THE AUSTIN ADVANTAGE

VIBRATION REDUCTION IN UNDERGROUND SALT MINE

GENERAL **INFORMATION**

Location: Südwestdeutsche Salzwerke AG, Heilbronn, Germany
Project Type: Underground Salt Mine
Products Used: E*STAR Tunnel
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THE **HISTORY**

Südwestdeutsche Salzwerke AG, a company with locations in Heilbronn, Bad Friedrichshall, Berchtesgarden and Bad Reichenhall, has about 1,000 employees. About 400 of these employees are at the underground salt mining operations in Heilbronn, which is the largest mine in Western Europe. For over 125 years, salt has been extracted from this mine in layers up to 20 meters thick.

Due to the close proximity of the cities and villages, vibration issues are becoming more and more of a challenge. Nowadays, a continuous miner, the machine that cuts and gathers the material simultaneously and conveys it into haul trucks, does the production of salt in critical areas. Blasting is done only in safe areas and never under cities or villages.

THE **GOALS**

1. Reduce Vibrations
2. Optimize Pattern
3. Ensure Consistency

CUSTOMER **CHALLENGE**

The main goal for the mine is to use drilling and blasting methods even in critical areas of the mine. In the coming years, the mine will exploit salt under the populated areas. By expanding mining operations, they must keep the cost-efficient production and stay under the vibration limits. Electric blasts were generating unpredictable vibrations with a huge value spread, and the drilling pattern was not optimized for the current blasting parameters.

THE **AUSTIN** SOLUTION

Südwestdeutsche Salzwerke AG, a long-term Austin Detonator customer, decided to use Austin E*BLAST Consulting, Austin Powder's specialized blast consultancy service in Europe. Electronic E*STAR detonators, together with Paradigm blast optimization software, is the ideal combination for any blasting issue. During two weeks, 35 blasts were done, using approximately 1,000 detonators.

THE **OUTCOME**

Five signature holes were fired in the five different chambers. Vibrations waves were gathered from various locations. After finding the optimum delay combination for the underground blasts, vibrations were reduced by 20% with E*STAR Tunnel detonators. Furthermore, one of the significant issues was unpredicted vibration peaks, which were solved by optimizing the blast pattern. Adding a few holes to the critical parts of the pattern to reduce hole-to-hole spacing and burden decreased the vibrations and made the blast results more constant without unexpected peaks in the vibration waveform.

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