



The Cava La Pedicara quarry in Balvano is one of the largest in Southern Italy and is located in the heart of the Lucanian Dolomites. Dolomite is the main rock extracted here, which is used to manufacture glass. In the Cava La Pedicara quarry this raw material is first extracted, ground and sifted, and is then sold in different quality grades.

# Problem

Workers are exposed daily to the large amount of dust that is produced during every single working phase. When the wind blows, dust clouds travel as far as the neighbouring town. The dry Mediterranean climate in Balvano and the long months without rain make the situation even worse.

# Aim

When Vincenzo Santagata (La Pedicara quarry manager) contacted EmiControls in the summer of 2014 and explained his problem, he had two aims:

- 1. to improve the working conditions of his workers,
- 2. to protect the environment and especially the beautiful valley around Balvano.

### Challenges

The biggest challenge to be faced was related to the enormous size of the area (approximately 3.5 hectares). Moreover, EmiControls had to find a solution that would not hinder the work of the quarry workers.

The system had to be designed in such a way as to adapt to future changes in local quarry conditions or to the presence of any new sources of dust.

## Procedure

In the first place, the EmiControls technicians had to analyse the morphology on site and every single point where dust was generated in the quarry. On the basis of this analysis, a customised solution was developed for the client. This process required one whole month.

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# Solution

To effectively counteract the formation of dust in the Cava La Pedicara quarry, a combined system was installed consisting of mobile turbines, stationary spray heads and water mist curtains.

Specifically:

- a) 2 stationary V12s turbines, mounted on 6-metre high towers,
- b) 1 mobile V7 turbine, on an undercarriage,
- c) and other high-pressure spray heads, permanently installed in the area, as well as 2 high-pressure pumps.



The main source of dust is near the conveyor belts. The picture clearly shows how the two tower-mounted turbines form a curtain of water mist that prevents the wind from pushing the dust cloud towards the town.

Thanks to the raised position of the V12s turbines (about 1.5 metres above the conveyor belts), the size of the surface area where the dust is bound to the water particles can be expanded. The mobile V7 turbine is equipped with an undercarriage and can be moved easily if necessary.

The stationary spray heads provide targeted atomisation and have been installed where the dust can be trapped more effectively by the drops of water.

### **Results obtained**

The results are very satisfactory: dust emissions have been reduced significantly. EmiControls turbines and spray heads atomise water into a very fine mist that effectively binds the dust particles. On the one hand, thanks to the tiny size of the droplets, the water mist remains suspended in the air much longer and has more time to bind with the dust, on the other hand water consumption is reduced.

Afterwards another project was implemented at La Pedicara quarry: a truck, fitted with a turbine, now crosses the quarry distributing an additional water curtain.

Other pictures are shown on the next pages.

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*In the photo:* the V12s turbine (mounted on a 6-metre high tower) covers a surface area of approximately 7,850 sq m.



*In the photo:* besides the turbines, the stationary spray heads are used to bind the dust directly at the source.

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*In the photo:* the V12s turbine produces a very fine mist, with very small drops of water that can control dust more effectively.



*In the photo:* for the next project, a V12s turbine was installed on a truck that crosses the quarry to control dust in the most affected areas.

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