SITE TESTING & INVESTIGATION
SHIPLOADER SPOUT FATIGUE FAILURE

CLIENT:
Newcastle Coal Infrastructure Group

LOCATION:
Port of Newcastle NSW

PROJECT:
Install a range of instrumentation investigating the in-service loading of a shiploader at one of Australia's major coal export terminals.

PROJECT SCOPE
Verico provided testing and monitoring expertise as well as software package development to measure and easily interpret load data. This assisted in identifying the root cause for failure of the shiploader spout.

PROJECT
The customer’s SL01 shiploader was taken out of service after severe cracking was discovered in the rotor section of the spout assembly.

Verico’s mechanical team designed testing and monitoring equipment to help investigate and diagnose the source of the spout cracking. This included the application of instrumentation such as strain gauges, accelerometers and pressure transmitters.

The data measured from the applied instrumentation was correlated with data from the site’s SCADA system, such as tonnes per hour on the belt, spout rotation angle and long-travel location.

To allow the machine operational conditions to be better understood during the testing a night vision camera was fitted with imagery synchronised to the data capture.

The measurements indicated that large stress cycles were being seen by the components as the spout pipe moved through its range of motions. This was found to be the major cause of the fatigue failures (cracking).

PROJECT OUTCOMES
• Identification of the root cause for the shiploader spout failure
• Data logging, collection and analysis
• Custom software package developed in house to support the rapid interrogation of data collected
• Quick diagnosis and repairs deployed in line with customer expectations.