

Case Study

TRONOX Cooljarloo Control System Upgrade



“The overall project outcome was good. The site's LSS team was involved in the design and implementation stages. This ensured site knowledge was applied and that the site's service engineers took ownership of the project and its outcome. The project team met tight deadlines (time constraints were effectively communicated and managed throughout project life). Project scope was generally met or exceeded.”

– Tronox Engineering Manager

Background

Tronox is the largest integrated titanium minerals producer in Australia. At their operations in Western Australia, they extract and process rich mineral sands into a range of valuable products including ilmenite, zircon, rutile and titanium dioxide pigment that are exported to international markets.

The raw materials for the titanium minerals operation come from ancient shoreline sand deposits in the Mid-West region of Western Australia. Millions of years ago, the action of waves and wind formed belts of heavy minerals called strand lines.

The mineral sands resources are located between Cataby and Dongara, and the current mining operation carries a local Aboriginal name “Cooljarloo.” Tronox mines the heavy mineral concentrates using either dredging or dry mining techniques.



The pond at Cooljarloo, with floating dredges.

Two large floating dredges pump slurried ore to a floating concentrator that recovers heavy minerals from the sand and clay using a series of gravity spirals. At the dry mine, earthmoving equipment feeds ore from above the water table to a land-based concentrator which uses a hopper and conveyor system.

Challenge

This project was challenged to provide Tronox with a control system upgrade that addressed obsolescence issues associated with the R201 installed base and to execute it in a manner that minimized the impact on Tronox operations.

An additional challenge involved testing back translated logic, which had been undertaken by the client as a cost saving measure, during final acceptance test (FAT). The client required precise, detailed test documentation installed into the work packs. This requirement was accomplished through module testing by a team of Tronox Engineers working alongside Honeywell Engineers.

Solution

Honeywell proposed a solution to upgrade the existing North Mine Concentrator (NMC) and feed preparation R201 Experion Cluster by:

- Clean installation of R410 Experion and virtualization of North Mine Concentrator (NMC) Experion cluster,
- Clean installation of the Feed Preparation Experion cluster,
- Migration of the Feed Preparation IPC620 PLC to a C200E controller, and
- Replacement of NMC C200 controller chassis uplink Controlnet interface module (CNI) with a Fault Tolerant Ethernet Bridge (FTEB).

The existing supervisory ControlNet network was replaced by a Fault Tolerant Ethernet, improving plant uptime and providing transparency to achieve the most cost-effective operation.

Because the Experion R201 version was too many generations behind the current version and the starting platform was deemed

unsuitable, the traditional Experion migration approach was not a viable option for this project.

Rather than modifying/adapting the traditional migration approach, Honeywell used a Greenfield method where everything was configured fresh.

Benefits

Honeywell provided a solution designed to address Tronox's future needs based on Honeywell state-of-the-art products and solutions.

The upgrade for the North Mine operation provided Tronox with an efficient and flexible solution that would contribute to Tronox's operations, including the replacement of unsupported hardware, which **reduced the risks of failure and support costs**.

The delivered solution, based on a task split between Tronox and Honeywell, was designed to maximize Tronox personnel involvement. The project was dimensioned to achieve the required technical and operational outcomes, while being sensitive to Tronox budget constraints.

This best-in-class solution is delivering positive impact on operations performance.

Results

- The clean Experion installation allowed Tronox to move to a current system with a high level of confidence during project execution.
- Configuration of the new system allowed Honeywell and Tronox to review the previous control system and carry out a major control strategy clean up.
- Improved operability was achieved by addressing existing Control Module programming and functionality and maximizing the use of standard Experion modules.
- Reduced capital cost by maximizing the involvement of Tronox personnel in the project.
- This project also provided the execution model for the future upgrade of the South Mine control system.
- Lessons learned in this project were taken into account in the scope definition and execution planning for the South Mine Project.

For More Information

To learn more about Honeywell's products and services, visit our website www.honeywellprocess.com or contact your Honeywell account manager.

Honeywell Process Solutions

Honeywell
1250 West Sam Houston Parkway South
Houston, TX 77042

Honeywell House, Arlington Business Park,
Bracknell, Berkshire, England RG12 1EB UK

Shanghai City Centre, 100 Junyi Road
Shanghai, China 20051