

PRE-LANDFALL PREPARATION AND KATRINA'S IMPACT

As Hurricane Katrina entered the Gulf of Mexico, Gulf coast states and the federal government prepared for landfall in the region.

Pre-landfall preparation by FEMA

The Federal Emergency Management Agency (FEMA) positioned an unprecedented number of resources in affected areas prior to Katrina's landfall. Indeed, FEMA's efforts far exceeded any previous operation in the agency's history. A staggering total of 11,322,000 liters of water, 18,960,000 pounds of ice, 5,997,312 meals ready to eat (MREs), and 17 truckloads of tarps were staged at various strategic locations in and near the Gulf region prior to Katrina's landfall.¹ FEMA also pre-positioned 18 disaster medical teams, medical supplies and equipment, and nine urban search and rescue task forces (US&R) and incident support teams.² Rapid Needs Assessment Teams also were deployed to Louisiana on the Saturday before landfall.³ In Louisiana alone, on August 28, a total of 36 trucks of water (18,000 liters per truck) and 15 trucks of MREs (21,888 per truck) were pre-staged at Camp Beauregard.⁴

FEMA's Hurricane Liaison Team, which consists of FEMA, the National Weather Service, and state and local emergency management officials and is tasked with coordinating closely with FEMA Headquarters staff by phone and video conferencing systems, was activated and deployed to the National Hurricane Center on August 24 in anticipation of Hurricane Katrina's making landfall.⁵ FEMA's Mobile Emergency Response Support detachments were pre-positioned in Louisiana, Mississippi, and Alabama to provide emergency satellite communications capability.⁶ According to former FEMA Director Michael Brown, prior to landfall, FEMA reached out to other agencies for assistance, such as the Department of Defense (DOD) for potential movement of strategic airlift support.⁷

By 10 a.m. on Monday, August 29, the morning Katrina made landfall, 31 teams from the National Disaster Medical System (NDMS) had been deployed to staging areas in Anniston, Alabama; Memphis, Tennessee;

Houston, Dallas; and New Orleans, including 23 Disaster Medical Assistance Teams.⁸ The teams, trained to handle trauma, pediatrics, surgery, and mental health problems, brought truckloads of medical equipment and supplies with them. By September 1, 72 hours after landfall, FEMA had deployed more than 57 NDMS teams and 28 US&R teams with nearly 1,800 personnel to save lives and render medical assistance. FEMA had also supplied generators and thousands of cots and blankets.⁹

Pre-landfall preparation in Mississippi

Preparations for Hurricane Katrina in Mississippi involved an array of actions, including county and state preparedness and disaster response training in the months leading up to the storm; the establishment of local, state, and federal command structures by way of emergency proclamations; activation of emergency operations centers (EOCs); evacuations, many of them mandatory, of the areas and types of homes most in danger from a hurricane; and, the opening of emergency shelters to which those evacuating could flee. Preparation by the military in Mississippi largely took place through activation of the state's National Guard and some initial requests for Emergency Management Assistance Compact (EMAC) assistance with security, engineering support, and helicopters.

Following a request from Governor Haley Barbour, on Sunday, August 28, President Bush issued an emergency declaration for Mississippi.¹⁰ Following a further request from Barbour, on Monday, August 29, President Bush declared a major disaster in Mississippi.¹¹

Disaster preparedness training — Mississippi

For several years, Mississippi's Emergency Management Agency (MEMA) has been using federal emergency preparedness grant funds to improve its counties' abilities to prepare for and respond to disasters. In 2000, 43 of Mississippi's 82 counties had active county emergency management programs; MEMA used DHS emergency

management performance grant funds, including a \$1.3 million allocation in fiscal year 2005, to increase this to 79 active county programs in 2005.¹² In addition, the MEMA reported that, as of early 2005, over 1,200 first responders had received training in the National Incident Management System (NIMS).¹³

During the summer of 2005, the director of MEMA, Robert Latham, his key staff, and most of Mississippi's county emergency management directors underwent training in NIMS and the NIMS Incident Command System (ICS).¹⁴ At approximately the same time, the FEMA officials who would later lead the federal response in Mississippi (Bill Carwile and Robert Fenton) also participated in extensive ICS training. Fenton was described by Carwile as having been involved for a long time in developing training for subjects such as the ICS and as an expert in how to adapt it for large scale operations, such as the response to Katrina. Carwile and Latham said they believe their training in the ICS and the ability it gave them to quickly establish a unified command were positive elements of the state's preparation for and response to Katrina.

Establishment of command structures in Mississippi

Mississippi issued its first Hurricane Katrina situation report on August 23 and, through Thursday, August 25, continued monitoring the storm.¹⁵ According to this situation report, during these three days, MEMA conducted executive planning sessions to develop an EOC activation timeline as well as plans for protective actions and a proactive response.¹⁶ It also established contact with a FEMA logistics cell and began encouraging the public to prepare for the storm.

On Friday, August 26, Mississippi activated its National Guard, and MEMA activated its EOC on Saturday, August 27.¹⁷ At that time, it also deployed County Liaisons to six counties (Jackson, Harrison, Hancock, Pearl River, Stone, and George) and activated its State Emergency Response Team (SERT) for deployment to Camp Shelby the next day, August 28. The SERT established forward operations at Camp Shelby at 3 p.m. on August 28. According to the MEMA Director's brief, as of about 7 p.m. on August 28, 18 counties and 11 cities and towns had issued local emergency proclamations; by early morning of August 29, this had increased to 41 counties and 61 cities and towns.¹⁸

FEMA's liaison arrived at the state's EOC on Saturday, August 27. FEMA's Emergency Response Team-A (ERT-A) arrived the same day, August 27, when the state activated its EOC.¹⁹ On August 28, MEMA reported that FEMA was deploying resources to a Regional Mobilization Center in Selma, Alabama, and that FEMA's ERT-A would be able to supply large quantities of water and ice to the hardest hit areas.²⁰

Evacuations in Mississippi

Although the governor could order mandatory evacuations, longstanding practice in Mississippi rests that authority with local governments.²¹ However, the state is generally included in any discussions about evacuation orders because, once a city or county chooses to make such an order, state responsibilities for managing traffic (including contra flow) and opening shelters can come into play.²² In preparing for Hurricane Katrina, the state worked through the MEMA liaisons it dispatched to the counties along or near the Gulf coast as well as a representative it had stationed in Louisiana's EOC (because of contra flow agreements between Mississippi and Louisiana that provide for evacuations out of southeast Louisiana through Mississippi).



AP PHOTO/ROGELIO SOLIS

Emergency shelters—Mississippi

On August 27, MEMA urged Mississippi’s coastal counties not to open local shelters in order to encourage people to evacuate north.²³ MEMA described coastal county shelters as an option of “last resort.” On Sunday, August 28, MEMA reported that Red Cross shelters were open and on standby in the coastal counties.

Mississippi began opening shelters as early as August 28. MEMA reported 51 shelters open with 475 persons registered at that time and 36 additional shelters available on standby as needed.²⁴ In addition, MEMA indicated the Jackson Coliseum had been open as a shelter (and individuals were authorized to bring pets) and three special needs shelters had been established.²⁵ According to the Director’s brief, also on August 28, MEMA reported the Red Cross had begun opening shelters that morning, bringing the total available shelters to 68 prior to the opening of the Jackson Coliseum.²⁶

By August 29, just prior to landfall, MEMA reported 57 shelters were open with 7,610 persons registered in them. An additional 31 shelters were available on standby to open based on need.²⁷ The Jackson Coliseum opened as expected the day before and by early morning August 29 was reported by MEMA to be at capacity. Similarly, all Red Cross central Mississippi shelters were reported to be full as of 4:30 a.m. on August 29.²⁸ Two additional special needs shelters opened, bringing their total to five.²⁹

Military preparation in Mississippi

Military preparation in Mississippi began as early as August 26 when, as noted earlier, the Governor activated the state’s National Guard.³⁰ Mississippi’s National Guard has over 12,000 troops, with Army and Air National Guard components, both under the direction of the Adjutant General (TAG), Major General Harold A. Cross.³¹ Throughout the preparation and response to Katrina, Mississippi’s Guard reported to and received taskings (or mission assignments) from MEMA.³² The Mississippi National Guard has an Operations Plan, (OPLAN MSSTAD) on top of MEMA’s Comprehensive Emergency Management Plan, that was used during Hurricane Katrina.³³ Refined and updated in an order issued to Mississippi Guard on June 1, 2005, this operations plan was validated during Hurricane Dennis, July 7 to 10, 2005.³⁴

On August 27, Mississippi’s Guard accelerated its preparations by alerting state emergency personnel to assemble for hurricane operations on the Mississippi Gulf coast under Joint Task Force Magnolia.³⁵ In doing so, Mississippi’s National Guard assembled and pre-positioned at all three coastal county EOCs its special “hurricane strike” squads; each squad consisted of 10 military police (MPs), 15 engineers and five trucks.³⁶ In addition, the Guard placed on alert the following units from throughout the state:

223rd EN BN – Camp McCain, MS (Grenada, MS)

890th EN BN – Home Station Armories (located in the coastal region)

112th MP BN – Camp Shelby, MS (Hattiesburg, MS)

367th MAINT. CO – Home Station (Philadelphia, MS)

1687th TRANS CO – Home Station (Southaven, MS)

1387th QM WATER - Home Station (Leland, MS)

210th FINANCE – Home Station (Jackson, MS)

172nd AW – Home Station (Jackson, MS)

186th ARW – Home Station (Meridian, MS)³⁷

Cross noted that these assets “were sufficient for a Category II storm, but as Katrina approached the Gulf coast on August 28, it became apparent that additional forces from outside the state would be required.”³⁸ As a result, that afternoon, he initiated requests for assistance via the EMAC. The first such request, relayed to the on-site National Guard Bureau Liaison Officers (LNO) was for an additional MP Battalion, two more Engineering Battalions, and 3 CH-37 helicopters.³⁹ That same day, August 28, the National Guard Bureau Joint Operations Center in Washington, D.C., sent LNOs to Mississippi, with the first going to Mississippi’s Joint Force Headquarters, followed by officers sent to the three coastal county EOCs and to MEMA’s Operations Cell to facilitate out of state National Guard assets.⁴⁰

In addition, Cross established at Gulfport a Forward Operations Center that eventually combined state and federal (including active duty) logistics support personnel.⁴¹ In response to questions regarding the Guard’s preparations, including the EMAC assistance it received, Cross said, “This greatly assisted in the command and control and situational awareness of all operations. As forces flowed into the state, more liaison teams were established in each county EOC that had Guard operations

in that county. This was a very efficient system since the National Guard headquarters was linked directly with each county for coordination of relief efforts."⁴²

The Guard's preparation in Mississippi was not, unfortunately, without incident. Prior to the storm's landfall, Sgt. Joshua Russell, Detachment 1, Company A, 89th Engineers, was killed when attempting to rescue an elderly couple in Harrison County.⁴³

Pre-landfall preparation in Alabama

Final preparation for Katrina in Alabama began in earnest four days prior to landfall when it became evident the path of the storm pointed towards the Gulf coast. Three days prior to landfall, the Governor's staff participated in frequent videoconference calls with personnel from FEMA, the National Hurricane Center, including its director Max Mayfield, senior staff at the White House, and senior staff from the Governors' offices from Louisiana and Mississippi.⁴⁴ The Governor's staff indicated they were satisfied with the federal support they received and that Max Mayfield's briefings were particularly valuable.⁴⁵

In Alabama's southernmost counties, Baldwin and Mobile, preparations began five days before the storm, when they started regular consultations with the National Hurricane Center, the State of Alabama Emergency Management Agency, and the National Weather Service in Mobile to discuss the storm's likely path and strength.⁴⁶ Information was then disseminated to all local officials and first responders and staff prepared to activate the EOCs.⁴⁷

On August 28, 2005, Governor Riley wrote to President Bush, asking that he "declare an emergency disaster declaration for the State of Alabama as a result of Hurricane Katrina beginning on August 28, 2005 and continuing."⁴⁸ That same day President Bush "declared an emergency . . . for the State of Alabama."⁴⁹

The next day, Monday, August 29, Riley wrote to President Bush again, this time asking him to "declare an expedited major disaster . . . as a result of Hurricane Katrina beginning on August 28, 2005 and continuing."⁵⁰ That same day, President Bush issued a major disaster declaration for Alabama.⁵¹

Establishment of command structures in Alabama

On Friday, August 26, Riley declared a state of emergency to handle what was then thought would be a surge of evacuees from the Florida panhandle. The state went into what they call Level II response and expected to receive 10 to 15 percent of Florida's evacuees.⁵² A Level II response activates the Alabama EOC on a 24-hour basis, and all relevant agencies are activated and necessary personnel are assigned to staff the EOC.

One day later, on Saturday, August 27, a Level I response was activated.⁵³ The EOC was operating in full force, with desks staffed for each ESF. A FEMA Emergency Response Team - Advance (ERT-A) was on site late in the day. An ERT-A team is a small FEMA contingent with capabilities for planning, operations, communications, and logistics. A total of five to eight people from the Atlanta-based FEMA region IV were on site at the EOC. The Alabama Emergency Management Agency (AEMA) expressed some frustration with FEMA's late arrival. AEMA officials believed that had FEMA been on site sooner with a larger contingent, Alabama may have been able to acquire needed resources and commodities more quickly.

President Bush spoke to Riley on Saturday, August 27, two days prior to landfall, to ensure the Governor had everything he needed. The Governor's staff indicated they felt they were better prepared for Katrina than they were for Hurricanes Dennis and Ivan.⁵⁴ In addition to implementing many of the lessons learned from previous hurricanes, the Governor's staff believes one key element of the state's response to Katrina was the state's proactive communications strategy.

On Friday, August 26, as the storm gathered in the Gulf, the Governor personally visited all of the counties in the Gulf, holding numerous press conferences to urge local residents to evacuate pursuant to the mandatory evacuation orders.⁵⁵ In Alabama, the failure to obey a mandatory evacuation order is a misdemeanor enforced by county or municipal police.⁵⁶

The Alabama EOC is divided into five clusters of desks, and each desk is equipped with computers, telephony and other management tools.⁵⁷ The five clusters are:

- emergency services (ESF #s 1, 2, 3, 4, 9, 13)
- human services (ESF #s 6, 8, 11)
- infrastructure and support (ESF #s 10, 12)
- operations support (ESF #s 14, 15) and
- information and planning (ESF #s 5, 7).

There is a station for each ESF function and stations for all of the involved agencies, federal and state, including FEMA, EMAC, Army Corps of Engineers, National Guard, Alabama State Police, among others.⁵⁸

One of the tools Alabama uses to respond to local disaster needs is the EM-2000 incident log, a Lotus Notes-based system which captures, in log book fashion, emergency events and requests from each of the 67 counties.⁵⁹ Each activity or request logged into the system gets assigned to one of the desks in the EOC for attention.

If a report comes in regarding individuals who are trapped and in need of rescue, the event will be assigned to the personnel in the emergency services cluster. Multi-ESF teams involving state police (ESF #13), transportation (ESF #1), and urban search and rescue (ESF #9) huddle to coordinate the optimal response. Events can be reported and tracked by ESF, by status, by county, and by a number of other custom data elements. Documents related to information requests, as opposed to action requests, are later scanned and attached. The EM-2000 data files appear to serve as the central universe of actions and documents related to the state's response to the storm.

Applying the lessons learned from Hurricane Ivan, the state upgraded the tracking system used to determine hospital bed vacancies, giving state officials real-time visibility of surge capacity and making it possible to better direct those with special medical needs to appropriate sites.⁶⁰ The state health office also has the capability to conduct daily conference calls with county health staff to assess status and needs. Health officials staff their own emergency operations center, linked by computer and phone to the main state EOC in Clanton.

Evacuations in Alabama

Even before any evacuations began, AEMA and state transportation officials participated in the FEMA regional Evacuation Liaison Team conference calls, during which emergency managers from Florida, Louisiana, and



AP PHOTO/DAVE MARTIN

Mississippi shared information on the status of evacuation routes, road closures, traffic volumes, hotel availability, and other interstate implications of significant population migrations in the region.⁶¹

On the morning of August 29, Shelby County, Alabama, posted a message on the statewide EM2000 system saying the "Shelby County Humane Society will house animals during the emergency. Can house small animals as well as farm animals for a short duration."⁶² More than 50 pets were evacuated from Mississippi and brought to Maxwell Air Force Base, where they were taken in by families on the base until the pet owners could be located.⁶³

Pre-landfall preparation in Louisiana

On Saturday, August 27, Louisiana Governor Blanco wrote to President Bush, requesting that he "declare an emergency for the State of Louisiana due to Hurricane Katrina for the time period beginning August 26, 2005, and continuing."⁶⁴ Later that same day, President Bush declared an emergency for the state of Louisiana.⁶⁵ William Lokey was named Federal Coordinating Officer.⁶⁶

On Sunday, August 28, in recognition of the potential catastrophic impact of Hurricane Katrina, Blanco asked President Bush, prior to landfall, to "declare an expedited major disaster for the State of Louisiana as Hurricane Katrina, a Category V Hurricane approaches our coast . . . beginning on August 28, 2005 and continuing."⁶⁷ The next day, President Bush declared a major disaster for Louisiana.⁶⁸

Establishment of command and safeguarding of assets

The State of Louisiana took a number of steps to prepare for the arrival of Hurricane Katrina, including getting the EOC up and running with its full staff complement by the afternoon of Friday, August 26.⁶⁹ The EOC conducted communications checks with all the state agencies and parishes on Thursday, August 25 – four days before landfall.⁷⁰

The state EOC then began holding regular conference calls with all state agencies, key parishes, federal agencies, other states, and the Red Cross to coordinate pre-landfall activities among all the different authorities.⁷¹ These calls began at 5:00 p.m. on Friday, August 26, with five calls on Saturday, four calls on Sunday, and a final call Monday morning as the storm hit but before communications went out. In addition, several state agencies moved key assets northward, stockpiled critical supplies, positioned teams to do post-landfall damage assessments, or otherwise prepared for the hurricane.⁷² The Louisiana Department of Fish and Wildlife coordinated with the Louisiana National Guard in advance to get boats placed on trailers and pre-positioned at Jackson Barracks in New Orleans in anticipation of flooding and the need for waterborne search and rescue.⁷³

There were also preparations at the parish level. As noted, the parishes participated in conference calls with the state. Plaquemines Parish, one of the southern parishes most exposed to the storm, parked vehicles on high ground, gathered administrative records and moved them north, transferred prisoners to upstate facilities, and set up an emergency command post in a local high school.⁷⁴ Jefferson Parish, part of metropolitan New Orleans, also took a number of preparatory steps. According to Emergency Management Director Walter Maestri, they implemented their “Doomsday Plan” to hunker down in their EOC with a skeleton crew to minimize the number of people exposed to the hurricane’s damage.

The Louisiana National Guard (LANG) and other state agencies went on alert and began staging personnel and equipment.⁷⁵ By Saturday, August 28, the day prior to landfall, the LANG had pre-positioned 9,792 MREs and 13,440 liters of water at the Superdome, the “shelter of last resort.” The state also had positioned teams north, out

of harm’s way, prior to landfall, and the first requests for EMAC teams were issued as well.

On Saturday, August 28, the New Orleans Regional Transit Authority (RTA) fueled up its fleet based at its Eastern New Orleans facility and moved buses not providing service to higher ground on a wharf near downtown New Orleans.⁷⁶ Buses that were providing regular service were also eventually moved to the wharf as well.

Evacuations in Louisiana

The state was actively involved in executing the Southeast Louisiana evacuation plan, with the Department of Transportation and Development and the Louisiana State Police working to manage traffic and implement “contraflow” — making all highway lanes outbound to maximize traffic flow and minimize traffic jams.⁷⁷ The Governor was personally involved in monitoring contraflow, which ran from Saturday at about 4:00 p.m. to Sunday at about 6:00 p.m.⁷⁸

State officials coordinated the contraflow with the states of Mississippi and Texas, since Louisiana interstates fed into these states.⁷⁹ In a conference call at 6:30 a.m. Saturday morning, it was recommended that the evacuation plan for southeast Louisiana be implemented.⁸⁰ The state began staging assets necessary to execute an evacuation, including alerting and activating National Guard troops, pre-deploying traffic cones and barriers to key locations, and coordinating plans among all of the parishes.⁸¹ Some parishes had already begun evacuation proceedings. By 6:00 p.m. on Sunday, August 28, traffic was light, so contraflow was halted, but residents could still evacuate on the outbound lanes once the highways were returned to their normal configuration.⁸²

Up to 1.2 million Louisiana residents followed the evacuation orders and evacuated themselves in their private vehicles.⁸³ However, it later became apparent that thousands of residents, particularly in New Orleans, did not evacuate or seek shelter, but remained in their homes.

The parishes began declaring evacuations on Saturday, August 27 at 9:00 a.m. These declarations had been coordinated among the state and parishes in advance as part of Louisiana’s emergency evacuation plan, which calls for the most southern parishes to evacuate first so that, as



AP PHOTO/CHERYL GERBER

they drive north, they do not encounter traffic bottlenecks in New Orleans or Baton Rouge.⁸⁴ While some parishes (e.g., Plaquemines and St. Charles) began the process with “mandatory” evacuation orders, most parishes began with “recommended” evacuation orders and upgraded these to “mandatory” orders later on Saturday or Sunday.⁸⁵ Some of the parishes farther north (e.g., St. Tammany, Tangipahoa) declared mandatory evacuation orders only for residents living in low lying areas or manufactured homes.⁸⁶

Some parishes also asked nongovernmental organizations to help evacuate those residents that did not have their own vehicles. Both New Orleans and Jefferson Parish have a program called “Brother’s Keeper” run by the parishes in conjunction with local churches and the Red Cross. According to Maestri, the parish had a phone bank in the EOC manned by volunteers that help take the calls and match up riders with drivers once the evacuation was announced.⁸⁷ By Sunday evening, most of the parishes reported empty streets and had declared dusk-to-dawn curfews.⁸⁸

Emergency shelters in Louisiana

Louisiana also set up shelters as part of its evacuation plan. A “Sheltering Task Force” led by the Department of Social Services and the Department of Health and Hospitals, coordinated its activities with the state EOC and parishes through the aforementioned conference calls.⁸⁹ Specific shelters were designated along the main evacuation routes, including both general population shelters and special needs shelters.⁹⁰ These efforts were coordinated with both Mississippi and Texas, which set up shelters once Louisiana shelters began to fill.⁹¹

Several parishes also established “shelters of last resort” for residents that could not evacuate or had delayed leaving. Parish officials Ebbert and Maestri told Select Committee staff they purposefully designate these shelters at the last minute so people will not use them as an excuse to avoid evacuation.⁹² New Orleans, which had already designated the Superdome as a shelter for the special needs population, also designated that facility as a “shelter of last resort” on Sunday, August 28.⁹³ The Louisiana National Guard pre-positioned 9,792 MREs and 13,440 liters of water at the Superdome.⁹⁴ Also in New Orleans, the RTA began running special service from 12 sites across the city to take riders to the Superdome.⁹⁵ The RTA also ran at least 10 paratransit vehicles to the Superdome and then on to the Baton Rouge area for “special needs” citizens; each of these vehicles made at least two trips.⁹⁶ All service ceased at approximately 7:00 p.m. Sunday night, approximately 11 hours before Katrina was due to make landfall and as conditions worsened.⁹⁷ Jefferson Parish also designated four facilities as “shelters of last resort.”⁹⁸ According to Maestri, unlike the Superdome, these locations in Jefferson Parish did not have any prepositioned medical personnel or supplies but they did have pre-positioned food and water.

Pre-landfall preparations by DOD, the National Guard, U.S. Army Corps of Engineers, and U.S. Coast Guard

DOD

In preparation for the last part of the 2005 hurricane season, the Secretary of Defense approved a standing order on August 19 that allowed the commander, U.S. Northern Command, to use military installations and

deploy Defense Coordinating Officers (DCO) as needed to coordinate directly in support of FEMA in affected states. As the force provider to Northern Command, the U.S. Joint Forces Command issued general instructions on August 20 on how it would task units in support of any Northern Command requests to support FEMA.⁹⁹

On August 23, Northern Command began tracking the tropical depression that became Hurricane Katrina. On August 24, the Office of the Secretary of Defense (OSD), Northern Command, and the National Guard Bureau participated in a teleconference with FEMA on what would be needed to respond to Katrina. Joint Forces Command issued a warning order to military services to be ready to support requests for assistance. Northern Command issued a similar warning order on August 25, the day Katrina struck Florida as a category 1 storm.¹⁰⁰

On August 26, Northern Command issued an execute order, setting initial DOD relief actions into motion. The initial response was focused on Florida, but DCOs were also activated for Georgia, Alabama, and Mississippi.¹⁰¹

On August 27, Northern Command received its first mission assignment from FEMA, to provide Barksdale Air Force Base in Louisiana as a federal operational staging area. The same day, the Corps of Engineers positioned teams and supplies in Alabama, Louisiana, and Mississippi. In New Orleans, the commander of the Corps' New Orleans District evacuated most of his staff to alternate locations to be ready to respond when the storm passed. Other active military units ordered similar evacuations of personnel and equipment. In addition, the Louisiana National Guard aviation officer requested helicopter support from the National Guard Bureau, and support was coordinated through the EMAC.¹⁰²

On August 28, DCOs were deployed to Mississippi and Louisiana. Northern Command took several additional steps to organize military assets that might be needed, including deployment of Joint Task Force-Forward (eventually Joint Task Force-Katrina) to Camp Shelby, Mississippi and a general alert to DOD assets potentially needed, particularly aviation assets.¹⁰³

On the day Katrina made landfall, August 29, the Deputy Secretary of Defense led an 8:30 a.m. meeting to get damage assessment for DOD facilities and review resources that might be required from DOD to support hurricane relief. The Secretary of Defense was briefed on DOD's readiness and Northern Command issued several more alerts in anticipation of requests for assistance.¹⁰⁴

National Guard

At the beginning of each hurricane season, National Guard Bureau (NGB) personnel participate in an interagency conference to assess potential response shortfalls and identify potential solutions that could be resolved through EMAC requests.¹⁰⁵ NGB planners conducted this EMAC conference in the spring of 2005 with participants from Alabama, Arkansas, Florida, Georgia, Louisiana, Maryland, Michigan, Mississippi, North Carolina, New York, and South Carolina. The Joint Staff J3 Joint Director of Military Support (JDOMS) also participated. The participants in these conferences believe that EMAC is capable of providing most military capabilities needed by states for hurricane disaster relief operations.

The role of the NGB grew in preparation for Guard response to Hurricane Katrina. On August 24, it issued an executive order calling on its Joint Staff to provide proactive planning and staffing support to states potentially affected by then-tropical storm Katrina. NGB Liaison Teams (LNOs) were sent to Alabama, Mississippi, and Louisiana.¹⁰⁶ On Wednesday, August 24, the first teleconference between NORTHCOM, the Joint Staff, Guard Headquarters, and FEMA was held to discuss DOD support to federal authorities.

The Joint Operations Center at the NGB geared up as the operations center for Katrina response.¹⁰⁷ The heads of the Army and Air National Guard also use this center for coordination of effort. During Hurricane Katrina preparation and response, the Joint Operations Center provided daily intelligence updates, logs of current operations, daily teleconferences, and coordination with states on logistical assistance; maintained communications with states and other agencies; and, coordinated Guard aviation assets.

On August 25, the NGB began hosting daily teleconferences with the operations officers of the Gulf states' Adjutant Generals. The Adjutant Generals reported their preparations to respond, and were asked if they needed out of state assistance.¹⁰⁸ Some of them had already contacted or were contacted by other nearby states to arrange for assistance via the EMAC in the form of personnel and equipment that might be needed.¹⁰⁹

On Sunday, August 28, reports into NGB by state Adjutant Generals indicated that 4,444 Army National Guard and 932 Air National Guard in Florida, Alabama,

Mississippi, and Louisiana were ready to respond. Both General Bennett C. Landreneau of Louisiana and Cross of Mississippi requested additional aircraft from EMAC via NGB.¹¹⁰ Consequently, these requests were considered state-to-state requests for assistance, not federal requests involving FEMA or OSD, even though NGB facilitated the assistance. On Monday, August 29, NGB noted that 65 Army National Guard aircraft were in position in Florida, Alabama, Texas, Louisiana, and Mississippi.

Louisiana National Guard

The Louisiana National Guard is an integral part of managing emergencies in the state. The Adjutant General, Landreneau, wears two hats, as he is head of both the National Guard and the Louisiana Office of Homeland Security and Emergency Preparedness (LOHSEP).¹¹¹ The National Guard plays a significant role in emergency command and control because of the dual role of the Adjutant General. Also, many of the personnel who staff the state's EOC are guardsmen.

On Friday, August 26, Blanco authorized the mobilization of 2,000 Louisiana guardsmen.¹¹² The next day, Landreneau called an additional 2,000 to active duty.¹¹³ By the end of the day on Saturday, 3,085 Louisiana National Guard troops had been fully activated. Coordination also began with other states for additional aviation assets for search and rescue and EMAC support, if needed.

The Louisiana National Guard participated in a number of preparation missions, including law enforcement, traffic control, shelter support and security, and securing operations at the Superdome.¹¹⁴ Many guardsmen were also embedded with state and parish officials and later used their radios to help these officials reestablish some minimal level of communications.¹¹⁵ Before Katrina hit, guardsmen provided support for general purpose shelters and special needs shelters by providing medical personnel.¹¹⁶

Alabama National Guard

The Alabama National Guard has 13,200 troops, with Army and Air National Guard components falling under its Adjutant General, Major General Mark Bowen.¹¹⁷ The Adjutant General is also a member of the Governor's Cabinet, but is not dual-hatted as the emergency response coordinator. Although he participates in the state's EOC, Bowen's chain of command is a direct line to the governor. The Alabama Guard has developed and is organized around mission-oriented joint force packages, (i.e., hurricanes, snow and ice storms). Task forces typically include security forces, engineers, medical, communications, special operations forces, logistics and a command and control cell. Alabama also has a voluntary state militia that is administered by the National Guard. They are used to augment the Guard force and have approximately 2,000 to 3,000 members.

During the Alabama National Guard's preparation phase, which began six days before Katrina hit, Guard assets monitored the storm track and began discussions with the NGB.¹¹⁸ By August 26, Riley ordered 3,000 Alabama National Guard soldiers and airmen to state active duty and requested Secretary of Defense approval of 180 days of military duty.¹¹⁹ Approval was granted by DOD on September 7 and was retroactive to August 29.¹²⁰

Two days before the storm, a National Guard liaison officer was dispatched to the state EOC in Clanton.¹²¹ On August 28, two National Guard Task Forces were formed, gathered pre-positioned supplies (food, water, ice, gas) from Maxwell Air Force Base, and equipment, including generators,



AP PHOTO/DAVE MARTIN

Before Katrina hit, Louisiana National Guard soldiers screen residents entering the Superdome.

fuel trucks, and aviation assets.¹²² Guard assets also began deployment to assist Mobile and Baldwin County Emergency Management activities.¹²³

Mississippi National Guard

The Mississippi National Guard has 12,041 troops, with Army and Air National Guard components falling under Adjutant Major General Harold A. Cross.¹²⁴ The Adjutant General reports directly to the Governor, but is not dual-hatted as the state emergency management officer. Mississippi's emergency response is handled by the state's emergency management agency, MEMA.

On August 28, 2005, the Mississippi National Guard alerted state emergency personnel to assemble for hurricane operations on the Mississippi Gulf coast under Joint Task Force Magnolia.¹²⁵ National Guard special "hurricane strike" squads were pre-positioned at all three coastal county EOCs. Recommended but voluntary evacuation of civilians brought bumper-to-bumper traffic along Highway 49 northbound, from the beach in Gulfport to Jackson. By Sunday evening, numerous mandatory evacuation orders were in effect, and Mississippi National Guard Soldiers took shelter at Camp Shelby, 62 miles north of the predicted landfall area. These Guard personnel moved south after the storm had passed to begin assisting with response and recovery efforts.

U.S. Army Corps of Engineers

The Army Corps of Engineers (USACE), another active duty military unit, provided substantial resources to prepare for and respond to Hurricane Katrina. Under the National Response Plan, the USACE, as the lead federal agency for public works and engineering (ESF #3), provides relief and response support to FEMA.¹²⁶ To meet these responsibilities, USACE has pre-awarded competitively bid contracts for all of these functions to allow quick deployment of resources prior to and immediately after an event.¹²⁷ These pre-awarded contracts are part of USACE's Advanced Contracting Initiative (ACI), which has been in place for about six years.

USACE took a number of preparatory steps in anticipation of the hurricane season in general and for Hurricane Katrina specifically.¹²⁸ Over the summer, the USACE New Orleans District participated in an annual

hurricane preparedness exercise conducted by the regional headquarters. In July 2005 the district sponsored a hurricane preparedness conference for federal, state, and local emergency managers.

In addition, USACE had equipment and supplies, including those needed to repair levees, pre-positioned in various locations along the Gulf of Mexico.¹²⁹ When Katrina approached, the New Orleans District monitored the situation and evacuated most staff, establishing a temporary district headquarters in Vicksburg, Mississippi. The district commander and eight staff remained in New Orleans, retreating to a bunker designed to withstand a category 5 hurricane. Their objective was to monitor the levee system, stay in contact with local officials, and provide post-storm assessments to the USACE chain of command.

U.S. Coast Guard

Well before arriving in the Gulf of Mexico, Hurricane Katrina was closely watched by Coast Guard officials as the storm approached and eventually passed through southern Florida. By Thursday, August 25, the Seventh Coast Guard District, based in Miami, had prepared for Katrina's arrival by partially evacuating Coast Guard boats, aircraft, and personnel, and closely monitoring Katrina's progress across the Florida peninsula.¹³⁰ As Katrina cleared the Seventh District, the Eighth District was busy executing hurricane plans in anticipation of Katrina's arrival.¹³¹

On August 27, the Eighth Coast Guard District's Incident Management Team (IMT), based in New Orleans, relocated to St. Louis in accordance with Coast Guard hurricane plans.¹³² The Eighth District set heightened readiness for all units, ordered the evacuations of personnel and dependents from units along the Gulf coast in the anticipated impact zone, and closed the entrance to the lower Mississippi river to all commercial maritime traffic.

On August 28, the Coast Guard activated personnel to support air and swift boat operations under ESF-1, and positioned liaison officers at FEMA regions IV and VI, and to state EOCs in Florida, Louisiana and Mississippi.¹³³

The Coast Guard's computer hub in New Orleans dropped off-line, resulting in no computer or internet connectivity to all coastal ports within the Eighth District. Coast Guard units resorted to using phone and fax machines to communicate.

The Eighth District Commander requested additional Coast Guard air assets and personnel to support rescue and recovery operations.¹³⁴ Coast Guard aircraft and crews from Louisiana, Alabama, Florida, New Jersey, Massachusetts, North Carolina, Georgia, and Texas were pre-staged to provide rapid support.¹³⁵ Eighth District Commander Rear Admiral Robert Duncan contacted Blanco to discuss damage assessments and response efforts.¹³⁶

Sector New Orleans operations and critical communications personnel evacuated to Alexandria, Louisiana. Non-essential Coast Guard personnel and dependents in the New Orleans area evacuated to the Naval Air Station in Meridian, Mississippi.¹³⁷ Coast Guard helicopters originally located in New Orleans relocated to Houston and Lake Charles, Louisiana to avoid Katrina's path, and prepared to begin rescue operations. All Coast Guard cutters and small boats relocated to safe locations, or traveled out to sea to avoid the storm.

In Mississippi, a Coast Guard Incident Management Team was established in Meridian.¹³⁸ Duncan contacted Barbour to discuss damage assessments and response efforts. Non-essential personnel and dependents from the Gulfport and Lockport areas relocated to Naval Air Station Meridian.¹³⁹ In Alabama, helicopters from Aviation Training Center Mobile deployed to Shreveport and Jacksonville for storm avoidance, and prepared to respond. Also, a Transportable Multi-mission Communications Center was pre-staged at Sector Mobile to provide temporary communication support. Non-essential Coast Guard personnel and dependents relocated to Maxwell Air Force Base.¹⁴⁰

On August 29, the day Katrina made landfall, the Sector New Orleans Incident Management Team was established in Alexandria, LA.¹⁴¹ Outside of the forecasted area of impact, Coast Guard Disaster Assistance Teams from Ohio, Kentucky, St. Louis, Pittsburgh, and Miami were pre-positioned to the region to respond as soon as conditions permitted.

During normal conditions, there are 15 helicopters assigned within the Eighth Coast Guard District, along with four fixed-wing aircraft and 16 cutters. Within 12 hours of Hurricane Katrina making landfall, the Coast Guard assigned 29 helicopters, eight fixed-wing aircraft, and 24 cutters to the area to support rescue operations.¹⁴²

Pre-landfall preparations by the American Red Cross

The Red Cross' Gulf coast-area preparation was far along two days before Katrina made landfall in the Gulf coast. As of 2:00 p.m. on August 27, Carol Hall of the Red Cross reported to the White House and the Department of Homeland Security, among other governmental organizations that it "has every resource at its disposal on alert/moving in anticipation of this event to include personnel, equipment, and materials."¹⁴³ According to Hall, key aspects of this preparation included:

- Chapters across the region opened shelters in support of evacuations in all states.
- 275,000 HeaterMeals were staged in Baton Rouge, LA.
- 225,000 HeaterMeals were staged in Montgomery, AL.
- 15 sites were identified to bring in big kitchens with the support of Southern Baptists to provide 300,000-meals-per-day feeding capability.
- All 14 Disaster Field Supply Center warehouses loaded supplies, including 50,000 cots, 100,000 blankets, comfort and clean-up kits.
- All vehicles in the Red Cross fleet across the country were placed on alert for possible deployment and were dispatched to staging areas.
- All 8 Emergency Communications Response Vehicles (ECRVs) deployed to staging areas.
- Red Cross staff deployed to NRCC, Region VI RRCC, Region IV RRCC, ERT-As and other ESF #6 posts.



Red Cross volunteers unload supplies in preparation for Katrina.

AP PHOTO/STEVE COLEMAN

By August 28, the Red Cross started to understand the magnitude of Katrina. One of its Disaster Operations Reports remarked, if Katrina makes landfall at its current pressure, “it will be the most intense storm to hit the US mainland.”¹⁴⁴ On the same day it was reported, “For the first time ever, an ESF6 coordination center will be set up tomorrow at American Red Cross national headquarters to coordinate the deliver [sic] mass care services with our governmental and non-governmental organization partners.”¹⁴⁵

As Katrina made landfall on August 29, the Red Cross was fully staffing all of the relevant state and federal EOCs, including Alabama, Louisiana, Florida, Mississippi, Georgia, South Carolina, Tennessee, FEMA Regions IV and VI’s RRCC, FEMA’s NRCC, as well as ERT-A teams in Florida, Alabama, Mississippi, and Louisiana.¹⁴⁶ Sites for 25 kitchens to feed as many as 500,000 people were identified and pre-staged.¹⁴⁷

Trajectory and impact of Hurricane Katrina

Finding: The accuracy and timeliness of National Weather Service and National Hurricane Center forecasts prevented further loss of life

Timeline of Hurricane Katrina and NWS Warnings to Federal, State and Local Officials

At 5:00 p.m. Eastern Daylight Time (EDT) (4:00 Central Daylight Time (CDT), the National Weather Service (NWS) reported that Katrina’s projected path had shifted 150 miles to the west (toward Mississippi) and projected that Katrina would make landfall as a category 4 storm.¹⁴⁸ By 10:00 p.m. CDT that same night, the NWS projected that landfall was most likely at Buras, Louisiana, 65 miles south-southeast of New Orleans.¹⁴⁹ NWS proved extremely accurate; the final landfall location was only 20 miles off from Friday’s forecast.¹⁵⁰ Since meteorological conditions that affect the track and intensity of the storm were relatively stable, NWS was especially certain of the accuracy of its prediction, even 56 hours from landfall.

At 10:00 a.m. CDT, on Saturday, August 27, the National Hurricane Center (NHC) issued a hurricane watch for southeast Louisiana, including New Orleans, which was extended to Mississippi and Alabama later that afternoon.¹⁵¹ Later that evening, between 7:30 and 8:00 p.m. CDT, 35 hours before landfall, Max Mayfield, the director of the NHC called state officials in Louisiana, Mississippi, and Alabama to inform them of the storm’s intensity and its potential to be devastating and catastrophic.¹⁵² At Governor Blanco’s urging, Mayfield also called Ray Nagin.¹⁵³

Despite media reports indicating Mayfield encouraged Nagin to immediately order a mandatory evacuation, Mayfield “just told [officials] the nature of the storm [and that he] probably said to the Mayor that he was going to have some very difficult decisions ahead of him.”¹⁵⁴ Similarly, Mayfield said that the “purpose of [his] calls there to the Governors of Louisiana and Mississippi was really just to make absolutely sure that they understood how serious the situation was”¹⁵⁵

In public advisories issued at 10:00 p.m. CDT Saturday, 32 hours before prior to landfall, NHC warned of storm surge forecasts.¹⁵⁶ At 7:00 a.m. on Sunday, August 28, NWS advisories characterized Katrina as a “potentially catastrophic” storm.¹⁵⁷ Additionally, at 4:00 p.m. CDT on Sunday, the storm surge was predicted to be 18 to 22 feet, and locally as high as 28 feet with “large and battering” waves on top of the surge, meaning “some levees in the greater New Orleans area could be overtopped.”¹⁵⁸

Although it was reported that Mayfield cautioned the levees would be breached, no such warning was issued. “What I indicated in my briefings to emergency managers and to the media was the possibility that some levees in the greater New Orleans area could be overtopped, depending on the details of Katrina’s track and intensity,” Mayfield said.¹⁵⁹

Also on Sunday, August 28, the NWS office in Slidell, Louisiana, which is responsible for the New Orleans area, issued warnings saying, “most of the area will be uninhabitable for weeks . . . perhaps longer” and predicting “human suffering incredible by modern standards.”¹⁶⁰ Ultimately, NWS and NHC proved remarkably accurate in capturing Katrina’s eventual wrath and destruction.

It is important to note, the hurricane risk to New Orleans and the surrounding areas was well-recognized and predicted by forecasters long before Hurricane Katrina. “The 33 years that I’ve been at the Hurricane Center we have



always been saying — the directors before me and I have always said — that the greatest potential for the nightmare scenarios, in the Gulf of Mexico anyway, is that New Orleans and southeast Louisiana area,” Mayfield said.¹⁶¹

The NWS and NHC are not without critics though. AccuWeather

Inc., a private weather service company, has said the public should have received earlier warnings that Gulf coast residents, and New Orleans residents in particular, were directly in Katrina’s path.¹⁶² AccuWeather issued a forecast predicting the target of Katrina’s landfall nearly 12 hours before the NHC issued its first warning, and argued the extra time could have aided evacuation of the region.¹⁶³

Responding to this criticism, Mayfield said premature evacuation can lead too large of an area to evacuate, causing unnecessary traffic and congestion on the roads.¹⁶⁴ As Mayfield testified, “the mission here of the National Hurricane Center and then the National Weather Service, is to provide the best forecast that we possibly can, and then the emergency managers at the local and state levels will use that, then they will call for evacuations.”¹⁶⁵

Ultimately, as Mayfield tried to convey, NHC and NWS can only forecast, issue warnings, and provide timely information to the state and local decision-makers who determine who and when to evacuate. The timeliness and accuracy of the forecasts saved lives. No government can blame inadequate response or lack of advanced warning.

Katrina makes landfall

Hurricane Katrina made landfall at Buras, Louisiana on the southeast corner of Louisiana, at 6:10 a.m. CDT, on Monday, August 29.¹⁶⁶ Katrina had maximum sustained winds of 121 mph and was unusually large, measuring approximately 400 miles across. Its eye was at least 30 miles wide. Though it had weakened from a category 5 to a strong category 3 storm by landfall, the damage and loss of life

from the storm was staggering, with effects extending from Louisiana through Mississippi, Alabama, Georgia, and the Florida panhandle.¹⁶⁷ The three states most directly affected — Alabama, Mississippi, and Louisiana — each suffered significant damage, with NHC noting that many of the most severely affected areas along the Gulf coast could take years to completely rebuild.¹⁶⁸

Alabama — impact of Hurricane Katrina

Though Alabama was not where Hurricane Katrina made landfall, damages there were substantial. According to the NHC, “despite being more distant from the eye of Katrina, the storm surge over Dauphin Island, Alabama destroyed or damaged dozens of beachfront homes and cut a new canal through the island’s western end.”¹⁶⁹ Two deaths were reported during Hurricane Katrina in Alabama. However, these deaths were the result of an auto accident and unrelated to the Hurricane.¹⁷⁰

Katrina caused significant damage along its coast with a wave surge of 13.5 feet, exceeding the 100-year flood level of 12 feet.¹⁷¹ Bayou La Batre and (as noted above) Dauphin Island received the brunt of the storm in Alabama, losing 800 and 200 homes, respectively.¹⁷² The storm caused wind damage as far north as Tuscaloosa County. Mobile Bay spilled into downtown and flooded large sections of the city, destroying hundreds of homes. The sheer power of the storm dislodged a nearby oil drilling platform, which became caught under the U.S. Highway 98 bridge.¹⁷³

As of early January 2006, federal assistance to Alabama had exceeded \$500 million.¹⁷⁴ Specifically, FEMA reported





FEMA

that, to date, it had provided \$117 million in assistance to individuals and families (for housing and rental assistance) and \$348 million for public assistance, crisis counseling, disaster unemployment assistance, and various mission assignments to other federal agencies during the disaster response. The public assistance funds were provided for, among other things, infrastructure costs, debris removal, and road and bridge repair. The costs for mission assignments to other federal agencies included the use of military aircraft for rapid needs assessments, shipments of ice (280 truckloads), water (186 truckloads), MREs (103 truckloads), generators (11 truckloads), cots (27 truckloads), and blankets (32 truckloads). The Small Business Administration (SBA) has approved over \$68 million in loans to homeowners, renters, and businesses.

Mississippi — impact of Hurricane Katrina

In reporting casualty and damage statistics for Hurricane Katrina, NHC noted that “the storm surge of Katrina struck the Mississippi coastline with such ferocity that entire coastal communities were obliterated, some left with little more than the foundations upon which homes, businesses, government facilities, and other historical buildings once stood.”¹⁷⁵ According to the NHC, the Hancock County EOC recorded a storm surge of as high as 27 feet; this surge likely penetrated at least six miles inland in many portions of the Mississippi coast and up to 12 miles inland along bays and rivers.¹⁷⁶ Even in areas that may have been spared the destruction of the storm surge, hurricane force winds wreaked havoc—according to Pearl River County EMA Director Bobby Strahan, for example, his EOC (one county inland) twice registered wind speeds of 135 miles per hour.¹⁷⁷

All told, at least 231 Mississippians died during Hurricane Katrina.¹⁷⁸ In the three coastal counties alone,

66,000 may have been displaced from their homes due to flooding and/or structural damage to their homes.¹⁷⁹ At peak levels on August 31, Mississippi’s power companies reported 958,000 customers were without power and that over 19,000 households were still powerless as of the end of September.¹⁸⁰

Damages to Mississippi’s economy were also substantial—the state’s agricultural, forestry, gaming, maritime, and poultry industries all suffered extensive damages.¹⁸¹ For example, the state reported that its two biggest crops—poultry and forestry—were very hard hit, with at least two years’ worth of timber destroyed (worth \$1.3 billion) and the value of the poultry industry dropping by six percent due to hurricane damage (including the estimated loss of 8 million birds and damage to 2,400 of the state’s 9,000 poultry houses, 300 of which were totally devastated).¹⁸² The state’s dairy industry suffered losses estimated to exceed \$6 million, and 20 percent of the expected rice and corn harvests may have been lost.¹⁸³

The costs and volume of response and clean-up activity in Mississippi reflect the enormous damage Katrina left behind. For example, a month and a half after landfall, the state reported the total cost of assistance it received via EMAC was over \$327 million (\$176 million in civilian costs and \$151 million in National Guard expenses).¹⁸⁴

According to the National Emergency Management Association (NEMA, which administers the EMAC¹⁸⁵), commonly requested resources included firefighters, search and rescue personnel, HAZMAT personnel, emergency medical technicians, state police, sheriffs, fish and wildlife personnel, corrections personnel, livestock inspectors, bridge inspectors, airport maintenance personnel,



FEMA



AP PHOTO/ROB CARR

ambulances, medical doctors, registered nurses and National Guard Troops.¹⁸⁶ In total, at least 33 states aided the law enforcement response effort in Mississippi through the EMAC.¹⁸⁷

Federal costs in Mississippi have also been substantial.¹⁸⁸ FEMA reports that, as of January 4, 2006 it had disbursed in Mississippi just over \$1 billion in assistance via its Individuals and Households Program and obligated to the state and local governments \$666 million in public assistance to repair things like roads and bridges. SBA, FEMA reports, has approved home, business, and economic injury loans totaling over \$529 million. USACE has installed nearly 50,000 temporary roofs through its Operation Blue Roof program (making that effort 99 percent complete) and, in addition to the efforts of local governments and contractors, removed more than 23 million cubic yards of debris. While just over 30,000 FEMA travel trailers and mobile homes are now occupied in Mississippi, four shelters housing 759 people remained open at year's end.

Louisiana — impact of Hurricane Katrina

On August 28, at 10 a.m. CDT, the NWS field office in New Orleans issued a bulletin predicting catastrophic damage to New Orleans, including partial destruction of half of the well-constructed houses in the city, severe damage to most industrial buildings rendering them inoperable, the creation of a huge debris field of trees, telephone poles, cars, and collapsed buildings, and a lack of clean water.¹⁸⁹ As previously noted, NWS predicted the impact on Louisiana would be a human suffering incredible by modern standards." Unfortunately, much of what the NWS predicted came to pass.

With intense gale-force winds and massive storm surge, the effect of Hurricane Katrina on Southeast Louisiana was indeed catastrophic. After 11:00 a.m. CDT on August 29, several sections of the levee-system in New Orleans breached, and 80 percent of the city was under water at peak flooding, which in some places was 20 feet deep. The extensive flooding left many residents stranded long after

*NWS predicted Karina could
“make human suffering incredible
by modern standards.”*



AP PHOTO/DAVID J. PHILLIP

Hurricane Katrina had passed, unable to leave their homes. Stranded survivors dotted the tops of houses citywide. Flooding in the 9th Ward sent residents onto rooftops seeking aid. Many others were trapped inside attics, unable

to escape. Some chopped their way to their roofs with hatchets and sledge hammers, which residents had been urged to keep in their attics in case of such events. Clean water was unavailable and power outages were expected to last for weeks.

Katrina took approximately 1,100 lives in Louisiana, most due to the widespread storm surge-induced flooding and its aftermath in the New Orleans area.¹⁹⁰ Fatalities included some of those widely seen on the media — bodies at refugee centers, such as an old woman in a wheelchair who had been covered with a cloth, and a man dead on the interstate. In addition to flooding, contaminated water also caused deaths—on September 6, *E. coli* was detected in the water supply and, according to the Centers for Disease Control and Prevention (CDC), five people died from bacterial infections caused by the toxic waters.¹⁹¹



AP PHOTO/ERIC GAY

The economic and environmental ramifications of Katrina have been widespread and could in some respects be long-lasting due to effects on large population and

tourism centers, the oil and gas industry, and transportation. The hurricane severely damaged or destroyed workplaces in New Orleans and other heavily populated areas of the northern Gulf coast, resulting in thousands of lost jobs and millions of dollars in lost tax revenues for the affected communities.¹⁹²

All told, 41 of Louisiana’s 64 parishes suffered serious damage.¹⁹³ Thousands of homes and businesses throughout entire neighborhoods in the New Orleans metropolitan area were destroyed by the flood. Strong winds also caused damage in the New Orleans area, including downtown, where windows in some high rise buildings were blown out and the roof of the Louisiana Superdome partially peeled away.

As of mid-January, 2006, the federal costs FEMA reported for Louisiana were enormous. Specifically, FEMA said it had provided \$4 billion directly to Katrina victims for financial and housing assistance through its Individuals and Housing Program, an amount it projected will eventually grow to a total of \$7.7 billion (including costs from Hurricane Rita in late September 2005).¹⁹⁴ FEMA had paid out an additional \$3.1 billion in housing assistance to victims of Katrina and Rita and projected it will pay \$17 billion in claims under the National Flood Insurance Program to policyholders in Louisiana.

Likewise, loan activity in the wake of Hurricanes Katrina and Rita has been substantial. FEMA has approved \$539 million in Community Disaster Loans in Louisiana for essential public services in hard-hit communities, including a \$120 million loan to the city of New Orleans, and SBA has approved \$1.3 billion in loans to homeowners and renters and \$252 million in disaster assistance loans to businesses.¹⁹⁵ ■



AP PHOTO/CHRISTOPHER MORRIS/VII

-
- ¹ Federal Emergency Management Agency (FEMA), Commodity status by site as of Aug. 28, 2005, (10:00 a.m.).
- ² Press Conference with Officials from the Department of Homeland Security, Justice Department, Defense Department, the National Guard Bureau, U.S. Coast Guard and FEMA, CNN, et al, Sept. 1, 2005 [hereinafter *DHS Press Conference*], available at <http://www.dhs.gov/dhspublic/display?theme=43&content=4779&print=true> (last visited Jan. 25, 2005).
- ³ Interview by Select Comm. Staff with Bill Lokey, FEMA Federal Coordinating Officer, in Washington, DC (Dec. 2, 2005) [hereinafter *Lokey Interview*].
- ⁴ Federal Emergency Management Agency, Commodity status by site as of Aug. 28, 2005 (10:00 a.m.).
- ⁵ *Hearing on Hurricane Katrina: The Role of the Federal Emergency Management Agency Before Select Comm.*, 109th Cong. (Sept. 27, 2005) at 54-55 (statement of Michael Brown) [hereinafter *Sept. 27, 2005 Select Comm. Hearing*].
- ⁶ *Id.* at 63-64 (statement of Michael Brown).
- ⁷ *Id.* at 34 (statement of Michael Brown).
- ⁸ Press Release, FEMA, Assistance Continues To Areas Impacted By Hurricane Katrina (Press Release No. HQ-05-175) (Aug. 29, 2005), available at http://www.fema.gov/news/newsrelease_print.fema?id=18471 (last visited Jan. 26, 2006).
- ⁹ Press Release, Dept. Homeland Security, United States Government Response to the Aftermath of Hurricane Katrina (Sept. 1, 2005), available at <http://www.dhs.gov/dhspublic/display?theme=43&content=4777&print=true> (last visited Jan. 26, 2006).
- ¹⁰ Letter from Haley Barbour, Governor of Mississippi, to George W. Bush, President of the United States (Aug. 27, 2005); Mississippi, Emergency and Related Determinations (FEMA-3213-EM), 70 Fed. Reg. 53,229 (Aug. 28, 2005).
- ¹¹ Letter from Haley Barbour, Governor of Mississippi, to George W. Bush, President of the United States (Aug. 28, 2005); Mississippi, Major Disaster and Related Determinations (FEMA-1604-DR), 70 Fed. Reg. 72,549 (Aug. 28, 2005, as amended Dec. 20, 2005).
- ¹² Mississippi Emergency Management Agency, Status of Emergency Management Capability (Feb. 01, 2005).
- ¹³ See, DHS, *National Incident Management System*, 2 (Mar. 1, 2004) at ix, 1-4, 7, available at <http://www.dhs.gov/interweb/assetlibrary/NIMS-90-web.pdf> (last visited Jan. 22, 2006) [hereinafter *NIMS*]. NIMS was developed by the Department of Homeland Security to implement HSPD-5, which directed DHS to develop a new national plan for managing emergencies. NIMS defines the roles and responsibilities of federal, state, and local first responders during emergencies and establishes a core set of concepts, principles, terminology, and organizational processes to enable effective, efficient, and collaborative emergency event management at all levels. The concepts, principles, and processes underlying the NIMS are intended to improve the ability of different jurisdictions and first-responder disciplines to work together in various areas, such as command and communications. DHS describes the NIMS ICS as the “standardized incident organizational structure for the management of all [domestic] incidents.” The ICS provides a common organizational structure for the immediate response to emergencies and involves the coordination of personnel and equipment on-site at an incident.
- ¹⁴ *Hearing on Hurricane Katrina: Preparedness and Response by the State of Mississippi, Before Select Comm.*, 109th Cong. (2005) at 3 (written statement of William L. Carwile) [hereinafter *Dec. 7, 2005 Select Comm. Hearing*]; see also, *Dec. 7, 2005 Select Comm. Hearing* at 39-40 (statement of William L. Carwile); see also, *Dec. 7, 2005 Select Comm. Hearing* at 33-34 (statement of Robert R. Latham, Jr.).
- ¹⁵ *Dec. 7, 2005 Select Comm. Hearing* at 5 (written statement of Robert R. Latham, Jr.).
- ¹⁶ See generally, Mississippi Emergency Management Agency, *Preparedness and Response Timeline—Hurricane Katrina* [hereinafter *MS Timeline*].
- ¹⁷ *MS Timeline* at 1-2.
- ¹⁸ Mississippi Emergency Management Agency, Director’s Brief as of 1900 hours, Aug. 28, 2005 (MEMA -0010688) (Aug. 28, 2005) at 3.
- ¹⁹ *Dec. 7, 2005 Select Comm. Hearing* at 2 (written statement of William L. Carwile).
- ²⁰ *Id.* at 6 (statement of Robert R. Latham, Jr.).
- ²¹ *Id.* at 64-65 (statement of Haley Barbour).
- ²² *Id.* at 2 (written statement of Robert R. Latham, Jr.).
- ²³ *MEMA Timeline* at 2.
- ²⁴ *Id.* at 3.
- ²⁵ Mississippi Emergency Management Agency, Director’s Brief as of 0430 hours, Aug. 29, 2005 (MEMA -0010696) (Aug. 29, 2005) at 1.
- ²⁶ Mississippi Emergency Management Agency, Director’s Brief as of 1900 hours, Aug. 28, 2005 (MEMA -0010688) (Aug. 28, 2005) at 3.
- ²⁷ Mississippi Emergency Management Agency, Director’s Brief as of 0430 hours, Aug. 29, 2005 (MEMA -0010696) (Aug. 29, 2005) at 1.
- ²⁸ Mississippi Emergency Management Agency, Director’s Brief as of 0502 hours, Aug. 29, 2005 (MEMA -0010700) (Aug. 29, 2005) at 2.
- ²⁹ *Id.* at 2.
- ³⁰ *Hearing on Hurricane Katrina: Preparedness and Response by the Department of Defense, the Coast Guard, and the National Guard of Louisiana, Mississippi, and Alabama Before Select Comm.*, 109th Cong. (2005) at 22-23 (statement of Harold A. Cross), [hereinafter *Oct. 27, 2005 Select Comm. Hearing*]; see also, E-mail correspondence from LTC Rodney Neudecker, Mississippi Sr. Army Advisor Guard, to Lt. General Russel Honoré, Commander, Joint Task Force Katrina (Aug. 27, 2005; 3:50 p.m.).
- ³¹ Interview by Select Comm. with Major General Harold A. Cross, Adjutant General (TAG), in Jackson, MS (Oct. 12, 2005) [hereinafter *Cross Interview*].
- ³² E-mail correspondence from Colonel Penn, Defense Co-ordination Office for Mississippi, to Lt. General Russel Honoré, Commander, Joint Task Force Katrina (Aug. 30, 2005; 7:47 a.m.); see also Mississippi National Guard Joint Force Headquarters, *Operation Secure Magnolia, Hurricane Katrina Aug. 26-Present*; see also, E-mail correspondence from LTC Rodney Neudecker, Mississippi Sr. Army Advisor Guard, to Lt. General Russel L. Honoré, Commander, Joint Task Force Katrina (Aug. 28, 2005; 11:26 a.m.); see generally, Mississippi Emergency Management Agency, *Hurricane Situation Report #24* (Sept. 1, 2005; 00:35 a.m.).
- ³³ *Oct. 27, 2005 Select Comm. Hearing* (written response to questions for the record of Major General Harold A. Cross).
- ³⁴ *Id.*
- ³⁵ *Id.*
- ³⁶ *Id.*
- ³⁷ *Id.*

- ³⁸ *Id.*
- ³⁹ Oct. 27, 2005 Select Comm. Hearing (written response to questions for the record of Major General Harold A. Cross); *see also*, E-mail correspondence from LTC Rodney Neudecker, Mississippi Sr. Army Advisor Guard, to Lt. General Russel L. Honoré, Commander, Joint Task Force Katrina (Aug. 28, 2005; 11:26 a.m.); *see also*, E-mail correspondence from LTC Rodney Neudecker, Mississippi Sr. Army Advisor Guard, to Lt. General Russel L. Honoré; *see also*, Commander, Joint Task Force Katrina (Aug. 28, 2005; 4:42 a.m.).
- ⁴⁰ E-mail correspondence from LTC Rodney Neudecker, Mississippi Sr. Army Advisor Guard, to Lt. General Russel L. Honoré, Commander, Joint Task Force Katrina (Aug. 28, 2005; 11:26 a.m.); E-mail correspondence from Lt. Col. Rodney Neudecker, Mississippi Sr. Army Advisor Guard, to Lt. General Russel L. Honoré; *see also*, Commander, Joint Task Force Katrina (Aug. 28, 2005; 4:42 a.m.).
- ⁴¹ E-mail correspondence from Lt. Col. Rodney Neudecker, Mississippi Sr. Army Advisor Guard, to Lt. General Russel L. Honoré, Commander, Joint Task Force Katrina (Aug. 28, 2005; 11:26 a.m.); E-mail correspondence from LTC Rodney Neudecker, Mississippi Sr. Army Advisor Guard, to Lt. General Russel L. Honoré; *see also*, Commander, Joint Task Force Katrina (Aug. 28, 2005; 4:42 a.m.).
- ⁴² Oct. 27, 2005 Select Comm. Hearing (written response to questions for the record of Major General Harold A. Cross).
- ⁴³ Oct. 27, 2005 Select Comm. Hearing at 26 (statement of Major General Harold A. Cross).
- ⁴⁴ *See generally*, Daily Video Teleconferences amongst officials dated Aug. 25 – Sept. 4, 2005 [hereinafter “Daily VTC”]. State and local officials from each of the impacted areas met daily with officials from, among other agencies, FEMA, and the National Hurricane Center.
- ⁴⁵ Interview by Select Comm. Staff with Toby Roth, Chief of Staff to Governor Barbour, and Dave Stewart, Policy Advisor to Governor Barbour, in Montgomery, AL (Oct. 12, 2005) [hereinafter *Roth / Stewart Interview*].
- ⁴⁶ FEMA, Chronology and Time Line, (DHS-FEMA-070-0001256).
- ⁴⁷ *Hearing on Hurricane Katrina: Preparedness and Response by the State of Alabama Before Select Comm.*, 109th Cong. (2005) at 86 (statement Leigh Ann Ryals) [hereinafter Nov. 9, 2005 Select Comm. Hearing]; *see also*, Nov. 9, 2005 Hearing at 93 (statement Walter Dickerson).
- ⁴⁸ Letter from Bob Riley, Governor of Alabama, to George W. Bush, President of the United States (Aug. 28, 2005).
- ⁴⁹ Letter from George W. Bush, President of the United States to Bob Riley, Governor of Alabama (Aug. 29, 2005).
- ⁵⁰ Letter from Bob Riley, Governor of Alabama, to George W. Bush, President of the United States (Aug. 28, 2005).
- ⁵¹ *See*, Letter from George W. Bush, President of the United States to Bob Riley, Governor of Alabama (Aug. 29, 2005); *see*, Alabama: Major Disaster and Related Determinations, 70 Fed. Reg. 71,540-71,541 (Aug. 29, 2005, as amended Nov. 29, 2005).
- ⁵² Level I being the highest (a declared disaster) and Level IV being the lowest (daily operating level). The AL EOP is in the process of being revised. The State of Alabama, with a view to being NRP and NIMS compliant, has reversed its ordering of the activation levels, i.e., Level I is now Level IV. *See*, E-mail correspondence from Bill Filter, Alabama Emergency Management Agency, Operations Department, to Select Comm. Staff (Nov. 8, 2005).
- ⁵³ Interview by Select Comm. Staff with Charles Williams, Division Chief of Preparedness and Tim Payne, Branch Chief Emergency Management Program Coordinate, in Clanton, AL (Oct. 11, 2005) [hereinafter *Williams / Payne Interview*].
- ⁵⁴ *Williams / Payne Interview*; *see also*, *Roth / Stewart Interview*.
- ⁵⁵ *Roth / Stewart Interview*.
- ⁵⁶ *See*, ALA. CODE §§ 31-9-6 (4); 31-9-8 (4); 31-9-14 and 31-9-15 (2005).
- ⁵⁷ *Williams / Payne Interview*.
- ⁵⁸ *Id.*
- ⁵⁹ EM2000 messages from Aug. 23 through Sept. 15 were provided to the Select Comm. *See generally*, EM/2000 Tracker System Message Database (Aug. 23 – Sept. 15, 2005).
- ⁶⁰ Interview by Select Comm. Staff with Dr. Donald E. Williamson, MD, Alabama State Health Director, in Montgomery, AL (Oct. 12, 2005) [hereinafter *Williamson Interview*].
- ⁶¹ Meeting Summaries, FEMA Regional Emergency Liaison Team Conference Calls (Aug. 28, 2005 – Sept. 02, 2005).
- ⁶² Alabama Emergency Management Agency, EM/2000 Tracker System Message 05-1839, (Aug. 29, 2005) (Doc. No. 002771AL). The AEMA Situation Report (SitRep) #8 also contained the following: “The Department has a list of 15 facilities across the state that will house animals evacuated because of the hurricane. The list, along with contact information and type of animal is posted on the Department website as well as on the EM2000. Some of these facilities will house small animals such as dogs and cats; however, most only house horses. The total number of animals that can be accommodated is over 2,000. Late this morning it was reported that just under 100 horses were being sheltered.” Alabama Emergency Management Agency / Emergency Operation Center, Situation Report #8 (Doc. No. 000235AL) (Sept. 1, 2005).
- ⁶³ Alabama Emergency Management Agency / Emergency Operation Center, Situation Report #12 (Doc. No. 000312AL) (Sept. 5, 2005).
- ⁶⁴ Letter from Kathleen Babineaux Blanco, Governor of LA, to George W. Bush, President of the United States (Aug. 27, 2005).
- ⁶⁵ Louisiana: Emergency and Related Determinations, 70 Fed. Reg. 53,238 (Aug. 27, 2005, as amended Sept. 7, 2005).
- ⁶⁶ Louisiana: Emergency and Related Determinations, 70 Fed. Reg. 53,238 (Aug. 27, 2005, as amended Sept. 7, 2005).
- ⁶⁷ Letter from Kathleen Babineaux Blanco, Governor of LA, to George W. Bush, President of the United States (Aug. 28, 2005).
- ⁶⁸ Louisiana: Major Disaster and Related Determinations, 70 Fed. Reg. 72,458 (Aug. 29, 2005, as amended Dec. 5, 2005).
- ⁶⁹ Interview by Select Comm. Staff with LTC William Doran, Chief, Operations Division, LA Office of Homeland Security and Emergency Preparedness (LOHSEP), in Baton Rouge, LA (Nov. 7, 2005) [hereinafter *Doran Interview*]; *see* Interview by Select Comm. Staff with Jim Ballou, Operations Division, LA Office of Homeland Security and Emergency Preparedness (LOHSEP), in Baton Rouge, LA (Nov. 7, 2005) [hereinafter *Ballou Interview*].
- ⁷⁰ Interview by Select Comm. Staff with Rex McDonald, Information Technology and Communications Director, Department of Public Safety and Corrections, in Baton Rouge, LA (Nov. 7, 2005) [hereinafter *McDonald Interview*].
- ⁷¹ Audio recordings of Hurricane Katrina Conference Calls, LA State Emergency Operations Center (Aug 26-28, 2005).
- ⁷² *See* Ballou Interview; *see also*, Doran Interview.
- ⁷³ Interview by Select Comm. Staff with General Joseph B. Veillon, Louisiana National Guard Commander for Task Force Minnow, in New Orleans, LA (Nov. 3, 2005) [hereinafter *Veillon Interview*].
- ⁷⁴ Interview by Select Comm. Staff with Dr. Walter Maestri, Emergency Manager for Jefferson Parish, in New Orleans, LA (Nov. 8, 2005) [hereinafter *Maestri Interview*].

- ⁷⁵ *Superdome Personnel, MREs, and Water from 28 Aug. – 3 Sept.*, Table: provided by staff from LA Governor Blanco's office (Dec. 2005).
- ⁷⁶ *Hearing on Rebuilding Highway and Transit Infrastructure on the Gulf Coast following Hurricane Katrina: State and Local Officials Before the House Subcommittee on Highways, Transit and Pipelines*, 109th Cong. (Oct. 27, 2005) at 1 (statement by William J. DeVille) [hereinafter *Oct. 27, 2005 T&I Hearing*].
- ⁷⁷ Audio recordings of Hurricane Katrina Conference Calls, LA State Emergency Operations Center (Aug. 26-28, 2005).
- ⁷⁸ *Id.*
- ⁷⁹ Audio recordings of Hurricane Katrina Conference Calls, LA State Emergency Operations Center (Aug. 26-29, 2005).
- ⁸⁰ *Id.*
- ⁸¹ *Id.*
- ⁸² *Id.*
- ⁸³ Interview by Select Comm. Staff with Andy Kopplin, Chief of Staff to Governor Blanco, in Baton Rouge, LA (Nov. 6, 2005) [hereinafter *Kopplin Interview*].
- ⁸⁴ Audio recordings of Hurricane Katrina Conference Calls, LA State Emergency Operations Center (Aug. 26-28, 2005).
- ⁸⁵ *Id.*
- ⁸⁶ *Id.*
- ⁸⁷ *Maestri Interview*.
- ⁸⁸ Audio recordings of Hurricane Katrina Conference Calls, LA State Emergency Operations Center (Aug. 26-29, 2005).
- ⁸⁹ *Id.*
- ⁹⁰ *Id.*
- ⁹¹ *Id.*
- ⁹² Interview by Select Comm. Staff with Terry Ebbert, Director of Homeland Security for the City of New Orleans, in New Orleans, LA (Nov. 9, 2005) [hereinafter *Ebbert Interview*]; *see also*, *Maestri Interview*.
- ⁹³ Audio recordings of Hurricane Katrina Conference Calls, Louisiana State Emergency Operations Center (Aug. 26-29, 2005).
- ⁹⁴ Table: Superdome Personnel, MREs, and Water from 28 Aug. – 3 Sept., provided by staff from Louisiana Governor Blanco's office (Dec. 2005).
- ⁹⁵ *Oct. 27, 2005 T&I Hearing* (statement of William DeVille).
- ⁹⁶ *Id.*
- ⁹⁷ *Id.*
- ⁹⁸ *Maestri Interview*.
- ⁹⁹ E-mail correspondence from Chairman, Joint Chiefs of Staff, to Department of Defense, et al (Aug. 19, 2005). This subject of this e-mail was a "Severe Weather Execute Order (EXORD) for DOD Support to Federal Emergency Management Agency (FEMA)."
- ¹⁰⁰ Department of Defense OASD HD, Hurricane Katrina/Rita/Ophelia Interim Timeline (Aug. – Sept. 2005) (Nov. 2, 2005) at 2 [hereinafter *DOD Timeline*]; *see also*, *Oct. 27, 2005 Select Comm. Hearing* at 3 (written statement by Timothy J. Keating).
- ¹⁰¹ *DOD Timeline* at 2.
- ¹⁰² *Id.* at 2-3.
- ¹⁰³ *DOD Timeline* at 3; *see* Col. Kranepuhl – Chief Operations, US Army, 1A Commander's Hurricane Assessment (Aug. 29, 2005), First US Army (Doc No. MMTF 00346-05) (Aug. 29, 2005); *see also*, Col. Kranepuhl – Chief Operations, US Army, 1A Commander's Hurricane Assessment (Aug. 30, 2005), First US Army (Doc No. MMTF 00349-05) (Aug. 30, 2005).
- ¹⁰⁴ *DOD Timeline* at 4.
- ¹⁰⁵ *Oct. 27, 2005 Select Comm. Hearing* (written response to questions for the record of LTG H Steven Blum).
- ¹⁰⁶ United States National Guard, Hurricane Katrina: National Guard After Action Review (Dec. 21, 2005) at 1.
- ¹⁰⁷ Interview by Select Comm. Staff with General H Steven Blum, Chief, National Guard, in Arlington, VA, (Oct. 19, 2005) [hereinafter *Blum Interview*]; *see also*, Interview by Select Comm. Staff with LT General Daniel James, III, Director of Air National Guard, in Arlington, VA, (Oct. 19, 2005) [hereinafter *James Interview*]; *see also*, Interview by Select Comm. Staff with LT General Clyde A. Vaughn, Director of Army National Guard, in Arlington, VA, (Oct. 19, 2005) [hereinafter *Vaughn Interview*].
- ¹⁰⁸ United States National Guard, Hurricane Katrina: National Guard After Action Review (Dec. 21, 2005) at 1; *see also*, *Blum Interview*; *see also*, *James Interview*; *see also*, *Vaughn Interview*.
- ¹⁰⁹ *Oct. 27, 2005 Select Comm. Hearing* (written response to questions for the record of General Landreneau; *see also*, Interview by Select Comm. Staff with Major General Cross, State Adjutant General of MS, in Jackson, MS (Oct. 12, 2005) [hereinafter *Cross Interview*].
- ¹¹⁰ United States National Guard, Hurricane Katrina: National Guard After Action Review (Dec. 21, 2005) at 10.
- ¹¹¹ *See*, Interview by Select Comm. Staff with Scott Wells, Field Officer, FEMA [hereinafter *Wells Interview*], in Baton Rouge, LA (Nov. 9, 2005); *see also*, Interview by Select Comm. Staff with Stephen Dabadie, Chief of Staff to LA Adjutant General Landreneau, LA National Guard, in Baton Rouge, LA (Nov. 4, 2005) [hereinafter *Dabadie Interview*].
- ¹¹² Louisiana Nat'l Guard, *Overview of Significant Events Hurricane Katrina* at 4 (Dec. 7, 2005) [hereinafter *LANG Overview*].
- ¹¹³ *Id.* at 5.
- ¹¹⁴ *See*, *Dabadie Interview*; *see also*, Interview by Select Comm. Staff with Gordon Nelson, LA Dep't of Transportation and Development, in Baton Rouge, LA, Nov. 4, 2005 [hereinafter *Nelson Interview*].
- ¹¹⁵ Interview by Select Comm. Staff with Jiff Hingle, Plaquemines Parish Sheriff, in New Orleans, LA (Nov. 7, 2005).
- ¹¹⁶ *Nelson Interview*.
- ¹¹⁷ Interview by Select Comm. Staff with Mark Bowen, Adjutant General, AL National Guard, in Montgomery, AL, Oct. 12, 2005 [hereinafter *Bowen Interview*].
- ¹¹⁸ Alabama National Guard, AL National Guard Katrina Response Notebook, 4-1.
- ¹¹⁹ *Bowen Interview*.
- ¹²⁰ *Id.*
- ¹²¹ Alabama National Guard, AL National Guard Katrina Response Notebook, 4-1.
- ¹²² *Bowen Interview*.

- ¹²³ *Id.*
- ¹²⁴ Oct. 27, 2005 Select Comm. Hearing (written response to questions for the record of General Harold A. Cross).
- ¹²⁵ *Id.*
- ¹²⁶ Briefing to Select Comm. Staff with US Army Corps of Engineers, in Washington, D.C. (Oct. 28, 2005) at 7 [hereinafter *ACE Briefing*]; see also, *Hearing on Hurricane Katrina: The Role of Federal Agency Contracting in Disaster Preparedness Before Select Comm.*, 109th Cong. (Nov. 2, 2005) at 1-2 (written statement of Col. Norbert Doyle) [hereinafter *Nov. 2, 2005 Select Comm. Hearing*].
- ¹²⁷ Briefing to Select Comm. to Invest. the Preparation for and Response to Hurricane Katrina Staff with US Army Corps of Engineers, in Washington, DC (Oct. 28, 2005) at 7 [hereinafter *ACE Briefing*]; see also, *Hearing on Hurricane Katrina: The Role of Federal Agency Contracting in Disaster Preparedness Before Select Comm.*, 109th Cong. (Nov. 2, 2005) at 1-2 (written statement of Colonel Norbert Doyle) [hereinafter *Nov. 2, 2005 Select Comm. Hearing*].
- ¹²⁸ *Hurricane Katrina: Who's In Charge of the New Orleans Levees? Before Senate Committee on Homeland Security and Governmental Affairs*, 109th Cong. (Dec. 15, 2005) at 4 (statement of USACE/Col Wagenaar) [hereinafter *Dec. 15, 2005 Senate Hearing*].
- ¹²⁹ *Dec. 8, 2005 Senate Hearing* at 4 (statement of USACE/Col Wagenaar).
- ¹³⁰ United States Coast Guard, Coast Guard Atlantic Area situation report, 270024Z (Doc. No. DHS-USCG-0002-0000006) (Aug. 26, 2005; 8:24 p.m. EDT). Note: the Atlantic Area is the Portsmouth, Virginia Command. Note: this report was created at 0024 Zulu Time. Zulu Time is the same as Greenwich Mean Time (GMT). During the summer months, the time in Portsmouth is GMT-4 hours.
- ¹³¹ United States Coast Guard, Coast Guard Atlantic Area situation report, 270024Z (Doc. No. DHS-USCG-0002-0000006) (Aug. 26, 2005; 8:24 p.m. EDT).
- ¹³² United States Coast Guard, Coast Guard District Eight situation report, 271638Z (Doc. No. DHS-USCG-0002-0000003) (Aug. 27, 11:38 a.m. CDT). Note: District Eight is the New Orleans, Louisiana Command, which was relocated to St. Louis, Missouri during Hurricane Katrina. Note: This report was created at 1638 Zulu Time. Zulu Time is the same as Greenwich Mean Time (GMT). During the summer months, the time in St. Louis is GMT -5 hours.
- ¹³³ United States Coast Guard, Coast Guard District Eight situation report, 290413Z (Doc. No. DHS-USCG-0001-0004044) (Aug. 28, 11:13 p.m. CDT).
- ¹³⁴ United States Coast Guard, Coast Guard Atlantic Area situation report, 290413Z (Doc. No. DHS-USCG-0001-0004044) (Aug. 29, 2005; 12:13 a.m. EDT).
- ¹³⁵ United States Coast Guard, Coast Guard District Eight situation report, 290413Z (Doc. No. DHS-USCG-0001-0004044) (Aug. 28, 2005; 11:13 p.m. EDT).
- ¹³⁶ United States Coast Guard, Coast Guard District Eight situation report, 290413Z (Doc. No. DHS-USCG-0001-0004044) (Aug. 28, 2005; 11:13 p.m. EDT).
- ¹³⁷ United States Coast Guard, Coast Guard District Eight situation report, 281534Z (Doc. No. DHS-USCG-0002-0000008) (Aug. 28, 2005; 10:34 a.m. CDT).
- ¹³⁸ See generally, *Hurricane Katrina: Always Ready: The Coast Guard's Response to Hurricane Katrina Before Senate Committee on Homeland Security and Governmental Affairs*, 109th Cong. (Nov. 9, 2005) (statement of Rear Admiral Robert Duncan) [hereinafter *Nov. 9, 2005 Senate Hearing*].
- ¹³⁹ United States Coast Guard, Coast Guard Atlantic Area situation report, 290900Z (Doc. No. DHS-USCG-0001-0004053) (Aug. 29, 2005; 05:00 a.m. EDT).
- ¹⁴⁰ United States Coast Guard, Coast Guard District Eight situation report, 281534Z (Doc. No. DHS-USCG-0002-0000008) (Aug. 28, 2005; 10:34 a.m. CDT).
- ¹⁴¹ United States Coast Guard, Coast Guard District Eight situation report, 291541Z (Doc. No. DHS-USCG-0001-0004058) (Aug. 29, 2005; 10:41 a.m. CDT).
- ¹⁴² Briefing to Select Comm. Staff with Coast Guard regarding Response and Recovery Operations and Authorities, in Washington, D.C. (Oct. 27, 2005).
- ¹⁴³ E-mail correspondence from Carol Hall, American Red Cross, to Kirstjen M. Nielsen, et al, (Doc. No. WHK-16197) (Aug. 28, 2005; 2:48 p.m.).
- ¹⁴⁴ American Red Cross, Disaster Operations Summary Report #7, Aug. 28, 2005; update as of 5:00 p.m. at 2.
- ¹⁴⁵ *Id.* at 3.
- ¹⁴⁶ American Red Cross, Disaster Operations Summary Report #9, Aug. 28, 2005; update as of 3:00 p.m. at 3.
- ¹⁴⁷ American Red Cross, Disaster Operations Summary Report #9, Aug. 28, 2005; update as of 3:00 p.m. at 2.
- ¹⁴⁸ National Hurricane Center, Nat'l Weather Serv., *Hurricane Katrina Discussion No. 14*, (Aug. 26, 2005) (5:00 p.m. EDT).
- ¹⁴⁹ National Hurricane Center, Nat'l Weather Serv., *Hurricane Katrina Probabilities No. 15*, (Aug. 26, 2005) (11:00 p.m. EDT).
- ¹⁵⁰ *Hearing on Hurricane Katrina: Predicting Hurricanes: What We Knew About Katrina and When Before Select Comm.*, 109th Cong. (Sept. 22, 2005), [Hereinafter *Sept. 22, 2005 Select Comm. Hearing*] (statement of Max Mayfield).
- ¹⁵¹ *Id.* at 3 (written statement of Max Mayfield).
- ¹⁵² *Id.* at 5 (statement of Max Mayfield).
- ¹⁵³ *Id.* at 51-52 (statement of Max Mayfield).
- ¹⁵⁴ *Id.* at 52 (statement of Max Mayfield).
- ¹⁵⁵ *Id.* at 51 (statement of Max Mayfield).
- ¹⁵⁶ *Id.* at 3 (written statement of Max Mayfield).
- ¹⁵⁷ *Id.* at 59-60 (statement of Max Mayfield).
- ¹⁵⁸ *Id.* at 3 (written statement of Max Mayfield).
- ¹⁵⁹ *Id.*
- ¹⁶⁰ Public Advisory, National Weather Center (New Orleans, LA), Urgent Weather Message: Devastating damage expected (Aug. 28, 2005; 10:11 a.m. CDT).
- ¹⁶¹ John Pain, *Federal Forecasters Got Hurricane Right*, ASSOC. PRESS, Sept. 16, 2005.
- ¹⁶² *Id.*
- ¹⁶³ *Id.*

- ¹⁶⁴ *Id.*
- ¹⁶⁵ Sept. 22, 2005 Select Comm. Hearing at 47 (statement of Max Mayfield).
- ¹⁶⁶ *Id.* at 12 (written statement of Max Mayfield) (reporting that Katrina made landfall as a Category 4 storm with 140 mph winds. The NHC's final report on Katrina, released Dec. 20, revised this information. Regardless, "it was the costliest and one of the five deadliest hurricanes to ever strike the United States," the NHC report said); Richard D. Knabb, et al, National Hurricane Center, *Tropical Cyclone Report, Hurricane Katrina, 23-30 Aug. 2005* at 1 (Dec. 20, 2005) [hereinafter *NHC Katrina Report*].
- ¹⁶⁷ *NHC Katrina Report* at 3, 7-9.
- ¹⁶⁸ *Id.* at 11.
- ¹⁶⁹ *Id.*
- ¹⁷⁰ EM 2000 Message no. 05-1878, (Bates no. AL002716); Nov. 7, 2005 Select Comm. Hearing at 30 (statement of Governor Bob Riley).
- ¹⁷¹ Garry Mitchell, *Katrina's painful blow to coast Alabama's top story in 2005*, ASSOC. PRESS, Dec. 24, 2005.
- ¹⁷² *Id.*
- ¹⁷³ Alabama Emergency Management Agency / Emergency Operation Center, Situation Report #5 (Doc. No. 000205AL) (Aug. 30, 2005); see also, Kathleen Koch, *Katrina Drenches Mobile*, CNN, Aug. 30, 2005.
- ¹⁷⁴ Federal Emergency Management Agency, *Katrina Disaster Aid to Alabama Surpasses \$516 Million*, (FEMA Release No. 1605-162) (Jan. 17, 2006) available at <http://www.fema.gov/news/newsrelease.fema?id=22538> (last visited Jan. 26, 2006).
- ¹⁷⁵ *NHC Katrina Report* at 11.
- ¹⁷⁶ *Id.* at 3, 7-9. Wind speed estimates calculated using KTS to mph converter at <http://www.disastercenter.com/convert.htm>.
- ¹⁷⁷ Interview by Select Comm. Staff with Bobby Strahan, Director, River County EMA, in Washington, D.C. (Nov. 29, 2005) [hereinafter *Strahan Interview*].
- ¹⁷⁸ Interview with Robert Latham, Director, MS Emergency Management Agency, in Washington, D.C. (Jan. 2006) [hereinafter *Latham Interview*].
- ¹⁷⁹ Virginia W. Mason, Congressional Research Service, (CRS Publication RL33141) *Hurricane Katrina Social-Demographic Characteristics of Impacted Areas*, (Nov. 4, 2005) at 2.
- ¹⁸⁰ See, Mississippi Emergency Management Agency, Hurricane Situation Report #22 (Aug. 31, 2005; see, 12:00 p.m.); FEMA-MEMA, Joint Field Office Situation Report SITREP 30 / FEMA-1604-DR-MS (Sept. 25, 2005 07:00 a.m. – Sept., 26, 2005 06:59 a.m.).
- ¹⁸¹ *NHC Katrina Report* at 11.
- ¹⁸² See Press Release, State's agriculture exceeds \$6 billion, MS State Univ., Office of Agricultural Communications, Dec 15. 2005, available at <http://msucares.com/news/print/agnews/an05/051215all.html> (last visited Jan. 26, 2006); see also, Press Release, Timber industry salvages profits, MS State Univ., Office of Agricultural Communications, Dec 15. 2005, available at <http://msucares.com/news/print/agnews/an05/051215forest.html> (last visited Jan. 26, 2006); see also, Press release, Katrina leaves damaged crops, fuel frustrations, MS State Univ., Office of Agricultural Communications, Dec 15. 2005, available at <http://msucares.com/news/print/cropreport/crop05/050902.html> (last visited Jan. 26, 2006); see also, Press release. Katrina drops poultry's estimated farm value, MS State Univ., Office of Agricultural Communications, Dec 15. 2005, available at <http://msucares.com/news/print/agnews/an05/051215poultry.html> (last visited Jan. 26, 2006).
- ¹⁸³ See Press Release, State's agriculture exceeds \$6 billion, MS State Univ., Office of Agricultural Communications, Dec 15. 2005, available at <http://msucares.com/news/print/agnews/an05/051215all.html> (last visited Jan. 26, 2006); see also, Press Release, Timber industry salvages profits, MS State Univ., Office of Agricultural Communications, Dec 15. 2005, available at <http://msucares.com/news/print/agnews/an05/051215forest.html> (last visited Jan. 26, 2006); see also, Press release, Katrina leaves damaged crops, fuel frustrations, MS State Univ., Office of Agricultural Communications, Dec 15. 2005, available at <http://msucares.com/news/print/cropreport/crop05/050902.html> (last visited Jan. 26, 2006); see also, Press release. Katrina drops poultry's estimated farm value, MS State Univ., Office of Agricultural Communications, Dec 15. 2005, available at <http://msucares.com/news/print/agnews/an05/051215poultry.html> (last visited Jan. 26, 2006).
- ¹⁸⁴ Mississippi EMAC, Cost Tracker as of Oct. 10, 2005 (Oct. 11, 2005).
- ¹⁸⁵ See, Keith Bea, *The Emergency Management Assistance Compact (EMAC): An Overview* (Jan. 5, 2006) (CRS Publication RS21227) at 1-2.
- ¹⁸⁶ See, *Emergency Management Assistance Compact (EMAC)*, EMAC Request, MS: Katrina (unaudited draft), Nov. 3, 2005 [hereinafter *EMAC Requests*].
- ¹⁸⁷ See, *EMAC Requests*.
- ¹⁸⁸ See Federal Emergency Management Agency, Weekly Katrina Response Update for Mississippi, Jan. 6, 2006, (FEMA Release No. 1604-202) (Jan. 17, 2006), available at <http://www.fema.gov/news/newsrelease.fema?id=22242> (last visited Jan. 26, 2006).
- ¹⁸⁹ Public Advisory, National Weather Center (New Orleans, LA), Urgent Weather Message: Devastating damage expected (Aug. 28, 2005; 10:11 a.m. CDT).
- ¹⁹⁰ *NHC Katrina Report* at 10-11.
- ¹⁹¹ Fox News, *Five Deaths Linked to Polluted Flood Water*, Sept. 7, 2005, available at <http://www.foxnews.com/story/0,2933,168630,00.html> (last visited Jan. 26, 2006).
- ¹⁹² See, Hearing After the Hurricanes: Impact on the Fiscal Year 2007 Budget, Before House Budget Comm. 109th Cong. (Oct. 6, 2005) (statement by Douglas Holtz-Eakin).
- ¹⁹³ Dec. 14, 2005 Select. Comm. Hearing at 44 (statement of Kathleen Babineaux Blanco).
- ¹⁹⁴ See FEMA, By the Numbers: Recovery update in Louisiana, (FEMA Release No. 1603-294) (Jan. 17, 2006) available at <http://www.fema.gov/news/newsrelease.fema?id=22551> (last visited Jan. 26, 2006).
- ¹⁹⁵ See FEMA, By the Numbers: Recovery update in Louisiana, (FEMA Release No. 1603-294) (Jan. 17, 2006) available at <http://www.fema.gov/news/newsrelease.fema?id=22551> (last visited Jan. 26, 2006).



GETTY IMAGES/CHRIS GRAYTHEN

"[Hurricane Exercise] Pam was so very prescient. And yet Katrina highlighted many, many weaknesses that either were not anticipated by Pam, or were lessons learned but not heeded.

"That's probably the most painful thing about Katrina, and the tragic loss of life: the foreseeability of it all."

Chairman Tom Davis

Select Committee Hearing, December 14, 2005