

THE AUSTIN ADVANTAGE

OPTIMIZED BLASTING
IN TENNESSEE QUARRY
SAVES 114,682 LBS OF
EXPLOSIVES



GENERAL INFORMATION

Location: Roger's Group, Oak Ridge, TN

Industry: Surface Limestone

Products Used: E*STAR, Paradigm

Project Lead: Tyler Bailey, Blaster at LaFollette, TN,

Author: Curtis Hoskins, Technical Manager at MidSouth LLC

THE HISTORY

Rogers Group Inc.'s Oak Ridge, TN, operations feature a surface limestone quarry. Historically, these operations faced geological challenges requiring costly and time-consuming drilling techniques. However, recent technological advancements in blasting design have revolutionized their operations, significantly improving safety, cost, and efficiency.



THE GOALS

- 1.** Minimize Safety Risks: Reducing angle holes significantly improved safety by eliminating the hazards of unstable highwalls.
- 2.** Improve Efficiency: By speeding up the drilling process, the team ensured the customer could meet blast-to-mill production goals more quickly and consistently.
- 3.** Lower Costs: The optimized approach reduced the overall cost per ton, a key benefit for the quarry's long-term profitability.

THE OUTCOME

- 3 fewer blasts are required to meet production goals
- 114,682 lbs less explosives used
- 194 fewer holes drilled
- 9,652 feet less drilling is required overall

CUSTOMER CHALLENGE

The geological conditions at the quarry presented a major challenge. Rather than lying horizontally, the limestone seams run on a 5-60 degree plane, extending from the back of the benches toward the face. Historically, this required multiple rows of angle holes for every production blast, leading to increased drilling times and escalating costs per ton of material. These angle holes also posed significant safety risks due to unstable highwalls and challenging conditions for workers.

THE AUSTIN SOLUTION

The team, led by Tyler Bailey, Blaster at LaFollette, TN, and supported by Curtis Hoskins, Technical Manager at MidSouth LLC, worked tirelessly to identify and address these challenges. Bailey's dedication to data collection before and after each blast was instrumental in identifying critical breaking points within the seams. By leveraging 3D modeling and damage and overbreak predictions, they optimized the blast timings and adjusted powder factors. This preserved the integrity of the limestone seams along the faces and reduced the need for excessive explosives.

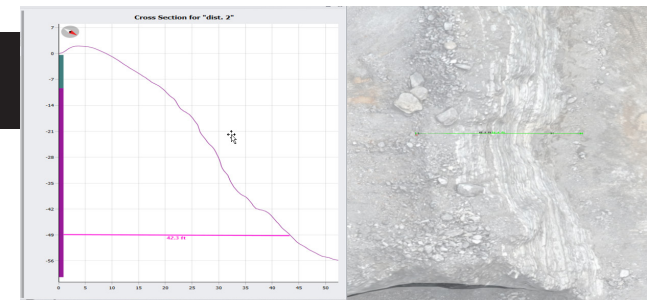
THE OUTCOME

The results of this approach were transformative for Rogers Group's Oak Ridge operations:

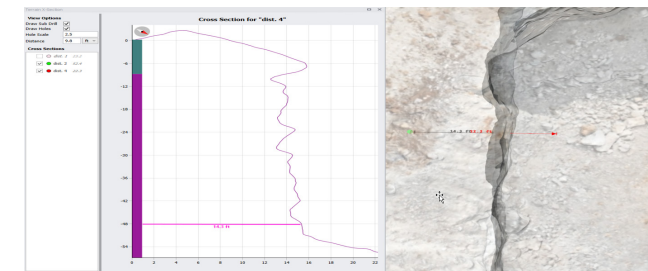
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These improvements have reduced costs and allowed the quarry to maintain consistent production, eliminate major safety risks, and improve fragmentation and muckpile cast. Previously, the site often ran out of rock before another blast could be drilled, creating production delays. Now, with the new techniques in place, the quarry can implement more efficient blasts and maintain a steady supply of muck for production, allowing forward-looking mine planning and operations without drilling constraints.

This case study highlights the powerful impact of innovation and expertise, as demonstrated by Tyler Bailey and Curtis Hoskins' dedicated efforts. By embracing cutting-edge technology and data-driven solutions, Rogers Group has achieved safer, more efficient, and more cost-effective operations.



Before



After



AUSTIN POWDER