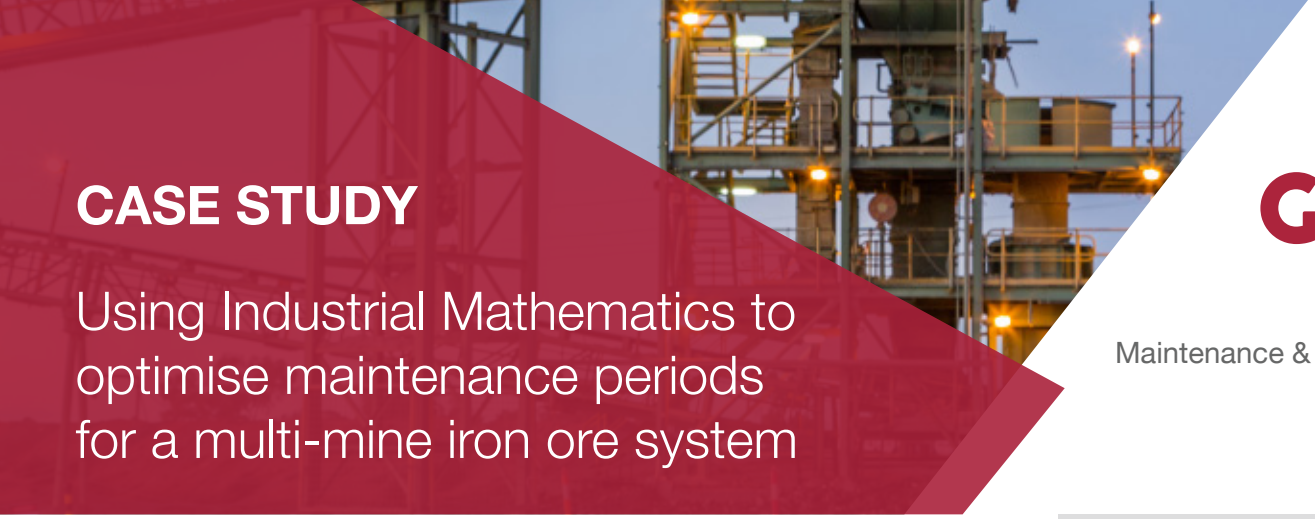

CASE STUDY

Using Industrial Mathematics to optimise maintenance periods for a multi-mine iron ore system

GEAR

Type
Maintenance & Asset Strategy

Module
STO

The Customer

Our client's Western Australian operations include a world-class, integrated network consisting of; a dozen iron ore mines, multiple ports, an expansive rail network and related infrastructure.

The Problem

Determining the optimal maintenance schedule for thousands of activities is a complex business problem faced by many mining companies. It is necessary to allocate maintenance activities into maintenance shuts, and determine the maintenance shut calendar while considering; the complex interaction between maintenance activities, as well as their impact on the workforce and accommodation availability.

The Solution

Polymathian deployed GEAR, a maintenance scheduling optimisation tool using Industrial Mathematics, resulting in:

- An optimised maintenance shut calendar considering; compliance, safety thresholds, and system constraints.
- A reduction in peak workforce periods by redistributing maintenance activities.
- A reduction of manual planning efforts by utilising an automated tool that is integrated with the client's existing systems.

The Challenges

200,000+ tasks for scheduling across 1,000 maintenance shuts, in 115 zones, and up to 1,800 workers over a dozen mines

Up to 50 maintenance task separation or linking constraints, eg synchronising plant and train load out maintenance

Existing planning tools unable to quickly adapt to change and quantify cost/ risk to business

Resourcing and accommodating a largely FIFO contractor workforce

The Value

GEAR delivers highly complex planning decisions within minutes, increasing capacity for future feasibility testing via "what-if" scenarios. This enables planners to negotiate cheaper resource contracts with higher quality workers.

30%
Reduction of workers during peak maintenance periods

40%
Reduction in maintenance constraint violations

10min Solves
Rapidly generate plans that solve over 5 million decisions per run

Polymathian
Industrial Mathematics

76 Ernest St
South Brisbane,
QLD 4101 Australia

Toll Free
+61 1800 951 252

www.polymathian.com
info@polymathian.com