



POWERED BY DATA—ARCELORMITTAL'S INTEGRATED REMOTE OPERATIONS CENTER

ArcelorMittal Mining Canada G.P. (AMEM) is one of the main Canadian suppliers of iron ore products for the national and global steel market. With activities in both the mining and primary processing sectors, the company has impressive facilities in Québec, on the north shore of the Gulf of St. Lawrence. AMEM produces more than 26 million metric tons of concentrate a year from an extensive deposit in Mont-Wright and its mine in Fire Lake. All AMEM's concentrate is carried by rail to Port-Cartier where part of it is processed at the company's pellet plant. With an annual capacity in excess of 10 million metric tons, the plant produces various types of pellets to meet the requirements of demanding customers.

BETTER DATA, BETTER EFFICIENCY

In 2010, ArcelorMittal invested in an expansion project at the mine to increase annual production from 16 to 24 million tons. When the project culminated in 2012, the price of ore had dropped significantly. AMEM knew it had to find a way to push the extra tonnage through its transportation infrastructure with no additional capital investments. “We haul ore from our production facilities and mines along a railway out to the port,” said Michel Plourde, Director of Innovation and Technology at AMEM. “There is only one loading facility, and because the port was designed for smaller ships and cannot be modified. You cannot move multiple ships at a time—they just won't fit.” AMEM had assets designed for a 16-million-ton operation and was producing between 23 and 30 million tons a year,

resulting in severe bottlenecks. “We had to push more ore through with no additional capital investments. All we could do was apply a bit of smarts to what we had and see what we could do,” Plourde recalled.

The answer was to create an Integrated Remote Operations Center (IROC) and implement the PI System™. By integrating all of their operational information into one system — making easy-to-understand data accessible to everyone — a new collaborative mindset emerged, and employees of all levels engaged with the data. “We met our targets in 2015 — 26 million tons was quite a challenge for us and translated to about \$120 million of additional revenue,” said Plourde. Instead of investing in infrastructure, the company was able to meet its increased operation load simply by leveraging the data and streamlining port

CHALLENGE

Optimize logistics from pit to port by chasing bottlenecks across the entire value chain.

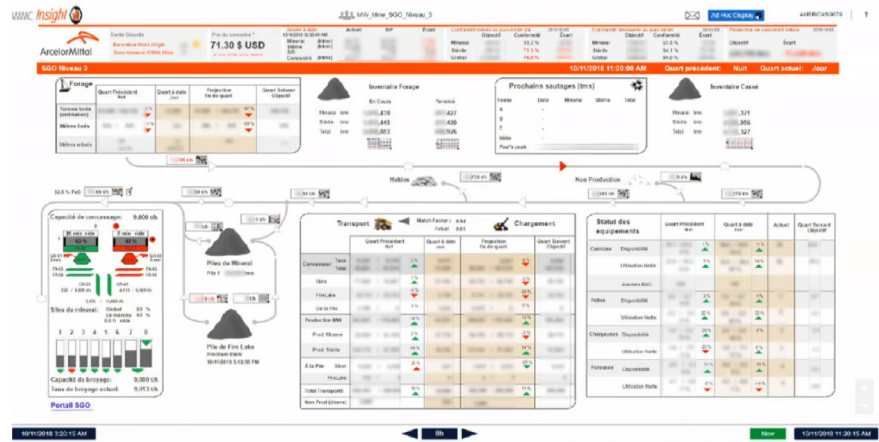
SOLUTION

Democratized access to data to identify & react to problems in real time.

BENEFIT

300% reduction in concentrator slowdown;
5% increase in conformity to the mine plan. \$120 million of additional revenue in 2015.

Relying on the PI System, managers, analysts, and operators can view and analyze the data they need to help them detect and solve problems in real time.



logistics. Since then, AMEM has since had many more improvements in the works.

YOU CAN ONLY IMPROVE WHAT YOU CAN MEASURE

“We needed to build this ability to optimize better decision-making in order to enhance logistical decisions along that value chain,” said Plourde. His team solved the bottleneck issue at the port — they were now ready to chase bottlenecks all across the entire value chain.

Using [Asset Framework](#) (AF), the contextualization layer of the PI Server, engineers were able to create a digital twin of the entire pit-to-port operations. “We can basically represent and position just about any piece of equipment... it’s all running through AF,” said Plourde.

The PI System allowed engineers to identify the Mont-Wright mine as a major bottleneck site. They there began working on analyzing the problem. What they needed, according to Plourde, was “to bring in the tools to provide us with real-time analytics.” The team created PI Vision dashboards for management, analysts, foremen, and truck operators, offering users “a single source of truth” for real-time operational data.

Foremen began using data to determine whether they had the correct number of mining trucks in relation to the shovels in operation. Real-time data displays allowed

engineers to confidently deploy more trucks when necessary, or park trucks when they weren’t needed, saving on maintenance and fuel costs. Suspension system data from Caterpillar trucks were fed into a system that analyzed ‘hot spots’ on the roads, so crews could be deployed where they were needed most to fix the roads on any given day. Relying on sensor-based data, image analysis programs began to catch large, incorrectly blasted rocks in individual truckloads. Analytics allowed these loads to be intercepted before the large rocks could jam up the crushing machinery, eliminating hours of maintenance delays and improving safety conditions.

The new Integrated Remote Operations Center resulted in significant increase in daily hauled tonnage due to greater truck productivity, which lead to significant cost savings; It also provided for a 300% reduction in concentrator slowdowns due to low feed at the crushers; and a 5% increased compliance to the mine plan, thus saving time, money, and resources across the board. With much more predictable results, AMEM is now able to identify and solve bottlenecks in real-time, making their data-driven business plan their key to a successful future.

For more information about ArcelorMittal Mining Canada and the PI System, watch the full presentation [here](#).



It’s all about identifying bottlenecks in real time... If we want to do the right thing at the right time, it’s gotta be live.”

— Michel Plourde, Director of Innovation and Technology, ArcelorMittal

Plourde, Michel. “The PI System at the Heart of a Mining Integrated Operations Center” <<https://www.osisoft.com/Presentations/The-PI-system-at-the-heart-of-a-Mining-Integrated-Operations-Center--ArcelorMittal/>>