Clinker Production Monitoring

CEMENT

Customer

- S&P 500 supplier of aggregates and heavy building materials

Data Sources

- Wonderware Historian

Business Improvement

- Quality
- Yield

Challenge

An S&P 500 supplier of aggregates and heavy building materials needed a better way to monitor its production of clinker, the primary component in the manufacturing of cement. Cement production reports are critical to understanding how the plant is performing, especially how the calculated yield compares with the measured total.

But traditionally, compiling these reports is a time-consuming and cumbersome process for the company's supply chain and engineering personnel. That's because plant personnel must manipulate spreadsheet analyses to filter out poor-quality clinker and times when the plant is not in production due to an outage. Additionally, different types of clinker require different production calculations.

Due to the complexity of calculations performed in Excel spreadsheets, there is a high risk of errors in the reports. The company needed to save engineering time and ensure consistency when generating these important reports.

Solution

Seeq advanced analytics were used to:

- Calculate clinker from kiln feed and kiln slag signal
- Identify time periods for shifts and operation modes when clinker was produced

The company used the Seeq advanced analytics application to calculate the tons of clinker produced per 12-hour shift, excluding weekends or times when the kiln was down for a planned outage.

The updated metric can simply be refreshed with the most recent data each day and then shared across the company, enabling collaboration that would previously have been too difficult to do.

Results

- Provide organized template for daily stand-up meeting saving four hours of supervisor time per day
- Quickly identify shifts not meeting production goals
- Compare calculated clinker to measured values to monitor sensor accuracy

Data Cleansing

- Kiln Feed and Kiln Slag signals are filtered using Seeq Formula
- Each shift is defined using Seeq Periodic Condition. Shifts are combined into a single con dition using Seeq Composite Condition

Calculations & Conditions

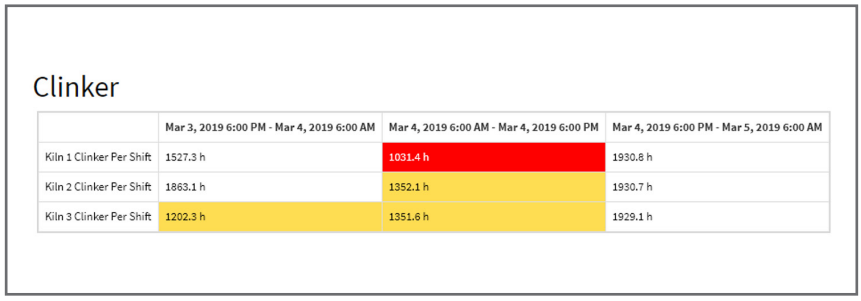
- Seeq's Formula tool calculates clinker from Kiln Feed and Kiln Slag
- Seeq's Scorecard Metric tool totalizes clinker over each shift capsule. Pre-set thresholds visually identify when produ tion is lower than expected.

Reporting & Collaboration

- The Organizer Topic is configured to update each day to show the latest clinker production from the last day's shifts.

The production planning team reviews the report showing tons of clinker produced daily for latest production data from each shift. Automatically updating these calculations over the desired data set saves four hours of supervisor time, per day, that it would have taken to manually do the production calculations by shift.

The team is now able to easily identify issues that will prevent that plan from meeting its production goals and validates the clinker calculations used for business accounting, a major savings of time and effort.



The figure shows a Topic in Seeq Organizer.
The table shows the clinker production by shift for each day.