

Natural Gas Production and Gathering Facility Case Study



Introduction

The Bahrain National Oil Company (BANOCO) (now Bahrain Petroleum Company (BAPCO)), wholly owned by the Kingdom of Bahrain, is engaged in exploration, drilling, production, refining, distribution of petroleum products and natural gas, sales and exports of crude oil and refined products. The Kingdom of Bahrain is an island nation located in the Persian / Arabian Gulf situated between Qatar and Dhahran, Saudi Arabia.



BANOCO has production facilities that supply natural gas to the kingdom for power generation, industrial feedstock, and household use. The field production facilities include approximately 30 gas wells and 300 oil wells.

Problem

Supervision and control of the Khuff gas production and gathering facilities was controlled by outdated equipment with semi-graphic operator display consoles. Performance of the existing system was constrained by inadequate disk storage space for historical data, inadequate processing power for new application programs, and the inability to support local area networks. The gas dehydration units connected to natural gas wells needed state-of-the-art Remote Terminal Units (RTU) for monitoring and control.

Solution

1992

A decision based on technical ability and competitive pricing, BANOCO selected Willowglen to supply a Supervisory Control and Data Acquisition (SCADA) system for the Khuff gas production and gathering facilities.

The project included an upgrade of the existing control system by replacing the main computer and operator terminals with a completely fault tolerant SCADACOM® 2.0 central host computer system.

The project also included the installation of a Front End Processor (FEP) and Model 8016 RTUs. The Model 8016 RTU uses a modem to communicate with the FEP. Full AGA-3, NX-19 and AGA-8 calculations are performed on the Model 8016 RTUs.

1997

A system upgrade occurred with the SCADACOM® 2.0 software being replaced with the SCADACOM® 3.0 software.

2002

The system was upgraded with new hardware. The SCADA host system is used to monitor and control the Willowglen RTUs as well as other Programmable Logic Controllers (PLC) and RTUs. In addition, serial communication ports are used to communicate with an external SCADA system.

2011

The Willowglen Model 8016 RTUs were upgraded to Willowglen Unisen Model 2216 RTUs.