

SIMCOA PLANT CONTROL SYSTEM REPLACEMENT

Applicon was selected by Simcoa Operations to replace a legacy distributed control system with a plant-wide control system. Applicon implemented a fully redundant, object-oriented design with PLCs, SCADA HMI and industrial networking devices.

Project Name

SIM-C-017 Control System Upgrade

End Customer

Simcoa Operations Pty Ltd

Project Location

Kemerton, WA

Services Provided

Site-wide Control System Replacement
Networking

Key Technologies

GE Fanuc PACSystems
Invensys Wonderware
Moxa Networks

Project Value

\$3M

Completed

Jun 2007

PROJECT SUMMARY

Having a high level of skills in both our Process Control and Networking groups allowed Applicon to design and deliver a highly innovative new system for end to end control of Simcoa's Kemerton silicon smelter. Applicon's design team carefully addressed each requirement to enable the most effective upgrade path that included online commissioning and zero interruptions to production.

Key partnerships with GE Fanuc and Wonderware ensured that cutting edge technology was employed to implement a highly flexible object-oriented system with full redundancy.

SCOPE OF WORK

Applicon undertook design, engineering, procurement, configuration, installation, testing, commissioning and complete project management in a brownfield environment. A critical factor for success was Applicon's carefully planned and detailed methodology for system replacement which ensured that the risks to the existing operation were reduced. The scope also included material supply in the form of: PLC hardware, SCADA software, licenses, servers, terminals, ethernet network and fibre optic backbone.



In summary, the scope entailed:

- Supply, configuration and programming of PLCs in four production areas
- SCADA supply and development for two control rooms, four view-only locations and remote dial-in access
- Data historian supply and configuration
- Detailed testing
- Construction of the site-wide network (copper & fibre)
- Commissioning and project management
- Training and handover to operations personnel



Quality
ISO 9001
SAI GLOBAL

BUSINESS IMPROVEMENTS

Simcoa's operational productivity has increased due to the high reliability of the new system and the capability to make online changes, and;

- more information
- fewer pages
- better clarity
- faster responses to alarm conditions.

Equipment and communications redundancy has been taken to new levels across the board; PLCs, SCADA, historian, computer servers and network infrastructure.

By deploying the first object-oriented Wonderware Industrial Application Server implementation in Western Australia, Simcoa has substantially reduced engineering effort required for modification or future expansion of the system.

Enhanced information sharing between plant and business has been achieved through additional connectivity and the use of Wonderware's powerful reporting system. This has aided by allowing planners to identify inefficiencies and prioritise improvement works. A modest reduction in environmental footprint has also been made through the replacement of a paper-based reporting system.

In addition to addressing the technical risks associated with brownfields work, a strategy to mitigate organisational risk was implemented by engaging existing site operations staff through the simple, expedient method of allowing them to operate both new and old systems side by side. This eased the transition and enhanced the learning pathway, while also reducing the costs associated with formal training.

The project was completed on time, within budget and with zero production downtime due to the live conversion from the old system to the new.

TECHNOLOGIES

- GE Fanuc PACSystems RX7i
- Wonderware Intouch HMI
- Wonderware Industrial Application Server
- Wonderware Industrial SQL Historian
- Wonderware ActiveFactory Trends & Reports
- Microsoft Terminal Services
- Microsoft SQL Server
- Moxa industrial networks
- 3,400 I/O