



## Pump Station Workers Seek Refuge in Hurricane-Resistant Rooms

### Full Mitigation Best Practice Story

#### *Palm Beach County, Florida*



**Palm Beach County, FL** – When Hurricane Wilma hit Florida in October 2005, mitigation measures and emergency planning were put to the test at two water control pumping stations located at the edge of the Everglades. Even though bay doors gave way at the height of the storm, and parts of the roofs were torn off allowing debris and wind driven rain to enter the buildings, the workers inside the stations were safe and the pumps remained in operation during the storm.

Operators at two South Florida Water Management District (SFWMD) stations followed their emergency plan and did not panic. Personnel, who must remain at the stations before, during, and after any hurricane event to ensure continuous operation, retreated to fortified hurricane-resistant rooms during Wilma. When the storm passed, workers returned to their priority assignment – making sure that the pumps were running smoothly to keep residents’ homes dry.

“Because of South Florida’s flat terrain, it is critical to keep [our] 25 major pump stations running during a hurricane event, moving flood waters through miles of canals away from urban and agricultural areas,” explained Olivia McLean, Director of Emergency Management at SFWMD. “If these pump stations were not working during a hurricane or excessive rain event, many areas in South Florida could quickly be under water.”

Before Hurricane Andrew in 1992, if a station were breached, workers had to find makeshift shelters inside offices and storage closets or behind pumps and large pipes to escape the ferocity of a hurricane or severe storm.

After Andrew, SFWMD revised and expanded its emergency management operations to address the safety of its workers, while ensuring the continuous operation of the pumping stations.

SFWMD embarked on a program to harden all of its facilities against high wind events. Over several years, roofs were upgraded, and hurricane shutters and heavy steel doors were installed. Worker safety inside the buildings was also addressed.

In the spring of 2000, SFWMD engineers designed and constructed hurricane-resistant rooms inside 11 of the District’s pumping stations. The rooms were constructed with reinforced concrete to resist a Category 5 hurricane. At four other stations, existing rooms, such as kitchens or bathrooms, were retrofitted to meet the same high standard of fortification. Grants totaling \$105,000 from FEMA’s Hazard Mitigation Grant Program (HMGP) funded much of the total cost of \$117,000 to harden the 15 rooms. Following a major disaster declaration, the HMGP funds up to 75 percent of the eligible costs of a project that will reduce or eliminate damages from future natural hazard events. The balance was paid for by SFWMD.

Workers at the pump stations are trained to address emergency situations and to know when to utilize the hurricane-resistant rooms. Director McLean scheduled drills so that workers could learn, practice, and feel at ease with the emergency procedures.

“We were in the control room when the bay door started to go out, but we stayed calm,” said station G-335 Chief Operator Luis Bianchi, recalling his response when Wilma hit. “We just gave a quick check of the gauges and headed to the [fortified] kitchen.”

Gary Fisher, Chief Operator at pump station S-5A, noted that “having that [fortified room] takes the fear out of the picture when you’re out here in a storm. If you need it, it’s there.”

Director McLean described the pump station operators as being on the front lines. “We think of them as heroes,” she said. “Storm or not, they have to be there. Having the fortified rooms allows us to have those men where we need them most. But most of all, it allows us to have them safe.”

### Activity/Project Location

Geographical Area: **Single County in a State**

FEMA Region: **Region IV**

State: **Florida**

County: **Palm Beach County**

### Key Activity/Project Information

Sector: **Public**

Hazard Type: **Tornado; Hurricane/Tropical Storm**

Activity/Project Type: **Safe Rooms/Community Shelters**

Structure Type: **Concrete, Reinforced; Shear Walls**

Activity/Project Start Date: **06/2000**

Activity/Project End Date: **06/2003**

Funding Source: **Hazard Mitigation Grant Program (HMGP); State sources**

Application/Project Number: **9999**

### Activity/Project Economic Analysis

Cost: **\$117,856.00 (Actual)**

### Activity/Project Disaster Information

Mitigation Resulted From Federal  
Disaster? **Yes**

Federal Disaster #: **1249 , 09/28/1998**

Federal Disaster Year: **1998**

Value Tested By Disaster? **Yes**

Tested By Federal Disaster #: **No Federal Disaster specified**

Year First Tested: **2005**

Repetitive Loss Property? **No**

### Reference URLs

Reference URL 1: <http://www.fema.gov/government/grant/hmgp/index.shtm>

Reference URL 2: <http://www.floridadisaster.org/>

## Main Points

- Personnel at South Florida Water Management District stations must remain at the stations before, during, and after any hurricane event to ensure continuous operation of the pumps.
- SFWMD revised and expanded its emergency management operations to address the safety of its workers, and embarked on a program to harden all of its facilities against high wind events.
- Workers retreated to fortified hurricane-resistant rooms during Hurricane Wilma in 2005.
- When the storm passed, workers returned to their priority assignment – making sure that the pumps were running smoothly to keep residents' homes dry.



Luis Bianchi, Chief Operator at Pump Station G-335.



Gary Fischer, Chief Operator at pump station S-5A.