

Kununarra Pumping Station - Ord River Irrigation Scheme

INTRODUCTION

The Ord River Irrigation Scheme in the North of Western Australia provides water to a large number of farmers.

Water is distributed via open channels that provide water for mainly flood irrigation. This type of irrigation allows water to enter blocks of land via siphon tubes that bring the water from the channels across an embankment onto the land.

To ensure that the siphon tubes remain functioning it is important that the water level in the channels remain at the correct level.

APPLICATION

The existing 3 diesel operated pumps that pump water into the channels are no longer satisfactory and four new 132 kW electric pumps are to take their place. The pumps require soft start due to their size. The water requirements will vary due to demand. This could range from a fraction of 1 pump's capacity to all 4 pumps. The demand for water is required to be programmable for a period of 7 days, with access to this from the pumping station as well as from a remote location. Any alarms are to be passed on to a central alarm system located in the main office. Flow and power consumption are to be recorded and totalised.

SCOPE

Industrial Automation is to design and supply the main switchboard containing all motor starting equipment. This includes the supply and design of the control system using a PLC, Operator Interface Panel and a remote SCADA system. It also includes for the supply, installation and calibration of the flow sensors and power transducers

EQUIPMENT USED

- Koyo series 405 PLC
- 10.5" colour touch screen (QuickPanel by Total Control)
- 4 x 132 kW soft starters and 1 x 132 VSD by Telemecanique
- IA telemetry equipment
- Faget current transducers
- IA signal isolators
- Citect SCADA software

END RESULT

The system initially provided the operator with up to 10 different flow settings per day. Flows that were automatically maintained by adding or reducing the number of pumps while the first pump in the sequence is on VSD control. The sequence is freely selectable. Recently the control system was modified to also enable channel level control instead of flow control.

HIGHLIGHTS

Water flow and level controlled by 4 x 132 kW pumps with automatic pump selection

Telemetry link to level sensor

Citect SCADA via remote access

5.4 m long Form 2 switchboard