



OPTIMIZING LARGE INDUSTRIAL STORMWATER SYSTEM

DATA-DRIVEN ANALYSIS HELPED AVOID \$70 MILLION IN PLANNED CAPITAL INVESTMENT WHILE MAINTAINING PROJECT GOALS

COMPREHENSIVE SYSTEM ANALYSIS REVEALED OPPORTUNITIES TO REDUCE CAPITAL INVESTMENT WHILE IMPROVING STORMWATER PERFORMANCE AND LONG-TERM RELIABILITY.

A Gulf Coast petroleum refinery had experienced flooding challenges for more than 50 years due to limitations within its stormwater system. A previous assessment identified \$75 million in capital improvements to address the issue. Seeking a more targeted approach, the site engaged Hydrus Works to develop a detailed understanding of system performance and identify practical solutions that would reduce flood risk while maximizing existing infrastructure.

CHALLENGE

The refinery's stormwater system was responsible for managing millions of gallons of rainfall during major storm events. Due to the size and complexity of the network, the site lacked clear visibility into system constraints, flood-prone areas, and the most effective path forward for capital improvements.

SOLUTION

Hydrus Works developed a comprehensive hydraulic model of the refinery's stormwater system and conducted extensive field verification to ensure accuracy. More than 160,000 operational data points were collected and analyzed to calibrate the model and validate system performance under actual operating conditions.

The calibrated model was used to evaluate multiple storm scenarios, identify system bottlenecks, and quantify flood risk throughout the facility. Hydrus Works then worked closely with site stakeholders to evaluate improvement options, balancing stormwater removal capacity, allowable ponding, project scope, and budget objectives.

RESULTS

The analysis provided a clear understanding of system performance and enabled the refinery to pursue a targeted improvement strategy.

- Reduced proposed capital spend by \$70 million while still maintaining project goals
- Improved stormwater system performance and flood resilience
- Maximized the use of existing infrastructure
- Provided a validated model for future planning and capital projects

The site gained a long-term decision-making tool capable of evaluating future stormwater modifications, operational changes, and expansion projects with confidence.

Data-driven stormwater analysis reduced capital spend expectations by approximately \$70 million while improving flood resilience and supporting long-term infrastructure planning.