

# Katrina



7



# Years Later

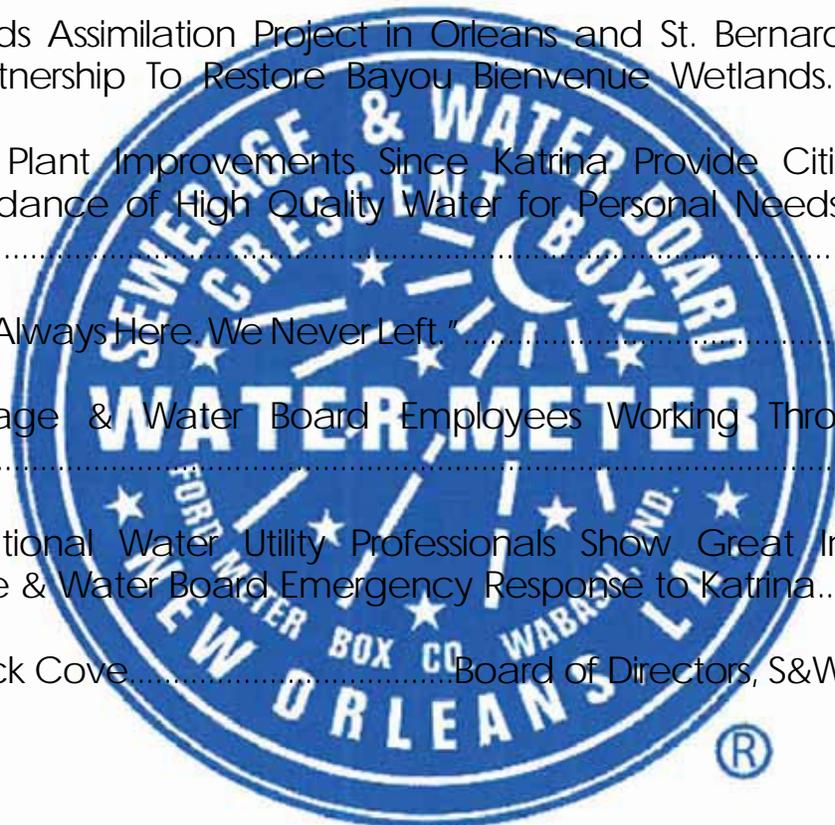
Presented By the Sewerage & Water Board of New Orleans  
*August 29, 2012*

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# Katrina 7 Years later

## Table of Contents

- G. Joseph Sullivan A Remarkable 39 Years of Service To The Sewerage & Water Board.....Page 3
- S&WB Recovery Projects Since Katrina Continue to Grow In Number And Importance .....Page 5
- Powerful Drainage System Constantly Helping Fight The Forces of Nature, Topography.....Page 7
- SELA Projects Continue to Tackle Drainage Challenges: Past ,Present And Future.....Page 10
- Work On Sewage Collection System A Priority.....Page 12
- Wetlands Assimilation Project in Orleans and St. Bernard Parishes Form Partnership To Restore Bayou Bienvenue Wetlands..Page 13
- Water Plant Improvements Since Katrina Provide Citizens With An Abundance of High Quality Water for Personal Needs and Fire Fighting.....Page 15
- “We’re Always Here. We Never Left.” .....Page 16
- Sewerage & Water Board Employees Working Through The Storm.....Page 17
- International Water Utility Professionals Show Great Interest In Sewerage & Water Board Emergency Response to Katrina....Page 23
- Inside Back Cove.....Board of Directors, S&WB of N.O.



*The stories in this booklet were prepared on behalf of The Sewerage & Water Board of New Orleans by its Community and Intergovernmental Relations Department.*

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*“Re-Building The CiTy’s WaTeR sysTems FoR The 21<sup>ST</sup> Century”*

## ***Sewerage & Water Board of New Orleans***

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### **Notice To The News Media From The Sewerage & Water Board: An Introduction to “Katrina 7 Years Later...Progress, Progress, Progress”**

The Board of Directors and the men and women of The Sewerage and Water Board of New Orleans are proud to be a part of rebuilding the water, sewerage, drainage and power systems devastated by Katrina.

The Board is providing this packet of information about our many achievements in the 7 years since Katrina so that the citizens of New Orleans know of our accomplishments. Enclosed is a review of many projects completed, ongoing or planned.

The total estimated project cost amount for all FEMA-related activity to date is approximately \$588,018,643. Of this amount \$452,904,911 is obligated by FEMA. Additionally, major projects scheduled before the storm have now begun, been completed or are underway.

These articles include information on the ongoing rehabilitation of the sewage collection system, the major rebuilding of the massive drainage system and improvements to the water system and the Board’s own power plant. Stories about the heroics of the Board’s own “first responders” who stayed on duty in dangerous situations and those that risked their lives to report to their duty stations are included.

Executive Director Marcia St. Martin said, “Our goal of full restoration remains, so that we can provide maximum service to those residents and business owners who stayed in the City and those who have returned, have opened new businesses or who are still planning to return. We are resolute in this challenge.”

# Water, Sewerage and Drainage Projects Demonstrate S&WB's Commitment to Entire Community

The S&WB has been providing drainage, sewerage, water and power generation since the late 1890s. It has expanded its operations through new construction and has spent millions of dollars to upgrade every one of its facilities, even after the devastation of Hurricane Katrina. The skyline of the city is a reminder that the Board has provided excellent service to the citizens and for numerous special events that can tremendously boost the city's population and quality of life services.



The Sewerage & Water Board's staff is constantly developing and exploring new processes to improve its operations. One such project is underway at the Carrollton Water Purification Plant. The Sodium Hypochlorite Bulk Storage/Feed Facility is set for completion in 2012. It will eliminate the need for transporting chlorine by rail and storing it on the plant grounds. Instead, the Board will use the safer



sodium hypochlorite for disinfectant in the purification process and easily store it in a nearby facility. This chemical increases safety for surrounding neighborhoods and Board employees.

# G. Joseph Sullivan

## A Remarkable 39 Years of Service To The Sewerage & Water Board

G. Joseph “Joe” Sullivan, who served as General Superintendent of the Sewerage & Water Board of New Orleans for 36 years, passed away in December of 2011 at the age of 85. For three years he served as General Superintendent Emeritus, working with new Superintendent Joseph R. Becker.

In 1972 Sullivan was appointed general superintendent by then Mayor Moon Landrieu. He was only the 5th person to occupy this position since 1899.

As general superintendent, he oversaw the expansion of every system at the Board-water, sewerage, drainage and power generation.

Mayor Mitchell J. Landrieu, president of the Sewerage & Water Board, said, “The City of New Orleans has lost a great man and a creative engineer who knew the challenges and solutions to the problems of our below-sea-level City better than anyone.”

“His peers throughout the nation respected him and recognized him with numerous awards for the many innovations which helped make our one-of-a-kind water systems continue to serve us so well for so long.”

Sullivan led much of the post-Katrina recovery of the Board. This was no easy task. In his late 70s, he was involved with the Corps of Engineers construction of flood gates at the 17th Street Canal and other outfall canals, the restoration of drainage and sewer pumping stations and treatment plants, power plant recovery, water distribution and a myriad of other on-going projects.

Upon his retirement in 2008, the Board honored him with an event at the World War II Museum which was attended by Board members, present and former employees, elected officials and other dignitaries he worked with

over the years.

During Katrina, Mr. Sullivan stayed at the Board's Power Plant in Carrollton. After the storm, he led restoration of the Board pumping stations, treatment plants and the water treatment plant.

In January of 2009, Drainage Pumping Station No. 6 on the 17 St. Canal, the world's largest pumping station, was named in his honor. Under Mr. Sullivan's watch, much of the modern and efficient water, sewer and drainage systems were constructed.

In 2003, he was honored By ASCE (American Society of Civil Engineers) with the ASCE Louisiana Section Outstanding Government Civil Engineer Award

Sullivan has received many awards for his technical expertise, lifetime accomplishments and contributions to his profession.

His retirement in 2008 brought to an end more than 36 years of hands-on service, leadership and direction to the Sewerage and Water Board and over 50 years of service within the construction industry.

Mr. & Ms. G. Joseph Sullivan in front of Drainage Pumping Station No. 6



## SWBNO Projects in Construction

Site location	Contract Amount
Repairs to Turbine #4 at the Carrollton Water Purification Plant - Power Complex	\$12,753,000
Repairs to A & B Pumps and Auxiliaries at the Carrollton Water Purification Plant - Power Complex	\$13,152,000
Replacement of Boiler Pre-Heater at the Carrollton Water Purification Plant - Power Complex	\$2,757,000
Panola Pump Station Repairs	\$1,119,000
Repairs to the Cathodic Protection System -Parish Wide	\$441,000
New Administration Building at East Bank Wastewater Treatment Plant	\$2,140,000
Hurricane Protection System (T- Wall) at East Bank Wastewater Treatment Plant	\$25,000,000
Repair Central Yard Administration Building	\$3,067,000
New Central Yard Site Relocation Facility	\$1,800,000
New Central Yard Annex Building	\$1,035,000
Repairs at the Carrollton Water Plant & Water Intake #1 (Primary Intake)	\$246,000
Replacement of Pump Package at the Carrollton Water Purification Plant - Power Complex	\$2,722,000
Pontchartrain Drainage Underpass Pumping Station	\$331,000
Canal Boulevard Drainage Underpass Pumping Station	\$428,000
St. Bernard Avenue Drainage Underpass Pumping Station	\$256,000
Franklin Avenue Drainage Underpass Pumping Station	\$328,000
Sewer Pump Station 15	\$2,200,000
Sewer Pump Stations 1, 3 & Memorial	\$2,981,000
Sewer Pump Stations 6 & 8	\$2,573,000
<b>TOTAL</b>	<b>\$75,329,000</b>

## Restoration Model For Extreme Challenge

# S&WB Recovery Projects Since Katrina Continue to Grow In Number And Importance

The Board of Directors the Sewerage and Water Board of New Orleans, its management and employees knew they had an incredible restoration and re-building challenge after Katrina, once all the damages and devastation to facilities and equipment were assessed.

So immediately after Katrina hit seven years ago, the staff achieved more than most thought they could. But, with an organized plan and the knowledge and skill of many on-staff experts, an incredible number of construction and repair projects were begun to once again provide quality and reliable water, sewer and drainage services for the citizens of the City. Many have been completed and numerous others are in progress, in the bid cycle or ready for bid. Funding of these projects have been a cooperative effort with the Federal Emergency Management Assistant (FEMA) and the Army Corps of Engineers.

To assure a rapid response and realizing the magnitude of the repair and re-building work, the Board contracted with three program managers, one each for water, sewerage and drainage recovery projects. The Board also contracted with design firms to help speed the construction process.

The total estimated project cost amount for all FEMA-related activity to date is approximately \$588,018,643. Of this amount \$452,904,911 is obligated by FEMA. Additionally, major projects scheduled before the storm have now begun, been completed or are underway.

The Sewerage & Water Board's recovery efforts began the day after Katrina hit and have continued constantly thanks to the dedication of the Board members, management and

employees. These individuals stayed during Katrina or returned quickly to plan and restart operations immediately.

Executive Director Marcia St. Martin said, "Our goal of full restoration remains, so that we can provide maximum service to those residents and business owners who stayed in the City and those who have returned, have opened new businesses or who are still planning to return. We are resolute in this challenge."

"While we did get a fast start on repairs, we will not rest on our laurels. Instead, we are using our minds, expertise and knowledge of our systems to restore many of our pumps, machinery, equipment, computers, facilities and vehicles and put them back into service more quickly than expected."

She added, "And, while we still have a lot of critical work to do, I think it's important for our citizens to know we've already had many successes in all departments and there are many more to come."



Florida Avenue Canal

These are just some of the major undertakings the Board staff and program managers have accomplished in the last seven years:

FEMA has obligated (to date) \$169.3 million to the water system. Some of the projects in this area include:

- Repair of Old Carrollton Pumping Station and Central Yard Annex Building overall complete restoration repairs
- Modifications to Algiers Water plant disinfection system
- Removal of residential meters from abandoned accounts

- Since Katrina and through July 31, 2012, 125,796 water main leaks, and house service leaks, hydrant leaks, valve jobs and meter related repairs were made.

- Also, 18,804 fire hydrants were inspected for pressure, lubricated and painted. 5,763 valves related to hydrants were inspected. Corroded anti-theft devices, which prevent water from being stolen, were replaced on the hydrants

- Some 15,781 paving jobs related to the repair of leaks were completed.

**In the area of sewer projects FEMA has obligated (to date) \$226.5 million. Projects included are:**

- Fluidized Bed Incinerator at the East Bank Sewage Treatment Plant

- Michoud and Lamb Sewage Pumping Stations replacement

- Mechanical repairs to various citywide sewage pumping stations

- Continued rehabilitation of the East Bank Sewage Treatment Plant destroyed by Katrina

- Emergency installation of bypass pumps around damaged sewage pumping stations

- Sewer line leaks and breaks repairs

- Electrical repairs to sewage pumping stations

- Completed the rehabilitation over 60 sewer pumping stations.

- Completed sewer repairs related to the Emergency Sanitary Sewer Assessment project.

- Hurricane Katrina nearly destroyed the East Bank treatment plant and flooded almost every lift station on the East Bank.

- Following Katrina, the Sewerage and Water Board of New Orleans, Environmental Affairs Division was successful in obtaining a \$400,000 grant from the Delta Regional Authority to develop feasibility and pre-design for the project. The Environmental Affairs Division was also able to obtain a \$10 million grant from the state's Coastal Impact Assistance Program (CIAP) to construct the first phase of the estimated \$65 million wetland assimilation project. Construction of the project has commenced with a 20-acre demonstration project adjacent to the East Bank Sewage Treatment Plant.

**A history making completion of a Memo of Understanding with the Corps of Engineers and the State for \$1 billion in SELA urban drainage projects throughout the city was executed. An additional \$48 million was obligated by FEMA for other drainage projects. SELA drainage projects included:**

- A Corps of Engineers contract to build a concrete box culvert canal along Dwyer Road to improve drainage in eastern New Orleans.

- Construction of the new canal in Dwyer Road from Jourdan Road to the St Charles Canal is ongoing.

- Construction of the Florida Ave Canal from Mazant St to DPS No. 19 is ongoing.

- Contract to construct a new canal in Claiborne Ave from the Monticello Canal to Leonidas is under construction.

- Contract to construct a new canal in Napoleon Ave from Claiborne Ave to Carondelet Street is under construction.

**Harrell Park was returned to the New Orleans Recreation Department after construction of a new football field and track.** This NORD park was used to house SWB employees whose homes were destroyed so they could return to work. The park was a priority of the Board to restore as a New Orleans Recreation Department NORD facility.

The Sewerage and Water Board continues to work very closely with the city's Department of Public Works, in the coordination of street projects. The board's staff evaluates, plans and ensures that any water lines or sewer lines that need to be repaired are done. The closely coordinated work schedules on the Roads to Recovery Program makes the street construction activity less inconvenient on the residents of the affected areas. The board staff also collaborates to co-ordinate infrastructure work with the state's Department of Transportation and Development, along with the city, on the Paths To Progress Program. Both of these programs include the paving of selected streets on the eastbank of the city.

Overall, this work marks the most aggressive and important rebuilding of the water, sewerage and drainage systems in the 111-year history of the Sewerage & Water Board.



Storm proofing work on Drainage Pumping Station 6

## **Powerful Drainage System Constantly Helping Fight The Forces of Nature, Topography**

When it comes to topography, New Orleans is like a saucer. Levees that have been built to keep out the Mississippi River and Lake Pontchartrain serve to keep in all the rainwater that falls. Many parts of the city are as much as 6 feet below sea level, requiring rainwater (an average of 58.12 inches a year) to be pumped out.

Six inches of rain across the city produces about 69.8 billion pounds of water. That's about 8.2 billion gallons, enough to fill a lake ten feet deep and two miles square. Because the river levees are higher than the lake levees, most storm runoff is pumped into Lake Pontchartrain.

Exceptions are the two West Bank pumping stations and two stations in Eastern New Orleans that pump into the Intracoastal Waterway or the Industrial Canal, respectively.

Our drainage system of today dates back to the turn of the century. The New Orleans Drainage Commission was established in 1896 and merged in 1903 with the Sewerage and Water Board.

There are 24 Drainage Pumping Stations (DPS) in New Orleans. Station personnel are on duty 24-hours a day, seven days a week.

There are 7 unmanned pumping stations. Though fully automatic, S&WB personnel are sent to these unmanned stations during rainfall events.

There are also 13 underpass stations, each with two or three pumps that are automatically turned on by rising water. These pumps are checked every week and are monitored by field personnel during rain events.

The system's pumping capacity is over

50,000 cfs. (cubic feet per second) enough to empty a lake 10 square miles by 10.5 feet deep every 24 hours. That flow rate is more than the flow rate of the Ohio River, the nation's fifth largest.

The S&WB's drainage network includes approximately 90 miles of open canals and 99 miles of newer subsurface canals. Many of the subsurface canals are large enough to drive a bus through.

Millions of dollars were invested to upgrade the system after the flooding rains of the 60s, 70s, 80s and 90s, which ruined homes and businesses.

Then came Katrina, destroying the newer parts of the system as well as the older parts which served us so well for so long.

Fortunately, through the Board's long-term relationship with the Corps of Engineers, millions of dollars in projects were carried out when Board funding was not available.

Immediately following the storm, after the breaches were closed, it took the SWB employees 11 days to de-water the city. Then, the Corps worked with Board employees to repair the salt-water damaged motors by rewiring and baking them so that the pumps

could continue to do the work of the drainage system

The Corps also spent \$39.6 million to repair and restore 23 of the hardest hit stations and the Carrollton Frequency Changer Building to their Pre-Katrina levels of operation. The final station to be repaired in Orleans Parish was Elaine Street Pump Station, which was completed in October 2010.

Additionally, the Corps storm-proofed stations throughout the City so that they can remain operable during and immediately following tropical storm events. This work strengthened the existing building, making it safer for S&WB employees that stay on site, as they work throughout all significant weather events.

Also, in many cases the pumping stations have back up power making them more dependable. Commercial power losses can occur during a storm and adverse weather events.

The Board of Directors, the engineering staff and the Corps work together in the best interest of the citizens to continue to improve a most crucial asset—the Board's massive drainage system.





This specially-designed turbine will power a 15-megawatt generator being constructed by the U. S. Army Corps of Engineers. The generator will give the S&WB's Division of Pumping and Power the capability to improve the operation of its drainage, sewerage and water pumping systems in emergencies. The generator, funded 100% by the Corps, is part of a storm-proofing project for Orleans Parish. The project, located on the grounds of the Carrollton Water Purification Plant, will cost in excess of \$32 million. It is scheduled for completion in 2012.



The men and women of the Board's Welding and Fabrication Shop have the capability and expertise to manufacture parts for some of the aging, yet reliable Board systems. Many of the parts are either no longer made or too expensive to job out or buy "from the shelf." So the work of the Shop not only re-create parts to exacting specifications, but its team of craftsmen can also save money for the Board.

# Sela Projects Continue to Tackle Drainage Challenges: Past ,Present And Future



Heavy rainfalls in the late 70s, 80s and 90s brought severe and frequent flooding of thousands of homes, businesses, streets and cars in the City, with damages in the millions.

Citizens hurt most by the flooding formed drainage committees and called on The Sewerage and Water Board to upgrade its aging and inefficient network of canals and pumping stations.

A plan to greatly increase the capacity of the drainage system was prepared by the Board, but it did not have the massive funding to do all of the construction projects needed throughout the City.

But the rain event of May of 1995 showed the drainage needs when as much as 18.75 inches of rain fell on the City, causing massive flooding and, again, millions in damages.

This rain event caused serious damages to homes, business losses and major inconveniences associated with rainfall flooding in Southeast Louisiana. Citizens, and local officials in the tri-parish area of Orleans, Jefferson and St. Tammany requested Federal assistance in developing and implementing solutions to the flooding problem.

In 1996, Congress quickly authorized the design and construction of the Southeast Louisiana Urban Flood Control Project (SELA), in a partnership with the U.S Army Corps of Engineers.

Most of the SELA projects were large and expensive construction or improvements to canals, pumping stations and power facilities.

The Project Cooperation Agreement executed by the Sewerage and Water Board of New Orleans (S&WB) in January 1997 required that the Federal government provide 75% of the total cost of the SELA projects in Orleans Parish, and that the S&WB provide 25%.

The S&WB files applications on a project-

by-project basis, with the Statewide Flood Control (SWFC) program, administered by the Louisiana Department of Transportation (LaDOTD). The SWFC program provides 70% of the 30% S&WB cost share for projects approved by the SWFC program.

The Phase One SELA projects, completed before Katrina through August of 2005 at a cost of \$238 million were:

Expansion of Drainage Pumping Station No. 1 at S. Broad and Martin Luther King Jr. Blvd. by 2,400 cubic feet per second (cfs).

New concrete box canals beneath Napoleon Ave. from S. Broad to S. Claiborne; on Claiborne from Nashville Ave. to Jena St. and on Claiborne from Jena to Louisiana Ave.

New canals in Hollygrove beneath the railroad right of way and Eagle, Forshsey and Dublin streets, and the Dwyer Road Pumping Station Outfall Canal in eastern New Orleans.

In the years immediately preceding hurricane Katrina, the Federal funding level did not support the start of many projects that had been approved as SELA projects in Orleans Parish. But, in the aftermath of hurricane Katrina, Congress appropriated \$228.8 million to accelerate the completion of SELA projects. This appropriation was 100% federally funded.

Because of the increased construction costs in southeast Louisiana, as the region rebuilds from hurricane Katrina, in 2008 Congress appropriated an additional \$1.3 billion for SELA. These funds are to be cost shared at 65% Federal and 35% local with payback via a 30-year plan granted by the Administration.

Following Hurricane Katrina, the Federal government acknowledged that the interior drainage of Orleans Parish by its many canals and pump stations is an integral part of the Federal hurricane and storm protection system for Orleans Parish.

To this end, additional funding in the amount of \$ 224.8 million has been appropriated by Congress for the completion of authorized SELA projects.

SELA Orleans projects include a new Dwyer Road Drainage Pump Station, a new Dwyer Road Intake Canal and a new subsurface canal along Dwyer Road --6,800 feet of 12-by-10-foot culverts from the St. Charles canal to the pump station at Jourdan Road.

Also underway are the Florida Avenue Canal Phase One improvements. This **\$49.1million** project is the first phase of a four-phase Southeast Louisiana Urban Flood Control Program (SELA) drainage improvement program. It consists of widening the canal from 25 feet to 42 feet and heightening the canal from 7 feet to 15 feet.

Because of continued increased construction costs in the area post Katrina, the SELA program required even more funding to construct the balance of the SELA projects. Congress therefore appropriated in 2008 an additional \$1.3 billion Supplemental Appropriations.

A new Project Partnership Agreement was executed in January 2009 which provides that 65% of the total project cost will be Federal, and 35% will be S&WB. Also, the agreement allows for the S&WB to pay its share over a 30-year period. It is anticipated that over \$800 million of this money will be utilized to complete SELA Orleans projects.

Among them are:

**Federal SELA Projects – Phase 2 – Construction started in 2010 and beyond:**

The next Federal SELA projects to be constructed in Orleans Parish with post-Katrina 6th and 7th Emergency Supplemental Funds of \$838M with a 65/35 cost share (\$545M Federal/\$293M S&WB):

- Florida Ave. Canal Phase 2 (Mazant to Piety)
- Florida Ave. Canal Phase 3 (Piety to St. Ferdinand)
- Florida Ave. Canal Phase 4 (St. Ferdinand to Deers & Peoples)
- Louisiana Ave. Canal (Claiborne to Constance)
- Napoleon Ave. Canal Phase 2 (Claiborne to Carondelet)
- Napoleon Ave. Canal Phase 3 (Carondelet to Constance)
- Jefferson Ave. Canal Phase 1 (Claiborne to Dryades)
- Jefferson Ave. Canal Phase 2 (Dryades to Constance)
- S. Claiborne Canal Phase 1 (Monticello to Leonidas) *Under Construction*
- S. Claiborne Canal Phase 2 (Leonidas to Lowerline) *Under Construction*

Through the combined forces of the Board and the Corps, drainage is being improved throughout the entire City through the many projects underway, nearing completion and under design—all to add protection against flooding.

*For more info on SELA and projects, see the S&WB website: [swbno.org](http://swbno.org). On the home page click Current Projects and then select Drainage (SELA).*



Construction work at Dwyer Pumping Station

# Work On Sewage Collection System A Priority

The sewage collection system operated by The Sewerage & Water Board of New Orleans serves an area of approximately 86 square miles and a population of approximately 350,000. Work on the system continues as the Sewerage and Water Board rebuilds and upgrades the infrastructure.

It consists of over 1,300 miles of gravity collection and trunk sewers ranging in size from 8-inches to 84-inches in diameter and over 120 miles of force mains ranging in size from 6-inches to 72-inches in diameter.

There are 86 sewer lift pump stations which help convey wastewater to the City's two wastewater treatment plants, one on the East Bank and one on the West Bank (Algiers) of the Mississippi River with a combined capacity of 132 million gallons per day (mgd).

Hurricane Katrina destroyed the East Bank treatment plant and flooded almost every lift station on the East Bank. The FEMA funds

obligated to repair the sewer system to date is \$136.3 million.

Following Katrina, the Sewerage and Water Board of New Orleans' Environmental Affairs Division was successful in obtaining a \$400,000 grant from the Delta Regional Authority to develop feasibility and pre-design for the project.

The Environmental Affairs Division was also able to obtain a \$10 million grant from the state's Coastal Impact Assistance Program

(CIAP) to construct the first phase of the estimated \$65 million wetland assimilation project. Construction of the project has commenced with a 20-acre demonstration project adjacent to the East Bank Sewage Treatment Plant. Ground breaking is expected later this year. The first contract for the project was awarded recently.

## S&WB Receives Awards for Wastewater Treatment Operations

Nationally, the Sewerage and Water Board has received many high level awards for its work. For 2011 the Sewerage and Water Board earned a 2 Gold awards for operations at the West Bank and East Bank



wastewater treatment facilities respectively. The awards were presented by the National Association of Clean Water Agencies (NACWA).

The Gold awards were presented in recognition of the complete

and consistent National Pollutant Discharge and Elimination System Permit Compliance for 2011.

The awards were presented during the 2012 Summer Conference of The National Association of Clean Water Agencies held in Chicago, Illinois. Mention of the awards will appear in the Clean Water Advocate News Magazine and on the NACWA website.

# Wetlands Assimilation Project in Orleans and St. Bernard Parishes Form Partnership To Restore Bayou Bienvenue Wetlands

Mayor Mitchell J. Landrieu led groundbreaking ceremonies marking the start of a unique environmental project to restore areas of Bayou Bienvenue (Central Wetlands Unit) severely damaged by Katrina's salt-water surge from the now-closed Mississippi River Gulf Outlet (MRGO).

Joining the Mayor were St. Bernard Parish President Craig Taffaro, officials from the Sewerage & Water Board, the City and State and community leaders from the area.

The Wetlands Assimilation Project, the brainchild of the S&WB's Environmental Affairs Division, is an innovative partnership between the Sewerage and Water Board and the St. Bernard Parish government to restore 20,000 acres of Bayou Bienvenue.

The restoration includes planting Bald Cypress and Tupelo trees to enhance wetlands growth. Established trees will aid in wetland stability, water filtration and storm protection in the future

The project is designed to re-establish cypress swamps that will help protect Orleans

and St. Bernard parishes from future storm vulnerability because wetlands and barrier islands can take the brunt of a storm.

Mayor Landrieu said, "The project we are beginning today fits in perfectly with what I said at my inauguration, "It's time to declare that we are no longer recovering, we are no longer building... now we are creating. And creating we are, as we take an environmental journey into new territory which is already getting the attention of scientific groups from across the country."

Parish President Taffaro said, "St. Bernard is pleased to be in partnership with the Sewerage & Water Board as we take a giant step forward to discover effective methods of restoring or building new wetlands for maximum protection for both of our parishes."

Marcia St. Martin, S&WB Executive Director, said, I'm am very proud of our employees who saw an opportunity, brought it to management and, once approved by the Board of Directors, moved full speed ahead. They were successful in obtaining a \$400,000 grant from the Delta Regional Authority to



develop feasibility and pre-design for this project.”

The Environmental Affairs Division was also able to obtain a \$10 million grant from the state’s Coastal Impact Assistance Program (CIAP) to construct the first phase of the estimated \$65 million Wetland Assimilation Project. The restoration is not an easy task.



The backside of Bayou Bienvenue runs along the perimeter of the plant in the Lower Ninth Ward. A 20-acre section adjacent to the plant will be used for this demonstration project.

The exact same environmental effort will be made by our partners on the St. Bernard Parish side of the project.

Construction of the project has commenced with a 20-acre demonstration project adjacent to the East Bank Sewage Treatment Plant.

### **Creative Project is Ongoing**

The Sewerage and Water Board’s Wetlands Assimilation Project, when completed, will reestablish wetlands in the area of the East Bank Sewage Treatment Plant. It will protect parts of the City from suffering future devastation as experienced in the aftermath of Hurricane Katrina.

City and state officials and environmentalists symbolically turn earth for the Wetlands Assimilation Project.



# Water Plant Improvements Since Katrina Provide Citizens With An Abundance of High Quality Water for Personal Needs and Fire Fighting

Like most other Sewerage & Water Board facilities and machinery, Katrina's flooding and winds heavily damaged the Carrollton Water Purification Plant.

Mechanical parts of the treatment process, like sediment basins, became inoperable, also buildings that stored chemicals and other machinery used in the treatment process.

The Algiers Treatment Plant had no damage, so it became the Operations Center for the Board and produced millions of gallons of water for firefighting and general purposes for the East Bank of Orleans Parish and other nearby parishes in need. Millions of gallons were also sold to FEMA.

On the East Bank, much of the damage to machinery has been repaired by the members of the Board's Facilities Maintenance Department, using manufactured parts from the Machine Shop. Other work was done by contractors.

The Carrollton Plant is operational today, but millions in improvements are still being made. One such project, which recently began, is the Sodium Hypochlorite Bulk Storage/Feed Facility at the Carrollton Water Purification Plant. It consists of the conversion of a current gaseous chlorination system to a sodium hypochlorite system that will allow the current rail tank system to be abandoned in favor of a safer liquid based process at the Plant on South Claiborne Avenue. This process is already used at the Algiers Water Treatment Plant.

The multi-million dollar system will

eliminate the need for transporting chlorine by rail and storing it on the plant grounds. Instead, the Board will be able to truck in the safer, yet effective, sodium hypochlorite for disinfectant purposes, and easily store it in a nearby facility. This chemical increases safety for surrounding neighborhoods and Board employees.

On the distribution side since Katrina and through July 31, 2012, 125,796 water main leaks, and house service leaks, hydrant leaks, valve jobs and meter related repairs were made.

Also, 18,804 fire hydrants were inspected

for pressure, lubricated and painted. 5,763 valves related to hydrants were inspected. Corroded anti-theft devices, which prevent water from being stolen, were replaced on the hydrants.

Some 15,781 paving jobs related

to the repair of leaks were completed,

The Board's water system is made up of four raw water intakes along the river, which pump raw water to two treatment plants. There is a water plant on the East Bank, and one in Algiers.

The plants provide water of the highest quality to a population of 343,829 for personal and business use and to 1,500 fire hydrants. The two plants produce 143 million gallons per day. Treated water is pumped throughout the City via a network of 1,650 miles of underground mains. The Board's state-of-the-art water quality lab constantly checks water for purity and can test for 100,000 compounds.



## “We’re Always Here. We Never Left.”

**T**he 300 S&WB employees on emergency hurricane duty thought the worst was over when Katrina blew through New Orleans on August 29, 2005 with minimal rainfall and strong winds, but not as strong or damaging as predicted.

That same morning, reports of flooding began to come in—it was described as heavy, deep flooding. Reports came from employees at their duty stations and citizens from all parts of the City wondering if the massive S&WB pumping system was working.

Then the news came in—there were several floodwall failures in outfall canals along Lake Pontchartrain and the Industrial Canal, dumping millions, possibly billions, of gallons of water into some of the lowest parts of the City in an instant. Eventually, 80 per cent of the City was flooded.

The 300 employees on duty, and those who risked their lives to reach whatever Board facility needed help, knew a major catastrophe was taking place.

For the first time in the Board’s 110-year history, water service on the East Bank was interrupted when the Board’s power plant flooded, despite bold efforts by employees to build a sand bag barrier around it.

Efforts like this were taking place everywhere...even in drainage pumping stations where employees were stranded. Operators of two pumping stations on the Industrial Canal clung to rafters for days, with no food or water, until teams of employees and the Coast Guard could reach them.

Executive Director Marcia St. Martin said, “Some real heroics by our employees took place in the days after the flood to get systems up and running as quickly as possible.

“The 300 employees on duty and those who rushed to help did not know the fate of their families or friends who evacuated. But they did not leave. They did their jobs and did whatever they could to protect our facilities and help the struggling people of New Orleans.”

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Rufus Burkhalter, now retired, is wet down with bottled water after fighting a fire at Drainage Pumping Station No. 6. The fire occurred during the recovery period soon after Katrina hit the city. Hundreds of S&WB employees, first responders after the storm, performed similar heroics to help get the systems up and running again. Pumping stations throughout the city were quickly repaired to help de-water the flooded parts of the city.



The heroic efforts of the Sewerage and Water Board employees were displayed as these workers, even in the fact of disaster, focused on their responsibility to keeping the water, sewer and drainage system operating. They immediately understood that if there was no water, no sewer or no drainage services there would be no city of New Orleans.

In a speech Mrs. St. Martin delivered to a nationwide professional water group in 2006, she stated, "With so much destruction of our facilities, equipment and heavy truck fleet, we relied on the skill, expertise, knowledge and determination of our employees to put our water, sewerage, drainage and power systems back in operation."

When experts said it would take months to de-water the system with our badly damaged drainage pumps, our staff was actually able to achieve the goal after breaches were closed, it took 11 days for the Sewerage and Water Board employees to dewater the city.

The extraordinary actions and reactions of the Sewerage and Water board employees garnered international, national and local media attention as indicated in the Times-Picayune Newspaper:

In the lead-up to Katrina's fifth anniversary, more than 50 water board workers and

administrators gathered Friday inside Pump Station No. 1 to retell survivor stories and to honor the work they've put in since, beginning with pumping the floodwater out of the city after the breaches were closed.

Many also bemoaned the fact that even though they report for duty during hurricanes just like other emergency workers -- and put in their most strenuous work during the height of storms, when others hunker down -- they don't seem to get the same respect.

"Especially right after Katrina, nobody was paying attention to our operators," said Bob Moeinian, superintendent of pump stations. "Everything was about first responders: Police Department, Fire Department. And our folks, who were trying to help the city get up and running, you weren't hearing much about.

"We kind of felt like we were left behind," he said. "We're always here. We never left."

Nevertheless, the men and women of the Sewerage and Water Board are extensively trained to meet the challenges presented by extreme weather events. They remain prepared to risk their lives by working through storms, hurricanes, and flooding, knowing full well that the city's survival and future existence depends on the availability of water, sewer and drainage services.

A group of S&WB Drainage Supervisors, along with an Army Corps of Engineers official, toured pumps at outfall canals to observe the operation in person. The Supervisors will coordinate pumping of runoff water with the Corps of Engineers during rain or storm events. The employees are, Left to Right: Andrew Fiorella, Jr.; Corps official, Gerald Tilton, Conard James, Renaldo Robertson and Kenneth Smith.



# SEWERAGE & WATER BOARD EMPLOYEES WORKING THROUGH THE STORM

**O**n September 26, 2005 National Public Radio (NPR) reported, “One of the untold success stories of Hurricane Katrina is how quickly New Orleans was able to pump out floodwaters. That work was done by the New Orleans Sewerage & Water Board. For three weeks, about 300 employees did the work of 1,000 — in the most harrowing of circumstances.”

Some 300 Sewerage & Water Board employees were working emergency hurricane duty when Katrina gusted through New Orleans on August 29, 2005 with mostly wind damage and minimal rainfall. The thought of “dodging a bullet” was, however, fleeting as reports from employees and citizens of heavy flooding started pouring in that same day. And although the drainage system has a 30 billion gallons per day or 50,268 CFS capacity, some wondered if the system built in

1903 had said ‘no more’.

Then the news came in and all the employees knew a major catastrophe was at hand. There were several floodwall failures in outfall canals along Lake Pontchartrain and the Industrial Canal, dumping millions, possibly billions, of gallons of water into some of the lowest parts of the City. Eventually, 80 percent of the City flooded.

As the flood waters continued to rise, the 300 S&WB employees struggled to keep the systems operating. “Some real heroics by our employees took place in the days after the flood to get systems up and running as quickly as possible,” said S&WB Executive Director Marcia St. Martin. “The 300 employees on duty and those who rushed to help did not know the fate of their families or friends who evacuated. But they did not leave. They did their jobs and did whatever they could to

Employees throw up a sandbag wall in an attempt to protect New Orleans' Carrollton Water Treatment Plant from the rising floodwaters after levees were breached. Photo courtesy of Sewerage and Water Board of New Orleans.



protect our facilities and help the struggling people of New Orleans.”

For the first time in the Board’s 110-year history, water service on the East Bank was interrupted when the Board’s power plant flooded, despite bold efforts by employees to build a sand bag barrier around it.

A *Chicago Times* article from October 2005 reported the experiences of Chris Fontan and his coworkers as they worked desperately to get the plant back up and running. According to Fontan, a zone manager for the Sewerage & Water Board, the city cannot survive without water. “Pressurized water is crucial for fire protection. It cools the bearings in massive pumps that drain the city after storms. Almost any industrial operation, including the electric utility, needs it to operate.”

*After Katrina hit New Orleans on Aug. 29, it shut down the city’s Carrollton Purification Plant for the first time since it opened in 1906. Flooding at the huge facility on the city’s West Side took down the generators, and that shut down the pumps that send purified Mississippi River water to much of the city.*

*Not only does a lack of pressurized water leave the city vulnerable to fire and make it more difficult to pump itself out, but it also allows groundwater to seep into the system, contaminating the water supply.*

*In the first days after the storm, Fontan and others raced out in boats to shut off the main valves closest to the plant to help restore water pressure at the plant itself.*

*Meantime, Rudy St. Germain, chief of engineering, led a team that jury-rigged an old steam boiler to power the pumps.*

*With people running back and forth through the flood waters to communicate between the*

*pump room and the control room, the team tried three times to start the system before the pumps finally came to life, sending clean water as far as the closed valves. This built pressure back up at the plant, stabilizing the situation.*

The extraordinary actions and reactions of the Sewerage & Water Board employees garnered international, national, and local media attention. According to the national publication, *Public Works Magazine*, “After Hurricane Katrina tore through New Orleans, the U.S. Army Corps of Engineers direly predicted that it would take months to pump the water out of the city. Within a few days, though, the Sewerage & Water



Board of New Orleans (SWBNO), founded in 1903, had restarted most of its 24 drainage pumping stations and the water was receding. Within about three weeks, the city was mostly pumped out and ready to enter the next phase of its recovery.”

The heroic efforts of the Sewerage & Water Board employees were displayed as workers, in the face of disaster, focused on their responsibility to keep the water, sewer and drainage system operating. They knew if there was no water, no sewer or no drainage there would be no city of New Orleans.

The Winter 2006 edition of the *Tulanian*, highlighted the efforts of Gerald Tilton, a 24-year veteran of the S&WB. Tilton, rode out Hurricane Katrina at Pumping Station 19 adjacent to the Industrial Canal in the Ninth Ward.

*His job is to make sure things are running well, dealing with operational concerns, maintenance and personnel matters.*

*On Monday, Aug. 29, things were not running well.*

*“Water came over the floodwall surrounding the station. It filled the pits in the station, and*

*the water kept rising and came within about a foot of the third level in the pumping station, which is raised about 15 feet high."*

*At the back of the pumping station, Tilton and three pump operators walked in ankle-high water, fearing they might be electrocuted if the water rose higher. They dismantled the motor and blades of a big ventilation fan to make a potential escape hatch. But seeing a vortex of swirling water beneath the pumping station, they realized it*

*would be impossible to escape the building. They started bringing food, water, cell phones and medications up a ladder to the top of a crane, which might be the only dry space if the water kept rising.*

*The next day, the workers at Pumping Station 19 peered into binoculars and across the Industrial Canal to Pumping Station 5, located*

*in the Lower Ninth Ward.*

*"I saw some of my guys standing on an elevated balcony in water up to their chests. I could see water rushing back out of the Lower Ninth Ward, so I knew there was a breach in the levee system," Tilton says. "It was a traumatic experience. I feared for my life and for the lives of the other workers. When I got a call from a supervisor saying we were on our own, that the Coast Guard weren't coming, that the National Guard weren't coming, and we could see the water rushing in, it looked like it was the worst-case scenario we had all feared."*

*Tilton and another man swam through the floodwater to the generator building next to Pumping Station 19, hoping to start the generator necessary for the pumps to work. Two feet down in the dirty, foul-smelling water were valves essential to the pumping operation*



Breach in the Industrial Canal Flood Wall



that had to be opened. So Tilton and another man dove in.

“Within 24 hours we were able to pump at 19, but it was fruitless,” Tilton says, noting that any water pumped into Lake Pontchartrain would return via the breach in the levee. “We had to wait for the break to be fixed.”

Eventually, the Industrial Canal breach was sealed and the Sewerage and Water Board was able to pump the floodwater out

of the area. Then, only a few weeks later, came the threat of Hurricane Rita.

“Pumping Station 19 was the only one running in the old part of the city and I knew how to run it. We had done a real MacGyver job to get it up and running, with spit and bubble gum,” Tilton says with a wry smile.

It was more than a month before Tilton went to his home in the Hollygrove neighborhood of Carrollton to survey the damage there.

#### Tulanian Winter 2006

In the lead-up to Katrina’s fifth anniversary, more than 50 water board workers and administrators gathered inside Pump Station No. 1 to retell survivor stories and to honor the work put in since. In an October 2010 story covering that anniversary, *Times Picayune* reporter Michelle Krupa recounted one such story:

On Friday, Ricky Alexander recalled the moment before dawn on the Wednesday after Katrina that the two-way radio crackled to life inside his Algiers pump station.

Alexander, then a 26-year S&WB veteran, had heard about the catastrophic flooding across the river. And he had heard before bedding down the previous night that dozens of his colleagues were still stranded in S&WB facilities across the city.

But he’d also heard that boats and helicopters were expected to rescue them overnight.

As he heard the voice of pump operator Renauldo Robertson broadcasting from Pump Station No. 1, it became clear the plan had disintegrated.

“No one showed up,” Robertson said. “We need to get out of here. Is someone coming?”

“Do you need me to come and get you?” asked Alexander,

who had brought his own boat with him to work.

“More than you know, Ricky,” his colleague said. “More than you know.” Launching his boat from an Interstate 10 ramp at Earhart Boulevard, Alexander maneuvered the flooded city. He had to pass residents crying out for a ride, people balancing water containers on their heads as they waded through the water — and dead bodies afloat in the muck. He rescued his co-workers at the Broad Street pump station, ferried them to Algiers, then returned to check four more S&WB facilities before nightfall.

In a speech Mrs. St. Martin delivered to a nationwide professional water group in 2006, (page 23) she stated, “With so much destruction of our facilities, equipment and heavy truck fleet, we relied on the skill, expertise, knowledge and determination of our employees to put our water, sewerage, drainage and power systems back in operation.”

The men and women of the Sewerage & Water Board are extensively trained to meet the challenges presented by extreme weather events. They remain prepared to risk their lives by working through the storms, hurricanes, and flooding, knowing full well that the city’s survival and future existence depends on the availability of water, sewer and drainage services.





A new \$2 million Klorigen Unit is now in operation at the Algiers Water Treatment Plant. The unit produces chlorine disinfectant on demand for the water treatment process by using food-grade salt and electricity. The driving force for using this system is risk reduction by eliminating the need to store tons of liquid chlorine onsite which could release to the atmosphere.



Work has begun to improve drainage in the the Gen. DeGaulle Canal in Algiers. It is a project funded by the Louisiana Department of Transportation and Development. The entire Algiers Area Drainage Improvements program is being evaluated by the Corps of Engineers for inclusion in the federally-funded Southeast Louisiana Urban Flood Control Project.

# International Water Utility Professionals Show Great Interest In Sewerage & Water Board Emergency Response to Katrina

(The following is from a March 13, 2006 speech presented by Marcia St. Martin, executive director of the Sewerage & Water Board of New Orleans, at a Water Quality Conference of the Association of Metropolitan Water Agencies. This information serves as a model response for similar catastrophes facing water utility operators.)

**L**ike many of you and other water utility managers throughout the nation, the week of August 22nd through August 26th, 2005 was a typical one for meetings with staff, Board members and engineers working on a host of enforcement and environmental projects detailed in a consent degree my agency signed with EPA and DOJ in 1998.

It was the week following a meeting of our Board of Directors, so there were actions to be implemented and newly approved projects to be started.

Little did I know that in just a few days, one of the most devastating storms to ever strike the United States would thrust me directly into one of the most massive utility recovery and reconstruction projects ever undertaken by a City or a major utility like ours--The Sewerage & Water Board of New Orleans.

I, along with most members of my family, and 80 per cent of our 1,200 employees lost

our homes when several levees were breached, allowing a sea of water to flood 80 per cent of the City and destroying more than 200,000 homes and businesses.

The Sewerage & Water Board suffered massive losses of water, drainage and wastewater facilities, equipment, supplies, tools and numerous fleet vehicles, including heavy field equipment.

It is true...the devastation is so much worse than can be depicted in television reports or in newspaper accounts or photos. Even seasoned reporters, emergency experts, insurance company officials and Congressmen express disbelief upon seeing the destroyed areas for the first time.

Today we'll discuss the role of the Sewerage and Water Board in the City's full recovery, but first, let me give you some background on this unique and historical agency.

In 1896, a Drainage Commission was

Helicopters carried giant 3,000-pound bags of filter medium from the Carrollton Water Plant





When one of the pumps at Drainage Pumping Station No. 3 began to “chatter” and make a loud noise, it was discovered that 5 of the 8 impeller blades were cracked. The Board’s own employees from Facility Maintenance disassembled the pump, gouged out the cracked areas and weld-repaired the blades.

Additional work was done on the shaft while the casing was off. The pump, which has been in service for more the 80 years, was reassembled, test run and put back in service. The station is located at North Broad and the London Avenue. On many jobs, the Board’s employees can make repairs more cheaply and quickly than contractors not as familiar with the Board’s complex machinery.

organized to carry out a master plan for drainage developed by the City. In 1903, the commission was merged with the Sewerage & Water Board to consolidate sewer, water and drainage functions under one Board.

The Board membership is the Mayor, three councilpersons, seven citizen members with overlapping nine-year terms and two members of the Board of Liquidation, City Debt.

Today, the Drainage System consists of 24 major pumping stations with a combined capacity of 30 billion gallons per day or 50,268 cubic feet per second. The system can create a water flow to match that of the Ohio River. It drains 59,000 acres in the developed parts of the City and 2,250 acres in adjoining Jefferson Parish.

A network of subsurface drain pipes, 93 miles of covered canals and 82 miles of open canals transports runoff from the streets to the pumping stations.

The Water Department operates two water

plants, one on the East Bank of the Mississippi River and one on the West Bank, with a combined capacity of 270 million gallons per day.

Purified water is distributed to 143,000 service connections and 17,000 fire hydrants via 1,610 miles of mains.

The Board operates a state-of-the art Water Quality Lab capable of detecting 100,000 compounds, a necessity since our only source of raw water is the Mississippi River.

We operate two wastewater treatment plants--one on the East Bank and one on the West Bank--with a combined treatment capacity of 142 million gallons per day.

Three major pumping stations and 83 lift stations; trunk sewers and force mains transport effluent through the gravity collection system, which consists of 1,450 miles of lateral and trunk sewers.

The Board also operates its own electrical

generator plant, which can support all three systems. The 25-cycle plant has a 61,000-kilowatt capacity, an output sufficient to serve a city with a population of 80,000 people.

Now, with that background, I will detail for you the challenges the men and women of the Sewerage and Water Board faced immediately after the storm and what has been accomplished in the last six months.

We knew we had to face Katrina head on, using all the skills, training, experience, ingenuity, planning and dedication of our management and employees and the leadership and support of the Board of Directors.

Katrina's attack left many Board facilities, vehicles and equipment inoperable, completely disrupted normal communication channels and put the lives of many employees who were on duty in jeopardy.



A decision was made by top management early on to protect those assets not damaged and to focus on the business of providing water services (sewer, water and drainage) for the City of New Orleans and other communities devastated by the hurricane as quickly as possible.

Since the Board already had tried and tested hurricane plans and procedures in place for short-term hurricane rainfall runoff, we knew extraordinary and immediate action would need to be taken to offset this type of devastation... and destruction caused by the catastrophic levee breaches, which allowed water to flow into the city for days and remain in our "soup bowl" for weeks.

With a force of 300 employees already on duty, and many more reporting to duty in the next few days following the storm, a number of crucial actions were taken to begin restoration of the systems and to put business procedures in place.

Among them were:

- Establishment of a command center at the Algiers Water Treatment Plant on Aug. 31. The area had not flooded and the plant was in full operation, with power and phone service. The plant was also used to provide housing, food and water for employees on duty or reporting for duty.

It also served as a staging area from which food and water could be delivered to other employees at duty stations reachable only by boat or helicopter. Inoculations for tetanus and hepatitis a and b were also available to employees through the location.

Water produced at the plant was sold to FEMA via tanker trucks, which distributed it in New Orleans and other areas ravaged by the storm. 31,770,000 gallons were produced for sale to FEMA.

- On Aug. 30, we dispatched staff to the state's command center to secure diesel fuel to run the Algiers plant and other key operations and to obtain cement for a dam to prevent flooding of the Board's crucial electrical generating plant on the East Bank.

- On Sept. 5, we opened an administrative office in Algiers and another on Sept. 10, in Baton Rouge, located 80 miles west of New Orleans. The BR office gave the S&WB access to the state's command center where FEMA and other key agencies were set up.

- On Aug. 31, we contacted GE seeking specialists to help with damage assessment and emergency repair of drainage pumping stations and power plant turbines, motors and pumps. GE began work on Sept. 3.

- On Sept. 6, established a toll-free phone number for employees to notify management of where they were and how they could be reached for work assignments.

- Held first staff meeting on Sept. 6

to assess damage, outline an action plan and coordinate activities. Restoration of damaged systems began two days after the storm's passing.

- Set up special communications system through Central Control's radio system when all other forms of communications failed.

- By Sept. 3, key staff were located and 350 personnel were on duty to provide services throughout the City at drainage pumping stations, sewer plants, Central Yard, power plants, water treatment plants, Central Control, Water Quality lab and the Engineering Department.

- By Sept. 5, the Computer Center was functioning at the Main Building on St. Joseph St. to begin business processes and assist the field operations in any way possible with damage assessment and restoration.

- On Sept. 7, the Board sought assistance from FEMA for temporary housing, medical support, food, water and other provisions for staff who had been working constantly since the storm. FEMA began providing assistance on the East and West Banks via boats and helicopters on Sept. 9.

- Oct. 16 restored primary treatment at the East Bank Waste Water Treatment Plant.

- Leased a fleet of vehicles to replace those flooded when the levees failed. This allowed for staff to carry out duties in areas not flooded and other areas when they were drained.

- Nov. 16 restored secondary treatment at the East Bank Waste Water Treatment Plant.

- Worked with water, sewerage and engineering associations in posting the needs of area utilities on websites and seeking volunteers from the water profession to assist during the crisis.

There are many stories of heroics by our employees to keep their facilities operating at great risk, to help citizens fleeing their flooding homes and to save the lives of fellow employees.

But all of those employees who worked

during and after the storm are part of a special team, which is a major part of the process of participating in the most massive reconstruction and restoration project in the 107-year history of the Sewerage and Water Board of New Orleans.

All of this first stage work helped us achieve one of two primary goals--repair parts of the field systems so that services would be available to citizens and businesses and to accommodate the rebuilding and restoration of the City.

The other goal was administrative functions to assess damages, file for FEMA funds and insurance claims and to ensure that revenue was collected for those services still being provided.

As more and more people returned to the City, water would be needed for personal and safety needs, clean-up efforts and fire fighting.

Sanitary sewer service would help prevent disease and allow customers to live in areas, which did not flood and allow hotels, restaurants and other businesses to re-open.

Drainage, of course, would be needed to protect the City from flooding, should additional rainstorms occur.

A key element in the field and administrative recovery process is the Board's extensive Computer Center which generates operational and financial reports, provides budget reports, processes customer bills, analyses and tracks field work, maintains inventories of supplies, equipment and vehicles, does payroll and maintains the Board's email network and website.

The Center was operational almost immediately--just days after Katrina hit. Its capabilities were of great importance to management in assessing damages, tracking expenses, filing insurance claims, helping determine the extent of damage in the field and to communicate internally and externally.

Through computer-generated reports and analyses, management was able to quickly forge and carry out a comprehensive plan to restore



services, file claims and to re-start a much-needed revenue stream.

I was pleased to report at the January Board Meeting of progress we have made in the field since the storm.

Though we had some \$300 million in damages on the East Bank of Orleans Parish, we are projecting that the sewer and drainage systems will be ready for the heavy spring rains.

Initial inspections of the East Bank water distribution system revealed some 3,900 leaks, many of which were from lines broken by tree roots when they were toppled by high winds. By March 5 approximately 11,853 breaks had been repaired by local contractors hired by the Board board forces and volunteers.

It is still important and a priority to repair the leaks quickly to ensure a safe supply of potable water to all parts of the City and to prevent the costly waste of water.

The Federal government will pay 80 per cent of the \$300 million for these and other repairs.

We suspect that many leaks that are draining the underground pipe system of millions of gallons of water daily have yet to be found, especially in parts of the Lower 9th Ward.

We know we're not finished, because we are pumping 120 million gallons a day, but our population should be using about 40 million.

An inspection of 92 percent of the East Bank's sewer system lines has shown that about half of the system still is blocked, either because water remains in the pipes or because there is no electricity in the area to power the pumps to move the water. To solve the problem, we are using emergency discharge systems or generators to make the pumps work. The process, known as bypass pumping, is under way or complete at 18 stations, and preparations are being made at seven more.

At this point after Katrina's Aug. 29 impact, we estimate that the board would be collecting about 30 percent of what it had received before Katrina to provide funds the board needs.

With leaner income in mind because of a drop in revenue from this source, the board has approved a budget for this year that, at \$96.5 million, is almost 19 percent below the 2005 figure of \$118.8 million.

Even though customers may not be occupying their pre-Katrina homes, everyone still owes a flat fee for S&WB services, even though the other part of the bill, for usage, would be virtually nil.

To get an even better grasp on the future customer base and revenue projections, we are embarking on a study to best determine what a pre-Katrina population of 500,000 will be in the future.

We will use flood maps, overlaid by pre-Katrina zip code delivery figures, to determine the per cent of population living in the City. This,

combined with actual water usage from meter reading in a zip zone, should give us a base for accurate revenue projections.

The Board expects 30 per cent of Pre-Katrina revenue and recovery expenses of 200 per cent over normal expenses.

So with the expected loss of revenue and increased costs for restoration, the Board is restructuring its debt, will borrow from the Community Disaster Program and continue to apply for disaster funds.

Before I close today, I would like to take this opportunity to publicly and sincerely thank three water utilities who answered our urgent call for help in the days and weeks after the storm struck.

While we received numerous offers of assistance from throughout the nation, the help these three groups could provide best

**There are many stories of heroics by our employees to keep their facilities operating at great risk, to help citizens fleeing their flooding homes and to save the lives of fellow employees.**

matched our needs at the time. They are The Portland (Oregon) Water Bureau, The Lafayette (Louisiana) Utilities System and Central Arkansas Water, which serves Little Rock.

Lafayette Utilities dispatched pipeline crews and equipment to help repair numerous breaks in major water lines caused by roots from trees toppled by high winds. Restoring water service and pressure was crucial for citizen needs and to fight fires occurring throughout the City.

Lafayette also ran hundreds of bacteriological samples from the water supply system at its lab, allowing the Sewerage & Water Board to advise citizens of the quality of water in various parts of the City.

The Little Rock crews supplied staff, equipment and four gate trucks and greatly helped us in the repair and replacement of valves and pipelines.

I will go into more detail of the Portland team's work, because their plan is being cited as a model for future disaster assistance for major catastrophes.

Their response included a fleet of gate and maintenance trucks and backhoes and a 35-member emergency response team trained

in operations and damage assessment required by FEMA to ensure loss reimbursement under its Public Assistance Program.

The Portland initiative is different than others, which provide short-term help. Its self-contained team is prepared to stay for weeks with its own rations and emergency shelter.

The efforts of these three outstanding utilities are greatly appreciated by our Board, staff and the citizens of New Orleans. Their help was invaluable.

Thank you for allowing me to address you today and to describe what we experienced in New Orleans from Hurricanes Katrina and Rita.

I will also tell you that the men and women of the Sewerage and Water Board, our Board of Directors, our citizens and elected officials are all committed to the full renovation and restoration of our systems and one of the greatest, most resilient and unique cities in the nation--New Orleans..

We are determined to accomplish our long-term goal of "Tackling The World's Toughest Water Challenges."

Come visit us soon.



# Sewerage & Water Board of New Orleans

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