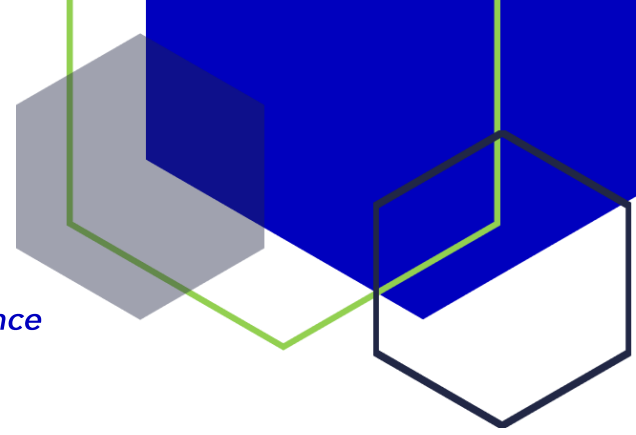




CASE STUDY: Preparedness Pays Off

Proactive Tennessee WWTP Maintains Compliance with Pluto's Influent Flow Predictor



BEAVER CREEK PLANT SNAPSHOT

- ◇ 9.7 MGD Daily Capacity
- ◇ 7.4 MGD Average Daily
- ◇ 32 MGD Peak Flow Capacity

THE CHALLENGE

Centered in a rapidly urbanizing watershed, the award-winning Beaver Creek municipal wastewater plant in northeastern Tennessee has a mission of continuous improvement for the customers they serve and the environment they live in. With flows leading into the Tennessee river, managing all facets of water quality is crucial to maintaining the local ecosystem.

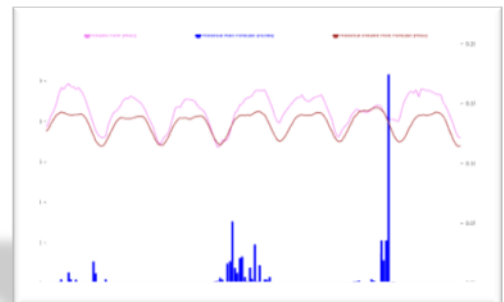
Erratic storms and unexpected wet weather in the region led to excessive inflows causing the plant to endure repeated overflows and violations. The original plant, built in 1963, underwent a renovation and expansion in 2006 to prevent future sewer overflows. Following the plant's renovation, the number of overflows dramatically decreased, but weather patterns worsened.

The utility initiated several programs to alleviate chronic sanitary sewer overflows and improve water quality in the creek downstream. Yet, operating a system of 22,000 customers, covering over 100 square miles in a region of unpredictable weather remained a constant challenge.

The rate of influent flow impacts many aspects of managing and treating wastewater. For plants with a high variance in influent flow rate, projecting the future influent flow rate is important for time and resource management. Miscalculating the impact of a storm event is costly guesswork. The operations team knew that having insight into the future flow rate would empower them to better plan and manage the impacts of extreme weather.

PROJECT GOALS

The utility reached out to Pluto AI to forecast plant operations in combination with wet weather patterns to predict occurrence of future overflows. Leveraging existing SCADA and sensor technologies, Pluto built a model to forecast influent flow based on weather patterns and previous plant behavior. Requiring no installation or integration, the team was able to access actionable insights into their operation immediately upon deployment.





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Delivered directly to operators through desktop or mobile phone dashboards with enterprise-level security, Pluto's Influent Flow Predictor provided operators the answers they needed to prepare for the work ahead of them. Plant managers could view an hourly forecast projecting a week of operations and weather patterns and set a preferred risk level for notification to manage the potential for a future overflow.

Forecasting the flow up to 7 days in advance empowered operators to plan pump runtimes and speeds, proactively divert flow to storage, and plan staffing needs accordingly.

PLUTO'S SOLUTION

Pluto's Influent Flow Predictor provided a new operational perspective for high flow events. Instead of reacting to real-time sensor data, the operations team could proactively plan to address the challenges. Forecasting influent flow helped the utility maintain stability in the treatment process, avoid overflow violations, and better plan the operation's team work schedules.

Since deploying the Influent Flow Predictor, the utility has maintained compliance and treatment flow rate consistency.

"I've enjoyed working with Pluto, and they've been remarkably quick and responsive in creating a product that's the first of its kind in our market. It's interesting and exciting to be a part of it, and Pluto has impressed all of us involved."

-Nick Jackson
Beaver Creek Plant Manager