

THE AUSTIN ADVANTAGE

METHODICAL BLAST
PATTERN EXPANSION
BREAKS PRODUCTION
RECORDS AND REDUCES
COSTS BY 17.8%



GENERAL INFORMATION

Location: Northern Minnesota

Type: Surface

Industry: Iron

Product Used: Hydromite 3500

Project Lead & Author: Ondrej Cermak

THE HISTORY

A customer was facing blasted inventory shortages driven by demand for an increased stripping ratio. After analyzing historic fragmentation data, it was determined the burden and spacing could be increased from previous standards. Working as partners in the process, the decision was made to gradually increase burden and spacing, while maintaining current charge rules. Paradigm modelling suggested faster timing scenarios to maximize fragmentation results, and timing directions to reduce air overpressure deviations with the neighbors. The mine methodically implemented the change (over the course of eighteen months) to find maximum burden and spacing; matched with ideal powder factor, to set a new blasting standard.

THE GOALS

1. Increase drill productivity.
2. Decrease powder factor.
3. Drive down cost-per-ton.
4. Maintain safety and security.
5. Maintain fragmentation standards, bucket fill standards and environmental standards with the neighbors.

“**Since we took our time implementing change, we could more easily predict results, and drive improvement.**”

- Joshua G. Napstad
Technical Representative

CUSTOMER CHALLENGE

Implementing change is always a challenge, especially when questioning old standards. The mine had previous experience with poorly blasted and oversize material, resulting in a generic standard being set for drilling and blasting. Discussions involving increased burden and spacing can be difficult with more experienced engineers as they have “been there, done that,” and may be less than excited to try reviewing their own work.

THE AUSTIN SOLUTION

The mining company partnered with Austin Powder Mining, LLC to find savings potential and inefficiencies in the drilling and blasting program. Methodically increasing burden and spacing to find what works, and what does not work. Over the course of eighteen months, we pushed the limits. If a shot worked, we would try it again. If it failed fragmentation standards, we would adjust again. Since we took our time implementing change, we could more easily predict results, and drive improvement.

THE OUTCOME

The end result was a drill production increase from 70.10 tons per foot, up to a new standard of 81.95 tons per foot drilled, making every foot drilled 16.9% more productive. Powder consumption was reduced from 0.84 LBS/Ton to 0.70 LBS/Ton, a decrease of 16.7%. Total cost per drilled-and-blasted ton was reduced by 17.8% while maintaining fragmentation standards, bucket-fill factor standards and environmental standards with the neighbors. The mine was able to maintain current staffing levels in the drilling and blasting department, and have been breaking records in production ever since the changes were implemented. The partnership between the mine and Austin Powder is proof that when we “leverage the power of family,” we can “Improve the world we live in through the safe and responsible use of explosives.”

“**Austin Powder Mining has provided hundreds of millions of pounds of bulk emulsion to this operation over the course of several decades.**

As a valued customer, and partner, any challenge ‘they have’ can be viewed as a problem that ‘we have’.”

- Joshua G. Napstad, Technical Representative



AUSTIN POWDER