



Smart Solutions

Case study: Partnering for improved machine reliability

Application: *Surface coal*

Location: *Australia*

Products featured: *P&H 4100XPC DC
and 4100XPC AC shovels*

Challenge: Improve machine reliability

Customer wanted **better visibility** on potential upcoming causes of shovel downtime.

We were asked to minimize impact against budget and find an enhanced solution to improve margins and streamline the extraction process.

Contributing factors:

- Major components allowed for **risk management approaches**: motors, transmissions, gearing, and bearings
- Air Supply and lubrication systems had most impact on shovel **reliability**
- Needed clear lines of **communication** and **accountability**



Engagement process: Working toward a solution

Implemented newly developed automated monitoring system through Smart Solutions with **ability to detect any changes in component behavior.**

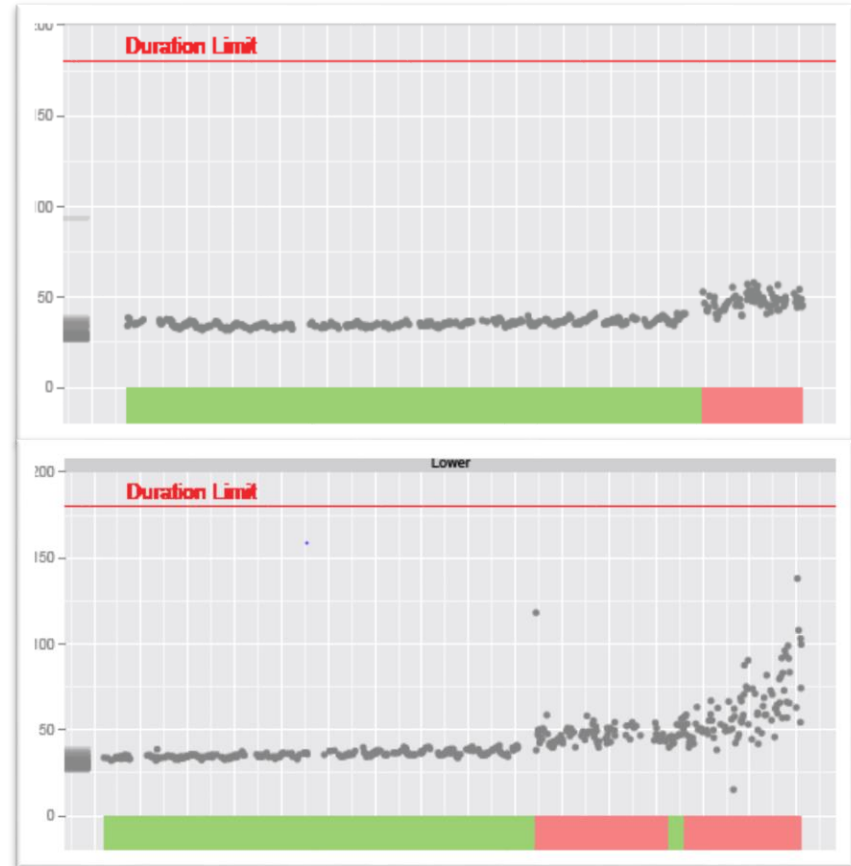
Smart Solutions product specialists quickly identified areas of focus that would be prioritized to achieve improved reliability.



Solution: Identify areas of focus

Using collected sensor data, Smart Solutions experts deployed predictive models to **analyze real time sensor data** to determine if any of the identified major component started to drift from its established baseline.

Smart Solutions product specialists **interpret any model anomalies** and reported out with a recommended course of action.



Results:

The combined shovel availabilities achieved the target of **92%**, **eight weeks** in a row

No major component failed during the six-month engagement period

