

## CUSTOMER TESTIMONIAL

# Optimising blasting for increased saleable production using FRAGTrack™ Conveyor

Midsouth Aggregates (CRH) – Warren County Quarry (Georgia, USA)

### Site Profile

Warren County in Georgia, USA is a 3m ton/year granite-aggregate quarry. It is a challenging deposit with significant jointing in the granite and is operated by Midsouth-Aggregates, a subsidiary of CRH Materials, which runs six quarries through Alabama, Georgia and Tennessee.



Warren County in Georgia, USA

In addition to FRAGTrack™, the site adopts other technologies such as GPS-enabled drills and 3D profiling to help measure and control their operational performance.

### The Situation

Midsouth Aggregates' Warren County quarry is one of the largest quarries in the state of Georgia. Orica services six Midsouth quarries in that area. It produces aggregates for infrastructure applications such as asphalt and railroad ballast. The large rock body comprising the property is highly jointed and seamed, making it challenging to design blasts that consistently produce aggregate close to the economically optimal band of ¾ - 2 inch material. Without careful blast design, blasts produce too much oversize or too much fine material, resulting in higher downstream processing costs and waste.

### Technical Solutions

Using FRAGTrack™, along with other technologies, the Area Production Manager at MidSouth, Dave Stewart, works with Orica to continuously improve blast designs to produce a size distribution that minimises downstream costs. Midsouth uses smart drills to ensure drilling quality, BlastIQ™ to record details of blasts to

match with fragmentation data, and a mining-style dispatch system to track haulage and loading costs and matches all these data with crusher throughput rates. All this comes together to find the optimal balance of blasting and downstream processing costs.

### Testimonial

David Stewart, interviewed for this testimonial, is the Senior Production Manager for Midsouth Aggregates; a mining engineer with over 25 years of experience in operating and optimising aggregate operations.



David Stewart,  
Senior Production Manager, Midsouth Aggregates

### Why did you choose to install FRAGTrack™?

FRAGTrack provides a critical piece in the puzzle that helps me remove variables from my operation, which helps me deliver a consistent feed to the plant and maximise the saleable product I can produce.

I believe that rock is best broken in the pit. Every ton of rock which goes through comminution adds cost and generates waste. At this quarry, I have seen the final stage crushers generate fines in the 30% range. The more tons of product I can deliver straight from blasting that is of finished product spec (that is, it passes through all the screens and comminution untouched) the lower the volume of waste fines generated in comminution. Every 1% reduction in fines I can achieve will generate an extra \$250,000 to my operation; it's a multi-million dollar opportunity that goes straight to my bottom line.

FRAGTrack helps me understand what impact adjustments to my blast designs has on the plant. Using



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the FRAGTrack measurements, I am working towards building something similar to a 'pump curve' for drilling and blasting so we can tell our teams: If you have this sales spec, here is the design you need to apply for this geology to maximise the amount of saleable product from blasting.

The size distribution going through the plant is the most important thing for my operation; with FRAGTrack, I can see how my blast designs change this, and it allows me to maximise whatever finished product I can deliver.

We have had experience with fragmentation measurement via manual image capturing tools, but this is too subjective for me to make the sort of improvement decisions that will significantly improve my operation.

### Where do you have FRAGTrack™ installed?

We have installed FRAGTrack immediately post the primary crusher and we are trying to get the resolution as high as possible.

The installation experience was effortless. The equipment arrived, we made the brackets and installed it easily. We have had significant uptime – in fact, the only downtime has been when the power supply trips due to nearby lightning storms and the like. We do a little bit of lens cleaning, but on the whole, it has been very low maintenance for our operation.

### What have you learnt since installing FRAGTrack™?

We are currently building a large bank of data and building the correlations that I was hoping to. I have got a lot of data crunching to do but we're rapidly building the curves that allow us to run a more consistent operation.

We initially focused on measuring material that is ¼ - 1 inch (25mm) because that's a saleable product for us, but as we started working with the data, we also found that the larger size fractions told us information that was useful to evaluating and optimising our blasting designs for saleable product outcome.

One of the unexpected things that I have found is that the data tells me very quickly when the maintenance schedules on the primary crusher haven't been properly completed. I can see larger particles show up on the size distribution and quickly chase up the team to fix the issue.



FRAGTrack™ installed next to the primary crusher

### What do you plan to use FRAGTrack™ for in future?

Once we have built out our relationships between blast/geology and product, we want to keep looking for occasions when we see significantly better or worse performance so that we can zero in on these events. We hope to integrate the systems further into our communication circuit to aid with automation.

We also want to use the data to help retain knowledge and upskill the team – one of our blasters is meticulous, but he will retire in a few years. We want to use the measurements to capture the impacts of his blasting techniques and embed the knowledge into our younger teams and ultimately the DNA of the operation.



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### Acknowledgements

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