TARGET ENGINEERING SUCCESS STORIES

Our Client:

Khalda Petroleum Co. (KPC), a joint venture between the Egyptian General Petroleum Corporation (EGPC), and Apache, is one of the largest oil & gas producers in Egypt. KPC is in operation since 1985.

Due to the continuous increase in oil production, KPC Salam Base Oil Facilities in the Egyptian Western Desert has become a vital plant to KPC and the national production. It produces 40000 BPD of Oil, and 17 MMSCFD of associated Gas.

REQUIREMENTS:

In addressing the issues related to the obsolescence of the Salam Base control systems and the need for integrated precise control schemes and monitoring facilities with higher availability and reliability, KPC decided to upgrade the existing miscellaneous PLC's, automate all the individual packages and add a SCADA system for monitoring the whole plant scattered areas.

The criteria set by KPC for selecting the system were:

- Reliability
- Previous in-house experience
- Flexibility of programming
- Built-in high level diagnostic capabilities
- Redundancy support
- Availability of local professional technical support

A major key issue in the selection of the successful contractor was the technical ability and previous experience to perform hot-transfer from the old systems to the new system as KPC could not afford any production losses.

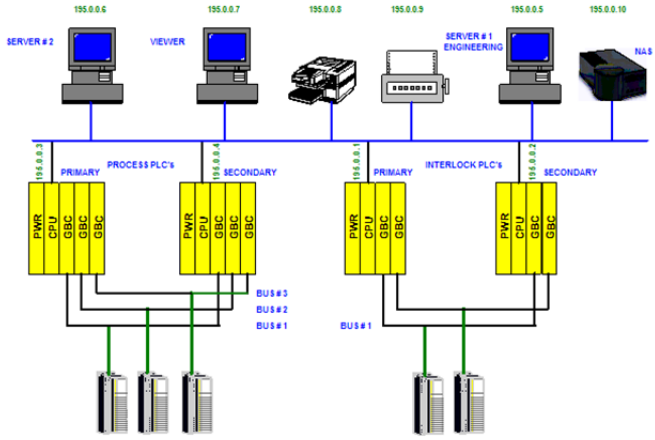
For all the above reasons, KPC selected Target Engineering (as the main contractor and system integrator) to supply GE Fanuc systems to satisfy the above needs

The Design Solution:

The project scope included replacing the existing plant interlocking system and the local process control panels with a new PLC & HMI/SCADA system. The challenge was to transfer from the old system to the new system without shutdown.
The old interlocking system was based on the obsolete (dual redundant) GE- Series six PLC. The Series-6 PLC's were replaced with GE-FANUC Series 90-30 PLC with Hot Standby architecture.
The I/O system for the new system is based on Genius blocks and Genius bus integrated with Fiber Optic Technology (350 Inputs and 500 Outputs). The Fiber Optic network was based on the Hirschmann Hiper ring techniques (i.e. redundant network).
The old process packages (Heater Treaters, Ethylene Glycol, etc.) were controlled using different types of control system (relays, different type of old small PLCs). All the separate local panels were replaced with one Series 90-30 PLC with Hot Standby architecture and Genius I/O system. The Genius system consists of genius bus (Fiber Optic Hiper ring) and Genius blocks. The number of discrete I/O's was 168 Input and 152 Outputs.
The old automatic control loops were based on pneumatic controllers. Those pneumatic controllers were replaced with, electronic transmitters, PLC's software based controllers and I/P's. The analogue I/O's were connected and controlled by the process packages PLC. The number of the replaced automatic control loops was 86.
The old operator interface which was through discrete conventional panel mounted instruments, annunciators in the control room and local panels in the field. The huge control room panel was replaced with a small console containing two computers through which the operators can monitor and control the process efficiently. The HMI/SCADA provided better alarm monitoring functionality and new features for the alarms and events logging. Historical data logging, Trending, Animation, and Reporting have added useful tools to the operator. The system consists of two HMI redundant servers (with one being the engineering development and the other one is run time server) and a viewer.

System Specifications:

- 2 GE Fanuc series 90-30 systems with CPU364
- Redundant CPU's for high availability
- Redundant Fiber Optic Network for the Genius Bus (using
- Redundant HMI servers
- Ethernet (TCP/IP) networking
- Approximately 1250 system I/O
- Communication to remote site via Radio Modems
- 350 Graphical screens



System Components:

- 3 RTD to mA converters
- 10 Hirschmann OZD Genius G12 (Fiber Optic Repeater)
- 101 Genius Blocks (Discrete and Analogue)
- 1 Ethernet Managed Switch
- 2 Cimplicity Servers
- 1 Cimplicity Viewer
- 1 Network Attached Server (Snap Storage)
- 1 Dot-matrix Printer
- 1 Laser Printer