BinMaster case study March 2022

Municipal water measured with BinMaster radar sensors in Puerto Rico

Islands in the Carribean endure plenty of weather events, but Hurricane Maria in 2017 was particularly damaging to Puerto Rico. According to their government, the water system, with 114 municipal water treatment plants, was severely damaged, leaving about half of the residents without water. Extra funding and attention to long-term solutions include water level storage sensors and software by BinMaster.

CNCR 210

SENSORS SOLVE INVENTORY MANAGEMENT FOR WATER IN PUERTO RICO PLANT

On Sept. 20, 2017, Hurricane Maria hit the island of Puerto Rico rising to the level of Category 5. Residents endured 150 mph winds. The islands lost communications, power and water. Main roads were washed out and residents started to suffer from water-borne illnesses due to breaches in the municipal water system. As the country continued to rebuild from that disaster, major widespread flooding occurred again Feb. 5, 2022. Residents experienced more than 6 hours of rain over 6 hours. Waves pummelled the beach in some cases more than 13 feet.

Rebuilding the infrastructure

Some smaller systems are just beginning to come back on line, thousands of homes, some still covered with blue tarps are yet to be fixed. Residents still endure power outages. In 2020, FEMA announced an additional $365 million for permanent and emergency work on 1,822 projects to repair and upgrade water and sewer systems and other water control facilities.

BinMaster radar installed

As water treatment ramps up reaching more and more rural populations, local water plants are looking to BinMaster for accurate inventory management. At one facility, twelve liquid radar sensors (CNCR 210) are installed and working perfectly, said Luis Anton, BinMaster International Sales Manager. "The plant manager said he's very happy with the radars," Anton said. "They hope to upgrade another 20 plants with 200 radars to have one comprehensive view at their water supplies."

Why the CNCR-210 ws the best choice in Puerto Rico?

- Compact, non-contact sensor never contacts clean drinking water
- The sensor's 26-foot measuring range was ideal for the application
- 80 GHz frequency performs well despite overspray, humidity, and noise
- Accommodates full temperature range characteristic of climate
- PVDF enclosure and FKM seal brings high environmental protection
- Radar has no dead zone and measures to the sensor face if necessary
- Narrow 8° beam angle is easily focused around structure in the plant

Mounting the sensors required simplicity

With a large number of sensors to install, simplicity was essential. A stainless steel wall mounting bracket designed to accommodate the 1.5" NPT threading was bolted to the cement structure of each holding tank to be measured. Wiring was completed via the .5" NPT wiring connection to send the 4-20 mA signal to the BinCloud software.

How do radars work for liquid meaurement?

BinMaster's CNCR compact radar level sensors are great for drinking and process water and wastewater applications. The continuous level sensors also reliably measure in excessive humidity, steam, vapor, and are unaffected by noise. The 80 GHz technology performs accurately if buildup or condensation occurs on the sensor face. Specifically, the compact 210 is a continuous liquid level sensor with a measuring range up to 26 feet. It features a two-wire 4-20 mA output and is offered with either a 1.5-inch threaded or straight NPT connection. It can be used for measuring liquid levels through the tank wall when using on a plastic storage tank or an IBC container. Sensors collect data then move it to iCloud platforms like BinCloud which organizes it into real-time monitoring, automated alerts via text or email, and historical reporting. Software can be used to manage a single site or across multiple locations to measure hundreds of vessels.

Luis Anton, BinMaster International Sales Manager

Sensors and software for YOUR industry

Industry	Bulk Material	Sensors	Software	Applications
 Agriculture Farming Livestock	Grain Flour Beans Fertilizer Seed Liquids Bins, silos, tanks, piles, domes	Rotary level indicator Capacitance probe Vibrating rods Diaphragm switch Tilt switch Radar SmartBob 3D sensors Ultrasonic Flow detector	BinCloud BinView AgriView Binventory FeedView 3D Multivision	Prevent overflows Process control Inventory management Remote monitoring Monitor piles Flow detection Bin aeration Dust detection Aeration Ag Chemical Storage
 Bioenergy	Corn DDG Biomass Wood pellets Wood fiber Forest residue Bins, silos, tanks, piles, domes	Rotary level indicator Capacitance probe Vibrating rods Diaphragm switch Tilt switch Radar SmartBob 3D level scanner Ultrasonic Flow detector	BinCloud BinView Binventory 3D Multivision ResinView	Prevent overflows and outages Process control Inventory management Remote monitoring Flow detection Slurry tank detection Measure DDGS
 Cement	Sand Gravel Clinker Rock Powder Bins, clinker silos, tanks, piles, domes, chutes, crushers	Rotary level indicator Capacitance probe Vibrating rods Diaphragm switch Tilt switch Radar SmartBob 3D level scanner Ultrasonic sensor Flow detector Plugged chute detector Airbrator Diffuser air pad	BinCloud BinView Binventory 3D Multivision CementView	Prevent overflows and outages Process control Inventory management Remote monitoring Monitor piles and bunkers Inventory domes Plugged chutes Measure crusher levels ESPs or clinker silos Prevent conveyor overloads Silo aeration
 Food processing	Brewing Foodstuffs Solids Slurries So much more... Silos, mixers, batching tanks, conveyors, pipelines	Rotary level indicator Capacitance probe Vibrating rods Diaphragm switch Tilt switch Radar SmartBob 3D level scanner Ultrasonic sensor Flow detector Airbrator Diffuser air pad	BinCloud BinView AgriView Binventory 3D Multivision	Prevent overflows Inventory management Remote monitoring and VMI Process control Sanitary level measurement Detect levels in mix or slurry tank Detect levels on conveyors Flow detection Silo aeration
 Mining	Lump coal Ores Aggregates Fine alumina powder Silos, crushers, conveyors, domes	Rotary level indicator Capacitance probe Vibrating rods Diaphragm switch Tilt switch Radar SmartBob 3D level scanner Ultrasonic sensor Flow detector Airbrator Diffuser air pad	BinCloud BinView Binventory 3D Multivision CementView	Inventory management Monitor piles Prevent overfills or outages Detecting plugged chutes Measuring inventory in domes Level measure in crushers or bins Prevent overloading Process tanks Remote monitoring Silo aeration Dust detection
 Plastics	Resins Flakes Powders Granules Regrind Silos, bins, containers, hoppers, tanks	Rotary level indicator Capacitance probe Vibrating rods Diaphragm switch Tilt switch Radar SmartBob 3D level scanner Ultrasonic sensor Flow detector Airbrator Diffuser air pad	BinCloud BinView ResinView Binventory 3D Multivision	Prevent silo overfill Eliminate outages Inventory management Remote monitoring Vendor managed inventory Flow detection Bin Aeration Dust Detection