Water Mission Utilizes GNSS Technology to Help Provide Safe Water Solutions in more than 60 Countries

By Gregg Dinino and Johnny Thompson

Water Mission is a Christian engineering nonprofit that builds safe water, sanitation, and hygiene solutions in developing communities, refugee camps, and disaster areas around the world. **Their mission is to honor God by developing, implementing, and sharing best-in-class safe water solutions that transform as many lives as possible as quickly as possible.**

The organization was founded after Hurricane Mitch devastated Honduras in 1998. Water Mission's founders, George and Molly Greene, owned an environmental engineering company in Charleston, SC, and they were asked to bring water treatment systems to Honduras. This spurred the Greenes and their team to design and build a patented safe water treatment system that is rugged, simple to operate, and easy to transport, allowing them to bring safe water to the victims of Hurricane Mitch.

Since then, Water Mission has responded to some of the world's most devastating natural and humanitarian crises, bringing safe water and the hope of the gospel to those impacted by disaster.

On Thursday, September 26, Hurricane Helene tore through the southeastern United States, causing the worst flooding in North Carolina's history. The storm claimed more than 150 lives, caused up to $35 billion in estimated damage, and left more than 2 million people without power or safe drinking water.



Almost immediately, Water Mission deployed their disaster response team to the hardest-hit areas in western North Carolina, starting in Boone. Partnering with local churches, such as First Presbyterian Church in Boone, they began packaging and distributing generators to people in the area within a day.

By Wednesday, October 2, the team had gotten the first safe water treatment system operational in North Carolina, starting in Spruce Pine. Water Mission's Living Water Treatment System is essentially a miniature water treatment plant, with their larger systems able to purify more than 10,000 gallons of water per day, enough water for 5,000 people.

Over the next two weeks, the team installed more treatment systems in multiple locations between Boone and Asheville, often surrounded by challenging circumstances in rugged terrains. By mid-October, 15 systems were in operation throughout the area, and Water Mission's team continued to work towards their goal of 20. They also distributed 1,100 generators and 124,000 water purification packets to people in need, helping families and small businesses regain power and treat small amounts of water.



Water Mission relies on **Juniper Systems' Geode GNSS technology** while responding in western North Carolina, as well as in many of their community development projects around the world.



These projects sometimes include piped water networks in rural, last-mile communities that span kilometers of terrain. **The Water Mission teams rely heavily on accurate designs to ensure water is flowing from a local water source to water storage, and then to final distribution points. Knowing the elevation of water point locations is important to project success.** Elevation affects nearly all aspects of hydraulic design (pump selection, pipe selection, water pressure, etc.) and the project cost.



Before Water Mission used the Geode technology, they relied on handheld GPS units and Google Earth to collect ground elevation data. These were sufficient for smaller projects at first, but as operations and projects scaled up, the teams would occasionally run into issues with water pressure being low (or not flowing at all) at distribution points, which clearly indicated that their design assumptions about the ground elevations were off. Since they started using the Geodes for elevation surveys, Water Mission

engineers have had more confidence in their designs due to the higher elevation data accuracy. This reliability and accuracy, made possible by the Geode, results in water flowing as designed to all distribution points. **LandMark Spatial Solutions, LLC,** one of Juniper Systems' reseller partners, has worked with Water Mission since 2022 to provide them with Geodes and support to make them successful with these solutions.



Water Mission has served more than 8 million people in 60 countries over the past 23 years. While their impact is great, more than 2 billion people worldwide still lack access to safe water, and more than 800,000 die every year due to water-related illnesses. Water Mission believes this crisis can be solved, and their vision is that all people have safe water and an opportunity to experience God's love.

By giving to Water Mission, you can help change the lives of people impacted by disasters like Hurricane Helene. Give today at watermission.org/give to provide safe water to people around the world. Visit watermission.org/news to learn more about Water Mission's response in North Carolina.