# Major Chemical Manufacturer Reduces Waste Disposal Costs through Advanced Process Control (APC)

**Due to site-wide production rate increases from several process units, the organic waste streams at a chemical plant had grown beyond the combustion capacity of its waste fuels boiler (WFB). Waste that wasn't burned in the WFB had to be shipped off-site for disposal at a significant (per pound) cost to the business.**

## Main Objective

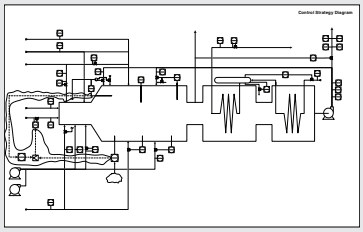
The client required an innovative, automated control strategy to maximize the amount of waste fuels sent to the WFB and to remove the burden of this task from the operators. With a new APC strategy, the client hoped to be able to automatically feed the WFB at its maximum capacity under varying process conditions and during process upsets — reducing the need for additional off-site waste disposal.

## Customer Results

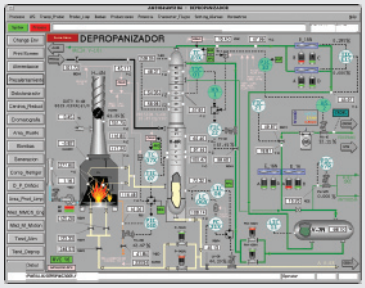
The project met and exceeded the client's automation and budgetary expectations — even though the operators initially thought the project goals were impossible to achieve. The new APC strategy led to a more consistent increase in feed rate — at about 10 percent — and a more stable oxygen composition. After an original project investment of $20,000, the client achieved a two-month payback period and now experiences recurring annual savings.

## Application Description

- **APC Analysis:** MAVERICK analyzed the client's current operation and determined that combustion air was the limiting combustion variable.
- **APC Design and Implementation:** MAVERICK designed the new APC strategy to maximize the throughput of the WFB by minimizing the oxygen in the stack. MAVERICK then directed the implementation of this new control approach that would push the WFB feed against a low oxygen constraint. The advanced controls were implemented on a NovaTech DCS, formerly known as a Texas Instruments D3 DCS, using standard algorithms and function blocks.
- **Control Platform:** A special high-temperature override logic circuit contributed significantly to the success of the new control strategy. Previously, the unpredictable nature of periodic, high-Btu slugs of waste gas and vapor feed frustrated operators, but the new logic circuit allowed them to maintain maximum feed of high-temperature waste on a continuous basis. Because operators no longer had to manually struggle to control the feed, they were able to focus their attention on more productive efforts.



Control Strategy Diagram




DCS Process Operation

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