



Digitally Enabling  
Oil & Gas Operations

Case Study

# Maximising Water Injection System Performance.

OPEX helped an oil and gas operator to maximise the performance of the water injection system on their North Sea asset. Here's how we did it.

## Case Study



### The Data

Existing operational data was taken from the water injection system encompassing produced water, seawater filtration, sulphate removal package, deaeration and water injection pumps.

Every day, OPEX's data scientists analysed 1 million data points and 10 thousand data relationships from this system.



### Our Approach

Using predictive technology, data science and oil and gas domain expertise we focused on helping this customer to:

- Solve specific water injection challenges
- Reduce downtime
- Maximise the efficiency of the water injection system



### Typical Insights

Some examples of the types of issues we helped to identify on this system:

- Early detection of faulty chemical probes preventing spurious outages
- Early detection of seal degradation across centrifugal pumps
- Effective management of SRP membrane & filter cleaning
- Pump performance monitoring
- Instrumentation fault detection



### A Practical Example

#### System Start-up Optimisation

The asset was experiencing difficulty re-starting a water injection pump and had called the OEM to help them offshore.

Before the vendor mobilised, the onshore team asked OPEX to investigate whether data science could be applied to address the problem.

Our analysis revealed the chances of a successful start were more than doubled if the recycle valve position was restricted and if the pump's motor was allowed to cool to a specific temperature before the attempt was made.

By applying this methodology, the pump successfully started first time, the OEM mobilisation was cancelled and the start-up procedures updated.



### The Impact

During the first 20 months of application:

**64**

Actionable insights provided by OPEX

**30**

Water injection system trips avoided

**763**

Hours of downtime prevented

**\$8million**

Production revenue protected

**3.2million**

Bbls water injection protected