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**Building Strong®** 

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# Riverside Riverside

#### Carrollton gage

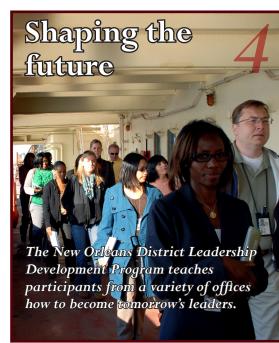
With the new year upon us, we must push forward stronger than ever.



# Nationally recognized equal employment opportunities

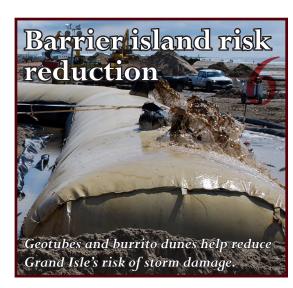
The New Orleans District was awarded the Chief of Engineers Equal Employment Opportunity Award for its continued dedication and success.





# Planning Division re-established

Division takes bold move to ensure delivery of the largest civil works program in the history of the U.S. Army Corps of Engineers.





January 2010 Vol. 23 No. 1

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#### Authorization

The New Orleans District Riverside 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**

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#### On the Cover

Chief of Public Affairs Ken Holder attempts to keep Tim Zimmerman from leaving. Zimmerman is retiring in February and will prove hard to replace. (photo by Scott Riecke)

# New year, same resolve

# We have set the foundation. This year, we build it stronger

s we begin a brand new year, I can't help but look back for a moment and realize all that we accomplished in 2009. The list is long and varied and each of you should be proud of your contribution to the many successes of this organization. No matter what your role here at the district, each of you played a part in the 2009 achievements, including:

#### **Public Meetings**

This year we held well over 50 meetings to engage our stakeholders and partners on a variety of topics from meeting with the community to discussing the Hurricane and Storm Damage Risk Reduction System to our annual partnership meeting.

#### Nonfederal levees in Terrebonne Parish

The Terrebonne Parish Nonfederal Levee project was completed ahead of schedule and under budget. We constructed seven miles of levees in less than five months.

### Permanent pipeline for beneficial use of dredged material

In April, we awarded a contract for a permanent pipeline to carry dredged material from the Calcasieu River Ship Channel to the marshes in Cameron and Calcasieu parishes.

#### **MRGO**

Also in April, the Mississippi River Gulf Outlet was permanently closed to all navigation and we completed the rock dam closure at Bayou La Loutre in July.

#### ARRA

The district received \$197 million from the 2009 American Recovery and Reinvestment Act and as of December we have executed \$143 million or 73% of the program, including \$28 million for maintenance dredging. At Bayou Chene we beneficially used 875,564 cubic yards of that dredged material.

#### PRO

The PRO team began construction on the Western tie-in project (to provide risk reduction on the West Bank where none existed before) and broke ground on the West Closure Complex, including one of the largest pump station of its kind in the world, in August 2009. Currently all five Jefferson Parish Lakefront levee reaches and breakwaters are under construction on the East Bank.

#### **SELA**

We signed a partnership agreement with the Louisiana Coastal Protection and Restoration Authority (CPRA) that will pave the way for construction of \$1.3 billion of SELA features in Orleans and Jefferson parishes. We have also agreed to a 50-50 cost share to perform for the first time a feasibility study on risk reduction and coastal restoration features in Southwest Louisiana.

#### **LACPR**

And most recently, the Louisiana Coastal Protection and Restoration (LACPR) final technical report was submitted to the Assistant Secretary of the Army for Civil Works. The almost 3,300



page report offers a suite of alternatives for reducing risk. Any future projects will be determined through legislative action.

Congratulations on your hard work. But you probably realize that we are far too busy to spend much time reflecting on the past. Now is the time to concentrate on the future and renew our efforts to achieve the team's goals for 2010 and beyond.

June 1, 2011 is less than 18 months away. I challenge you to maintain and continue the enthusiasm and drive that have gotten us this far.

In this new year, make a resolution to have a healthy attitude for 2010. As Thomas Jefferson once said, "Nothing can stop the man with the right mental attitude from achieving his goal; nothing on earth can help the man with the wrong mental attitude."

Essayons! Building Strong!

Col. Alvin Lee



Every tool in the box

The ever-changing work environment needs an adaptive recruitment and retention program

By Amanda Jones

n the November 2006 issue of Riverside, some of our leaders addressed our changing organization and how to move forward. Three years later, our organization is still changing. But this time, there are more options for recruiting, developing and retaining employees.

Just as we use adaptive management

in developing the Hurricane and Storm Damage Risk Reduction System, the New Orleans District is adapting to our changing environment and the needs of the employees.

Based on the statistics, our ability to adapt is paying off. On Aug. 29, 2005, we had 1,232 employees. By the end of June 2007, we were down to 1,154. But by the

end of September 2009, we're up to 1,429 employees, including Task Force Hope and the Hurricane Protection Office.

"We took a comprehensive look at all of the tools in the toolbox," said Lt. Col. Jernigan, deputy district commander. "And out of that, with a lot of hard work in RM and CPAC, we identified a lot of tools that would allow us to expand the workforce."

To recruit employees, we increased the number of recruitment and relocation incentives. At the end of July 2009, we had 76 recruitment incentives working and 31 relocation incentives. That's up from the 25 combined recruitment and relocation incentives in June 2007.

We also received direct hire authority for engineers in March 2008, which accounted for 34 of the 86 external engineer hires in fiscal year 2009.

"We took a look at the Federal Career Intern Program and radically expanded that," said Jernigan.

The FCIP is designed to help agencies recruit and attract exceptional individuals into a variety of occupations and make appointments without regard to the traditional competitive process. That effort paid off in FY 09, with 52 engineers hired under the program.

"We did a very aggressive outreach program," said Jernigan. "We went to the career fairs we normally went to and we expanded that greatly, approaching over 100 universities. And we held our own career fair to 'market' the district. That was the recruiting piece. Then there's the keeping them piece."

In FY 07 we lost 147 employees. In FY 08 we lost 168 – of that, 44 percent retired, 13 percent moved to other agencies and 27 percent simply resigned. Our district leadership has no delusions of halting the natural process of people moving on, but they do understand that people were finding better opportunities elsewhere. They realized that one way to slow down the attrition rate is to improve the quality of life here.

"We looked at work conditions, compensation benefits, pay cap waivers and retention bonuses. Our first attempt was for a group retention incentive, but that didn't fly," said Jernigan.

Following that request was a policy letter in December 2008 from Lt. Gen. Van Antwerp, which was further explained in a Feb. 27, 2009 memorandum from District Commander Col. Alvin Lee.

According to the memo, Lee's intent for the retention bonus is "to stabilize the district's workforce through 2011 and retain those employees that make valuable, key contributions to the HSDRRS

program and other critical district programs in order to accomplish these missions and posture the district for success in the future."

To ensure "fair and consistent implementation within organizations and across career fields," Lee, in his memo, created a district manpower council to review all of the requests and submit them to him for final approval.

The manpower council was chaired by Jernigan and included the CPAC director, chief of Resource Management, chief of the Equal Employment Opportunity Office and the chief of Office of Counsel.

The group reviewed all 427 requests for retention incentives. Of that, 135 were endorsed by the commander, totaling \$718,000.

Operations Division Chief Chris Accardo said, "The retention bonus was a difficult thing. I sat down with all of my branch chiefs and for one week we shut the door, went over the criteria and we looked at every individual in the division and tried to assess whether they fit the criteria or not."

Fifteen percent of the people in Operations Division got a retention bonus and everything submitted was approved.

"One of the hardest parts of my job," said Walter Baumy, Engineering Division chief, "is telling people that are very, very well-qualified in what they do and are very significant contributors, that they really didn't meet the criteria set forth, that we can't offer them that type of incentive."

Jernigan said, "It was based on the person in the job – their experience; knowledge and technical expertise and competence; demonstrated performance and potential for performance; the likelihood that they would leave, because of their skills they could go somewhere else and get a comparable or better paying job; or they're retirement eligible and could walk out the door any time. And it was based on the supervisor's recommendation and whether they needed to retain a particular employee."

Each person receiving the retention incentive signed a one year service agreement, which, if terminated, would require the forfeit of the biweekly installments.

"Accepting a job with a retention incentive is a two-way commitment," said Bruce Terrell, chief of Construction Division. "The organization is making a commitment to the employee. Likewise, the employee is making a commitment to the organization."

Another tool to retain some employees is the targeted local market supplement for engineers in the New Orleans area. Resource Management and CPAC had been working on this since July 2007 and finally gained approval in June 2009.

Engineering was the only occupation eligible for this based on the Office of Personnel Management's guidance that other occupations have comparable salaries to the private sector in the New Orleans area. The salary comparison was based on the Department of Labor's 2008 salary data.

The result was a 16.14 percent salary increase for civil, environmental, mechanical, electrical and electronic engineers in job series 0810, 0819, 0830, 0850 and 0855 in the New Orleans area.

"It's helping to retain key individuals," said Baumy, "just as it was intended to do."

"We figured that if you get a bump up like that, it could recalibrate some folks' retirement plans," Jernigan said.

"Overall, the single most important thing to be done is to let employees know that you appreciate their contri-

Story continued



### Every tool in the box, continued

"People
tend to come
here and feel
comfortable and
want to make a
career here."

butions, said Terrell. "I have supported morale booster parties and given QSIs, special act and on-the-spot awards. While employees appreciate financial rewards, I believe that the recognition and appreciation of contributions made have a more enduring effect on employees."

But our leadership didn't stop there. They took a look at the quality of life here at the New Orleans District and how that could be improved. They installed new microwaves in the cafeteria, updated the outdoor benches, installed safety doors on the back side of the building, and they're working on installing more security cameras

"The long-term plans are already in the works," Jernigan said. "There's going to be renovations of all of the restrooms. We're also pressure washing the signs by the front gate so you can read them, and we're going to pave the parking lot. But there's also things like bringing the child care coordinator in. It's the little stuff that we hope will improve the overall quality of working here."

Other improvements include bringing back the district picnic, Take Our Children to Work Day and Earth Day activities.

There have also been some policy changes to help improve work conditions. One change was a May 2009 update to the telework procedures.

Any employee wishing to telework needs supervisory approval as well as approval from the next supervisory level. Teleworking employees are still bound by the Corps' standards of conduct while working at the alternative worksite and the existing rules on hours of duty still apply.

According to the OPM, all employees are eligible for telework except the following:

- Employees whose positions require direct handling of secure materials or on-site activity that can't be handled remotely.
- Employees whose last performance rating was below fully successful.
- Employees who are in their first year of a trainee position.

"There are also some checklists and forms to make sure that when we set up a telework arrangement, that we're doing everything we need to do to protect the employee and the agency," Jernigan said. "It can give the employees an opportunity to really be productive because in some cases you really can get a lot done from the house when you're not answering the phone all of the time."

After recruiting and retaining employees, our leadership recognized the need for continued development. Therefore, in July 2009, Lee signed an FY 10 memo on training guidance, acknowledging the balance that must be maintained between project delivery and training.

In his memo, Lee said, "As we execute our civil missions and continue to restore and improve coastal Louisiana, we cannot lose sight of our responsibility to sustain and improve our technical expertise. Training and development of our workforce is critical to improve professional and technical expertise."

Supervisors and employees are responsible for ensuring training is planned, executed and evaluated to provide the best outcomes.

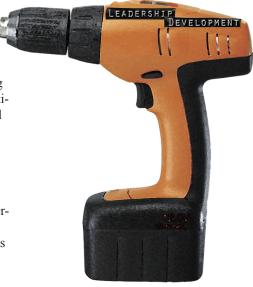
There's also a new emphasis on supervisory training with the new Leaders Forum that began in October. Supervisors are required to go to one session per month.

"The topics are posted and they can pick which ones they are interested in and it's like a continuing education program," Jernigan said.

In addition, the district is revising the Leadership Development Program and increasing opportunities for those in the Emerging Leaders Program. These programs are designed to provide employees an opportunity for leadership development through training and on-the-job experience.

"People in private industry work somewhere for a few years and then they move on to other things," said Accardo. "This organization, the district itself, is very good at retaining the workforce. I think the average person is here for about 20 years, which is incredible. People tend to come here and feel comfortable and want to make a career here."

In the daily challenge of working in New Orleans, four years after Hurricane Katrina when tension and fatigue are running high, the New Orleans District leadership has recognized the importance of making sure the needs of the employees are met. Some of the activities around the district may seem miniscule, but together, they are a concerted effort to continue to make the New Orleans District a career choice.



## **Equal Employment Opportunity excels**

New Orleans District Wins the Chief of Engineers Award by Terry Chopin

ave you noticed the new plaque in the lobby? It hangs opposite the security window. This plaque represents the New Orleans District having won the 2008 Chief of Engineers EEO Award. MVN managers and employees carried the district to the top of the list with these actions:

## Met or exceeded a significant number of affirmative action goals.

Although the only reason we can give for hiring anyone is, "She was the most qualified person on the list," some selections work toward making the race/sex makeup of the New Orleans District more diverse and more like that of the nation over all.

Met or exceeded the USACE complaints

#### resolution rate goal of 85 percent.

EEO specialists work with supervisors to preemptively resolve twice as many



complaints as we see actually develop into precomplaints. And because of word of mouth, the more people we help, the more people stop in for help. Our door is always open.

#### Eliminated barriers affecting employment/employability of minorities and women

Our employees with disabilities need only go to their supervisors to request reasonable accommodation. They can then find various accommodation sources on our EEO intranet site. If further assistance is needed, we're just a phone call away. And accommodation is on its way!

## Conducted recruitment (internal or external) efforts.

Our division/office chiefs know that it is their responsibility to get out and recruit their new employees. They develop working relationships with minority universities, as well as women's and veteran's local groups. And then they get out there and recruit students, women, and veterans.

## New Orleans District Career Program 18 (CP18), Engineers and Scientists (Resources and Construction) employment gains and losses by ethnicity, race, and gender

	Total		White		Black		Hispanic		Asian/Pacific		Amer Indian		All
CP18	All	Wom	Men	Wom	Men	Wom	Men	Wom	Men	Wom	Men	Wom	Min
FY08	491	125	309	94	30	14	12	5	13	8	2	4	88
FY07	442	107	284	83	26	11	9	3	15	7	1	3	75
	49	18	25	11	4	3	3	2	-2	1	1	1	13
	11%	17%	9%	13%	15%	27%	33%	67%	-13%	14%	100%	33%	17%

# Are you planning a tour?

Protocol Specialists Timothy Zimmerman and Mark Spillers of the Joint Visitors Bureau can help

The tours are subject-specific and can last from a few hours to a full day, depending on the level of information sought.

To schedule tours or for additional information, please contact Timothy Zimmerman at (504) 862-2635 or Mark Spillers at (504) 862-1532.

Editor's note: Shannon Donner, (504) 862-2201, is scheduled to replace Zimmerman following his retirement in February.







# Shaping the Future

## The Leadership Development Program helps create tomorrow's leaders

by Karen Collins with photography by Collins and Scott Riecke

eet the new Tier II Leadership Development Program (LDP) class of 2010. Participants in the program come from a variety of departments. They include accountants, realty and public affairs specialists, project managers, program analysts, a lock operator, an appraiser, and of course, engineers. They also have a wide range of experience within the Corps from just a few months to over a decade.

The inaugural class of 15 Corps employees kicked off the new and improved Tier II LDP with a two-day retreat. At the retreat, participants heard from Deputy Commander Lt. Col. Mark Jernigan about the opportunities presented through this new program.

"You are all plank holders now," stated Jernigan, referring to a naval term meaning the first crew to take a new ship to sea. "You have an opportunity to launch this program and directly contribute to its success and the success of future classes as you move forward."

The LDP is designed to prepare and enable high potential employees to serve in leadership positions by providing specific training and development opportunities. Tier II facilitates participants' understanding of their strengths and how to leverage these strengths to improve their performance and effectiveness. It introduces the individual to the Army leadership doctrine and encourages them to assume leadership roles within their project development teams and workgroups. The end goal is the development of diverse, cross-functional leaders who are able to accept increasingly complex missions, and lead high functioning teams to accomplish the Corps' missions successfully, anywhere and anytime.

Courtney Elzey joined the program to promote team building and productivity for mission execution.

"I hope my participation in this program and the techniques learned will allow me to create a legacy within the organization of true leadership," said Elzey

The class spans an eleven-month period and will conclude with a graduation ceremony for the qualifying students in August 2010. Employees participate on a part-time basis while continuing to perform all their regularly assigned duties. Monthly sessions are facilitated by an outside expert and include group training, mentoring discussions and field trips.

LDP participant Lacy Gallagher says she believes the class will help her, "be a strategic part of the Corps' mission for a

long time.

"I feel that the LDP II will cultivate my strengths and challenge me to improve my performance and effectiveness for the betterment of the Corps and the community," said Gallagher.

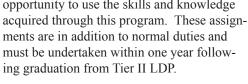
Participants will also be required to participate in at least 6 hours of work dedicated to support projects focusing on community outreach. This aspect of LDP is meant to provide additional leadership opportunities to participants and support the district's community involvement, relationship building, and strategic communications program. Participants will prepare project reports and recommendations and brief the commander, staff members and other interested parties. Each Participant will work on at least one team outreach project.

Leadership "theory" and "practice"





will meet face-to-face as the participants form teams to work on projects that focus on challenges and opportunities facing the New Orleans District. All program members are expected to participate in an assignment





opportunity to use the skills and knowledge

Far left: Dredge Wheeler Captain Ed Morehouse leads the members of class 2010 on a tour of the vessel. Above: Members of this years class include: (front row from left) John Templeton, Susan Mabry, Sabine Walker, Erin Clark, Yojna Calix, and Jovan Johnson. (Back row, from left) Bennie Benson, Tiffany Mims, Lelan Cortez, Lacy Gallagher, Mark Huesmann, Scott Turygan, Karen Collins, Courtney Chatman-Elzey, and Mekava Addison.





# Planning re-established

# Move necessary to meet the Mississippi Valley Division's mission by Dr. Susan Smith

n late 2008, the Mississippi Valley Division (MVD) looked ahead to their responsibility for delivering the largest civil works program in the history of the U. S. Army Corps of Engineers. The MVD Fiscal Year 2009 Program included the simultaneous delivery of the massive Hurricane and Storm Damage Risk Reduction System (HSDRRS) in the New Orleans area, a huge but then unknown American Recovery and Reinvestment Act (ARRA) Program, and the annual regional program. The scope of this MVD program was essentially three times the Corps' typical total annual civil works program. To deliver this unprecedented program, MVD had to find a way to focus the resources of the entire region on efficient and effective program delivery. Successful program execution would require a significant change from the historic "district-centric" business processes and procedures to a more regional focus. This more regional focus would also prepare MVD for the potential program reduction in 2012 when the HSDRRS and ARRA construction is completed and provide flexibility to efficiently use resources wherever requirements arise across the region.

As a first step in late 2008, the civilian functional leads for Planning, Real Estate, and Contracting formed PDTs to develop

Courses of Actions (COAs) that would meet the enhanced regional support goals. The PDTs' objectives were to identify a COA which would deliver quality products and services to customers, increase technical competency, achieve economies of scale, and drive regional interdependence. In April 2009 the Regional Command Council selected a COA for Planning, Real Estate and Contracting. For Fiscal Year 2010, this challenge has been extended to Engineering, Construction, and Operations to develop COAs to meet these same goals.

In developing a COA, Planning's task was doubly hard since, in the late 1990s, the decision was made in MVD to combine Planning with Programs and Project Management. This was done in an attempt to take full advantage of planners' skill sets (especially their customer focus and knowledge of available authorities), maintain a robust career path for planners, and attain efficiencies in the delivery of projects. Unfortunately, while some of these intentions were met, the immediacy of project management duties oftentimes shifted the project manger/planner's focus away from planning and toward project management activities. As a result of this, along with the retirement of many of our seasoned planners, planning technical capability suffered.

Therefore, technical capability loss was a key detriment for program execution success that had to be addressed. Fluctuations in individual district workload/funding made it difficult for districts to plan and maintain technical expertise. Some of the districts had too many resources and not enough work. With 50 percent of the planning workforce eligible to retire in five years, it was critical that a succession plan was in place to sustain the required planning capability. Under the "district-centric" business model, maintaining planning capability was difficult and neither efficient nor effective.

In a bold step as a result of this regionalization initiative, MVD re-established Planning as a separate organization. The approved Planning COA created two Regional Planning Divisions - Regional Planning Division North and Regional Planning Division South. A permanent order was signed by Brig. Gen. Walsh, MVD commander, on October 15, 2009 to realign all planning personnel to one of the two Planning Divisions and the two division chief positions have been temporarily filled. The northern division consists of planners from the St. Paul, Rock Island, and St. Louis districts and its chief will be located at St. Paul. The southern division consists of planners from the Memphis, Vicksburg, and New Orleans districts and

its chief will be located at New Orleans. In 2010, MVD will assess the progress achieved by this COA and decide if additional refinements are needed to fully achieve the goals of delivering quality products and services, increasing technical competency, achieving economies of scale, and driving regional interdependence.

MVD's newly formed Planning organization focuses the planning technical resources of the entire region in a manner that best supports MVD's regional program and project execution. It also provides a structure that enables the enhancement of planning technical competencies and allows flexibility in placing these resources within the six districts in MVD. It enhances our pursuit of GREAT by efficiently and effectively focusing the resources of the entire region on project delivery and increasing our planning technical capability.

Rayford Wilbanks, MVD Planning CoP Leader, stated, "Establishing the new Planning organization is vital to the delivery of the current planning mission, provides the flexibility to utilize the region's resources where surges in resource requirements may occur in the future, and gives a broader platform to enhance planning technical capability."



Brig. Gen. Michael Walsh, Mississippi Valley Division commander, signs the permanent order establishing the new Planning organization in MVD. Seated from left to right are: Brig. Gen. Walsh; Rayford Wilbanks, MVD Planning CoP leader; and Tab Brown, HQUSACE Planning CoP leader. Standing from left to right are: Col. Tom Smith, Memphis District (MVM) commander and MVD planning functional champion; Carol Jones, MVM Project Development Branch chief; Steve Keen, New

Orleans District (MVN) Emerging Leader;
Gary Meden, Rock Island District (MVR)
deputy project manager (DPM); Col. Jon
Christensen, St. Paul District (MVP) commander and commander in charge of Regional
Planning Division North; Eddie Belk, MVM
DPM; Col. Robert Sinkler, commander, Hurricane Protection Office; Jim Hannon, director,
MVD Regional Business Directorate; Tom
Crump, MVP and Planning representative
to the Resource Management Board; Karen

Durham-Aguilera, director, Task Force Hope;
Mark Mazzanti, director, MVD Programs
Directorate; Tom Holden, MVN DPM; Lt. Col.
Mark Jernigan, MVN deputy commander; Col.
Mike Wehr, Vicksburg District (MVK) commander; Judy DesHarnais, MVP DPM; Dennis
Fenske, St. Louis District (MVS) acting DPM;
Col. Tom O'Hara, MVS commander; and Col.
Shawn McGinley, MVR commander.



# Building a better beach for a barrier island

# New technology helps reduce risk on Grand Isle

by Stacy Mendoza

ince the Grand Isle Beach Erosion and Hurricane Protection Project was authorized in 1976, countless storms have affected this inhabited barrier island in the Gulf of Mexico.

The current restoration project under this authorization is to rehabilitate the dunes on Grand Isle that were damaged from Hurricane Katrina. The Army Corps of Engineers is constructing a \$26 million project to rehabilitate 5.7 miles of sand dunes with a geotextile tube core. This method has proven effective in reducing erosion risk to shorelines, particularly from the threat of a tropical event.

The project includes three tubes, including a large tube forming a 6-foot-diameter core, and two smaller anchor tubes on each side of the main tube. A scour apron provides additional resiliency. The pre-manufactured geotubes are filled with a slurry mix (sand and water) and buried in the dune.

"The anchor tubes provide a

systematic approach to risk reduction by preventing scouring of the main geotube if the sand dune gets overtopped," explains Rob Davinroy, senior project manager with the St. Louis District, which provides engineering and design support for Grand Isle.

Each section of the main geotube is 200 feet long, contains about 385 cubic yards of sand and weighs approximately 675 tons. The installation of the geotubes was completed in September 2009. Crews are currently dredging approximately 1 million cubic yards (CY) of sand material for the sand cover and beach nourishment part of the project. The project will be complete in early 2010 when the pedestrian crossings and emergency access sites are installed.

The remaining 1.4 miles on the western portion of the island is protected by a "burrito" dune, which was an emergency flood fight effort that was constructed after Hurricane Gustav in September 2008. A similar concept to the geotube, the "burrito" dune was constructed on site with a hardened clay core wrapped in geotextile fabric and sewn shut.

When Tropical Storm Ida hit on November 10, 2009, a 1,000-foot section of "burrito" was damaged on the most vulnerable area of Grand Isle. The section will be replaced with a geotube and completed in early 2010. The rest of the "burrito" levee and geotube portion of the project was untouched by Tropical Storm Ida.

"Having a hardened core in the dune, with the geotube and the "burrito" projects, will help Grand Isle better withstand the tropical storms that impact this small island," said Everett Compton, quality assurance representative with the Hurricane Protection Office.

The new geotube is filled with a mixture of sand and water slurry (below left). The water is drained from the tube (below) leaving the sediment compacted inside the tube.





A crew member is able to walk the length of the tube (Top right) because, once the water is removed, the tube becomes as hard as concrete. The filled geotube (below center) measures 5 1/2 feet high with a circumference of 30 inches. Next (below left), black anchor tubes placed along both sides of the tube will hold down a scour apron. These features help prevent scouring of the main geotube in the event the sand dune is overtopped. Finally (bottom right), each completed section of geotube is covered with sand. Once the sand is in place, elevation of the completed dune reaches an elevation of 13 1/2 feet. The project will be complete in 2010 when emergency access sites and pedestrian crossing are installed.









