Enhancing **reliability management process** for chemical, energy & fertiliser industries

inspectivity

CASE STUDY

❝❞ The Client

Wesfarmers Chemicals, Energy & Fertilisers (WesCEF) operates chemical, energy and fertiliser businesses that service a range of sectors in both domestic and international markets. It has operations around Australia and employs approximately 1,300 people nationally.

WesCEF businesses include:

- CSBP Ammonia / Ammonium Nitrate & Industrial Chemicals
- Queensland Nitrates
- Australian Gold Reagents
- Australian Vinyls

- ModWood
- Kleenheat
- EVOL LNG
- CSBP Fertilisers

Wesfarmers Chemicals, Energy & Fertilisers is part of Wesfarmers Limited, one of Australia's largest publicly-listed companies.

◖● The Challenge

WesCEF engaged Inspectivity to assist with a planned digital transition for inspections as part of its wider work order and reliability management processes. The client wanted to move away from siloed data sources to create an integrated and immersive environment for the management of inspections of critical chemical processing infrastructure.

Seeking to improve productivity and data quality, the solution would set the foundation for a strong digital future, overcome operational challenges and meet the following requirements:

- Connect work order management to inspection activities

- Enable creation of work inspection packs without the overheads of data and documentation scattered across multiple data sources

- Remove productivity issues associated with manual report generation and enable mobility for inspection activities

- Improve tooling requirements for engineering asset data storage and support reliability management

- Review and refine asset hierarchy in the ERP system to allow work order management to draw clear links with field inspection activities

- Generate automated inspection reports quickly & accurately

- Standardise & improve discipline throughout the inspection process to avoid deviation from workflow requirements

◖● The Inspectivity Solution

Be "agile" - Set up first, integrate second

Digital inspection use case implementations have two distinct streams of work. The first being the migration of the field inspection process to a digital operation and the second is the integration of the digital operation with other systems. Successful integration depends on having a strong understanding of the new digital inspection process. Therefore, it makes sense to digitise the inspection process first, followed by the integration process - this is how Inspectivity implemented digitalisation for WesCEF.

Workshops

At the outset, Inspectivity consultants worked closely with WesCEF stakeholders and focal points to provide both a detailed understanding of the Inspectivity Platform solution software, as well as execute a framework encompassing the required analysis for implementation:

- Understanding data sources and source of truth
- Reviewing asset hierarchy

- Reviewing requirements for asset data and documentation (eg. P&IDs, ISOs, GAs)

- Understanding the inspection philosophy for the client

- Determining digital inspection requirements (forms and reporting)

- Confirm technical integration approach with client's solution architects

- Analysing work order lifecycle and defining integration events and data flows

Configuration and Development

Inspectivity implementation philosophy is to enable the client's focal points to perform configuration activities. This approach ensures that the client can self-support and scale the solution in the future with minimal vendor involvement and cost.

During this phase, Inspectivity consultants worked closely with WesCEF focal points to configure a digital inspection solution that mapped exactly to the specific digital inspection requirements. Using the Inspectivity Platform's powerful form building capability, the client was able to configure forms for all the required inspection scopes. Being able to self-support, WesCEF can continuously test and refine how inspection results are recorded including how issues or observations are captured with rapid turnaround times.

In addition to this, Inspectivity consultants engaged with WesCEF to develop designs for customised reporting. Approved mock-up designs were then developed by Inspectivity for final review and user acceptance.

Integration scope included the use of Inspectivity's RESTful API within WesCEF's ERP system to coordinate the creation and management of inspection activities and how they relate to the work order lifecycle. This development work is being performed by WesCEF IT. The opposite flow of data and notifications from Inspectivity to the client's systems requires the development of messaging bus infrastructure by WesCEF to enable Inspectivity to send back status updates.

Training and Deployment

Inspectivity consultants are hands-on with client implementations and ensure that knowledge transfer is easy for focal points. An online knowledge base is available with detailed instructions for all configuration and digital inspection capability. In addition, Inspectivity hosted two separate classroom-based training sessions for early adopter teams.

Deployment of the first phase of the digital inspection was completed in November 2019.

◖● The Outcome

Making the move to digital inspection provides a significant upside in terms of efficiency, quality, safety and control for WesCEF's asset management processes. It has accelerated responsiveness, improved service levels and assisted in reducing costs via new intelligent processes.

The foundations for future automation are set with an aligned source of truth for asset hierarchy and the digital inspection platform, aligning work order management with inspection activities. Once completed, the integration scope will create a seamless environment between engineering, planning and fieldwork.

The Inspectivity Platform has provided a digital inspection solution supporting:

- 8 asset classes including cooling towers, exchangers, piping loops, relief valves, tanks and vessels

- 9 digital inspection types covering external visual, NDT and internal inspections

- Configured issue formats for 12 categories of observation including coating breakdown, insulation issues, corrosion, identification, instrumentation, internal thinning, leak detection, mechanical damage, pipe support and piping issues, as well as structural concerns

A smart inspection workflow was configured to support business needs for reviews, rework, clarifications and ongoing reinspection, while seamless integration with WesCEF's ERP system will ensure transparency of status and faster decision making.

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Inspectivity maintains a strong partnership with WesCEF and is proud to provide advanced asset management and inspection technologies to support its chemical, energy and fertiliser businesses. The overall solution represents a benchmark for the organisation to apply across all business units and engineering domains.

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