

# Oil, Gas and Energy

## Ruwais Refinery Expansion



Johnson Controls (formerly Tyco), were awarded the contract for the design, manufacture and supply of a distributed Public Address General Alarm (PAGA) system for installation on the Takreer Ruwais Refinery, United Arab Emirates.

### Ruwais Refinery Complex

Abu Dhabi Refining Company (Takreer) had undertaken a major project to expand its existing Ruwais Refinery complex, which was commissioned in June 1981. The plant is owned by Abu Dhabi National Oil Company (ADNOC). The refinery complex is located 240km west of Abu Dhabi.

The previous refining capacity of the complex was 400,000 barrels per day (bpd) and the expansion will add another 417,000bpd lifting the total capacity to 817,000bpd.

### PAGA System

The PAGA system, forms an integral part for the life safety of all plant operatives. The system needed to be suitable for operational, pre-recorded and emergency broadcasts to technicians within all plant areas.

The scope of work required the distribution of both audio and data around a **Fibre Optic network** with a larger than normal number of nodes with status and monitoring information being recorded centrally.

System control was to be incorporated at the Main Control Room (MCR) using standard access terminals with status reporting via ACE100View software package. Johnson Controls had to work in conjunction with several different contractors to ensure the continuity of the project through to completion.



Further to this, each individual loudspeaker required remote monitoring and tap adjustment which involved using in excess of **3,000 Spector Addressable Loudspeaker Modules (LTU's)**.

The initial PAGA system consisted of 34 duplicated nodes installed in various locations of the new refinery.

This was expanded further in a second phase by another 10 duplicated Nodes making a total of 44 duplicated nodes **(88 Nodes in total)**.

The high number of fibre optic networked systems required Johnson Controls Broadcast Zone Mapper, a feature based on existing data transmission modules that permits easier routing of data on congested networks.

The main challenge was to seamlessly integrate the central master system with the clients dedicated control console. We were able to review the software requirements needed and design and build a dedicated interface.

We have the ability to provide bespoke, scalable distributed, networked PAGA systems to meet site specific demands.

Spector House, Dabell Avenue,  
Blenheim Industrial Estate, Bulwell,  
Nottingham. NG6 8WA.  
United Kingdom

Tel: +44(0) 115 9 04 04 04  
Fax: +44(0) 155 9 77 03 70