

ArcelorMittal Dofasco Takes Equipment Asset Reliability to Higher Level to Solidify Leadership Position in Steel Industry

ArcelorMittal Dofasco Steel is a division of ArcelorMittal steel company, the world's largest steel company with 320,000 employees in more than 60 countries. ArcelorMittal Dofasco is one of Canada's largest steel manufacturers, producing hot rolled, cold rolled, galvanized, Extragal™, Galvalume™, Galvalume Plus™, tinplate, chromium-coated and pre-painted flat rolled steels. The company's Hamilton, ON, operations are among the most efficient and technologically advanced of any steel plant in North America. The QS9000 registered steelmaking complex encompasses multiple capital-intensive manufacturing facilities or business units, all of which are ISO 14001 registered.

The Situation

ArcelorMittal Dofasco, well known for its technological and business innovation, is a leader in the highly competitive and asset intensive steel industry. Although the company is one of the most profitable steel producers in North America, it cannot escape the effects of the global market.

Supply chain pressures, such as energy and raw material costs, monetary exchange rates and market fluctuations, have been increasing in recent years.

One way ArcelorMittal Dofasco separates itself from its competition is with its Manufacturing Process Reliability strategy - a strategy that ensures its manufacturing process consistently delivers the production required by its business plan.



ArcelorMittal Dofasco Hamilton, Ontario, Canada

At A Glance:

- » ArcelorMittal Dofasco - one of the most profitable steel producers in North America
- » Operating in a highly competitive global market with supply chain pressures on the rise

The Situation:

- » Equipment reliability is a critical part of ArcelorMittal Dofasco's Manufacturing Process Reliability Strategy.
- » Strategy ensures that the manufacturing process delivers the production required by its business plan.

The Challenge:

- » To achieve 80 percent asset utilization for all assets.
- » To support this target, reliability improvement in all business units required

The Solution

- » EXP Enterprise supports the primary process for managing the reliability improvement initiative at ArcelorMittal Dofasco

The Results:

- » 14% improvement in asset utilization at DSG
- » Increased production totalling an additional 5600 tons per month of throughput.
- » Reactive 'fire-fighter' approach to maintenance replaced with a proactive reliability-based maintenance program

Just as supply chain pressures are increasing, ArcelorMittal Dofasco is ramping up its equipment reliability improvement efforts by implementing the Ivara Asset Performance & Reliability Solution throughout its Hamilton, Ontario, steel making complex. ArcelorMittal Dofasco, an Ivara partner in the development and marketing of the solution, is now a large-scale user.

ArcelorMittal Dofasco's senior management is attuned to the importance of value, as well as costs. "Reliability improvements drive far greater opportunities in throughput and quality than they cost, in terms of maintenance expense," says Ron Thomas, Senior Equipment Reliability Consultant and Project Manager, ArcelorMittal Dofasco. "Therefore, cost is not the main consideration in equipment reliability investment decisions."

The Challenge

ArcelorMittal Dofasco's business plan has set a target of 80 percent asset utilization for all assets, an ambitious goal for any industry, and especially so in steel production. To meet that goal ArcelorMittal Dofasco recognized that it must accelerate reliability improvement in all its business units.

As a result, ArcelorMittal Dofasco is embarking on an implementation of the Ivara Reliability Solution throughout the ten business units in the 730-acre Hamilton complex. One of ArcelorMittal Dofasco's automotive galvanizing lines, the DSG, was selected for a full implementation to prove the economics of reliability improvement.

The Solution

The Ivara Reliability Solution is comprised of a formal business process for achieving reliability - the asset reliability process - and it is supported by reliability best practices and enabling technology, Ivara EXP Enterprise. EXP Enterprise enables a cohesive and integrated approach to developing, implementing and managing an equipment reliability strategy. The solution represents the primary process for managing the reliability improvement initiative at ArcelorMittal Dofasco.

"Reliability improvements drive far greater opportunities in throughput and quality than they cost in terms of maintenance expense. Therefore, cost is not the main consideration in equipment reliability investment decisions."

With the Ivara approach, ArcelorMittal Dofasco has replaced traditional reactive maintenance work with technically based proactive equipment maintenance programs. The initiative began with an understanding of business performance requirements and the ways in which plant assets contribute to those requirements. Assets were then prioritized according to criticality and risk.

The entire solution of process, practices and technology was then applied, one asset at a time, sequencing the assets in terms of risk. Performance standards were established for each asset, defining the level of reliability needed to meet the business goals for the area/plant. The actual performance of the asset was then compared to the asset's desired performance standards with gaps in asset considered to be failures.

Using technically sound reliability strategy development methodologies, such as Reliability Centered Maintenance (RCM2™) and Ivara's Maintenance Task Analysis, work was identified that minimized or eliminated the



performance gaps. These reliability development strategies allowed ArcelorMittal Dofasco to understand the cause of failures and identify the right work to be executed at the right time to reduce or eliminate future failures. The result was a technically based maintenance program for every asset that ensures the level of performance required to meet business objectives.

The Ivara Work Smart™ implementation approach addresses the engagement of the workforce to facilitate changing from a reactive to proactive culture. People are the key to its success and not only define the optimum maintenance program but also sustain the asset reliability process. To support the implementation of the reliability initiative, ArcelorMittal Dofasco has established a corporate performance management team to act as the corporate change agent.

The Work Smart delivery methodology incorporates cross functional core teams which act as the local change agents within individual business units. These teams include participants from maintenance and operations and the technology organization. Core teams gather information from subject matter experts who know the equipment, focusing their combined knowledge on the identification and development of technically based equipment maintenance programs.

In addition, the business process for equipment reliability is very data intensive. The process drives the need for more information than is typically available in a computerized maintenance information system (CMMS). It requires asset centric information such as failure data and reliability performance data. Thomas states, “EXP Enterprise tracks and trends asset health information, computerizing an enormous amount of data from numerous sources – a task that would be impossible to manage using disparate systems or manual activities.” The software provides ArcelorMittal Dofasco with a comprehensive view of asset health that includes information collected from operators and maintainers as well as predictive maintenance technologies, process controls and sensors.

“EXP Enterprise tracks and trends asset health information, computerizing an enormous amount of data from numerous sources – a task that would be impossible to manage using disparate systems or manual activities.”

At the DSG galvanizing line alone, ArcelorMittal Dofasco is able to keep their finger on the pulse of over 10,000 health indicators using the asset performance software. Rather than requiring a daily review of the status of each indicator, the software continuously highlights all potential trouble areas, drawing attention only to the assets where indicators show deterioration in health that could lead to performance degradation.

The Result

The application of Ivara EXP Enterprise and the use of best practices produce outstanding results. The solution is now being implemented throughout ArcelorMittal Dofasco's Hamilton operations, asset by asset.

"In the first nine months of the project, the DSG achieved a 14 percent improvement in asset utilization, producing an additional 5600 tons per month of throughput," comments Thomas. "This translates into significant financial gains."

Reliability improvements in other business units are expected to produce similar throughput gains.

"In the first nine months, the DSG achieved a 14 percent improvement in asset utilization, producing an additional 5600 tons per month of throughput. This translates into significant financial gains."

Conclusion

At ArcelorMittal Dofasco, where value is king, Ivara EXP Enterprise asset performance management software solution is an effective mechanism to address increasing supply chain pressures. Reliability is a key enabler of the company's Manufacturing Process Reliability strategy.

Gains for employees are impressive. The reactive "fire-fighter" approach to maintenance work has been replaced with a proactive reliability process, ensuring a better quality of work life for ArcelorMittal Dofasco employees.

ArcelorMittal Dofasco's focus on reliability has helped to make them one of the most successful companies in the North American steel industry. As the implementation of the Ivara solution moves forward, ArcelorMittal Dofasco continues to benefit from the strategic role reliability plays in driving business results.