



#### Case Details

Explosives for the mining industry are manufactured with a range of specified properties for particular uses. 'Nitropril' is explosives-grade ammonium nitrate used in nearly all of them. The industry's requirements can be fully met only by manufacturing the ammonium nitrate constituent to exceptionally precise quality standards for water content, porosity, bulk density and the type of surface coating applied to the spherical granules. Most importantly, for ease of handling, the ammonium nitrate must flow freely and not cake. To ensure accuracy of the content of the product, monitoring and analysis of the manufacturing processes was required.

#### Key Requirements

- Easy data retrieval
- Modem connectivity

#### dataTaker Data Logging Products

- 1 Cost effective data logging solutions
- 2 Capable of measuring and logging DC voltage, current and resistance sources in addition to digital signals
- 3 Suitable for small to large scale applications
- 4 Rugged design and construction provides reliable operation under extreme conditions
- 5 Designed and manufactured in Australia to the highest quality standards



**Fire in the hole!**  
Explosives being used in an open-pit mine.

#### dataTaker Solution

##### Equipment

- dataTaker DT500 data logger
- dataTaker SMSX Modem

##### Sensors

- RTDs
- pH Sensors
- Flow meters
- Pressure Gauges

##### Implementation Notes

The dataTaker DT500 logger was used to record temperatures, airflow, pH and pressures at the plant. Pressure recording was a vital element as control systems at the plant are pneumatic.

The client configured the data logger precisely for their tests. The dataTaker logger provided a convenient, single instrument for recording simultaneously from many sensors, along with ability to later retrieve the stored information. The recorded data was then transferred to computer, either by modem for interstate data download or by downloading directly into a computer at the plant.

A leading research scientist with a 200-strong research group in Melbourne handled the job of recording and analysing the data describing the processes for producing 'Nitropril'. The group had three decades of research experience on industrial explosives. As a result of the study, the company has introduced improved process control systems at the plant.

The improvements formed part of a program to upgrade total quality control. Production of 'Nitropril' has been simplified, following a review of one of the key parts of the process.