



Management Solution

Fuel Distribution

Kuwait National Petroleum Company Doubles Distribution Efficiency with FUEL-FACS⁺

At the brink of the new millennium, Kuwait proudly claimed to have put behind it US\$ 75 billion in repair costs and other losses as a result of the Iraqi invasion of 1990. Hard hit was its oil industry infrastructure, including distribution depots and filling stations run by the Kuwait National Petroleum Company (KNPC). During the following decade the 22-bay Sabhan Depot near Kuwait City served as the sole distribution point for all of the country's retail outlets. Today, restoration of a second depot and installation of FUEL-FACS⁺ systems at both depots have dramatically increased distribution efficiency.



KNPC finally fulfilled its long-term plan of expanding its local marketing and supply capacity in August of 1999. The restored, 12-bay Ahmadi Depot came on line with a new FUEL-FACS⁺ system from Control Systems International, Inc. (CSI). Throughput was immediately boosted by the 50%+ increase in load spots and improved distribution logistics. Additional benefits resulted from installing a FUEL-FACS⁺ inventory query and dispatch subsystem at both depots. This subsystem insures that orders are automatically generated to meet priority demand. The combination of a restored depot and new FUEL-FACS⁺ systems has effectively doubled KNPC's distribution efficiency.

Restoration Requires Turnkey Supply

The Ahmadi Depot was only partially built when the Iraqi invasion struck. Because it required nearly complete restoration, KNPC needed a solutions partner capable of taking on an extensive scope of supply. This included design, procurement, configuration, testing, installation and commissioning of all instrumentation (valves, meters, tank gauging, etc.) as well as system hardware and software. CSI was ready to take on the task, saving layers of internal project management overhead.

The new systems combine a business solution with fully automated control for product receiving and transfer, storage, loading and unloading operations, and facility security and safety. Together, the two depots now supply over 100 filling stations, up from 87 before the war and a 25% increase since 1994.



Control Systems International®

K-9906-LIT-22-MKTG-11101999-JB

Unattended Depot Operations

KNPC's specified objectives for the new systems included real-time collection of transaction and operations data to support better distribution analysis and management. They also wanted to optimize their utilization of tanker trucks. Top priority was the ability of the new systems to support unattended operations at the depots under normal conditions.

In a country where security of access to key facilities is still critical, unattended operations does not mean loading trucks at totally unattended depot. The Kuwait National Guard helps provide security at the sites and private carriers who have not placed orders in advance must arrange their transactions at a Dispatch Office located outside the main gate. A proximity-type Driver ID card along with a sophisticated Truck ID system are used to control access at the depot. A variety of security validations are performed on all driver/truck combinations. A driver is only allowed admittance if all are passed.

However, once an order is dispatched no operator intervention is required to load an ordered quantity at a bay. FUEL-FACS+ automatically assigns a driver to a loadspot, directs him to the spot via automatic messaging, and downloads the ordered quantity to the appropriate preset. It verifies that grounding and overspill systems are connected and prints the post-loading documentation. If a driver goes to a wrong bay or attempts to load improperly, the system issues corrective messages.

Similarly, product receipts via pipeline and tank transfers are normally performed in automatic mode with extensive interlocking. Highly accurate colorimeters detect batch changes during product receipt to avoid contamination. Tank farm spill avoidance is implemented through interlocks of tank level sensors and manifold valves. Historical archiving of operations data allows for trending and analysis to be performed so that variables such as equipment run times can be continuously optimized.

Demand-driven Dispatching

How to best utilize their tanker fleet to ensure adequate product supplies at filling stations was another key objective realized by the new CSI systems.



An inventory query and dispatch subsystem automatically calls the 100+ filling stations one to five times a day, retrieving phone numbers from the FUEL-FACS+ customer database.

The system updates a table of filling stations and product inventories and determines what stations need product and in what priority. It then uses a "priority level/load and delivery time/tanker size" algorithm to automatically generate and sort orders which are dispatched to KNPC fleet tankers as they arrive at the depot. The result: even an unexpected demand surge is catered to automatically and immediately.

Marketing for the Millennium

The close of a dramatic decade finds KNPC well-equipped to handle product marketing in the new millennium. Recovery of refining and export capacities is complete. Growing local markets are being well-served by the restored depot at Ahmadi and the distribution efficiencies introduced by FUEL-FACS+. In addition, the new systems can be easily configured to accommodate future depot expansions and bring additional business functionality on-line. KNPC can rest assured that its technological infrastructure will keep pace with Kuwait's rapidly advancing distribution and marketing requirements.



Control Systems International®

CSI USA ♦ 8040 Nieman Rd. Lenexa, Kansas 66214 ☎ 913.599.5010 Fax: 913.599.5013 e-mail: mktg@csiks.co
CSI UK ♦ Pew Hill House Ste. B, Pew Hill, Chippenham, Wiltshire, SN15 1DN ☎ +44 (0) 1249 448400 Fax: +44 (0) 1249 447723
e-mail: mktg@csiuk.com <http://www.fuelfacs.com>

Copyright © Control Systems International, Inc. 2001. All Rights Reserved. All company and product names are trademarks or registered marks of their respective holders. The information in this document is subject to change, without notice, at any time and should not be used as a specification for any particular CSI product or project.