

Inete Case Study:

Bedford West Switchboard Upgrade

The Project

Bedford West Booster Pumping Station is located approximately 56 km east-north-east of Emerald township and was originally implemented in 1969. The booster pumping station is apart of the Bedford West pipeline which also consists of Rangal Dam, Northern Header Tank and Top Dam. It was originally designed with 1 x 45 kW river pump, 1 x 75 kW and 1 x 110 kW booster pump. It was upgraded in 2004 to 2 x 132 kW booster pumps.

Given the age of the equipment and required reliability of the assets, in 2014 the client tendered for an upgrade of the pump station. Inete was engaged directly to work with them during the upgrade and provide the following:

- Select and procure a gas suppressed, air conditioned switchroom that would house the low voltage switchboard and 2 x 200 kW VVVF drives;
- Select and procure 2 new 200 kW motors;
- Design and procure the low voltage switchboard;
- Design and selection of the PLC and control network;
- Preparation of the cable schedule;
- Preparation of the 'For Construction' electrical schematics for the upgrade;
- Preparation of the *Scope of Works* for the upgrade and obtaining quotations for the upgrade of works to be carried out;
- All PLC and SCADA programming associated with the upgrade.

Inete was also engaged to complete switchboard upgrades at Selma, Bedford East Pump Stations No.1 and No.2. The technology standards specified by the client to align with existing equipment across these sites included the following:

- AB Compact Logix PLC's;
- Citect SCADA;
- Modbus TCP/IP Module PST-MVI69E -MBTCP;
- Red Lion Protocol Converter DSPLE -100;
- AB Device-Net 1756-DNB Module.



Project Overview

Project

Infrastructure & Asset Management
Switchroom, Switchboard and Pump upgrade.

Locations

BFW Booster Pump Station
56 km ENE of Emerald;
BFE Pump Station No.1 60 km ENE of Emerald;
BFE Pump Station No.2 60 km E of Emerald;
Selma Pump Station Emerald.

Infrastructure

Bedford West Booster Pump Station

- Air-conditioned switchroom with switchboard and 2 x 200 kW stand alone VVVF drives;
- FIKE Pro-Inert Gas Suppression and VESDA system;

Bedford East Pump Station No.1

- Switchboard with 2 x 45 kW soft starters.

Bedford East Pump Station No.2

- Switchboard with 2 x 110 kW soft starters.

Selma Pump Station

- Switchboard with 2 x 730 kW DOL's, 2 x 37 kW DOL's, 1 x 30 kW DOL and 1 x 1.5 kW DOL.

All pump stations were installed with new HMI panels and 3G / 4G modems for remote monitoring and access.

Project Scope

Major works included:

- Installation of demountable switchroom for BFW BPS;
- Installation of switchboards for Selma, BFE PSI & BFE PS2;
- Connect sites to Brisbane Central Citect SCADA Server via 3G/4G modems;

Collect data & annunciate warnings and alarms via Citect SCADA / PLC control.

Inete Pty Ltd

trading as Integral Electric Technology

Email: admin@inete.com.au

Web www.inete.com.au

Inete
Integral Electric Technology