

Boedeker Plastics Case Study

Boedeker Plastics Supports River Sentry's Autonomous Flood Warning System with Acetron® GP

Intro

Flooding continues to be one of the most dangerous weather-related hazards in the United States. Heavy rainfall can cause rivers and streams to rise quickly, which creates dangerous conditions that can wash out roads, sweep away vehicles, damage homes and infrastructure, and put entire communities at risk.

The impact can be significant, with flooding responsible for 688 deaths in the United States from 2021 through 2025, an average of about 138 deaths per year. In 2025 alone, 230 people died, the highest total during the five-year period (National Weather Service, n.d.).



Challenge: Design a new automatus device to detect rising water utilizing a variety of materials for maximum durability and reliability.

River Sentry was founded after the Central Texas floods in July 2025 with a mission to develop an early-warning device to help save lives.

To achieve this mission, River Sentry developed and manufactured the RS-1A, an autonomous flood-warning system designed to detect rising water and issue real-time alerts using lights, sirens, and voice commands (see Figure 1).

The RS-1A guards the line where dangerous floodwaters become deadly. It operates autonomously without human intervention, grid power, or internet connectivity. It wakes those who are sleeping, alerts them to danger, and guides them to safety. During the design and development of the RS-1A, River Sentry evaluated and selected various materials to maximize the autonomous detection and alarm system's durability and reliability.



Figure 1 – River Sentry RS-1A
Installed in Central Texas

Solution: Acetron® GP for the RS-1A "Hot-Swappable" Cassette Frame

River Sentry prioritizes safety and reliability in the RS-1A design, which requires rugged materials that can withstand extreme environmental conditions.

River Sentry selected Acetron® GP Black Copolymer Acetal for its rigidity, stiffness, and tensile strength, making it well suited for the RS-1A cassette frame (see Figure 2).

This "hot-swappable" cassette houses the system's electronics and supports up to 80 pounds of equipment. Acetron® GP's durability helps the RS-1A perform reliably in demanding outdoor environments, while local availability from Boedeker Plastics helps streamline the supply chain. Together, these benefits provide the strength, durability, and reliability required for this critical safety system.



Figure 2 - RS-1A Cassette
Acetron® GP Cassette Frame Panel

Result: Over 100 Devices Installed to Reduce River Flooding Fatalities

As of 2026, 108 River Sentry systems have been deployed in Texas and have surpassed expectations for durability and resilience, (See Figure 3).



Figure 3 – RS-1A
Riverfront Central Lodging Texas Install

Six River Sentry systems experienced a flash flood event on July 16, 2026, at 3:28 a.m. The systems activated autonomously, waking residents of a nearby RV park and prompting their evacuation before floodwaters overtook the area.

Although some River Sentries were completely submerged by the flood, they continued to perform their function long after everyone was safely away.

During this real-world event, the Acetron® GP cassette frames demonstrated the durability required for the demanding application, validating River Sentry's material selection.

Reference

National Weather Service (n.d.). *Weather-Related Fatality and Injury Statistics*. Weather.Gov. Retrieved August 12, 2026, from <https://www.weather.gov/hazstat/>