

MoistScan[®] Case Study

Online Measurement of Moisture in Coal for Cost Analysis

The Company



Coal received onsite

Our Customer, a 1000MW power station in New South Wales Australia receives coal via road carrier from several mines in the local area.

The company carries out coal reconciliations quarterly, in which the book value of the coal is compared with a survey result of the stock pile. With the high cost of the company decided it needed to improve the way it accounted for coal received. A decision was made to implement an accurate method of product reconciliation whereby wet tonnes of coal received is converted into dry tonnage using the MoistScan[®] online microwave moisture analyser.

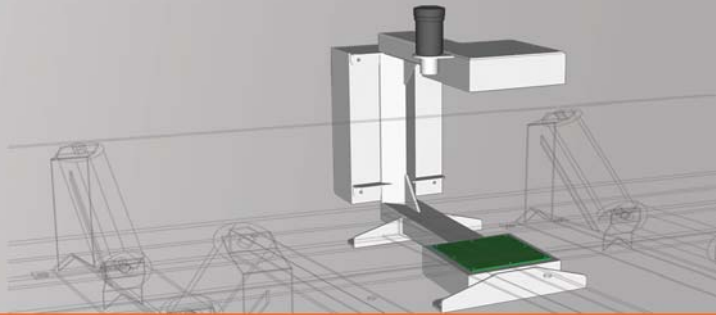
The Application

Coal is delivered either by road to the power station. The trucks dump the coal into a hopper which empties onto a conveyor belt where a MoistScan[®] MA-500HD moisture analyser is installed close to the tail end of the conveyor. This minimises the time between the delivery leaving the road hopper and the moisture result.

The MoistScan[®] MA-500HD is installed to provide a real-time moisture result of delivered coal to the plant control system.



MA-500HD installed on conveyor to measure the moisture in coal entering site



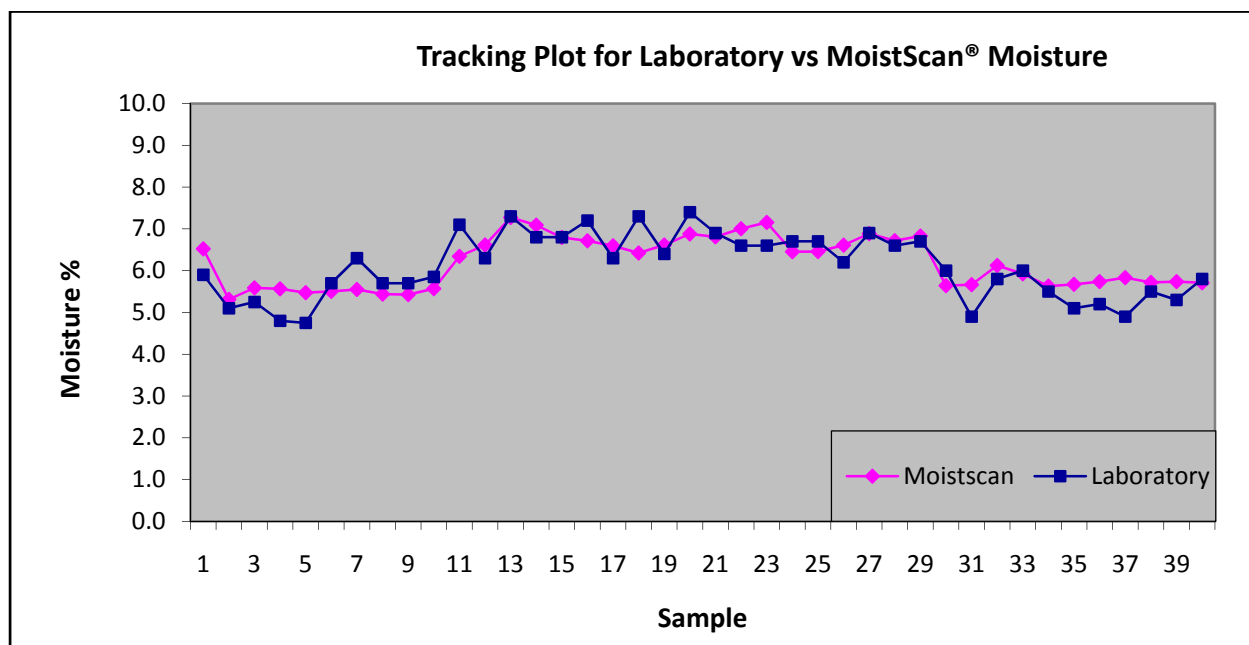
Calibrating the MoistScan[®]

Calibration of the analyser is of great importance as this ultimately determines the analysers performance. A stop belt procedure was used to manually collect samples from the belt. The procedure was carried out as follows:

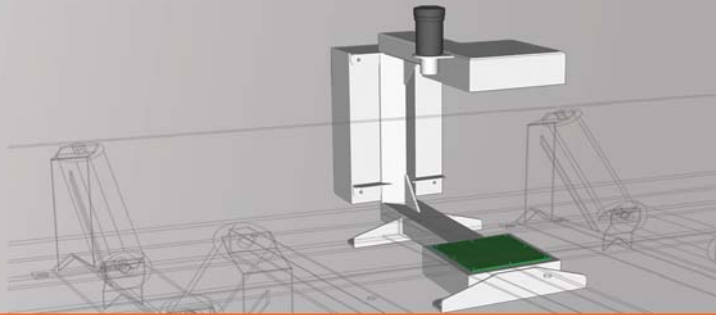
- The belt was run with designated coal for a short period and then stopped;
- Five manual cross belt cuts of the material were taken and then split into two parts for duplicate samples;
- Each cut is taken around 20 metres apart giving a spacing of around 15 seconds;
- The belt was then run for another 2 – 3 minutes and stopped, repeating the procedure for more samples;
- 30 samples were collected in this fashion over the period of three days;

A sample is taken from each truck load of coal using an automatic cross belt sampling cutter which is installed on the conveyor. This is timed so that the sample is taken toward the half way point of a delivery, although this does vary. The sample results take about four days between being collected by the laboratory and having the analysis results completed.

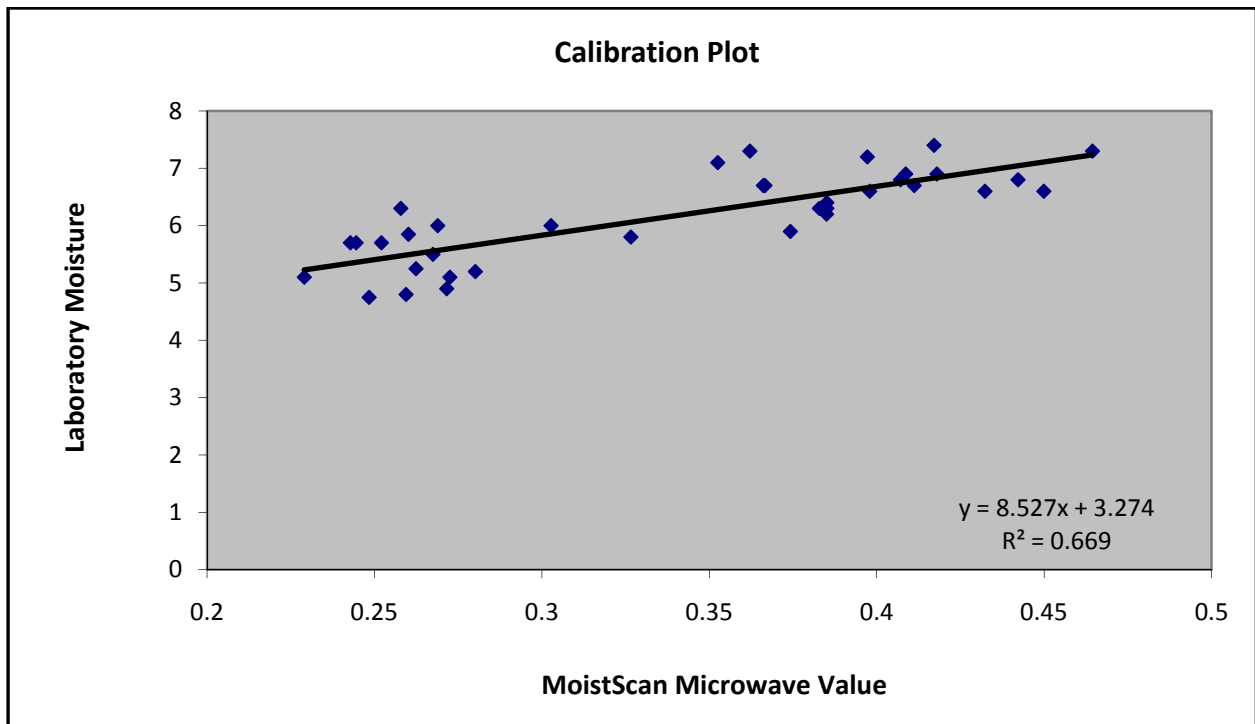
The MoistScan[®] average value results for the day's delivery are compared with the laboratory results.



The graph show MoistScan[®] tracking closely with the laboratory samples



The laboratory moistures were within the range of 4% - 7%. An initial calibration was put in the gauge using the first 2 days of samples. This was to verify the gauge was reporting to the control system and measuring correctly.



The MoistScan[®] displays accuracy and repeatability

Wireless modem makes calibration checking and maintenance easy

A Next G wireless modem is installed with a remote connection established. This remote connection allows Callidan Instruments to periodically verify the calibration under undertake routine maintenance checks.

Further Information

For more information on this application and others please contact Callidan Instrument.

Phone: +61 7 4955 5966

Fax: +61 7 4955 7338

Email: moistscan-sales@callidan.com

Website: www.callidan.com