falcon found that the small, but well off, city of Naples was extraordinarily prepared. The storm had spread debris and knocked over trees. Power was out to about three quarters of the population. However, the area gained tremendous experience in its close brush with Hurricane Charley a year before. Much of the vulnerable infrastructure and weak foliage was fixed after Charley and therefore did not present as great of a risk during Wilma. From a planning standpoint, the region also learned lessons. The EOC operated smoothly and many contingencies had realistic plans. “Disaster Tourists” were few in Naples, houses and facilities were neatly boarded up. Most impressively, shortly after the storm passed, many major intersections had their traffic signals powered by portable electric generators. Naples was small, and wealthy, enough to be able to afford the generators but this also told a great deal about the citizens. In more urbanized parts of Florida, those generators would have been stolen or vandalized. The hospital centers were essentially up and running and there were few ESF-8 issues for Falcon and Jackson to work. In Southwest Florida, Wilma would generate much debris and many customers would wait two or three days before power was restored. The damage from the storm would push weaker insurance companies over the edge and some buildings would take an extended period to repair. Yet, this fairly small city was able to beautifully plan for, and react to, a major storm. Despite weakening in its travel over land, Wilma would cause much greater confusion and destruction in highly urbanized and largely unprepared Southeast Florida.

South Central Florida is, in many ways, Florida’s agricultural heartland. The farms are based around a network of canals designed to harness, and control, the waters of

Lake Okeechobee and the Florida Everglades. In 1928, the tremendous Category 5 “Okeechobee Hurricane” passed west across Palm Beach County and killed thousands. Most casualties were caused by the collapse of the primitive dike built around Lake Okeechobee. As a result, the Army Corps of Engineers created the elaborate Herbert Hoover Dike in an attempt to protect citizens and improve agriculture. Although much of the flood control system has proven itself environmentally destructive, the dike has held over time. However, weaknesses in the dike’s construction continue to concern disaster planners surrounding the giant lake.

Our first stop was at the Hendry County EOC in Labelle. The EOC was small, but capable. The staff gave us a quick briefing about the county’s status and we could glean the rest from looking at the status boards. The ESF-8 officer was not at the EOC because he lived in West Palm Beach and the roads were closed. However, the staff could not tell me about any truly exceptional ESF-8 issues. The town of Clewiston, located on the southwestern edge of the lake, was the next place that Lebowski and I traveled. Unsurprisingly, Clewiston was without power and heavily flooded. The main hospital and a large ALF were able to run key emergency functions on generator power but were not able to care for their patients fully. Therefore, the facilities had already begun to evacuate their patients to other locations within their ownership networks. The evacuation was a major logistical undertaking and seemed to be going with precision. Wilma was proving the point that small communities and hospitals are no less capable than larger ones. In fact, small entities may be better at some types of operations because they must maximize their limited resources and they often have fewer responsibilities.

As with many storms, we realized that a lot of current and future ESF-8 problems could be solved if power was restored faster. Clewiston's electricity was supplied by a power generation plant owned by the U.S. Sugar Corporation. The plant was currently down but the hospital asked us if there was anyway that the State might be able to provide assistance to U.S. Sugar in order to get the plant repaired. I called ESF-8 at the SEOC but was told that they were not going to submit a request to help repair a privately owned power plant. This decision upset me and I was surprised by the attitude. After all, most power generation facilities are owned by private companies. What difference did it make if the company was Florida Power and Light or U.S. Sugar? We regularly helped out private and for-profit entities if they provided a public good. After all, if we had a policy against helping large for-profit companies then virtually all health care providers would be entirely on their own. I was not requesting that ESF-8 itself directly assist U.S. Sugar, I simply wanted the infrastructure restoration branch to see if they could help out the citizens of Clewiston. Regardless of my disappointment, I was happy that the situation in Clewiston seemed to be under control for the moment.

We shifted our concerns to what, besides electricity, the hospital might need to return it to operational status over the next few days. Staffing was an unknown. There were few medical professionals that lived around the Lake Okeechobee area. Many staff members came from either coast and personnel were often shared between Hendry Regional in Clewiston and Glades General Hospital across the lake in Belle Glade. To follow up on our assessments and concerns, we made the drive over to Belle Glade to check out that hospital in person. Although Belle Glade was a part of Palm Beach County, it felt like another world compared to east county. Adding to the isolation

was the fact that U.S. 98 was closed and the only way between the two sides of the county was to travel to the north through neighboring counties.

Glades General Hospital was a much larger facility than Hendry Regional. It was the only public hospital remaining in Pam Beach County and parts of the facility dated to the 1940s when it was first opened to serve the agricultural communities by the lake. In some cases, it was difficult to decide what was “fresh” Wilma damage versus more established neglect from previous decades. Glades General, in a nutshell, symbolized the status of much of the U.S. health care challenge. Although the facility was spacious for the community, the ever increasing price of treatment and equipment made it cost prohibitive for the hospital to keep up. Clearly, there was a need for medical care around that part of the lake, but the population was simply not affluent enough to purchase profit-making health care services and providing basic and emergency care to a low income population was not going to pay the bills. Since the hospital was tax payer supported, the county government was always on the look out for things to cut or slash at Glades General and, as a result, the hospital’s situation, combined with the distance, made staffing a challenge.

Because everyone involved was concerned about staffing, and Glades General did not evacuate any patients, it seemed sensible to look at NDMS staff augmentation for the facility. We reported our initial findings to Tallahassee but, since Cindy and I did not have an actual Federal ESF-8 partner with us on this trip, the facility would need to be re-assessed by a Federal person. We tentatively planned for a Federal ESF-8 representative to join us the next day. Tallahassee also had some additional questions about Hendry Regional so Cindy and I returned to Clewiston to get more information.

We arrived in Clewiston by dusk. The winds had picked up and a fall chill was in the air. We gathered the information that was requested and reported our findings to State ESF-8. We were also informed that a Federal ESF-8 assessor would arrive in Belle Glade the next morning. We were instructed to return to Belle Glade the next day to establish a helicopter landing spot and meet the NDMS Emergency Coordinator. The Hendry Regional staff was generous enough to allow us to spend the night in the largely vacant hospital so we made ourselves comfortable on large lounge chairs and enjoyed hot showers.

On the morning of October 25th, we left the still flooded Clewiston and taped off a large empty parking lot two blocks from Glades General. Over the satellite radio, we told Tallahassee the latitude and longitude for the parking lot and further marked the area by running our truck's red lights. Within an hour, we heard the Blackhawk approach over Lake Okeechobee and then watched as it bypassed our landing zone and flew directly towards the hospital, over a string of high tension power lines, and dropped into the rear parking area of the hospital. Lebowski and I drove over to the helicopter, nestled neatly between scattered parked cars, and met the NDMS man. After conducting his assessment of the hospital, he agreed that Belle Glades would benefit from an NDMS team. Since his helicopter had left him, we drove him back to Clewiston where he conducted a similar assessment and, once again, agreed with our conclusions that Hendry Regional did not need an NDMS team. During our brief time away, Clewiston had made significant progress. U.S. Sugar had, without State assistance, returned their power plant to operation. The electricity allowed the town to turn on massive pumps built into the drainage system and the town's streets were virtually dry. At this point, for

Clewiston, recovery really began. Residents and workers would soon return and the hospital would begin to fully function.

We were also informed, over the satellite radio, that our Federal partner's helicopter would return to pick him up at Glades General in about an hour. We drove, once again, to Belle Glade. Our group of three waited in the back parking lot of the hospital. However, this time, the Blackhawk pilot decided to land the aircraft on a small circular plot of grass bordered by the hospital's driveway on the other side of the building. The reflected noise was deafening and the rotor wash was kicking up clouds of dirt and debris as we drove around the building. With a shake of the hand, our NDMS coordinator departed skyward as Cindy and I plugged our ears and looked away as if we were unworthy to watch the spectacle. Although air assets can be valuable, and are certainly impressive, the use of the UH-60 cost a significant amount of money. Furthermore, the area around Lake Okeechobee was certainly accessible from the ground. In fact, as with Hurricane Rita, Cindy and I had actually arrived on scene and conducted our assessments before the weather conditions allowed a helicopter to even leave the ground. If only we had been joined by a Federal ESF-8 Coordinator from the start, our missions would have entered the request pipeline ten hours earlier.

Our next mission was to head over to the Palm Beach EOC and meet with the other RERAs. Although West Palm Beach was a reasonably short drive from Belle Glade, U.S. 98 was still closed which necessitated us driving south to I-75, then east, then north. Due to the traffic, the indirect route took us several hours. One thing that I looked forward to in West Palm Beach was fuel. Our Tahoe had been topped off in

Charlotte County and we had already poured nearly all of our reserve fuel into the beast. I expected to arrive in West Palm Beach running on fumes.

Conditions on the East Coast were chaotic. Hurricane Wilma damage was largely restricted to Palm Beach, Broward and Miami-Dade Counties. Monroe County received some damage, as did counties to the north. However, Wilma's wrath primarily corresponded to the most urbanized and densely populated counties in Florida. Although these counties knew that Wilma would arrive, it seemed as if they did not take the storm's approach seriously. Additionally, because the counties to the north had suffered from Frances and Jeanne the previous year, those counties, like Collier and Lee Counties, had already lost their most vulnerable trees and infrastructure. This was not the case farther south. The citizens of Southeast Florida also did little to prepare personally. Despite warnings from State and Local officials that they should stock three days worth of food and water, along with other hurricane related supplies, few did. As in previous storms, but on a far greater scale, bored and hungry citizens began touring the impacted area in their cars which sucked down gasoline and clogged road ways. The normally aggressive State emergency management structure also seemed surprised by the storm. Although tremendous amounts of food, water and ice were transported to Wilma, the consumption by the locals was greater than anticipated. Interviews with angry citizens were televised which lead post-Katrina to tremendous political pressure to accelerate the response process. From the RERAs' perspective, a nearly crippling problem was that, although stocked, the local Department of Transportation officials refused to provide gasoline to outside response agencies. The RERAs only received

their needed fuel because Jay Van Fleet would drive, once a day, back to Indian River County and fill up a dozen five gallon gasoline cans.

We also faced other interesting problems. Each of the impacted counties was quite different. Palm Beach County had an excellent ESF-8 structure that was well integrated with the county emergency management structure. Broward had a good PHP program within the CHD but the CHD had little integration with the County ESF-8 system which was run by the two county hospital association districts. Miami-Dade CHD had a relatively new and inexperienced ESF-8 team. Although Miami's CHD employed some experienced operatives, the team had little experience working together on their own turf and in cooperation with their own emergency management structure.

Christopher Nazarene and his Panhandle colleague deployed to Miami-Dade County. Although they faced many logistical problems getting around the city and visiting the numerous hospitals, they had no problems working with the emergency management agency or the CHD. Initial RERA operations in Palm Beach County were severely limited because the Palm Beach CHD forbade the RERAs from conducting assessments. Given the limited support from Tallahassee during the 2001 Anthrax Attacks, this attitude was understandable. However, in a few days, an agreement was reached where Alistair Scott, Luke Falcon and Jay Van Fleet would work in close cooperation with the CHD and all involved parties were satisfied by the results.

Lebowski, Jackson and I were deployed to Broward County and Boca Raton. We helped to establish fuel supplies for Boca Raton Community Hospital and actually spent our first two nights in the field sleeping in their parking lot. The hospital was open and active for emergencies but was running on generator power. Although the hospital was

equipped with two generators, one of them had failed and the administration was concerned that the second generator might fail before the replacement part for the first generator arrived. If the second generator went off line, the entire hospital would have to be evacuated which would add dramatically to expenses, further burden the EMS system and might endanger the lives of the patients transported. Although we worked through our channels to secure the needed parts, ultimately, the power was restored to the hospital before either the generator failed or the replacement part arrived.

Our work in Broward was complicated by the organization of county ESF-8. Although the CHD was happy to have our assistance, it was difficult for us to generate operational missions through the Broward EOC. For example, it was clear that NDMS assets would be needed in the southern hospital district. However, the northern hospital district also wanted NDMS assets even though there was no real need. As a result, every day, we were requested to visit a different northern hospital to assess it for a potential DMAT mission. Inevitably we reported that the hospital in question neither required nor desired a DMAT. The next day, we were tasked to look at yet another northern hospital with the same results.

Another major political problem was caused by the Federal Government. As discussed previously, Federal, and State, emergency management personnel often walk a tightrope when it comes to supporting lower tiers of government. After Hurricane Katrina, and the evacuation struggles of Hurricane Rita, the Federal Government was unwilling to sit back and await requests. As a result, the SEOC in Tallahassee was awash with unneeded and unrequested Federal personnel. Many of these personnel were going outside of the system to “fish for missions” at the local level. With the

continued media coverage of upset Wilma victims, FEMA actually recommended that they take direct charge of all Wilma recovery operations. Eventually, the situation became so awkward that Florida DEM Director Craig Fugate started a daily briefing by outlining the NIMS doctrine of local control and formally introduced Governor Jeb Bush as the official Wilma Incident Commander (Cooper & Block, 2006, p. 278). However, Bush was willing to do more than secure leadership, he was willing to secure responsibility. When answering complaints during a press conference, Governor Bush stated “Blame me, not FEMA” when the media started to attack Federal efforts. Fugate’s dramatic introduction and Bush’s comments emphasized the fact that the Federal personnel were there to support the State and not to usurp command of the operation. Federal meddling was not just limited to the State EOC. In addition to our usual ESF-8 liaison at the SEOC, DHHS also deployed several high ranking Public Health Service Officers. Rather than send these officers to the SEOC, they sent them directly to the Office of the Secretary of Health. If things had gone according to plan, the officers would have been instructed to work with the already established ESF-8 team. Instead, they found a conduit directly into Broward County.

While the Secretary of Health at the time tended to play by the established rules, another high ranking State Health Officer at that time did not. I really liked this particular Health Officer and appreciated that she, like most public health personnel, genuinely wanted to do good things to help people out. Unfortunately, she began to take Hurricane Wilma response personally and decided to become directly involved in the response operation. Specifically, this State Health Officer had a long history of working in Southeast Florida where she still had friends, family and colleagues. As a result, she,

and the ranking Public Health Service Officers, traveled unrequested to Broward County. Like the Federal personnel at the SEOC, this particular State Health Officer began to “fish for missions.” To her credit, she did identify some missed needs in the poorly coordinated Broward ESF-8 environment. Unfortunately, she also worked outside of both the County ESF-8 system and the already established State-Federal ESF-8 system. Not surprisingly, some of the missions that the Health Officer elected to pursue were duplicates of other missions. Additionally, she also became interested in solving problems that are usually considered outside of ESF-8’s responsibility or were not even caused by the disaster. Backed by teams of enthusiastic U.S. Public Health Service Officers, she oversaw tasks that ranged from providing free medical care for the elderly to distributing food supplies for immigrant populations. Food that was already available from both commercial stores as well as DEM and County run Points of Dispensing.

The best example of these groups working without coordination involved the “high rise retirement homes” so prevalent in Broward County. These large buildings house many elderly and vulnerable residents. The State level Health Officer and her DHHS entourage became concerned that elderly citizens might be dead, or dying, in their apartments and condominiums. Therefore, it was to become an ESF-8 mission to go door-to-door through each building looking for people in need. Although the idea seemed reasonable at first glance – similar to the DCHAT experience, the first day of assessments found that many residents had evacuated. Those that stayed were able to leave the building and get supplies at, now open, stores. Additionally, many building owners took great care of their residents by checking on them and providing supplies. In fact, the most vulnerable residents, who did not evacuate themselves before the storm,

had actually been identified and evacuated post-landfall by fire and rescue agencies. When it was realized that the high rise elderly did not constitute a crisis, the teams of ESF-8 door-to-door searchers that had been assembled had their missions cancelled or were sent back home. The status of the high rise residents was actually known by the Broward EOC. Unfortunately, nobody in the “third column of ESF-8”, or anywhere else, checked with the fragmented local system. Once again, the DOH health official and the U.S. Public Health Service Officers were trying to do “the right thing,” even though, in this case, “the right thing” was not normally even an ESF-8 responsibility. It was not motivation, nor even technical competence, that caused problems. The problems were caused by a poorly coordinated ESF-8 system at the local level combined with an overly enthusiastic Federal involvement.

Paul Driver had traditionally referred to Federal ESF-8 assistance as being akin to Godzilla. Even when Godzilla was attempting to help you, it was still going to blow fire on you and stomp a lot of things flat in the effort. A more subtle joke referred to the name of the DHHS Office of the Assistant Secretary for Preparedness and Emergency Response (ASPR.) The joke was that when DHHS sent unwanted resources which caused an itchy, swollen and painful response it became necessary to liberally apply “ASPR-Cream” to the afflicted part of the body. An actual tube of aspirin cream became an occasional prop used at State ESF-8 meetings in Tallahassee.

Evolving Structures

Traditionally, the RERAs worked disasters as operational assets under the control of State ESF-8. The exceptions were Hurricanes Charley, Dennis and Katrina where we worked under the command of an overhead team. Our structure could be imagined as a traditional ICS structure whereby the operational component was extended from

Tallahassee into the impacted area. There was also a networking component since the RERAs usually worked with their NDMS partners who were, technically, part of another hierarchical organization. We also networked with locals, fitting into their hierarchies, as well as other non-ESF-8 agencies across the tiers of government. In addition to the operational ESF-8 components, the other customary field ESF-8 organization was logistics. The field logistics personnel were an extension of the enormous ESF-8 logistics group in Tallahassee. The field logisticians worked to place and maintain deployed equipment and supplies as well as directly supported the RERAs and other deployed DOH teams. What was not normally done, outside of an overhead team, was the deployment of planning and finance personnel to the field.

Previously, OEO had discussed enlarging and standardizing the ESF-8 field “foot print” and that idea had included planners and finance specialists. Additionally, during Wilma, it was useful to bring more State personnel into the area to help balance out the extremely large Federal deployment. As a result, Katharine Anderson, planning, and Albert Fredrick, OEO finance, came down with a small number of additional support and IT personnel. By the time of their arrival, the RERAs and logistics personnel were staying in a hotel in West Palm Beach where we had access to a large conference room. The conference room was converted into a miniature ESF-8 forward EOC. Although the RERAs were initially skeptical about bringing more headquarters personnel to the disaster area, it proved to be a good move. Instead of trying to insert our field intelligence through the ESF-8 desk and into the planning cycle, we could tell Katharine what we knew and as she directly worked with the planning process in Tallahassee, Anderson was able to update OEO and help create achievable missions

for us. Fredrick was also very useful in the field. Because he was a finance specialist, he was able to speed our requests and financial paperwork. He helped us account for our hours and took responsibility for ordering expensive items that were needed.

The important lessons of Wilma had actually been learned before. 1.) DMATs were deployed more smoothly if the Federal and State assessors work together from the start. 2.) Although potentially valuable, air assets also make life complicated. 3.) Unrequested assets from the Federal Government cause problems, as do unrequested assets from the State Government – a line the RERAs were sometimes guilty of crossing themselves. 4.) A non-existent county ESF-8 system was, in some ways, easier to handle than a dysfunctional one. 5.) Although networking has its advantages for sharing information and reaching decisions, ultimately assets and resources should be requested through a single channel rather than multiple channels working through political connections.

The 2007 Ground Hog Day Tornadoes

Shortly after three in the morning on February 2nd 2007, a major storm system stretching east-west across Central Florida unleashed the first of three tornadoes over northern Sumter County. Half an hour later, a second tornado formed over Lake County and then a third over Volusia County. The first two twisters were rated as EF-3 (136-165 MPH winds) on the Enhanced Fujita Scale (EF), a measure of tornado strength based on standardized damage models, while the third storm rated an EF-1 (86-110 MPH winds.) The tornadoes destroyed several hundred homes and damaged several thousand more, mostly in Sumter County. The first tornado also took the lives of eight people near Lady Lake, within Lake County. The second tornado killed thirteen people near Lake Mack, also in Lake County. The Lake County deaths were, in large part,

because of the prevalence of flimsy housing while the majority of the affected Sumter houses were fixed structures that were modern and solidly built.

Coincidently, the annual Florida Emergency Preparedness Association meeting held at Daytona Beach, in Volusia County, was just concluding the day the storms touched down. As a result, there was an immediate influx of State and Regional emergency management personnel. Region 5 RERA Jay Van Fleet immediately joined Volusia and Lake County field teams and began damage assessments before daylight.

I did not attend the conference in Daytona Beach and was notified about the damage around 08:30. The Division of Emergency Management had assembled an FSERT which was based out of the Lake County EOC. The on-scene DEM commander wanted representation from each ESF at the FSERT. Since Van Fleet was conducting field work, and the storms also impacted my region, I was asked to join the FSERT as the ESF-8 officer by early afternoon.

I made my way to Tavares and found the DEM command vehicle setup behind the office complex containing Lake County's temporary EOC, a converted training and conference room. In addition to providing support for the impacted counties, DEM was also using the storms as an opportunity to test a number of technology upgrades to the command vehicle. Unfortunately, the technology was not entirely functional and the environment in the vehicle became stressful so I hung around outside waiting for anyone who needed me.

Soon I met David Lambright stepping out of the command post. David was the State DEM Training Officer and oversaw the efforts of a network of emergency management instructors across the state, including myself. David expressed confusion

about the damage assessments. Volusia and Lake County were reporting reasonable sounding damage estimates but Sumter County's estimates were dramatically lower than expected. Furthermore, Sumter had not released updates to their numbers nor had they requested any sort of outside assistance through the emergency management system. David was instructed to drive over to Sumter County and try to figure out what was going on. Since Sumter County was in my RDSTF-4 region and I seemed to have nothing to do at the FSERT, I asked David if I could accompany him.

David and I headed to the center of the reported damages in Sumter County, a community known as "The Villages." David knew nothing about Sumter County or The Villages, so during our drive over, I tried to explain the complicated situation. The Villages is the State of Florida's largest residential development. However, it is far more than a neighborhood. Although The Villages is not a city in the traditional sense, it is considered a "community development district" which grants it many of the responsibilities and authorities of a town but it is largely managed by a single private company. A similar situation is found in Reddy Creek, FL, which is a "town" located on the property of Walt Disney World. The Villages was designed as a community for well-to-do retirees and has strict limits concerning the age of its residents and what they can, and cannot, do with their property. As an "active retirement community," The Villages has numerous recreational resources; including parks, game fields and golf courses. Like many retirement communities, golf carts are used as a major form of transportation. Residents actually hot-rod their rides and hold an annual golf cart parade. Impressively, the neighborhoods and commercial locations within The Villages are linked by almost 90 miles of golf cart paths.

The Villages, itself, technically straddles the county lines between Marion, Lake and Sumter Counties. However, the majority of the community is located within Sumter County. Sumter is a mostly rural, lower income, Florida county that is best known as the point were the Florida Turnpike and I-75 converge. The county is also the site of the largest Federal prison in the nation: the Coleman Correctional Facility. In addition the county also hosts a major State correctional facility. Demographically, The Villages and the rest of the county were quite different. The general county population is younger, earns less than 75% of The Villages' median family income, is not as politically active and has a lower education level. As The Villages has grown, the increasing value of the community, largely represented by their property taxes and spending, has brought increased wealth to Sumter County. Unfortunately, the two populations have traditionally not mixed. The result was that the 13% of the county population living within The Villages began to feel as if it was shouldering an excessively large portion of the county's budget. Furthermore, since the county elected the five county commissioners through district elections, The Villages was represented by a single seat on the commission rather than representation proportional to their taxation or population.

However, as so often happens in Florida, senior citizens are politically active. About half of all registered voters within Sumter County live in The Villages. In 2004, activists within The Villages collected enough signatures for a ballet initiative to change the commission election system from geographical districts to a county-wide "commissioner–at-large" system. To demonstrate the divisiveness within Sumter County, the ballot initiative known as "One Sumter", barely passed with 51% of the vote. Once the initiative was passed, future county commission elections would be dominated

by the politically active and cohesive Villagers. Despite the growing power of The Villages after the 2004 ballot initiatives and commission elections of 2006, the county has not unified. In fact, the county became more divided. By 2008, the alignment of the County Commission with The Villages, and therefore the development company that owns The Villages, lead angry citizens to launch another ballot initiative which attempted to reverse One Sumter. The reversal attempt failed.

As David and I rolled through The Villages, we suffered from cognitive dissonance. The community was awash with senior citizens cruising the streets on their bicycles and golf carts. We shared traffic with restored muscle cars and watched people walking with their dogs and tennis rackets. The Villages certainly felt like no disaster scene we had ever experienced. There was no evidence of emergency responders, no flashing traffic signs, no police presence, no TV trucks. Referring to our notes, we found the primary damage area. The response operation was coordinated out of a recreation center located in the middle of a cluster of damaged and destroyed homes. Hardly any debris remained at the site and an army of contractors was repairing roofs and carefully moving possessions out of houses that looked destroyed. Outside of the recreation center, a team of fire fighters were in discussion while walking back to their engine. The Marion County Fire & Rescue mobile command post was parked prominently in front of the building. About 500 feet away from the command post, a golf party was preparing their attack on a nearby hole.

The on-scene operations were conducted by a joint command composed of The Villages Fire Department and Marion County Fire & Rescue. They were glad to have us along as emergency management support since they had a number of external

resource requests and nobody to submit them on their behalf. Although we were standing in Sumter County, and the main part of The Villages is considered part of Sumter County, nobody from Sumter County was present at the command post nor in the Unified Command. Because The Villages has its own fire department, it had little interaction with the Sumter County Fire Department. However, with its large and active elderly population, The Villages did have an excellent relationship with the County EMS provider. In Sumter, however, the County EMS provider was shared between Lake and Sumter Counties. The Lake-Sumter EMS administration and dispatch center is actually located in Lake County. When The Villages asked for assistance, naturally, they turned to their Lake-Sumter EMS partners. Because both Lake and Sumter suffered tornado damage, Lake-Sumter EMS requested mutual aid resources from neighboring Marion County. As a result, Marion County Fire & Rescue came to play a leading role at The Villages in Sumter County.

A call into the Sumter EOC confirmed what the joint commanders had told us: Despite Lake and Volusia Counties running their EOCs fully staffed 24 hours a day, the tiny Sumter EOC had decided to close up shop at 16:30, despite the fact that the majority of the damage was in their county. We also learned that the damage reports from The Villages were so low because the Sumter Emergency Manager had never actually come to assess damage in The Villages. David and I collected reports and requests then forwarded them to the FSERT in Lake County. After dark, we sat in the recreation building at The Villages along with the Joint Command and called into the nightly emergency management conference call. Representatives from Lake and Volusia Counties detailed damages to those counties. Eventually, the assistant to the

Sumter Emergency Manager spoke up on the call and reported recycled damage numbers from the morning. David and the Joint Commanders then un-muted the telephone and reported the actual statistics from The Villages which differed dramatically from the previously reported Sumter County numbers.

Several years before, the Sumter County Emergency Manager, a former rural fire chief, told me that fire fighters were uniquely qualified to be emergency managers because fighting fires was emergency management. As noted previously, emergency management is much larger, more complicated and requires a more holistic world view than fighting fires. After this discussion, I harbored private fears about what would happen if a major disaster were to strike Sumter County. Unfortunately, my fears were confirmed.

It was true that there was a tremendous amount of stress between The Villages and the rest of the county. It was true that there were no heroes on either side of the debate as both parties had played badly with the other. It was also true that The Villages was well organized, wealthy and needed relatively little outside assistance. However, these facts did not justify the lack of emergency management support to the community. In fact, with a community as politically active as The Villages, it was politically suicidal to ignore the citizens. Ironically, responding to The Villages would have been so easy. Essentially, all that the Sumter Emergency Manager would have needed to do was show up, shake hands and make a few telephone calls. Perhaps, given his background, the fact that there was no fire at The Villages indicated that there was no emergency in need of management.

Using the out-of-touch damage estimates as ammunition, DEM decided to form an Incident Management Team (IMT) for The Villages. David Lambright was therefore instructed to pick out personnel and have them assemble the next day. Although David, who had relatively little disaster response experience, was an unlikely IMT leader, he had a unique advantage. Because David coordinated emergency management training across the state, he was friends with some of the most experienced and knowledgeable operatives available: his instructors. The Villages IMT was something of a “dream team” assembled from Central Florida’s best instructors. I was pleased to stay on and assist David during this incident. Since the IMT consisted of instructors and the situation at The Villages was stable; the team was able to work together to accomplish tasks but also to explore the finer details of emergency management in a way that was much more scholarly and philosophical than a typical IMT deployment. Later, examples from The Villages IMT became standard topics of discussion in emergency management classes around the state.

Despite the fact that we were assigned to work within The Villages, we soon found that many locations outside of The Villages that were damaged had also been missed by Sumter County’s initial assessment survey. As a result, we received informal approval to extend our operations outside of The Villages. In response to the growth of the IMT, the Sumter County Sheriff decided to start operations at The Villages. A day after it was needed, the Sheriff’s state-of-the-art mobile command post was deployed to The Villages. Rather than placing the eighteen wheeler with the Sheriff’s name and logo at the disaster scene or the recreation center used as a make-shift EOC, the rig was prominently placed on a parcel of land at the intersection of two main roads. The truck

did little operational good there but it was displayed to a large number of voters. The Sheriff, with his Emergency Manager in tow, also began to appear personally in The Villages. The only real interaction between the IMT and the Sumter Emergency Manager was when the IMT had to explain the disaster declaration process to the County Emergency Manager. The Sheriff did have one request of the IMT however: The Sheriff insisted that any responder from outside Sumter County should not wear a uniform from their outside agency. As a result, the IMT changed clothes and wore brand new shirts provided by The Villages Fire Department.

Although the Sheriff had sent a few extra deputies to patrol the streets of The Villages, the most impressive show of force was when the Florida Governor was scheduled to arrive. Unfortunately *en route* to The Villages, Governor Crist had become hungry and his motorcade pulled into a convenient Denny's restaurant. However, in anticipation of his scheduled arrival, practically every deputy Sumter County employed stood outside the recreation center in their green polyester dress uniforms, complete with ties. The Governor did finally arrive and met with the locals, DEM and the Sheriff. After the Governor left, the deputies disappeared as rapidly as they had arrived.
The next few days saw us submit fairly standard missions: construction supplies, food and water, post trauma mental counseling and advisors to help citizens, and government, submit the required paperwork for financial reimbursement. We kept in touch with the SEOC and submitted reports and planning documents.

The tornadoes that struck The Villages, once again, show that dysfunctional government leads to dysfunctional emergency response. If there had been significant injuries or death due to the strike on The Villages, the dysfunction would have made the

situation far worse. As it was, with support from Marion County, the small but excellent local fire department was able to competently respond to the disaster. Deploying an entire IMT to handle emergency management functions for The Villages was, perhaps, overkill. The functions that we performed could have easily been handled by locals, if only they had bothered to show up. It was a rare situation where the State “assumed control” over a local function. As is customary, The Villages IMT wrote an After Action Report (AAR) outlining the lessons learned. David Lambright insisted that the report be as balanced as possible and, in fact, criticized The Villages itself for their part in not building a local interagency response system. Shortly after our report was issued, the Director of DEM forced the issue with the Sumter County Sheriff, who oversaw the Emergency Management Office, and the Sumter Emergency Manager retired. The new Emergency Manager of Sumter radiates a level of energy and relaxed competence that reassures me about the future of the county’s response capability. In addition to more resources and broader responsibilities, the new Emergency Manager regularly visits the surrounding counties to build relationships. As for The Villages, the management has been reminded that they do not live in a vacuum. However, the political, economic and cultural issues that lead to the isolation of the community are still in place. Additionally, The Villages suffers from an unfortunate coincidence of Florida’s domestic security structure. The community is physically located in three different counties which exist in three different RDSTF and DEM regions. As a result, the burden will continue to rest with the community itself to integrate their activities with those of their neighboring jurisdictions.

Storms of 2008

The 2006 and 2007 Hurricane seasons were uneventful. 2006 saw a mere ten storms and no hurricanes made landfall in the United States. Florida was impacted by the landfall of T.S. Alberto and T.S. Ernesto but these involved no significant deployments. The 2007 Atlantic Hurricane Season was considerably more active than 2006. T.S. Barry made landfall near Tampa, crossed the peninsula, then hugged the Atlantic Coast of Georgia and the Carolinas until it dissipated. Later in the season, Hurricanes Dean and Felix struck Mexico and Central America as Category 5 storms. Florida was as lucky in 2007 as it was unlucky in 2004.

When the 2008 season rolled around, Florida was anticipating a busy season. I had left the Florida Department of Health in March of 2008 so I enviously watched from the sidelines as my RERA colleagues sprang to action to deal with the after effects of T.S. Fay. Fay zig-zagged across Florida, making four separate landfalls, dropping rain and spawning tornadoes in its wake (Figure 10-4). Fay dropped over two feet of rain in some locations, which compounded flooding from earlier storms and would be followed by more rain later in the season.

Although I was allegedly working on proposals to investigate malaria drug usage, my heart was with the emergency managers. The idea that other storms were approaching the state and that I was sidelined was awful. However, after trading emails with a colleague in NDMS, I was soon offered an assignment. I had been a member of FL-3 DMAT for many years, but had never deployed since every time FL-3 deployed, I was already busy with my job as a State Emergency Manager. Because I was no longer working for the State of Florida, I was now available for deployments with NDMS. Most NDMS deployments, however, are acute medical missions and, as a public health and

emergency management specialist, I did not match most NDMS mission profiles. Yet, there was one type of NDMS assignment that I was well qualified to perform – emergency coordination.

As with previous storms entering the Gulf Basin, it was difficult to determine where Hurricane Gustav would make landfall. In order to prepare for deployments, NDMS decided to stage several DMATs and strike teams in Tallahassee FL, and establish an Incident Response Coordination Team (IRCT) at the DOH Headquarters. The purpose of the IRCT was to assume region wide control and coordination for NDMS assets deployed within FEMA Region IV. Tradition requires that FEMA regions be labeled with Roman, rather than Arabic, numerals. Region IV contains the majority of the Southeast United States while Region VI picks up west of Mississippi. Conceptually, the IRCT was similar to its predecessors, known as the Mission Support Unit and the Mission Support Team (MST), in that the IRCT was there to coordinate and support teams in the field. However, the IRCT was larger, carried more authority and followed a dedicated staffing plan rather than relied on team commanders who may need to leave so that they could command their own teams. Additionally, due to stresses between deployed DMATs and previous MSUs and MSTs, the IRCT team was selected and trained to avoid any sort of confrontation or the presentation of authoritarian attitude towards the DMATs. Although the IRCT was initially activated in response to Hurricane Gustav, the same team also stayed in place for Hurricanes Hanna and Ike. At one point or another, Florida was in the projected path of all three storms (Figure 10-5). Much as in the previous year though, Florida was extremely lucky.

The IRCT operated out of the same large conference room that DOH traditionally used for extended ESF-8 operations. The room was already configured and equipped with DOH telephones, computers, printers and copiers. It was essentially “turn key.” Later, when DOH needed the room back for its own response efforts, the Department setup a small warehouse in the same manner for the IRCT and used the facility setup as a Continuity of Operations (COOP) exercise. Despite the fact that I had left the Department, I was enormously proud of the support that DOH gave to NDMS. Although it might have paid dividends for DOH if the storms had actually struck the state, I doubt that any other Health Department in the nation would have provided that much support so quickly.

The first task of the IRCT was to get the staged teams ready for deployment. Since the storms track was continually changing, it was not known where the teams would need to go, but having the teams in Tallahassee meant that they would probably be closer than their home bases were. Another reason for staging had to do with the logistical configurations of the teams. When DHS took over control of NDMS in 2002, they dramatically increased the amount of equipment that each team possessed as well as purchased large trucks for the teams. The trucks and equipment were then housed in warehouses under each team’s control. When the DMATs were transferred back to DHHS after Hurricane Katrina, DHHS simply could not support the expanded cache that each team had acquired, along with that cache’s transportation and storage requirements. As numerous DMAT warehouses across the country went dark, or were repossessed, due to lack of payment from DHHS, the agency realized that it needed another architecture for supplying teams. The caches and equipment were revoked

from most teams and centralized in regional warehouses. For example, the equipment from Florida's DMATs was consolidated in St. Petersburg and Orlando. The new concept involved separately dispatching a team from its home base and a cache, any cache, from the network of regional warehouses. The team and the cache would be paired up in a staging location prior to deployment to their operational assignment. Unfortunately, not all caches were properly maintained while in the original team's custody and were frequently not maintained or updated once the cache had moved to the regional warehouses.

I was personally involved in the cache maintenance process in St. Petersburg. Each cache consists of dozens of boxes containing medical supplies, equipment, tents, camping gear and communications. Each box in every cache must be inventoried and inspected. For example, a team of ten of us took one week to completely inventory the three caches kept in St. Petersburg. Every medical item must be examined for damage and expiration dates. If an item is expired, or will expire within a certain window of time, then the item must be discarded. Of course, many medical supplies will not actually break down anywhere near the indicated expiration date. Unfortunately, thousands of dollars of perfectly good supplies in each cache are thrown away. Humorously, each cache also seems to contain a selection of supplies that probably date from the Korean War. Since these venerable supplies have no expiration dates stamped on them, they technically are not considered to expire and are therefore recycled back into the cache while much newer and better packaged items with expiration dates are discarded. When each cache arrived in Tallahassee to be mated up with a team for Gustav, it was discovered that the caches were woefully incomplete. The IRCT Logistics Chief worked

a series of 18 hour days, first alone and later with assistance, to try to inventory the caches and bring them up to standard. Our status board showed each team and its condition. One by one, the teams slowly became deployable as Gustav swept past Region IV and into Louisiana. Many of the logistical issues that we experienced related to the fact that most teams no longer maintained or traveled with their own caches. However, a few teams did still control their caches. For example, DMAT SC-1 maintained custody of its own cache much as FL-3 did. Yet, SC-1 was ordered to report to Tallahassee without its cache since it would be paired up with a cache of NDMS's choosing. Once SC-1 arrived, we realized that we were short one team cache and the closest available cache to Tallahassee was back in SC-1's warehouse in South Carolina. As a result, some of SC-1's personnel, who had just arrived, were sent back home to pick up their team cache and drive it to Tallahassee. Naturally, in transit, one of the team trucks broke down and the personnel spent the night in Jacksonville waiting for repairs.

Aside from the traditional team caches, NDMS had brought out new types of caches which had never been assigned to teams. For example, the Logistics Chief had to coordinate the arrival of Pharmaceutical Caches, which often included expired products as well as the new Electronic Medical Records Caches which few teams were trained to use. Aside from the DMATs, the IRCT oversaw a number of Strike Teams. As discussed previously, Strike Teams are smaller groups of NDMS personnel primarily intended to augment facilities when an entire DMAT would be overkill. Although each Strike Team required far fewer supplies than a complete DMAT, there were insufficient

Strike Team kits available so the kits were assembled and shipped to Tallahassee as soon as they were created.

Although the IRCT was meant to coordinate operational resources, all of our resources remained staged. This lead to an interesting problem with ICS terminology. Since the operational mission of our IRCT was to make teams ready to deploy, a mission that was traditionally considered a part of logistics, the person serving as our Logistics Chief should have been attached to the Operational Section and the Logistics Section should have exclusively served the logistical needs of the IRCT itself. However, people become accustomed to their titles and where their role fits. Even when the ICS system itself is morphed in new ways the people may not elastically follow the formal, mechanistic, structure. Since we had no deployed assets, the Operations Section turned into a group that planned deployment strategies for the many landfall possibilities.

As with most incidents, the Planning Section, where I was based, was consumed with paperwork. Specifically, we were charged with creating an Incident Action Plan (IAP) and a Situation Report (SitRep). However, our planning documents were required by two distinct audiences: We created SitReps and IAPs for our NDMS superiors in Washington and Atlanta as well as for the local IRCT leadership and DMAT personnel. These audiences required different formats. Specifically, NDMS and DHHS Headquarters wanted us to use a new Internet based reporting system while our local personnel wanted a paper IAP and SitRep based on traditional ICS forms. Additionally, we were required to produce sets of documents for each storm, which at our peak of operations simultaneously included Gustav, Hanna and Ike.

There was also debate about what was to be included in the documents. The IRCT Operations Chief, much like the proverbial college professor, would weigh a document in his hand and joke that it was not heavy enough. The Planning Section Chief, a firefighter and experienced DMAT member, took the Operations Chief's comments seriously. Rather than ask each team to write its own reports and include them with an over-all report from the IRCT, the Planning Chief endeavored to include as many details about each team as possible in the IRCT's reports. These reports soon grew to an unmanageable size and consumed over ten hours per day to create and update. Meanwhile, the newly introduced Internet based reporting system still had teething problems. An unofficial network of planning personnel across NDMS sprang up to assist each other with system solutions, which were themselves broken when the original problem was fixed by the programmers without notice to the users. The electronic system did not allow the linkage of any data within the reports. As a result, all three storms required re-entering the same data, by hand, into three separate sets of documents. Unfortunately, once the Internet based reports were finished, few people read them. Since the Internet system was new, and buggy, many managers preferred to simply ask questions rather than read the reports.

Much intelligence sharing, as well as mission command and control, was not conducted through formal channels. Rather, information was shared through a blizzard of emails sent between specific people's Blackberry devices. This meant that the people occupying a particular role frequently did not receive information because the information flowed within a specific clique of officers. If one of those officers changed positions, they still received all of their old position's mail in addition to any messages

related to the new position. Because many of the NDMS personnel were deployed away from their desktop machines, they had no easy way to delete old messages from their email accounts which soon exceeded their allowed quotas and were shut down. When we attempted to transition the IRCT from personal email accounts to position-oriented email accounts, a standard practice in EOCs, it took five days and the personal approval of the Director of the DHHS's Office of Preparedness and Emergency Operations.

It was not unusual for IRCT members to receive, via email, two separate requests for the same information from both Atlanta and Washington. Although the requests were for the same information, the requests usually demanded that the data be formatted in different ways. As a result, IRCT members spent hours recoding information to satisfy the uncoordinated requests. Moreover, the information requested by Atlanta and Washington was often better provided by personnel actually in Washington or Atlanta. For example, although the IRCT's assets were staged, we were technically in control of a unit of Public Service Officers who were deployed in Mississippi. Unfortunately, we never rostered, staged or equipped the team in Mississippi and the officers in Mississippi were not told that they were to report to our IRCT in Tallahassee. Due to the confusion, compounded by poor communication infrastructure, the IRCT was unable to communicate with the team – it was essentially operating in a vacuum. Since the IRCT concept was new, nobody internal or external to the team had a firm understanding of the IRCT's responsibilities. For example, Atlanta would demand a series of status reports, which were answered in the unread SitRep. When we initially tried to answer the questions, we were told that our answers were "unacceptable." Ultimately, we

discovered that our answers were not wrong, they were delivered at the wrong time. However, we were never told why the information was needed nor when it was needed. After a cascade of useless emails, the solution was to pick up the telephone and call someone for clarification. Despite the fact that verbal communication was the standard for field personnel, it appeared to have been unusual for the bureaucrats pressed into service at the Atlanta and Washington command centers.

Because the small Planning Section was consumed with document creation and answering questions from above, we were unable to collect the tactically relevant information needed by the IRCT Operations Section, which was actually conducting planning. As a result, personnel from the IRCT Operations, Logistics and Administration sections were spending time on functions that would have normally been carried out by the Planning Section. Since this tactical information did not pass through Planning. We had to make extra effort to capture it for our reports.

There were many lessons learned from the IRCT deployment to Tallahassee. NDMS gained experience with the benefits and shortfalls of a new logistics architecture. We also learned how to integrate a new level of command and control into a system. The IRCT was both a hierarchical extension of Atlanta and Washington and also a central network hub between the deployed DMATs. We experimented with conveying information and commands through a variety of communications systems. We also re-learned the lesson that communication technology is no substitute for actually talking with each other.

As ESF-8 operatives have continually discovered, while it is important to utilize standard systems like ICS, it is equally important to modify these flexible systems to

accomplish the tasks at hand. For example, an IAP and a SitRep should be judged by how useful it is, rather than its size or how slavishly it conforms to a format typically used by a completely different discipline. Lastly, as a unit that was literally “in the middle”, the IRCT realized that it is common goals and objectives that bind an organization together, no matter how large or dispersed.

The preceding description makes the IRCT sound like a center of confusion, but in fact, most people involved had experienced similar problems before and were aware of the problems that we all faced. Good will on all sides allowed us to accomplish most of the tasks assigned to the IRCT. Briefly, it appeared that we would send an operational mission to the Florida Keys in response to Hurricane Ike, but that storm swirled past Florida with minimal impact and our assembled teams were either deactivated or deployed on to Texas and Louisiana where Ike eventually made landfall. It is true that NDMS may sometimes appear to “make things up as it goes along”, however, it must be remembered that NDMS is largely made of volunteer teams and personnel who are asked to step away from their daily jobs to conduct stressful missions of national importance.

Although some experiences may be exasperating, there are few sights more welcome to a field ESF-8 operative than a cluster of beige tents with the NDMS initials painted across the roofs. NDMS supplies the personnel and equipment to keep the health system running in the worst of situations. Each storm, NDMS treats thousands of citizens in their time of greatest need. Whether I was employed by the State of Florida or directly by NDMS, I always knew that DMATs are composed of a special type of

person. I am proud that they are not only passionate professionals, I am proud that they are my colleagues and my friends.

Figure 10-1. Hurricane Dennis' Track [Generated with the National Oceanic and Atmospheric Administration Historic Hurricane Track tool.]

Figure 10-2. Hurricane Rita's Track [Generated with the National Oceanic and Atmospheric Administration Historic Hurricane Track tool.]

Figure 10-3. Hurricane Wilma's Track [Generated with the National Oceanic and Atmospheric Administration Historic Hurricane Track tool.]

Figure 10-4. Tropical Storm Fay's Track [Generated with the National Oceanic and Atmospheric Administration Historic Hurricane Track tool.]

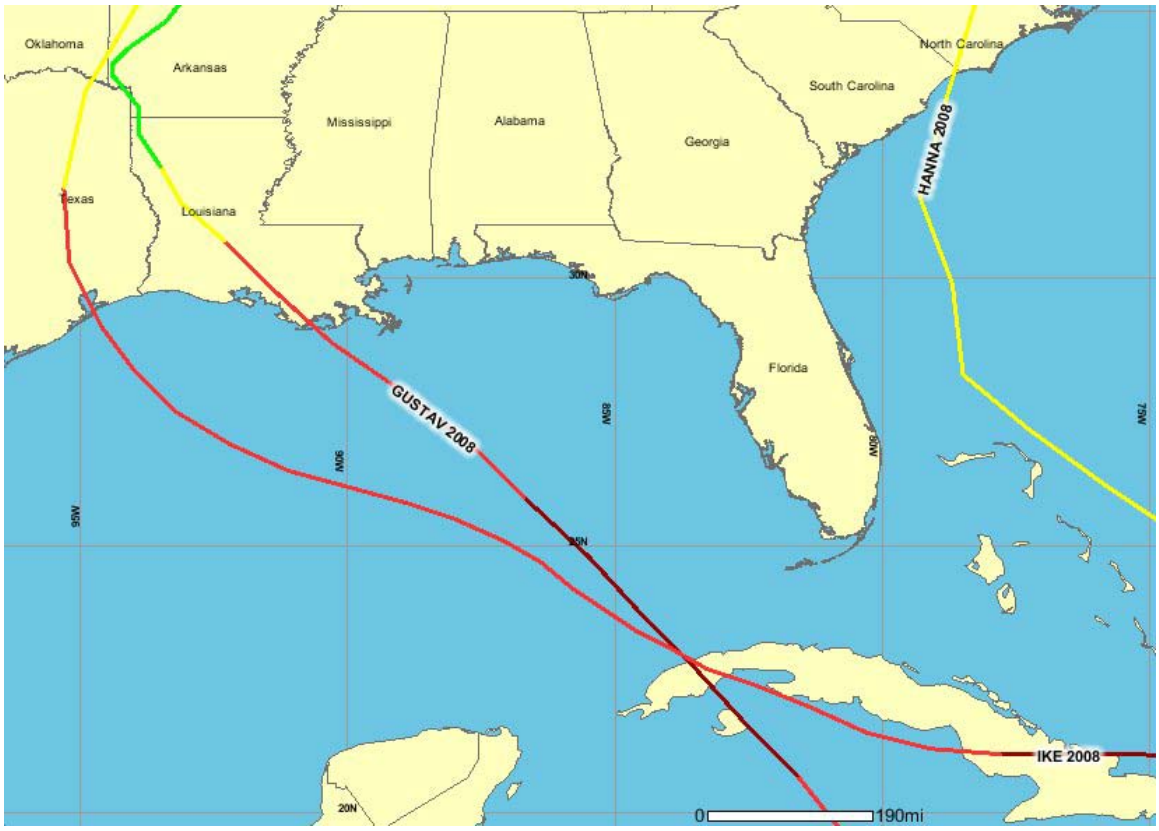

Figure 10-5. Tracks of Hurricanes Gustav, Hanna and Ike [Generated with the National Oceanic and Atmospheric Administration Historic Hurricane Track tool.]

CHAPTER 11
BIOTERRORISM RESPONSE

During his time as a RERA, Alistair Scott has responded to over thirty “white powder” calls. “White powder”, also known as a “suspicious powder” is a euphemism for anthrax and refers to a letter, package or other type of container that may contain anthrax spores much as the letters during the 2001 anthrax attacks did. Even before 2001, anthrax spread through the mail was a commonly voiced concern. The fact that, traditionally, none of the suspicious packages or letters actually did contain anthrax is probably one of the reasons why the method of delivery was taken less seriously when the threatening letters of 2001 actually turned out to be legitimate.

The combination of genuine anthrax contaminated letters during 2001 along with the tremendous numbers of hoax threats as well as innocent, but suspicious looking, letters leaves first responders in a precarious position. From a technical aspect the problem is the ease of cross contamination with anthrax and the fact that there are no reliable anthrax testing tools for field use. Psychologically, anthrax and other bioterrorism agents are exotic and unfamiliar to most emergency personnel. Organizationally, response to white powders is further complicated by the variety of protocols and arrangements that local agencies have developed for response. Since white powder calls involve so many different areas of expertise, the specific role of the different responding agencies is confusing.

A Tale of Two Incidents

One of Scott’s white powder calls in 2008 went like clockwork. A white powder letter, addressed to the Governor, arrived at a Florida Government mail center and was opened by a Florida Department of Law Enforcement (FDLE) Agent. Under State policy,

all mail sent to the Governor is opened by an FDLE Agent who is trained to evaluate and deal with threatening letters. When the agent recognized the threatening letter and realized that powder was in the envelope, he acted quickly. The building's ventilation system was shut down, unnecessary personnel were evacuated and he called his FDLE supervisors and the Tallahassee Fire & Rescue Department (TFR). When TFR arrived, the agent conferred with the HazMat chief over the telephone and suggested that he, the agent, place the envelope in a sealable plastic bag, a supply of which he kept on hand, and then take a shower within the facility. The TFR Chief concurred. The agent bagged the envelope, showered and changed clothes. The HazMat team made entry, collected the sealed bag and cleaned up the table. By the time that the HazMat entry team and the FDLE Agent had left the building, Scott arrived on scene. The HazMat team placed the sealed bag inside of another bag, bleached that bag, placed it in a sealed metal can and then bleached the can. Scott then took the can to the DOH laboratory in Jacksonville where a Polymerase Chain Reaction (PCR) test was performed. The powder turned out to be negative for the standard panel of biological agents. The response was actually better than textbook.

A mere two weeks later, almost the same situation occurred but with a very different response. The same FDLE Agent was on duty, opening mail, when a threatening letter with a white powder arrived in the mail. The agent evacuated the area, shut off the ventilation and, once again, called his supervisors and TFR. This time, however, the threat conditions were different. A number of white powder letters had been received by governors across the nation. Although none of these letters had been thoroughly analyzed or appeared positive for anthrax, the fact that this letter was part of

a larger event changed FDLE's approach. The FDLE Agent was asked to remain in the room and not touch or bag the letter. He was also told not to shower or change clothes.

When TFR arrived, the same HazMat team that responded two weeks before made entry. Because of FDLE's increased concern about the letter, the HazMat team decided to use immunoassay tests, discussed later, to attempt to categorize the powder. Due to the fact that immunoassays suffer from reliability problems, the team decided to use three separate, allegedly identical, assays for each bioagent under consideration. One of the immunoassays reported negative for anthrax but two of them reported the presence of anthrax in the powder. The HazMat entry team was ordered to leave the envelope, the powder and the FDLE Agent and depart the building. With the possibility of a *bone fide* WMD agent linked to terroristic threats, Federal Statute required that FDLE surrender control of the scene to the Federal Bureau of Investigation (FBI). Unfortunately, both Florida-based FBI agents who were considered appropriate to manage the incident scene were in New Mexico attending a course. Once the FBI agents were located, they elected to try to run the incident over the telephone.

It was decided that, since the matter was a criminal matter involving a potential WMD agent, a second entry team composed of FDLE evidence collection specialists would enter the building and bag the letter. Although the TFR team was technically and legally capable of collecting the letter, FDLE preferred for a law enforcement team to perform the task. Unlike TFR, which maintains HazMat teams ready to deploy with short notice, the FDLE team was composed of personnel who have other day-to-day jobs. As a result, the arrival of the FDLE team was delayed. Eventually, it was decided to have mercy on the FDLE Agent who was stuck inside the building. The agent was asked to

leave the building and go through a thorough decontamination process in the parking lot. After the agent was decontaminated, the EMS personnel decided to quarantine the agent in the back of a very expensive ambulance and require anyone who had contact with him to wear a powered air purifying respirator (PAPR) and Tyvek coveralls.

In addition to a delay in their arrival, the FDLE team was unpracticed at suiting up to make entry into HazMat scenes. The evidence team's preparations took longer than expected and were further delayed when one team member required medical attention after he fell off of a stool while pulling on his boots. The entry team eventually did collect the letter and packaged it up, exactly as the TFR HazMat team had done two weeks previously. Alister Scott then took custody of the sealed can. Although Scott routinely drove white powder samples to the Jacksonville laboratory, on this occasion, DOH and FDLE decided that he would have an FDLE escort. Legally, the escort was unnecessary for chain of custody purposes because Scott was a DOH official. Nor was the escort necessary to help Alistair rapidly drive through traffic since Scott's vehicle was equipped with lights and sirens. Finally, nobody seriously thought that a terrorist or miscreant would interfere with Alistair's trip to the lab. Rather, DOH and FDLE were concerned that if Scott had a traffic accident while carrying a triply contained envelop of potential anthrax, somebody should follow him and warn any rescue units not to approach the vehicle without wearing protective HazMat suits.

While the sample was *en route* to Jacksonville, the entry personnel, the EMS personnel and the FDLE Agent were sent to Tallahassee Memorial Hospital. Despite the fact that the entry team had been decontaminated and they, as well as the EMS team, were wearing protective clothing at the incident scene they requested

prescriptions for antibiotic prophylaxis. However, the emergency room director denied their prescriptions until definitive results from the laboratory were available. Fortunately, the PCR results were rapidly announced. As Alistair Scott arrived at his home, about three hours after dropping off the sample, the laboratory called him and reported the results as negative for biological agents of concern. The only difficulty at the laboratory was that so much sample had been wasted on scene by the field tests that the laboratory had trouble scraping enough powder together for the “real test.” Alistair proceeded to call back the myriad of State and Federal agencies that had bombarded him with calls earlier and told them the good news. Subsequent tests on the sample, using classic microbiological techniques, confirmed the PCR results. Simultaneously, across the nation, public health laboratories reached the same conclusion: All of the threatening letters sent out to governors that week were hoaxes.

Both incidents could be considered successful because nobody was hurt. Of course, that had more to do with the lack of bioagent than the specific activities of the response personnel. However, the real question is why were the two responses different in terms of what the personnel did? After all, each agency would say that what they do at an incident scene is based on logic. Each agency would say that they base their responses on standard protocols. Each agency would say that they use NIMS to coordinate their activities. Yet, as seen in Table 11-1, the two responses were different.

Steps 1 through 4 are logical and clear cut, they are also the same between both responses. It is actually surprising how many times these particular steps are incorrectly implemented at other white powder calls. For example, it is not unusual for the suspicious letter to be picked up and moved from location to location within the building,

spreading contamination and exposing additional people. Steps 5 and 6 are particularly innovative. Few facilities or mail openers would have the foresight to package the sample and decontaminate themselves. The fact that the letter opener is a trained FDLE Agent makes the situation even better because he is able to testify credibly in court about the letter and the technique he used to package it. The fact that the FDLE Agent was not allowed to conduct steps 5 and 6 during the second incident was unfortunate. Allowing the FDLE Agent to perform those steps would have sped up the entire letter collection process and improved his safety because it would have allowed him to leave the proximity of the envelope and remove any contamination faster. Despite the fact that the FDLE man packaged the letter during the first incident, it was still logical for the TFR HazMat team to make entry. The HazMat team would ensure that the letter was collected correctly and could evaluate the agent and the incident scene. Additionally, the HazMat team was better equipped to clean up the scene and escort the agent and package through the external decontamination process if necessary.

Step 8 is where the two incidents start to differ. FDLE should be applauded for recognizing that this suspicious letter was part of a pattern – namely a wave of letters sent to governors across the nation. However, just because a letter is an example of a pattern does not mean that the pattern or letter is any more credible or threatening than a lone manifestation. In retrospect, none of the letters sent in that particular wave contained anthrax. Performing field analysis on a biological agent, as was conducted in Step 8, is the most technically contentious step performed. As will be discussed, field analysis can be complicated and is frequently unreliable. In fact, the unreliable field

tests were the direct cause of subsequent inefficiency and panic. It is true that, at the time the second letter was discovered, nobody knew the nature of the suspicious powder it contained. However, there was nothing about the letter that should have lead the responders to behave differently than they did during the first incident. If anything, the fact that the powder was actually colored white should have told somebody something.

Allowing the FDLE Agent to exit the scene and go through the decontamination process, as performed at the first incident (Step 9), is far more humane and logical than forcing the agent to stay behind. Decontaminating the HazMat team is a sensible step. When the immunoassay field tests came back positive for anthrax, the FBI was required by law to lead the incident and send an on-scene commander. Unfortunately, when there was no available on-scene commander, the Bureau attempted to manage the incident by telephone. Some FBI agents would have weighed the known information, including the quality of the tests, and simply delegated control of the scene to the on-scene State personnel, but the telephonic arrangement slowed decision making at the scene. In some cases, arrangements such as this are performed to allow agencies to protect their turf. In other cases, by allowing another agency to maintain the responsibility for a scene, despite the awkwardness, it allows other agencies to shield themselves from responsibilities. However, in most cases, these sorts of arrangements are devised because everyone involved is genuinely trying to accomplish the mission in the correct manner but the realities of the situation make the implementation of preconceived plans difficult.

Although it may seem sensible for a special evidence collection team to package the threat letter, it was not. The mail room that contained the envelope was not extraordinary in any way. All of the forensic information available was contained in the letter itself. For example, there was no need to dust for fingerprints, photograph blood splatters, measure bullet holes in walls, document where empty cartridge cases fell or try to find the suspect's DNA in the room. If the HazMat team would have collected the letter according to their standard protocol, everything about the letter would have been preserved. Although the HazMat team is perfectly capable, from a legal and technical standpoint, of collecting the letter, the lost opportunity was not allowing the FDLE Agent who opened the letter to simply package the letter as he did before. The use of the evidence team significantly delayed the response process, confused the scene and added no value. Moreover, conducting two entries potentially exposed additional responders and increased the potential for contamination.

In addition to failing to use his time and abilities, the second incident abused the FDLE Agent in other ways. As mentioned previously, Step 13 should have occurred far sooner – as it did during the first incident. The quarantine of the agent (Step 14) was completely unnecessary. If the agent had been allowed to shower and change inside of the facility, and then again at the decontamination line, he should have had no spores on his body with which to infect anyone else. If responders were genuinely concerned that the agent carried spores, why quarantine him in an incredibly expensive and valuable ambulance? Since the agent was wearing gloves and a mask while opening mail, it was, again, unlikely that he was directly contaminated. Although, the decision to make the agent sit around for hours in the same room as the opened envelope would

have added to his exposure risk enormously if the letter had actually contained anthrax. From a communicable disease standpoint, anthrax does not spread directly from person to person and, even if anthrax was communicable, there was insufficient time for the disease to incubate while the FDLE Agent was on-scene. If the agent had been properly decontaminated, the he posed no risk to responders. Not allowing him to shower and rapidly exit the scene endangered him and also potentially made him a greater contamination risk since he would have only gone through a single wash and had more time to pick up spores. Quarantining the agent in an ambulance was simply foolish.

The final transportation step to the laboratory also differed between the incidents. Normally, emergency responders will choose to use lights and sirens only during time, and potentially life, critical situations or when the extra visibility is needed for responder safety. In general, RERAs are in agreement that transporting a sample to the laboratory along the interstate for two hours is not the kind of situation that would require the use of lights and sirens. Furthermore, the use of an escort was completely unnecessary. Even if Scott had experienced an accident *en route* to the laboratory, he was transporting an extremely small amount of sample, contained within two sealed plastic bags which were, in turn, contained within a sealed steel can. In the unlikely case that the sample was, in fact, anthrax. Scott represented little danger to the public or responders.

When examining the response to the two essentially identical situations, the major differences were the decision to use field tests and the increased involvement of law enforcement personnel. I will now discuss each of these topics in turn.

The Joy of Field Detectors

When dealing with potentially deadly substances, the rapid and accurate identification of those substances could literally mean the difference between life and death. Although response personnel may be equipped with a wide range of detection and analysis equipment, the technology is limited. Despite attempts to build them, there are no perfect instruments. In some cases, politicians and the general public are surprised by these limitations. After all, Mr. Spock, as depicted on Star Trek, has used his “tricorder” to analyze substances from a safe distance for over 40 years.

Each type of potentially dangerous substance: radioactive materials, chemicals and biological agents presents a specific set of analysis challenges and opportunities. Radiation meters are, in many ways, the most sensitive and reliable instruments. They fall into three broad classes: meters that tell you if an area has a large amount of instantaneous radiation, meters that can detect very small or weak radioactive sources and meters that record the extent of cumulative radiation exposure. As discussed earlier, radiation occurs in different forms and a given instrument may be configured to detect certain types of radiation. Furthermore, some radiation instruments can be difficult to use without practice. For example, on a survey meter with an analog display, it is possible to incorrectly read a radiation value by an order of magnitude. As another example, if a survey meter designed to look for small sources is exposed to a powerful radiation field, it may be overwhelmed and indicate that there is no radiation when, in fact, the amount of radiation may be lethal.

Chemical analysis tools come in an even broader assortment. Some tools are miniature chemistry sets that guide the user through a chain of simple reactive tests to categorize the substance. Other detectors consist of special paper that changes color.

Other, more sophisticated, detectors rely on membranes to allow particular classes of chemicals to reach electronic sensors. Other detectors, such as the ICAM or APD-2000, use a radioactive source to ionize chemicals and then measure the time it takes for the molecules to move between electronic detectors. Flame spectrometers burn a vapor and then analyze the color of the resultant flame. Infrared spectrometers bombard a substance with particular wavelengths of light and then compare the reflected spectrum against a database of known spectra.

Despite their impressive sophistication, each chemical detector has strengths and weaknesses. For example, some detectors are designed for battlefield use and are meant to detect chemical weapons but are easily fooled by common, non-threatening, chemicals. Others are excellent at identifying particular structural elements of a molecule but are unable to distinguish specific compounds. Others only work if the chemical sample is pure. During an incident at Tampa International Airport, one of the baggage claim areas was closed because a “SAW MiniCAD” detector indicated the presence of a G class nerve agent after the vapors from a piece of luggage affected workers. The spilled liquid was, in fact, a powerful topical neck and shoulder balm.

Although field radiation and chemical detectors have clear weaknesses, they represent a more mature technology that that of field biological detectors. Furthermore, the variety of instruments allows a well equipped HazMat team to compare results from different technologies and “triangulate” a solution. A typical HazMat team may have only one, or two, tests for biological agents and the most commonly used tools are primitive.

The simplest biological agent test consists of two tubes, one to measure the Ph of the sample and the other to detect protein in the sample. If the sample is highly acidic or

alkaline, or if the sample has no protein, then the substance is not a biological agent. At this point, the sample can be safely tested on a machine such as an infrared spectrometer to try to figure out what it actually is. The problem with the simple protein test is that it does not actually identify the agent, rather it tells you if the sample should be sent to a laboratory for further biological testing. For example, a protein kit will score "positive" on a sample if it is anthrax, or if it is a dietary protein drink powder.

The protein test is an ideal way to determine what samples should be referred on to a public health laboratory for more sophisticated testing. The traditional type of laboratory testing involves taking a sample and incubating the sample on a growth plate. If the sample grows, it can be examined visually for suspicious characteristics, such as the shape of colony formation. The sample can also be stained, checked for surface proteins, checked for interactions with specialized viruses or have its waste products examined. These "classic microbiology" tests are considered extremely accurate and represent the gold standard for analysis. Unfortunately, the complete suite of microbiology testing can take up to two days to perform.

A faster laboratory approach is the Polymerase Chain Reaction (PCR). The PCR test involves the search for distinctive sequences of DNA within a sample that will indicate anthrax, or another organism of interest. The actual PCR test, itself, can often be conducted in less than an hour. However, before the test can be performed, the sample must be cleaned and the DNA must be broken out of the organism. As a result, PCR tests can occasionally take several hours to perform. Nonetheless, PCR has proven to be every bit as reliable a classic microbiology and takes a fraction of the time. Therefore, PCR has become the most common laboratory diagnostic for BT agents

used in Florida. Yet, PCR can still give unsatisfying results. For example, since PCR looks for specific DNA sequences, the test can easily determine if a sample is, or is not, a particular organism but if the PCR test is negative, PCR does not answer the next obvious question: “If the sample is not a BT agent, what is it?” As a result, PCR is still paired with traditional microbiology as well as chemical technologies such as infrared spectroscopy. Modern PCR machines are quite compact and can be used in the field, however, they are very expensive and still require preparation work that is best performed in a laboratory. Furthermore, in order to detect the appropriate DNA sequences, the machines must be used with specific reagents which are not available commercially. I have no doubt that the future of field biological testing will involve portable “one button” machines that will automatically prepare the sample and test it with PCR technology. Until that day however, PCR remains out of reach for virtually all HazMat teams.

Aside from the protein tests, the most common type of rapid field test available to HazMat responders involves an immunoassay. The immunoassay is the same type of technology used in home pregnancy tests. When the sample is introduced to the assay, it is mixed with free-floating antibodies that have been attached to a visible marker. As the sample, anthrax spores for example, migrates across a piece of filter paper, it will encounter a fixed “indicator line” which consists of a row of antibodies that are anchored to the test strip. If all goes well, the anthrax spore, or other agent, will adhere to the indicator line and will also be attached to the marked antibodies previously encountered. A second “verification line” should also adhere to unattached, marked, free-floating antibodies. Much as in the pregnancy test, a positive result would consist of two visible

parallel lines across the assay's strip. Although the precise technology of each test differs, the general idea is the same. Despite the fact that this technology works reliably in pregnancy tests, and is the same basic technology used in a myriad of laboratory tests, field use of immunoassays has generated decidedly mixed results. For example, in 2002, over a thousand World Bank employees were sent home for two days and over a hundred were prescribed antibiotics after a single field immunoassay test, incorrectly, indicated the presence of anthrax in a mail room. A second immunoassay test of the same kind indicated a negative for anthrax. A follow-up series of tests performed in a laboratory confirmed that there was no anthrax. The above mentioned incident in Tallahassee where two assays indicated anthrax, while a third did not, is typical. Although immunoassays are commonly sold to HazMat teams, a joint FBI-CDC advisory issued in 2001 specifically warns first response agencies from using the tests. Testing conducted at the USF Center for Biological Defense, where I was employed during 2001 and 2002, also found immunoassay performance to be seriously lacking. In addition to questionable results, immunoassays also require fairly large amounts of sample, considerably more sample than would constitute a lethal dose in the case of anthrax. Furthermore, the sample must be fairly clean and pure. A common description of this type of sample, borrowed from liquor, is that the sample should be "neat."

The poor performance of field immunoassay tests remains controversial. Several manufacturers complained that the precise test methodology used in the 2001 test was not revealed. Others mentioned that testers may not have followed the directions precisely. One test manufacturer told the Center for Biological Defense that an assay should only be tested with anthrax prepared specifically according to the manufacturer's

recipe. Aside from the companies that make the tests, the Federal Government is not always in agreement with itself. For example, a prominent WMD class sponsored by the U.S. Army teaches civilian first responders how to use assays, under controlled conditions, and considers them reliable. Moreover, numerous HazMat teams across the country believe in immunoassays. Some HazMat Chiefs have gone so far as to admit that the tests are unreliable but believe that any results, even “imperfect” ones, are better than knowing nothing. Naturally, many public health professionals disagree.

Agencies and Protocols

The psychological and cultural nature of agencies and personnel directly response activities. Therefore, it is useful to look briefly at this aspect, particularly when they influence an agency’s behavior in lieu of technical standards. Fire personnel are, by their nature, community and action oriented. HazMat teams want results as quickly as possible and waiting for hours, or even days, for a result from a laboratory is not acceptable to them. I understand this dilemma. Unlike chemical incidents, symptoms are not a reliable guide to a biological exposure. Biological exposures also do not provide physical evidence such as: hissing pipes, flames, green clouds or immediate medical trauma. Sometimes intelligence of the situation or target can be helpful. For example, is the victim high profile or controversial? Is the day or location of the incident significant?

Yet, Ottilie Lundgren, the elderly victim of the Amerithrax attacks, was in no way significant or controversial. Lundgren was “collateral damage.” The fact also remains that, aside from Amerithrax, all anthrax letters, up to this time, have been hoaxes. In some cases, it is easy to determine from where a letter came. For example, it is not unusual for judges or politicians to get white powder letters from prison inmates.

Typically, these letters are taken very seriously because of the nature of the victims, yet, not one has been positive for anthrax and no inmates are known to have had bioweapons laboratories concealed beneath their prison bunks. In other cases, a determination can be made by looking at the substance in context with the environment. For example, is the suspicious powder located in a bathroom where baby powder or cosmetics might be used? Is the suspicious powder on the outside of a doughnut box or the bottom of a paper shredder? Lastly, as mentioned before, most white powder calls do, in fact, involve powders that are colored white. Yet, anthrax is not white. Nor could it be white since, in order to make anthrax white, it would probably be bleached – which would kill the spores.

The on-scene personnel are faced with numerous options and very little information. In general, first responders are also believers in “Occam’s Razor” whereby the simplest scenario or explanation is probably the correct one. Yet, when it comes to terrorism, the possibility of unlikely situations becomes more probable. Because terrorists desire to slow response and hide their tracks, all manner of variations could plausibly occur. For example, one incident could serve as a distraction for another incident. A simple incident could serve as an opportunity for a terrorist to observe standard practice so that the next incident would be conducted differently. When it comes to this type of analysis, it was not unusual for students to ask me about the possibility that a criminal might combine anthrax spores with something innocuous to foil analysis. Although all of these things are possible, the responder must ultimately do the best that he or she can with the information available. Otherwise, it is easy to find

oneself standing in, what CIA counterintelligence officer James Jesus Angleton referred to as, a “Wilderness of Mirrors.”

Responders to a white powder incident are faced with extremely difficult technical decisions. Moreover, those decisions are watched very closely by panicked citizens and concerned agency heads and politicians. The cost of a wrong decision can be enormous. By the time that all of the information is collected and can be analyzed, the response process has often run away and cannot be returned to sanity. Due to the volatile nature of white powder calls, some agencies and jurisdictions have sought lower key response procedures. In many larger cities, a HazMat response is only initiated if a dispatched law enforcement officer feels that the threat is credible. Yet, this places tremendous pressure on that initial responding officer. In other cases, some companies and agencies work stealthily with responders.

For example, a large Federal agency housed in Hillsborough County had a number of disgruntled workers. Like high school students across the nation, the workers realized that if they claimed that there was a suspicious powder in the workplace, numerous fire trucks would show up and the office would be closed for the rest of the day. The agency began calling me to come investigate white powder calls alone. I could enter the building, reassure the direct “victim”, collect the sample and rapidly rule out a biological threat with a minimum of disruption to the agency. I was able to do this because I specialized in biological agent response and worked alone as a matter of course. I was also able to perform this way because the Department of Health had essentially no standard guidelines for how RERAs should handle suspicious powder calls – we were allowed to follow our own judgment. A lack of protocols was both

liberating and unnerving. After all, if I had been wrong, I could not have hidden behind my agency's written standard operating procedures.

However, lack of procedures is not terribly uncommon when it comes to white powder response. Although the technical issues of how to collect a sample, how to bag it and how to transport it are supposedly standardized across the State of Florida, issues such as the use of field tests and who is in charge of a particular incident is not always standardized. If there is an explicit or implied threat, then the FBI is in charge of the scene because the threat of using a WMD is considered a Federal crime. If there is no obvious threat, then fire & rescue personnel are usually in charge of the scene. In some cases, State or Local law enforcement agencies take command of a scene, particularly if the incident involves a government building or political figure. Regardless of who is in charge, entry to the scene is usually conducted by fire & rescue HazMat teams. Although, occasionally, other teams such as police or sheriff bomb teams or the State Department of Environmental Protection (DEP) may work the scene.

Despite the fact that at all levels of government public health agencies are regarded as the bioterrorism specialists, public health personnel are almost never in charge of a white powder incident. There are several reasons for this. Although bioterrorism is a responsibility of public health, few actual public health personnel know anything about it. Additionally, few public health personnel have the equipment or other skills necessary to make entry. Furthermore, public health personnel, culturally, are accustomed to advising others and reaching decisions through consensus rather than actually issuing commands. Lastly, there is the issue of arrival time. Police and fire agencies are built around the concept of rapid dispatch through a centralized

emergency system. Few public health agencies are connected to their local 911 systems and their personnel are not usually waiting to respond. Rather, most public health personnel are attending meetings and conducting inspections or investigations. Although some public health workers recognize their role as emergency responders, other than RERAs and the Bureau of Radiation Control, few consider themselves to be first response assets. Furthermore, the precise role played by Radiation Control and the RERAs will vary in each jurisdiction based upon that particular community's resources and relationships. As examples, Christopher Nazarene and Isaac Brown have a history of making entry in the Panhandle and Southeast Florida respectively. I occasionally made entries as a "lone wolf" in Tampa Bay, but more commonly, I assisted other agencies with advice. Alistair Scott and Laura Jackson never made entry and always served as advisors or transportation. This difference in each RERA's role reflects not only their technical skills and interests but also the fact that, in an organic networked environment, the RERAs must interface with a variety of mechanistic response hierarchies in many different ways.

In my own situation, I realized how reliant the RERAs are on personnel connections. When I started in the position, I was routinely notified about, and was involved with, white powder incidents around my region. As I began increasingly to work on state -wide projects and spent less time networking within my own region, the number of calls I received lessened. Obviously, as I spent more time away from my region, I became less known. Since RERAs are never dispatched automatically from 911 centers, we rely almost entirely upon personal relationships. In an organic organization, the network runs on both formal and informal relationships. It is, therefore,

in the best interests of a networked structure to encourage direct component relationships rather than try to constrain and channel them as many hierarchies do.

Despite the fact that it generally does not perform first response roles, Florida's DOH is very active in planning for bioterrorism and supporting operations relating to bioterrorism. Other parts of this document have detailed some of the programs that DOH conducts in the name of bioterrorism preparedness: exercises, the Strategic National Stockpile, CHEMPACK and outbreak investigations. However, there are many other BT related programs that are also the responsibility of PHP personnel.

Operation Vaccinate Florida

Due to reports and opinions describing "Smallpox as the next Anthrax", after October 2001, the Florida Department of Health received tremendous demand from first responders across the state for smallpox vaccinations. Unfortunately, CDC only maintained a small, and very old, supply of smallpox vaccine. Moreover, the vaccination accessories, such as the bifurcated needles required to administer the vaccine were in very limited supply. CDC began to investigate the quality of its vaccine and also began to determine, scientifically, how much vaccine was truly necessary to convey immunity. Once CDC released updated vaccination guidelines and acquired the needed accessories, they shipped small amounts of vaccine to each state and each state was then charged with vaccinating their first responder communities.

By the time of the vaccination campaign, more than a year had elapsed since the anthrax attacks of 2001. As a result, the responder community of Florida had lost its sense of urgency concerning smallpox vaccination. Additionally, as is the modern fashion, CDC issued comprehensive warnings about the dangers of the vaccine to both the recipient as well as anyone who came in contact with the recipient. Finally, reports

of rare, but frightening, side effects from the inoculation began to circulate. Predictably, the masses of responders who were clamoring for smallpox vaccination subsided to a mere trickle.

Florida's campaign, dubbed "Operation Vaccinate Florida" (OVF) was thereby divided into three stages. OVF I was targeted towards health care and public health professionals. OVF II was targeted towards fire, law enforcement and other responders, OVF III was meant to vaccinate certain members of the public who wanted the vaccine. Although OVF I had modest success, OVF II fell far short of its goals and OVF III was never implemented.

Because smallpox vaccination initially involved responders and was seen, exclusively, as an anti-terrorism effort, DOH combined forces with FDLE to organize and promote the campaign. It soon became clear that County DOH personnel wished to run OVF simply as another vaccination program. Tallahassee headquarters, under the influence of FDLE, saw things differently.

The allocation of vaccine for RDSTF Region-4 was not sent through the usual pharmacy shipment channels. Instead, the shoe box sized container was flown aboard a Fish & Wildlife Conservation Commission aircraft. When the airplane left Tallahassee, a DOH representative at the airport called me and gave me the tail number of the aircraft. This was done to help me recognize an imposter aircraft in case the legitimate plane was snatched from the air, "James Bond Style", by some sinister organization. The aircraft, complete with correct tail number, arrived in Tampa and was met by myself, the DOH Regional Coordinator and two armed FDLE Agents. The FDLE personnel took possession of the container and drove it to Pinellas CHD. The vaccine

was treated as both a vital tool against terrorism and, ironically, something incredibly dangerous. It was true that the smallpox vaccine was a live vaccine and could generate side effects, but, as discussed earlier, the vaccine was really just a considerably weakened strain of cowpox. Wherever the vaccine traveled within the region, it was accompanied by armed escort. When the vaccine bottles were emptied, they were not simply disposed of through the usual biohazard waste system. Instead, they were specially packaged and sent, without escort, to the Jacksonville Laboratory where they were sterilized with steam and then crushed – never to be recycled. Although the vaccine precautions were considered silly by many of us, at least we could not complain that the program was not taken seriously or not supported by FDLE.

Similar programs were organized by DOH for EMS agency supplies. For example, fire departments and law enforcement agencies received funding and supplies so that their personnel were equipped with updated, or new, personal protective equipment (PPE): protective clothing, gloves, masks, respirators, etc. EMS personnel, on the other hand, were not covered by the same grants. Rather, EMS agencies received PPE through a program administered by the Florida Department of Health's Bureau of EMS. In addition to PPE, DOH also oversaw a program to distribute thousands of Mark I nerve agent antidote kits to agencies throughout the state. Lastly, as befits a networked agency, DOH became involved as a partner in several other programs. Department of Health medical personnel screened the medical questionnaires of law enforcement officers across the state before they were issued PPE. Luke Falcon and Christopher Nazarene were both involved in training police and fire personnel about their newly

issued radiation dosimeters. For my part, I continued a schedule of WMD and ICS instruction for personnel in communities both large and small.

Table 11-1. Timelines for Two Similar Incidents

Step Sequence	First Incident	Second Incident
1	Secure building	Secure building
2	Evacuate Personnel	Evacuate Personnel
3	Notify FDLE	Notify FDLE
4	Notify TFR	Notify TFR
5	Package Envelope	
6	Shower & Change	
7	Entry of HazMat	Entry of HazMat
8		Run Field Tests
9	Exit and Decon of Agent	
10	Exit and Decon of HazMat	Exit and Decon of HazMat
11		Notify FBI
12		Rally Evidence Team
13		Exit and Decon of Agent
14		Quarantine of Agent
15		Entry of Evidence Team
16		Package Envelope
17	Seal Package	Seal Package
18	Transport Package to Lab	Transport Package to Lab

CHAPTER 12
THE STRATEGIC NATIONAL STOCKPILE

Background

Drugs and vaccines represent a cornerstone of modern disease control. In addition to preventing or curing disease in the individual, each resistant individual represents one less conduit for disease to spread to others. Theoretically at least, in the developed world most drugs are tightly regulated commodities which are prescribed by professionals to individual patients according to medical need. However, in the case of a massive disease outbreak, it would be necessary to dispense medications to a large proportion of the population as rapidly as possible. Additionally, the medications needed for outbreak control typically are not available in sufficient quantities to treat millions of people rapidly.

During the late 1990s, the CDC began to work towards a rapid drug dispensing architecture for use against naturally occurring outbreaks or terrorist use of biological agents. This program was called the National Pharmaceutical Stockpile but was subsequently renamed the Strategic National Stockpile (SNS). During years of evolution, the SNS program has grown from a fairly small office to an entire division which employs dozens of people, a contingent of dedicated Federal Marshals, an army of contractors, as well as numerous partners in government and private industry. Although drugs constitute a substantial part of the SNS, the system also serves as a delivery mechanism for a wide range of medical supplies and equipment.

Assets within the SNS are stored in three ways. Exotic items are located in special CDC maintained facilities. For example, smallpox and other vaccines are maintained in vaccine repositories. Other, more common, items are maintained in a system known as

Managed Inventory (MI). Many MI products are kept in government or contractor maintained warehouses. Other MI items are maintained by vendors. In the case of Vendor Managed Inventory (VMI) a vendor may have a contract to quickly produce supplies in an emergency. In other situations, the vendor maintains an excess quantity of supplies in a first-in first-out cache so that standard customer orders are shipped from the cache and the vendor's latest output is used to re-supply the cache. During an SNS activation, the cache could be used in its entirety.

The third SNS storage system is known as a "twelve hour push package" or simply a "push pack." A push pack consists of a large quantity of drugs and medical supplies prepackaged in airplane transportable containers. Each container (Figure 12-1) is organized in a specific manner and a push pack contains a best guess as to the types of supplies that might be needed for a wide variety of situations. Although each push pack may be slightly different, a typical push package would contain fifteen containers of breathing and airway supplies, 60 containers of IV drugs and supplies, wound care supplies, supplies for pediatrics and surgery as well as almost 40 containers worth of oral antibiotics. In total, a push package has over 130 containers and fills a wide body cargo aircraft such as a Boeing 767. If ground transported, a single push pack would require eight tractor-trailer trucks. Once delivered, a push pack will require upwards of 12,000 square feet to organize and unload. A single push pack contains enough antibiotics to prophylax about 300,000 people for ten days.

Simply put, the objective of SNS is to move drugs and supplies from a series of secret nationwide warehouses and dispense those medications to the general public within 48 hours of the decision to do so.

Clearly there is no way that a single agency could accomplish this mission. As with many emergency management concepts, the responsibility for the system is divided across tiers of government. The Federal Government maintains and delivers the assets to states. The state government typically allocates, transports and secures the material within their borders. The local government establishes and staffs locations for dispensing to the public and supports those locations with public information and security. At all three levels of government, equipment must be purchased, personnel trained and activities planned in advance.

Should it be fully activated, the SNS would be the single largest, most complicated and most expensive public health campaign in history. SNS is one of the highest priority domestic security programs in the nation and is also considered by most to be the flagship PHP program at state and local levels of government. Yet, despite its importance, SNS is frequently misunderstood. Some of the confusion around SNS arises due to its size and complexity, other confusion results from its continual evolution. The SNS system has remained a constant for Public Health Planners since before 2000, but few planners feel that they have a comprehensive understanding of the program, let alone how to implement it. Since every state in the country is different, as is every county within a state – SNS allows flexibility when planning. The remainder of this section will describe the State of Florida's SNS program – which I managed for two years.

An Example Scenario

Imagine that a terrorist organization has cultured *Bacillus anthraces* and has processed it so that it creates spores. Those spores have then been dried, milled and treated to create several pounds of ideal airborne biological weapon. The fine anthrax

spores, essentially a fluid, were then sprayed from a truck that has driven throughout the City of Miami.

Within hours, some of the spores have been captured by Project Biowatch environmental sensors placed in most major metropolitan areas. When a sensor's canister is retrieved and processed, the presence of the spores is detected and verified. This would lead to a "Biowatch Actionable Result" (BAR). The BAR would be discussed during a conference call between Federal and State public health, law enforcement and emergency management authorities. Due to the quantity of spores and the fact that numerous Biowatch sensors were involved, the group decides that an actual anthrax attack has occurred and the SNS should be activated to prophylax the citizens of Southeast Florida.

Southeast Florida contains over five million people spread across three populous counties (Miami-Dade, Broward, Palm Beach) and a fourth county with a smaller population (Monroe). Although Biowatch sensors in Ft. Lauderdale did not register anthrax, the major counties of Southeast Florida are so interconnected that citizens of neighboring counties could easily have been exposed in Miami, or spores could have contaminated people, vehicles and goods that travel between the counties. Additionally, there is the possibility that the Miami attack was simply the first phase of a larger attack. In addition to the core counties, DOH has decided to conduct an SNS campaign in the surrounding counties of Collier, Martin, Hendry and Glades. Each of these counties will begin the process of activating their SNS plans and establishing Points of Dispensing (PODs) to hand out disease preventing medications to their populations. Since many people travel to and from Miami, states and countries with scheduled air service to

Miami have been notified and DOH has instructed CHDs in non-impacted counties to open a clinic to distribute medications to people who have recently visited Miami. Lastly, the Florida Legislature is in session in Tallahassee and they have mandated that DOH prophylax all citizens of Leon County. These numbers are listed in Table 12-1.

The number of PODs activated per-county will depend on staffing and facility availability as well as the perceived desire of citizens to be prophylaxed. The total quantity of people needing treatment in Florida is roughly equivalent to nineteen SNS Push Packages, which exceeds the number available in the system. Additionally, CDC would never send all available push packages to one state in case the outbreak spreads. A more plausible approach would be to send about four push packages, enough for 1.2 million people's initial dose and then send the rest of the supplies through the MI system. Not only does MI constitute the vast majority of SNS assets, but it also simplifies operations since MI shipments would only contain products relevant to the operation.

For this scenario, let us assume that DOH will run 203 PODs across the state for two twelve hour shifts per day. Each POD shift would be staffed by about 40 people and this would require over 16,000 personnel statewide. The State would also activate a primary and a secondary Receipt, Stage, Store (RSS) facility which would add another 200 personnel to the roster. These numbers do not include traffic control, security, transportation drivers or people to supply food.

As a further artificiality, let us imagine that, for this scenario, no anthrax spores were released outside of the City of Miami and that nobody other than *bone fide* residents of the City of Miami were exposed to the spores and ran the risk of developing

disease. After several days of the SNS campaign, the Miami CHD was successful in prophylaxing 80% of the citizens and, of the 20% that did not receive medication, only 5% of those actually became ill due to anthrax. Ultimately, Florida would be faced with almost 4,000 citizens who would become ill. Inhalational anthrax has an extremely high mortality rate. Untreated, someone infected with inhalational anthrax has greater than a 90% chance of dying. With intensive life support, the death rate is cut to about 50%.

On any given day, Miami-Dade county has approximately 200 available and staffed empty hospital beds. Although there are more empty beds available than this, most hospitals do not have the staff to support the beds that they have. Although these 200 beds are staffed, they do not provide the kind of intensive support required for an anthrax outbreak. As a result, it would be necessary to bring significant life support equipment and personnel into the Miami region to deal with these patients. Since anthrax impacts the victim's ability to breathe, most victims would require artificial respiration. Ventilators and other airway equipment are expensive and relatively rare. Although the SNS contains enough ventilators to support the number of victims in this particular scenario, significant logistical hurdles must still be overcome. As examples: Staff who understand respiration therapy as well as IV antibiotics must be found quickly and brought in through national ESF-8 channels; assuming that sufficiently trained numbers of staff even exist. A suitable facility must be converted to a respiratory hospital. The equipment must be organized and shipped. Even with advanced planning, getting everything required would take several days. Yet anthrax, once germinated, has a development window of two to seven days. Some of the victims will die, and those

infectious dead bodies must be stored and processed humanely and in an organized fashion.

The SNS campaign would attempt to organize over 16,000 people across 203 dispensing locations to hand out over 5 million regimens of antibiotics in a span of two to three days. Since anthrax spores are persistent in the environment and can lodge in the upper respiratory track for weeks before germination, citizens would not be limited to their initial ten day regimens of antibiotics. Rather, victims would have to continue to take antibiotics for a period of 90 to 180 days or receive a series of anthrax vaccinations. The vaccination campaigns and sustained dispensing of antibiotics would bring manufacturers and distribution channels, including the U.S. Postal Service, to the breaking point.

In reality, anthrax spores would not stop at the city limits and would not confine infection to residents of a particular city. Moreover, terrorists would be unlikely to spread spores around only one particular location; they would be much more likely to attack multiple locations simultaneously. We also could not count on the cooperation and lack of panic among citizens. It is likely that a significant share of the U.S. population would want treatment and may not behave well. We also have ignored the complication of trying to decontaminate an entire city. Decontamination is made even more difficult by the anthrax spore's ability to survive in the environment for decades. If the terrorists had chosen to use a transmissible agent, such as plague, the scenario would be far worse and even more complicated. Additionally, the perpetrators could have chosen to use an agent that was designed to be resistant to the major types of antibiotics in the nation's inventories. Economically, the City of Miami would become a wasteland as tourists and

businesses leave and property becomes impossible to sell. The social fabric of the Miami area would also be tremendously impacted as over 2,000 people would be lost in the attack – assuming everything went “well.”

The above scenario is not only plausible, it is actually somewhat optimistic regarding the outcome. Nothing short of nuclear war has this ability to completely devastate a nation’s economic and social structure. Additionally, the technology for launching a biological attack, while not simple, is considerably less exotic than that required for nuclear weapons. Billions upon billions of dollars have been invested by the United States to protect the nation against nuclear warfare, however, the majority of that money was spent on offensive weapons systems under the concept of Mutually Assured Destruction (MAD). Unfortunately, the very types of fanatical non-state actors who would most be drawn to biological weapons would also not be deterred by MAD. The Strategic National Stockpile is the nation’s primary method of defense against biological weapons as well as natural outbreaks. A defense that remains under funded at some levels and entrusted to a wide range of agencies all loosely organized by the CDC.

Development of Florida’s SNS Program

Initially, CDC built its stockpile and transportation system but expended little effort on the downstream system. This should not be taken as a criticism. All systems must be built in stages and there was little point constructing a dispensing mechanism if there was no logistical pipeline to deliver the product. On occasion, CDC would visit major metropolitan areas and educate local officials about SNS but the until around 2003, the system had not evolved to the point of precisely dividing the labor between levels of government. In particular, CDC told local agencies in Florida that they would be

responsible for establishing and staffing RSS facilities and simultaneously figuring out how to dispense the medications. As the program matured, CDC embraced a more traditional approach and decided that they would supply states and, in turn, those states would supply local areas.

In the case of Florida, early CDC requirements were centered around the need for the state to provide an RSS and transportation infrastructure. Due to the superficial similarities between an RSS and the already robust State Logistical Staging Area (LSA) concept used for hurricanes, initial Florida SNS planning was based closely upon the DEM LSA plan. Since SNS was a medication dispensing concept and CDC funded a new SNS Coordinator position, OEO decided that it would be useful to hire someone who was a medical professional. Moreover OEO was an office dominated by white males. In an effort to bring diversity to the office, OEO hired a female public health nurse to serve as the SNS Coordinator. The new SNS Coordinator long held an interest in biological terrorism, had attended numerous relevant classes and meetings, and had served as one of the first dedicated PHP Planners in the Orlando area. Since Roberts served as OEO's planning guru, the Coordinator's role was to keep up with the evolving CDC requirements, attend SNS related events and represent the program within the PHP community.

Despite the development of a new State Level SNS presence, CDC still had a tendency to go directly to local communities. For example, before OEO became involved in SNS, the Federal SNS Program Consultants dialoged directly with cities involved in the Metropolitan Medical Response System (MMRS) Program. While employed by the University of South Florida and working with the Tampa Bay area

MMRS programs, I made contact with Florida's Federal SNS Program Consultant. After I started with DOH, the Program Consultant and I continued our friendship. At one point, the CDC SNS Program Consultant wanted to come visit the Tampa and St. Petersburg MMRS committees to present the latest changes in the SNS Program. I thought this was a good idea and facilitated her visit. We attended meetings in both cities, had a nice dinner in Ybor City and then we visited SNS facilities in the area such as potential RSS and POD locations. At the conclusion of the visit, the Program Consultant informed me that she would send me a copy of her assessment for comments before it was submitted to Tallahassee and her management.

I was stunned. Conducting a friendly educational visit was one thing but conducting an assessment, with no notice and no headquarters staff present, was quite another. The Program Consultant's antics created a lot of stress between me and my management. I also found it difficult to trust CDC representatives for a number of years after the visit.

In 2002, Florida's State SNS plan was formally introduced and OEO conducted a successful RSS exercise in early 2003 (Exercise Bioshield) which involved personnel from DOH, DEM, The Florida National Guard and the FL-1 Disaster Medical Assistance Team. The exercise was designed in-house by OEO's Alan Montrose with help from his former colleagues at a major Florida University. When CDC formally evaluated Florida's efforts, Florida was the first state to be assigned a "green" rating for SNS readiness. The fact that CDC was primarily interested in the kind of warehouse and transportation logistics which matched the existing Florida LSA system helped the State's score tremendously.

However, CDC and Florida were beginning to realize that the real challenge in SNS operations lay at the County Level where the drugs would be given to people. Therefore, in the future, Florida's counties would be required to write and maintain their own SNS plans for dispensing medications. OEO Chief William Booth was concerned that, without strict guidance, the CHDs would create a myriad of unworkable and incompatible plans. Therefore, Booth recommended that several million dollars from the PHP Cooperative Agreement Grant be used to hire a consultant group who would travel to the counties and assist them with writing their plans.

Despite opposition from the field and within OEO, The Department issued a multiyear contract for a politically connected community college to assist with the county SNS plans. The college, in turn, hired a small HazMat training and consulting company to perform the actual work. Although the consulting company was well regarded around the state, it had no PHP experience or knowledge about the SNS system. After the contract was signed, Booth retired from DOH and went to work for the consultants along with Alex Roberts and Amanda Jameson. Additionally, the consulting company hired a number of employees who would actually travel to the counties and personally work with the CHD PHP Planners. Since the consulting company traditionally provided education to fire fighters, the new SNS field liaisons were primarily from a fire and rescue or emergency management background and typically knew little about public health or SNS. Most of the SNS field liaisons were also active fire fighters who worked one day on shift and two days off so they were essentially working on a key part of Florida's PHP strategy during their spare time. The exception was Robert Neuman, who retired as a small County Health Officer in order to join Booth.

In addition to drawing a generous salary, the liaisons were also equipped with computers, cellular phones, uniforms and new “sport utility vehicles” decorated with the consulting company’s logo. Rounding out the consultant’s staff was former OEO training officer Alan Montrose. Montrose had left DOH during 2003 and returned to his former university employer where he worked at a research center that studied disasters and governance. As a faculty member, Montrose had the flexibility to work for both his university and the SNS consultants.

At the time, CDC provided limited guidance about what was expected from a county SNS plan. For example, what were the time lines? What was the coverage goal? What types of Points of Dispensing (PODs) should be used? In order to enforce consistency and cover what were perceived to be the basic requirements, Roberts created a county SNS plan template which was generic enough that it would suit most counties with a few fill-in-the-blank spots. The template was mostly concerned with explaining the purpose of the stockpile, the assets and systems associated with its management and request as well as legal references to explain DOH’s duties during an SNS event. Although the template contained sections for documenting PODs and local procedures, those parts of the template was essentially free form and considered as appendices. From an operational standpoint, the performance requirements for the county SNS system remained unidentified. Because DOH was simultaneously engaged in smallpox vaccination and outbreak planning, some of the SNS goals were borrowed from the smallpox projects. Essentially, the counties’ goal was to be able to dispense drugs to a “large proportion” of the population within 7 to 10 days.

When the well-paid, part-time, SNS-ignorant consultants drove their fancy trucks to Florida's CHDs, they were greeted with skepticism. Many PHP Planners felt that the consultants represented a Tallahassee intrusion into their county's operations. Others viewed the consultants as a financial boondoggle. Still others actually welcomed assistance but were discouraged by the consultant's lack of knowledge and the one-size-fits-all template. Lastly, the consultants and the PHP Planners sometimes disagreed about the division of labor between the parties. For example, the PHP Planners expected that the consultants would actually advise them about SNS concepts. On the other hand, the consultants viewed themselves as meeting facilitators and the formatters of the county's SNS plan since the responsibility for the technical details of the plan belonged to the county PHP Planner.

Even when the plans were written without debate, they were of dubious value. In some cases the counties never bothered to enter the specific information that was required to make the plan operational. It was not unusual to find tactical information represented by a blank page that stated "to be filled out by CHD later." Although setting up and running PODs is the key function of a CHD during an SNS campaign, the POD sections of the plan were woefully lacking. For example, the template required that the POD sections contain a picture of the POD. It was intended that the POD picture would show the building in a manner that would assist the planner in laying out the facility. Instead, most POD sections featured a photo of the building's sign. In one case, the POD was a school and the sign featured the school's name and, in an ironic twist, a subscript that declared that the school was a "drug free zone." Rather than list emergency telephone numbers for after-hours access, many POD sections listed a

generic switchboard number that was unanswered during non-business hours. In place of a detailed layout plan for the specific facility used as a POD, the templates virtually always showed a generic POD layout scheme that was copied from a CDC guidance document. The planners and the consultants also tended to leave instructional notes, intended to help the plan writer, embedded within the plan. In a typical case, a page that might read “insert CHD call list here” was left in place but was followed by the actual call list; or perhaps not, in other cases. In addition to assisting with the plans, the consultants were also tasked with running a county SNS command and control drill. Unfortunately, the drill was usually pre-scripted and the consultants were not savvy enough to make the exercise truly applicable to the county in question. The PHP Planners, for their part, felt that it was the consultants’ job to make everything work. After all, the consultants typically earned around twice the money and worked half the hours of a PHP planner.

As the first year of the SNS contract proceeded, the county PHP Planners and Health Officers became increasingly unhappy. Additionally, the RERAs, who were required to attend the county SNS planning meetings, realized that things were not working. In particular, we were in a tough position since we wanted to advocate for our counties yet still felt a certain measure of loyalty to our former OEO colleagues who were now the consultants. Divided loyalties were not limited to the RERAs. The SNS Coordinator was charged with overseeing the SNS consultant project, however the consultants that she allegedly oversaw were her previous immediate supervisor and the former chief of her office. OEO Interim Director James Ridge was also caught in the middle. Ridge wished to avoid controversy with either the Department or the

consultants. Some field personnel and planners wondered if OEO was managing the consulting company or vice versa.

Because the stress concerning the SNS consultants remained unaddressed by OEO, the resentment festered and became dramatically public during a series of quarterly PHP meetings. The Division of Emergency Medical Operations leadership, the community college project officer as well as the owner of the training company were rudely informed about the problems of the county SNS planning program. Planner after planner stood up in the meeting and critiqued the process. The audience's anger fed on itself while the RERAs sat back and hoped that they would remain unnoticed. Although it was not feasible to halt the program at midpoint, the contract was amended. The consultants' fee was drastically reduced and their involvement was cut to a minimum. William Booth and Alex Roberts left the company and Robert Neuman became the project's caretaker.

At this point, half of the counties had questionable, although officially completed, SNS plans. During the next year, the other half of the counties finished their SNS plans primarily by borrowing their neighbors' plans. In some cases the copying was so sloppy that the planner never bothered to change the names of the county or cities nor update the demographic section in the donor plan. Despite the significant flaws in the county SNS planning process, each CHD was now, at least, aware of SNS and had begun to think about how SNS might be implemented at the county level. A copy of each county's SNS plan, essentially duplicates of each other, were neatly placed in matching binders and housed on a shelf in Tallahassee. Although they were not immediately evaluated,

they served as proof of Florida's effort to carry SNS to the county level. Duly impressed with our Potemkin Village, CDC continued to evaluate Florida favorably.

So, what went wrong? The consulting contract represented exactly the kind of public-private partnership that Florida's government advocated. Additionally, the idea of assisting overworked PHP Planners should have been greeted favorably. However, there were numerous challenges that could not be rectified. The primary problem was that the entire program was based on the goal of producing a standard document rather than a process which would lead to an evolving county-relevant plan. This is understandable since consultants must justify themselves by showing progress and a collection of documents is more tangible than a collection of counties who are now seriously engaged in the process of thinking through SNS. Also, as former State Level actors, the consultants designed their County Level template to reflect the kinds of issues that were important to the State rather than important to the counties. The templates were also meant to be as standardized as possible, yet this standardization is incongruent with the diversified needs of the counties. Because of the document centric focus of the project, SNS became viewed by many as an effort to create a final document. Aside from some boiler plate verbiage referring to the plan as a "living document," the idea that SNS represented a continual cycle that would involve many future modifications of the plan was not encouraged.

Additionally, the personalities and economic factors surrounding the program cannot be underestimated. Although consultants are superficially similar to the contractors discussed earlier, fundamentally they are quite different. Contractors are hired for a variety of reasons to support an agency's mission at a working level. At DOH,

a contractor will appear much as any other DOH employee but they happen to be paid through a different channel. Consultants are usually technical experts who are brought into the agency to assist with high level functions that often involve policy. As such, consultants are expected to bring fresh ideas and superb technical skills to the agency. In exchange for their knowledge, consultants are rewarded handsomely. While a contractor is, in some ways, a second class citizen – a consultant is an independent force. Unfortunately, one dilemma faced by consultants is that while they are expected to be objective and unbiased, their continued employment requires that they remain diplomatic and, to some degree, even patronizing.

Despite his brilliance, William Booth was a divisive individual. Furthermore, the people hired to represent the consultants at the County Level did not have the knowledge or skills that consultants were expected to possess. Although Booth's employment on a project that he championed was not deemed a conflict of interest, it appeared suspicious enough that the program was never seen as legitimate by many in the field (Williams & Stillman, 2006, p. 4).

There were also organizational structure problems. As a paramilitary personality, Booth appeared very mechanistic in his thinking. While OEO Chief, Booth advocated a hierarchical approach to disaster preparedness. As a consultant, supported by a team of hierarchically thinking fire and rescue personnel, Booth viewed CHDs as the bottom rung of a hierarchical SNS universe. However, under the mantra that all emergencies are local, CHDs should be the main drivers of the SNS system and should be supported in their mission by higher tiers of government. Lastly, the consultants were overseen by

weak interim DOH management who wished to remain ignorant of problems and used no evaluative techniques to monitor the project's progress.

Bioshield 2004

During early 2004, we followed up the 2003 SNS exercise with a much larger exercise: Bioshield 2004. The previous exercise focused on RSS operations while Bioshield 2004 had a much larger agenda which included real-time transportation, integration with PODs and cooperation with DEM in a more realistic RSS environment. As with the original Bioshield, DOH contracted with the same university for exercise support. However, by the time of Bioshield 2004, Alan Montrose had left his position with DOH and returned to the university. Since Alan was now working on the other side of the fence, there were certain tasks that Alan felt were the responsibility of DOH rather than his university. Within OEO, the task of coordinating the exercise for DOH fell to Alan's successor, the new OEO Exercise Director. The new Exercise Director, a former DEM staffer, was still learning about SNS and public health. To balance the team, the SNS Coordinator was tasked with working with the Exercise Director but their cooperation immediately reached an impasse because they could not agree on a division of responsibilities. Additionally, the first Bioshield Incident Commander (IC) had been RERA Mark Sterling but Sterling had moved to Atlanta to work for the Department of Veteran's Affairs. Luke Falcon, the original SNS plan writer, was serving in Iraq. The only other SNS knowledgeable people within OEO, William Booth and Alex Roberts, had also left OEO to work for the county SNS plan consulting company.

I was assigned to be the Bioshield 2004 IC, a job which involved managing the personnel who were assigned to participate in the exercise. However, I immediately became concerned with the lack of progress on the design of the exercise itself.

Ultimately, I lead a series of conference calls involving the partners who were running the exercise to try to bring order to the chaos. Technically speaking, as the IC, my involvement with the design of the exercise was taboo but I saw no other option. My attempt to straighten out the three way standoff between the parties involved was less successful than I had hoped.

The personnel assigned to conduct operations during the exercise consisted of volunteers from DOH: primarily ESF-8, OEO and OPHP staff along with the RERAs. Additionally, we had a large and capable group from the Florida National Guard, a team from DEM and other personnel from FL-6 DMAT. The teams assembled at our location in Orlando and we spent much of the first day going through the steps of the Receipt, Stage and Store (RSS) process. After that, our objectives were to receive simulated requests and attempt to process the orders as if we were running an actual RSS.

In addition to the above agencies, we were also joined by an Incident Management Team from the Division of Forestry. Since Forestry personnel are trained to coordinate wild fire events, they are well versed in large scale operations and logistics. Normally, DEM relies heavily on Forestry personnel for running any type of large logistical operation. Unfortunately, DEM failed to inform us that they were inviting Forestry. As a result, we did not expect their presence. The Forestry IMT arrived at the exercise planning to run the RSS but found, instead, that DOH had already filled the RSS command positions with its own personnel. In order to soothe egos and learn what we could, we imbedded the Forestry personnel among the RSS command staff. Although the Forestry personnel were unaware of the specific requirements for running an SNS campaign, we found their knowledge and experience to be quite useful.

In fact, we later attempted to send key DOH personnel to the same classes that Forestry personnel attended. Unfortunately, we encountered the same issues that have plagued public health integration with other disciplines from the start. The higher level Forestry classes sat atop a “pyramid of classes” and it was impossible for DOH personnel to simply take the top tier classes. In order to take the entry level classes, DOH would have to expend countless person-hours and money in order to work a few employees up the ladder to the high level classes. Additionally, the lower level Forestry classes were heavily focused on fire fighting equipment and techniques which the DOH personnel had neither the need for, nor the background to understand. However, as DOH better integrated emergency management processes into its own culture, it began to develop public health compatible emergency management training.

A typical exercise cannot fully duplicate an actual event. An actual event requires thousands of people and tremendous resources. It is simply impossible to marshal these resources, and pay for them, with no actual need. Moreover, individual’s attitudes at an exercise are different. For one thing, everyone knows that the exercise is simply an exercise and they frequently do not take it as seriously as they would a real event. Many personnel who would be tasked during an actual event do not involve themselves with exercises because they feel that they are already competent to conduct the mission and have no need to practice. Others find the exercise to be inconvenient and decline an invitation to practice but are sure to mention that if the exercise was a real event then they would be there, untrained, without hesitation. Another balance is money versus need. For example, in a real event, an RSS facility must be kept secure and the money for security expenses would be reimbursed. During an exercise, the budget does not

include enough money to hire an army of law enforcement officers to stand around and pretend that there is an event. Moreover, there may not be the need to have the actual level of security – it is possible to have one or two security personnel simulate a larger group of security personnel. Yet another point of debate revolves around the purpose of an exercise. While it is nice if an exercise is realistic, a major reason for conducting an exercise is to train people. In a real situation, if someone is incapable of performing a task, there is pressure to remove that person. During an exercise, if someone is unable to perform a task, the tendency is to try to coach the person even if it dramatically impacts the group's performance. Collectively, these differences between an exercise and a real world event are known as "exercise artificialities." During Bioshield 2004, we faced numerous problems, both in terms of our operational processes themselves, but mostly due to the clash of exercise artificialities with our operational processes.

A major artificiality we faced was the type and quantity of supplies. The CDC maintains a small collection of Push Package containers filled with vitamins to be used for training purposes. Although we were able to use this simulated Push Package during 2003, we did not receive it for 2004. Instead, DOH purchased its own supply of vitamin tablets which we used to simulate the receipt of MI supplies. Although the simulated medications were realistic, the quantity was considerably smaller than we would receive during an actual MI delivery.

Compounding the problem was the format of requests for the RSS to fill. During an actual SNS event, the counties would request medications from ESF-8 at the State EOC. The State ESF-8 personnel would double check, clarify and prioritize the requests and submit specific "well formed" requests to the RSS which would fill them. In essence,

State ESF-8 was meant to screen and organize requests while the RSS was simply supposed to ship what State ESF-8 tasked it to ship. Unfortunately, DOH had not worked through the process that State ESF-8 was to follow and did not assemble a functional ESF-8 team in Tallahassee. Instead the RSS received simulated requests directly from the counties which completely broke the standards for emergency management requests.

For example, during Bioshield 2004, a simulated county might make a request similar to the following:

> Send 100,000 medicines for adults and children to our POD in Hillsborough County.

A better request would have been:

> Send 50,000 regimens of oral Doxycycline, 30,000 regimens of oral Ciprofloxacin, 28,000 regimens of pediatric dose oral Amoxicillin and 10,000 regimens of Amoxicillin suspension.
>
> POD location is 1234 Happiness Blvd, Tampa FL, 33607.
>
> Personnel will be at POD starting at 06:00 on 03/06/04.
>
> POD Manager is Rupert Jones (813) 123-1234 (24/7)
>
> Alternate contact: Hillsborough ESF-8 (813) 123-7463 (24/7)

Due to the lack of information contained in the request, the RSS team spent time calling the “requesting county” to get the missing information. Since this was an exercise, we did not actually speak to a Public Health Officer in the county, instead we

spoke to a university exercise facilitator pretending to be a particular county – a facilitator who was not usually prepared to answer our questions in a useful manner because we were not expected to actually call them back with questions.

Further chaos ensued when these requests reached the Planning Section. We were receiving simulated requests that were based on actual population numbers, but our supply of simulated medications was a mere fraction of what would be needed to fill even a single request. As a result, our Plans Section simply queued the orders up until we received more inventory. Instead, what should have happened was that we would process each order for a small percentage of the request. For our purposes, it would not matter if the order was off by a factor of 100 as we simply needed the practice of performing the actions. As the Planning Section frantically arranged the incoming requests and awaited more drug inventory, which was never going to arrive, the operations staff stood around aimlessly.

Another Plans Section hiccup involved the management of information. Although there were many orders for medications, the orders were not terribly complicated and DOH envisioned tracking the requests and their status by placing notes on the wall of the warehouse and charting delivery progress with colored tape stuck on a large state map. The Division of Emergency Management had other ideas. The Division of Emergency Management came to the RSS with their giant command and control vehicle and a large supply of laptop computers and printers contained within large heavy duty plastic cases. Without coordinating efforts, DEM set up these laptops inside of the warehouse and insisted that the Planning Section use them. In addition to having no experience with the machines or the software, the computers took up space and

used the tables that we had planned to use for the pharmaceutical repackaging operation. As a result, rather than figure out the process we needed to follow, our planners were distracted by the technology and our logistics team had to leave the exercise in order to locate more folding tables from a vendor in Orlando.

Operations, in turn, had their own technical problems. One of the main items that CDC wanted tested was an electronic inventory system. CDC had promoted their own inventory system, known as the RSS Inventory Tracking System (RITS), but RITS was ultimately delayed for years and was unavailable. We, therefore, kept track of inventory on paper and white boards. Although effective, the system was slow and CDC disapproved of anything considered to be old fashioned.

In addition to personnel shortages, we also had a problem getting individuals badged. Due to CDC's concern with security, we were required to implement a badging and access protocol for the exercise. The Division of Emergency Management had recently purchased a field ID creation system and wanted to test it. We found that, although the system worked well, it was incredibly slow and we had a large number of personnel to run through the system. As a result, the exercise was delayed while we waited for a critical mass of people to receive their credentials.

The RERAs staffed a variety of RSS positions. However, the most qualified RERA for running an RSS, Alistair Scott was tasked elsewhere. Scott was very familiar with SNS and had run LSAs during his time at DEM. Unfortunately, OEO Interim-Director James Ridge wanted Scott to assist him during the exercise. Since Ridge's job was to observe the exercise, Scott helped Ridge stand around observing, rather than running the Operations Section. Safety Officer Michael West deserves special mention.

Although West suspected that his assignment as Safety Officer would be boring, he was actually one of the busiest members of the command staff. Our RSS facility was an old warehouse. It turned out that the corners of the building were home to Brown Recluse spiders. Furthermore, our exercise was interrupted by substantial thunderstorms and even tornadoes. For each possible problem, West had to find solutions, modify exercise play and direct the RSS team along with the horde of out-of-play exercise staff and observers.

The DOH pharmacy team was also seriously engaged in Bioshield 2004. The current SNS system is filled with drugs organized as unit of use. In other words, each bottle of drugs in the SNS represents what a single adult would need for a ten day course of prophylaxis. In 2004, however, most of the medications within the SNS were organized in bulk. This meant that the RSS was responsible for opening the bulk jars of drugs, counting out the individual pills and placing them in small jars or sealed plastic bags. The jars and bags then had to be appropriately labeled and aggregated into larger boxes for transport. Since many who worked the repackaging operations were ESF-8 volunteers, instead of pharmacists, the group decided not to attempt to meet exercise benchmarks but, rather, to teach the staff how to conduct repack. This was a reasonable approach but the slow process delayed the rest of the RSS operations as we waited for each box of repackaged medications. Additionally, since we only had one type of vitamin to simulate several types of antibiotics, the repackaging team became confused as they allowed their drug-specific production lines to mingle during the teaching process. Nevertheless, we successfully packaged a number of orders and had

them ready for shipment to a collection of CHDs that were running PODs in conjunction with our RSS exercise.

I was able to sleep a portion of the night but drove from the hotel to the RSS to see the shipments off at 03:00. Upon arriving at the RSS, I was concerned to find that the assigned security personnel had wandered off during the night. Nevertheless, we successfully loaded the supplies into the National Guard vehicles and sent them off for a morning delivery.

Because exercises are held infrequently and there are many components to a system that should be tested, exercises frequently suffer from “scope creep.” This occurs when the number of processes to be tested exceeds the ability of the exercise to test them within the confines of its artificialities. Bioshield 2004 was no exception. In retrospect, we tried to test too many things simultaneously. As a result of scope creep, some of the important things were not well learned because the participants became distracted and their focus diluted. The second day of the event became a simpler command and control exercise as we followed up with the PODs and simulated resupply shipments. Despite our problems, we did succeed in some key tasks. CDC, impressed more by the equipment and resources than our organization or processes, also felt that we did a fine job.

After the exercise, James Ridge left OEO and Wes Biddle started. During the command change, few within OEO wanted to discuss Bioshield 2004. I, however, was deeply concerned about our SNS readiness as well as our manner of conducting exercises. I arranged a post-exercise briefing for OEO and personally invited DEMO Director Steve Fletcher. When Fletcher called the SNS Coordinator to verify the time

and location of the briefing, she actually attempted to uninvite Fletcher. However, Fletcher did attend the briefing. I carefully laid out the events of the exercise and commented equally about what we did well and what we did poorly. Although this should be expected in an after action briefing, it was an unusual event at DOH. The Exercise Director felt that I had singled him out for abuse, and I understood how he felt. However, I laid as much blame on myself as I did on the Exercise Director, the SNS Coordinator or our university partner. The managers in attendance were surprised by our failures, but the operations and logistics personnel really seemed to enjoy the presentation as I was finally able to express their thoughts in a public forum.

Due to the long planning stage of most exercises, there is ample time for the exercise to be shaped according to the designer's whims. Planning personalities want to explore as many aspects of their plan as possible. Although those aspects may not occur simultaneously and the plan may not explicitly touch upon outside organizational functions that everyone assumes will be functional, such as a knowledgeable ESF-8 team at the SEOC. Project managers want an exercise to accomplish as many grant compliance measures as possible while keeping costs to a minimum and organized according to previously conceived budget categories. Agency heads see exercises as social networking opportunities and want to involve as many partners as possible. Contractors who facilitate the exercise want as complicated of a design process as possible to show the breadth of their planning and value. Opposed to the above personalities are the operations people. Operations personalities know that few events go according to plan and would prefer to realistically test a few core functions, regardless of the expense or political participation.

In retrospect, Bioshield 2004 was the most complicated exercise that DOH had ever conducted. We had a number of successes and failures but, most importantly, we set a benchmark. The next Bioshield exercise occurred in 2006 and in some ways we improved. However, an exercise should not be looked at in isolation, it must be considered as part of a cycle of institutional learning. Events like Bioshield involve many people from a large collection of agencies. Although Bioshield demonstrated that these agencies could work together towards a common goal, it also highlighted differences in their approach and skills. Equally important, Bioshield showed that the myriad of actors had dramatically different expectations for an exercise as well as different definitions of success.

The Cities Readiness Initiative

During 2004, the CDC conducted a survey of SNS readiness in the nation's largest metropolitan areas. As a result of the survey, and further analysis of the most likely biological agents, CDC began a pilot program called "The Cities Readiness Initiative" (CRI). This program started in the largest twenty cities across the United States and aimed to increase each city's SNS capability dramatically.

Each city in the program would receive substantial funding that was to be dedicated to SNS activities. The cities would also receive numerous visits and inspections by CDC personnel and the cities would be individually graded against an aggressive set of performance criteria. Specifically, each CRI city was expected to be able to prophylax its entire population within 48 hours after the decision to do so. Compared to the previous lack of expectations regarding SNS, the CRI requirements were staggering. In order to meet the requirement, CRI cities would have to dramatically increase their SNS PODs and consider completely different ways of reaching the public.

The short 48 hour time frame was directly related to inhalational anthrax. As discussed previously, inhalational anthrax is a fast incubating agent and, if untreated before symptoms occur, is nearly always fatal. Although Amerithrax taught us that heroically treated patients could survive inhalational anthrax even after symptoms developed, a positive outcome was never certain. Furthermore, in the case of a massive outbreak, there would simply not be enough medical care available to heroically treat large numbers of patients. Therefore, protection of a population against anthrax essentially involves circulating a prophylactic quantity of antibiotics within every person so that as each spore revives it will be immediately snuffed out before it can produce any toxins. The short incubation period of anthrax, combined with the delays of detecting an outbreak and the logistical hurdles to transport and set-up PODs, drive the CRI response timeline. Although the initial CRI requirements were based around the scenario of dispensing oral antibiotics against an inhalation anthrax attack, other contingencies were also to be planned.

In Florida, the City of Miami was selected as the first CRI community. Immediately, CDC and DOH had misunderstandings. CDC selected communities based upon a list of Metropolitan Statistical Areas (MSAs) as defined by the U.S. Census Bureau. Within Florida, public health was conducted by units organized at the county level. Some MSAs stretched across county lines and Florida felt that it was unacceptable to build a program that would include some parts of counties but not others.

An agreement was reached that the pilot CRI program in Miami would encompass all of Miami-Dade county but stop at the county line. CDC duly granted the Miami CHD over $600,000 which was actually paid to OPHP in Tallahassee and distributed to Miami

CHD through regular funding channels. To manage the program, Miami CHD hired a passionate retired Army doctor named Fredrick Alfonso. As expected from his background, with military precision, Alfonso energetically assembled a team within the CHD and began reaching out to community partners. Alfonso's team developed a multiple volume set of CRI plans and procedures. Their effort was monumental and Alfonso began to explore aspects of SNS that were never before contemplated in Florida.

CDC was extremely happy with Alfonso's progress and, as in the past, the CRI team at CDC began to deal directly with Alfonso and tended to exclude the SNS Coordinator and OEO at the state level. Although this was politically incorrect, Miami's CRI issues were so unusual that the State actually had little to contribute at that time. Because Alfonso, Miami CHD and the CDC knew little about emergency management, Alfonso tended to approach his problems in a fresh, unencumbered manner. Although he was usually successful, there were times that OEO was chagrined by Alfonso's approach. For example, the Miami CRI budget transferred a substantial amount of money to the county emergency management agency. When asked to explain what the EM agency was doing for the CHD to earn this largess, Alfonso informed us that the EM agency had agreed to provide meeting space, access to community partners and, in case of a CRI activation, a special facility where Alfonso could manage the entire CRI operation. Needless to say, OEO was pleased that Alfonso had discovered and engaged his emergency management partners. Despite the fact that the Miami-Dade EM agency would have performed these same functions without bribery, OEO and OPHP allowed the donation to stand in the name of building community relations.

Regardless of Alfonso's incredible success, Miami's CRI program faced great difficulties. As mentioned, Miami-Dade County has a population of over two million people. Alfonso figured that Miami CHD would have to open and run approximately 100 PODs which would be staffed by two shifts of 60 people each. Although the Miami CHD is the largest in the state, it was still about 11,000 people short of reaching the staffing goal. Additionally, each facility would have to be selected, documented and have security and traffic plans established. Meanwhile, the State of Florida would have to figure out how it could possibly supply 100 PODs in a single county. Realizing that the Miami CRI plan was ambitious, Alfonso continued to document the procedures for conducting the campaign and selling his dream to partners. Alfonso's team also explored alternate types of PODs such as automobile based drive-through designs. Over the next year, Miami CHD conducted exercises and collected measurements to refine their ideas. Unfortunately, their CRI progress halted due to a completely different kind of disaster.

Because of the incredible hurricane seasons of 2004 and 2005, DOH's OPHP and OEO staff were occupied at precisely the times that CDC requested the next year's PHP budget proposals. Although CDC was cooperative with the delay during 2004, they were less cooperative during 2005. Since OPHP was running late with budget submissions, CDC delayed budget approval along with the transfer of both Cooperative Agreement and CRI money. Because Miami CHD had no funds for CRI activities, the program's progress was slowed and Alfonso became infuriated.

In addition to the Miami CRI funding delay, CDC simultaneously announced that the CRI program would be expanded. In Florida, this meant that Miami-Dade County

would be joined by Broward, Palm Beach, Orange, Pinellas and Hillsborough Counties. OPHP and OEO realized that with the expansion of the program and the budget slippage they would need to hire additional personnel to coordinate CRI at the State level. Although OEO employed an SNS Coordinator, she was never actually hired to manage anything and it was felt that she could not accomplish the work alone. Once CDC approved the idea of hiring a dedicated CRI specialist, The existing SNS Coordinator began creating various job descriptions for the new CRI position, a position that she envisioned personally hiring to work under her. However, this was not to be.

The Evolution of Florida's SNS Program

During 2005, I had expressed to OEO Director Philip Remington that I was bored with my daily routine and would enjoy working on any special projects that would present interesting challenges. At the time, I never expected that I would be offered the position of SNS Unit Leader. Naturally, this assignment involved complicated networked organizational changes. It was decided that I would spend half my time as the RDSTF-4 RERA and the other half of my time managing SNS, CRI and subsequently CHEMPACK. Compared to other regions, the Tampa Bay region was fairly well organized and staffed. As a result, I did not have all of the day-to-day house keeping duties that some of my fellow RERAs had. I would receive a bonus for running SNS and OEO would also hire an assistant for me because I would remain in Tampa while the project was based in Tallahassee. The new assistant would also handle most of the regular maintenance of the CRI program while I focused on strategy and technical issues. Additionally, the existing SNS Coordinator would remain as an SNS specialist and would report to me along with the CHEMPACK coordinator. The idea was to house all of OEO's emergency therapeutics programs in one unit.

The first thing that I had to accomplish was to find an assistant. In my mind, there was only one person: Amanda Jameson. I worked with Amanda when she was James Ridge's assistant and knew that she was devastatingly competent. Because of her skills, she was hired by William Booth when he became a consultant and was offered the same salary that DOH paid her but for only half time. Amanda kept the SNS consultants on track and also became familiar with the SNS system. Moreover, I knew that she was trustworthy and that her personality would mesh with mine. At the time, Amanda was a stay at home mother and her husband was a police officer who worked an unusual schedule. Fortunately, Amanda, in consultation with her husband, decided to accept my offer and, as a result, became the person that held the details of SNS and CRI together for the next two and a half years.

Shortly after starting with SNS I began to chafe. As the SNS Unit Leader, I reported to Henry Black who had become OEO's plans chief after Philip Remington moved to the Director's position. I met Henry when he was the Pasco CHD PHP Planner and I was very fond of him. However, as a typical example of DOH's distributed staffing model, Henry was one of my five managers. In addition to Henry, I reported to OEO's Special Projects Coordinator, Hillsborough CHD's PHP Director, the RDSTF-4 Health and Medical Co-Chair as well as the regional PHP Planner at Polk CHD, Joe Raven. This confusion was not limited to me, Henry worked at OEO but was technically employed by a CHD over two hours away. All of my supervisors were very understanding and I rarely had conflicts. However, very few organizations would allow an employee to have five supervisors and three subordinates – none of whom were

seen by the employee on a daily basis. At times, it seemed, the line between organic flexibility and genuine chaos was quite narrow.

Despite our friendship, I disliked Henry's management style. Henry's main request from me was to give him three bullet points signifying our weekly progress so that he could incorporate the SNS project's three bullet points into a list of his other projects' bullet points. This phenomenon was known within DOH as "management by PowerPoint." Because it was assumed that no manager had an attention span sufficient to focus beyond a single overhead slide, the major points became so generalized and watered down that they were almost useless. A similar phenomenon was cited in the "Columbia Accident Investigation Report" as an example of how important details in NASA projects can be missed and distorted by the simplistic overhead slide medium used to convey them (Columbia Accident Investigation Board, 2003, p. 191). At the time, SNS was the most complicated single outfit within OEO. Our group was: working intensely with six CRI CHDs, overseeing the $2 million budget for all SNS, CRI and CHEMPACK expenditures and rewriting the State SNS plan. We were developing a Statewide SNS exercise, about to review 67 existing county SNS plans, working on guidance for the non-CRI CHDs, acquiring RSS related supplies and equipment, identifying additional RSS facilities, trying to place over a hundred containers of nerve agent antidotes and planning a joint State-CDC CRI evaluation schedule. As a result, I found it difficult to give Henry three bullet points that explained our past week's "successes," "challenges" and "plan" for the next week. Fortunately, Amanda took over the bullet point ritual and Henry remained happy with us. Henry himself eventually

changed assignments and became a special projects coordinator for the pandemic influenza program.

In Henry's place, Katharine Anderson took over the Plans Section and oversaw our unit. I was happy when Katharine took over because she had actually served as a therapist of sorts for me on past projects. Although Katharine was not considered a technical specialist, she was a management and process wizard. Where others sought simplicity, Katharine swam in complexity. I have no doubt that Katharine could be dropped into virtually any organization and would be able to manage it in a matter of weeks. This is not to say that Katharine and I did not have our clashes, but we were able to argue with a level of candor and respect such that we generally arrived at the best decision. Anderson also shared some of the same detail oriented qualities as Jameson which allowed them to get along famously. Although I tended to be scattered and unfocused at times, I was fortunate that Amanda and Katharine kept me on track and freed me to use my talents where they were best applied.

County SNS Plans

Although, thanks to the consultants, every county in Florida now had an SNS plan, we had serious concerns about the quality of these plans. Further complicating SNS was the fact that CDC finally instituted documented standards for non-CRI county SNS plan compliance. While the CRI cities were required to plan for a 48 hour prophylaxis of the population, non-CRI counties traditionally had no goals set by CDC. In order to institute a standard level of service across the nation, CDC decided to require all communities to adopt the 48 hour goal. Within Florida, the new standard was highly unpopular with the counties but our unit at the State Level was pleased to have a uniform standard.

Our unit realized that we would have to formally evaluate each county SNS plan the same way that Florida was evaluated by the CDC. Evaluating the plans would be a mind numbing process but we had to ensure that the evaluations were conducted fairly and consistently. The process would be especially difficult because we did not expect the plans to be particularly comprehensive; in addition to the basic weaknesses in the consultant's template and the lackluster details added by the counties, the standards had changed. Evaluating county SNS plans proved to be politically charged. Although many counties disliked the process and knew that their plans were not well written, they also objected to the idea of rewriting the local plans to make them functional. Despite the fact that the purpose of the evaluations was to set benchmarks for future progress and targeting of assistance statewide, the counties felt that they were in competition with one another. Our SNS Coordinator meticulously graded each plan. Initially, progress was slow because she was unable to decide what electronic format should be used for storing comments and grades. Eventually, once we decided that she would write her comments directly on the plan itself, the process sped up. Naturally, OEO managers would later complain that we should have put the comments into an electronic format because it looked prettier.

Simultaneously, our CDC Program Consultant spent much time with Amanda Jameson and me as we attempted to shepherd the growing CRI program and rework the State's SNS plan and architecture. During this process we were exposed to the new Technical Assistance Review (TAR) documents that CDC used to evaluate CRI communities and states. Although it could be argued that the TARs evaluated plans according to a checklist rather than a deeper understanding of process, they were very

useful documents. Jameson and I also learned that if we structured our plan presentations according to the TAR, there were far fewer misunderstandings. Additionally, the TAR was a pretty exhaustive list of requirements. If a plan actually met the TAR standards then we expected that it would probably include the background thinking that was required for operational success.

Since the county PHP Planners had so roundly critiqued the consultant's one-size-fits-all template we decided that another approach was necessary for the next iteration of SNS plans. Planners told us that they were capable of writing plans for their own communities provided that we made the effort to educate them about what needed to be included in the next generation plan. The SNS Unit settled on a two pronged approach. One technique was to write a cheat sheet which would inform the county planner what was necessary to turn a typical consultant designed plan into a reasonable updated SNS plan. The other technique was to encourage planners to entirely re-write the plan based on a guidance document we authored. The document coached the planner towards writing a plan that was not only TAR compliant but also compatible with Florida's SNS and emergency management structure.

Ultimately, both of the guidance documents seemed well received. We gave the counties about nine months to rewrite their SNS plans before they would be re-evaluated. The guidance documents and the process were introduced during seven regional meetings, a quarterly PHP meeting, conference calls and emails, as well as individual county visits. We chose our plan rewrite deadline to correspond with the end of the Cooperative Agreement grant cycle, in other words, the counties were given the maximum time allowable to rewrite their SNS plans. Despite the generous timeline, the

county PHP Planners complained about the deadline because several other projects were due at the same time. The situation was analogous to college students who have several papers due at the end of the semester and feel upset because they procrastinated until the last minute and now must write several papers simultaniously.

When we read the new plans, Amanda and I were disappointed by the results. Many counties simply followed the cheat sheets to make trivial changes to their consultant supplied plans but failed to make any meaningful modifications. Other counties rewrote the plans to match the TAR but did so in a question-answer format rather than attempt to flesh the plan out so that it was a stand alone document. Other planners curiously combined a new plan with their old plan so that the document was redundant, yet internally inconsistent. Although much fault lay at the feet of the county PHP Planners, I realized that my idea of basing the plan around the TAR went horribly wrong. Rather than use the main structure of the TAR assessment form as an outline and a guide for details, many planners wrote a plan as if they were answering an exam. Further complicating the issue was my own effort to help a couple of small counties write an SNS plan. For these counties, I wrote a skeleton plan which they were supposed to enhance and expand, yet they did not. Not surprisingly, other counties copied these incomplete county plans as models. Since I had personally written the skeleton plans, they were treated as a kind of Gospel. Jameson eventually labeled these answer-the-TAR plans as “rouge plans” because, while they often contained accurate information, they did nothing to actually explain the system or guide an operations person through the steps. This style of plan may have been helpful if the

incident commander preferred to use the Socratic Method, but it was useless for most operational needs.

Once again, the PHP Planners demonstrated a tendency to borrow pieces of plans from each other. Unfortunately, many planners simply did not understand what they were “borrowing.” For example, one planner decided to write his POD logistics and setup section by copying, verbatim, the State SNS Plan’s section about RSS facilities. Unfortunately, the detailed processes and layouts for an RSS are completely different than those required for a POD. Yet, the RSS procedures looked impressive and included diagrams and checklists. Several county PHP Planners then copied the first planner’s stolen RSS material and incorporated it into their own plans. Occasionally, this was done in addition to the competing generic POD layouts from the consultants – originally lifted from CDC. Another example is that the RSS plan and the County SNS Guidance Document included communications diagrams designed to show what types of communications would be used between different levels of the SNS system. County PHP Planners dutifully copied the diagram and included all of the irrelevant facilities and communications channels that did not apply to their counties.

In addition to problems explaining SNS, we also had problems evaluating the revised plans. Although the second plan evaluation was the SNS Coordinator’s only task of consequence, she also knew that she would be leaving our Unit in a matter of months. While Jameson and I continued to work on CRI growth and State activities, the SNS Coordinator evaluated county plans at a rate of about one plan per twenty days. Compounding the issue was that I had decided to leave DOH myself early in the next year. As a result, the SNS Unit was in flux regarding management responsibilities. The

SNS Coordinator and her plan evaluation process was largely ignored during the transition. In order to catch up with our horribly delayed plan reviews, OEO tasked a variety of people to SNS plan evaluation but these reviewers graded the plans inconsistently. Adding to our problems was OPHP's effort to begin, at last, to evaluate each county's multiple year long PHP effort. Since SNS was a universal task with specific deliverables, the inconsistently graded SNS evaluations were the first item to be listed on OPHP's new "county PHP score card." Because the results were publicized internally, the score card marked the first time that many County Health Officers actually paid attention to their SNS plan. All of this served to build more pressure on the SNS Unit.

The Document Fetish

The plan related issues escalated at the quarterly PHP meeting. Although the audience of PHP Planners was not as aggressive toward our unit as they were toward the consultants a few years previously, they were clearly unhappy. The SNS Unit was equally unhappy with the planners. In a series of presentations, we attempted to outline how the evaluation process was conducted and to give examples of the county plan failings. The audience clearly did not seem to understand what we were trying to say. Among the complaints was that smaller counties should not be held to the same standards as larger counties. After all, how was a small county like Hardee supposed to produce the same level of plan as a giant county like Miami-Dade? Dade, after all, was a county that had twenty times the staff but also received over half a million dollars annually specifically earmarked for SNS planning and development? I attempted to explain that the CRI communities received extra funding precisely because of the complexity of their environment, this argument was lost on most of the PHP Planners.

Moreover, we reminded the PHP Planners that small counties did receive money for SNS. However, SNS funds were combined with the other PHP money that the county received rather than be listed seperately. This argument was also ineffective. Rather than view SNS plan writing as a normal part of their jobs, many PHP Planners wanted to be compensated with additional funding. Unfortunately, the fact that DOH had previously hired consultants to write the first round of the county plans seemed to reinforce the idea among the PHP Planners that SNS was not really their responsibility. More fundamentally, we encountered the reoccurring issue that many PHP Planners simply had no understanding of what constituted a reasonable plan and the SNS Unit's effort to educate them was insufficient. The planning problem was not just limited to SNS, it was common across all program areas. Our county PHP Planners were often unable to write an original plan of any kind. Rather, they had become master "re-formatters" of other people's plans. SNS was simply the first PHP program that actually expected the planners to be able to plan and to evaluate their work.

We were also faced with an additional dilemma: Due to diminishing grant funds, the county PHP Planners were worried that their budgets would be cut to the point that they, the planners themselves, would lose their jobs. The planners continually interrupted the SNS session to discuss the vital role that they played and lobby us with the idea that all PHP efforts would end if they were terminated. Naturally, the SNS Unit had no control over broader PHP budgets, but we represented Tallahassee to the audience so we became the target of their effort. Ironically, the PHP Planners were simultaniously upset that the SNS standards and goals kept changing. Rather than recognize the changes within SNS as a sign of refinement and attempts to meet an

evolving threat, several vocal PHP Planners felt that CDC and the SNS Unit were simply incompetent and as a result we could not make up our minds. It was difficult to stand in front of the audience and explain that some of the standards were phased in gradually because the counties would never have been able to develop a mature plan, meeting all criteria, on the first attempt. It was also very tempting to point out that if the SNS project was simply frozen as they wished, and no further plan development was to occur, then the State of Florida truly did not need to keep a cadre of PHP Planners employed at the county level.

Yet, the importance of connecting plan development and evolution to program financial sustainment remained unrecognized by the audience. We realized that, yet again, the planners were focused on the creation of a paper plan rather than execution of a planning process. The whole audience seemed to be in the grip of some sort of perverse document fetish. Once again, the system wide lack of standards and expectations for the PHP Planners caused problems. Due to different backgrounds and hiring practices, the planners were so varied, and without direction, that we could not even address them as a coherent team. Without common objectives, values and a common language to express those objectives, most organizations will fail. In particular, network organizations must rely upon these kinds of shared beliefs because they generally lack a strong organizational structure to enforce strategic direction.

Eventually, Jameson and Anderson decided that the next SNS plan cycle would, again, return to some sort of universal template in which the planners could simply “search & replace” their changes. I admit that I was disappointed. The idea of getting county PHP Planners to link the SNS plan to the rest of their CHD’s system did not

succeed. Nor was the idea that county SNS plans should reflect the individual conditions within the counties successful. Most disconcerting was the fact that I failed to motivate some planners to devote any meaningful time or thought to the development of a plan. A plan which they, and their CHDs, should have taken very seriously. Many PHP Planners simply preferred to continue to copy and paste plans together and then wonder why some in Tallahassee questioned the value of their positions.

Expansion of CRI

Fortunately, in contrast to the non-CRI counties, the CRI counties accomplished much. Some Federal domestic preparedness programs distribute their funding across the nation according to population or as a standard payment amount. Other programs are targeted. Both approaches are sensible. Since natural disasters or outbreaks do not recognize jurisdictional lines, a preparedness system is only as strong as its weakest link and all parts of the system must be strengthened. On the other hand, some places are at a much lower risk for certain types of events. As examples, Delaware is impacted by relatively few natural disasters and on September 11, 2001, terrorists did not attempt to attack Kansas City or Des Moines. Although much PHP money is distributed nationwide by CDC, the agency was also under pressure to focus efforts on locations that seemed to be particularly vulnerable to biological attacks. As a result, the CRI program initially focused on cities that were originally identified by the Justice Department as major targets of terrorist attack. This explains why Miami was initially selected as a CRI community. Additionally, CRI funding was also connected to a series of evaluations and benchmarks – a process which added accountability to the funding.

Because of the accountability, and the magnitude of the funding involved, it was not unexpected that CDC was also under pressure to expand this “targeted funding” to

other communities in lieu of the relatively loose original funding pattern. In Florida, CDC expanded CRI to Broward, Palm Beach, Orange, Pinellas and Hillsborough Counties. Nationwide, CDC decided to compromise its “targeted funding” mandate by extending CRI funding to at least one city in every state. Although Florida certainly had no issue if CDC wanted to fund CRI programs in Sioux City, Cheyenne, Billings or New Haven, we were disappointed that they chose not to fund the City of Jacksonville. Jacksonville was a much larger, and more likely target, than many other new CRI cities yet was not selected for inclusion because we already had “too many” CRI cities. Florida addressed this discrepancy by including Duval County as a CRI community on our own. Specifically, the State decided to reallocate CRI funding to the CDC designated counties, along with Duval, according to population.

CRI funding in Florida led to more complicated problems. While Fredrick Alfonso struggled to meet his program’s goals despite a lack of funding during 2005, he began to claim that the funding was delayed due to an institutional bias against Miami CHD. Although Alfonso was correct in that other CHDs within his RDSTF region were not supportive of Miami CHD, the bias was not found in Tallahassee or Atlanta. Rather, Alfonso and Miami CHD were simply the unintended victims of a bureaucratic budget process. In his effort to speed up the funding process, Alfonso began to lobby OPHP, as well as CDC, strenuously. Unfortunately, he managed to alienate personnel at both levels. In a heroic, romantic and futile effort, Alfonso attempted to rectify the situation by verbally falling on his sword. Specifically, Alfonso resigned by way of a mass email that outlined his allegations and concerns and simply stated that he could no longer operate in an environment starved of funding. Alfonso retired to his home in Ft. Lauderdale but

ultimately could not stay “out of the game.” After a year off, Alfonso joined the staff of CDC’s SNS Division as a Program Consultant. Although I was concerned about Fredrick’s ability to operate surrounded by bureaucracy, he has risen to the challenge and is regarded as a very effective Program Consultant. He works to help other states avoid the morass that impacted Miami-Dade County and he will always dwell within my personal pantheon of “the good guys.”

Because Alfonso left Miami’s CRI program shortly before the 2006 funding allocation was made, nobody from Miami CHD bothered to telephone into the conference call that discussed the funding breakdown. Although the new counties were to be granted a relatively small amount of money to kick start planning efforts, some of the rival counties were vocal about their opposition to Miami’s continued level of funding. The tone of that call, and Miami’s decision not to participate in their own defense, set in motion a series of CRI financial battles that continued over the next year.

In contrast to the budget of the Cooperative Agreement Grant, CRI funding expanded over the next two years. New issues arose and old issues reemerged. As an example, the CDC considered CRI to be a program based on the population of defined MSAs. However, Florida was not funding all of the counties within MSAs. Rather, DOH was funding the counties that contained the major city within each MSA. As a result, for 2007, CDC insisted that DOH further enlarge the Florida CRI program to contain all of the counties within all of CDC’s chosen MSAs. Therefore, CRI underwent a second expansion and added: Lake, Seminole, Osceola, Pasco, Hernando and Brevard counties to the program. Some of the expansion counties were quite rural but contained a portion of a CDC listed MSA.

It might have been logical to add still more counties. After all, some non-CRI counties were more populated than the smaller CRI counties but CDC did not wish us to extend the program further. The other issue was that with each county added, the funding allocation to the other counties was lowered. In addition to the existing CRI counties resisting additional expansion, the amount of money allocated to the smaller expansion counties would have been reduced to the point that little could have been done with it in exchange for the extra hassle and requirements that CRI counties were forced to endure.

Despite the initial complexities, the CRI program in Florida generally proved to be quite successful. Representing our larger and more urban counties, the CRI designated CHDs took the program and its requirements quite seriously. With few exceptions, the CRI counties saw the multiple State and Federal assessments as ways to learn and improve rather than simply as additional burdens. Moreover, the larger CRI counties were able to hire a dedicated CRI manager who, like Alfonso, served as a local champion for the program. Rather than being considered as yet another isolated task, the CRI communities frequently used CRI as the platform for PHP integration. In other words, the plans and systems developed for CRI became a lynchpin for all other PHP programs within the CHD.

Miami continued a series of POD exercises and rigorously trained their staff. Most importantly for Miami, the newly hired PHP Director ensured that CRI worked hand-in-glove with the freshly established Miami-Dade Medical Reserve Corps (MRC) program to get the CHD the staff it needed for CRI PODs. In fact, CRI became a major focus for the MRC. Palm Beach built upon their previous anthrax experience in 2001 and

implemented some of the most innovative CRI concepts in the nation. A few of the Palm Beach successes included: Recruiting neighborhoods and residential buildings to prophylax their own residents; transporting citizens from large parking areas to the PODs on busses; conducting surprise CRI staff activations; weekly radio and communication checks as well as tight integration with the county medical association.

Broward CHD decided to use the liability of many multiple independent jurisdictions within its county as an advantage. Broward's CHD realized that each town could be organized as an independent unit to break down the CRI problem. Additionally, each town had employees and resources that could all be leveraged against the task under guidance from the CHD. In this case, Broward realized that a simple hierarchical approach would not work so they explored the benefits of their county's distributed nature and embraced an organic approach to organizing CRI.

Compact and urbanized Pinellas County decided to place PODs close enough together to encourage the average citizen to walk to the POD. Pinellas also stored all of the supplies required for setting up a POD in a locked cabinet at each location, a decision that would reduce the logistical burden of setting up PODs. While Pinellas encouraged citizens to walk, Orange County took advantage of their citizens proclivity to drive everywhere. Orange County CRI PODs were almost exclusively drive-through operations which were located away from the city center in the rural periphery of the county. Orange County exercises and mathematical models indicated that POD throughput could be dramatically streamlined by reorganizing the tasks at the POD – optimizations that would also work at traditional walk-through PODs. Hillsborough County engaged personnel throughout the CHD to optimize POD layout. For example,

Hillsborough's initial POD designs were conceived by nursing staff and clinic managers rather than by Disaster Planners. The CRI counties were in communication with each other and started sending personnel to each other's exercises. CDC also hosted events around the nation for CRI Planners. Moreover, our Unit held a series of CRI summits where the planners could gather to present and discuss their work.

The non-CRI counties tended to complain that the ideas from the CRI counties were too expensive or complicated for them to implement. Although it is true that the CRI CHDs did receive substantially more money for SNS than the other counties, the non-CRI counties obsessed about the money alone and entirely missed the point. The idea was that CRI funded CHDs received grant money to allow the larger counties to hire people devoted to the program, people who could analyze problems and develop ideas. The CRI ideas could then be technically tested at elaborate exercises and politically tested with their sister agencies and even the citizens themselves. Smaller non-CRI counties could then pick and choose among the ideas developed by the CRI counties and implement them locally in cooperation with their community partners, exactly as the CRI counties had to. Unfortunately, concern about the unfairness of the CRI allocation and a large share of small county provinciality prevented most of Florida's non-CRI counties from really embracing CRI concepts.

State Strategies

At the State Level, how DOH chose to staff the RSS was more of a reflection of OEO's relationship to DEM at any given moment than it was based on technical rationale. Initially, the State SNS plan involved running an RSS as if it were any other State Level emergency. The RSS would be staffed as any other LSA would be: through a request for manpower to the other ESFs. By early 2004, political relations between

DEM and DOH were at a low point. The Department of Health did not believe that DEM could competently run an SNS RSS and was concerned that RSS operations would become a DEM mission that DOH would only influence as a second class partner.

We realized that DOH needed the DEM transportation agreements in order to move products from the RSS, but DOH began to believe that it did not need DEM's help running a warehouse and that DOH could, instead, run the operation alone. Despite our problems with Bioshield 2004, DOH continued to pursue this idea. However, in order to run an RSS, DOH personnel had to arrive very quickly. Yet, the only personnel that DOH could reliably count on arriving rapidly and carrying out ESF-8 operations were the RERAs and the OEO Logistics Team. Regardless, the concept of operation was that the Department would roster an RSS team of Tallahassee-based DOH personnel. This team would be driven or flown to the RSS site to run the operation. The RERA who lived in the region of the RSS that was to be activated would simply open up the RSS and wait for the Tallahassee team to arrive.

For political reasons, this remained the plan until 2008. However, during the years when the Tallahassee RSS team was the official approach to the RSS, it came under attack from multiple sources. The Division of Emergency Management continued to believe that they were better equipped to run an RSS, with DOH assistance, than DOH was by itself. Arguably, it was unlikely that the DEM director would, in fact, sit idly by while DOH ran such a mission critical facility alone. Additionally, the ever vocal CHDs argued that Tallahassee could not be trusted to run an RSS and claimed that the CHDs should help run the RSS, or even run the RSS by themselves. Much of this concern was legitimate as the SNS Unit struggled to find even a handful of dedicated SNS volunteers

at DOH Headquarters. Unfortunately, CHDs simultaneously complained that they did not have sufficient resources to operate the PODs that they were already tasked to run. It was, therefore, unlikely that CHDs would be able to assist an RSS in any meaningful way, never mind participate in mandatory RSS training and exercises. Surprisingly, the RERAs were increasingly removed from the role of running the RSS because OEO felt that they would be needed elsewhere. What RERAs would be doing elsewhere was debatable. For example: RERAs typically have no knowledge of running PODs. Although RERAs could help out in county EOCs, each county would be involved in the operation and it is doubtful that RERAs could provide meaningful help to so many county EOCs simultaneously.

Another issue concerned the RSS facilities themselves. Although many locations had been identified, far fewer had been approved by both State and Federal assessors. Additionally, each RSS facility was used for other purposes and could not be relied on for instant access. After the 2004 and 2005 hurricane seasons, DEM realized that the same issues applied to LSA facilities. As a result, by 2007, DEM leased a large dedicated warehouse for disaster logistics. The warehouse was already configured for LSA and RSS operations and became the obvious place to use for SNS. We decided that the other RSS facilities would remain as alternates to the dedicated warehouse. Later, CDC conducted mathematical modeling of the dedicated RSS and determined that it suited our needs and that the facility could, in fact, support sufficient transportation to carry out a Statewide SNS campaign. The advantage of the dedicated RSS was enormous. Most importantly though, it helped to restore the SNS relationship between DOH and DEM.

Bioshield 2006

Before the new RSS was available, we conducted another Bioshield exercise in 2006. This exercise was, as usual, designed and conducted jointly by the SNS Unit, the OEO Exercise Director and our university partner. Although Bioshield 2006 faired better than Bioshield 2004 in some respects, in other ways it was less successful. Once again, we were troubled with the issues of exercise artificialities and scope creep. For instance, some of the participating CHDs wanted to receive simulated medications in order to conduct CRI POD drills in real time. Unfortunately, we were not able to deliver a realistic amount of medications to each POD simply because we did not have the budget to employ a sufficient number of drivers and trucks. We did, oddly enough, have the budget to explore transportation options with expensive air assets.

In particular, the Air National Guard wanted to use UH-60 Blackhawk helicopters to transport medications from the RSS to Pinellas and Hillsborough. The Hillsborough POD was to be located at the Florida Fairgrounds east of Tampa while the Pinellas exercise POD was located in the City of Largo. Although the Fairgrounds had ample room for helicopters to land, the Fairground management was involved in a legal dispute concerning extremely loud night concerts held at their new amphitheatre. As a result, the Fairgrounds refused to allow the helicopter to land mid-day on its property. Instead, the helicopter was required to land at an executive airport directly across the interstate from the Fairgrounds. In response, the Air National Guard became interested in sling-loading a Humvee from the helicopter and using the attached vehicle to drive the drugs from the airport to the Fairgrounds. Ultimately, the CHD decided to send a truck from the POD to the airport. The helicopter landing in crowded downtown Largo, however, presented no issues. At the RSS, we also had our share of helicopter

difficulties. The National Guard was disappointed that we did not use the sling-load option that they had prepared for Hillsborough. Additionally, the original RSS landing zone turned out to be a field with extensive chemical contamination in the soil – exactly what we did not want a Blackhawk to aerosolize. The alternate landing zone was blocked with old municipal earth moving equipment that had to be, literally, dragged to the side. Although we would be unlikely to actually ship many drugs by air, it was nice to know that we had the ability to do so. Involving the helicopters also gave our National Guard partners another mission to accomplish and the impressive machines were very popular with the staff, evaluators and onlookers at both the RSS and the Largo POD.

Within the RSS, we had replaced our paper inventory system with an in-house designed electronic system because CDC's much discussed RITS system was still not available. Our system, based on Microsoft Access, was quite capable but had never been used during an actual exercise or event. Unfortunately, our system relied on network connectivity we did not have at the RSS and was run by the program's creator – a great software designer who, unfortunately, was not trained for working in the environment of an actual RSS. Eventually, we shut the electronic system down and reverted to paper because we were unable to print the forms that we needed within the RSS. Badging was much more efficient in 2006 because we decided to use a set of recognized ID cards that were previously issued.

RSS personnel were still a problem. Despite having a list of people who claimed availability for RSS assignments, very few of them were willing to participate in an exercise. OEO and OPHP staff provided most of the RSS personnel but they were assigned to sections other than operations. The operations staff was composed of

assorted volunteers – including a twelve year old boy. Despite the fact that RERAs had no documented operational role in the RSS plan, RERAs were still used to run key positions within the RSS because so few people from Tallahassee could be recruited. Fortunately, the CDC Technical Assistance Resource Unit personnel who accompanied the Push Package were very cooperative about joining the State's RSS structure and provided much needed manpower and knowledge.

The simulated medical supplies were provided by CDC and contained a collection of selected Push Package containers and stiff plastic sheets that were to be laid on the floor to represent the missing containers. Confusion ensued because some inventory lists included the supplies represented by the plastic sheets and other lists only included the supplies in the actual containers. We did manage to avoid some of the scaling problems seen during the previous exercise because the simulated mission requests were written to match the supplies in the simulated Push Package. Although CDC had moved away from repackaging and provided medications in unit-of-use format, there was still confusion about quantities. For example, our warehouse operations were centered around "the case" as the unit of measurement while CHDs are focused on "the regimen" (a set number of doses). Unfortunately, within the SNS system, different medications come in different, and in some situations multiple, sizes of cases. Additionally, the people who were charged with maintaining inventory were located within the Operations Section, yet those people would have been better placed in the Planning Section, which is considered the information nerve center.

Overall organization was less than desired. Many of the personnel staffing the sections understood their particular role but did not understand the larger picture.

Instead, we relied on a computer system to tie functions together. Unfortunately, the computer did not work as anticipated. Additionally, the Planning, Finance and Logistics Sections were dramatically overstaffed and these people mostly stood around while the *ad hoc* Operations Section struggled. Lastly, as in Bioshield 2004, there was a tremendous rush to move containers off of the delivery trucks without enough forethought about where things should actually go. As a result, our volunteers and RERAs were duplicating efforts while others stood around and waited.

In the end, Bioshield 2006, like its predecessors, was hailed as a great success. I personally believe that the exercise was successful, but for reasons that were not apparent to most observers. Primarily, DOH rediscovered that it is not important what an agency can accomplish in isolation – what is important is what an agency can accomplish with its community partners.

During 2007, the SNS Unit decided to conduct two drills for SNS rather than a single massive exercise. One drill, a simple warehouse event, focused on the movement of material. The second drill was an executive level exercise that focused on the apportionment and prioritizing of supplies. The warehouse drill was organized by Amanda Jameson and allowed us to really focus on the process required to run the RSS. Unfortunately, we had few volunteers to attend the event. The executive drill was initially called “Deliberate Decision” but perhaps that name sounded too forceful for the consensus-building DOH executives who renamed it “Accelerated Analysis.” The apportionment exercise underwent its own scope creep as we realized that the State also needed to conduct a pandemic influenza exercise that had not yet been planned by the large Pan-Flu staff. Therefore, the SNS exercise took on a pandemic influenza

theme and, rather than focus on SNS goals, tended to focus on issues concerning social distancing and whether schools and government services should remain open during an influenza outbreak.

RSS staffing was again revisited. One plan called for hiring private companies to manage the RSS on DOH's behalf. Another plan involved creating regional teams of CHD employees to run RSS facilities since Tallahassee Headquarters, with its thousands of employees, appeared unable to spare a hundred people for an RSS. Ultimately, with the opening of the dedicated RSS facility, DOH returned to the original idea of relying on DEM and the community of ESFs to run the facility - just as it should be.

Project Successes

Although the SNS program suffered from a number of disappointments, particularly in the area of quality non-CRI county plans, there were also a number of victories. The major accomplishment involved bringing SNS back to the attention of DOH. After the episode with the consultants, the field credibility of the SNS program was in shambles. Additionally, many counties decided that, since the county SNS plans were written (by the consultants), they were through with the process. The Department of Health as a whole had also begun to focus on other threats, such as Pandemic Influenza, and therefore forget about the importance of SNS as a core response mechanism for a wide variety of threats. The SNS Unit reengaged the rest of PHP and worked to ensure that the parts of the SNS system that newer plans relied upon were functional and understood. Due to CRI funding, DOH was able to elevate the importance of SNS in large population centers and enlarge the staff.

Before CRI, there was one person working on SNS issues at the State Level. With the CRI funding we were able to bring on more hands both within and outside of OEO. For example, one of the greatest contributors to the SNS project was Pharmacist Erica Lockaby. Erica left DOH shortly before I did, however, in her time at DOH she encouraged the Pharmacy Department to embrace the PHP and SNS programs. Having Erica on board dramatically increased DOH's SNS capabilities. Erica worked with a wide range of partners which included private industry and the Drug Enforcement Administration. Her technical expertise was first rate and many of the detailed procedures for drug logistics were created by Lockaby.

The SNS Unit also adopted a new philosophy and attitude. Rather than sit back and dictate standards, SNS Unit personnel got down in the trenches with people to work on problems as partners. If a county had problems or wanted to talk, we went there – sometimes for several days. We reached both downwards to the counties and upwards to the CDC. This partnership allowed us to conduct training and exercises with better CDC support and allowed CDC to experiment with new ideas. Our process of having County SNS and CRI planners present their work directly to CDC allowed those planners to better understand CDC's requirements and, ultimately, provided a conduit for some planners to share their ideas with national audiences. The CRI Summit, and expanded workshops held at PHP quarterly meetings, also improved our ability to interact with plan writers as did our use of a centralized web site dedicated to SNS related issues.

In addition to receiving more Federal grant money, the SNS Unit also served as a responsible steward of those funds. Jameson worked with OPHP personnel to verify

each SNS budget. We tracked the expenditure of money at each level of the program. We funded several competitive projects, including basic research, and we cut funding to items that seemed unnecessary. Using money that we saved, the SNS Unit was also able to distribute limited funding to non-CRI counties in an effort to improve the system as a whole.

The entire State SNS plan was rewritten in a manner that was easier to understand and was functionally oriented. Although many county SNS plans were below standards, our Unit was one of the first in the nation to actually know this fact because we reviewed and graded the local plans centrally. Our exercises and training also evolved from attempts to build flashy “blockbuster” exercises to smaller linked exercises that focused on defining and improving a specific set of procedures.

Personal Growth

When I began as the SNS Unit Leader, I had a particular attitude that was not unusual among inexperienced managers. I felt that people were usually either competent or incompetent. I also felt that SNS needed to have a consistent leader who had a “take no prisoners approach.” I also believed that SNS at the State Level needed to be better integrated with SNS at the county level. While some of these ideas remained, others changed as I gained experience. In particular, I was influenced by my RERA colleague Isaac Brown.

Isaac told me that it was his experience in the military that nobody “put their boots on the ground in the morning planning to fuck up.” Isaac elaborated that the reason why people fail has to do with the fact that they have inadequate training, guidance, support or a combination of these factors. None of which are under the subordinate’s control. Yet, projects are seldom organized along purely technical lines. Projects are organized

according to the personalities of the people involved. In some cases, a manager is not free to select people for a job, rather they are required to accomplish a mission with the staff that they given. I learned much about how to balance people's abilities against the needs of the Unit. I also learned how to let go and let others solve problems with their own ideas and approaches.

Despite the problems, I greatly enjoyed running the SNS program. I always felt that SNS was a critical program and was frustrated by the way it was run in the past. I was very proud of the fact that OEO had entrusted such a big project to me and I derived a simple joy from leading it – much the way the driver of a powerful car might feel. To continue the car analogy, I felt that SNS had coasted off of the road and into a ditch and it was my job to get a bunch of people to push the car out of the ditch and back on to the road. I really began to understand some of the problems that my supervisors faced. Programs are seldom run purely according to their technical needs. Instead, most programs live within a political and economic climate that constrains the activities of the program. Since DOH is an organic organization, cooperation with a program is not ensured simply because the program is important. Rather, each program must be sold to colleagues. Other groups have to understand exactly what supporting the program will entail and what they stand to gain from participation. Cooperation is negotiated. Success is also negotiated. Additionally, political priorities change. In order to maintain a program, it needs to be tightly interlocked with other systems. To accomplish this interconnectedness, a good PHP program must be as transparent as possible.

Many State Level programs are perceived by counties as pushing responsibility to the county. When a program manager is completely open about their program, others can understand and believe that the program is not holding anything back. Once a manager develops a track record of honesty and transparency, she or he will be believed in the future when support from others is most critical. My happiest moments running SNS involved traveling and teaching SNS to county personnel. The counties were often excited that someone from Tallahassee actually made the effort to visit their county and explain a project. Their excitement was contagious. I was also pleased to see people from across the organization contact me with ideas and I enjoyed figuring out how to advance SNS goals and objectives by making those systems address several needs at one time.

Moving On

By the summer of 2007, I began to feel the stress of running SNS and simultaneously trying to fulfill my Tampa Bay RERA responsibilities. Although nobody mentioned the fact that I was slipping at both sets of responsibilities, I knew that I was. My manner at the office remained relaxed but internally I was in turmoil. I spent my nights awake staring at the ceiling thinking about project deadlines and minor organizational battles. When I traveled around the state, I observed people with greater interest than ever before. I watched visitors and citizens playing on the beaches of Miami and could not avoid the realization that they were all my responsibility. It was egotistical to think that I was personally responsible for the citizens of Florida. After all, we had a great team of people across the state working on CRI issues. Nevertheless, emotions are strange. The turning point came for me when I was sleeping in a hotel

during one of my every-other-week trips to Tallahassee. I had a dream that some outbreak had occurred:

> Hospitals were full and thousands of people were lining up for medicine outside of schools across the state. Meanwhile, hundreds of trucks arrived at a dark empty warehouse. Inside that warehouse, I stood alone trying to log into a computer for which I had no password.

Reflecting on my experiences, I probably should have taken some of my accrued vacation time and asked OEO to reassign SNS to someone else. However it seemed that leaving DOH entirely was a better solution. I planned to leave DOH by December 2007, but I ended up staying until March 2008. The Office of Emergency Operations assigned Amanda Jameson to take over the SNS project in December of 2007 and she was charged with recruiting new personnel. Although I helped Amanda work through some SNS issues, I was cut out of the program pretty quickly. It was strange for me to be separated from something that I lived and breathed almost every day for two years. Following my departure, I would occasionally get notes from Amanda letting me know that she had realized how much I had accomplished and even apologizing for some of the hassle she had given me. I rested easier knowing that the project was in good hands. I had also significantly reduced my diet of headache powders and antacids.

Unfortunately, the stress of running a complicated technical program and dealing with bureaucratic budget issues soon took its toll on Jameson as well. Amanda felt that she was increasingly ignoring her family and her own health. By summer of 2008, Amanda left DOH and the SNS Unit became the responsibility of a different team within OEO. I was proud to have had the opportunity to work with the new SNS team when

Florida implemented several parts of the SNS plan in response to concern about the 2009 H1N1 influenza virus. Although the eventual movement of over 200,000 regimens of antiviral medications was a small subset of what an actual SNS campaign would have involved, it was still a useful test. The current “SNS Guard,” although different in style, is every bit as dedicated as we were. Similarly, they are people with one finger measuring the pulse of Florida’s health and another finger resting on the trigger of public heath’s biggest gun.

Figure 12-1. The Author with an SNS Push Package container

Table 12-1. SNS Scenario Populations & PODs

County	Population	Hypothetical PODs
Miami-Dade	2,300,000	70
Broward	1,600,000	30
Palm Beach	1,100,000	20
Monroe	80,000	3
Collier	250,000	10
Martin	130,000	5
Hendry	36,000	1
Glades	11,000	1
Leon	250,000	5
58 Other Counties	58,000	58
Total	5,815,000	203

CHAPTER 13
CHEMPACK

Background

Researchers in all areas of science during prewar Nazi Germany were required to report discoveries of possible war fighting potential to the military. One such finding concerned organophosphate insecticides. The Nazis capitalized on these new types of insecticides by creating the potent G series chemical weapon nerve agents. These agents were called Soman (NATO Code GD), Tabun (NATO Code GA) and Sarin (NATO Code GB) and are described in Chapter 4. Subsequent post-war research developed the even more powerful V series nerve agents. Regardless of name, all chemical nerve agents work by interfering with the enzyme acetylcholinesterase (AChE). The purpose of AChE is to clean up the signaling chemical acetylcholine (ACh) which is used by the body to propagate nerve signals across junctions and to muscles and glands. If AChE is blocked by a nerve agent, it is unable to remove ACh in circulation and dramatic over stimulation will occur. Despite the agents' lethality and large stockpiles, the Nazis never deployed them.

Why these chemicals were never used as weapons is something of a mystery. Some feel that as a World War I chemical weapon victim, Adolf Hitler himself did not feel them to the appropriate battlefield weapons. However, a more plausible explanation is based on battlefield tactics, supply of material and lack of intelligence. Unless used against an unprepared defender, Chemical weapons, by their nature, slow the speed of combat. Chemical weapons are dangerous and unwieldy to manage. Protective gear hampers the movement of soldiers and decontamination and medical efforts also slow the effort. Since Germany's initial invasion strategy was centered around fast movement

of forces, the use of chemical weapons was not to their advantage (Harris & Paxman, 2002, pp. 137-139). As long as their enemies did not use chemical weapons, it would have been foolish for the Germans to have done so.

Winston Churchill was, however, extremely interested in using chemical munitions to stop a German invasion of Great Britain (Harris & Paxman, 2002, pp. 111-113). Yet, at the time of a possible German invasion of the U.K., Britain's chemical stockpile was a fraction of Germany's. If an initial use of chemical weapons did not completely halt the German offensive, Britain was guaranteed that its population centers would be completely ravaged by German chemicals. In an early version of the Mutually Assured Destruction doctrine, the U.K. was concerned about escalating the conflict in a way that would have assuredly destroyed its homeland.

By the time Germany was on the defensive and could have tactically benefited from chemical warfare, the Allied forces had built up a considerable arsenal of chemical munitions which would have hurt the Germans direly. Although it could be argued that the German chemical stockpile, which included nerve agents, was superior to the Allied stockpile, a lack of intelligence clouded German decision making. A common intelligence idea is that analysts can sometimes tell when an enemy nation is working on a particular military technology by studying that nation's scientific publications. For example, a long trail of published research in a militarily interesting field that suddenly stops is a good sign that the research has become classified. When the Germans realized that the English and American scientific literature was silent about organophosphates, and insecticides in general, the Germans assumed the nerve agents had also been discovered and produced by Allied powers as well. Of course, the

lack of publications on nerve agent precursors was actually due to the fact that the chemicals were completely unknown to the Allies. In fact, Allied secrecy surrounding insecticide research was, in fact, in place. However, the secrecy was to protect the insecticide DDT, not organophosphates (Harris & Paxman, 2002, pp. 66-67).

Although unused during World War II, nerve agents became a cornerstone of Cold War arsenals and a continual marketing chip in arms negotiations. After the war, Soviet forces captured complete German nerve agent factories and scientific records. Additionally, the Soviets were quick to embrace chemical, along with biological, weapons to help address their nuclear disadvantage. In turn, Western powers continued to develop chemical, and biological, weapons because their opponents had done so.

Along with other weapons of war, the nerve agents also became potential tools for terrorists. Several movies and TV programs were produced featuring nerve agents, and the agents soon developed a particularly gruesome cachet. After the 1995 Aum Shinrikyo attack, the need to defend civilians against nerve agent incidents became clear.

CHEMPACK Precursors

Because of nerve agents' exoticness, military significance and track record of use; nerve agent antidotes became part of the Centers for Disease Control Strategic National Stockpile when that program began. CDC included the antidotes both because of the potential need and because, programmatically, the inclusion allowed the Stockpile program to address yet another threat.

As discussed, nerve agents are extremely effective at killing. Fortunately, effective nerve agent antidotes exist. However, due to the rapid onset of symptoms and death, the antidote must be administered very quickly. Specifically, the nerve agent antidote

consists of two medications: atropine and pralidoxime chloride. The drugs operate synergistically to attack nerve agent poisoning. When the standard nerve agent combination treatment is used, the atropine will settle upon ACh receptors and block them from stimulation. Simultaneously, the pralidoxime chloride will work to remove the nerve agent from the AChE which will return the enzyme to functional circulation. The antidote works the same regardless of nerve agent; although in the case of Soman, the nerve agent will bind to AChE so persistently that it cannot be released and only the atropine will be effective.

Because the antidote needs to be taken within minutes, combat soldiers could not wait on medical assistance for antidote administration. In an effort to make the antidote administration as reliable as possible, military scientists developed an autoinjector which features a spring propelled needle. To use an autoinjector, the soldier simply chooses an appropriate site on the body, being careful to avoid: bones, buttons, arteries and major nerve pathways. The autoinjector is then armed by removing a piece of plastic and then pressed against the body. Since the needle of the autoinjector is powerful enough to punch through quarter-inch plywood, the needle will easily penetrate clothing and skin to place the antidote into muscle. Because there are two medications used against nerve agent poisoning, as seen in Figure 13-1, traditionally there are two autoinjectors which are combined into a single “Mark 1 Kit” or “Nerve Agent Antidote Kit” (NAAK). Newer versions of the antidote kit have combined both drugs into a single autoinjector. Depending on symptoms, a soldier may need to administer up to three Mark 1 Kits, and may need even more atropine.

In order to be effective, NAAKs must be immediately available and rapidly deployable. Because of these time constraints, having nerve agent antidotes within the SNS Push Package made little sense, except perhaps as a resupply option. Clearly a program for forward deploying the NAAKs was needed. Shortly after September 11, 2001 large quantities of nerve agent antidotes were distributed directly to the first responder communities located in large urban areas. However, the quantity of these antidotes was insufficient to treat large numbers of victims and the expensive nerve agent antidotes were not always stored in a manner that protected them from degradation. Nerve agent antidotes suffer from a paradox relating to their need for rapid deployment balanced with the expense of the units and their storage requirements.

Despite the recognized threat of nerve agent attacks, such attacks are still considered unlikely compared to other types of attack scenarios. Although first responders were issued NAAKs, those NAAKs were considered protective measures for the responders themselves rather than serving as a treatment option for large numbers of civilian victims. What was needed was a system for forward placing large quantities of antidotes in jurisdictions that were considered likely threats. These antidotes needed to be located where they could be rapidly deployed and they needed to be stored in a way that would maximize their shelf life. The solution devised by CDC was known as the CHEMPACK program.

CHEMPACK Basics

The CHEMPACK program utilizes special containers similar to the containers used to store and transport SNS Push Package assets. These containers are assigned to local facilities in jurisdictions of concern and are stored under strict security and environmental conditions. Additionally, the containers are equipped with sophisticated

environmental and intrusion monitoring devices which record events and regularly report their status to the CDC. The environmental monitoring is a key issue for the CHEMPACK program. Large Federal users of medications are typically involved in a program known as the Shelf Life Extension Program (SLEP). Under SLEP, identical products are kept around the country, or the world, in identical storage conditions. On a regular basis, a sample of the product is pulled and tested for potency. If the tested sample still meets standards then it is assumed that the identical product stored under identical conditions elsewhere should also still meet standard. In this way, expensive products do not need to be automatically discarded simply because of the expiration date on a sticker. CHEMPACK represents the largest extension to the SLEP ever attempted. Hundreds of canisters around the country are independently controlled but monitored from a single location. Without SLEP, a program such as CHEMPACK would not be financially possible. Under the CHEMPACK system, control of the assets is split between layers of government as follows: The Federal Government will purchase, monitor and restock the containers. The state government will coordinate the placement program within the state and work with locals to find suitable locations. Additionally, the State Government will manage the program grant and oversee the payments and contracts required to modify facilities to meet the CHEMPACK minimum standards. The local government is charged with helping to find locations for the containers, accepting the containers, developing a plan and protocols for the use of CHEMPACK and finally using the CHEMPACK assets if necessary.

The CHEMPACK system consists of two types of containers which are referred to as EMS and Hospital containers. Initially, each was designed to treat around a thousand

people per container, but the Hospital version's contents were mostly in bulk form, such as vials, while the EMS container primarily holds the fast deploying, and far more expensive, auto injectors. In addition to different contents, the two types of containers represent two different concepts of operation for CHEMPACK assets. Moreover, these different concepts of operation reflect two distinct cultural and organizational viewpoints.

The first viewpoint could be considered the "Firefighter Viewpoint." According to the Firefighter Viewpoint, CHEMPACK assets should be kept with fire & rescue units within their fire houses and transported rapidly to the incident scene in case of a nerve agent attack. The idea is that exposed people at the scene are in danger of dying very quickly and, therefore, the CHEMPACK assets would be needed on scene as quickly as possible. The second viewpoint could be called the "Medical System Viewpoint." The Medical System Viewpoint espouses that nerve agent antidotes should be stored in hospital facilities which will actually receive attack victims from a variety of sources; both officially transported as well as self transported.

While the idea of taking antidotes to the scene in order to begin immediate treatment seems like sound logic, there are a number of factors that must be considered. For example: Even if immediately notified, first responders will be slow enough reaching the incident scene that they will be unable to save the lives of victims who received a heavy exposure to the nerve agent. Additionally, first responders will not make entry to the scene until they have donned their personal protective equipment and set up security boundaries and decontamination corridors. Lastly, since there are few CHEMPACK canisters within a given jurisdiction, they may or may not be located close to any given incident scene and their transportation could take even longer than the

transportation of the response teams themselves. In other words, severely exposed victims will die and there is essentially nothing that can be done about that. Furthermore, less severely exposed victims can most likely wait for treatment until arrival at the hospital. Moreover, as was seen in Tokyo, a tremendous number of victims transported themselves directly to the hospital and these contaminated “primary” victims succeeded in contaminating a large number of “secondary” victims who were possibly never even at the incident scene. Therefore these secondary victims would never be in proximity to the antidote cache that might be transported to a scene.

In addition to these tactical differences, there are logistical and political considerations as well. For example, although hospitals would be logical places to locate CHEMPACK containers, available hospital floor space is limited. On paper, hospital pharmacies are the ideal type of environment to store CHEMPACK assets, assuming they can be moved rapidly out of the facility. Unfortunately, pharmacy floor space is among the most expensive real estate available. As a result, hospitals, as profit driven businesses, are frequently uninterested in expending valuable floor space on something exotic like CHEMPACK containers. At the same time, many fire departments see themselves as the logical agencies to manage CHEMPACK. Unfortunately, most fire stations are not well set up to logistically store CHEMPACK assets and would require expensive facility modifications. Moreover, fire stations, as geographically distributed units, are close to everything, yet central to nothing.

CHEMPACK in Florida

The initial CHEMPACK coordinator hired by the State of Florida was actually an archaeology graduate student. The CHEMPACK Coordinator was intelligent and wanted to implement CHEMPACK in a straightforward manner. His task was daunting however.

The CDC had decided that the State of Florida was to receive 108 CHEMPACK containers. Essentially, CDC had taken their budget for containers and divided it up by national population to determine how many containers a state was to receive. CDC's allocation was not based on threat or desire by the state – it was a purely population based decision. Although Florida has a large state population, the population is spread across a number of urban centers rather than concentrated in a single "mega city" such as New York City or Chicago. Other PHP programs across the nation addressed the mega cities as separate program areas from the states that contained them. Since Florida was the largest state with no mega cities, we were charged with the largest single CHEMPACK deployment in the nation.

As with other PHP programs within Florida, it was decided that CHEMPACK would follow a regional approach. Because CHEMPACK was an OEO effort, and considered a fringe program by many, the RERAs in each region were usually assigned as the regional contacts. The CHEMPACK Coordinator would then oversee, but not control, the RERAs and other regional coordinators and move the program along. However, typical of many projects, the regional coordinators had many other tasks to accomplish and felt that CHEMPACK was a low priority project. The Coordinator's next attempt was to directly contact potential CHEMPACK host facilities within each region. Unfortunately, his initiative angered some of the RDSTF Health and Medical Co-Chairs. The Co-Chairs simply did not want anyone from Tallahassee going behind their back to talk to organizations within their regions.

The CHEMPACK Coordinator also found that the response from each region was dramatically different. Regions where the PHP program was run by people who were

aligned with a fire & rescue culture were much more interested in CHEMPACK than the regions where PHP was controlled by the public health & medical culture. Additionally, regions and counties within Florida that were not home to large urban centers had not benefited from the extensive domestic preparedness grants that the Metropolitan Medical Response System, Urban Area Security Initiative and Cities Readiness Initiatives programs had provided. As a result, rural counties were much more interested in CHEMPACK simply because it was a free domestic security asset that they could acquire. On the other hand, urban areas looked at CHEMPACK as yet another resource of dubious value that had to be stored. In the end, the CHEMPACK Coordinator, like CDC, decided to allocate Florida's 108 CHEMPACK containers to each region based on population, rather than demand. The smaller regions did not receive as many CHEMPACK containers as they would have liked to have received, but to make up for it, the larger regions were allocated many more containers than they wanted or could find homes for. Regardless of our desires in the field, CDC made it abundantly clear that they were expecting us to place our entire allotment of CHEMPACK containers and anything less was failure.

Trying to persuade some agencies, particularly hospitals, to host CHEMPACK was extremely difficult. Unfortunately, the difficulty only increased because of a subsequent decision made by CDC. Initially, CHEMPACK containers could be requested as either EMS or Hospital versions. Due to the large quantity of autoinjectors, the EMS containers were considerably more expensive than the Hospital containers. As the CHEMPACK program continued, the cost of autoinjectors rose and, nationally, more EMS containers were requested than Hospital containers – which drove the cost of the

program up even further. In order to keep the program within budget, CDC was forced to either reduce the number of containers deployed, or reduce the amount of material within each container. Since Florida was experiencing trouble placing containers as it was, we hoped that CDC would leave the amount of material, enough for 1000 patients, alone and would supply us with fewer containers. Naturally, it was not to be. The containers had already been ordered and CDC's progress was measured in the number of containers deployed, not the amount of product deployed. What had already proven to be a difficult task became even more difficult once the hospitals realized that they were going to the same level of work and expense for half of the originally stated product.

Program Transition

After I was assigned control of SNS and CRI, I was also assigned control of the CHEMPACK program because DOH wanted to have a single individual overseeing all emergency therapeutic programs. Since CHEMPACK was coordinated at the Federal Level by the same person who coordinated SNS and CRI, it also made sense to fully mirror the relationship at the state level. Paradoxically, this made me both the CHEMPACK Coordinator's supervisor and, since he oversaw the regional CHEMPACK coordinators, his subordinate at the same time. Since I was his boss, he began to relax a little bit about RDSTF-4's CHEMPACK progress but, while I appreciated the breathing space, this actually allowed Region 4 to fall further behind regarding CHEMPACK.

Shortly after my taking over, the CHEMPACK Coordinator found an opportunity to work on an Archaeology project and potentially finish his graduate degree. After his departure, the coordinator position remained vacant for a number of months and what little progress we were making began to stall. The replacement coordinator was an

over-achieving nursing student named Rachel McKinney. I first spoke to Rachel over the phone when I followed up on a tip that she might be interested in applying. Due to the complexity of the program and the lack of direct oversight that I was able to provide, I decided that my best strategy was to try to talk Rachel out of the position. I figured that if I didn't succeed in frightening McKinney away, then she was probably exactly what I was looking for. McKinney possessed a logical mind and could articulate complicated concepts in a sophisticated, yet easy to understand, manner. Additionally, Rachel was very attractive and could dial up her flirtatious charm in a way that held the attention of the male fire fighters that oversaw the majority of potential CHEMPACK sites around Florida. Lastly, McKinney had a relaxed attitude and presented a very different personality than the previously overly assertive approach that turned the RDSTF Co-Chairs against CHEMPACK.

I admit that I paid little attention to CHEMPACK as CRI and SNS were, for me, much higher priorities and were more closely aligned with my interests. McKinney took over the day to day management of locations, negotiations with regional and local coordinators and oversaw the complicated process of modifying and paying for facilities to meet CDC's storage standards. Ultimately, McKinney oversaw dozens of contracts and payments to third parties. The scale of CHEMPACK's finances exceeded anything that OEO or OPHP had ever undertaken. Each contract to install, for example, an alarm system or a telephone line at a site involved a small amount of money, yet, the bureaucratic overhead of each contract was enormous. In addition to the finances, McKinney also managed the thorny legal issues involved with the grants and with

transferring expensive Federal property into the custody of local agencies and private organizations.

The cost of facility modifications, or “build outs,” was also a bone of contention. When the previous coordinator first calculated a rough budget for the program, he divided the amount of money that CDC had allocated for build out expenses and divided it by the number of containers. It was determined that we could afford to spend about $3000 in build out per container. If we placed more than one container in a location, the build out expense per container would typically drop. As a result, we could occasionally spend more than $3000 per container if the location was deemed particularly desirable. Regardless of the logic, many local agencies heard the $3000 per container figure and interpreted this to mean that they, the agency, would receive this $3000 as some sort of “placement fee” for storing the container rather than realizing that this was an upper limit for the money that DOH would pay a contractor for modifying the facility. To add to the confusion, some agencies thought that they would subsequently receive $3000 per container every year for continued “costs” associated with storing a CHEMPACK container. Fundamentally, CHEMPACK appeared to be a solution in search of a problem and it would have to be marketed as a compelling enough asset to convince local agencies to want the containers simply for the sake of having them, regardless of profit.

Despite my abandonment of CHEMPACK to Rachel, we did work together to solve some difficult strategic issues. As alluded above, one of the fundamental problems with CHEMPACK was that there existed no sound strategy for where the units should be placed, nor were there tactical concepts about how the containers should actually be

used. Essentially, CHEMPACK was a tangible asset with no doctrine or plan. In fact, the whole idea of a “CHEMPACK Plan” would continue to haunt the project. After all, despite its name, OEO had become a planning organization and it maintained the strategic PHP plans for the Department. Many just assumed that an expensive program like CHEMPACK should have a plan similar to SNS, BioWatch or the Monroe County SpNS evacuation. What State planning personnel failed to understand was that DOH’s role in CHEMPACK was simply to place and oversee maintenance of the containers. The Department of Health did not actually possess the containers. Additionally, due to the variety of storage locations, agencies and local threat environments, it was impossible for DOH to dictate precise terms for how the assets were to be used in an emergency. McKinney and I tried to address the need for a strategic “plan” relating to CHEMPACK as well as the need to explain the program, the threats and tactical considerations in one document. We therefore created a CHEMPACK “white paper” that was used to explain, justify and advertise the program as well as to make tactical recommendations. One of the most technically difficult things was to try to demonstrate that storing CHEMPACK at fire stations and deploying the assets to an incident scene was less than ideal. Politically, however, we were forced to couch these ideas in a way that would not alienate the majority of our CHEMPACK hosts since these host agencies were typically fire & rescue agencies that envisioned deploying the assets exactly as we recommended against.

Florida was the last state in the Nation to deploy CHEMPACK. In addition to the tremendous size of our roll out, few major players within PHP believed that CHEMPACK was a logical or useful program. Rachel, with much help from local partners, did

succeed in placing all 108 allocated CHEMPACK containers around the state. The manner in which they were placed was often radically different. As expected, the actual allocation of containers was determined by two major factors: How strong the regional planning apparatus was and whether the regional planners were public health oriented or fire & rescue oriented.

For example, Region 5 had a reasonably strong regional planning structure and there was sufficient fire & rescue influence to allow Region 5 to place all of their containers plus additional unwanted ones from other regions. Region 1 had a strong regional planning group and a strong fire & rescue presence so it was also able to place it's handful of containers plus others. Furthermore, Region 1 would have probably been able to place even more containers if we had them available or been willing to place them in some of the least populated counties of the state.

Although Region 4 had a good regional planning structure, it was more of a democracy than the other regions so it seldom forced counties to participate in anything. Moreover, Region 4 leadership, including myself, was heavily public health and hospital influenced and simply did not believe in the CHEMPACK programs utility. Within Region 4, the only county that initially wanted to participate in CHEMPACK was a small rural county that arguably had no need for CHEMPACK assets. To make matters worse, the location proposed to store the container in this particular county was one of the least convenient and most expensive sites in the state. Ultimately, Region 4 did accept a handful of containers and placed them in Hillsborough and Pinellas Counties. However, the placement of those containers involved some of the hardest negotiations undertaken in the entire roll out. At the time of the CHEMPACK deployment, RDSTF

Region 2 had a weak regional structure and was dominated by PHP Planners who held narrow interpretations of their job descriptions. As a result, it was very difficult to place CHEMPACK in the Tallahassee Region. In the end, a number of containers were finally placed around the state capital.

CHEMPACK in Florida was a success because we beat the initial skepticism and placed all of the containers that CDC decided that we needed to place. I have also spoken with first responders around the state who have voiced pride and confidence about their local CHEMPACK container. Less popular, was the follow up decision by Federal officials to reduce the distribution and funding of personal and vehicle carried autoinjectors for responders since that need was supposed to be filled by CHEMPACK assets. There also remain questions about protocols, tactics and exercise of the CHEMPACK assets so that locals can effectively use the antidotes in the tiny window of opportunity that they would have in an actual nerve agent attack. People within PHP are still polarized about the value of CHEMPACK: Is it a vital preparedness program? Is it a political ploy? Is it yet another “feel good” program? I, personally, do not know the answer, and I hope to remain forever ignorant.

Figure 13-1. Mark 1 Nerve Agent Antidote Kit

CHAPTER 14
ORGANIZATIONAL ANALYSIS

Bureaucracy and the Management of Organizations

In this final chapter I intend to explain many of the observations from the previous chapters by using a specific theoretical framework. However, before I discuss theory I must explore some additional concepts and ideas. In particular, there are two organizational "stresses" that I have attempted to highlight in this work. Primarily, there is a stress between different ways of organizing resources, information and control: organic networks and mechanistic hierarchies.

The secondary stress evident within Florida's PHP program is also felt across all manner of government agencies: the stress between profit oriented and not-for-profit oriented organizations. In addition to impacting cost and, potentially, efficiency, privatization of services can also cause new intraorganizational interfaces and processes. In turn, these manifestations can affect the organization both positively and negatively. I will now address each of these in turn.

At the time of this writing, The European Union has just passed the "Lisbon Treaty" among its member nations. The purpose of the treaty is to change the way many points of EU business are decided. Traditionally, many measures would only pass into law with unanimous approval by the member nations. As the EU has expanded, it has become abundantly clear that complicated and difficult legislation will seldom acquire unanimous support. Under the Lisbon Treaty, many measures will be passed with a majority vote which will hopefully streamline operations. Simultaneously, the Congress of the United States is attempting to reform health care. Whether particular legislation passes will also depend on alliances between legislators designed to ensure that a sufficient

majority of votes exist to support or defeat the bill. As another example, the World Trade Organization's (WTO) recent "Doha Round", designed to simplify multilateral trade, collapsed because the WTO member nations were unable to reach the required unanimous consensus.

It is inevitable that large organizations need some type of structure to control their decision making regardless of if they are responding to regular, day-to-day, types of situations or devising high stakes solutions in short time frames. While a small company may make decisions based upon what the owner alone wants to accomplish, when an enterprise reaches greater levels of complication, it is logical that its decision making system will also grow. In addition to making decisions, organizations must also acquire resources, track and assign those resources as well as interact with the organization's customers. As the enterprise grows, those functions must also grow.

Typically, the evolution of an organization's structure will involve the definition of decision makers at the top, sometimes with a consultative group for complicated issues and then additional components: A component for the creation of the organization's core products or services; A component to manage the organization's finances; a component to conduct strategic planning; a component to communicate with others outside of the organization and a component to logistically support the other components with the materials and services that they need to operate.

A structure as I have just described perfectly matches the Incident Command System. The structure also describes how virtually all larger corporations and government agencies operate in some form or another. Throughout this document, I have referred to this type of administrative structure as "hierarchical", "mechanistic" and

“bureaucratic.” In particular, the word “bureaucratic” is heavy with meaning. Michael Crozier, in his book “The Bureaucratic Phenomenon” describes three common usages for the word (Crozier, 1964, p. 3). Specifically:

> It is government by departments of the state staffed by appointed and not elected functionaries, organized hierarchically, and dependent on sovereign authority. Bureaucratic power, in this sense, implies the reign of law and order, but, at the same time, government without participation of the governed.

Crozier continues with a second description, this time based on the writings of Max Weber:

> Bureaucratization is brought about by, among other means, the inordinate concentration of the units of production and in general of all organizations and the development within these of a system of impersonal rules, as much for the definition of functions and the repartition of responsibilities as for the ordering of careers.

In other words, bureaucracy not only defines the interaction of participants at any particular point in time but also establishes career pathways which organize future participant interactions. The last usage that Crozier mentions for bureaucracy is probably the most common:

> It evokes the slowness, the ponderousness, the routine, the complication of procedures, and the maladapted responses of ‘bureaucratic’ organizations to the needs which they should satisfy, and the frustrations which their members, clients, or subjects consequentially endure.

Crozier’s definitions of bureaucracy are useful and describe the apparatus from a variety of views. The evolution of organizational administration outlined above would imply that a mechanistic bureaucracy is an obvious and natural way to organize an enterprise. In fact, traditionally, it has been just that. Mechanistic organizations have numerous advantages: people within the organization know where they fit; they know their function; they know who their supervisor is; they know who their subordinates are.

In short, mechanistic organizations lead to stability. There are some exceptions, for example, ICS is a system conceived for managing relatively short-duration events and is designed to be expanded, modified and reduced rapidly and as needed. In fact, guidelines for its expansion and contraction are actually built within the system's rules. Although an ICS structure, may be considered a mechanistic organization itself, it is actually a temporary "interbureaucracy" which allows established bureaucratic organizations to work together by merging their already existing components. Because bureaucracies are tightly coupled within themselves, each participating bureaucratic hierarchy must either be highly compatible in nature and structure or be able to tolerate a certain amount of fuzziness at its juncture points.

Privatization of Government

Another factor discussed prominently in this document is the role of consultants and contractors and their relationship to civil service employees. Civil servants and government bureaucracies are different from private sector organizations in numerous ways. In particular, they differ, as described above, by their public and sovereign nature. They also differ because they ideally insure independence by attempting to shield their workers from political or economic influence. Some of these protective measures also shield the employees from certain market conditions. A situation which some privatization advocates feel allows government to grow inefficient. While writing this document, many people have challenged me to expose the "waste" of government. While there is, arguably, much efficiency to be gained within government activities, many citizens have a simplistic belief that the private sector is magically more efficient than the public sector simply because it is not part of the government. At this point, I

must discuss issues of private versus public sector bureaucracy and the continuing debate about the privatization of government functions.

Government agencies are the usual target for critics of bureaucracy. These critics will often conclude their argument by claiming that government agencies should be broken apart and privatized because the “private sector” is inevitably more efficient than the public sector. However, it must be remembered that most government agencies are bureaucratic precisely because they are large complicated agencies with a tremendous number of varied tasks. In fact, larger corporations such as General Motors, International Business Machines, Exxon and Coca Cola are also quite bureaucratic. One tremendous and overlooked advantage of these private sector organizations is that a private sector company is free to choose to participate in a particular domain of goods or services. Because a corporation’s success and efficiency are easily measured by quantifiable values such as profit and market share: If a particular market is not profitable for a company, they may choose to extract themselves from that market in some manner.

Government agencies, by comparison, are forced to participate in particular domains or markets regardless of profitability. Furthermore, the domains of government are typically reserved for government agencies precisely because the domain involves a coercive force that citizens feel should be left to a sovereign organization that is ultimately responsible, even if indirectly, to the vote of the citizens. In other cases, the government provides services for the public good that are not considered profitable enough or too important for private organizations devoted, primarily, to wealth creation. Public health, for example, is important, unprofitable and potentially coercive.

Privatization advocates sometimes fail to understand that government agencies are usually not privatized precisely because they are unsuitable for privatization.

Moreover, many of government's loudest critics are elected officials who usually run on a "fix government" campaign theme. After all, if government were perceived as running smoothly then few citizens would feel the need to vote out an incumbent. Political candidates are therefore required to criticize the very organizations that they hope to oversee. Once elected, new legislators often feel the need to do something, anything, to "fix" a system that they frequently do not understand.

Continuing with the example of public health, some services of a public health agency can be, and are, privatized through the use of outside contracting firms. Some of those contractors provide commodity services similar to those used by other types of organizations and are effective. In more technical areas, the type of personnel needed by a contractor are so specialized that they can only be found among the ranks of current, or retired, government employees. These former government employees must, in turn, be provided with suitable economic incentive and the contracting firm must still make a profit off of the entire process. After all, if there was no profit incentive for private companies, none would simply volunteer to take on the work. In this case, privatizing specialized functions actually leads to higher costs rather than lower costs. Unfortunately, if a government agency is politically pressured to privatize functions, it may not have an option but to pay more for the same level of service.

Furthermore, even if every service provided by a public health agency was compatible with privatization, there would still be a need for an overseeing public health agency. After all, contractors must be paid and their work must be verified by someone

ultimately beholden to the voter or tax payer. Additionally, since contractors specialize in particular, profitable, areas of activity – there must still be a cadre of personnel who would coordinate the contractors' specialized activities and fill in the gaps of service missed by the specialized contracting firms. In essence, the very people required by a government agency to oversee contractors are the very same people who are generally required to oversee the agency's operations personnel. As a result, privatization typically involves replacing the knowledgeable native operations personnel of an agency with lower paid, less knowledgeable, contractors while leaving the agency's vast collection of "overhead" personnel in place. The alternative is to hire the former operations personnel back at a comparable, or higher salary, which, after corporate profit, will cost the tax payers more.

Some might argue that the entire public health infrastructure could be replaced with a "prime contractor" that would manage and organize an assortment of smaller contractors to fulfill the public health mission. However, even if standards of safety and sovereign power could be established, a prime contractor that was willing and able to undertake public health tasks on behalf of government would also be required to work within the same customer, technological and legislative environment that public health agencies operate. In other words, a "private sector public health organization" would probably evolve to resemble a "public sector public health organization." The exception, of course, is that the private sector organization would be profit motivated. Although profit motivation alone does somewhat increase an organization's desire for efficiency, the fruits of that efficiency will usually be directed to the owner's enrichment rather than cost savings for the tax payer and other customers. Experience with monopolies and

oligopolies in industry has shown that they are also capable of inefficiency and waste. This is especially true if traditional “cost plus” contracts are utilized.

In order to achieve truly better service and cost savings for the tax payers and customers, the contractor must be faced with competition. Unless there were multiple competitive “private sector public health organizations” who would struggle against each other for a government contract, there is no inherent incentive for better service and cost savings within a “private sector public health organization.” Therefore, a non-competitive private sector organization is not, inherently, any better for its customers than a public sector organization. Nor have large private sector companies been shown to suffer any less from the principal-agent problems that allegedly plague the public sector. Due to the potentially competing profit motivations of the different actors, these problems may actually be worse.

Moreover, even if initial competition exists, there is no real incentive for efficiency unless a private sector contractor faces the possibility that their contract will be revoked and awarded to their competition. While some types of service contracts can be re-assigned with minimal disruption, others cannot. For example, the DOH Bureau of Laboratories regularly places its security and janitorial contracts out for bid. These services, although important, do not directly interface with the normal responsibilities of the laboratories so they can be switched with minimal disruption. Because the bidding contractors do not usually employ excess personnel available for assignment to the laboratory, it is not unusual for the winning contracting company to hire the same personnel that were previously employed by the former contracting company. In some cases, these employees agree to perform the job for a lower wage or benefit package,

in order to allow the new company to offer their services for less money. After all, a lower wage is generally preferable to unemployment. However, it is also not uncommon for the company to shuffle resources internally to accomplish the job for less or hire on less experienced personnel who will work for less money.

In other cases, the change of contractors can be incredibly disruptive. When DOH switched from one payroll time accounting system to another, the impacts were wide spread and extremely frustrating to employees. The fact that this disruption occurred in the middle of Hurricane Frances response further complicated the situation. Another example of issues that can occur during contract reassignments can be seen with the Pinellas County, FL EMS provider contracts (Sandler, 2004). Emergency Medical Services in Pinellas County are divided between municipalities and the county. If a patient is in need of advanced life support (ALS) services, then paramedics from fire & rescue agencies, dispatched through a unified county system, will tend to the patient. If a patient requires simpler care, known as Basic Life Support (BLS), then that patient is usually treated and transported by the county EMS agency known as Sunstar.

Sunstar is a private-public partnership. The top tier officers, the physical buildings as well as the dispatch system belong to the county while the rolling stock, and all of the other personnel, are employed by a company that has won the contract to operate Sunstar. Historically, Sunstar is considered an excellent EMS agency, they have won awards and regularly exceed standards. The public-private partnership aspect is frequently cited as a reason for their performance. However, even with an agency such as Sunstar, transitions between contractors can complicate operations.

When a new company wins the Sunstar contract, that company does not employ extra personnel held in reserve in case they win a big new contract. Rather, the new contractor must hire personnel to operate Sunstar. Emergency Medical Technicians and skilled support personnel are not normally easy to find. In the case of the new Sunstar contractors, there happens to be a pool of experienced personnel already located within Pinellas County who are looking for employment: The existing employees of Sunstar who are about to be released by the previous Sunstar contractor. Although the personnel and facilities, therefore, remain largely unchanged between contracting companies, some of the assets of the organization belonged to the private company and were taken away when that company left. As a result, the new company, along with the existing employees, incur certain startup costs as new equipment is deployed and records are reconstructed (Lindberg, 2009).

Logically, as it so happened, unless the previous contracting company simply chose not to compete for the new Sunstar contract, the only way that a company could win the bid is to offer to accomplish the mission at a lower cost than the previous company. It is entirely possible that the new company could have economies of scale or perhaps new technology or procedures that increase efficiency. Likewise, the new contractor may be willing to accept a lower profit margin than the competition. Frequently, however, companies reduce costs by reducing staff or paying lower wages. Both of these options tend to impact morale as well as performance. Privatization advocates also tend to argue that a private sector organization could achieve higher efficiency than a public sector company because it could reduce waste and unproductive employees. However, even if “pure” non-competitive government agencies

do employ less productive employees, in the case of an organization like Sunstar, the new contractor is inheriting an organization that was previously run by another profit-driven company and should already be relatively lean.

From the previous description, the reader may be led to believe that the author is against privatization or contractors. However, this is not true. There are many examples of successful privatization in commodity areas such as logistics, travel, printing and payroll. As some of the foremost users of private contractors, the U.S. Military and State Department have discovered in Iraq that using contractors to drive trucks, for example, makes more sense than using armed contractors to carry out paramilitary missions. Despite the tremendous danger, driving a truck in Iraq is still a relatively straightforward task. Paramilitary operations are far more specialized, involve sovereign responsibilities and carry the significant risk of political blowback. Therefore, not all tasks of government are equally attractive to privatize. Some things are simply best done by the government itself. In other words, just because a function can be privatized does not mean that it is in the best interest of the taxpayers to do so - even if privatization of government is in the best interests of the politically influential (James, 2006).

Organizational Ecosystems

Organizations are impacted by their environment. Much as a shark and a dolphin are completely different animals, from different origins, evolutionary forces have shaped them to exhibit similar forms due to their common environments. So it is with organizations. It is true that, at its foundation, an organization may be designed to have a certain form. It is advantageous to the organization if the design is beneficial rather than detrimental. The hierarchically arranged mechanistic structure has successfully, although perhaps not happily, shaped organizations for thousands of years (Weber,

1947, p. 337). With the advent of high speed data systems and increasingly sophisticated personal communications devices, much discussion has ensued about so called virtual organizations. As workers have acquired the ability to keep in close contact with colleagues no matter where the worker is, some have proposed the idea that organizational structure can be defined by the communication pathways rather than allow the structure to define the communication pathways. In other words, there are other ways to organize an agency or company aside from the classic mechanistic bureaucracy.

One of the most difficult things about working for the Florida Department of Health is how to explain to outsiders, or even insiders, how the Department is organized. Several years ago. I was visiting a former classmate of mine in her office at DOH. As we were catching up, we began to talk about the Division of Emergency Medical Operations. My classmate remarked that even though she had seen DEMO's "T.O." she still did not grasp how it worked. After more discussion, I realized that "T.O." was shorthand for "Table of Organization." I also realized that DEMO, and PHP in general, was very difficult to describe using a two dimensional hierarchical diagram. Similar to the problem of reducing any multidimensional situation to a smaller number of dimensions, there were bound to be distortions and stress in the depiction. DEMO was hard to figure out from an organizational chart because the division was not always organized according to the chart. Throughout this document, I have referred to the Florida Department of Health as a "network" or as an "organic" structure. Clearly, DOH also has mechanistic qualities and, aligned with Crozier's three usages of the term, significant bureaucratic characteristics. I have also described the various environmental

factors that have lead to DOH's organizational design and evolution. Additionally, I have described how other public health agencies sharing similar "ecosystems" also share some of DOH's organic characteristics. Even though those agencies have not formally embraced them as Florida DOH has.

Although rare, the Florida Department of Health's structure is not an accident. Like an animal or plant in an ecosystem, the Department's structure may be predicted because it corresponds closely to an organizational behavior theory known as the Environment-Organization-Person Contingency Model (EOP) (Tosi, 1992, pp. 32-37). In addition to explaining the overall nature of DOH's structure, the EOP model can also be used to explain the organizational nature of DOH's components as well as the types of personalities that can be expected within those components. Furthermore, EOP could also be used proactively to help shape the structure of new components that DOH may need in the future.

The Environment-Organization-Person Contingency Model

The EOP Model is a classic materialistic explanatory model. It states that the environment, or the infrastructure, influences the social structure of people. The structure then shapes the super structural belief systems and values of the organization. Since the model is materialistic, changing the super structural "values" of an organization is a weak way of influencing the structure or the infrastructure. However, tuning the values of the superstructure can be used to rationalize and strengthen the existing structure. In other words, an agency's nature is not shaped by its "values statement" but by its ecosystem.

The first component of EOP involves the environment in which the organization functions. Traditionally, EOP considers the environment to consist of two main

variables: market complexity and technical complexity (Tosi, 1992, pp. 32-37). Each variable is measured on a spectrum ranging from stable to volatile. The volatility of each variable then can be used to predict how an organization would be structured. Organizations faced with both stable market and technological conditions utilize an organizational structure that reflects, and encourages, stability. In other words, stable conditions favor mechanistic organizational structures. Organizations that experience dynamic or volatile market and technological environments require organizational structures that allow rapid reconfiguration and flexibility. In other words, volatile conditions favor organic organizational structures (Figure 14-1). Between these two extremes exist a variety of permutations. For example, organizations need not be purely mechanistic or organic. Additionally, organizations which encounter a stable technical environment but a volatile market environment are referred to as “market-dominated mixed” organizations while organizations with a stable market environment and a volatile technology are said to have a “technology-dominated mixed” organizational structure (Tosi, 1992, pp. 46-49). Each of these variants has particular qualities and types of people found within them.

By the term “market”, the EOP Model refers to the interface with the customers of the organization (Tosi, 1992, pp. 29-32). Specifically: the number of customers, the types of customers, the complexity of those customers, the stability of customer demand, the types of products or services provided to those customers and the complexity of those products or services. Additional market factors include: the payment stability of customers as well as the presence of competition and substitute products and services. The technological variable refers to the technology used by the

organization to create products or services as well as the technology utilized in the product itself. In addition to tangible technology, technology could also refer to the technical expertise as well as specialized knowledge needed to address challenges or threats that the organization faces. Although some have suggested that I rename these EOP dimensions from their traditional business-oriented terms, I feet that the traditional terms adequately describe the concepts and retain standardization with the literature.

As an example of these dimensions, law enforcement agencies provide an array of services ranging from traffic enforcement and domestic disputes to robberies and hostage situations. However, law enforcement tasks are similar in their essential public safety and enforcement nature. Fire departments also provide a range of services. For example, a fire department may suppress fires, extract victims from vehicle wrecks, secure hazardous materials and provide pre-hospital services and transportation. Yet, these tasks are also similar in their nature as well as the types of skills and processes required to accomplish them. Fire and police personnel regularly deal with the citizens in their communities. Although these citizens may be quite varied, the types of services that the agencies provide are fairly predictable. While it is true that, any given day, a new surprise will await police and fire personnel and issues involving life and death seldom seem routine, the market environment for police and fire agencies is, in fact, fairly stable.

Public Health officials, however, provide an extremely wide array of services and products. On a day-to-day basis, the Florida Department of Health provides: clinical care for children and adults; dental care; immunizations; medical diagnostics; nutritional counseling; medical and lifestyle advice; prenatal assistance; water and sewage

inspections and certifications; food inspections; chemical monitoring and analysis; disease outbreak investigations; hospital infection control advice; health information for citizens, government and elected officials as well as the news media; radiation equipment and radioactive materials inspections; licensure of medical professionals; medical malpractice investigations; certifications for hospitals and trauma centers; EMS inspections and certifications as well as monitoring incidents involving health; emergency planning and conducting training and exercises. During disasters, the Department of Health: restores the medical infrastructure by providing supplies, equipment, personnel and expertise; provides equipment and supplies for personal hygiene, works to control disease spread, assists individuals with special medical problems and sometimes provides personnel and equipment to directly counter whatever threat is involved. As discussed in other sections, DOH's disaster related functions can differ dramatically from its day-to-day activities while police and fire agencies tend, during disasters, to accomplish larger versions of the same missions as they do during normal times. As a result, an agency such as DOH not only has a normally diverse ecosystem, it has different ecosystems depending on whether it is responding to a disaster or not. In addition to the wide array of services, the Department's customers include citizens, community groups, businesses and agencies at all levels of government. While most state or local agencies receive funding from general tax revenue, along with fees and fines they are authorized to levy; DOH's finances are more complicated. The Florida Department of Health receives income from fees and fines as well as general tax revenue from the State Government along with general revenue allotments from 67 separate counties. In addition, the Department

receives funding from private organizations as well as grants and apportionments from multiple Federal sources. All of these funding streams must be seamlessly integrated and compliant with Federal, State and County budget cycles and requirements. Clearly, the Florida Department of Health exists in a complicated and, at times, volatile market environment.

From a technical environment standpoint, DOH utilizes tools and techniques ranging from common sense and shoe leather to extremely sophisticated laboratory equipment. Many DOH personnel are connected by a web consisting of cellular telephones, portable email and even satellite telephones and data. Clinicians, epidemiologists, laboratorians, planners, and finance professionals all utilize sophisticated databases, computer models and analysis tools to conduct their day-to-day operations. Field personnel use tools ranging from cotton swabs to infrared spectroscopy and machines for rapid isotope identification. In addition to the tools, the specialized knowledge within DOH is used in response to a wide array of threats which include: sewage leaks, microorganisms, chronic disease, radiation, chemical contaminants and the effects of extreme weather. Few other government agencies or private sector companies are concerned with such a wide range of possible threats and tools to combat them. As a result, DOH also exists in a highly complicated and volatile technological environment (Figure 14-2).

All organizational structures represent compromises between political, economic and technical factors. Under the EOP Model, DOH's unconventional structure is easily explained and could have been predicted. Although EOP can be used to explain the overall organization of agencies, it can be used for finer grained explanation. Most

companies or agencies are not monolithic. Rather, they contain components. Those components themselves, in turn, are not usually homogeneous. It is normal to find that different components within the same organization possess different structures and cultures (Tosi, 1992, pp. 37-40). As one of the largest “conglomerates” in State government, DOH has a large number of components and the EOP model can also be used to explain some of their individual structural qualities. For example, the finance component and largely regulatory components such as the Bureau of EMS could be expected to take on mechanistic qualities. Organizations that have stable markets but volatile technology such as the Bureau of Laboratories or the Bureau of Radiation Control exhibit hybrid characteristics as do the CHDs, which have relatively simple technology but dynamic market environments. Components dealing with Public Health Preparedness, such as OEO and OPHP, exhibit the greatest organic structure and also engage in the most networking across components (Figure 14-3).

Public Health Preparedness, in particular, must organize itself flexibly. This discipline involves resources held by numerous components across DOH. For instance, PHP demands that skills and knowledge held by others: radiation, epidemiology, laboratory diagnostics, pharmacy, EMS be integrated by emergency management savvy personnel into a complete plan or response system. Furthermore, these activities must be coordinated across the state with a tremendous array of agency partners at all levels of government and with private partners. As discussed previously, PHP headquarters personnel jointly manage projects with subject matter experts from across the Department. PHP Planners are embedded within their own CHDs and not only connect the CHD’s preparedness activities to those of headquarters, but also coordinate

the CHD's separate resources to achieve PHP objectives at the local level. Regional Emergency Response Advisors are the most networked of all PHP actors. The RERAs coordinate and advocate for state and regional programs and, along with the PHP Planners, help to ensure that those programs are compatible with each county's unique structure. Although other headquarters programs also have regional assets, no other regional assets are shared with the other agencies to the degree of the RERAs. Although matrix organization is often used as a tool to add flexibility to mechanistic structures, it is, in fact, very organic by nature.

Due to the different styles of organizational structure in use across DOH, it should be expected that these structures exhibit different levels of understanding and compatibility. For example, PHP is charged with developing an array of emergency plans. Frequently, those plans are required by specific, PHP oriented, divisions within DHHS or CDC. It then becomes the task of DOH PHP personnel to work with the various other DOH components which contain the expertise and, in fact, rule over those subjects on a day-to-day basis.

While PHP personnel may see the need for specific anthrax, smallpox and pandemic influenza plans, the Division of Disease Control may see these contingencies as subsets of a larger process that handles all of those threats along with many others. Essentially, the Division of Disease Control may think about a subject from a technical standpoint while PHP personnel may look at the subject from a funding standpoint. Due to misalignment, PHP may develop a plan for a contingency that does not reflect the approach that would be taken by those who will actually perform the response. Similar issues exist with other DOH components. For example, early smallpox response plans

involved the testing of facilities for smallpox virus contamination as was done with anthrax. Unfortunately, there were no existing protocols within the Bureau of Laboratories for environmental smallpox testing. As the SNS Unit Leader, I was often frustrated when plans out of the Division of Disease Control, or even OEO, proposed to use SNS resources that may, or may not, exist in ways that were not aligned with the State or County SNS plans or even with CDC's guidance. Although PHP is inherently a networked pursuit, the other organizations that PHP must network with are not always amenable to networking or sharing their domain of activity.

The Personality Component

In addition to the organizational structures themselves, each structure also contains people who have distinct personalities. The EOP Model describes three specific types of personalities found in organizations. The personality types described by EOP are simplistic and refer specifically to that personality's relationship to the organizational structure. These personality types do not, in any way, attempt to describe an individual's competence, work ethic, productivity or how amenable the person is. They are simply ways of classifying an individual's desire to "play by the rules" within an organization (Tosi, 1992, pp. 70-74).

The first type of EOP personality is referred to as "upward mobile" (UM). The UM personality is one that seeks to understand and integrate itself with an organization's cultural values. Typically UMs possess an inherent respect for authority along with the rewards and sanctions that authority may dispense. Because a mechanistic organization generally exercises tight control of employees, workers who are eager to embrace the values espoused by the organization tend to thrive in these organizations. Since UMs are willing to mold themselves to an organization, they tend to mesh well

with the very management that encourages those values. Therefore, UMs will tend to be promoted within mechanistic organizations where they will continue to serve as guardians of the cultural ideas represented by the organization. UMs demonstrate a loyalty to the organization itself and feel positively about working within the organization's hierarchy. Since UMs strongly support and believe in the organization's management and values, they are likely to support decisions made by management and will exhibit little in the way of dissent.

The second type of EOP personality is the "indifferent" personality (IND). Indifferent personalities, it must be stressed, are not necessarily indifferent to their jobs or their performance. Rather INDs are indifferent to the values of the organization and therefore do not work to integrate themselves with the organization's culture (Tosi, 1992, p. 73). For an IND personality, their job is simply their job. If changing their attitudes will get them a promotion, then an IND may adopt new values. But INDs typically inhabit jobs that do not offer promotion potential because higher positions may involve technical skills that they do not have. Nor are they amenable to assertively dedicating themselves to becoming promotable within the organization by donning its value system.

"Ambivalent" personalities (AMB) are the last of the EOP personality types. This type of worker is similar to the IND in that they are not interested in molding themselves to the organization nor are they particularly interested in the praise and incentives that the organization provides. Ambivalent personalities differ from INDs in that AMBs are extremely focused on their careers and their technical abilities. They are just not interested in "playing the game" required to get ahead in a, generally mechanistic,

organization. If AMBs seek or accept promotion, they do not do so for the status or power but rather so that they can better influence technical issues and expand the range of challenges with which they can interact.

It should also be noted that these personality types can change over time. For example, if a worker who was initially a UM failed to achieve higher levels of status within the organization, they may become an IND. If an IND happens to find an organization that particularly values their skills and allows them advancement opportunities then they may become an AMB or even a UM. Although an AMB may change personality types, they are generally confident enough in their abilities that they will remain in place, or change organizations, in order to utilize their talents without adopting the promoted cultural attitudes and values. If an AMB is promoted within an organization, it will generally be because of their technical skills and they will most likely continue to play to their strength as a specialist rather than become involved in nurturing organizational culture outside of their particular specialty.

Each of these EOP personality types inhabits particular places within organizations. For example, the IND tends to be found at the lower levels of mechanistic organizations along with UMs. As each successively higher level of the mechanistic organization is examined, the number of INDs falls and the number of UMs increases (Tosi, 1992, p. 76). Ambivalent personalities tend to be found in unusual, task oriented, sections of a hierarchical organization but prefer to gravitate towards organic organizations because those structures offer the AMB an assortment of market or technical challenges that stimulate them. Additionally, the lack of a rigid hierarchy with enforced values also tends to please the AMB personality (Tosi, 1992, pp. 78-79).

The IND could actually be summarized as the “negative” stereotypical government employee. This is the type of person who might be found behind the desk or filing papers at numerous agencies across the public sector. The UM could be characterized as the traditional cheerleading type of personality that enjoys giving, and receiving, trinkets and plaques in recognition of accomplishments. The AMB personality is the classic technocrat or subject matter expert. All three types are found at DOH. However, because of its ecosystem, DOH employs a larger than typical number of AMBs and provides many isolated technocratic bubbles to sustain them.

Moving Up

Proponents of the EOP Model emphasize that the organization is impacted by the environment and impacts the personalities in the organization. In turn, those personalities impact and reinforce the organizational structure. Much of the difference between the EOP personality types centers around their advancement within the organization. Yet, it must be remembered that, state agencies such as the Department of Health tend to amplify these personality differences by providing a complicated promotion system.

Unlike private enterprise, where an employee may be promoted simply at management’s whim, State agencies require that an employee actually apply for promotion. For example, when a particular employee’s supervisor leaves his or her position, no subordinate will be permanently appointed to fill the supervisor’s role. Rather, the supervisory position will be advertised and interested parties must compete for the position. While this type of promotion system could be praised on free market or merit principals, it means that only those employees who are aware of the vacancy, know the tricks of the application process, and go to the trouble of applying for the

position will receive consideration. The skills required to win a government position are, themselves, specialized, therefore the system tends to promote individuals who possess or cultivate those particular “application” skills rather than simply possess the skills needed to credibly execute the position. Because there are relatively few positions at a particular level of responsibility that are open at any given time, workers typically apply for positions across the entire State employment system rather than confine their aspirations to their current agency component. In fact, the personnel system encourages this behavior because State employees who are interviewing for another State position are eligible to claim a specific category of leave time from their jobs in order to find another position.

Furthermore, because most IND employees at DOH work within a component dedicated to a particular functional task, those employees are frequently not qualified to move up within their components because they lack specialized training associated with the position. Instead, many employees slowly advance through their career trajectory by means of lateral transfers that confer a slight salary increase with each change. Unfortunately, this system means that positions tend to be filled by people who are not familiar with the component that they are moving into and the component that they are leaving will lose their skills and institutional knowledge. Ambivalent employees may shy away from promotion because a typical promotion may involve more time managing things rather than actually doing things. Upward Mobile employees, who are more likely to stay within a particular component out of loyalty, will also be forced to change their actual jobs and will therefore tend to cause some of the same problems as their component hopping IND colleagues.

The entire promotion system is further aggravated by State rules governing acceptable salaries. A typical State job application will advertise a position's salary as a range. This advertised range is often humorously broad. For example, a position's salary range may be $35,000 to $95,000. This range was determined by government accountants who decided that a position of that responsibility is worth something within that range. Many applicants feel that a position's salary will be somewhere in the middle of the range, others feel that the precise salary is negotiable or varies depending on the applicant's qualifications. Both are usually wrong. A position's salary is governed by DOH's available cash and rate. When a candidate applies for a position, they are asked to name their minimum acceptable salary. If the minimum acceptable salary is greater than the available salary, the candidate is dropped from consideration. The position's salary is essentially fixed and if a candidate understands this, they will have an advantage. After all, even if a candidate is willing to work for less than the available salary, it is usually too much trouble to rewrite the paperwork to pay them less and reassign the savings elsewhere.

The major exception to this fixed salary is the case of people who are already employed by the State of Florida. While the advertised salary band is considered reasonable for hiring someone into a position of that responsibility, once someone begins to work for DOH, their worth in salary dollars becomes fixed. Essentially, a person becomes valued at their salary and even if they change their skill set, they remain "locked" into their "value slot." In most situations, a DOH employee is unable to earn more than about 15% above their current salary if they are promoted. For example, suppose that an employee making $25,000 attends night classes and earns an

advanced degree. That employee may now be qualified for a position that pays $45,000. However, if they are selected for that position, the most they could earn would be about $31,000. In other words, a new hire, off the street, who knows nothing about DOH can earn significantly more money in the same position than someone who already works for DOH and is familiar with the agency. There are, of course, exceptions. If a supervisor feels strongly about the situation, the supervisor can file paper work for approval by the Surgeon General's Office for a salary increase. Therefore, upward movement of personnel within mechanistic components of DOH is difficult and, if done, typically creates inefficiency because the experience and skills of the employee may not be utilized by their new position.

Promotion within the organic components of DOH is also problematic. Since upward mobility usually involves management tasks, technically oriented specialists are unlikely to want to move, or be selected, to a higher position. As personnel move into higher level abstract jobs, they lose the "hands on" appeal that makes their job interesting (Crozier, 1964, p. 190). In other words, the power to implement change in the organization leads to a separation from the expertise needed to inform those changes. If the specialists are promoted, they may or may not do well in a management position because they lack the new skills needed. This is not a problem restricted to DOH, it is a problem in any organization that employs technical specialists. In some cases, the technical specialists may exist in something of a "golden cage." For example, by DOH standards, RERAs are highly paid. Regional Emergency Response Advisors also benefit from tremendous independence and are very loosely supervised. Due to their personalities, most RERAs would never consider changing jobs within DOH

and many have remarked that they have “the best job in the Department.” However, if a RERA wanted or needed to earn a higher salary or take on more responsibility, it is very difficult to do so. For one thing, the next positions above those of RERA, CHD Administrators or Division Directors for example, are considerably higher end positions and require quite different skill sets and experience. Additionally, earning enough extra salary to make a position change worthwhile is also problematic. As a result, the only promotion available to a RERA is to leave DOH and work for the Federal Government or a private contractor. Other specialized positions such as: regional personnel, field epidemiologists, laboratorians or even county PHP Planners face similar advancement dilemmas.

Although these peculiarities of the State personnel system are basically fixed parts of the DOH environment, their impact needs to be understood by managers if the organization hopes to continue to cultivate the skills and institutional knowledge that have proven so valuable during the exceptional events of the agency’s short history.

Netwar

Another theoretical issue that has appeared throughout this document is the idea of networked agencies and offices. During the mid-1990s, Arquilla and Ronfeldt of RAND built on the work of others and developed a theoretical framework known as “netwar” which became useful for analyzing how decentralized groups utilized modern communication technology to organize their activities (Arquilla & Ronfeldt, 1996, p. 5). The main purpose behind the netwar literature was to describe how terrorist groups, transnational and sub-national groups were organizing in ways that provided highly flexible and yet secure ways to achieve goals. Not all users of netwar ideas are violent. Interestingly, netwar techniques have also been successfully implemented by non

government organizations and social movements. Arquilla and Ronfeldt also describe tribal, hierarchical and market types of organizations and describe hierarchies as the quintessential government organizational structure. However, as the authors behind netwar emphasize, netwar cannot function simply due to a technology enhanced infrastructure; a cohesive netwar organization must also be based around compatible social and doctrinal structure and superstructure (Arquilla & Ronfeldt 2000: 4). Through it's combination of network and hierarchical characteristics, DOH attempts to meld localized distributed tactical decision making and resiliency along with unified strategies and policy.

Although one of the strengths of the netwar concept is the ability for loosely coupled groups to integrate for a particular mission, these groups must be compatible and the mission must be tightly defined, or at least tightly defined enough that any inherent social or doctrinal incompatibility can be temporarily overcome. A loosely coupled organization tends to be responsive to change – exactly where traditional, self perpetuating, hierarchies fail (Crozier, 1964, p. 195). As described, this distributed model has both advantages and disadvantages in day-to-day activities and during disasters.

World Outlooks

Aside from the personalities defined by the EOP Model regarding organizational advancement, there are also aspects of personality and culture that are frequently found within workers in particular disciplines. There is a traditional joke used by some instructors to explain the differences between law enforcement personnel and fire & rescue personnel. The joke states that you can tell the difference between the two by how they walk up to a house and knock on the door. A fire fighter simply walks up and

gives the door a forehanded knock. A police officer will sneak up to the door, stand with his back against the wall next to the door and knock underhanded on the door, waiting to spring on the opener. Although the joke goes only so far, it does express certain environmental realities about the jobs. Fire fighters do not consider humans to be their opponents, rather, they consider the citizens to be part of an adoring public that helps them in their battle against a myriad of natural and accidental dangers to society. In contrast, police officers sometimes feel as if they are working in a hostile territory where danger to them, and society as a whole, awaits behind many doors and faces. Police officers have been metaphorically described as “the thin blue line” because they feel that they are all that stands between the part of society represented by criminals and the part of society represented by decent, defenseless, people. Public health personnel are more akin to fire fighters. They view themselves as partners with society in a fight against natural forces.

When PHP funding first became available to health departments across the nation, it sparked something of an internal debate. The money was earmarked for building up resources against a manmade threat rather than an assault from nature. Some health departments were quick to catch on to the language of PHP and began to use the concerns about anthrax and smallpox to focus the incoming resources in a broad manner so as to address not only PHP sanctioned threats but also on rebuilding core capabilities within their departments. Other public health departments stood amazed and knew not what to do with the money. Fire fighters and police officers seldom have questions about how to spend a windfall of cash. Public health officials, by comparison, had expended little thought about what to do with an expanding, rather than contracting,

budget. The financial mindset reflects the discipline as a whole. Public health personnel are used to working, quietly, behind the scenes to protect the public. Public health personnel have become accustomed to the fact that the public is generally ignorant and not appreciative of their work. When budget cuts are proposed, public health departments try to decide which programs they can scale back. When threatened with cuts, police officers and fire fighters put on their dress uniforms and hold press conferences in front of the American flag. Preparedness personnel, as reflected in their dynamic market environment, must cross this spectrum and work with a wide array of other agencies, each with its own particular culture. Furthermore, PHP Planners must address the fact that their work is difficult to explain to a public and legislature that alternates between alarm and incredulousness.

It is my contention that while mechanistic structures of organization are the most efficient way to manage a wide variety of agency functions, the real power of the Florida Department of Health comes from its hybrid nature. Rather than representing a strange political compromise or a messy kludge, the organic components of the Department are, in fact, its greatest strength. It is a strength that should be embraced and understood by everyone within the organization.

Final Thoughts

As I write this conclusion, during the year 2010, Phillip Remington has retired from DOH. The new Director of OEO is a well regarded former law enforcement officer who has a reputation for working across agencies to solve problems. There is currently discussion within DOH of how, or if, OEO and OPHP should be merged or morphed. There is also discussion about what kind of individual should serve as the Department's Emergency Coordinating Officer (ECO.) The Office of Emergency Operations was

shaped by Remington as it was shaped by Booth before him. The Department can try to institutionalize the system, as it stands – a system that has evolved by experiment during disaster. However, it must also be recognized that this approach may backfire. If an attempt is made to hard code an organic and networked structure then it will no longer be an organic and networked structure. It could be argued, and has been argued, that an agency needs stability during disaster and that stability should be reflected in a hierarchical structure. However, if too much stability is engineered into a response organization it will lose its ability to learn and react to the unknown. This is even more critical for an agency as diverse as DOH.

Due to the ECO's position as the coordinator of all DOH functions during a disaster, I firmly believe that the new ECO should understand the organic nature of the organization that she or he is to coordinate. I also sincerely hope that the relatively mild hurricane seasons of recent years will not lull DOH into a passive attitude towards disaster. I encourage DOH to continue to take advantage of its structure and embrace its network connections. The structure of the Department of Health, although unusual, is not dysfunctional. Rather, if unshackled from excessive management and coordinated with care, the Florida Department of Health is an organization that can dynamically respond to its environment. We have seen that when hurricanes approach, like a classical clipper ship, DOH is exquisitely capable of harnessing the winds and sailing through the roughest seas imaginable.

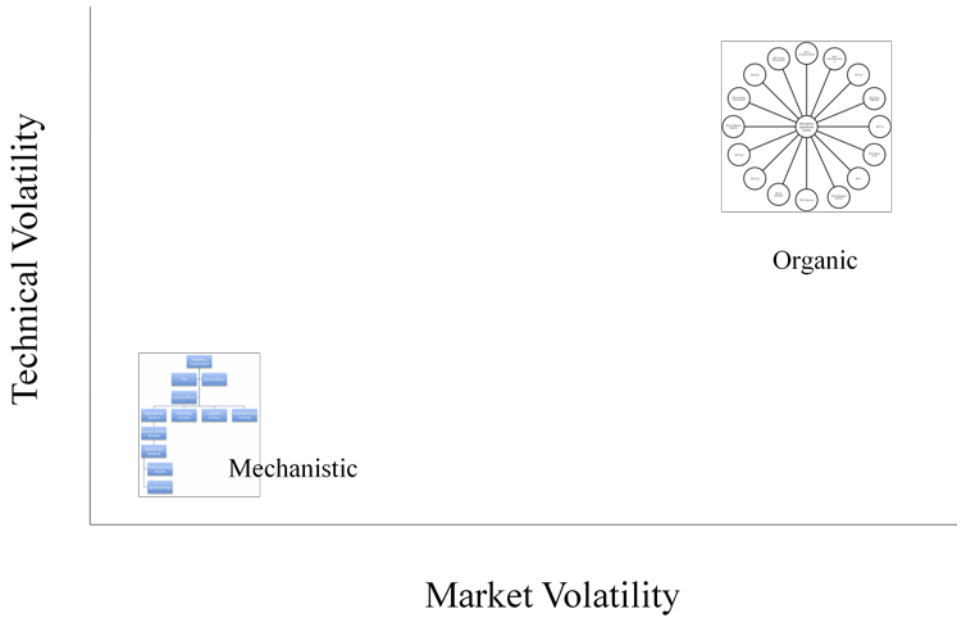

Figure 14-1. Organizational types according to EOP environmental variables

Figure 14-2. Government agencies arrayed against EOP dimensions

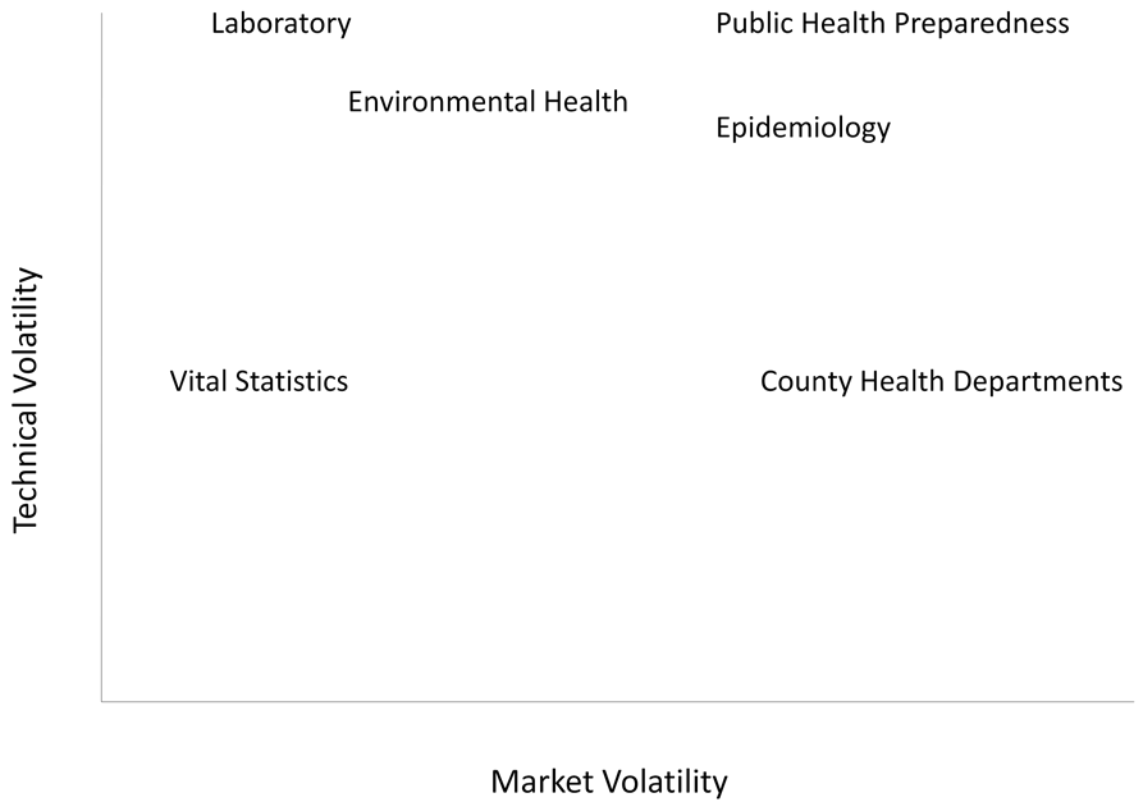

Figure 14-3. Sample DOH sub-units arrayed against EOP dimensions

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