



CUSTOMER CASE STUDY

Advanced Process Control for Texas Chemical Plants

Optimizing process stability and controller uptime in petrochemical facilities

Solution: Advanced Process Control Workflows **Industry:** Chemical Manufacturing **Use Case Focus:** Process Optimization

GOALS

- Improve process stability across large-scale chemical plant units.
- Increase controller uptime for automated systems.
- Maximize overall operating performance in production environments.
- Minimize manual intervention by operators and engineering teams.

SOLUTIONS

- Designed large-scale Advanced Process Control workflows tailored for chemical plants.
- Implemented advanced controllers within complex petrochemical environments.
- Deployed robust process controllers across O&G operating facilities.
- Configured automated optimization workflows to reduce manual oversight.

CHALLENGES

- Managing highly complex process dynamics in large petrochemical facilities.
- Coordinating operations across multiple disparate control systems.
- Securing high-value production units from operational disruptions.
- Maintaining control reliability across varied operating environments.

RESULTS

- Achieved high controller uptime across key production units.
- Demonstrated measurable operational benefits in post-project reviews.
- Enhanced process stability throughout the Texas manufacturing facilities.
- Improved overall operating performance of high-value chemical units.

EXECUTIVE SUMMARY

To improve operational efficiency and process stability, large-scale Advanced Process Control workflows were designed and deployed across petrochemical and oil and gas facilities in Texas. These complex manufacturing plants previously struggled with intricate process dynamics and disparate control systems that required constant manual intervention. By implementing robust advanced controllers, the plants successfully automated key processes, driving higher process stability and minimizing engineer workloads. Post-project reviews confirmed exceptional controller uptime and delivered substantial, measurable operational improvements across high-value production units.

Overcoming Complex Process Dynamics

Petrochemical manufacturing facilities operate with highly complex dynamics across multiple high-value units. Managing these production environments is historically difficult due to the integration of various legacy control systems and the continuous need for manual adjustments by plant operators. These challenges often lead to process variability, suboptimal performance, and reduced controller uptime, which ultimately limits overall plant throughput and profitability. To address these vulnerabilities, operators required an advanced, integrated control architecture capable of running reliably across diverse plant environments while simplifying day-to-day operations and improving stability.

Implementing Advanced Process Control Workflows

The engineering team designed and deployed tailored Advanced Process Control workflows to address the unique complexities of these Texas chemical plants. This large-scale deployment involved integrating advanced process controllers directly into complex oil, gas, and petrochemical operating environments. By automating critical variables and stabilizing loop interactions, the new control system reduced the need for manual operator interventions. Post-implementation reviews confirmed that the systems maintained excellent controller uptime.

Maximizing Operational Performance and Uptime

The ultimate success of the Advanced Process Control deployment is reflected in the sustained reliability of the new system. Maintaining high controller uptime ensures that the chemical plants continuously run at optimal constraints without slipping back into manual operating modes. This sustained automation allows engineering teams to focus on high-level strategic improvements rather than routine loop tuning.