

REGENERATIVE THERMAL OXIDIZER (RTO) CONTROL SYSTEM UPGRADES

FOR GLOBAL FORTUNE 100 AUTO MANUFACTURER

OPERATING ISSUE

While troubleshooting the air pollution control equipment at a global Fortune 100 automotive manufacturing company, we discovered that the PLC and HMI hardware in each of their four (4) Regenerative Thermal Oxidizers (RTOs) was so outdated that the equipment would soon no longer be supported by the manufacturer. Additionally, the performance of the PLCs & HMIs was causing various operational inefficiencies, resulting in unplanned downtime and maintenance difficulties.

PROJECT SOLUTION & CUSTOMER BENEFIT

We provided a robust turnkey solution, including all design and electrical engineering (using existing operating sequence and input from customer's process engineering & operational staff), PLC & HMI components, demo/installation & commissioning, and on-site training to ensure operators were quickly up to speed.

Along with the hardware upgrades, we developed new programs to solve for specific inefficiencies and other reported issues of concern. Our program allowed the system to better respond to **increases and decreases in volumetric flow due to changing process loading or sudden loss of overall capacity** in cases where one of the other RTOs went into an alarm state. It also was designed to **automatically remove a system from service prior to a low temperature condition occurring**, avoiding an environmental event. Other benefits included:

- Better alarm handling & descriptions
- Adaptive poppet valve cycle time, which self-corrected thermal imbalances between towers and automatically adjusted to maintain (and at times exceed) the desired TTE (temperature transfer efficiency) of the system
- Easier operation of each system

We accomplished most tasks prior to being on-site for final installation. For example, we saved hours of troubleshooting in the field by using PLC simulation software to test our logic in a virtual, real-time environment, before performing onsite commissioning. We also helped them avoid costly downtime by upgrading one RTO at a time, leaving the other 3 RTO's in a "production ready" state.

The customer reported major improvements in operational efficiencies and streamlined troubleshooting.

