Case Study:
Industrial Client

Quad Plus®

Industrial client seeks equipment upgrades to improve reliability and safety standards following a catastrophic breakdown and subsequent fast repair.

Objective

- Upgrade control systems for large, DC-driven equipment to improve reliability and safety standards while reducing out-of-service time.

Solutions

- Performed an equipment survey, analysis, and arc flash study to determine equipment condition and find opportunities for improvement.
- Timeline for installation developed to minimize manufacturing downtime.
- Installations prepared in advance and staged in parallel with existing systems to expedite replacement upon system shutdown.
- Future capacity needs identified to provide consistent design and spares from line to line.
- New cabinets, breakers, and other systems implemented as necessary to improve safety.

Results/Benefits

- The customer was pleased to receive a customized solution that addressed the specific needs of the facility and equipment and avoided a costly one-size-fits-all solution proposed by other vendors.
- All cabinets and parts in good condition were cleaned and reused to keep costs down.
- New LV breakers added to reduce potential incident energy exposure to safer levels.
- Existing MV breaker configured with a pendant system for remote closure from a safe distance with minimal PPE.
- Quad Plus exceeded the customer's expectations for the project quality and flexibility and has initiated additional retrofit projects to be completed as their production schedule permits.

Background

An industrial client with multiple manufacturing lines reported a breakdown in the motor control system that halted the production of a high-demand product that typically sells as quickly as produced. An urgent repair of the motor control system was needed because interruptions in production has an immediate effect on revenue, profitability, and customer relationships.

Upon completion of the repair, the Quad Plus engineer and the customer agreed that replacement of control systems for large, DC-driven equipment should be considered due to limited access to replacement parts, faltering reliability, and the customer's desire to bring their electrical facilities up to current safety standards. Prior to the original service call, the customer had received cost estimates from other vendors for retrofit services.

Quad Plus Solution

Quad Plus recommended a paid equipment survey, analysis, and arc flash study to determine the condition of the equipment and its viability. The review would also look for opportunities to make changes to improve efficiency, reliability, and safety. The customer agreed to the survey and was pleased with the Quad Plus proposal as it specifically addressed the needs of the facility rather than applying the more costly one-size-fits-all approach taken by the other vendors.

Quad Plus worked closely with the customer to create a plan that would minimize out-of-service time. All systems identified for replacement were chosen based on future updates across the facility to allow consistency from line to line. For example, all SCRs are the same size, but used in multiples for more capacity when it becomes necessary. MCC replacements were chosen for higher NEMA ratings due to their location in the manufacturing area, and cabinets mounted on the manufacturing floor were sealed and fitted with internal forced-air cooling using air/water heat exchangers that are serviced by available water sources within the plant.

New parts, cabinets, and cable runs were prepared in advance and staged in parallel with existing systems to expedite replacement once systems were shut down. At shutdown, outmoded and end-of-life components were removed and cabinets cleaned for reuse wherever possible. Prefabricated systems were installed in existing cabinets, and doors replaced to support the new equipment. In other areas, new cabinets were installed and LV breakers added to equipment feeds to reduce the potential incident energy exposure of 163 Cal/cm2 to an acceptable level of 5 Cal/cm2 under fault conditions. The existing MV breaker was also configured with a pendant system that allows for remote closure from a safe distance with minimal PPE.