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**Special Edition 2005** 

# Gulf Coast hurricanes put the Corps to the test

# Task Force Guardian: one mission in mind

# Carrollton Gage



Today, 72 days post Katrina and 51 days post Rita, I sit down for a moment to share with you how unbelievably proud I am of the employees and families of the New Orleans District. In the past two months we have lived through what will arguably go down as one of the largest natu-

ral disasters in the history of our nation. After Katrina and Rita, each originally Category 5 storms, made landfall as Category 4 hurricanes, all of our lives were forever changed.

Many of you lost loved ones, and your homes, and over 80 percent of our city was flooded. In many places the damage and devastation more closely resembles a war zone than the city and state we once knew. I thank God that all of our employees survived the storms and are now safe. Even with your families scattered in hotel rooms and evacuation shelters across the Gulf, many of you, with only the clothes you could carry, streamed back to the district to begin closing the levee breaches and fighting the 224 billion gallons of water that flooded our city.

Together, with dozens of your Corps brothers and sisters from across the country who answered the call to help, we spent the next 43 days working around-the-clock to plug the levee and canal breaches and pump the water out of the city. We slept in our offices, we ate MREs, most of you worked until you collapsed and nobody showered much. We worked in offices with no running water and limited electricity. And I have never been more proud of any Army unit that I have ever been in, as I am with the civilians of the New Orleans District.

I know that many of you have not had a day off since Aug. 29 and that many of you are still unsure about where you will live and exactly how we will go forward. We will go forward, and we will do it shoulder to shoulder. We have important work to do for the people of this nation and this region. We are going to have amazing times together over the next several months and years. We are going to rebuild the hurricane and flood protection for this area and once again make it a place for families and business to call home.

So thanks to you for everything you have done and continue to do! I also want to say a special word of thanks to the employees from MVD headquarters and other USACE organizations, and to my fellow commanders Col. Gapinski, Col. Smithers, Col. Setliff and Col. Pfenning who each contributed to our success and the success of Task Force Hope, Task Force Unwatering, Task Force Guardian and ESF 3. Their help and support has been critical to our success.

The pages of this issue of *Riverside* are full of your stories and what you have been through and accomplished during the past 72 days.

You have made me proud to be your district commander and I continue to look forward to serving you and the New Orleans District!

#### Col. Rich Wagenaar



"Go!" (locally known as "Geaux!"), the simple motto for Task Force Guardian, has become symbolic of both the mission and the people.

In a race against time, Task Force Guardian is responsible for repair-

ing the damages to the hurricane protection systems around New Orleans. But what is Task Force Guardian? It is a collection of engineers, analysts and other members of the New Orleans District, 140 strong, that was formed to accomplish a tremendously challenging mission by 1 June 2006. Due to the challenges of the mission, the group has

**Winner:** The "J" Award, the highest Department of Army journalism honor, 2000 and 2003.

Authorization: The New Orleans District *River*side is an unofficial publication authorized under the provisions of AR 360-1. Views and opinions expressed are not necessarily those of the Corps of Engineers or the Department of the Army.

Submissions: Articles and story ideas are welcome; publication depends on the general interest as judged by the editor. Direct queries to the editor by calling (504) 862-2201 or email amanda. s.jones@mvn02.usace.army.mil.

Circulation: 2,150 copies per issue.

moved downtown to operate. Having been initially formed in Vicksburg shortly after the storm, Task Force Guardian has not stopped its planning, designing and executing ever since. It is a focused group with a focused mission, upon which the recovery of the entire city depends.

What about the people? Task Force Guardian is leveraging some of the world's best engineers – those of the New Orleans District. All members of the New Orleans District should be very proud of their response to the devastating hurricane. They should be equally proud of their capacity to set the stage for recovery and to get the protection levels re-established. The MIS-SION-FIRST attitude and enthusiasm I have experienced working with the people of MVN has enabled me to keep my guidance simple... "Go!"

Task Force Guardian will be successful. And needless to say, it will be an integral component of the recovery of the region. I deeply appreciate all who have made the sacrifice to be a part of Task Force Guardian. This will be a career highlight for all of us and your contributions will be evident for years to come. Although our work has just begun, we pledge to the New Orleans region, we will continue to "Go!"

Thanks for all you do each and every day. Col. Lewis F. Setliff III



From the time I arrived in New Orleans on the 7th of September, I had the privilege of working with people from the New Orleans District on the unwatering of the City and the surrounding areas. Our mission was to remove the surface water

so that recovery operations could begin, as well as repair levees, floodwalls and canal walls to provide a level of protection to get through the remainder of the hurricane season. We were successful and so "Task Force Unwatering" was disbanded on the see GAGE, page 14

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Crews airlift 7,000pound sandbags, averaging 600 a day, to fill levee breaches.

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Commander Col. Richard P. Wagenaar Senior Editor James Addison Editor Amanda S. Jones

# **Emergency team rides out the storm**

# by Diana Fredlund

ine New Orleans District employees braved 125 mile an hour winds and driving rains as Hurricane Katrina made landfall just east of the Crescent City Aug. 29. Members of the emergency response team were holed up in a bunker inside the district warehouse to monitor the emergency. District Commander Col. Richard P. Wagenaar and Perry Lartigue, Chris Colombo, Jim Walters, Jim Davis, Dave Wurtzel, Joe Baker, Jeffery Richie and Jason Binet settled into the bunker, designed to withstand a Category 5 hurricane, to wait out the storm. The team monitored how the levee system was faring, talking by phone with local parish and city officials until communications went down

Before the storm hit, the district's servers were turned off to safeguard the equipment, but when television and telephone communications failed, the decision was made to restart the servers so they would at least have email communications .

Information Management specialist Chris Colombo entered the headquarters building to restart the server. When he tried to return to the



bunker, the weather had deteriorated so much he could not leave the building; even the short trip across the reservation was too dangerous. Colombo rode out Hurricane Katrina in a protected stairwell.

safe and secure, if not very comfortable.

At 5 a.m. Monday, Wagenaar got the first word of trouble: water was overtopping the levee near the 9th Ward in

Orleans Parish. There was little he could do then except wait since the worst of the storm was upon them.

By 11 a.m. the winds had decreased and the weather was clearing; Wagenaar decided to move the team out of the bunker at 2 p.m. By that time they had another report of flooding near the 17th Street Canal.

It was apparent to Wagenaar as soon as he left the district around 3 p.m. that New Orleans

had suffered catastrophic damage. "We were hearing a lot of talk about how the city had missed a serious blow," Wagenaar said, "but it was clear as soon as we began driving toward the 17th Street Canal that conditions were very bad."

He didn't know how bad it really was.

High water and strong winds kept the team from getting close enough to inspect damage to the levees. Wagenaar finally was able to view the canals by helicopter at 9 a.m. the following day; that was his first confirmation of the breach in the 17th Street Canal. After refueling, the commander then flew over the east side of the city where he found and confirmed other breaches on the Inner Harbor Navigation Canal.

"I was taken aback by the vast amount of water," Wagenaar said, after viewing New Orleans East. "Everywhere I looked there was water. That's when the enormity and magnitude of this disaster struck me," he added. "I was astounded."

When he flew over the north shore of Lake Ponchartrain, Wagenaar saw how different the storm damage was



there, with greater structural damage but less flooding. "The bridge spans on Interstate 10 were knocked off their foundations or gone completely," Wagenaar said. "The devastation was very widespread, but it was in the Six Flags area [in New Orleans East] that I first saw people on their roofs, waiting to be rescued."

It was difficult to watch the people waving at the heli-

copter, hoping to be seen, Wagenaar said,. When he flew over the 9th Ward in eastern New Orleans, "the damage took my breath away," he said.

Like all Corps districts, New Orleans has a well-designed emergency response plan in place. River flooding and hurricanes are the two main contingencies this district plans for, said Michael Lowe, emergency manager. "The biggest difference in the two scenarios is that flood fighting has a smaller footprint, but has greater damage potential," he said. "Hurricanes generally affect a much larger area and property damage is usually wind-related. Katrina brought both emergencies together."

In hurricane preparedness planning, the Corps works with local, state and federal partners, with FEMA acting as the lead. The Corps' commitment to planning has helped it set the standard for its partners, Lowe said. "We are proud to provide our planning models to any agency that is interested. It

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to any agency that is interested. It helps everyone work together when everyone is in the same planning mode."

While the plan worked well, no one could be prepared for Katrina's wrath. The biggest challenge during the storm and its aftermath was communications, Lowe said. "The Corps and all its partners have redundancies built in to provide backup," Lowe said. "We found, however, that each time a system failed, everyone moved to the next redundancy. That ended up overloading every system, in turn causing each of them to fail, too. We need to develop a communication system that can handle the load."

Wagenaar agreed, adding there was another dimension to the communication challenge. "It was impossible for people outside New Orleans to visualize the level of devastation," he said. "During staff calls, when we were planning to resupply the district, it was clear the people in Vicksburg couldn't imagine a city of 500,000 essentially under water." Normal transportation routes were impassible, complicating even small tasks.

"For the first several days after the hurricane, about the only ways to get around were by boat or helicopter," Wagenaar said.

District employees who were evacuated had the same problem, he added. "We evacuated nearly 1,200 employees before Katrina hit, and they had the same problem visualizing the aftermath. In their minds the city looked like it did when they left it."

The commander admitted he found himself in the same situation when he left the bunker. "When we started dispatching crews before I got out into the city, I assumed they would be able to get anywhere we needed to be," he said. "I learned quickly that everything we knew about New Orleans was being challenged."

The challenges will continue for New Orleans District



for years to come, but Wagenaar is confident the team is ready for whatever comes. "We suffered a serious blow, but the district team is resilient. We stand ready to accept the challenge."

# **To clean and protect**

Debris removal and Operation Blue Roof by Amanda Jones

he Federal Emergency Management Agency (FEMA) tasked the Corps with debris removal in St. Helena, Tangipahoa, Livingston, St. Tammany, Ascension (completed), St. John the Baptist, St. James, St. Charles, Jefferson, Terrebonne, Lafourche, Plaquemines, Beauregard, Calcasieu, St. Landry, Allen, Vernon, Jefferson Davis, Lafayette, Vermilion and Cameron parishes. The Corps, in turn, hired three primary contractors: Ceres Environmental Services, ECC Operat-



ing Services Inc. and Phillips and Jordan Inc. As of Oct. 26, the three had collected almost 7 million cubic yards of debris throughout these parishes. Of that, 5.3 million cubic yards of debris are due to Hurricane Katrina, while 1.5 million cubic yards are from Rita.

The Corps of Engineers is also working with FEMA to install temporary blue tarps on damaged residential and public building roofs in Washington, Tangipahoa, St. Tammany, Orleans, St. Bernard, Plaquemines, St. Charles, Lafourche, Terrebonne, St. James, St. John the Baptist, Jefferson, E. Baton Rouge, Livingston, Iberville, Assumption, St. Mary, Ascension, Calcasieu, Beauregard, Jefferson Davis and Cameron parishes. Contractors Shaw Constructors Inc. and Simon Roofing had installed 58,806 temporary roofs as of Oct. 26 (44,714 due to Katrina and 14,092 from Rita), with the first "blue roof" installment Sept. 6 in St. Tammany Parish. The Corps estimates providing about 80,000 more roofing jobs in Louisiana.

As of Oct. 26, there were 1,301 Corps employees working in the Recovery Field Office in Baton Rouge, including 222 from MVN. An additional 109 are currently expected to report in, and 457 have come and gone.

Contract workers put blue tarps together before placing on a damaged roof.

Blue roofs covering Algiers homes on the West Bank.

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A section of the breached floodwall near the 17th Street Canal

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# **Flood Fight** The challenge of protecting New Orleans

by Susan Jackson

-urricane Katrina hurdled through New Orleans, Aug. 29, breaching levees and flooding 80 percent of the metropolitan area. Before the Corps could complete even temporary repairs and "dry" the city, Hurricane Rita swept through the Gulf Coast Sept. 23, reflooding about 40 percent of the impacted area and wrecking even more extensive damage to the 350 miles of hurricane protection levees in New Orleans and southeast Louisiana. Katrina – First Wave

The New Orleans District team in the warehouse bunker knew something was wrong even as initial news reported celebrations in the French Quarter and that New Orleans had gotten off easy. Reports started coming in early Aug. 29 about possible levee breaches and flooding in the city. Around 2 p.m. Col. Richard Wagenaar, district commander, and two others set out to investigate a possible breach in the 17th Street Canal.

"It took us about an hour-and-a-half to drive three miles because of all the debris, water and live wires," Wagenaar said. "We got to the I-10/610 split, and there were all these cars parked there, and that's when I just knew, 'This is huge. There's way too much water here.' I didn't know the city all that well, but I knew that rainwater didn't cause flooding like that."

Soon after, news coverage began capturing the greater New Orleans area - water gushing through the streets, crowds moving through water to high ground, and boats and helicopters rescuing stranded people. At the same time, district personnel on the ground and at the Tactical Operations Center in Vicksburg were racing to orchestrate the necessary resources and materials to stem the flow of water. With verbal authorization, Corps contractors responded. Project managers hit the ground running, leading the fight against the nation's largest natural disaster.

# **First Battle - Attacking Breaches**

Nonstop convoys of 20-ton trucks delivered sand, gravel and large rock to areas on the 17th Street Canal where an access road was built to the breach. The road was forked from that location and built to reach the London Avenue Canal breach. Crews then turned their attention to building a road to Lakeshore Drive and a second breach area at Mirabeau Road. In mid-September Corps contractors were building about 500 feet of roadway per day.

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The next step at the 17th St. Canal, and later the London Ave. Canal, was to cut off flow from Lake Pontchartrain. Contractors drove 150 feet of steel piling across the canal to seal it. Meanwhile, Army National Guard Chinook and Black Hawk helicopter crews began placing an average of 600 7,000-pound sandbags each day into the breaches. One breach took over 2,000 sandbags before engineers could see them under the water surface.

Depending on the helicopter's lift capability, rig-

gers averaged one to three hookups every two minutes during daylight hours. Sandbagging operations ran 24 hours for 10 days. Fifteen hundred bags and even more rock were stockpiled to address future repairs. Crane barges were also used to place sandbags, 80-pound stone and gravel, especially along breaches on the Inner Harbor Navigation Canal (IHNC) where ground access was non-existent. **Expedient** repairs were made to two breaches there.



Richard Pinner looks at progress being made in putting in steel pilings at the end of the 17th Street Canal that drains into Lake Pontchartrain.

On Sept. 10 the New Orleans District closed off a fourth critical breach along the IHNC. That success was cheered, but only for a moment as project leaders began focusing on new goals.

"We did everything we could do to bring in the right equipment, materials and resources to expedite these breach closures," Wagenaar said.

"I'm proud of these people. They've lost a lot, some of them are without homes themselves, but they're putting their hearts into this mission and exceeding my expectations," he said. "I can't say enough about their dedication and determination."

# **Shift in Mission Focus - Unwatering**

Though the mission of repairing pump stations and ordering and placing auxiliary pumps was ongoing,

on Sept. 8 it became the primary focus. Wagenaar's goal was to have pumping begin as soon as the breaches

were closed. Draining began at the 17th St. Canal Sept. 5,

"I'm proud of these people. They've lost a lot. some of them are without homes themselves, but they're putting their hearts into this mission and exceeding my expectations"\_\_\_\_\_ Col. Richard Wagenaar

at the London location Sept. 10, and using mobile pumps, at other locations throughout the city. Barges and aircrafts were once again used to haul equipment, pumps, generators and teams to sites.

The Corps concentrated its portable pumps and generators at canal locations to support the draining by pumps in the southern areas of the water basins. As the water in canals leading to the pump stations receded, the Corps, contractors and Orleans Sewerage and Water Board authorities began to repair pumps that were under water or otherwise crippled by Hurricane Katrina. The local power company and engineers from the 249th Engineer Battalion (Prime Power), Fort Belvoir, were also working with authorities to provide electricity to specific pump-station grids. As canal waters receded and more electrical power was restored, more pump stations started working.

In the New Orleans area 148 pumps needed repair. As of midnight Sept. 11, 750 million gallons of water was being drained per day, the equivalent of an Olympic-sized swimming pool every seven seconds. However, this was only the tip of the iceberg for Col. Duane Gapinski, Rock Island District commander and

now commander of Task Force Unwatering. The total capacity with all pump stations running is about two Olympic pools per second. **Storm on the Horizon** 

With over a month of hurricane season left, Gapinski, Wagenaar, 60 or so Corps employees, and hundreds of contractors were monitoring weather reports closely. Everything that could be done was



being done. And then Hurricane Rita came.

When asked, Gapinski warned the public: "We're watching Rita's projected path and, depending on its strength and how much rain falls, everything could change."

Expedient sandbag and rock repairs took on even more urgency, and the 60-foot steel pilings that were placed at the end of 17th St. and London Ave. canals – and removed partly and temporarily to allow pumping once the breaches were closed – were once again

hammered into place to prevent Lake Pontchartrain water from entering. The fear was that a storm surge would easily overtop the temporary breach closures. Due to the size and depth of the IHNC, an expedient



Interlocking steel sheet piling is pounded into the 17th Street canal to block the flow from Lake Pontchartrain. In the background is a newly built road that allows the Corps access to the London Street canal.

closure there was impossible.

About 24 hours after the closures, wind and rain began raising water levels along the Gulf Coast. On Sept. 24, Rita's storm surge rose to nearly eight feet and overtopped the IHNC on both the east and west sides of the canal. Wave ac-



At the Hammond Highway Bridge at the 17th Street Canal, the Corps seals off the breach (missing floodwall) south of Lake Pontchartrain. Dump trucks and other heavy equipment move earth and stone to build a levee road through a neighborhood backyard while a Texas Army National Guard Blackhawk Helicopter places a 7,000pound sandbag in the breach.

tion removed stone at the top of the temporary repairs and topped two breached areas that were between seven and eight feet elevation. The 9th Ward areas were flooded once again, though nominally in comparison to Katrina's floodwaters which reached 16 feet.

On the morning of Sept. 25, the Corps team once again began surveying damage and possible access routes for construction crews. On the IHNC west bank, large rock was trucked in to fill the scour hole behind the levee. Three- to seven-thousand pound

sandbags were placed atop the levee to stop the water flow and provide additional protection from future storm surge. The sandbags were also "capped" with crushed stone to help prevent seepage. On the east bank, 7,000-pound sandbags were placed by helicopter. The Corps used up to 2,000 sandbags in the operation, which brought the temporary floodwalls up to a minimum of +10 elevation.

# **Guardians of the levees**

Task Force Guardian arrived in New Orleans Oct. 1 to begin further surveying and bring the levee systems back up to pre-Katrina standards. The Corps continues to prioritize work and collect ground-truth data via surveys and aerial recons.

 "The restoration of the levee system will be done by New Orleans District project managers.
Each project manager has been hand picked for their position. They are among the best and brightest who have a stake in providing the best flood protection for their family and neighbors," said Brig. Gen. Robert Crear, Mississippi Valley Division commander.

Corps of Engineers volunteers from across the nation are supporting the New Orleans District and in data collecting, debris removal, structural assessments and restoration of critical utilities in the Gulf Coast region.

Volunteers from several federal agencies joined the Corps in supporting the Federal Emergency Management Agency. Corps employees are working closely with the Bureau of Reclamation, Environmental Protection Agency, U.S. Coast Guard and Army Materiel Command. In addition, Germany, Luxembourg and the Netherlands provided equipment and personnel to assist in hurricane recovery efforts.



# Air attack on breaches

Corps to develops new flood fight method

by Jason Fanselau

pistrict Commander Col. Richard Wagenaar and engineers David Wurtzel and Perry Lartigue made the first attempt in late afternoon Aug. 29 to reach the 17th Street Canal to investigate reports of leaning concrete walls. But the hazards of travel, including rising water, put off the inspection until daybreak.

On Aug. 30, Wurtzel recalled, "We quickly performed crude surveys and determined a 25-foot hole had developed within a stretch of 450 feet of destroyed levee protection (I-wall)." They immediately notified the Emergency Operations Center, the Vicksburg Crisis Management Team and Louisiana Department of Transportation personnel.

"At this point we brainstormed different closure methods that could be done immediately," said Wurtzel.



"Let's drop sandbags from helicopters," Wurtzel said, who used the analogy of helicopters dropping water on forest fires. "That Tuesday afternoon we dropped 10 sandbags into the breach." The bags were dropped using Blackhawk helicopters after attaching the sandbags directly to their belly hooks. "This was a slow and cumbersome operation," Wurtzel said.



Highway dividers (often called K-Rails or Jersey Barricades), train cars full of rock, scuttled boats, rock barges, conex boxes, minivans, cars, trucks, planes and pavement were just a few of the "helpful suggestions" to fill the levee breaches that poured into the EOC in the early hours of the Katrina flood fight. On Wednesday the phone rang again and Tim Holan, with MHF Logistical Solutions of Cranberry Township, Pa., started describing a giant 240- cubic- foot bag, with handles, that could carry over 12,000 pounds. Holan wanted to know if the Corps could use them.

"When Tim called, we were very interested. We told him to get down here with as many as he could bring," said Jason Binet, technical manager, who was serving as a battle captain in the EOC. Tim drove all night and arrived at the Corps early Thursday morning. "He grabbed a few hours of sleep on the floor and before first light, at 0400, we woke him up and told him to get to work," said Binet.

Tim was able to truck in 1,000 bags that he had on hand to get started. Quickly it became apparent they were going to need more, a lot more. "We started staging (filling) the bags Thursday morning at the Coast Guard facility at Lake Pontchartrain. Tim helped us get started, filling the bags with a front-end loader, dumping sand and rock and two or three of us holding the bag open. It took us a few bags before we got the hang of it, and then we started rolling," added Binet.

They found some cable and tackle to secure the bags to the Blackhawks. "It didn't take too long before we told Tim we were going to need more bags," recalls Jason. The district would also need thousands of cable/tackle sets. There was no way to release the bags from the cable, so instead the bags with the cable had to be released together over the breach.

Having brought all of his existing supply, Holan had to move quickly. He started calling his customers across the country and asking for volunteers to give up their supply for the emergency. "I think every single customer I called said I'll send everything I have and don't worry about when you can replace them. The response was amazing," said Holan. The bags are normally used by environmental services firms to transport contaminated soil and material. Before long there were convoys of the large white bags being trucked in from all parts of the country.

Kenny Crumholt and Jeff Ritchie were two of the New Orleans District engineers directing the sandbag drops into the breaches. Coordinating this was a challenge since the pilots were on a different radio system. "Communicating with the chopper pilots was tough. Next time it would help to have compatible communications gear. But all in all it went pretty well and we started making a difference in a few hours,' said Ritchie."

By the end of the flood fight the Corps had dropped



### GAGE, from page 2

24th of October. In the process of completing our mission, the Task Force pumped out over 250 billion gallons of water. We also repaired the 17th Street, London Avenue, and Inner Harbor Navigation Canal breaches, and numerous other breaches and scour holes on other levees.

While those achievements are impressive, what I will remember most about my time as commander of Task Force Unwatering are

# 17th St. Canal

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more than 20,000 sandbags to close the canal. Portable pumps were brought in and added to the city's permanent pumps, those that were working, to remove the water from the city, and 43 days after Hurricane Katrina struck, the city was dry.

Binet, a veteran of the Midwest floods in 1993 and '95, and the Northern California floods of 1997, believes the aerial sandbag operations are going to make a difference in how the Corps floodfights in an urban environment. "When a city floods, especially one below sea level like New Orleans, you have to stop the flooding fast and get the water out faster. When it's apparent it will take too long to build access roads for hauling operations, helicopter operations are a viable approach," said Binet.

the people with whom I served. Their passion, determination and talent are inspiring. Many lost their homes or had them severely damaged. Yet they are undaunted and continue to rise to the challenges posed by this catastrophe. I am so proud of them and what they are doing.

Thanks to everyone in the district for making me feel like a welcomed member of the team. It truly was an honor to be part of this historic undertaking. Recovery will be a long process and I wish you all the best on this journey. Given the opportunity, I would serve with you again (in a heartbeat!) You are in my thoughts and prayers. Essayons!

Col. Duane Gapinski

17th Street Canal breach where the earthen fill and sandbags begin to come together.

# Corps sends pumps and fuel, breaches levees in St. I

by Amanda Jones

t was about seven days after Hurricane Katrina before the Corps could make any contact with the Lake Borgne Basin Levee District in St. Bernard Parish, and it was only for one hour increments on satellite phones. The first call was to the Levee District Director Bob Turner, who was desperate for life support.

"He needed food, water, clothing and showers. Those guys were actually sleeping at the pumping station while the snakes were crawling up," said Kevin Wagner, Task Force Guardian project manager for St. Bernard.

The second necessity was diesel fuel and a way to get it to the pumps. They only had a limited supply, so on Sept. 6 a small MVN crew including Heath Jones, Fred Young and Frank Vojkovich headed down to the parish to see



Pump station six working at Jean Laffite Parkway in Chalmette.

what they could do. They coordinated the fueling efforts and got the military to transport it.

Three days later, only a few of the pumps were up and running since some of them were badly damaged.

"We tried to figure out other ways to get the water out. A German crew

brought four temporary pumps. They ran for a couple of days, but because the pumps were smaller it took a lot more time to lower the water levels. We also identified spots to make breaches in levees to allow gravity to help water flow out," said Jones. Within three weeks and ahead of schedule, the parish was dry.

Then, when Hurricane Rita took a turn towards Louisiana, they only had two days to repair both the man-made and natural breaches using contractors and the Army National Guard.

"The water was so high that we could only see the major scour areas and we tried to get those areas as quick as we

could. Once Rita passed and the water went down, we found there were a few more scour areas that we didn't address," admitted Wagner. "We were lucky. The only water that did come into the parish [due to Rita] was because of the overflow of repairs at IHNC, which filled up the Ninth Ward, went through the culverts at the railroad tracks and eventually overtopped the tracks.

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A flooded Chalmette street in Buccaneer South seven days after Hurricane Katrina.



The water filled the area west of Paris Road (including Arabi and parts of Chalmette), but the east of Paris Road to Verret remained dry for the most part," Wagner said. Because it was such a small portion of the parish, it only took two days to pump this water out.

"The main effort at this point is focusing on Task Force Guardian, which is the reconstruction of the levees to pre-Katrina conditions. Not only are we addressing the hurricane protection levee, but also the interior back levee, which is the only line of protection we currently have in St. Bernard Parish," Wagner said. The "interior back levee" is a local levee that averages elevation 7-8 feet and was built for tidal protection.

"Our team has formed up of a lot of residents who were impacted and most of them live in St. Bernard. Their commitment is as high as mine. They want to do the best they can for their neighbors and friends," said Wagner. "It's going to change, there is no doubt about that, but hopefully a lot of people will come back. A lot of people are holding off until they see what happens with the levee construction and that's why our job is so important."

# **Bernard Parish**

(Left) Dirt from a borrow pit is dumped to dry out for use later to rebuild St. Bernard's levees. (Background) One of many barges that came to rest atop a levee.

# Mermentau locks do their part before and after Hurricane Rita

# by John Hall

With Hurricane Rita menacing lowlying southwest Louisiana, Lockmaster Harold Trahan faced a dilemma.

Survival instinct said head to higher ground. Sure enough, his Leland Bowman Lock, 10 miles south of Abbeville, was soon submerged beneath the horizon-to-horizon sheet of water.

However, Trahan's professionalism, born of 36 years in the Corps of Engineers, said to stay at his post and provide passage to 26 tows (towboats pushing barges) seeking safety to the east.

Duty won. The choice kept Trahan and two other volunteers, Donald Turner, a mechanic, and Anthony Langlinais, a lock operator, at their posts the night of Sept. 22-23.

"We evacuated the lock at 3 a.m. Friday," Trahan said, 18 hours after the evacuation order and 14 hours after the deadline for tows to clear Leland Bowman Lock.

"Every tow got through that wanted to get through," he said. "Some were loaded with gasoline."

The departing lock workers left one gate open. This was done to prevent storm-scour of the lock's earthenwalled chamber, the rectangular space between the gates that acts as a watery elevator to lift or lower vessels.

Later, the open gate, spotted by a media helicopter, apparently triggered a rumor that a lock had failed, Trahan said. This is probably what led to the misconception that the lock had caused the flooding in the Mermentau River Basin, he said.

Blame on the locks was voiced by viewers calling in to programs on two TV stations and was also spread by word of mouth, he said.

"People were calling in saying the lock had failed," Trahan said.

"But that did not happen. We had

de-energized the gates, to make sure there would be no (electrical) shorts if the lock was inundated."

Rita made landfall around 2 a.m. Saturday. Rita's sprawling storm surge–an upward bulge in the ocean caused by the push of wind and low atmospheric pressure—began to push northward from the Gulf of Mexico.

In the path of this wall of salty water was the environmentally sensitive Mermentau River Basin, the heart of Louisiana's rice-growing industry and home to large crawfish farms. Fresh water is vital to both.

Releasing the salty flood was a top priority. On Sunday morning, mechanic Donald Turner and his lock workers returned and set to work on the debris- and mud-ridden mess. Water was just beneath the main motor that operates the 135-ton gates.

"But it was not submerged," Trahan said. "Using back-up power we fully opened the gates. Water started flowing out at 2 p.m. Sunday." The gauges at the lock were 7.5 feet inside and 6.4 feet outside.

Hurricane storm surges exhibit

the phenomenon of sheet flow. Rita's surge came north on a front of roughly 200 miles--flowing over channels,

wetlands and other obstacles as if a pitcher of spilt lemonade were crossing a tabletop.

Awesome storm-surge elevations were recorded by the National Weather Service:

Cameron Parish, 15 to 20 feet; Calcasieu Parish, at Lake Charles Regional Airport, 10 to 15; Leland Bowman Lock, 10;

Pecan Island, 10 to 15. (The target water elevation at Corps locks and structures surrounding the Mermen-

tau Basin is 2 feet.)

"This is how the Mermentau Basin was flooded," said Larry Banks, watershed chief of the Corps' Mississippi Valley Division. "The high ground along the GIWW is about 2.5 feet above sea level with most of the area being lower. Consequently, the storm surge pushed at least 7.5 feet of water overland into the basin. There is no doubt the flooding was caused by the storm surge."

"What happened in the basin was going to happen, whatever the position of the locks," Banks said.

The Leland Bowman and Calcasieu locks lie astride the economically vital Gulf Intracoastal Waterway, which transects the basin east-west. The GIWW is one of America's busiest inland waterways, stretching 1,300 miles from Brownsville, Texas, to Apalachicola, Fla.

So the Mermentau Basin flood had become a great, subtle-to-the-eye hill of water. It took time for the water flowing out to reach its maximum at the locks to the east and west. Also, south winds persisted for days, re-

"What happened in the basin was going to happen. whatever the position of the navigation locks" Larry Banks tarding the drainage. Corps employees returned as soon as conditions

permitted and opened the three locks and two control structures built to protect the basin from saltwater intrusion, Banks said.

To protect the basin's hundreds of thousands of acres, the five Corpsoperated structures link up with cheniers, arcs of low-lying natural ridges. However, coastal erosion has reduced the cheniers' capacity to protect the Mermentau Basin.

The other three are the Schooner Bayou Control Structure, three miles from Leland Bowman; Freshwater Bayou Lock, southward at the Gulf; and Catfish Point Control Structure on the lower Mermentau River. (A control structure has one set of gates, compared with two sets on a lock.)

"All three of these were also inundated," said Robert Morgan, assistant operations manager for

southwest Louisiana. "But the people got in and opened them quickly. They are still draining (Oct. 14)."

At Calcasieu Lock, 10 miles south of Lake Charles, the gate-operating machinery could not be used, for fear of shorting out the inundated, 440volt electrical system. So Corps employees successfully struggled through cycles of improvisation over a few hours and shoved the massive gates into the open position.

"We got back at about 10 a.m. on Sunday (Sept. 25)," Lockmaster Kevin Galley said. "We couldn't have gone the last half mile without Stacy Leonard, our airboat operator."

"We worked continuously for two weeks, daylight to dark, to get the lock back in operation."

They were quitting at dark, for lack of electricity. When a generator roared to life and provided light, they worked until 10 p.m.

The priority job at Calcasieu Lock was also to reopen it–without use of the lock's drowned machinery--and let Rita's surge flow out to the west. Time was too precious to wait to repair the lock's drowned machinery.

So, Galley and his crew relentlessly threw anything available at the closed gates. Many people did the job, including Robert LeBoeuf, mechanic; Clifton Haley, lock operator; Walter Graske, lock operator, and Kenny Landry, Bayou Boeuf lockmaster.

First, they got a 27-horsepower

tractor, connected it with a hefty rope, and pulled open the eastern pair of gates. However, the little tractor wasn't up to the tougher job of opening the west-side gates, because of the strength of the outflow heading west.

"I happened to look up and saw a



Lockmaster Kevin Galley directs the captain in pushing open the Calcasieu Lock gate.

National Guard dump truck, Galley said.."

Hustling over in an airboat, the lock workers persuaded the driver to help. The truck's low gears worked well for the slow, muscular job, but more was needed.

"There was a tug, nosing around looking for damage," Galley said, and it, too, was enlisted for service.

The tug, the Allison Crosby of Crosby Tugs Inc., Golden Meadow, got the job done, out-muscling the strengthening westward current. Galley got outside the rail on the stern and directed the captain, perched up in a small, rear-facing pilothouse. Deftly, with direct contact, the Crosby pushed open the final gate.

The current was draining in the same direction as the gate closes, so intuitively the closure would seem to be an easy task. The opposite is true, Galley said, because a strong current gets inside the hollow, 34-ton gate and tenaciously retards closure. (The three-dimensional sector gates look like a slice of pie from above. With this design, the closed side's solid steel plate faces in the expected direction of higher water. In this case, that direction is away from the basin.)

Like the operators of Leland Bowman Lock, Galley and his crew before the storm departed for safety after making sure that all vessels waiting to pass through the 1,200foot lock had done so.

After Rita passed, and gates were opened at both ends – the "open pass" position -- on Leland Bowman and Calcasieu locks, and the Corps of Engineers and the towing industry teamed up to get cargos moving again.

The government-private cooperation featured testing the use of assist tugs to get tows to negotiate safely the swift currents through the wideopen locks. As a result, the Corps mandated two assist vessels for each tow passing through.

"These tows included high-priority cargoes, such as gasoline. The storm surge flood created two difficult choices for the Corps: Deviate from the normal operating procedures as requested by the towing industry and lock all vessels, or operate according to the normal operating procedures and maximize drainage while passing navigation traffic in the 'open pass' mode," said Tim Connell, the GIWW operations manager in Louisiana.

The Corps finessed the two difficult choices, making it feasible to lock through these tows and to do so safely.

Each lockage was made with the chamber full, to maximize the passage of vessels. The Corps also required the traffic to wait at least 30 minutes between lockages. While the briefly closed gates piled up some water, it never exceeded a foot. The effect was minimized by the delayed water draining out faster once the gates were reopened at both ends of the lock. Rod Sanders, equipment operator of the Memphis District Clearing and Snagging Unit, lubricates the huge pulley on the bucket of his dragline at a borrow site in Plaquemines Parish.

# **Restoring Protection**

# by Alan Dooley

he Merriam-Webster's Collegiate Dictionary defines "guardian" as: "One that guards; one who has the care of the person or property of another." That's certainly one definition of Task Force Guardian.

Task forces are a proven method of bringing to bear the Corps' ability to tackle multiple problems simultaneously. Common policies and processes enable the Corps to assemble the best people from different places for a specific mission in the shortest possible time.

Task Force Guardian (TFG) was established Sept. 21 as part of Task Force Hope, the overall effort to help the Gulf Coast of Mississippi and Louisiana recover from Hurricane Katrina.

Its mission is to rehabilitate the hurricane protection system that serves the New Orleans region, from New Orleans to the mouth of the Mississippi River in Plaquemines Parish.

About 15 percent of the hurricane protection system for the greater New Orleans area was destroyed or heavily damaged.

• 42 miles of more than 300 miles of levees and flood-

walls were destroyed or significantly damaged.

• 34 of 48 pumps were destroyed or significantly damaged.

Before Hurricane Katrina made landfall just east of New Orleans, Col. Lewis Setliff, St. Louis District commander, called a team together to review plans for St. Louis' support to New Orleans. As soon as the storm passed, the team re-established communications with the city to start grasping the extent of the damage.

Very soon after that, the St. Louis team employed a contractor to produce a LIDAR survey of the hurricane protection system

LIDAR technology uses laser light beams and an optical system and precision GPS satellite location data to build a three-dimensional map of the system. Coupled with simultaneous high-resolution visual imagery, the system is especially adept at surveying areas that are inaccessible. The data also enable fairly precise calculations of the amount of levee materials needed to repair the structures.

On September 21, the Guardian team moved from St. Louis to Vicksburg, Miss., to join up with engineers from continued, next page



An emotional first meeting of the Task Force Guardian team took place October 19 when more than 100 people crowded around to hear Guardian Commander Col. Lewis Setliff both welcome and tell the team the vital nature of their mission. "You have been hand chosen for your excellence," he told them. Setliff thanked the group for their willingness to be part of the mission and urged them to be flexible and focused in coming months.

Lifted by Hurricane Katrina's powerful storm surge to the top of the 17-foot tide flow control structure at Bayou Bienvenue in Orleans Parish, this 195-foot-long, 35-foot-wide steel barge damaged the concrete walls extending from the structure and had to be removed before repairs could be made.

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New Orleans.

Handshakes and smiles added glue to building relationships and the confidence of the weary team members. Only a few days later the team moved again, this time to New Orleans, where more New Orleans experts were added to the group.

Ironically, many of the group had stood shoulder to shoulder a decade earlier when St. Louis was assaulted by a record flood. They knew and trusted each other.

Early and hectic labor to assemble information, put processes in place and secure funding started to bear fruit very quickly. "St. Louis did a great job of getting the ball rolling," said Walter Baumy, New Orleans chief of Engineering. "The work they did gave us all a great jump start."

By Oct. 4 the first contract was awarded to a small New Orleans-based firm to start restoring the foundation of 6.5 miles of the Mississippi River Gulf Outlet hurricane levee along the north side of St. Bernard Parish.

Sixteen days later, a total of 12 contracts had been awarded. Slightly more than \$100 million worth of work was under contract.

In the midst of the early days, Mississippi Valley Division and Task Force Hope Commander Brig. Gen.





Robert Crear announced that Task Force Guardian would be predominantly manned by New Orleans people – people with local knowledge and a personal commitment to the huge task ahead. The organization would move out of the New Orleans District headquarters – an inconvenience to many, but necessary to sustain their focus and a rapid "battle rhythm." The move was to the New Orleans Federal Reserve Bank in downtown New Orleans.

An early challenge for Task Force Guardian was the large number of barges thrust up onto and through levees and the scarcity – at least in the right places – of "borrow," or dirt material to rebuild the levees.

As many as a thousand barges – many loaded with cargo – were driven from moorings and channels during the storm. Some sunk. Many more floated aground on the storm surge.

By the end of October, about 50 were still of concern to the Corps. Owners were sought and asked to retrieve their vessels. Many reacted with plans and schedules.

"I asked to be put on this mission," said lifelong St. Bernard Parish citizen and program manager for that parish, Kevin Wagner. "I want to do this for my family (his house was under 11 feet of water), for my neighbors and for the people I grew up with," he said with determination. "Success is our only option."

Memphis District employees Richard Blake (left) and Roy Wellington convene with New Orleans District, Plaquemines Parish Resident Engineer Pierre Hingle at the Walker Road borrow site, and decide to dig a pit down more than 23 feet at one corner of the 30-acre site to help water drainage. Some 30 acres at the site will be excavated to a depth of 16 or more feet to provide as much as 860,000 cubic yards of finished levee material. *Riverside November 2005* 23

# Surviving the storm

# Personal accounts from MVN employees

I had a bad experience with Katrina and am more than sure everyone in Louisiana has. We were airlifted from the third floor of my sister's house by helicopter.

After five days, they took seven of us – my mother; sister; brother; three nieces (one pregnant with twins); and a nephew – to I-10 and Crowder (Boulevard, in New Orleans East). They told us that they were coming back for us, but we stayed two days before they rescued the rest of us. It was 12 of us altogether. They finally rescued the last five of us and brought us to the I-10 and Crowder. We slept there for two days before they rescued us with another helicopter.

We survived until they rescued us cooking with candles and an aluminum pan in which we fried bacon, eggs, pork chops, frozen waffle and put the little butter we had left on about four pieces of bread. When it was the last piece of meat, we were out of everything, especially water and food. If it would have been one more day, we would have probably suffocated. We stayed in the window, making all kinds of signs for the helicopters that we saw, but to no avail.

We did not know where the rest of our family was. So when they finally decided to get at least 500 people including the five of us, we were brought to (New Orleans) Lakefront Airport. There we stayed for about 12 hours before another helicopter came to get us. From there they brought us to (New Orleans) International Airport, where we stayed about 14 hours before they put us on the plane, not knowing where they had brought my mother and the rest of them.

So we were brought to San Antonio to a place where there was nothing but buses. We got on the school bus, still trying to find out where my mother was. Finally they decided to bring us to Kelly Air Force Base, two days after that, that's when we found out that my mother and the unborn twins, a boy and girl, were deceased. The hospital in Houston said they died of heart attacks.

We had to bury them in Houston, TX, which we know nothing about. So that means we will have to take trips to Houston to visit the grave sites.

It really has been a terrible, horrible, devastating, disaster mess.

I thank my Corps family and everyone else for their prayers, and thoughts about my family and myself, I really have suffered tremendously. But I thank God for helping me cope with all of this. I am now working at the Vicksburg District, as soon as I can find housing somewhere close, I will be back at the New Orleans District. My heart goes out to EVERYONE that has suffered badly thru Hurricane Katrina and also Rita. Charmaine Allen, IM

My wife Colleen is a nurse at Methodist Hospital in New Orleans East and was called to work as part of their emergency plan. I decided at the last minute to go to the hospital to join her. I knew we were really in trouble when I drove over the "green bridge" near Chalmette and looked back towards Lake Borgne and saw no marsh - only water.

With 758 other people at the hospital, we settled in for the night, losing power after midnight. The generator kept everything running for a time.

At daybreak, Colleen and I helped the staff distribute meals. Everything worsened around 8 a.m. when the wind picked up, blowing out windows and tearing off portions of the roof.

My wife and I joined others scrambling to move patients out of rooms with broken windows. When we ran out of room we moved patients down from the top floor to safer areas away from the torn roof. Moving patients required us to work in teams of six to carry people downstairs; many times moving the patients with tubes and medical equipment in tow. During the height of this we lost generator power and had people moving patients down from the sixth floor and up from the first floor which was flooded. Nurses and doctors were struggling to keep patients alive without electricity. Nurses had to find beds for the relocated patients and try to reassemble the medical charts that were scrambled and soaked.

The hospital was surrounded by water and buildings around the area were badly damaged. About eight feet of water covered the cars in the parking lot We were stranded with limited electricity in a badly damaged building full of sick people, and families with children. The worst part of our experience had only begun.

We awoke the next morning to radio reports of widespread flooding and damage in the city but there were no specific locations other than downtown and Jefferson Parish. Conditions in the hospital deteriorated seemingly instantly. Water didn't run, toilets would not flush, and hundreds of people were crammed into tight quarters without air conditioning. The staff was able to feed everyone and distribute water but supplies would only last three days. Casualties began arriving from the area, either wading or by boats. Everyone began wondering about being rescued and when would the water go down? Rumors spread that the hospitals had been forgotten in the evacuation plans but tomorrow would bring a full effort to rescue patients and staff. The first patient died that day and a temporary morgue had to be set up.

On Wednesday morning a Lifeflight helicopter from Corpus Cristi circled the hospital and landed on the roof. The chopper carried an EMT team and a FEMA staffer. Conditions had continued to decline over night and more patients died. I helped the helicopter crew by pointing out city landmarks and rough flight directions to various locations. The pilot and FEMA rep flew off to find the Chalmette Medical Center where 300 people had gathered on the rooftop. The EMT team tried to help organize patients for starting the evacuations. Except for those who could walk, all of the patients would be carried up the stairs in sheets used as stretchers. Patients in intensive care would have to be carried up four flights to reach the roof.

From a lack of outside contact, miscommunications dominated inside of the hospital throughout the storm and the days following. The first evacuation flight took more than an hour to organize. Return flights were sporadic but we were able to get a few flights out that day. During the lull, a group of us were asked to help ferry medical supplies up to the ICU. The supplies had been floating in the flooded first floor but some were sealed. At this point many of the very sick had died.

Around 6 p.m. an Army blackhawk approached and circled the hospital. This pilot was top-notch and landed the chopper on a pad we prepared. He said, "I'm from Georgia...just got here...I'll fly until they tell me to stop or I run out of fuel!" He flew until about 3 a.m. and managed to get some other choppers to make stops. In total they took out about 100 patients that night.

Choppers came steadily early Thursday morning and we moved people from the various floors up to the roof. A thunderstorm caused a several hour delay, and required us to move patients off the roof and back downstairs. It seemed that we were not making much progress because the halls were still crowded and we still had many patients lined up to go to the roof.

Sometime that night the Coast Guard showed up in full force. At one point seven choppers were hovering in a line with spotlights waiting to take away as many patients as possible. We moved almost all of the remaining patients out that night and most of the mothers and children.

Choppers were coming in steadily Friday morning but we still had a lot of people to evacuate. The hospital parent company flew in three private helicopters and a flight control operator. A large Chinook helicopter circled the hospital and landed. It could carry 40 passengers and would really help get everyone out much quicker.

Colleen and I were lifted out on a private helicopter and

landed at a hospital in Slidell. We boarded buses for Dallas and rode all night. Two days later I went to St. Louis to join a Corps team working at the district up there.

My wife and I consider ourselves very lucky to have survived the hurricane and the aftermath. The news about our home was not as promising. We had almost six feet of water. We were nearly finished renovating the home and to see all of that work destroyed has not been easy for us. For now we are planning to rebuild the house but it is unclear what the city and FEMA will allow or require in our neighborhood.

# **Greg Miller, PM**

I'm from the east bank of Jefferson Parish. When I saw that N.O. had flooded and we couldn't go home, I evacuated to Houston. When Hurricane Rita came, I was ordered to evacuate to at least as far north as Dallas. I drove home the next week to check on the condition of my home. There's damage to my doors and my roof, which should be fixed soon if the contractor is on schedule. But my biggest problem is that I'm allergic to New Orleans right now. Every time I go on the south shore of Lake Pontchartrain, I have trouble breathing and have allergy and respiratory problems.

This hurricane season has literally been a wild and long ride, but I'm one of the fortunate ones because I could and did evacuate. It took me 12 hours to drive to Houston, and three more hours just to find my hotel. It took almost 23 hours to get from Houston to Dallas for Rita because it was Texas's first experience with contraflow.

This has not been a fun trip. I'm exhausted, but I'm lucky to have been able to evacuate and I'll do it again next hurricane season (assuming, of course, that this one ever ends). I'm homesick, but my entire family is safe. I'm very, very blessed.

## Kathy Turlich, PM

Evacuated to Houston Lives in Jefferson Parish Minor Roof/Tree Damage Jim Wolff, CD

I evacuated to two different motels, a grandson's house, a riverboat, and finally landed in Covington, temporarily. Irma Reimike, 1994 retiree

Evacuated to: Vicksburg to stay at Ray Wilbanks' lake house. Rayford works at MVD and generously offered us his lake house, which we graciously accepted since there were no hotel rooms available. His generosity is greatly appreciated. *continued, next page* 

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Parish from: St. Bernard (a.k.a., "God's Country" to those who use to live there)

Condition of home: Destroyed. Totally inundated. Slab elevation is at a + 1' and there was a watermark approximately 4" above the eaves of my home.

### Kevin Wagner, PM

You've got to look at the bright side, particularly when many of our New Orleanians have no bright side. The bright side that I retreat to when depression strikes is what I had done to help people avoid the worst heartache and misery of Katrina.

When I joined the Corps in 1998 one of my best life choices—it was usual to soft-pedal the alarming issue of "inside water." It was not written down, but there was certainly no effort to make clear what could happen. Confession: I supported this stance, but only once.

But if The Big One hit, we would have no excuse if we'd kept quiet. Soon I learned that this approach was strongly shared by Al Naomi, New Orleans District's Mr. Hurricane and a wonderful public servant. Looking back, it seemed that frankness about the potential hurricane horror became a standard way of business with us all.

Nobody believed more firmly in hurricane-danger frankness than Jay Combe, who retired as chief coastal engineer well before Katrina. When the media got on to the Unwatering Plan, Jay sat down and gave vivid, fact-filled interviews to Mark Schleifstein of The Times-Picayune and Dave McNamara of WWL Channel 4. I loved to call Jay, "Dr. Doom."

The huge play devoted to the story scared the hell out of a lot of people. I would be asked, "Is it really that bad?" People finally began to understand. I thank God that so many got out. Katrina was not The Big One as Jay described it, but certainly was A Big One. I also believe that even with Cat 5 protection fully built, evacuation is the only wise action facing a storm of any proportion.

One of my last acts in New Orleans came Friday night, Aug. 26. I called two elderly (when I use this word, you know they're old!) and infirm friends. "Clyde, you've got to get out." Him: "No. We're too old, and I'm on a walker. We can't handle it." Me: "No, you've got to go. This storm is too powerful. If you survive, you can't handle the aftermath." My position at the Corps of Engineers persuaded him to go. That Friday night conversation led to three families getting out, along with Clyde's huge dog, Scotty. Similarly, I am sure that my words earlier were responsible for some good people, including Gentilly neighbors and Bev's co-workers at Castle Kids, escaping to safely.

So, all we lost was our home in Gentilly. There will be insurance money, but dollars do not restore memories. Not Beverly's piano, shattered by the giant limb of an oak tree that smashed our stucco home, nor for the sheet music she'd treasured and supplemented since childhood nor her treasured paintings. I am naked without the books amassed over a lifetime and now ruined by salt water. After both of my brothers had been stunningly generous, we finally talked with Gaston, who lives in England to whom I'd gotten word to through BBC London. Bev and I were together on the sofa in the beautiful lobby of the Vicksburg District. After Gaston hung up, we just leaned on each other's shoulder. And cried and cried.

But we are truly thankful. Thankful for so many specific things. Thankful that we have a job, a car to drive and food to eat.

Thankful for the kind souls of the Standfield New Life Christian Church, a small black church in Vicksburg that brought food for Corps people at night to the Comfort Inn and one day treated seven of us to lunch, chauffered in the church van.

Thankful for the kindness of thousands we will never meet, and two whom we did: A security man from the Convention Center and his nurse girlfriend who'd left behind his truck and other possessions to drive disabled children from the Magnolia School in east Jefferson. After Katrina shattered a shelter in Columbia, Miss., they reloaded the helpless kids and drove them to a church campground in Monroe, La. Though jobless, he declined an offer of gas money to return for his things.

Thankful for the helpful people of the Vicksburg District, who were so supportive and uncomplaining of our invasion. I can still taste the charbroiled burgers they served us one night in the lobby. And the repeated medical aid for my hand's problem by a lovely lady in EOC.

Thankful for Beverly and John's new landlady, the remarkable Avis Phillips of Waterways, and the members of First Christian Church. Their kindness helped and cheered many of us from New Orleans. They are also terrific cooks!

Thankful for my old college friend, David McNair, who interrupted a Sunday afternoon social occasion to come to his self-storage business in Jackson to receive us and our son Galen and his friend's truck bearing muddy, salt-stained possessions salvaged in New Orleans. He gave us two storage bins free through 2005's end. "I've been flooded out myself," David said.

Most of all I am thankful for my colleagues, who made history in their striving and professionalism in a single, large-but-cramped, intense room – forever the Katrina Room to me – in the Vicksburg District. People who tenaciously and feverishly attacked the most serious responsibility of their lives. People who worked harmoniously (well, damn near it) in circumstances that were incessantly trying, tiring and noisy.

I am thankful for those who, abetted by Beverly, sang Happy Birthday to me when the12-hour, seven-day work was sapping my physical resources. For people with whom I am proudest to have worked in my 50-year career. I am thankful for the opportunity to make Mr. Levee, Louis Danflous, smile; not once, but twice. Thankful for Bruce Terrell's swarm of wonderful Construction people, who had me surrounded in the Katrina Room. For tireless engineers like Walter Baumy and John Grieshaber. All of our people implicitly understood that one must have a code, have faith in one's abilities, and to seize moral choice when life demands one step up while surrounded by uncertainty. Our people did that, without having to sit around and talk about it.

Early on, when things were bleak and the Corps was working to close the 17th Street Canal breach, John Grieshaber told me: "I truly believe we will stop this flow." I don't think he knew how to at that moment. That's precisely the point. The light that his spirit radiated drove away much of my darkness.

# John Hall, PA

My house is in the Pontchartrain Shores Subdivision. I have the only house on my block that did not flood. A total of five houses on my street did not flood. Another 2 inches of water and I would not have been so lucky.

I evacuated to Oberlin, La., 30 miles north of the I-10. My sister lives in Lake Charles, which is only 50 miles from where we were. So it was convenient to go visit with her. When we arrived on August 28, we were a little hesitant about staying there (Oberlin Inn), but soon realized that this was the place for us. They accepted animals and since we had our two dogs, it was the perfect place for them to be. The owner soon became good friends with us, bringing the dogs treats from their ice cream shop. Two residents had dinners at their houses and invited us, complete strangers, into their homes! My brother- in- law started his senior year at Oberlin High School and does not intend on returning to New Orleans. The students have accepted him and love that he is there. They even gave him uniforms, school supplies and a food voucher for the whole school year! The florist shop / hair salon welcomed me, my mother, and mother-in-law to their shop with champagne and Mardi Gras beads while we got manicures and pedicures! It was a scene right out of the movie "Steel Magnolias." We were really blessed to have stumbled into this one red-light town.

Even though Hurricane Katrina devastated our way of life, the storm has shown me that we were living a more complicated life before the storm. Simplicity is best and family is the most important thing in life. The people of Oberlin proved that to me within the three weeks I lived in their town.

## **Rachel Calico, PM**

Left Aug 28: my brother's house in Abita

Next day: Natchitoches

Four days later: Houston

13 days later: back to the brother's

Oct. 15: rented a house in Covington while mine (Metairie) is being ripped up and refurbished, probably for five months

Also had an emergency appendectomy after the storm.

# Jeff Heap, IM

I am from Saint Bernard Parish, city of Chalmette. I had 9 feet of water in my house. My car was in the garage so it was destroyed as well. To make matters even worse, I live two blocks from Murphey Oil. During the storm, an oil tank ruptured which covered my house in 2 feet of oil.

My wife and I evacuated to Dallas. Currently residing on the West Bank with her parents.

# Pat Shepherd, CD

Not knowing how bad hurricane Katrina was, I left N.O. on Aug. 27 right after the evacuation order was given by the mayor and traveled to Covington to stay with my sister. The day after the storm hit, having no electricity, my family of 12 survived off of fruit, bottled water and canned food and a gas generator for power. After two days my sister informed everybody that they would have to leave or face rations. I then traveled with my mother to Jefferson City, Mo., where my brother lives and stayed with him for three weeks. Three weeks later my sister and brother-in-law were able to get near my home and found that my house had minimal damage and was livable. When returning to I ran into the remnants of Rita in southern Missouri and northern Arkansas with squally weather.

## Bryan Gassen, IM

All of us at Port Barre stayed at home and suffered no damages from Katrina. On Wednesday following Katrina, myself, seven park rangers and my office assistant were mobilized to the district to bring food and supplies to Col. Wagenaar and other personnel. Then we stayed to support the various missions. The park rangers rescued eight people (including Frank Vojkovich, ED) and performed boat and vehicle support to transport people, equipment and supplies to various locations. We also provided critical radio communications, logistical support, and security for personnel. We also did some basic maintenance and worked in the EOC. My office assistant and one park ranger performed administrative support doing reports, timekeeping, coordinating helicopters,

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answering calls, disseminating information, etc. Our time there ranged from four to 35 days for the administrative support.

# Dee Goldman, OD

Let me write this while it's still fresh in my mind of when we visited our former house on 15 Oct. The New Orleans East neighborhood looks like a nuclear wasteland. Almost all of the vegetation is dead. The few neighbors that we saw were salvaging what they could, and two insurance adjustors were inspecting the next house.

Our house is a total loss along with pictures and other memorabilia. We were able to salvage more than I thought we would be able to. The china, some kitchen items and a few pieces of jewelry were about all that we could get from the house we lived in all our married life plus a few years before, for me. I feel very fortunate though, because I still have a job with the Corps while so many have lost much, much more. We will be able to rebuild our lives and have a fresh start. Some are not so fortunate. We have the love and support of our family and friends and that will get us through this uncomfortable time. For that I'm very grateful.

## VICKI COLLINS, OD

The only homes I've ever known in my 40 years were in New Orleans East and Gentilly. When I returned home after Katrina, I realized that these areas will never be the same. My grammar school, St. Raphael on Elysian Fields Ave. was half filled with water. The church where I was married, St. Maria Goretti on Crowder Blvd, in the East, had water, too. I am a Girl Scout volunteer, worried about where my Gentilly Junior Girl Scouts ended up. All got out safely, one after having to walk through the floodwaters to the Superdome, eventually ending up in a Houston Red Cross shelter. I "lost" her and her family again when Rita came through. The two Girl Scout camps in Covington and Independence where I went to camp as a girl and where my two girls camped when I led their troop are totally devastated. My life's memories were washed out by the waters of Katrina. While my Gentilly home sits high on the Gentilly ridge, there was still five feet of water in the street in front of my house. I am DETERMINED to return home to Gentilly. I just hope that there is a Gentilly to return home to. The heart and soul of the city lies in the people who live there. If they don't rebuild and return, it will never be the same.

We bought a house in Vicksburg where our family of four humans, four cats, and 10 red-eared slider turtles are now living, along with another refugee from my office, Melanie Goodman, and her dog. When I am able to return back HOME to New Orleans, I plan to rent it out during the "off-hurricane season." During hurricane season, it will be our evacuation house where we can run from next year's hurricanes.

## Julie Z. LeBlanc, PM

I and my two Maltese children (dogs) evacuated Aug. 27 to a friend's place in Jayess, Miss., a tiny town 20 miles north of Tylertown. I was positive that it was far enough away from New Orleans to be safe. My friends told me they never had any problems from previous hurricanes. I'm a veteran of hurricanes, but naively took their word as gospel.

Jayess got slammed by Katrina. We lost power, all communications, and water (you didn't even have the option to drink contaminated water as nothing came out of the faucets). Linda had two battery radios but no batteries, so I had no idea what was happening. We had little food. The first day we each had 1/2 slice baloney and two saltine crackers; on Tuesday the three of us shared one small can of tuna and those two saltine crackers again, and on Wednesday we each had one small container of applesauce. That was the total amount of food for the day - and NO WATER.

Katrina knocked down huge old trees. Several fell into the house, and broke through into two rooms. The entire property was covered with downed trees. We were totally trapped. We were fortunate to escape injury. I was so worried about my little dogs. My CC is 13 1/2 years young and her breathing was very labored. We were all hot and miserable, and VERY THIRSTY and FRIGHTENED. On Wed evening strangers cut us out. My dogs and I rode on a dirt bike to where my vehicle was parked. I still had no idea how bad things were as we had no communications of any type.

I drove my vehicle to Brookhaven, Miss., where I got a cell signal. I was elated. And then, I was shocked when I saw the entire town was virtually shut down - no gas, no stores open, people appeared to be living alongside Wal-Mart, etc. I pulled on side the road so as not to burn gas and made a connection with a friend in Chicago who was frantic as no one had heard from me since Monday morning. She said if I could get to the Jackson airport she would make arrangements for a flight to Chicago for me. I didn't understand why I couldn't return home since the storm had passed. Her comment was YOU CAN'T GO BACK HOME. YOUR CITY IS FLOODED AND PEO-PLE ARE SHOOTING AND LOOTING AND RAPING PEOPLE. YOU HAVE GOT TO GET OUT OF WHERE YOU ARE AND COME TO CHICAGO.

I headed to Jackson on fumes. I made it to the J. Noblin Furniture store on airport road, where I ran out of gas. We slept in the parking lot in my vehicle. On Thursday morning when the store opened, I explained that I really wasn't a "bag lady" but had evacuated. I was dirty, my clothes were torn, I was smelly, hungry and real thirsty. The employees invited me and my dogs into the store so we could cool off. They gave all of us water and they made a pea-

# German and Dutch teams help unwater New Orleans

orty-three days after Hurricane Katrina hit the New Orleans metropolitan area, the U.S. Army Corps of Engineers claimed victory in unwatering the city.

The Corps' Task Force Unwatering Team, working with the Orleans Sewerage and Water Board and Entergy Corp., worked nonstop to 'dry' the city of over 250 billion gallons of water.

"This is a huge step forward in the rebuilding process for New Orleans," said Task Force Unwatering Commander Col. Duane Gapinski.

"In a coordinated effort, we battled 24-hours-a-day the last 43 days to fill the levee breaches and remove the flood waters from the city of New Orleans. The city is now accessible

for recovery and repair operations," Gapinski said.

German water pump and flood relief experts and a volunteer team of portable water pump technicians from The Hague in the Netherlands flew here to assist the Corps with unwatering efforts.

Cooperation between the Netherlands and the United States in water management issues extends back to 1953 when the Corps gave 100 water pumps to the Dutch government for Dutch water boards in flood relief efforts. The assistance from the Netherlands was made possible



Two volunteers from the Netherlands assist in unwatering with portable pumps.

this time by an agreement between the Corps and the Dutch Ministry of Transport, Public Works and Water Management to share information and experience on water management.

The Germans flew to New Orleans from Ramstein Air Base carrying 250 tons of equipment to aid the cleanup. Nearly 100 volunteers with the German government's humanitarian assistance organization, THW, left their jobs

for a month or longer to help the disaster-stricken Gulf Coast.

With the water gone, temporary repairs on the Inner Harbor Navigation Canal, 17th Street and London Avenue canals were completed to meet the requirements for 10foot interim protection levels.

After the unwatering was completed, the Corps focused on completing interim protection measures and ultimately restoring the system to the pre-Katrina level of protection. Commenting on the achievement of the unwatering mile-

> stone, Col. Richard Wagenaar, New Orleans District commander, said, "We're making great progress. I am confident the U.S. Army Corps of Engineers will continue to meet and exceed the significant engineering challenges we face and will once again make this city a home to the families and businesses of New Orleans."

German pump and flood relief experts brought 250 tons of equipment to restore the area.



Riverside November 2005 29

# Unwatering includes environmental safeguards

Good water quality in Lake Pontchartrain

by Joyce M. Conant

mmediately following Hurricane Katrina's massive flooding in the city of New Orleans Aug. 29, numerous media focused on the polluted waters containing what

they called a "toxic soup." The mix consisted of water from nearby Lake Pontchartrain, refuse from the overwhelmed sewer system in New Orleans,



Casey Rowe (right), gives Construction Rep Edward Wrubluski an overview of the aerators on the 17th Street Canal.

oil and industrial chemicals, as well as debris from thousands of vehicles, boats and homes.

As the Corps of Engineers began to close levee and floodwall breaches and begin pumping out the more than 224 billion gallons of water from the city, scientists with the U.S. Environmental Protection Agency and Louisiana Department of Environmental Quality took the lead to document and monitor the environmental effects triggered by Hurricane Katrina.

Several district biologists assisted, as well, from the Vicksburg EOC. Gib Owen made contact with environmental agencies, while Bob Martinson reached out to other district biologists to begin work.

Mike Salyer and Casey Rowe, members of the Unwatering Team, provided on-the-ground reports and made environmental recommendations to project managers.

"Mike Salyer and I were able to relay environmental conditions to other biologists working with DEQ (Louisiana Department of Environmental Quality) and EPA," said Rowe. The process allowed them to quickly coordinate and respond to environmental conditions, which changed daily and sometimes hourly.

> Christopher Brantley and Laura Lee Wilkinson worked from Baton Rouge providing data to other agencies and giving environmental recommendations to field personnel.

One of the first things tackled was coordination with the U.S. Coast Guard to place sorbent and debris booms across pump discharge locations where flood and storm water was being pumped into Lake Pontchartrain. Booms, to contain and recover spilled oil and gasoline,

limited the amount of floating organic material and debris from entering the lake . When this type of material decomposes, it decreases dissolved oxygen levels in the water and can lead to fish kills. Collecting and removing floating woody debris before it

entered the lake helped maintain satisfactory water quality .

In addition to removing oil and debris, the foul-smelling and bacterialaden floodwater needed to be aerated to promote beneficial microorganism growth and increase dissolved oxygen levels.

Therefore, the environmental

team coordinated with the Unwatering Team to bring more than 25 aerators to the drainage canals. The aerators circulated the canal water, spraying it out as it entered the lake to increase its dissolved oxygen.

EPA and LDEQ will continue to monitor the region affected by Katrina for environmental impacts, but non-scientific reports are encouraging. One commercial shrimper told Corps monitors at the 17th Street Canal that he was catching unusually large numbers of shrimp from Lake Pontchartrain and seeing large crab harvests as well.

"Fishing in the lake is as exciting and fast-paced as ever. When we were gathering fish-tissue samples on Oct. 12, the shrimp trawl was loaded with hot-dog-bun-size shrimp and big, healthy crabs," said Rodney Mallet, LDEQ communications director. The sampling was from the southwestern part of Lake Pontchartrain between the Bonnet Carre Spillway and the Causeway Bridge.



An aerator boosts disolved oxygen levels in the 17th Street Canal near the Old Hammond Highway bridge.

# New Orleans, a reconstituted district

by Joyce Conant

At that time only a handful actually returned to New Orleans. At that time only a handful actually returned to New Orleans, with the others checking in at one of eight satellite locations: Fort Worth District, Galveston District, Baton Rouge Recovery Field Office, Lafayette Area Office, Mobile District, Vicksburg District, Memphis District or St. Louis District.

New Orleans District Commander Col. Richard P. Wagenaar focused his attention on the pressing management challenge of reconstituting his district – of restoring the vital resource of his people's intellect, energy and historical involvement in New Orleans and southern Louisiana.

The military defines reconstitution as the ability to maintain continuously, in sufficient measure, the capability to create additional forces beyond those in the active and reserve units retained in the base force. A reconstituted district means having 90 percent of its people, equipment and facility strength back to accomplish its mission.

"I am happy to say that after only seven weeks, the district is up and running and fully functional – we are fully servicing the needs of our customers," said Wagenaar.

Although the district has the resources to meet its pre-Katrina mission, the hur-

ricane doubled its workload and help from other districts was required to take on the additional effort.

"Personnel from St. Louis were here within two days of the storm to support navigation, and worked with a team in Vicksburg to get the Mississippi River open for commerce," said Lt. Col. Murray P. Starkel, district deputy commander.

"The emergency unwatering mission was not originally a Rock Island District mission, but we asked the colonel (Duane Gapinski) to come down and take command and control of that mission," said Starkel. He said this allowed the district to focus on reconstitution.

When the hurricane hit, the district disengaged normal operations and activated its emergency operations plan. The first step in the process was accounting for its people, which was Starkel's responsibility.

"Getting a hold of people was tough," said Starkel. He said communications were the biggest problem. "The phone lines weren't working ... area codes 504 and 985 were totally full. There was no way to call in and let people tell you they were even alive," he said .

Castle Kids ribbon cutting seven

Castle Kids ribbon cutting seven weeks after the storm.

The crisis management team in Vicksburg had the employee roster. "They started receiving and making calls as we were trying to find the last few people," said Starkel. He said all but three were accounted for within the first week and it took another week to locate the last employees.

"We physically went to houses...boat to door, boat to house," said Starkel. Between eight to 10 Corps people were rescued by boat.

"This mission was a huge eye opener ... we captured a lot of lessons learned and have shared them with the rest of the Corps," said Starkel.

The significant impact Hurricane Katrina had on employees changed the application of the Safe Haven Act,

which provided Department of Defense funding to help displaced personnel.

Starkel said this was the first time the Safe Haven Act has been implemented in the Continental United States and the first time it was applied to civilian employees. The act has normally been used for military members and their families deployed overseas.

The Safe Haven Program permits the Corps to pay the travel expenses, salary and subsistence allowance to USACE employees and/or families who evacuated after a DoD evacuation order and whose home has been declared uninhabitable.

Services within the district headquarters have opened or will soon open to meet the needs of the employees.

The Child Development Center, known as "Castle Kids," was recently reopened for employees returning to work who require daycare.

Plans are underway to reopen the cafeteria. "We are evaluating our options to restart the cafeteria and hope to have it open soon," said Starkel.

The First Castle Federal Credit Union is also open to serve the financial needs of the employees.

More than 1,100 of 1,230 personnel are back in the district workforce, and more than half now physically reporting to headquarters.

"I have a great deal of confidence in the New Orleans District and I'm confident we will meet and exceed the significant engineering challenges we'll face in rebuilding this region," said Wagenaar.

# **Task Force Hope**

# USACE employees from around the country come to aid Louisiana and Mississippi

Mike R. Abate, SWT Scott E. Acone, NAE Maureen Adams, SPK Robert Madams, MVR Travis M. Adams, NWP Samuel E. Adcox, MVR Robert Mahlert, SWL Roy S. Akin, LRL Ghassan K. Al-Chaar, ERC Violet Albright, SPN James R. Aldrich, SPL Andy L. Allen, MVM Gerald D. Allen, MVS Matthey S. Allen, NWS Sammy D. Alley, LRN Jason E. Allmon, MVM Richard A. Allwes, LRP Alex E. Almeida, NWW Dwight M. Alston, MVM Gregory D. Altman, SPN Christopher R. Alvey, LRL Wayne C. Amell, ERR Joseph Amon, HQ Kurt N. Amundson, SAJ Jeffrey B. Anderson, MVP Kathleen J. Anderson, LRP Mark J. Andreasen, NWS Frank W. Andritzky, LRD Joseph G. Andritzky, HQ Terry R. Anthony, MVK Paul Apodaca, SPL Keshia M. Appkins, HNC Darell W. Argenbright, SWL Jennifer R. Armstrong, NAO Edwin H. Arnold, MVK Basil K. Arthur, MVK Clifford J. Artis, MVR James L. Aschnewitz, MVR

Michael A. Atwell, NWS Joseph N. Avery, NAB Gladys N. Aviles, SPK Kenneth P. Ayers, MVR Robert P. Azinger, Jr., LRL Gregory G. Baeker, MVP Michael E. Bagley, SWL Sherolyn D. Bahl, MVP Jean M. Bailey, POA Roderick R. Bailey, LRP William A. Bailey, NAP Michael J. Bainer, NWD Bryan E. Baker, NWD Kenneth L. Baker, LRL Michael G. Baker, LRB Leonard H. Bakker, LRL Dave E. Bala, LRB Gary K. Balden, NAO Loree D. Baldi, MVM John A. Balgavy, SWL Constance L. Baltimore, NAO Larry E. Banks, MVD Derrick C. Banning, LRB Thomas D. Barickman, RAO Anthony Barker, SPK Danny L. Barker, MVM Townsend G. Barker, NAE Michael D. Barndollar, MVR John D. Barnes, MVK James W. Baron, NAB Ruth M. Barry, NWO Steven L. Barry, MVM Hafford W. Barton, MVM Michael S. Barton, MVM Merlon A. Bassett, NAE Vanessa J. Bauders, NWK Denise B. Bauer, NAB Leslie A. Baum, LRL

Ronald J. Baxley, SAM Jeffrey A. Beach, POA Michael L. Beaird, NWD Patrick S. Beard, SWT Rodney K. Beard, SWT Brenda L. Beasley, MVM Richard J. Beatty, MVP Scott A. Beatty, SPK Daniel A. Bell, SPK David A. Bell, MVM Edward D. Beltran, SPK Thomas J. Bender, LRB Hector L. Benitez, SAJ Charles H. Bennett, SWT Sean P. Bennett, LRL William D. Bennett, LRN Raymond L. Bennink, LRE Danny E. Bentley, SWT Andrew R. Benziger, LRC David A. Bequeaith, MVR Dale H. Berkness, NAE Stephen W. Bernier, LRE Charles D. Berry, RAO Cora M. Bertrand, POA Timothy S. Bertschi, MVP Annette L. Best, NWS Elmer A. Best, SWL Priscilla Best, NWP Douglas M. Betz, SPK John P. Bianco, NAD Gary W. Billingsley, MVM Buddy L. Billington, II, NAB David G. Bingert, LRB Jerome Bingham, MVM Gerald M. Black, ERD Ross L. Black, SWF Mark R. Blackburn, SPL Adrienne L. Blackwell, MVR

NWK

Edmond D.

Richard L.

ford, SWL

din, NWS

man, NWO

Deborah L.

Steven A.

cieri, LRL

non, MVM

MVP

Robert S.

Boley, SPA

NAO

# STORIES, from page 28

nut butter and jelly sandwich for me. It was FANTASTIC!

I told them my plan to get to Chicago and that I had to take my dogs with me but had no airline carrier and no gas to try to locate one. The manager, Kecia Long, put me in her vehicle (we left CC and Dana with the store employees who played with and pampered them) and drove me to a Pet Smart where I picked out a Sherpa bag, and then Kecia purchased it for me. I made it to the Jackson airport in time for my late afternoon flight to Chicago. I was overwhelmed by the kindness of these strangers. I truly felt like I had angels all around me. When I arrived in Chicago I was pretty much in a state of shock, and friends sat up with me until almost daybreak as they were afraid to let me out of their sight. It wasn't until Sept. 2 that I saw TV coverage from home and was horrified.

In 1965, I was a teenager living with my family in Arabi during Hurricane Betsy. We were rescued by the National Guard and lived in a refugee center for a while. I didn't think I would ever have to live through an experience as frightening as Betsy, but I did.

Harry R. Bottorff, MVR Scott S. Bourne, ERE Terry D. Bowden, MVR John D. Boyd, MVM Johnnie L. Boyd, MVM T.G. BOYD, III, NWK James A. Bradley, MVM James D. Brady, LRN John A. Brady, SWL Raymond L. Brady, MVM Thomas M. Brady, POD Hilary R. Bragg, MVR Kevin L. Branch, NAE Randall L. Bratcher, SWT William D. Breckinridge, LRL Jason W. Castro, NAO Carl B. Brenneise, NWW Gerald F. Bresee, NAB Charles S. Brewer, SWL Mark A. Brewer, LRE John D. Bridgman, SWL Charles A. Briggs, MVM Bradley J. Brink, NWK Jerry L. Britton, MVM Stephen Brockhouse, NWO Curtis L. Brooks, SAW Francis C. Brooks, NWW George L. Brooks, MVM Teresa D. Broomhall, SWT Larry J. Brotherton, LRD Joseph C. Brown III, RAO Charlene V. Brown, NAB George Brown, Jr, MVM Kevin A. Blair, James C. Brown, NWK John R. Brown, NAO Kelly R. Brown, LRD Blake, MVM Paul A. Brown, SWL Susan D. Brown, MVR Blake, MVM Sylvia D. Brown, LRN Jeffrev P. Blan-Thomas R. Brown, MVK Timothy H. Brown, SWL Teresa L. Blon- Mary R. Browning, LRD Diana L. Buck, MVR Larry E. Board- Marshall J. Buckley, MVM John K. Budlong, POJ James A. Buell, LRB Boatwright, Arthur G. Buford, MVM John E. Burgess, SAM Bethi S. Buring, SWL Boberg, SPA Gary C. Burns, NWO Rita M. Boc-Christophe D. Burroughs, MVM Rita H. Boha-Betty J. Burton, NAO Jeffrey L. Byerly, SWL Kenneth J. Bo-James O. Bynum, NAB janski, NWO James E. Byrd, LRN Terry J. Boland, Ismeal Caballero, NWP Joshua W. Cackley, MVR Vesta S. Cadieu, HQ Matthew J. Caesar, NWS Mark E. Bol-Elizabeth P. Caldwell, SPK

ing, SWT

Floyd E. Bolton, Jr, SPK

Frank E. Bonneau, NWP

Darryl C. Bonura, MVN

Robert B. Booker, SWT

Jarrod Bonnick, LRL

John R. Caldwell, MVM Donald S. Callahan, MVM Billy C. Calloway, SWL Charles A. Camillo, MVD Matt A. Campbell, MVR Gail M. Campos, SPL Allen G. Canfield, II, MVP Patrick W. Cannon, NAP Jesus H. Cano, SPK Jose A. Caraballo, NAP Michael A. Carilli, SPK Marvette Carlton, ERD James Carpenter, ERD Todd Carr, SWT David E. Carte, NWK Jerome Carter, ERI Jason M. Cash, NAO Sheree K. Castain, NAB Ron C. Castanga, POF Donna L. Castro, NWP Thomas Catarella, SPK Charles E. Ceaser, MVM Craig E. Chamberlin, NWK Tia Chandler, NWO Stephen W. Channell, MVM Carol A. Charette, NAE Theron O. Chase, Jr, NAE Darian S. Chasteen, MVM Cameron P. Chasten, NAP Camilo Chavarria, SPA Heidi J. Cherry, NAB Briam Childers, SPL James D. Childers, SWL Sylvester Christopher, MVM Joseph P. Cieslak, NAP Shane S. Circle, LRH George A. Claflin, NAE Colin C. Clark, SWT James R. Clark, MVM Joyce D. Clark, SAS Mark D. Clark, MVR Robert J. Clark, SPK Robert L. Clark, ERD Roy A. Clark, NWW Sherri K. Clark, MVR John D. Clarkson, LRH Donald F. Cleary, LRL John P. Clement, SAW Scott A. Clement, MVN J. Verand Cleveland, SAW Galen M. Cline, SPL Everett S. Cohill, MVM Jeffery C. Cole, SPL Hugh P. Coleman, MVM Royce E. Colley, SWL Mary L. Collier, MVM Michael E. Coltrain, MVR Joyce M. Conant, NAB Joseph B. Conatser, LRN Rocky L. Conaway, LRH Donetienne A. Conely, SPK Charles C. Connelly, Jr, SAJ Sean M. Connelly, LRP Zachary H. Cook, MVM James M. Cooper, MVM

Judith Frichter, IM

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