

FMG TRAIN UNLOADER 1

Because of Applicon's extensive experience in car dumper (train unloader) control systems, Metso Minerals enlisted the company to develop and implement the control system and electrical works for the two-car iron ore train unloader at Fortescue Metals Group's new facility at Port Hedland.

Project Name

FMG Pilbara Iron Ore and Infrastructure

Client

Metso Minerals

End User

Fortescue Metals Group

Project Location

Port Hedland, Pilbara Western Australia

Services Provided

Process Control System and Electrical Works

Key Technologies

GE Fanuc PLC
GE Proficy Cimplicity HMI
Siemens Variable Speed Drives

Project Value

\$500K

Completed

September 2008

PROJECT SUMMARY

FMG Limited commenced shipping iron ore export from their new port facility at Anderson Point, near Pt Hedland during May 2008. This new operation, called the Herb Elliott Port Facility, includes a new two cell car dumper as part of the train unloading facility. As Metso Minerals' preferred service provider for control system development and integration, Applicon designed and delivered a system capable of full automatic operation.

SCOPE OF WORK

Responsibility for all process control and electrical works for the train unloader, including:

- PLC design (to site standards), implementation and testing
- SCADA HMI system design and user interface development
- Supervision of electrical installation and point to point testing
- Site commissioning of complete system
- Supply of as-built drawings and documentation
- Training site electrical maintenance staff

PROJECT SUCCESS

An holistic project management system and the flexibility of a vendor-neutral approach allowed Applicon to adapt the initial client specification to meet all requirements of the end user. Applicon's experience with train unloader control systems and efficient methodologies contributed to the successful and expeditious implementation of FMG's first train unloader. Rigorous factory acceptance testing lead to reduced site commissioning time, resulting with the train unloader being the first part of the plant running in full automatic mode. This achievement is remarkable also when considering the added complexity that this car dumper was Metso Minerals' first installation using hydraulic wagon clamps in place of the traditional gravity counterweight clamping method. This design change was supported by Applicon, including a



Quality
ISO 9001
SAIGLOBAL

AMD1004 REV02 10JUN09

suggested modification to include hydraulic pressure sensing of each clamp, in addition to proximity switches – a change which enabled tipping to be halted if insufficient clamping had been achieved.

Applicon's unique design maximised the benefits of the up-to-date GE PACSystems remote I/O technology and reduced the complexity of the system. By using distributed (remote) I/O in the MCCs and the field, seamless connectivity of a variety of sensors and actuators was achieved with integration across multiple site-standard device communication networks. This reduced I/O cabling, which was particularly cost effective across flexible catenary cables to the indexer and rotating cells.

Equipment Performance: 2 cars tipped at 138T iron ore per car at average cycle time of less than 90 seconds, giving an average throughput of 11000T/hr

Applicon was pleased to be able to provide Metso Minerals and FMG with site support during commissioning, having considerable expertise in car dumpers amongst all our staff who attended the site.

Applicon also provided 24 hour coverage during commissioning to ensure production was continuous;

TECHNOLOGIES

- GE Fanuc PACSystems RX7i
- GE Proficy Simplicity HMI
- Sprecher & Shuh CEP7 Motor Protection Relays and 100DNY42R Starter Auxiliaries via DeviceNet
- GE Fanuc VersaMax I/O via Profibus
- Sick-Stegmann ATM90 absolute rotary encoders via Profibus
- Siemens Master drives via Profibus
- Cells: 2 x 200kW drives linked via a cardan shaft
- Indexer long travel: 13 x 90kW drives with redundant operation at reduced speeds down to 8 drives
- Indexer arm: 15kW drive

ABOUT APPLICON

Applicon is an engineering company specialising in Process Automation & Control, Communications, Network Integration, Renewable Energy Systems, Power & Water, Security and Fibre Optic technologies. Our ISO 9001:2000 certification and engineering discipline means we approach technology using a structured and consultative methodology, to ensure the solution achieves the desired business outcomes.