
Increasing Throughput in Balling-Drum Operations

Iron Ore Processing

Situation

A major producer of iron ore pellets sought to partner with Implementation Engineers to improve its balling-drum operations. Their goal was to achieve 110 tons per hour with a pocket size (1/2" - 3/8") of greater than 85%, without negatively impacting secondary metrics such as overall plant throughput or product quality measures.

Approach

Implementation Engineers utilized a variety of analytical and implementation tools and methods to identify the reasons for output variability and put appropriate systems and metrics in place to maintain the requisite level of output. Our approach had five phases (Define, Measure, Analyze, Improve and Control) to accomplish:

- Process maps of the operation's current process, data and capabilities relating to targeting and controlling balling drum operational output
- A system in place for determining sampling and analytical variability including hands-on training on the tools utilized for those key individuals involved in the project
- A system in place to optimize the process of targeting and controlling balling drum output within the requisite specifications based on data collected through sampling and analysis
- Quality improvements and cost reductions as a result of the optimized process
- Develop/update FMEA, SPC and/or other controls documents, as needed, to sustain the optimized process and requisite output specifications

Project

Implemented Improvements

- Fixed technical issues with the balling drum that were preventing the drum from achieving the target output.



-
- Assessed the measurement system capability and installed on-line moisture measurements for improved process-control capability.
 - Determined the input settings required to run at 110 tons per hour without compromising quality via DOE.

Results

- Provided the plant with the capability to run seven balling drums on Line Two at 110 tons per hour.
- This, in turn, provided the opportunity to shut down the five drums on Line One with an estimated potential saving of \$300,000 per month.