



THE  
**SPRAY NOZZLE**  
PEOPLE

# Case Study

## Mineral Extraction

### DUST SUPPRESSION SOLUTION

Dust is a common pollutant in many industrial processes that can have severe health impacts for workers. Spray nozzles can help meet the challenge of ensuring that the necessary safe and clean work environment is maintained, meeting safety standards and protecting staff.

#### ► THE PROBLEM

An engineering firm contacted SNP looking for assistance in designing a dust control system for a coal dumping station. The dump trucks were carrying coal into the enclosed station and dumping it into one of four hoppers located beneath the road surface. The hoppers then deposited the coal onto a main conveyor belt to be transported.

#### ► THE SOLUTION

A preventative dust suppression solution was needed which would stop dust becoming airborne before it became a problem. With preventative dust suppression solutions, spray is applied to the surface that is liable to generate dust, wetting it and preventing dust from forming. When suppressing dust by wetting, however, one needs to consider how much moisture is acceptable. Too much wetting is wasteful of water but may also produce undesirable sludge. Obviously if too little moisture is applied then the dust may not be suppressed. So a balance needs to be found.

The sprays required for preventative dust control generally just need to deliver a measured amount of water per minute to the surface in question. Unlike symptomatic dust control, droplet size is not of paramount importance. Typically full cone nozzle spray patterns will be used to wet the area that needs treating. The droplet size distribution and spray pattern produced by the TF original spiral nozzle were ideal for the application. They were placed 6 ft above the hoppers on headers along each sidewall, at a distance of every 5 ft.



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#### ► CHALLENGES

- Large area
- High dust formation
- Moisture balance - too much creates sludge, too little won't suppress the dust



#### ► THE PRODUCT

- The TF original spiral nozzle
- 3/8" TF12FCN operating at 100psi
- 316 Stainless steel

