

Taiyo Oil's Yamaguchi Utility Plant DCS Migration

Case Study

“As a result of our preparation and Honeywell Support, the migration was accomplished without any major issues or schedule delays.”

– Yutaka, Oka, President, Taiyo Oil Company, Japan

Background

Taiyo Oil Company, Ltd., is one of Japan's leading suppliers of petroleum and petrochemical products.

Taiyo's Yamaguchi Operations is proactive in its expansion and streamlining efforts in order to respond to domestic and international demand for styrene monomer. The plant is ISO9001 (Quality Management System) and ISO14001 (Environmental Management System) certified.

Challenge

Taiyo Petrochemical Co., Ltd. acquired Nishioki Utility Ltd. (NUT) in April 2011.

When the NUT Plant was built in 1993, Yokogawa's CENTUM XL was the selected DCS, with end of support in September 2015.

Taiyo outlined three key requirements for a new system:

- Improve Situational Awareness and Operator Efficiency,
- Rebuild the Control Application, and
- Accomplish System Cutover in one day.

Taiyo evaluated three DCS suppliers to address the company's migration plans for the NUT Plant. Honeywell, and the other two domestic vendors were evaluated based on solution presentation, migration procedures, and additional value.

For Taiyo the integration of the NUT Plant DCS and the Styrene Monomer Plant DCS on a common platform was a consideration in order to simplify maintenance, operations, and monitoring.

Solution

The Taiyo evaluation team selected Honeywell Experion® PKS as the NUT Plant DCS and for consolidating the Styrene Monomer Plant DCS in the near term.



Taiyo's Yamaguchi Operations, located in Ube City, Yamaguchi Prefecture, Japan.

Taiyo Oil has established an integrated operation infrastructure that ranges from the development and import of oil to the manufacture and sale of petroleum products, as well as petrochemicals, an is focusing on achieving sustainable management.

Benefits

The Honeywell solution:

- Achieved high operator efficiency by improving the HMI (human machine interface) according to the ASM Consortium standard
- Improved the control strategy, including creating Control Application documentation based on a Control Logic Study of the legacy

Summary

Taiyo and Honeywell collaborated well to complete the [DCS migration](#) with no major issues and on schedule, with just a day of shutdown.

After the first four months, Control Room Operations continues to explore and use more functions of the Experion PKS.

Near term plans include operability improvements, using the new functions.

control system actions. (The legacy control system control strategy documentation was either non-existent or unavailable since the NUT Plant was acquired from another company.)

- Optimized system cutover duration with pre-work completed prior to the scheduled cutover day.

Results

The migration and associated project services have provided Taiyo's NUT Plant with:

- Improved Situational Awareness and Operator Efficiency, achieved by:
 - Redesigning HMI by determining which information should be displayed when, based on studying the Span of Control for operators, and process flow analysis.
 - Following the ASM standard philosophy.
 - Continuous monitoring of the main plant status through the creation of HMI hierarchy (L1/L2/L3/L4) and defining L1 and L2 properly without moving other HMI pages, and improving access to the control faceplate.
 - Unifying the HMI philosophy with the Styrene Monomer (SM) Plant DCS through collaboration with the SM Operator.
- Rebuilt Control Application by:
 - Improving the legacy control strategy and applying new system function during application document creation.

The site completed system cutover with only one day of shutdown, according to plan.

Operator feedback indicates significant improvement in alarm handling and trend analysis. The addition of the chart view function and ramp time function have increased operator efficiency.

On-going efforts are focusing on familiarization with Safeview, additional control logic conversion, language used in the displays, and display rates.

About Honeywell's Experion PKS

Experion® Process Knowledge System (PKS) integrates an advanced automation platform and innovative software applications to improve users' business performance and peace of mind. Unifying people with process, business and asset management, this distributed control system (DCS) helps process manufacturers increase profitability and productivity.

It is the only automation system that focuses on people — making the most of the knowledge they hold. By integrating disparate data across facilities, making the most of resources and people, and feeding it all into a unified automation system, users can achieve an operation that's more proactive, efficient and responsive.

For More Information

Learn more about how Honeywell's Experion PKS can improve business performance and provide peace of mind. Contact your Honeywell Account Manager, Distributor or System Integrator.

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