



## Case Study

### Introduction to JX Nippon Oil & Energy - Wakayama Petroleum Refining Co. Ltd.

Wakayama Petroleum Refining Co. Ltd. (WPR) is an affiliate of JX Nippon Oil & Energy Corporation, the largest oil company in Japan, and produces lubricating oils, solvents and additives, and was established in 1949.

It possesses a VDU (vacuum distillation unit), a Furfural solvent extraction unit, a Solvent dewaxing unit, a Lubricant hydrodesulphurization unit and Lubricant isodewaxed unit.

### The Problem

The management of WPR's operations involves close collaboration between many teams on the plant including Safety, Maintenance, Management, Planning, Real-Time Control, and Personnel.

WPR needed a comprehensive Operations Management System for information sharing, automating routine tasks and reports, and ensuring procedures were consistently followed.

WPR required an enterprise-level tool for recording and following up Near Misses to help reduce the risk and consequences of accidents.

WPR needed to manage the retirement of experienced operators. They needed to find ways to adapt to a smaller operations team and to ensure that vital knowledge about the plant and its procedures was retained and transferred.

There was a need to improve the efficiency and reliability of work instruction management, reporting and shift handover, and the collection of inspection round data using a mobile device.

There were also complications related to the high-pressure gas certification that needed to be addressed.

### The Objectives

- A comprehensive, integrated suite of software applications
- A secure and professional logging and handover system
- A system for managing Work Instructions
- A system for managing Near Misses and Incidents
- A mobile system for Inspection Round data from the field
- A repository for important plant procedures and operations data.

### The Benefits

- Visibility of information
- Routine tasks automated
- Workflows for human processes
- Reduced risk of safety incidents
- Efficient, reliable Shift Handover
- Knowledge repository
- Same user-interface for all applications
- Continuous adaptation and extension of j5 suite
- Simplicity of architecture



## How j5 International Provided the Solution

Starting in 2011, j5 International has implemented the following at Wakayama Petroleum Refining Company:

- j5 Operations Logbook
- j5 Shift Handover
- j5 Work Instructions
- j5 Inspection Rounds (mobile)
- j5 Incident and Near Miss Management
- j5 Standing Orders

j5 produces Shift Handover reports for operators, boardmen and supervisors with relevant data, events and instructions for each unit and area of the refinery. It ensures a consistent, visible and accountable process.

j5 Work Instructions enables Planners to schedule ad hoc and recurring tasks for the operations team members. Tasks are marked off as complete and summarised in the Handover Reports.

j5 Inspection Rounds facilitates the recording of plant data from the field. Inspection Rounds are designed in j5 at the console, uploaded to a smartphone device, completed by the field operators and then synchronised with j5 so that round information is readily available for analysis and reports. Anomalies are automatically highlighted.

j5 Standing Orders allows for the controlled dissemination of important communications within the plant.

The j5 suite operates off a unified user-interface powered from a single, central server. It can be accessed from any browser that is connected to plant's network. Users can select between Japanese and English.

## Benefits of j5

j5 makes important shift, inspection round, personnel, safety, maintenance and process information visible to users across the whole refinery.

This fosters greater understanding, coordination, knowledge transfer and communication between teams, and improved decisions.

j5 role-based workflows (e.g. with Shift Handover, Incident and Near Miss Management, and Work Instructions) improve efficiency, safety and follow-through. j5 provides a consistent, intuitive user-interface for multiple applications.

j5 is easy to adapt as the needs of the refinery change over time, and to add new j5 applications, custom or packaged. The simplicity, comprehensiveness and unity of j5 architecture makes j5 cost effective to maintain and reliable.

j5 supports WPR in meeting its regulatory and compliance reporting requirements.



“j5 delivered a professional consulting service that gave us a clear understanding of our current situation and goals.

We selected j5 as the de facto global standard for achieving competitiveness in operations management.

We rely on j5 for logbook, handover, work instructions, standing orders, near misses and mobile inspection rounds.

We would like to extend our use of j5 to other applications in the future.”

**Nobuyuki Takahashi**  
Executive Director  
Kainan Plant Manager  
Wakayama Petroleum Refinery



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