



ROC OIL, Zhaodong Facility

Shutdown System Upgrades

Overview:

Originally the facility utilised Moore / Siemens Quadlog controllers for their safety shutdown system. A major facility expansion resulted in Triconex safety system hardware being preferred. Being in service for approximately 12 years, the original Quadlog controllers were experiencing performance and reliability issues, leading to numerous spurious facility shut-ins. Coupled with diminishing vendor support, all Quadlog controllers were replaced with Triconex hardware.

Our Services:

Some of these systems were migrated with the facility operating. Being mixed technologies with no compatible safety communications network, hard-wired interfaces had to be designed and operated in parallel with the safety system's network. The resulting inter-system trip philosophies had to incorporate 5 separate platforms and 15 different controllers. Zest Automation personnel were heavily involved in managing and implementing the safety lifecycle of these systems. Migrations of these systems had to be planned and performed in stages. Partial migration strategies were produced which permitted some online process cut-overs, while others required incorporation into planned facility shut-ins. Significant changes to topside production equipment also had to be concurrently managed and safely incorporated into the shutdown hierarchy.

Zest Automation also managed and implemented changes to project documentation such as:

- Cause and Effects (including rationalisation)
- I/O Allocations
- Alarm and Trip schedules
- Termination and Loop drawings
- Test procedures
- Operator training manuals.

Zest Automation personnel have been involved with the design / development / maintenance and support of this facility's Triconex systems for over 8 years. With 10 separate SIS / FGS systems installed on this facility, to date there have been no shut-ins or loss of production attributed to a failure of these systems.

