

Back on its feet

Insurance industry estimates for damage Hurricane Ike caused in areas along the U.S. Gulf Coast, such as Seabrook, Texas (above), ran up to \$50 billion. The storm's eye passed over the Boeing facility in Houston. GETTY IMAGES

Hurricane Ike shut down Boeing's Houston facility for 12 days. Here's what the site's 'rideout team' did to get the location ready for business.



By Adam Morgan

On Sept. 13, Hurricane Ike, a massive storm with winds of 110 mph (177 kph), made landfall near Galveston, Texas—just 30 miles south of Boeing's Houston site. The eye of the storm passed directly over the Boeing site and NASA's Johnson Space Center.

More than 2 million residents in southeast Texas were without power in the days following Ike, which packed hurricane-force winds extending more than 100 miles (160 kilometers) from the eye of the storm. Estimates for losses caused by Ike run up to \$50 billion.

The Houston area is just now beginning to return to a state of normality. Among the entities getting back on their feet: the Boeing site, where approximately 2,200 people work. That recovery is a testament to the efforts of the facility's response team, which faced obstacles from a lack of fuel to a late-in-the-game caution about possible water contamination.

"Our team on the ground was able to bring the site to a safe and operational status in under a week and a half, while also dealing with the stress and worry of their own personal property," said Paul Diggins, director of Operations and the Houston site.

FIRST RESPONDERS

The Houston site suspended operations Sept. 11-22 to adhere to mandatory evacuations and allow employees time to prepare for Ike and get their homes back together after the storm.

A small group of employees dubbed "the rideout team" worked behind the scenes to ensure the site was safe to return to work. The team, led by Richard Rivas (Facilities and Maintenance Operations manager) and Scott Van Dusen (Boeing Fire Protection Multi-Ops specialist), faced several challenges on their way to initially assess site damage: They had to get past large, downed trees blocking city streets and major floods in several areas, including directly in front of the headquarters building for the Boeing Space Exploration business.

"It was a little surreal to drive to the site immediately after the storm," said Van Dusen, incident commander for the recovery team. "It looked like a war zone. There were large trees blocking

PHOTOS: Left: Hurricane Ike's storm surge caused flooding at the home of Boeing employee Anita Gale; the water shown is about 6-to-10 feet (1.8-to-3 meters) above normal level. ANITA GALE/BOEING Center: This area just outside Boeing Houston's building 91-51, where employees take work breaks, was riddled with storm debris. PATRICK ARMSTRONG/BOEING Right: The Kemah boardwalk, near the Houston site, sustained damage and flooding.

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the road, water everywhere, damaged houses and buildings, and no power anywhere."

Indeed, Van Dusen said he used his truck's winch to pull trees off the road, just so he could get to the site.

Since the area was under mandatory evacuation, Van Dusen and Rivas were among the first to reach the Boeing facility after the storm, using their first-responder badges to clear security checkpoints. Upon arrival, they met with a security team led by Pinkerton Government Security, whose members staffed the Security Control Center and maintained communications with the Enterprise Crisis Management Center for the duration of the storm.

The team's first priority was to inspect the structural integrity of the office buildings. Structurally, the buildings suffered little damage; the worst was a 16-foot split (4.9 meters) in the roof of Tower II, home to a large number of Space Shuttle employees.

Once the buildings were determined safe to enter, the team began assessing the damage inside. According to Rivas, there was a significant amount of water on the sixth floor of Tower II

from the roof damage. Furthermore, one of the doors of the cafeteria was blown open from the wind and had broken a window, leading to a lot of debris and water entering the cafeteria.

LONG DAYS TO RECOVERY

Because the facility had lost power, essential equipment had to be run using emergency generators. However, the fuel supply for the generators was meant for temporary power outages, and the site was expected to be without power for up to a week. Unfortunately, as most of Houston and all of Galveston also were without electricity, authorities had prioritized resources for hospitals, emergency vehicles and other essential functions. As a result, the Federal Emergency Management Agency tapped Boeing's fuel contractor for emergency services, Van Dusen said.

With its fuel supply dwindling, the Houston site arranged for and received fuel from Boeing's San Antonio site until a contractor from outside the area could arrive. The fuel shortage also affected the site's ability to secure contractors for site cleanup: With gas in short supply and many filling stations closed and without power, many contractors were unable to get to the site.

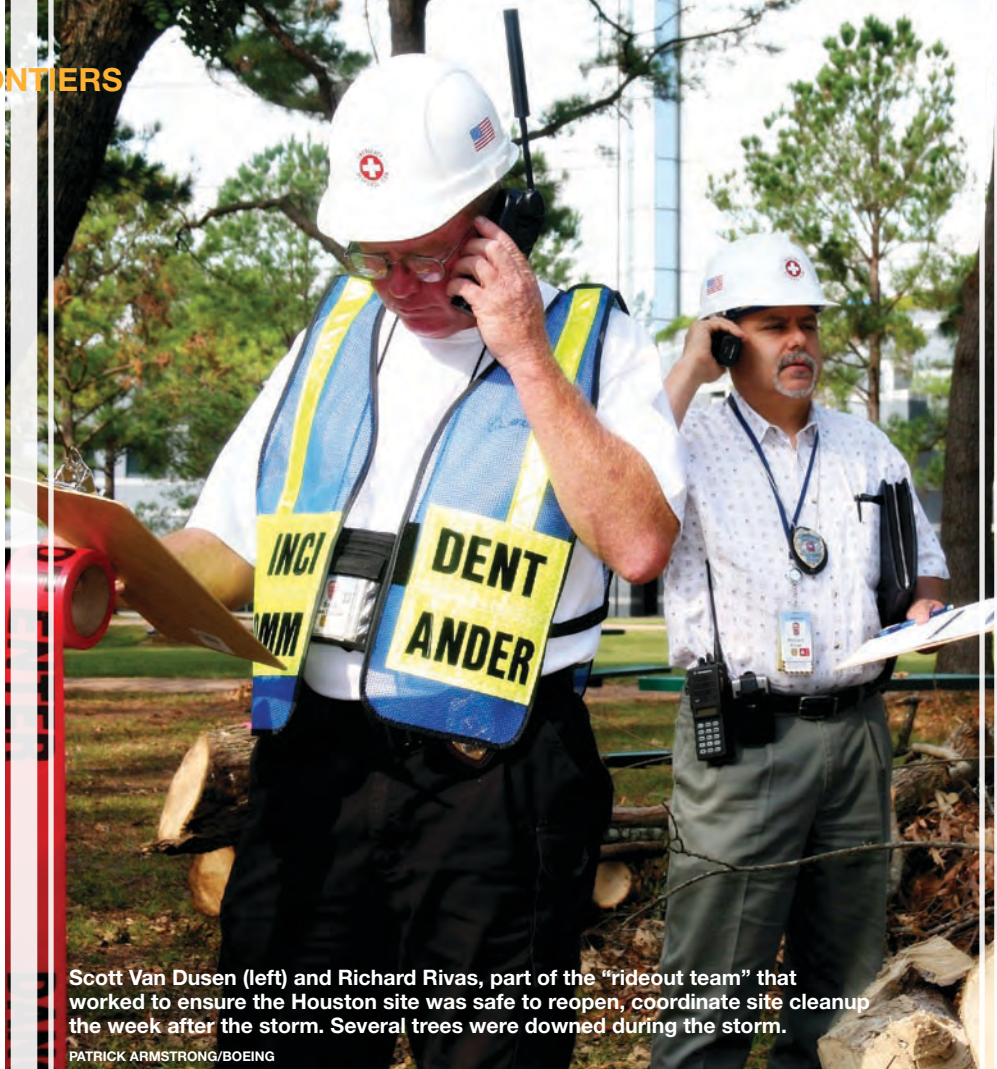
The site faced other challenges throughout the week.

- Days before the facility resumed operations, the city sent the site a notice warning that drinking water could be contaminated. The team had to flush all the water lines at each building, including all drinking faucets, ice machines, sinks, and restrooms. The site also purchased more than 2,000 bottles of water to have on-hand just in case the issue was not resolved when employees returned to work. (Fortunately, the team resolved this issue before employees returned.)

- A main generator ran out of fuel before additional supplies arrived at the site, which caused the system's large batteries to die. Using his connections from 20 years as incident commander for the local fire department, Van Dusen contacted a local fire department that allowed him to bring the generator batteries to their station for recharging.

The site also implemented lessons learned after Hurricane Rita, which struck the Gulf Coast in 2005. Most notable: Not powering down a regional data center that supports Houston and elements of Boeing sites in Huntsville, Ala., and San Antonio and Richardson, Texas. It takes approximately 8 to 12 hours to power the site down; in 2005, that fact prevented those involved from being able to evacuate the area in a timely manner.

"When you intentionally power down, there are a certain percentage of servers, disk drives, network switches, etc., that will not come back up when you bring power back online," said Craig Zook, lead network designer for Space Exploration.



Scott Van Dusen (left) and Richard Rivas, part of the "rideout team" that worked to ensure the Houston site was safe to reopen, coordinate site cleanup the week after the storm. Several trees were downed during the storm.

PATRICK ARMSTRONG/BOEING

"By not powering down, we were able to avoid any significant restart failures and the Houston Regional Data Center remained accessible to the rest of Boeing throughout the storm and recovery period," Zook added.

Overall, the rideout team brought the site back to full operations in a very short time considering all it faced. With so many without power and essential items unavailable, the team faced some extreme conditions. Critical members of the rideout team lived at the site 24 hours a day during the recovery, sleeping in shifts in temporary cots.

"Each one of the individuals who participated in these recovery efforts exemplified the Boeing Leadership Attributes, especially Finds a Way, Delivers Results and Inspires Others," Diggins said. "The site is extremely proud to have such professionals on the team."

The Houston site is sharing lessons learned from its experiences with enterprise emergency teams, to help other Boeing sites prepare and recover from natural disasters in the future.

For more images of Houston's recovery efforts, visit <http://spaceexploration.ids.web.boeing.com/communications/docs/lke-image-FNT.ppt> on the Boeing intranet. ■

adam.k.morgan@boeing.com

Crews clean up debris at the Houston site after it was pounded with winds over 100 mph (161 kph) during Hurricane Ike. The site suspended operations from Sept. 11–22 to ride out the storm and ensure the site was safe for employees to return. PATRICK ARMSTRONG/BOEING

Employees helping employees



Major storms affect more than just business facilities. They touch communities, homes and people—and they inspire outpourings of support.

In the aftermath of Hurricane Ike in September, Boeing employees from across the Houston area joined together to assist teammates in need. From helping remove debris from teammates' homes to donating needed items, these employees displayed the true strength of the Boeing community.

One program the Houston site implemented in the week after the storm was "Project Generator Share." Through this program, an employee without power and who needed a generator could connect with employees who had unused generators.

"This was an excellent program, and I really appreciated the site's coordination efforts," said Michelle Lewis, project management specialist with Space Exploration. "Once I heard about the program, I called the number and received a call back in about 30 minutes from someone with a generator. It came from someone located in my neighborhood, so it worked out really well."

Once Lewis got her power back and no longer needed the generator, the program was able to place that same generator with another employee in need.

Another way employees helped teammates in need was through the Employees Community Fund of The Boeing Company, a unique employee giving program that allows employees to support the needs of their local communities via tax-deductible, recurring payroll deductions or one-time gifts. ECF of Boeing Houston, in cooperation with ECF of California and support from

Global Corporate Citizenship, coordinated a special relief effort for employees in hardship situations due to Hurricane Ike. By following the ECF of California model used to assist employees after the Southern California wildfires in 2007, employees and retirees affected by the storm were able to apply for direct aid to secure basic necessities for themselves and their families. ECF of Houston, California and Richardson, Texas, pooled contributions totaling \$65,000 for this effort. In addition, ECF of St. Louis and Mesa, Ariz., both made monetary contributions to the American Red Cross in support of disaster relief efforts in Houston.

Meanwhile, Boeing matched employees' donations dollar for dollar and retirees' contributions at 50 cents on the dollar to the American Red Cross General Disaster Relief Fund. To date, employees have donated \$83,322. In addition, Boeing made a \$500,000 donation to the American Red Cross in support of Hurricane Ike disaster relief.

"Donations help disaster victims get necessary human-needs services during a very trying time," said Patrice Mingo, director of Strategic Programs for Global Corporate Citizenship. "The outpouring of support by Boeing people from around the globe when a disaster strikes shows the deep concern they have for the health and welfare of their colleagues."

—Adam Morgan and Katherine Sopranos