

A Smooth Migration in a Harsh Environment

Application Note

Honeywell replaced the existing control and safety system at an upstream oil and gas plant with an integrated, low-maintenance solution supporting operations in harsh and remote location.

Background

An upstream oil and gas owner and operator in North Africa came to Honeywell with significant issues around the obsolescence of its existing control system.

Operating in a remote location and a harsh environment, the plant had seen a number of changes to its original ABB Bailey Infi 90 control system. These included various Infi 90 console upgrades at the human machine interface (HMI) level, as well as subsequent introduction of Emerson Delta V stations to replace the Vax-based Bailey Infi90 OIS 40 operator interface.

Nevertheless, the system was causing increasing challenges in terms of maintenance, reliability, efficiency and safety. Migration to a modern control system was determined to be the best way forward.

Challenge

The key objectives for the migration were to ensure continuing production and maintain high standards of safety. The client needed a solution that would ensure high levels of reliability and equipment availability – a challenge in the harsh environment in question. Its remote location also meant that ease of maintenance was a priority.

To achieve this, the migration would encompass not just the DCS, but the safety shutdown and fire and gas systems as well. Any solution therefore needed to provide a unified control and operating system that would be fully supported for the life of

the plant. Comprehensive training and an upgraded training simulator for operators and maintenance staff were also to be included.

A state-of-the-art system was required to perform all existing functions reliably while providing access to an open, flexible, fully integrated and distributed system architecture for hardware and software. The operator also wanted the new technology to include the functionality of a rich HMI, built-in redundancy, and a common data and control network that was IEC 61508 compatible and SIL3 functional certified.

Finally, the migration needed to retain all interfaces to existing third party packages.

Solution

To achieve these goals, the control system, controllers, I/O modules, gateways and other interfaces, as well as the operator stations, were entirely replaced with Honeywell's solution based on its [Experion® PKS](#) automation platform.

This included Experion PKS with Distributed System Architecture (DSA) and [C300 controllers](#). The Safety and Fire&Gas systems, meanwhile, were replaced with [Safety Manager](#). Together, these delivered an integrated control and safety system. Additional scope comprised Field Device Manager (FDM) and eServer.

Honeywell was involved in all project services, applications development and system engineering,

Honeywell has a long track record of executing successful migrations. We have delivered the process industry automation solutions for over 40 years and technology licensing for over 100 years. Our engineers draw on extensive knowledge of competitive systems and key tools for audits and migration.

Third Party System Migration

Honeywell provides third party system migration ranging from full migration of existing systems to varying options for incremental migration that enable customers to upgrade without any loss of production and efficiency.

as well as factory and site acceptance testing and site commissioning.

An extensive site audit provided the basis of design. This carefully delineated the installed system, and included verification of the room layout, the physical cabinet I/O module count and field cable schedule. The physical I/O details were compared with those in the database backup, with attention given to controller segregation.

Built on the Experion System platform, the new network design was based on Fault Tolerant Ethernet, using standard network connectivity hardware and industrial network practices. The Experion PKS™ system includes Honeywell's patented HMIWeb technology, a web-based architecture supporting integration of the HMI, applications and business data.

To ensure a smooth transition from legacy third party systems, Honeywell's engineers collaborated closely with the plant's, both while working locally and at Honeywell's staging facility in Romania. Extensive logic testing was conducted during the factory acceptance test.

The new system was commissioned in a number of

phases to minimize disruption, with connectivity retained to parts of the old system required for data exchange.

Benefits

Drawing on deep domain knowledge, Honeywell was able to capture all relevant existing application details to migrate to a fully supported solution.

As the same time, the plant benefited from the move to a modern, fully integrated solution connecting systems across the plant for greater reliability and efficiency:

- Experion PKS integration of process and safety has provided a single database and global tags, as well as fast data transfer and alarm management on one, unified platform
- Better management of abnormal situations enables operators to detect situations sooner and take the correct actions more quickly
- Intuitive controls and comprehensive training have ensured confident, productive operations during the transition to the new system.

Honeywell fully realized all project objectives and completed the migration with minimal disruption to operations.

For More Information

Visit www.honeywellprocess.com or contact your Honeywell Account Manager.

Honeywell Process Solutions

1250 West Sam Houston Parkway South
Houston, TX 77042

Honeywell House, Skimped Hill Lane
Bracknell, Berkshire, England RG12 1EB UK

Building #1, 555 Huanke Road,
Zhangjiang Hi-Tech Industrial Park,
Pudong New Area, Shanghai 201203

www.honeywellprocess.com

AP-19-03-ENG
April 2019
© 2019 Honeywell
International Inc.

Honeywell