

By Toni Amenrud

calm after the Storm



When Hurricane Gustav struck U.S. soil in September 2008, it caused substantial damage and flooding in the southern portion of the nation. One of the structures hit was a utility plant in Louisiana that operates a sewage pumping station. The storm left behind several feet of standing water in the building, putting the plant's electrical equipment at serious risk of being destroyed.

At the time the hurricane hit, the utility plant was in the process of installing a Type 4X stainless steel enclosure from Hoffman, provided by R S Integrators, Pineville, N.C. This enclosure would be used to house electrical equipment that is critical to the plant's successful operation.

"We had installed the electrical components and shipped the enclosure, and the utility plant mounted it on the wall but had not run the conduits yet," said Ron Sigmon, president of R S Integrators. Enclosures such as this are crucial in utility plant and other water and wastewater applications because the equipment is consistently exposed to corrosive chemicals, water and environmental contaminants.

With a NEMA 4X rating, Hoffman's stainless steel enclosure was designed to resist corrosion and provide protection against dirt, dust, rain and brief splashes of water. This rating makes the enclosure suited for applications including remote pump stations, reverse osmosis systems and chemical controllers. The enclosure is also rated IP66, meaning it only allows limited moisture ingress in temporary flood conditions.

Once Hurricane Gustav struck the utility plant, the building suffered from significant long-term flooding. The enclosure, which contained the plant's duplex pump control panel and electrical motor controls, was three-quarters underwater.

"The Type 4X stainless steel enclosure was located in a pit that filled up with water, submerging the panel," Sigmon said. "We're not sure for how long, but it could have been underwater for days."

Post-Hurricane Inspection

After the hurricane, R S Integrators received a call from the plant requesting a quote for a replacement panel. The enclosure seemed to have taken quite the beating in the flood, and the responsibility rested with Sigmon and his team to assess the damage to the equipment—salvaging any electrical components that they could. The plant returned the enclosure to R S Integrators, and when Sigmon examined the panel, he was surprised to see its condition.

"We opened the panel, and we could see no evidence of water entry," Sigmon said. "The enclosure is not rated for submersion, so we expected to see equipment damage. But we tested the electrical equipment,

Stainless steel enclosure withstands Hurricane Gustav, protects electrical equipment at a Louisiana utility plant

and everything was working fine."

Hoffman's Type 4X, continuous hinge stainless steel enclosure is constructed to protect sensitive equipment in both indoor and outdoor conditions. It uses a combination of a flange trough collar and seamless foam-in-place gaskets to deflect water and deliver a dust-tight and watertight seal.

"We provide R S Integrators with Type 4X stainless steel enclosures for utility plants and other water and wastewater industry customers, offering them the assurance of long enclosure life and dependable equipment protection," said Greg Quick, Hoffman product manager. "When we heard our enclosure had surpassed even our most rigorous product testing parameters, we couldn't have been more pleased."

The enclosure also features a Powerglide handle with three-point latching, designed to provide operators with the right combination of security and easy access to electrical components. In this case, the latch kept out floodwater as well.

"We've had enclosures submerged before, but they were totally destroyed when water entered," Sigmon said. "We could tell where the water level was at the plant because the outside of the panel was filthy, but the enclosure and electrical equipment were fully functional. The stainless steel enclosure had sustained more damage from the plant shipping it back to us than it did from the storm."

Before it was sent to R S Integrators, the Type 4X stainless steel enclosure had been tested in-house at Hoffman to ensure it successfully resisted corrosive agents—from the chlorine frequently used in water treatment to the salt spray common on the Gulf Coast. Its rugged construction, combined with the enclosure's innovative design features to ensure runoff, made it exceptionally resistant to the Louisiana utility plant's unusual environmental challenges.

"The only condensation we saw was on some of the panel's screws, which weren't made of stainless steel," Sigmon said. "But that's common for an enclosure even in ordinary operating conditions."

Back in Action

After R S Integrators found that both the enclosure and equipment had escaped Hurricane Gustav virtually unharmed, Sigmon said he returned the panel to the plant and told them that the panel was still OK to use, if the staff so chose. The results of this investigation left Sigmon and others at R S Integrators—a company that has worked with Hoffman for 12 years—pleasantly surprised.

"We wouldn't have expected the enclosure to withstand this," Sigmon said. "I was pretty impressed." **WWD**

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