

THE AUSTIN ADVANTAGE

FINDING SOLUTIONS,
CORRECTING
INEFFICIENCIES, AND
MANAGING CHANGE AFTER
A TWO YEAR SHUT DOWN



GENERAL INFORMATION

Location: Northern Minnesota

Project Type: Surface

Industry: Iron

Product Used: Hydromite 3500

Project Lead: Joshua Napsta, Technical Representative

THE HISTORY

This Iron-Ore mine restarted after nearly two years of being shut down. Upon restart, the drilling and blasting team had a large inventory deficit to overcome. Mine development plans and production were directly affected by maintaining necessary inventory levels and blend targets. The mine wanted to maintain a blasted inventory level of more than 3,000,000 tons of ore and 1,500,000 tons of waste rock. The mine worked with Austin Powder to find solutions, correct inefficiencies and manage change.

CUSTOMER CHALLENGE

Production equipment at this mine was often waiting to dig immediately following a blast. The objective was to catch up and then get ahead of production. The mine could not afford to have a blast with oversized rock. The experts at Austin Powder were called in to find a way for this mine to be more productive and efficient to help streamline the entire value chain.

THE GOALS

1. Increase blasted inventory levels
2. Provide the correct material based on ore quality and location
3. Decrease spend on ore blasting
4. Move any extra budgeted money to waste rock blasting
5. Eliminate oversize
6. Increase operating time for shovels, loaders and drills

THE **AUSTIN** SOLUTION

In this study, the Austin Solution was to drill, blast, analyze and repeat. The team blasted as soon as patterns were ready, to ensure drills were productive. Shots were inspected to find ways to improve, and Austin coordinated with mine engineering when improvement opportunities arose.

This solution allowed the customer to catch up, and they had a sustainable inventory level after one year. After two years of work, we found the perfect balance for this operation.

THE **OUTCOME**

The first step in executing the Austin Solution was to work off an initial drill pattern and make gradual increases over time to identify the optimum pattern size. As patterns were expanded, the team incorporated adjusted timing plans to further improve shot performance until they found the most efficient shot design for this operation. This Austin Solution helped achieve an 18% increase from the initial drill pattern which greatly improved the drill and blast process efficiency to help catch up and quickly surpass the customer's demand.

After this first adjustment the team increased pattern size from an average of 449,704 tons to 691,452 tons, then up to 782,626 tons. They found by blasting larger patterns with larger burden and spacing they had less blast delays and fewer shots to cleanup. The annual blast event totals went from 44 to 27 events.

Drill production increased by 12% from wider burden and spacing (72.57 tons/foot to 82.95 tons/foot) and decreased the powder factor by 11.5% (from 0.87 LBS/ton to 0.77 LBS/ton). Untracked savings included: fewer equipment moves, fewer pattern cleanup jobs, and increased operating time for shovels, loaders and drills.

THE **OUTCOME**

- 1.** Increased drill production by 12%
- 2.** Decreased powder factor by 11.5%
- 3.** Fewer blast delays
- 4.** Fewer equipment moves
- 5.** Fewer pattern cleanup jobs
- 6.** Increased operating time for shovels, loaders and drills



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