



Duperon FlexRake FPFS bar screen withstands significant flooding at the City of Cuero, Texas, during Hurricane Harvey in 2017.

HURRICANE HARVEY

PROJECT-AT-A-GLANCE

FlexRake® Bar Screens at 24+ sites around Houston were unaffected by Hurricane Harvey

SITE: *City of Refugio, TX Water Reclamation Facility*

EQUIPMENT: *One (1) Duperon® FlexRake® Low Flow*

INSTALLED: *August 2017*

SITE: *City of Cuero, TX Wastewater Treatment Plant*

EQUIPMENT: *Two (2) Duperon® FlexRake® FPFS
One (1) Duperon® Washer Comactor*

INSTALLED: *April 2015*

THE IMPACT OF HURRICANE HARVEY

Hurricane Harvey impacted nearly 13 million Americans in Texas, Louisiana, Mississippi, and Kentucky when the Cat 4 hurricane devastated the region in August 2017. Winds were blowing at 130 to 156 miles per hour and damages caused by the catastrophic storm are estimated at \$125 billion. Texas was acutely affected by the storm, including 60 inches of rain hitting parts of the state. The flooding was unprecedented and by September 1, one-third of the city of Houston was underwater, 40,000 people were forced from their homes, and over 200,000 Houston homes were severely damaged or destroyed.

Despite the destruction of the superstorm, Duperon® wastewater screening systems in the cities of Cuero and Refugio, Texas – approximately 150 miles southwest of Houston – were virtually unaffected by the storm. Duperon's FlexRake® bar screens, installed at both locations as well as dozens of other sites in and around Houston, remove objects like rags, paper, plastics, and metals to prevent damage and clogging of downstream treatment equipment. Both communities found essentially no damage to their wastewater screening equipment.

CITY OF REFUGIO, TEXAS

The City of Refugio, with a population of 7,000, was hit hard by the storm, with nearly every structure in Refugio sustaining some level of damage. Winds crumpled a Shell gas station into a pile of yellow and white metal. Mobile homes were flipped upside down. Shelters had to be set up for nearly all residents. The FlexRake Low Flow mechanically-cleaned bar screen, which had been installed earlier that month, weathered the storm just fine.

A pre-engineered product with a simple, front-cleaning, front-return bar screen technology, the Low Flow was designed for plants of 1 MGD or less average flow. Average daily flow at the Refugio Wastewater Treatment plant is 200,000 gallons per day but is rated for 4 MGD at peak flows. This Low Flow unit is 5 feet tall and 2 feet wide, set at a 30-degree angle from vertical.



Manager of Operations, Superintendent Gabriel Morales, commented on the durability of the FlexRake system. "The only thing that happened is that one panel you take off to clean the rakes was blown off," said Morales. "We haven't found it yet." The easily-replaced missing panel did not hinder the effectiveness of the equipment. And even with winds up to 130 miles per hour, the FlexRake Low Flow system, which is set approximately 20 feet high, carried on as usual. "None of the rakes inside were damaged," Morales said.

In addition to handling the wastewater needs of Refugio residents, Morales says the plant handles waste from several nearby truck stops. Even so, the system showed remarkable durability.

THE HIGH VALUE OF LOW MAINTENANCE

In the City of Refugio, TX and the City of Cuero, TX, the Guadalupe River swelled to water levels of 44 feet, and the storm damage was extensive to the community of 8,500. "[Harvey] was blowing roofs off like nothing," one resident said of the storm damage in her home town. The city was essentially an island on the Tuesday morning after the storm; all roads leading into Cuero, except a section of one highway, were closed.

At the City of Cuero Wastewater Treatment Plant, the Duperon FlexRake FPFS bar screen was installed in April 2015. The unit, which is 34' tall and 2' wide, is set at a 25-degree angle from vertical. With unique teardrop-shaped bars for increased efficiency, a slotted opening with 50% open screening area, and continuous cleaning using multiple scrapers, the FPFS is a low-maintenance piece of equipment with low energy consumption, designed for robust adaptability.

Despite the significant flooding and winds of 140 mph during the hurricane, the FlexRake was undamaged. City of Cuero plant supervisor Wayne Berger expressed little surprise at the durability of the system. "We experienced very little out of the ordinary," he explained. "We have normal operations 99% of the time with this equipment and Hurricane Harvey was no exception, even with the increased flow due to flooding."

A graphic featuring a teal background with large, light-colored quotation marks framing the text.

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The Duperon equipment in the cities of Refugio and Cuero are among more than two dozen sites using Duperon equipment in and around the Houston area stretching from Galveston to Egypt, Texas.

The FlexRake, like all the Duperon products, has been developed for reliability and simplicity, needing minimal – if any – maintenance.

Steve Aiken, Duperon regional sales manager, said, "We love to hear success stories about the equipment, especially in such extreme conditions. But we aren't surprised at the resilience of this equipment. It is designed to take a beating!"

ABOUT DUPERON

Duperon Corporation is the leader in innovative preliminary liquid/solids separation systems. For more than 35 years, Duperon has provided simple yet innovative solutions for a variety of screening and solids handling applications in the water and wastewater industry. Duperon technologies are designed and manufactured in Saginaw, Michigan.