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What were some of the milestones achieved by Dynno Nobel over the last months?

2022 was a remarkable year for Dynno Nobel Americas, with record earnings primarily driven by the strong performance of ammonia sales from our Waggaman facility in Louisiana. As we entered 2023, high ammonia prices continued, positively and negatively impacting our business. Thus, to mitigate risks, we focused on manufacturing ammonia to produce ammonium nitrate, a strategic move considering the volatility of the ammonium nitrate and ammonia market in recent years. While the explosives business experienced some cost-related challenges, overall volumes remained robust.

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We have been progressively introducing innovations to improve technologies in the explosives segment and increase market penetration for electronic detonators. Our specialized emulsion technology also continues to gain momentum among customers. On the other hand, in 2023, we conducted trials and testing for new wireless detonator systems, which show promising potential for enhancing underground mining operations and addressing various mining challenges. Finally, we have gained market share in the construction space, particularly among smaller single-mine accounts.

What are the keys to optimizing blast performance?

Optimization involves understanding the expected outcome, which often involves achieving a specific fragmentation. The final product and its subsequent processing should dictate the approach to blast optimization. In the past, the challenge was measuring the advantages of blasting in the later stages of the process (like milling, crushing, or hauling). However, this has become feasible with the integration of newer measurement technologies. Once the expected outcome is clear, we can effectively fine-tune our blasts, considering both cost and performance factors, to ultimately provide the mine with precisely what it requires.

Recently, we successfully documented a project that drove an additional value of over US\$58 million for a mining operation. By optimizing the blasting process and leveraging available technology and resources, we achieved a 15% increase in mill throughput. This achievement was primarily attributed to generating 5% to 10% more materials of the desired size, facilitating easier processing through the milling system.

How can blasting impact a company's financial performance?

After mineral exploration is completed, explosives become the primary means to extract almost all mining materials. Chemical crushing achieved through explosives has long been recognized as more efficient than mechanical crushing involving steel, such as crushers and grinders. By optimizing chemical crushing through blasting, mill operations, which are significant cost drivers for the mine, can function more efficiently.

What work is Dyno Nobel doing to improve safety and environmental standards?

Safety has been at Dyno Nobel's core since its inception, and all our development projects revolve around enhancing safety and productivity for blasters. One example is the development of wireless detonators, which were initially designed for underground mining where accessing certain areas was hazardous due to potential rockfalls. However, we extended its applications to surface mining. In locations with risks such as sinkholes or other concerns, using wireless detonators significantly improves the safety of the operations.

On the environmental front, initiatives such as carbon dioxide sequestration at ammonia plants and nitrogen abatement projects across various facilities aim to provide customers with lower-carbon products. We recognize the need to offer lower-carbon solutions in the long run. Many of our technology products have proven effective in reducing NOx emissions and minimizing nitrates in water during mining operations, contributing to improved environmental footprints.

Can you explain the variances between different detonators, and when is the optimal application for each?

There are four primary types of detonators used in the industry. Electric detonators use an electric current and have declined over the years. Non-electric detonators, particularly shock tube types, have been prevalent in the market and have held a significant market share for a long time. Electronic detonators, utilizing internal circuitry and chips for timing control, are gaining ground and taking market share from non-electric systems. Lastly, wireless detonators have emerged as cutting-edge technology.

The choice of detonator type often comes down to cost implications and the evaluation of features like safety and productivity. On the other hand, convincing customers traditionally using non-electric detonators to adopt better technology remains a challenge. Still, efforts are ongoing to transition them to more advanced solutions for improved results. In the future, electronic and wireless detonators will likely offer even more enhanced blasting solutions.

The original GRB Interview can be found [here](#).

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