# LOUISIANA CIVIL ENGINEER

**Journal of the Louisiana Section** 

http://www.lasce.org

### **ACADIANA • BATON ROUGE • NEW ORLEANS • SHREVEPORT**



Photo credit: Matthew Hinton, The Times-Picayune

### THE MISSISSIPPI RIVER FLOOD OF 2011 Opening of the Morganza Spillway, May 14, 2011

#### **FEATURE:**

The Mississippi River Flood of 2011—Resetting Benchmarks

#### **NEWS:**

**Report Card on Infrastructure Update** 

**Edmund Friedman Young Engineer Award** 



AUGUST 2011 VOLUME 19 • NO 4



### **SOUND COASTAL SOLUTIONS** FOR THE GULF COAST REGION

From strategic planning and design to construction and project management, Shaw provides leading-edge services and technical support in all areas of coastal science and engineering to successfully manage complex projects.

ENGINEERING & CONSTRUCTION PROGRAM DESIGN & DEVELOPMENT FLOOD CONTROL EMERGENCY RESPONSE & RECOVERY BEACH NOURISHMENT PORTS & HARBORS





## Building On a Great Relationship

We work with our clients to achieve the highest standard of building quality that represents good growth for our community. We provide a built environment that is respectful of our surroundings and that represents the quality of the people that reside within.

We would like to thank Performance Contractors for selecting Chenevert Architects, and wish them continued success. See and learn more at **chenevertarchitects.com** 

### **Chenevert** ARCHITECTS

BATON ROUGE | NEW ORLEANS | ASHEVILLE

### ADVERTISING RATES (USD) PER ISSUE FOR THE LOUISIANA CIVIL ENGINEER

Subscription/Advertisement Dimensions (Horizontal × Vertical)			
Professional Listing Card	(64mm × 35mm)	\$45.00*	
Services or Suppliers Ad Card	(64mm × 35mm )	\$50.00*	
Quarter Page Advertisement	(95mm × 120mm)	\$240.00	
	(190mm × 60mm)		
Half Page Advertisement	(190mm × 120mm)	\$425.00	
Full Page Advertisement	(190mm × 240mm)	\$750.00	

\* The minimum subscription/advertisement is for 1 year (4 issues) at \$180 per year for professional listings and \$200 per year for services and suppliers advertisements respectively.

Advanced Advertising Discounts Per Issue				
Number of Issues	1	2	3	4
Percent Discount	0%	5%	10%	15%
Quarter Page	\$240.00	\$228.00	\$216.00	\$204.00
Half Page	\$425.00	\$403.50	\$382.00	\$361.25
Full Page	\$750.00	\$712.50	\$675.00	\$637.50

http://www.lasce.org/publications/adrates.aspx

Inquiries regarding advertisements and professional listings may also be made by email to the Chair of the Publications Committee, Ronald Schumann, Jr., PE ronald.schumann@aecom.com



The Louisiana Section of the American Society of Civil Engineers was founded in 1914 and has since been in continuous operation. The Section consists of the entire state of Louisiana and is divided into four branches that directly serve over 2000 members. They are the Acadiana Branch centered in Lafayette, the Baton Rouge Branch, the New Orleans Branch, and the Shreveport Branch.

#### PUBLICATIONS COMMITTEE:

Ronald L. Schumann, Jr., PE, *Chair* (504) 529-4533 Kurt M. Nixon, PE, *Vice Chair* Luke E. LeBas, PE Christopher P. Knotts, PE, D.WRE E.R. DesOrmeaux, PE Elizabeth Ann Wills, PE Christopher L. Sanchez, PE Nedra S. Davis, MA, *Editor* (225) 381-0093

#### PUBLISHER:

Baton Rouge Printing, Inc., Port Allen, LA

Louisiana Civil Engineer quarterly journal is an official publication of the Louisiana Section of the American Society of Civil Engineers with an average circulation of approximately 2100. The Section neither guarantees the accuracy of the information provided nor necessarily concurs with opinions expressed. It does not claim the copyrights for the contents in this publication. Please submit letters and articles for consideration to be published by email to <u>nedrasuedavis@gmail.com</u> or mail to the Publications Committee c/o Nedra S. Davis • 622 Steele Blvd. • Baton Rouge, LA 70806-5742.



http://www.lasce.org

### **TABLE OF CONTENTS**

AUGUST 2011 • Vol. 19 • No. 4

Section Roster
President's Message
Report Card 6
Baton Rouge Engineer Receives National Award
In Memoriam
The Mississippi River Flood of 2011—Resetting Benchmarks
Editorial
Branch News
Student News
ASCE – SEI New Orleans Chapter News 26
ASCE – T&DI Louisiana Chapter News 26
Calendar of Events
Professional Listings
Service & Suppliers



ASCE NATIONAL CONTACT INFORMATION: Phone: 1-800-548-ASCE E-Mail: gsd\_master@asce.org

#### LOUISIANA SECTION • AMERICAN SOCIETY OF CIVIL ENGINEERS

Louisiana Engineering Center • 9643 Brookline Avenue • Baton Rouge, Louisiana 70809-1488 • (225) 923-1662

SECTION BOARD OF DIRECTORS President Patrick J. Landry, PE LA Office of Coastal Protection & Restoration President-Elect Ronald L. Schumann, Jr., PE AECOM Vice President Kurt M. Nixon, PE Nixon Engineering Solutions, LLC. Secretary-Treasurer Robert Jacobsen, PE Past President Christopher P. Knotts, PE, D.WRE LDNR Technology Assessment Division **Directors-at-Large** Christopher G. Humphreys, PE Professional Services Industries, Inc. Kimberly Landry, El City of Lafayette C. Eric Hudson, P.E., P.L.S. Hunt, Guillot & Associates, LLC, R .J. (Joey) Coco, Jr., MBA, PE Engensus, LLC Branch Directors Shaun R. Simon, PE Eustis Engineering Services, LLC. Adam M. Smith, PE Owen and White, Inc. Matthew D. Redmon, El Professional Services Industries, Inc. Margaret (Meg) Adams, PE MSA Technical Services Assigned Branch Directors Luke E. LeBas, PE Shaw Group Christopher L. Sanchez, PE URS Corporation SECTION COMMITTEES CHAIRS Transportation and Development Institute Daniel J. Aucutt, PE Terracon Website Kurt M. Nixon, PE Nixon Engineering Solutions, LLC. Publications Ronald L. Schumann, Jr., PE AECOM Diversity Barbara Featherston, PE City of Shreveport Nominations Christopher P. Knotts, PE, D.WRE Technology and Assessment Division, LDNR **Student Activities & Awards** Jerome M. (Jerry) Kleir, PE GEC, Inc. **Special Activities & Awards** Kurt M. Nixon, PE Nixon Engineering Solutions, LLC. Membership Pamela Gonzales, PE HDR, Inc. Louisiana Report Card Kam Movassaghi, PhD, PE C .H. Fenstermaker & Associates, Inc. R .J. (Joey) Coco, Jr., MBA, PE Engensus, LLC Nedra Davis, MA Atkins, formerly PBS&J

**BRANCH OFFICERS** Acadiana Branch President Shaun R . Simon, PE Eustis Engineering Services, LLC President-Elect Luke Hebert, PE C .H. Fenstermaker & Associates, Inc. Vice President Randel Badeaux, PE WHC Incorporated Contractors Treasurer Eric T. McClanahan, PE Eustis Engineering Services, LLC. Secretary Past President Joshua P. Stutes, PE Louisiana DOTD **Baton Rouge Branch** President Adam M. Smith, PE Owen and White. Inc. President-Elect Clinton S. Willson, PhD, PE Louisiana State University Vice President Rudolph A. Simoneaux. III. PE LA Office of Coastal Protection & Restoration Secretary-Treasurer R.J. (Joey) Coco, Jr., MBA, PE Engensus, LLC Past President Jeffrey L. Duplantis, PE MWH Global **Director - Programs** Jason Manning, PE Ardaman & Associates, Inc. **Director of Education & LSU Practitioner Advisor** Samuel D. Amoroso, PE Engensus, LLC Younger Member Committee Chair Danielle R. Welborn, El ABMB Engineers, Inc. Practitioner Advisor Alison Ford, PE, SU EBR DPW Membership Chair Kirk Lowery, PE HNTB New Orleans Branch President Margaret S. (Meg) Adams, PE MSA Technical Services President-Elect Malay Ghose Hajra, PE Professional Services Industries, Inc. Vice President James R. Martin, PhD, PE GEC. Inc. Treasurer Steve Johns, PE Waldemar Nelson Secretary Lee Alexander, PE Alexander Engineering **Director at Large** Benjamin M. (Ben) Cody, PE Eustis Engineering Services, LLC. **Director at Large** Reid L. Dennis, PE Sewerage & Water Board of New Orleans

Director at Large Nathan J. Junius, PE, PLS Linfield, Hunter and Junius, Inc. Past President Benjamin M. (Ben) Cody, PE Eustis Engineering Services, LLC. Shreveport Branch President Matthew D. Redmon, El Professional Services Industries, Inc. President-Elect Scott Hughes, PE Alliance, Inc. Vice-President Dave Rambaran, PE Building and Earth Sciences, Inc. Secretary/Treasurer Patrick Furlong, PE Balar Associates, Inc. Past President & LA Tech Practitioner Advisor J. Daniel Thompson, El Aillet, Fenner, Jolly and McClelland **BRANCH TECHNICAL COMMITTEE CHAIRS** New Orleans SEI Chapter Pawan Gupta, PE **URS** Corporation STUDENT CHAPTERS Presidents/Faculty Advisors La.Tech Eric Vueleman Rob McKim, PhD, PE LSU Josh Bradley Ayman Okeil, PhD, PE McNeese Jada O'Blanc Janardanan (Jay) O. Uppot, PE Southern Julesa Holland Emmanuel U. Nzewi, PhD, PE ULL Alison Lognion Chris Carroll, PhD, El UNO Donald Jerolleman Gianna M. Cothern, PE **REGION 5 BOARD OF GOVERNORS** Director Norma Jean Mattei, PhD, PE Louisiana Governor E.R. DesOrmeaux, PE EDITOR Nedra S. Davis, MA Loui--2010.

The Louisiana Section is located in ASCE Region 5 that consists of the Louisiana, Mississippi, Alabama, Georgia and Florida Sections.

AMERICAN SOCIETY OF CIVIL ENGINEERS

ASCE

#### President's Message By Patrick J. Landry, PE

Best-selling author Greg Anderson once wrote "Focus on the journey, not the destination. Joy is found not in finishing an activity but in doing it." It seems like yesterday that my journey began as your Louisiana Section President when I accepted the presidential gavel from my good friend and our immediate Past President, Christopher Knotts last September in Lafayette. On September 23rd, another friend of mine, Ronald Schumann from New Orleans will be installed as the 2011-2012 Section President. It has been both an honor and privilege to work with such an outstanding group of officers, board members, and volunteers this past year.

This administrative year has been one of the most successful in our Section's rich history, which dates back to 1914. In December 2010, the Louisiana Civil Engineer Journal was recognized as the winner of the Outstanding Newsletter Award for Large Sections and Branches. No other Section in the nation has been decorated as often with this award and much of the credit goes to our past editor, Jim Porter and our current editor, Nedra Davis. In February, the Section was notified that it received the Membership Renewal Award for large Sections. In March, the Louisiana Tech Student Chapter captured top honors in the concrete canoe and steel bridge building competitions at the Deep South Conference. Recently, the University of New Orleans Department of Civil and Environmental Engineering received the national Walter LeFevre Award which recognizes actions in promoting licensure, ethics and professionalism. National honors weren't exclusive to the Section only, as individual members were recognized as well. At the Spring Conference in April, Dr. Kam Movassaghi received the Francis C. Turner Award for his contributions to the advancement and practice of transportation engineering. Earlier this summer, Joey Coco received the Edmund Friedman Young Engineer Award for Professional Achievement, in large part for his valuable contributions as Deputy Director of the Louisiana Section Report Card effort.

In April, the Acadiana Branch hosted a successful Spring Conference and the New Orleans Branch will co-sponsor the Louisiana Civil Engineering Conference and Show at the Ponchartrain Center in Kenner on September 21-22. Registration information for the conference can be found at *http://louisianacivilengineeringconference.org/*. Our Transportation and Development Institute (T&DI) has remained active all year hosting several well-attended seminars. More information on T&DI can be found on page 22.

The major "focus of our journey" this year has been the development of the Louisiana Section Report Card. Our journey began in July 2010 with a handful of participants at an initial planning session that has morphed into a 60 person volunteer effort. This endeavor focused on data collection, analyses, and grading of nine infrastructure categories that affect every Louisiana resident. The goal of this comprehensive project is to bring general public awareness to the critical nature of our infrastructure needs and to assist our policymakers in making informed decisions regarding funding priorities. The final product should be unveiled sometime in late September or early October. A more detailed report on the status of the Report Card can be found on page 6. Nationally, ASCE has urged President Obama and congressional leaders to consider transportation infrastructure investment in debt limit talks. As negotiations continue in Washington on raising the debt ceiling, reducing the deficit, and possibly raising taxes, ASCE National continues to stress the importance of address-



Patrick J. Landry, PE

ing the nation's infrastructure crisis. The National Commission on Fiscal Responsibility recognized the impact of transportation investments on the economy by voting in favor of a proposal to increase trust fund revenues, so that surface transportation was no longer a burden on the Treasury's General Fund.

For many years, ASCE National has promoted the "Raise the Bar" initiative which will require those entering the field of civil engineering to possess the skills, education and experience to attain the "body of knowledge" (BOK) that has been identified by members of our profession. Fulfillment of this BOK will typically include a combination of 1) a baccalaureate degree in civil engineering; 2) a master's degree, or approximately 30 graduate or upper-level undergraduate technical and/or professional practice credits or the equivalent agency, organization, or professional society courses, and; 3) appropriate experience based on broad technical and professional practice guidelines. For more information on this initiative, please refer to **www.asce. org/raisethebar**. The Louisiana Section has supported the "Raise the Bar" initiative for several years.

For more information regarding public policy issues important to the civil engineering profession, the ASCE Key Contact Program is an excellent program to be involved in. As a member, you will receive weekly emails on news and developments on issues in Washington and state capitals and also key alerts regarding upcoming legislation affecting issues that are deemed important by ASCE National. Search "Key Contact" on the *asce.org* website to sign up.

As my term as President of the Louisiana Section comes to an end, I reflect on the 30+ years of my civil engineering career. I have been truly fortunate to work in both the private and public sectors, in municipal and coastal work, alongside some of the most talented and dedicated engineers in this state. Working as a civil engineer, being a member of ASCE, and serving on the Louisiana Section Board has in the past and continues to provide great satisfaction in my life. Community service and professional mentoring are important for the longevity of our honorable profession. I encourage you to participate in the activities of your Branch and attend monthly meetings. These monthly meetings offer opportunities for networking and engaging engineering professionals in your area. Thank you for allowing me to serve you, the ASCE membership of Lousiana.

#### Report Card Update By Joey Coco, PE

The 2011 Report Card for Louisiana's Infrastructure is entering its final stages. Topic committees have wrapped up their efforts in grading infrastructure data for the nine chosen infrastructure topics, which include Roads, Bridges, Dams, Ports, Solid Waste, Wastewater, Drinking Water, Aviation, and Levees. This has been a significant undertaking to say the least from the Louisiana Section of ASCE with over 50 volunteers committing countless hours to the effort. The report card is scheduled for release to the public in September or October of 2011.

This is Louisiana's first statewide report card. Infrastructure Report Cards are developed by ASCE members to help the public digest complex infrastructure data that is collected by many different agencies. Report cards communicate the results in one consolidated and easy to understand document. Report cards are intended for the general public and our elected leaders who ultimately have control over the future of our infrastructure.

The report card organization has been setup in a specific way to keep the process objective. There is an executive board that is overseeing the administrative effort of the report card. It is represented by engineers and professionals from both the private and public sectors. There job is to coordinate public outreach, to oversee the work of the topic committees, to coordinate with ASCE National, and to perform editing and graphic layout of the final document. There are nine topic committee chairs representing each of the infrastructure categories. Each topic committee is also represented by engineers from both the private and public sectors. In addition, the topic committees have an independent peer reviewer to offer an objective review of their work.

Over the next few months, the report card executive committee will be interacting with the topic committees to finalize their respective sections, compiling and editing the document, coordinating with graphic artist, and arranging for public outreach events. The report card has been an exciting project for the Louisiana Section of ASCE.

I would like to extend a personal thank you for the perseverance of all of the individuals serving on the report card effort. Much of the volunteer effort that has been put forth behind the scenes on the report card by the nine topic committees, the executive board, and the peer reviewers will go without notice. Nonetheless, it is my opinion that our state and our profession will benefit from our volunteer efforts. I'm confident that the 2011 Report Card for Louisiana's Infrastructure will be a high profile document that will be discussed at length over the next few years.

### **Baton Rouge Engineer Receives National Award**

Civil engineer Russell "Joey" Coco, Jr., a principal of Engensus, LLC, a Baton Rouge-based engineering firm, has been selected to receive the national American Society of Civil Engineers' 2011 Edmund Friedman Young Engineer Award for Professional Achievement.

Coco, who serves as a director of the Louisiana section of ASCE and as the deputy director of the Louisiana Infrastructure Report Card, will receive his award during the ASCE annual conference this fall in Memphis, Tenn. The award announcement was made in a letter to Coco from Patrick J. Natale, executive director of ASCE. "In selecting you for this award, the committee particularly noted your work ethic and service to the community," Natale wrote.

Louisiana ASCE section President Patrick Landry nominated Coco, noting that Coco has coordinated the work of nine committees on the report card project and that his work "ensures that the Louisiana Infrastructure Report Card will be a product that all civil engineers will be proud of and that can be a useful tool for state policymakers regarding funding priorities." Coco also devotes much of his time to local schools, speaking at local career fairs, encouraging elementary-aged children to develop an interest in engineering, and helping Catholic High School with its strategic planning.



Russell "Joey" Coco, Jr.

The Edmund Freidman Young Engineer Award is presented to ASCE members who are 35 or younger and have demonstrated service to the profession, technical competence, high character, integrity, leadership, contributions to the public sector outside of their careers and "other evidence of merit."

6

### In Memoriam

Col. Frank H. Walk, PE a retired consulting engineer and civic leader who during World War II landed on Omaha Beach on D-Day, died Tuesday at Lambeth House in New Orleans. He was 90.

Col. Walk was born in Decatur, Ala., and grew up in Baton Rouge. He graduated from Catholic High School and Louisiana State University, receiving a bachelor's degree in mechanical engineering.

Upon graduation in 1942, he was commissioned as a reserve second lieutenant and was immediately called to active duty in the Army Corps of Engineers, serving with amphibious assault landing units in the Pacific and Europe.

On D-Day, he was the assistant traffic control officer for the 6th Engineer Special Brigade, but after his superior became shell-shocked, he took charge, organizing the troops and directing their movement inland from Omaha Beach. He received the Bronze Star and was discharged after the war with the rank of colonel.

Col. Walk then returned to Baton Rouge, earning a master's degree in civil engineering from LSU and holding various engineering and management positions in private industry and with consulting firms. He moved to New Orleans in 1954 and in 1959 co-founded Walk, Haydel & Associates Inc. with Gerald Haydel. After many successful years, and with its two founders at retirement age, the privately held firm was acquired by Dames & Moore of Los Angeles in 1995. Dames & Moore in turn was acquired by URS Corp. in 1999.

In 1987, Col. Walk was appointed by President Ronald Reagan to serve on the Mississippi River Commission.



Col. Frank H. Walk, PE

He held leadership positions in a number of professional societies. He received the ASME Oil Drop Award for achievement in petroleum mechanical engineering and was named a member of the Engineering Hall of Distinction at LSU and the University of New Orleans. He received an honorary doctorate of engineering from UNO in 1990.

Col. Walk's wife, Consuelo Faust Walk, died in 2010. Survivors include three sons, Frank H. "Woody" Walk Jr., Edmond Wade Walk and Wesley Albert Walk; two daughters, Wendelyn Walk Michell and Karen Abaunza Walk; and many grandchildren and great-grand-children.

### SAVE THE DATE!

We are proud to announce the dates for the 21st Annual Louisiana Civil Engineering Conference and Show. This event, a joint effort from the New Orleans Branches of ASCE and ACI, is the premiere gathering for the Civil Engineering community in the Greater New Orleans Area. We are in the process of soliciting sponsors and exhibitors and establishing the technical program for the fall conference which will be held on September 21-22, 2011, at the Pontchartrain Center in Kenner, Louisiana.

For additional information on the conference, please visit our web site at www.LCECS.org



### The Mississippi River Flood of 2011—Resetting Benchmarks

By Susan Douglas

#### INTRODUCTION

Few would argue that the entire Mississippi River basin makes up America's greatest river system, draining 41 percent of the 48 contiguous states of the U.S., and covering more than 1.2 million square miles. The river follows the boundaries between the states of Minnesota, Iowa, Missouri, Arkansas, and Louisiana on the west, and Wisconsin, Illinois, Kentucky, Tennessee, and Mississippi on the east. It is an important transportation artery and critical source of water for agriculture and industry alike. While many rivers contribute to the Mississippi, the most notable are the Illinois, the Missouri (which joins from the Great Plains at St. Louis and furnishes around 20 percent of the total flow), the Ohio (which joins from the east at Cairo, Illinois), and the Arkansas and Red Rivers (which both join from the west). The breadth of the overall drainage basin, the number of tributaries, and storm events leave the Mississippi vulnerable to varying river levels. While the system is extensive enough to handle most isolated events, compounding events such as occurred in the spring of 2011 forced the use of all of the engineered flood controls constructed along the main stem of the river to control most flooding, and reset planning benchmarks established after the historic 1927 flood.

A view of those controls, the events surrounding the extreme volumes seen in May, and a quick look at the ongoing recovery and reset of the system follow.

#### A VERY BRIEF HISTORY OF THE MISSISSIPPI RIVER AND FLOOD CONTROL

Given the reach of the river, flooding from the Mississippi occurred frequently, causing widespread damage along the main stem of the river system. While the French built levees as early as 1717 in an attempt to protect New Orleans, flooding from the Mississippi was largely uncontrolled until 1830 when some states became involved in an effort to develop protective levee systems. Unfortunately, continued flooding and the devastation of the Civil War, particularly in the lower alluvial valley, left many levees in disrepair with few local resources available to fix and maintain the levee structures. This led to calls for the federal government to become more involved in developing flood control along the Mississippi River.

By 1879, the need for improvement in controlling flooding had become widely accepted, leading to the establishment of the Mississippi River Commission (MRC) to develop and implement a comprehensive plan to improve navigation and prevent floods. Federal involvement remained limited, however, until continuing flooding led to the Flood Control Act of 1917 which authorized the MRC to construct levees for flood control.

Using a "levees only" approach, the MRC contained flooding through several high water events, but the approach proved insufficient to contain the Flood of 1927, which caused catastrophic failures of the levees with approximately 27,000 square miles inundated—an area roughly the combined size of Massachusetts, Connecticut, New Hampshire, and Vermont. The Mississippi ranged up to 70 miles wide in some areas, remaining at flood stage for as many as 150 days. The direct result of this event was the Flood Control Act of 1928 which authorized the Mississippi River and Tributaries Project (MR&T) to develop and construct the nation's first comprehensive flood control and navigation system.

The MR&T was designed to control the "project flood," established at a level 11 percent greater than the 1927 flood level at the mouth of the Arkansas River, and 29 percent greater than the level at Red River Landing, at flow rate of 3 million cubic feet/second (cfs) (see Figure 1). The MR&T includes four elements: levees, floodways, channel improvement and stabilization, and tributary basin improvements. While all four play an important part in controlling flooding along the



Figure 1 MR Flow Diagram

8

Mississippi, the activities surrounding response and containment of the 2011 flood center around two: levees and floodways. An additional element added to the MR&T in 1954—the Old River Control Complex—was also directly affected by the 2011 flooding.

#### **CURRENT LEVEES**

The current levees are designed to contain the project flood except where it is allowed to enter natural backwater areas or where it is diverted into any of the three floodway areas. The main stem levee system has levees, floodwalls, and various control structures and is 2,203 miles long—1,607 miles are along the Mississippi River, while 596 miles are along the Arkansas and Red Rivers and in the Atchafalaya Basin. These levees are constructed by the federal government, and are maintained by local government or agencies with government assistance as necessary during major floods. In Louisiana, the levees are the province of the various levee boards, except within the City of Baton Rouge where the Metro Council of Baton Rouge has the responsibility for maintaining the levees. These levee boards inspect the levees, note the locations of seeps and/or sand boils at the river levels where they occur, and provide basic maintenance during normal river flows.

#### FLOODWAYS

The MR&T constructed three floodways to divert Project Flood waters from the main Mississippi River channel and to maintain flow in the main channel at levels that could be safely contained within the levees. These floodways are used to reduce water levels at Cairo, Illinois; and Red River Landing and New Orleans, Louisiana.

When experiencing extremely high river levels near Cairo, the Birds Point-New Madrid Floodway is opened by placing and detonating explosives at specific crevasse locations on specially constructed fuseplug levees, those lower points in levees which are constructed to pass flow into floodways, diverting water from the Mississippi through a parallel floodway. The water enters the floodway below Cairo and reenters the main river just above New Madrid, Missouri. This floodway was completed in 1933, and has been operated twice—once in 1937, and then again to reduce level during the 2011 flood. Operation of this floodway in 2011 materially reduced flood heights at and above Cairo.

The project flood is estimated at 3 million cfs at Red River Landing, north of Baton Rouge. With a flood of this design flow, the MR&T controls main river levels by dividing the flow roughly in half, with 1.5 million cfs continuing down the main Mississippi channel, and the remaining 1.5 million cfs diverted to the Atchafalaya River through the Morganza and West Atchafalaya Floodways, and the Old River Control Complex. The Morganza and West Atchafalaya Floodways were established to follow opposite sides of the Atchafalaya River levee system until the end of the levees, where they merge into a single floodway that empties into the Gulf of Mexico through Wax Lake and Berwick Bay. Of the two, the Morganza Floodway is the first to be used in a flooding event, and is a gated system, while the West Atchafalaya is isolated, and is opened by using an 8-mile-long fuseplug section of levee at the head of the floodway similar to the Birds Point operation.

From the remaining 1.5 million cfs in the main Mississippi River channel, 250,000 can be diverted to Lake Pontchartrain through the Bonnet Carre spillway, with the remaining 1.25 million cfs continuing in the river channel to the Gulf.

#### OLD RIVER CONTROL COMPLEX

During the mid 1800s, water flowed between the Mississippi River and the Atchafalaya River through the Old River channel, with the east-west direction driven by the relative river levels. By 1880, the Atchafalaya River was large enough that there was only occasional eastward flow, with the Atchafalaya continuing to capture additional Mississippi River flow. From 1850 through 1950, the U.S. Army Corps of Engineers (Corps) studied the latitude flow (the total flow crossing a latitude) at the Red River Landing latitude, including total and relative rates of flow from both the Mississippi and the Atchafalaya Rivers. During this time, the percentage of latitude flow entering the Atchafalaya River increased from less than 10 percent, to 30 percent. By 1953, the studies concluded that the Mississippi would be captured by the Atchafalaya by 1990 unless control measures were implemented. Construction of the Old River Control Complex was completed in 1964 to maintain a 70/30 split of flow between the Mississippi River and Atchafalaya River through low sill and overbank structures, combined with navigation locks, and to allow continued use of the Old River for shallow draft navigation. The flood event of 1973 partially undermined the Low Sill Structure, and led to the construction of the Auxiliary Structure which was placed in service in 1986.

#### 2011—ANATOMY OF A FLOOD

The National Weather Service (NWS) has identified a number of factors that can contribute to spring flooding, including heavy late summer and fall precipitation, heavy winter snowfall, stable belowfreezing temperatures throughout winter delaying snow melt, frozen and/or saturated ground conditions inhibiting infiltration of water into the soil, rapid snowpack melt due to warm springtime temperatures, backwater flooding due to ice jams, and heavy spring rainfall accelerating snow melt and adding to the high volume of water already in river systems. Several of these factors identified by the NWS were in play in the early spring of 2011, including frozen, water-saturated, and snow covered ground, persistent below-normal temperatures, and above-normal precipitation for February, leading to an expectation that there would be a thick snowpack in much of the upper Midwest. As early as February 17, the NWS was warning of the risk of major flooding in the north central U.S., including the upper Mississippi River. The initial spring flood outlook gave the St. Paul, Minnesota area a 95 percent chance of exceeding major flood stage, and forecast a high risk of flooding along the Mississippi south to St. Louis.

The National Hydrologic Assessment, issued on March 17, reiterated this flood threat for the Upper Mississippi. It noted that the flood threat for the Ohio Valley had been raised to above average due to recently occurring heavy rains, which brought as much as 400 percent of the normal precipitation to areas of the Ohio River Valley. The forecast for the area called for above-average precipitation to occur in the subsequent 2 weeks in areas where stream and soil capacities to absorb additional water were limited. The forecast also warned that the flood threat downstream of the Upper and Middle Mississippi and Ohio Rivers would increase, with some areas on the Lower Ohio River and the Mississippi River above Memphis already experiencing moderate to major flooding largely confined within the levee system. Given the flow volume draining into the Lower Mississippi River, an above-average risk of flooding was predicted, and would be continuously monitored by NWS.

April 2011 brought extreme weather to much of the U.S., with an active weather pattern characterized by strong storms moving through the center of the country tapping the Gulf of Mexico for moisture. These storms were responsible for widespread severe weather across the Ohio Valley. More than 1,300 daily precipitation records were broken across the Midwest and South. From March through May, rainfall amounts were at least 150 percent of normal in an area that stretched from the Ohio Valley to the Middle Mississippi Valley. Across the Upper Midwest, the rapid melt of the above-average snowpack began in late March, and continued through mid April, with a significant portion of this water finding its way into the Mississippi.

At the confluence of the Ohio and Mississippi Rivers, the aboveaverage water flow from each combined to force the Mississippi River to crest at record or near-record levels from Illinois to Louisiana.

#### AN ATYPICAL SPRING IN BATON ROUGE

River levels in Baton Rouge typically increase above the 35-foot flood stage at some point during the early spring, due mostly to the melting snowpack upstream. Understanding this, and knowing how unpredictable the actual crest is, those tasked with levee maintenance and emergency response monitor river levels as a matter of course beginning in late winter through the river crest. There was little surprise when the Mississippi levels began to rise in early March, cresting at 35.08 feet on April 3, 2011 and then falling slowly back to 28.98 by April 18, 2011. In East Baton Rouge Parish, within the City-Parish government, the Mayor's Office of Homeland Security and Emergency Preparedness (MOHSEP) engaged in monitoring the Mississippi River through ongoing conference calls, meetings, and briefings with NWS, and was working with local media, state and City-Parish agencies, industry stakeholders, and other local organizations. MOHSEP continued to coordinate communications as the potential for major flooding began to increase even as, locally, the river levels continued to decrease.

In response to the record-setting rainfalls to the north, the river levels began to rise again, and by April 25, 2011, the 30-foot level caught the attention of many returning from the long Easter weekend. MOHSEP began to release daily informational bulletins to local emergency response organizations, elected officials, City-Parish personnel and department heads, Emergency Operations Center staff, industry stakeholders, and others who wished to be included on the distribution list-a total distribution nearing 300. These bulletins became the source of information for the general public during the Mississippi River flood response, with people around the community counting on daily updates to get the most current information available. Online social media outlets-MOHSEP Facebook and Twitter accounts—also provided real-time communication with the general public, releasing critical information on road closures, river stages, and personal preparedness efforts. An average of 14 posts each day through social media continually informed the community, and together with the daily informational bulletins, set a precedent for future emergency communications for the Baton Rouge metro area.

Even as MOHSEP began to increase communications with stakeholders and the community, the City-Parish Department of Public Works (DPW) began looking toward the weather events and river levels in Missouri, Ohio, and Mississippi to gauge the rise in river level. The week of April 25, the NWS issued flood alerts for the entire length of the Mississippi, predicting river crests well above flood stage in many locations due to the continuing severe weather conditions across the Mississippi drainage basin. On April 28, Governor Bobby Jindal issued a Declaration of Emergency which authorized the Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) to execute emergency plans developed for responding to the increasing river levels. The Corps, GOHSEP, MOHSEP, the Louisiana Office of Coastal Protection and Restoration (OCPR) and Louisiana Department of Transportation and Development (DOTD) were engaged to begin assessment and management of the developing emergency, coordinating through the EOC and MOHSEP for activities needed in East Baton Rouge Parish.

While the NWS alerts had been calling for preparation for potential major flooding, the May 3 MR&T flow chart predicted a controlled high water event with Baton Rouge at 68 percent Project Flood volume, cresting on May 15; and New Orleans at 69 percent Project Flood volume on May 12, with only the Bonnet Carre Spillway in operation. The May 4 river stage forecast from the NWS, however, revised the Baton Rouge crest to a record height of 47.5 feet on May 22 and the New Orleans crest to 17 feet for May 24, 2011. With stretches of the downtown Baton Rouge levee at an elevation of 47.25 feet, the need to prevent overtopping of the levees initiated a series of activities to prioritize protection of the levees and adjacent areas. A levee profile update was done and the elevations of drainage basins shot and marked to plan activities when the river stage approached 47.5 feet.

DPW and MOHSEP had previously evaluated alternatives for increasing levee height in downtown Baton Rouge after the 2008 spring high water drew attention to the potential need to have a temporary increase to protect the levees from overtopping. Tiger Dams—water filled tubes that could be deployed quickly by filling with river water and anchoring with sand bags—had been evaluated at that time, and were chosen for the 2011 action. The Tiger Dam materials were received on May 5, and 1.5 miles of tiger dams were deployed in 5 days, providing protection against the projected 47.5-foot crest height, with an additional 1.5 feet freeboard for waves and wakes. Typical levee profile information and Tiger Dam installation is shown in Figure 2, taken May 11.



Figure 2 Levee profile marking Tiger Dams

Louisiana National Guard (LANG) assistance was requested by Governor Jindal on May 4, and President Obama signed a Declaration of Emergency for Louisiana 2 days later, providing additional access to resources for the emerging battle. While the opening of the Bonnet Carre Spillway was accepted early on, discussions as to whether to use the Morganza Floodway were becoming more frequent, as the river stage forecasts from the NWS continued to project record crest values in many places along the Mississippi River.

Increasing river levels also exceeded several pre-established trigger levels, initiating other river-dependent activities. Continued safe operation of the numerous ferries crossing the river was contingent upon river levels, and operation of most ferries in the Baton Rouge area was temporarily halted until safe operation could be resumed. The St. Francisville Ferry was shut down for the last time when Red River Landing reached a predicted level of 53 feet. The new John James Audubon Bridge was opened ahead of original construction schedule, after an evaluation indicated that remaining construction activities could be undertaken safely while the bridge was in use. Other activities included opening the Bonnet Carre Spillway, which is triggered by a flow of 1.25 million cfs and rising at Red River Landing, and ultimately opening the Morganza Floodway, which has an operational trigger of 1.5 million cfs and rising at Red River Landing. While opening of the Bonnet Carre Spillway was anticipated, opening the Morganza Floodway was still under discussion on May 10, when the NWS held a river flood briefing for the agencies involved in the flood fight. The projected crests without Morganza operation continued to show Baton Rouge at 47.5 feet, and updated New Orleans to 19.5 feet, an increase of 2.5 feet from the May 4th projections. Modeling of the flow, including Morganza operations, provided a crest height of approximately 46.5 feet at Baton Rouge and 17 feet at New Orleans. The NWS briefing went on to provide a general discussion of impacts of opening Morganza including the Morgan City area, and approximate Atchafalaya River crests. As the river flows were nearing the 1.5 million cfs and rising trigger level, the president of the MRC, Major General Michael Walsh, directed the Commander of the New Orleans District, U.S. Army Corps of Engineers (NOD), Colonel Ed Fleming, to begin a slow opening of the floodway when the trigger level was reached. As the river volume continued to increase, the trigger level was reached and exceeded, and the announcement that the floodway would be opened was broadcast over the NWS weather radio on Friday, May 13.

The first gate was opened on May 14, which began a slow process to allow final preparations for those potentially impacted, and to allow area wildlife time to move as the waters began to inundate basin areas. Louisiana Department of Wildlife and Fisheries (LDWF) helped with evacuations as necessary and monitored the displaced endangered Louisiana Black Bear population, ready to provide assistance should any bears enter populated areas. LDWF and DOTD worked to slow traffic for animal crossing zones as deer queued on roadsides, and LDWF agents worked with railroad officials to enforce speed limits for trains crossing the floodway area after it was documented that the bears would follow the tracks when fleeing the inundation.

As activities continued in order to control the flow along the main stem of the Mississippi, preparation for the rising river level continued in Baton Rouge and southward along the levee. The outside lanes of River Road near the Capitol Complex in downtown Baton Rouge were closed on May 10 to allow DOTD to block storm drains that during normal flow would drain directly to the river. Concerns that the river would potentially backflow through these drainage ways were validated as water was forced through sidewalk seams as the river level rose. Sand bags were added to the tiger dams deployed at lower points of the levee as reinforcement, and sand bags and sand-filled supersacks were staged along River Road in areas where the levee survey and routine levee monitoring had indicated additional support would be needed. The sand bag installation on River Road storm drains and levee reinforcements are shown on Figures 3 and 4 respectively. A local fisherman enjoying the high water in a downtown parking lot is shown in Figure 5. The Coastal Protection and Restoration Authority (CPRA) issued Emergency Regulations to Control Activity on Levees on May 17, restricting types of construction activities allowed near River levees,



Figure 3 Storm drain lane closure at RR



Figure 5 Local fisherman



Figure 4 Levee reinforcements

and on May 19, River Road near Duncan Point was closed to deal with known seepage and sand boil issues.

While the levees in the downtown Baton Rouge area are under the control of DPW, the Pontchartrain Levee District (PLD) is responsible for the levees south of the downtown Mississippi River Bridge. PLD, working with OCPR, the Corps, DOTD, and in coordination with DPW, placed sand bags in the Duncan Point area to stop seeps on the levee as shown in Figure 6, and to stop flow from numerous

sand boils. Sediment transport at some boil locations was substantial as shown in Figure 7, and had to be stopped as found. PLD personnel built sand bag "ring levees," shown in Figure 8, around each boil, providing a way to individually maintain a water level on top of the flow area of the



Figure 6 Duncan Point Seepage

boil, equalizing the hydraulic head from the boil with the water level within the ring levee—and stopping the flow and any sediment transport from the boil.

During the first week of May, PLD began to install Trap Bags, shown in Figure 9, along the top of the levee from the last quarter mile of East Baton Rouge Parish into the first half mile of Iberville Parish, in total a 9,500-foot stretch. Trap Bags consist of 100- foot sections of bags sewn together and filled, in this case with sand. The size employed by PLD added about 4 feet to the top of the levee. Supersacks of sand were also installed near Geismar in Ascension Parish for a length of approximately 300 feet to prevent levee overtopping at high water.

In early May, PLD also began continual patrols of the levees within its district, extending through Baton Rouge, monitoring and record-



Figure 7 Sand boil ring levee



Figure 8 Sand boil sediment transport



Figure 10 5.23 MR&T Diagram

ASCE-

ing seeps and other potential problems, and enforcing the CPRA ban on activities on and near the levees. The PLD Police Department was joined by the State Fire Marshall's Office, LDWF Enforcement, Louisiana State University Police, Baton Rouge City Police, Louisiana State Police, and the East Baton Rouge Sherriff's Office. The State Police also assisted in maintaining the Duncan Point Road Closure, coordinating this and the levee patrol assistance through PLD.

The river crested in Baton Rouge on May 23 at 44.96 feet on the Baton Rouge gage. On the same day, the Morganza Floodway had 17 bays open, and was operating at 19 percent of Project Flood capacity, or 114,000 cfs. The Bonnet Carre Spillway has 330 bays open, and was operating at 304,000 cfs, or approximately 21 percent over the design flow of 250,000 cfs. River levels in Baton Rouge

were at an estimated 99 percent of the Project Flood stage, with levels in New Orleans at 94 percent and Morgan City at 49 percent. The MR&T flow diagram published on May 23 is shown in Figure 10, and shows the balance at the Baton Rouge crest. The velocities through the Bonnet Carre Spillway were significant enough that large amounts of debris were washing through the facility and damaging the CN Railroad Bridge running parallel to the I-10 bridges. The damage, shown in Figure 11, was severe enough that



Figure 11 RR Bridge

CN Railroad asked DPW to have access to its facilities within the Baton Rouge closed levee area in order to provide alternate shipping access until repairs could be made to the spillway bridge. DOTD inspected the I-10 bridges over the Bonnet Carre Spillway in response, in addition to continuing to evaluate the effects of the water flow on the bridges, checking for scouring or potential erosion caused by the water's velocity through the bridges.



Figure 9 Trap bag installation

From the May 23 crest, the river began to slowly fall at a rate of approximately 0.1 feet per day. Even with this gradual decrease, the Corps was able to begin closing bays on the Morganza Floodway on May 27. Northbound River Road near the Capital Complex was also reopened on May 27. The river at Baton Rouge had just fallen below 40 feet when the Corps began to close bays on the the Bonnet Carre Spillway. While the lower river level brought a sense of relief to those involved in the river's control, it only signaled a shift in focus from control to assessment and repair of what the prolonged high water had done to the levees and control structures.

#### ST. MARY PARISH TAKES THE INITIATIVE

The Atchafalaya River drains approximately 30 percent of the Mississippi River flow through the Old River Control Complex. This water enters the Gulf of Mexico approximately 20 miles south of Morgan City, Louisiana, in St. Mary Parish. The Lake Verret Watershed, located in St. Mary Parish, drains through Bayou Chene, a large, uncontrolled waterway which intersects the Atchafalaya River near the end of the Eastern Guide Levee, about 12 miles south of Morgan City. Lack of control structures on Bayou Chene has previously allowed backwater flow from the Atchafalaya River to flood parts of Morgan City, Amelia, Stephensville, Pierre Part, and other nearby communities during times of high water in the Atchafalaya.

Recognizing that another high river event was imminent, the St. Mary Parish Levee District (SMLD) developed a plan to mitigate Bayou Chene backwater flooding. A request for an Emergency Permit was made to the Corps New Orleans District and the Louisiana Office of Coastal Management on May 6 by the SMLD, St. Mary Parish Government, Terrebonne Parish Consolidated Government, Terrebonne Levee and Conservation District, and the City of Morgan City. The emergency permit application was reviewed and an emergency permit proffered on May 9, authorizing the temporary placement, sinking, and mooring of a 300-foot-long by 90-foot-wide submersible deck barge, and placement of 17,000 tons of riprap in Bayou Chene. The plan was subsequently modified to incorporate the use of a larger, 500-foot-long by 120-foot side barge, and to use nearly 1,000 linear feet of steel sheet pile to provide a complete hydraulic closure of Bayou Chene.

SMLD began assembling the required equipment and materials on May 9, and began hydrographic surveys of the project site. The submersible barge "Intermac 600," owned by McDermott International, Inc., was procured on May 11, the day construction began at the Bayou Chene site. A view of the barge installation is shown in Figure 12. The water bottom was dredged on both ends of the barge placement site, and the barge towed, positioned, and ballasted by Mc Dermott employees on May 12. Installation of mooring piles to anchor the barge was initiated on May 13, as was installation of sheet piles. To accomplish the sheet piling installation in the time left before the flood waters arrived, four different crews were driving sheet piling, making it impossible to interlock the sheets where the different crews met. At those junctions, it was necessary to overlap and weld the sheet pile.

On May 18, eight pairs of sheet pile failed, due to the increased water flow scouring underneath one of the overlapped welded sections. The failed sheets were removed and a survey performed in the scoured area which indicated that the bottom of the channel near the failure had been scoured. Because of the depth of the scoured area and the velocity of water entering the failure area, the decision was made to use large stone to close the 85-foot gap in the wall.

The Corps supplied SMLD with five barges of 600-pound stone to be placed in the failure gap. This was completed by May 22, and surveys on May 23 indicated that the gap had been substantially closed

by the rock installation. Additional reinforcement of the structure continued until May 25, using caissons and strong backs for secondary support. The South Wing Wall was also reinforced using rock in those areas not supported by the barge.

The water level in Bayou Chene crested on May 29 at +4.91 on the flood side of the closure, with the level on the protected size at +1.95.

As a condition of the Emergency Permit, SMLD was required to submit a plan for removal and restoration of the Ssructure used in the flood control. As many local interests in the St. Mary Parish area use the Bayou Chene channel for navigation, restoring the 400-foot wide navigation channel was a high priority, following the safety of



the workers at the site and the residents of St. Mary and Terrebonne Parishes. Removal activities are anticipated to begin when there is a difference in elevation of 1.0 feet between the flood side and protected side. All structures installed will be removed except for the sheet pile wall and rock, which are located outside of the navigation channel.

Within the navigation channel, the rock will be removed down to the approximate pre-project channel bottom elevation, which will allow a gradual flow of water under the barge, aiding in equalization across between the flood and protected sides of the project. Once the levels have equalized, the removal of mooring piles, strong backs, and other flood protection structures can be removed, and the barge refloated to be removed from the project site. With the barge removed, sheet pile can be removed from within the navigation channel, and a post-project survey completed to ensure that no project elements remain within the navigation channel. Restoration of navigation to Bayou Chene is anticipated by mid August, and those elements that remain outside of the navigation channel will be available should backwater flooding be anticipated again.

#### OUTSIDE THE BATON ROUGE AREA

Many of the agencies engaged within the Baton Rouge area were also assisting other communities which were responding to Mississippi River flooding, backwater flooding, and preparing for and maintaining flood protection during the Morganza Floodway operation. Periodic press releases provided an overview of these activities across the Mississippi and Atchafalaya River basins. A summary of what was reported is provided in the table below as an indicator of how widespread and ongoing the flood fight was.

As of June 1, 1,150 LANG personnel were mobilized for the emergency, installing barrier materials, operating water pumps for removal of flood waters, and inspecting levee systems both through ground and aerial support. Nearly 250 sand or pin boils were identified and tagged by the LANG. DOTD delivered 41,440 cubic yards of sand and 376,011 sand bags across the state to support flood protection efforts. DOTD also provided parish support in road closures both for flooded areas and for worker safety during levee reinforcement work.

With the opening of the Morganza Floodway, LDWF deployed 205 enforcement agents and 26 wildlife staff on duty, staging a Mobile Command Unit in Krotz Springs, and patrolling the levees for wildlife use. LDWF also monitored the status of impacted wildlife management areas, including Attakapas Island, Dewey Wills, Red River and Three Rivers, and Sherburne.

The Department of Corrections used offender crews to work sand bagging details in Tensas, Iberville, West Baton Rouge, Point Coupee, Terrebonne, and Assumption Parishes. Offender crews filled and/or placed more than 538,000 sand bags as of June 1. The Louisiana Department of Natural Resources Office of Conservation reported that 117 out of 124 producing wells in the Atchafalaya Basin were shut in to minimize the potential for contamination from operations of the wells.

Operations by LANG, LDWF, and DOTD have continued as needed to support ongoing activities as flood waters recede and prevention measures are discontinued. Assessment activities have also be undertaken by many who were involved in flood prevention.

#### **RECOVERY FROM EMERGENCY ACTIVITIES IS NOW UNDERWAY**

While the Mississippi River has once again returned to more normal levels, activities continue along the levees and MR&T structures to repair and return the control components to a ready state. Assessment activities are ongoing in many areas and may not be complete for several months. The Corps estimates that as much as \$3 billion may be necessary to restore the MR&T system, including rebuilding of the fuseplug levees for the Birds Point/New Madrid floodway, repair and restoration of the flood gates at the Bonnet Carre and Morganza structures, and levee repair and restoration along the entire system.

Several local repair and restoration projects are also in the planning phase. In East Baton Rouge Parish, River Road near Duncan Point remains closed as assessment is ongoing in this area. The Corps plans on a major restoration project in this area, and is working with OCPR and PLD to complete the assessment and restoration. PLD is currently in charge of gaining necessary easements and identifying sources of materials for the restoration project.

With the immediate disaster response over, MOHSEP has now assumed overall coordination responsibility for East Baton Rouge Parish, ensuring that damage assessments are compiled accurately for submittal for reimbursement to FEMA. Individual City-Parish departments involved in managing the emergency are also compiling documentation for submittal to FEMA.

Post-flood levee, road, and bridge surveys have to be completed with associated inspections identifying any erosion and scouring that has to be documented and repaired. Depending on survey results, trap bags and HESCO baskets can be decommissioned or temporarily left in place until associated levee and drainage structure repairs can be done. Sand bags and supersacks are being removed.

Environmental monitoring activities—some of which was routinely ongoing prior to operation of the Morganza and Bonnet Carre structures—will move from documentation of the active flood effects to documentation of the changes and recovery of the impacted waters. Activities will include water quality monitoring stations in and near the Atchafalaya Basin, water quality and flow monitoring within two management units within the Atchafalaya Basin (Buffalo Cove and Henderson), and water quality sampling and analysis within Lake Pontchartrain through Lake Borgne. Coastal waters will be monitored with specific concern about the Gulf Hypoxic Zone and any affects the additional silt load and chemistry defined by the river has caused. LDWF will continue to monitor endangered Louisiana black bears; capture any Pallid sturgeon traveling into the Bonnet Carre Spillway and return them to the river; and tag and monitor invasive Asian carp to determine their survival and potential for introduction into Lake Pontchartrain north shore streams.

As assessment moves into repair and restoration, the activities will shift focus into preparation for high water in the spring of 2012 and in the years to come. Undoubtedly, weather patterns will continue to change and precipitation amounts and other climate factors will continue to affect the largest river system in the U.S., and in parallel, the lives of countless residents across the Mississippi River basin. As a result, local, state, and federal agencies will have to continually re-assess the status of flood control systems, as well as keep a constant eye on the Mississippi River and conditions within its basin. And the benchmarks established during the 2011 flood event will have to be incorporated into the planning and culture of the communities along the Mississippi River reach, so that they can be prepared for future flood events.

AREA	RESPONSE ACTIVITY
Amelia	10,000 LF of HESCO baskets installed, 2000 CY soils, 17,500 CY sand delivered
Ascension Parish	3,200 LF of HESCO baskets installed near Donaldsonville
Assumption	LA 663: 540 LF of HESCO baskets installed LA 70: 500 LF HESCO baskets installed, 151 supersacks utilized Pierre Part/Bayou L'ourse: 10,000 LF Tiger Dams installed
Avoyelles	LA 451: 6850 CY fill total to raise area of Hamburg Loop, including 360 CY Reclaimed Asphalt Pavement
Concordia	4500 LF HESCO baskets installed
East Baton Rouge	190 Pump Station: 1000 LF HESCO baskets installed and 34 supersacks used
East Carroll and Madison Parishes	13,200 CY sand hauled with 236,400 sand bags delivered from these parishes to Tensas and other areas; 50 barricades delivered to Madison Parish for traffic control
Morgan City	8,064 LF HESCO baskets installed, Visqueen wrapped
Morganza Floodway	1516 CY sand hauled and bagged to fight seepage along the Southern Guide Levee
Siracusaville	12,500 LF of HESCO baskets installed
St. Landry Parish	4,772 CY Reclaimed Asphalt Pavement for levee base installed 9,700 LF HESCO baskets installed 9,000 LF Rapid Installation Barrier System (RIBS) deployed
St. Martin Parish	LA 70:2 miles HESCO baskets installed for highway protection and to maintain traffic flow
St. Mary Parish	Lake Palourde: 18,000 LF HESCO baskets installed Bayou Boeuf Lock: 19,000 LF HESCO baskets installed Amelia: 10,000 LF HESCO baskets installed (Visqueen wrapped), 10,000 LF Tiger Dams deployed Siracusaville: 7,500 LF HESCO baskets installed (Visqueen wrapped) Avoca: 1,200 LF HESCO baskets installed, 202 supersacks used, and 8,900 LF Visqueen installed on levee
Tensas Parish	5,500 CY of sand hauled, sand bags hauled
Terrebonne	Schools: 2,650 LF Tiger Tube installed North Bayou Black: 15,650 LF Tiger Dam installed
West Baton Rouge	456 CY sand hauled 39, 650 sandbags hauled from WBR to St. Mary Parish and Butte La Rose

#### ACKNOWLEDGEMENTS

The author gratefully acknowledges the contributions of Jim Ferguson, PE, East Baton Rouge Department of Public Works Chief Engineer; Steve Wilson, President, Pontchartrain Levee District Board of Commissioners; Kyle Jones, Chief of Operations, East Baton Rouge Parish Mayor's Office of Homeland Security and Emergency Preparedness; and Ronnie Robinson, PE, Assistant District Administrator of Engineering-District 61, Louisiana Department of Transportation and Development.

Susan Douglas works in the Baton Rouge SSO Program Land/Utilities/Permitting Group for CH2M Hill. She has over 30 years experience including process, environmental, sustainability, and permitting.

#### REFERENCES

The Mississippi River Commission. April 2008. "The Mississippi River & Tributaries Project: Controlling the Project Flood." http://www.mvd.usace.army.mil/mrc/.

WAFB.com. May 2011. "Engineers Open Second Floodgate on Morganza Spillway." http://www.wafb.com.

Barras, J, Bolles, J, Carriere, R, Daigle, D, Demcheck, D, Dittmann, D, Etheridge, D, Lee, A, Morgan, J, Noble, L, Purrington, D, Radlauer, K, St. Romain, C, and Scioneaux, L. "Controlling the River: Maintaining the Mississippi River for National Commerce." America's Wetland Resource Center. June 2011.

http://americaswetlandresources.com/background\_facts/detailedstory/LouisianaRiverControl.html.

Louisiana Department of Transportation and Development, LaDOTD Press Releases, http://www.dotd.la.gov/pressreleases/

- U.S. Army Corps of Engineers New Orleans District. "Morganza Floodway." June 2011. http://mvn.usace/army/mil/bcarre/morganza.asp.
- U.S. Army Corps of Engineers New Orleans District. "A Look Back in the Lower Mississippi Valley." June 2011. http://mvn.usace/army/mil/bcarre/pastfloods.asp.
- U.S. Army Corps of Engineers New Orleans District. "The Mississippi River and Tributaries Project." May 2004. http://mvn/usace/army/mil/pao/bro/misstrib.htm.
- U.S. Army Corps of Engineers New Orleans District. Mississippi River Flood Control. May 2011. http://www.mvn.usace.army.mil/bcarre/missriver.asp.
- Fenimore, C, and Crouch, J. June 2011. "Spring 2011 U.S. Climate Extremes." National Oceanic and Atmospheric Administration National Climatic Data Center. http://www.ncdc.noaa.gov/special-reports/2011-spring-extremes/index.php.
- National Oceanic and Atmospheric Administration. March 2011. "Spring Flooding Underway, Expected to Worsen Through April." http://www.noaanews.noaa.gov/stories2011/20110317\_springoutlook.html.

T. Baker Smith, LLC. June 2011. "Bayou Chene Emergency Closure Removal & Restoration Plan."

Techetoday.com. May 2011. "Atchafalaya Communities Bracing for Flood." http://techetoday.com/bookmark/12995923.

#### PHOTOS

Figure 1: Courtesy of http://techetoday.com

Figures 2, 3, 4, and 5: Courtesy of Rinnie Robinson, Louisiana Department of Transportation and Development

Figures 6, 7: Courtesy of Steve Wilson, Pontchartrain Levee District

Figures 8, 9: Courtesy of Jim Ferguson, East Baton Rouge Department of Public Works

Figure 10: Courtesy of U.S. Army Corps of Engineers, New Orleans District

Figure 11: Courtesy of Steve Wilson, Pontchartrain Levee District

Figure 12: Courtesy of St. Mary Parish Office of Emergency Preparedness and Homeland Security

### Editorial By Deborah Ducote Keller, PE

Have you noticed the ever-increasing use of the word "sustainability" in your practice of engineering? I always thought of sustainability as a characteristic relative to the ability to endure over time. Fad diets and exercise programs are not sustainable, as we all know. But what does sustainability mean to me as a civil engineer? To understand this buzzword requires a review of a movement that started 25 years ago.

The concept of sustainable development originated in the 1980s, and gained worldwide attention at the United Nations with the Brundtland Commission, which is credited with this definition in 1987: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

In 1996, ASCE so strongly advocated sustainability that it revised its Code of Ethics to require civil engineers to strive to comply with the principles of sustainable development in the performance of their professional duties. The challenge was that the average ASCE member was clueless about what those principles are.

While we in Louisiana were preoccupied with hurricane devastation in September 2005, the largest gathering of political leaders in history convened for the United Nation's World Summit. The conclave of world leaders pronounced sustainability to have three components: environmental, social, and economic. ASCE identified a need and opportunity for civil engineers to expand their roles as policy leaders, environmental stewards, and significant contributors to a sustainable world.

Recognizing the gap, ASCE launched its Task Committee on Sustainable Design (TCSD) in 2009. The Board of Directors charged the new committee with defining the role of ASCE and the civil engineering profession in advancing sustainability in civil infrastructure; collecting and reviewing information regarding certification and determining if certification is a viable option for civil engineers; defining sustainability such that ASCE members, their clients, and employers could understand and support the concept; and developing an action plan.

In less than a year, the TCSD formulated the ASCE Sustainability Action Plan. ASCE adopted its definition of sustainability in July 2010: "A set of environmental, economic, and social conditions in which all of society has the capacity and opportunity to maintain and improve its quality of life indefinitely, without degrading the quantity, quality or the availability of natural resources and ecosystems." Working groups of ASCE membersare now focusing on further developing ASCE's sustainability in civil engineering web site, *w w w . a s c e . o r g / sustainability*, as well as sustainability certification for civil engineering projects and professionals, and implementing the ASCE Sustainability Action Plan. Its motto is *CIVIL* 



Deborah Ducote Keller, PE

ENGINEERS. DEVELOPING SOLUTIONS FOR A SUSTAINABLE WORLD.

However, ASCE is not alone in this campaign. It has formed a joint venture, non-profit organization with the American Council of Engineering Consultants and the American Public Works Association called the Institute for Sustainable Infrastructure (ISI). The ISI's mission is to provide sustainability products and services that will transform infrastructure design, construction, and operations.

As stated on w**ww.sustainableinfrastructure.org**, one of ISI's goals is to develop a web-based sustainable infrastructure project rating system. The new ISI sustainability rating system tool is called envISIon<sup>™</sup> and began a 60-day technical review period in July 2011. A public comment period will follow the technical review before releasing the program commercially.

The approach is two-fold according the ISI: "Doing the right thing" with the respect to communities and "Doing things right" with respect to engineering high-performance projects. The "triple bottom line" referenced on the ISI website means measuring sustainability according to environmental, social, and economic best practices.

In the July 2011 issue of the American Planning Association's (APA) magazine, Planning, CEO Paul Farmer states, "Sustainability for the most means the "triple bottom line" or the "three e's-economy, environment, and equity. As with the proverbial three-legged stool, all three elements are essential. Two of the three doesn't mean we have achieved two-thirds sustainability. No, it's an all-ornothing proposition."

Once educated on the principles of sustainability, support from civil engineers seems easily achievable. Who would want infrastructure projects that are costlier than needed, ruin the environment, and create a benefit to one community at the expensive of another? Well, it happens every day in all parts of the world.

As civil engineers, whether consultants or employees, whether working in the private or public sector, we know that most owners have a single bottom line: the initial cost of infrastructure. At least when life-cycle cost is the focus there are engineering economic calculations to prove that investing more in today's construction will reap long-term operations and maintenance savings.

That part of the triple bottom line that ISI calls "social" and APA calls "equity" is going to be difficult to prove using hard science and data. It has the potential to delay a project so long that it jeopardizes its finances and becomes a political football among elected officials.

Objectivity can be difficult when communities debate who wins and who loses on projects required to be sustainable. What happens

when community A cannot win as much as community B? Maybe they both lose an opportunity as the project dies in public hearings. The APA CEO believes it's an all or nothing proposition with the triple bottom line.

My personal experience in public works projects over the past 30 years has not shown me a benevolent public willing to make sacrifices so that everybody wins, nor such abundant financial resources that initial project costs are allowed to increase to meet a triple bottom line.

Sustainability for civil infrastructure has been compared to Leadership in Energy and Environmental Design (LEED) certification for occupied buildings. It took incentives to design and build LEED certified buildings, and I suspect that will be even more true for sustainable civil infrastructure to come to fruition beyond a few visionary project owners.

### **Branch News**

#### ACADIANA BRANCH By Shaun R. Simon, PE, Branch President

Our Branch recently co-hosted an annual crawfish with LES and IEEE. The event was a success and we want to thank everyone who attended.

The recipients of the 2011 ASCE Acadiana Branch Awards are as follows:

Allen L. Martin, PE – Outstanding Civil Engineer Emery Domingue, PE – Wall of Fame Russell Hibbeler, PhD, PE – Civil Engineering Educator Luke Hebert, PE – Outstanding Young Civil Engineer James W. Reeves, PE – Lifetime Achievement

We plan on holding a luncheon at the Branch level in September to elect our new officers and award the Branch level awards.

Drs. Emad Habib and Ehab Meselhe, professors of civil engineering at ULL attended the American Society of Civil Engineers' Environmental & Water Resources Institute's 2011 World Environmental & Water Resources Congress in Palm Springs, California from May 22-26, 2011. The World Environmental & Water Resources Congress is an important opportunity for professionals in the environmental and water fields to convene and focus on topics of the day. This year's technical program focused on "Bearing Knowledge for Sustainability."

Left to right: Drs. Emad Habib and Ehab Meselhe with EWRI Journal Award for 2011 Best Paper

On Tuesday, May 24th at the Watershed Council Breakfast, Awards and Lecture, the EWRI Journal Award for 2011 Best Paper was presented to their paper, "Sensitivity of Conceptual and Physically Based Hydrologic Models to Temporal and Spatial Rainfall Sampling," which appeared in print in the Journal of Hydrologic Engineering, Vol. 14, No. 7, pp. 711-720, July 2009. The paper was co-authored by Dr. Meselhe, Dr. Habib, O.C. Oche, and S. Gautam.



LOUISIANA CIVIL ENGINEER - AUGUST 2011

#### NEW ORLEANS BRANCH By Meg Adams, PE, LEED AP, Branch President

The New Orleans chapter has had a great summer to date. In May, many of our members volunteered at the Jazz and Heritage Festival, in the ASCE Children's booth. The theme of the Children's area was Haiti, and ASCE had an interactive project about earthquakes and how foundations can be designed to withstand earthquake forces. The demonstration involved lots of sand and water, and toothpicks, and everyone had a great time! A big pile of Legos also kept the kids busy - many came back several times during the day. Thanks to Dr. Norma Jean Mattei for organizing another great year at Jazz Fest!



ASCE New Orleans Chapter volunteers at the ASCE Children's Booth at the Jazz & Heritage Festival

ASCE also sponsored a Younger Members team in the

Engineers Without Borders volleyball tournament. A good time was had by all!

The Branch Awards Banquet was held in late July at the Chateau Country Club. Each year, the ASCE New Orleans Branch recognizes our fellow members for their commitment to excellence. Each of our award recipients are evaluated on their involvement with ASCE, service to advance the civil engineering profession, service to the community outside of the field of engineering, technical accomplishment, and other evidence of merit or character. The following were recipients of the Branch Awards:

Col. Frank Walk, PE – Wall of Fame nominee Frank Nicoladis, PE - Lifetime Achievement Award Miles Bingham, PE - Outstanding Civil Engineer Tonja Koob, PE – Outreach Award Cullen Ledet, PE - Outstanding Young Civil Engineer President's Award – (TBA)

In addition, at the Branch luncheon, the election of next year's officers was held. Following are the officers elected for 2011-2012:

President Malay Ghose Hajra President - Elect James Martin Vice President Stephen Johns Secretary Wes Eustis Treasurer Lee Alexander Director at Large Tonja Koob Direction at Large TBA Director-past president Meg Adams

We are taking the rest of the summer off, and will start the 2011-2012 season with the ASCE Fall Conference on September 22-23 at the Pontchartrain Center in Kenner. For more information, please visit http://louisianacivilengineeringconference.org/. Hope to see you there!

#### SHREVEPORT BRANCH By Matthew Redmon, El, Branch President

The Shreveport Branch had a busy and successful 2010-2011 year! We concluded our monthly meetings on May 19th with a meeting at the DOTD District 4 Headquarters. The Shreveport Branch sponsored a joint meeting with the ASCE Transportation and Development Institute. Dwight Fox, PE, Statewide Traffic Impact Engineer with the Louisiana Department of Transportation and Development, made a presentation about DOTD's Traffic Impact Study Policies. Those in attendance were treated to an excellent technical presentation describing the current policies. Our Branch thoroughly enjoyed the presentation and look forward to future joint meetings with T&DI.

The Branch Board would like to congratulate several nominees from the Branch for the various Section Membership Awards. The Section Membership Awards Ceremony was held during the Section Installation Banquet in New Orleans. These exceptional Branch members have truly demonstrated outstanding leadership and involvement in ASCE. The recipients of the 2011 Shreveport Branch Awards:

James Mohr, PE – Lifetime Achievement Ali Mustapha, PE – Outstanding Civil Engineer Rusty Cooper, PE – Outstanding Young Civil Engineer Patrick Furlong, PE - Outreach Chris Demopulos, PE - Wall of Fame

Congratulations to all of these nominees and good luck.

Currently, we are taking a break for the summer, and our technical sessions will resume in September. I would like to thank my fellow officers, Patrick Furlong, Scott Hughes and Dave Rambaran, for their hard work and dedication throughout the year. We will resume meetings in September and are always looking for fresh, interesting topics for our monthly meetings. If you have any suggestions for technical speakers please email Matt Redmon at matt.redmon@ psiusa.com. The Branch is looking forward to another exciting year.

### BATON ROUGE BRANCH

#### By Adam M. Smith, PE, Branch President

The Baton Rouge Branch continued its tradition of co-hosting a joint luncheon with APWA and LES in May 2011. Mayor-President Kip Holden was the guest speaker at the luncheon held at White Oak Plantation. He discussed current and future infrastructure projects. As usual he attracted a huge turnout from the societies.

The Baton Rouge Branch held its annual Past Presidents and Awards luncheon in June. The recipients of the 2011 ASCE Baton Rouge Branch Awards are as follows:

Joe G. Richard, Jr., PE – *Lifetime Achievement* Russell J. "Joey" Coco, Jr., PE – *Outstanding Civil Engineer* 

Marty A. Chorkey, PE – Outreach

Chester G. Wilmot, PhD, PE – *Outstanding Civil Engineering Educator* 

Danielle C. Welborn, EI – Outstanding Young Civil Engineer



Russell J. "Joey" Coco, Jr., PE Outstanding Civil Engineer



Chester G. Wilmot, PhD, PE Outstanding Civil Engineering Educator



Marty A. Chorkey, PE Outreach



Danielle C. Welborn, El Outstanding Young Civil Engineer



Baton Rouge Branch Past Presidents attend luncheon. Left to right: Billy Wall, James Porter, James Aronstein, Christopher Knotts, Charles Eustis, Jerome (Jerry) Kleir, and Thomas Willis. Back row right to left: Jeff Duplantis, Patrick Broderick, and Keith Shackelfordv

Baton Rouge Branch Past President Billy Wall, PE was also recognized for his recent election to Fellow Member. Life Member awardees conferred but not present were: Oliver Wager, Jr. Aff M.ASCE; Michael Cullen, Jr., PE, M.ASCE; and George Z. Voyiadjis, PhD, D. Eng, F. ASCE.



The luncheon also featured a presentation by Ron Lee from the Engineers Without Borders-Baton

Billy Wall, PE

Rouge Professionals Chapter. Ron updated the Branch on their current project in The Gambia. We would again like to thank the Past Presidents and award winners for their service to the profession.

The Baton Rouge Branch is off in the month of July but will return in August to co-host another joint luncheon with LES. Jerome Zeringue from the Office of Coastal Protection and Restoration will be the guest speaker. The Board is currently planning future seminars offering PDH opportunities and the LA Section Conference in April 2012. More details will be provided via email and our website at www.ascebr.org. I hope everyone enjoys the remainder of the summer and I look forward to returning from our break with a large crowd at the August luncheon.

### **Student Chapter News**

#### CIVIL ENGINEERING SOPHOMORE WINS MISS LSU-USA 2011 CROWN By Aariel Charbonnet, College of Engineering public relations graduate assistant

Two years ago, Christina "Fammy" Famularo would have never imagined being a pageant girl, let alone Miss LSU-USA 2011. Although the 20-year-old has always been what she describes as a "girly girl," the world of pageantry was unchartered water for her.

Sparked by her Zeta Tau Alpha (ZTA) sorority sisters' suggestion that she enter last year's Miss LSU-USA competition, Famularo decided to "give it a shot." For the pageant novice, "giv[ing] it a shot" earned her the "Best Evening Gown" and a spot in the top ten for the 2010 competition. Her full-throttle launch into pageantry had officially begun.

Famularo knew she wanted to compete in the 2011 competition. Around Christmas of last year, she began preparing for the pageant. She monitored her diet, exercised regularly, and enlisted a political science major friend, to talk politics and current events weekly.

Famularo's hard work paid off. Out of 23 contestants competing in the 2011 competition, she was named "Miss Congeniality" and won "Best Swimsuit," in addition to the ultimate title.

"I was ecstatic that I won. I wanted the Miss LSU title so badly," she said. "I worked so hard, and I knew it Miss LSU-USA, Christina "Fammy" Famularo would give me the opportunity to do so much."

As Miss LSU, Famularo will meet legislators and university officials and make appearances at local charitable events. She will also be presented on the field at Tiger Stadium during a football game next season. But the baseball-fanatic is most looking forward to throwing the first pitch of the LSU Tigers 2012 baseball season.

Famularo is one of the youngest Miss LSU winners. The New Orleans native has also been told that she is the first engineering major to win the crown. Ironically, before becoming a civil engineering major, Famularo was sure she was headed in another direction - fashion.

After high school, Famularo was accepted into the Fashion Institute of Design & Merchandising (FIDM) in Los Angeles. She was prepared to relocate, but after Hurricane Katrina hit her hometown, plans changed.

When the storm hit New Orleans in August 2005, Famularo's initial reaction was a practical one. She questioned: How could this happen? She researched to learn more about the cause of the levee breach and flooding in the city. Her research sparked an interest in



engineering, a passion she decided to pursue instead of fashion and one that she still has six years later.

Famularo has since worked extra hard to balance her rigorous course load with pageant activities. Luckily, for her, the demanding civil engineering program works to her advantage. Her formula is simple: the busier she is, the better her grades are. For Famularo, managing her time is a lot easier when she's involved in the community and campus organizations.

"When I don't have anything on my plate, my grades stink," she said, laughing. "That's why, when I started college, I knew I had to get involved."

Involved she is. In addition to pageant-related activities, Famularo balances civil engineering courses with her sorority's outreach efforts and her passion for traveling. ZTA's national philanthropy campaign is breast cancer awareness and education, and Famularo spends the majority of her spare time participating in community and campus events to promote the cause. When she's not working with ZTA, Famularo travels as often as she can.

Looking ahead, Famularo hopes to work for an engineering firm or a construction company in New York for one year after graduation. She eagerly anticipates experiencing a different lifestyle in a new city. Then, the family-oriented Famularo wants to return to New Orleans and work for a local engineering firm. Wherever Famularo ends up, she is sure about one thing: pageants will be a mainstay in her life.

As Miss LSU-USA 2011, the next stop in Famularo's pageant career is the 2012 Miss Louisiana-USA pageant in October. She is thrilled about the opportunity to compete in the pageant and is committed to representing LSU and Baton Rouge to the best of her ability. "I could not be more honored to have the opportunity to represent my university," said Famularo. "This blessing will allow me to not only represent the top-tier stature that LSU upholds, but it will also allow me to learn from the amazing people that I will encounter throughout the next year." | PR LSU

Send Comments or Questions to asce@lsu.edu. Department of Civil and Environmental Engineering 3418 Patrick F. Taylor Hall- LSU Baton Rouge, LA 70803 Telephone: 225-578-8442

#### CIVIL ENGINEERING STUDENTS PARTNER WITH MAKE IT RIGHT ON STREET PROJECT By Public Relations, UNO

A group of UNO civil engineering students is seeing the fruits of their labor--and so can anyone else who visits a newly paved city block in the Lower 9th Ward. 23 final semester seniors have undertaken an ambitious senior design project in coordination with the Make It Right Foundation. It's a project that could have far-reaching implications in improving the city's drainage system.

The UNO students did all of the design work on a section of N. Prieur St. between Jourdan Rd. and Deslonde Ave. What makes this project so unusual is the materials that are being used. Instead of pouring conventional concrete, this special test run involves pervious concrete, which is porous and allows rain water to be stored in the street, as opposed to all of it entering the drainage sytem. Make It Right has frequently used pervious concerete in driveways and sidewalks in the Lower 9th Ward, but this represents one of the few times anywhere in the country that the material has been used on a city street.

The street will be tested in the coming weeks and months to determine its durability and strength. Officials with the City of New Orleans are watching very closely to see how this stretch of street holds up. According to engineer Chuck Fromherz, a UNO civil engineering adjunct faculty member, widespread use of pervious concrete in streets could reduce the city's drainage load by a third, which could greatly improve New Orleans' frequent problems with street flooding. | PR UNO

**ON BECOMING A STUDENT MEMBER** – All you have to do to become an ASCE-UNO student member is pay \$20 semester dues and fill out the registration form. (\$20 dues will be due at the beginning of the Fall semester.) You can do this at any time by finding an



UNO partners with Make it Right on Street Project

officer in the ASCE Study Room 310, or attend one of our monthly meetings. By becoming a member, you get access to the ASCE Study Room, a t-shirt, addition to the ASCE Blackboard account, and free membership to the National ASCE branch. So come have some fun and meet new people by joining today! If you have any questions, please e-mail: asce504@gmail.com

#### ASCE-SEI New Orleans Chapter News By Om Dixit, PE, FASCE

Since our report in May 2011 issue of this journal, ASCE SEI New Orleans Chapter was busy hosting two seminars and has planned the following future seminars in New Orleans.

First seminar was the 2011 Annual David Hunter Lecture on April 20. Peter Emmons, PE, (Structural Group, Baltimore, MD) delivered this year's lecture "The Case for Improvements in Concrete Repair, Protection, and Rehabilitation Projects". Mr. Emmons presented the history and stage of the concrete repairs industry. Most sincere people in concrete repair business have learned by mistakes on the jobs. While others do repairs which do not hold too long. The repair industry has no standards so far. Now the first repair and rehabilitation code is nearing completion.

Another seminar was hosted on June 9. The seminar "Performance of Continuous Prestressed Girder Bridges: A Structural Health Monitoring Approach" was presented by one of the Executive Committee Member Dr. Ayman Okeil, PE, LSU, Baton Rouge, LA. He showed the various types of continuity details used by different State DOTs. The performance of these details is not consistent. Recently Louisiana DOTD has installed strain gages at several critical places in the John James Audubon Bridge Approach superstructure. The data has been collected from the field test over a year. Dr. Okeil discussed these results which provided better understanding of the behavior of bridge superstructures. This research was funded by Louisiana Transportation and Research Center.

At publication time, the next seminar is being planned to be held on August 4, 2011. SEI New Orleans Chapter has invited Cliff Schwinger, PE, of The Hartman Group, Pennsylvania to present a seminar "Tips for Improving the Constructability of Structural Steel and Cast-in-Place Concrete Structures". Most buildings plans are not very detailed. Lots of details are prepared by contractors and fabricators for approval of the design engineers. Sometimes due to this lack of detailing creates the constructability problems and sometimes leads to structural failures. Mr. Schwinger has developed various tips for designing steel and concrete buildings. More details



SEI New Orleans Chapter June 9 Seminar, Om Dixit Seminar Coordinator with the Speaker Dr. Ayman Okeil

of the seminars can be seen at the website of New Orleans Branch of ASCE.

This year SEI New Orleans Chapter will move its Herb Roussel, Jr. Marine Lecture to the Louisiana Civil Engineering Conference and Show (LCEC&S) in September 2011. This change of venue will make this valuable lecture available to more members. The SEI Chapter will provide the speaker to the Conference Committee. The Annual Offshore Lecture will be back in October-November as usual.

The committee is looking for good topics and speakers for future presentations. Members with expertise in the field of structural engineering would be welcome to join the Executive Committee. For any suggestion and information on joining the Executive Committee, contact Chairman Pawan Gupta, PE, at Pawan\_Gupta@ URSCorp.com.

All seminars are held at the University of New Orleans. Seminar dates, pertinent information, and registration can be found on the New Orleans Branch website at www.asceneworleans.org. To add your name to our mailing list, e-mail Om P. Dixit at om@fenstermaker.com.

#### ASCE-T&DI Louisiana Chapter News By Daniel J. Aucutt, PE

Summertime activities for the T&DI Louisiana Chapter have continued at a fast pace. After the May 11th Asphalt Mixture Design seminar presented by LSU Professor Dr. Louay Mohammad and Chris Abadie, PE (DOTD), work began on the second of this threepart seminar series. Portland Mixture Design will be presented on August 17, 2011 at the LSU-TTEC Auditorium (announcement forthcoming). The Asphalt seminar was special because it attracted technicians and practitioners, as well as engineers. We trust the Portland Mixture Design seminar will also have wide appeal.

The month of May also saw our first outreach seminar. The T&DI LA Chapter helped sponsor an ASCE Luncheon Seminar in Shreveport on May 19th. Committee Member, Elba Hamilton, coordinated the presentation by Dwight Fox (DOTD) on Traffic Impact Studies. With



Chris Abadie, PE with Dr. Mohammad at the T&DI Asphalt Mixture Design seminar

36 individuals in paid attendance, this was a record-breaking luncheon for the Shreveport Branch. If you are interested in co-sponsoring a seminar at your branch, the T&DI LA Chapter has prepared a Seminar Coordinator's Check List to assist you in your preparation. Please contact Dan Aucutt, PE, at djaucutt@terracon. com for a copy of the checklist.

The Chapter is also contributing to the ASCE Fall Civil Engineering Conference in Kenner, Louisiana on September 21 and 22, 2011. Our T&DI Committee members coordinated several of the presentations.

The T&DI LA Chapter is planning a timely seminar on Hurricane Evacuation, to be presented at Kirschmann Hall at the University of

New Orleans. This seminar will be co-sponsored by the UNO Transportation Institute. Speakers Dr. Brian Wolshon (LSU) and Dr. John Renne (UNO) will present an analytical model that can be used to improve evacuation efficiency based on data from Hurricanes Katrina and Gustav.

Other interesting and informative seminars will extend into 2012. The seminars are two hours in length and are typically presented from 5:30-7:30 pm in either the New Orleans or Baton Rouge area. As indicated above, we are open to co-hosting seminars in additional Louisiana cities, with proper planning. In keeping with the intent of the Institute to provide training and networking opportunities for all professionals involved in transportation projects, the Chapter is planning the following future seminars:

- Specifications and Changes to the Highway Capacity Manual - Bike Lanes and Striping
- Program Management (Green Light Plan and other Road Program Management Projects)
- History of the New Orleans Street Car System
- Toll Road Feasibility for the LA1/I-10 Connector in West Baton Rouge Parish

If you would like a seminar on any special topic, please contact Karen Holden at karenholden@providenceeng.com or Dan Aucutt at djaucutt@terracon.com. See you at the Fall conference!

*Editor's note & correction:* I would like to apologize for omitting Dan Aucutt's name as the author of last quarter's TDI journal article. Dan does a wonderful job and I wanted to make sure he received proper credit. Thank you, Nedra Davis.

— CALENDAR OF EVENTS —		
	SEPTEMBER 2011	
September 21-22, 2011	Louisiana Civil Engineering Conference & Show; Ponchartrain Center; Kenner	
OCTOBER 2011		
October 1, 2011	2011-2012 Louisiana Section administrative year begins	
October 5, 2011	Article submission deadline for November issue of Louisiana Civil Engineer Journal	
October 20-23, 2011	2011 ASCE National Convention; Memphis, TN	
	DECEMBER 2011	
December 31, 2011	2012 ASCE National Dues are due	
JANUARY 2012		
January 5, 2012	Deadline for article submission for the February issue of the Louisiana Civil Engineer Journal	
January 20-21, 2012	2012 Workshop for Section and Branch Leaders; Sheraton Music City Hotel; Nashville, TN	
FEBRUARY 2012		
February 15-18, 2012	4th International Conference on Grouting and Deep Soil Mixture hosted by Deep Foundation Institute; New Orleans Marriott Hotel; For more info, visit www.grout2012.org	
	http://www.lasce.org/calendar.aspx	

ASCE











ASCE

#### LOUISIANA CIVIL ENGINEER

Journal of the Louisiana Section-ASCE Ronald L. Schumann, Jr., PE 9643 Brookline Ave. Suite 116 Baton Rouge, LA 70809-1488

NONPROFIT **U. S. POSTAGE** PAID BATON ROUGE, LA PERMIT NO. 1911

website: www.wickerinc.com

#### SERVICES AND SUPPLIERS Water... Wastewater... Sludge... Equipment... Odor Control... Pumping Systems... Solutions ENVIRONMENTAL TECHNICAL SALES, INC. **Daniel Hebert Ronnie Hebert, PE Brady Sessums** dhebert@etec-sales.com President bsessums@etec-sales.com 7731 Office Park Boulevard • Baton Rouge, Louisiana 70809 Telephone: (225) 295-1200 • Fax: (225) 295-1800 Website: www.etec-sales.com Alexander Hanson Guit States Engineerin Hanson Pipe & Products, Inc. Engineered Products for Process and Power 13201 Old Gentilly Road New Orleans, Louisiana 70129 Precast Bridges 4610 Bluebonnet Blvd., Suite A Concrete Pipe — Manholes — Box Culverts Baton Rouge, LA 70809 17961 Painters Bow Covington, LA 70435 (985) 893-3631 Ext. 202 Catch Basins — Drainage Structures Phone 225/295-2995 ANDREW C. DRESSEL. PE JUSTIN G. SANDERS Fax 225/368-2145 (985) 893-9531 Fax ASCHON & BRANCH NEWSFILM OFFICE 877-754-7379 adressel@gsengr.com Cell (318)466-9460 FACSIMILE: PRINCIPAL justin@alexsand.com www.gsengr.com 504-254-3164 Helical Concepts, Inc. ╺╉┣⋗ CHANCE **Regional Distributor** Denny Kennard Area Sales Manager (972) 442-4493 P.O. Box 1238 (972) 442-4944 Fax 710 Cooper Drive HOBAS PIPE USA joshlindberg@hotmail.com Wylie, TX 75098 1413 E. Richey Road 30534 Norris Bendily Rd. Houston, Texas 77073-3508 Denham Spring, LA 70726 Office (281) 821-2200 Watts (800) 856-7473 www.helicalpier.com Fax: (225) 664-9641 Mobile: (225) 278-6201 CHANCE ATLAS joshlindberg@hotmail.com AMERICAN SOCIETY OF CIVIL ENGIN dkennard@hobaspipe.com Telefax (281) 821-7715 Soil Stabilization Wicker Construction, Inc. The URETEK and Water - Sewer - Storm Drain - Road Boring 'RAINSTOPPER"... **Pavement Lifting** UBA with Deep Injection "Since 1956" HDPE & STAINLESS STEEL LOUISIANA MANHOLE INSERTS 1 **RONALD W. WICKER** DAVE NEATHERY 9640 Wallace Lake Road President Office (318) 688-0610 P.O. Box 6765 1-800-843-4950 Fax 318-687-4337 Mobile: 318-347-3650 P. O. Box 19369 Shreveport, Louisiana 71136 Fax (318) 688-4998 Shreveport, LA 71149-0369 Office: 318-687-4330 Email: ron@wickerinc.com

www.uretekusa.com sales@uretekusa.com 888-287-3835