



# Arrium Magnetite Stream

Measuring the right metrics



Arrium Mining is an exporter of hematite iron ore and also supplies ferrous feed to Arrium's integrated steelworks at Whyalla. The business was established in 2007 following the commercialisation of the company's hematite iron ore reserves under Project Magnet.

## PROJECT GENESIS & ANALYSIS

Following an earlier, successful project, Arrium engaged Renoir once again to look at their operations downstream.

An analysis focused on what opportunities were present in the Magnetite Stream. This comprised five plants: a crusher, an ore beneficiation plant (OBP), a concentrator, a filter flux plant, and an induration plant, where a combination of observation, data, and system studies were done. The results indicated several opportunities, including low active supervision, low value adding activities, data inconsistencies, minimal short interval control, minimal review meetings and inconsistent root cause analysis.

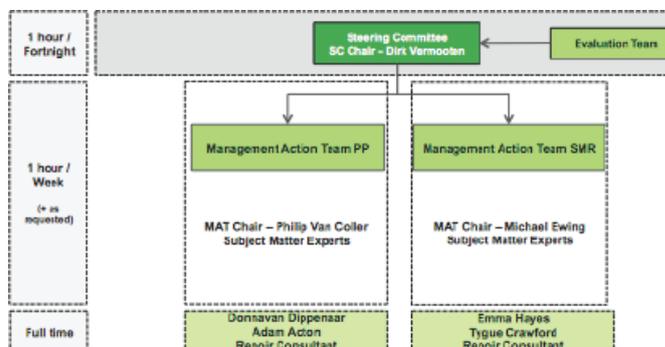
## PROJECT APPROACH

The overall objective was to install the correct elements of the Management Control System (MCS) that address the following benefits:

Throughput increase  
- 8%

- Overtime reduction - 10%
- Contractor reduction by 10%

Two geographically-centric management action teams (MATs) were formed, each comprised of a MAT chair, subject matter experts, taskforce, and a Renoir consultant. These teams took accountability of the project activities and reported to the steering committee chair on a scheduled basis.



## Key Results

ROI - 15:1 vs promise of 3:1

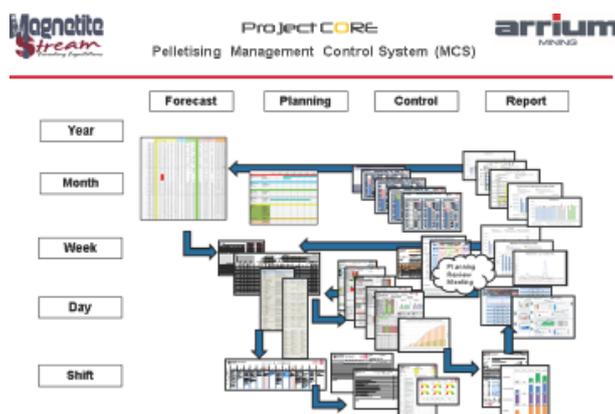
Contractor spend reduction:  
7% - installed active contractor management tools and identified contractor activities that can be done in-house

Overtime spend reduction:  
43% - installed an effective & transparent overtime system and process

Throughput increase 9%  
- the installation of the correct MCS supported improvement efforts with focus on the measurement of availability, rate and yield

## KEY INITIATIVES

The installation of the correct MCS elements was central to the delivery the project. This ensures alignment in planning, doing, reporting, and variance analysis. At the core of the MCS is the installation of the Short Interval Control for both



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“Although we didn’t think it was the best time to start this project, we knew that delaying it would delay our efforts to improve and grab opportunities.”

**Dirk Vermooten Magnetite Stream Manager**

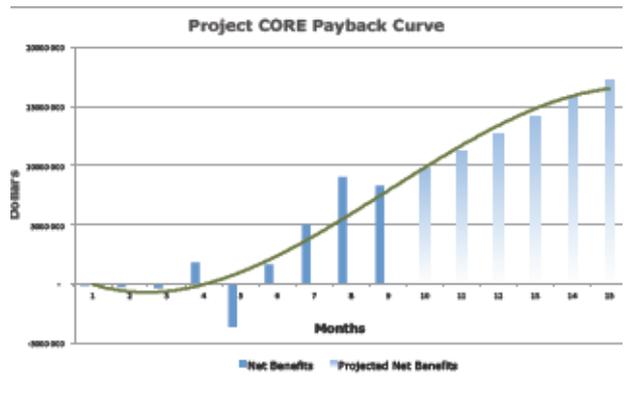
maintenance and operations – since active supervision needed much improvement in both areas, this was one of the main areas of focus. A structured day/week was developed for team leaders in both operations and maintenance and the correct SIC tools for the respective departments. SIC for operations was twofold – one in the control room which monitored the relevant metrics every two hours and required reasons for non-compliance to targets from the controllers if there were deviations; another for the team leaders in order for them to track the other activities of their team by means of SIC rounds and checklists to see if they were on track with their daily tasks.

	FORECAST	PLANNING	CONTROL	REPORT
YEARLY	BUDGET ASSET STRATEGY - PP ASSET STRATEGY - O&M	RIS ROAD C&I SHUT		YEARLY PROO REPORTS
QUARTERLY		Q&I STEP Q&I EPIP	AREA TEAM Q REVIEW	QUARTERLY REPORTS
MONTHLY		HOT SHUT - PP HOT SHUTS - O&M	PCMH - NO YTD PCMH - PP PCMH - O&M	MONTHLY PROO REPORTS Financial Reports C&I Care PP C&I Care O&M Projects Progress
WEEKLY			WORM - MSLT MAT - DP & O&M PCU - DP WORM - DP WORM - PP WOTH - PP Area Team - PP DEI - O&M WORM - O&M WORM - O&M WOTH - O&M Area Team - O&M	WEEKLY PROO REPORTS AUDITS - PP AUDITS - O&M
DAILY			DOHH - PP DOHH - O&M	DAILY PROO REPORTS

For maintenance, a similar perfect day/shift replete with SIC rounds was installed as well as a tool which measured the planning and execution effectiveness of their routine and non-routine maintenance activities.

**Contractor Spend –**

contractor activities were reviewed to see which ones were capable of being done in-house with minimal or no extra training. On top of this, a contractor management tool was also developed and installed to improve both planning and execution of activities by some service providers.



**Overtime Spend –**

a comprehensive overtime system and process was put in place to rationalise and track the planning and use of overtime. Overtime is now under control through a process of proper approval, with causal factors.

**OUTCOME**

The ultimate objective of the program was the embedding of the MCS which is necessary to maintain and improve the ROI through the gains made in throughput and cost savings. This is primarily driven by measuring the correct metrics and having rigid review mechanisms.

*Not only was this objective satisfied, but the return on investment soared to 15:1 against a commitment of 3:1.*

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