



GE  
Intelligent Platforms

Premier Solution Provider (PSP)



## TARGET ENGINEERING SUCCESS STORIES

### Our Client:

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

KPC is in operation since 1985 as an oil producer. In the beginning of the century, Apache has discovered a huge gas field in the Western Desert called "QASR". It was decided to go for a fast track project to utilize the discovered gas.

### PROJECT DESCRIPTION

Up to 20 gas producing wells are provided with a solar powered Wellhead Control Panel (WHCP). The gas is routed to a central area at Qasr Manifold for delivery in to the main export pipeline. All wells are within 10km of the Qasr Manifold.

**Qasr Manifold:** The manifold site prepares the gas for entry into the pipeline to Shams. Free water is removed, cooled and injected with inhibitors and H<sub>2</sub>S scavenger.

**Shams:** The site has a manifold system with isolation valves and a minimum set of instrumentation.

**Obayied:** At Obayied, the gas is stripped of free water and condensate, and metered to a fiscal standard prior to delivery to the adjacent Shell gas facility.

**Tarek:** At Tarek, the gas is received for processing.

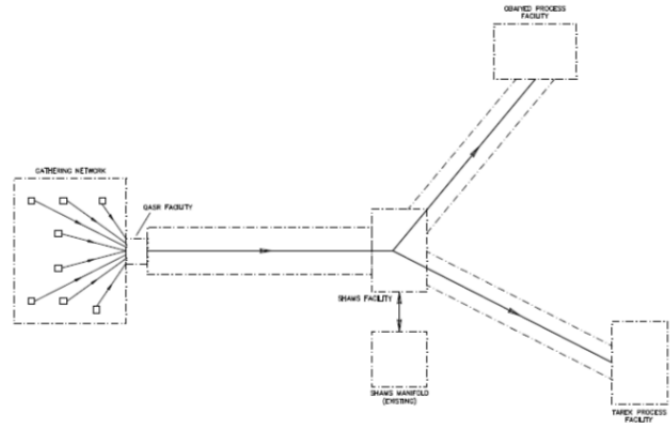
**Block Valve Facilities:** As per ASME Standards four isolation valves are provided. Actuators are remotely operable by the respective PCS.

**Salam Facilities:** The Salam site is the Central Control System (CCS). It has a Honeywell TDC 3000 control system that has been modified for monitoring & control of the new facilities at Qasr Manifold, Obayied, Shams, and Tarek via fiber optic network as a primary link and VSAT as a backup link.

## REQUIREMENTS:

### 1. PLC's

Site	SIL 3 ESD	SIL 3 F&G	PCS
Qasr	✓	✓	✓
Obayied	✓	✓	✓
Shams			✓
Tarek			✓



### 2. HMI

Site	2 Server + Viewer	Quick Panel
Qasr	✓	
Obayied	✓	
Shams		✓
Tarek		✓

A major key issue in the selection of the successful contractor was the delivery time and ability to supply the field instrumentation, installation and commissioning which are completely in our scope of activities.

3. Polling the data of the isolation block valves.
4. Polling the data of the gas wells RTU's via VHF link
5. Factory Acceptance Test
6. Training
7. Site Acceptance Test

All the data shall be made available for monitoring and control at the Salam Site DCS via fiber optic network.



## The Design Solution:

Series 90/30 PLC's with Max-On were selected for the PCS applications along with the Field control I/O's. The 90/70 GMR systems were selected for the SIL3 safety applications (ESD and F&G).

Cimplicity 6.1 un-limited points HMI/SCADA software was selected for the Servers and viewers. Two servers with redundancy software were provided at Qasr and Obayied sites. For Shams and Tarek, Quick Panels were installed on the front door of the panels.



The PCS system in each site, particularly Qasr and Obayied, was responsible for:

- Communicating with the third party systems (other PLC's)
- Communicating with the ESD and F&G systems and consolidate the data for polling by the DCS at Salam site either by the Fiber Optic link or the VSAT.

Hirschmann Fiber Optic switches in Hiper ring configuration are used to link the systems with the DCS. Redundant Ethernet network using Hirschmann managed switches was also built in each site. External Network Attached Server was used at Qasr and Obayied to store the Historical data from the HMI servers.





## PLANT EXPANSION

During the execution phase, Apache has discovered more gas wells which necessitated the expansion of the Qasr manifold site to be capable to handle the extra gas quantities. Apache decided to build a new control room and move the Engineering and Operator workstations to the new control room. The same controllers have been used to handle the extra I/O's.

The project ended up with:

	Qasr	Obayied	Shams	Tarek
PCS I/O's	684	688	200	296
Closed Loops	48	80	16	24
ESD I/O's	402	469		
F&G I/O's	328	217		
Polled Data	5000	1000	400	500
Graphical Screens	300	150	55	60



Due to the operations expansion, Apache has decided to rotate the operators between the different plants and they requested Target Engineering to re-build the screens using the same faceplates that their operators are acquainted to on the Honeywell DCS. Target Engineering has customized new faceplates that led to a very similar look of the Honeywell DCS but with more functionality.

The image shows three examples of control room faceplates with various annotations:

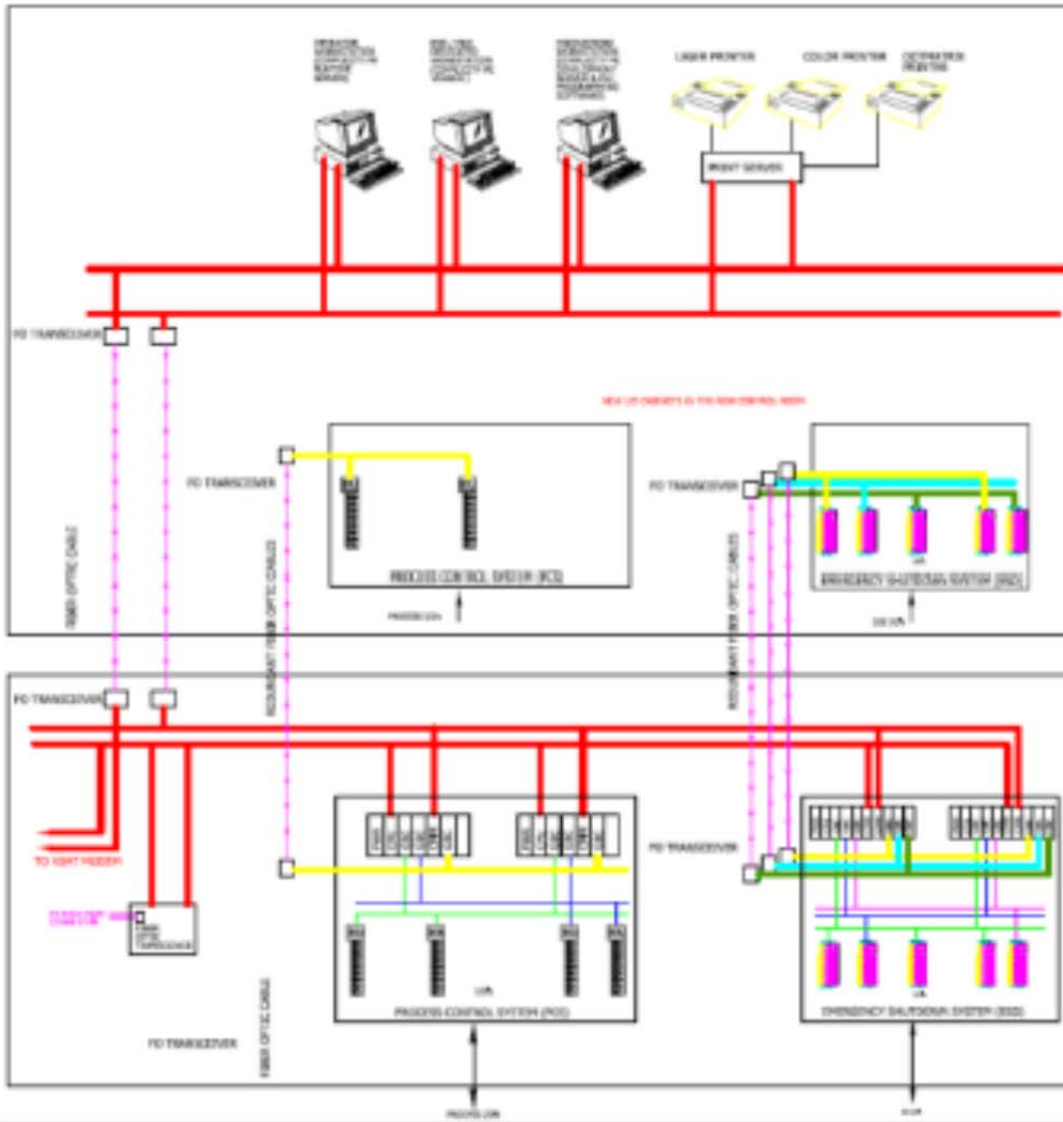
- 24LIC010 1<sup>st</sup> Stage Sep Condensate level V1101:**
  - General information:** Title bar and header area.
  - Status and parameter data:** Graph area showing level percentage (0-100%) and trend data.
  - Process data:** Control parameters including SP (80.00), PV (55.00), OP (75.00), and MODE (AUTO).
- Pump Status Faceplate:**
  - Buttons for RESTART, TAGS, ADDR, and TAGS.
  - Status indicators for RUNNING and STOPPED.
- 35XY026 Train #1 Sep Inlet ESV V-3601-A:**
  - Device Tagname:** 35XY026
  - Device Description:** Train #1 Sep Inlet ESV
  - Miscellaneous Data:** V-3601-A
  - Call up Override button:** Overrides the status of the valve.
  - Override/Status:** Overrides the status of the valve.
  - Status of valve (Manually):** OPEN button.
  - Last Command Status:** OPEN button.





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NEW CONTROL ROOM

EXISTING CONTROL ROOM

