

Case Study

Real-Time Dust Monitoring Helps Protect Surrounding Community, Optimize Productivity at Quarry

Success is easier and faster consents,
with less time in the environmental
courts, and no complaints



Project

Road Metals

Location

Canterbury, New Zealand

Date

2013

Services

2 x Dust Sentry outdoor dust
monitors

Measurements

TSP, Wind

Sector

Quarry & Mining



The customer

Road Metals began as North Otago Road Metal which was formed in 1955 by the late Stan Francis. Stan started the business in 1946 with a one-ton Dodge bought from the proceeds of rabbit trapping. He turned Road Metals into one of the most respected contracting businesses in New Zealand.

Road Metals, now owned by Stan's sons Jonny and Murray Francis, operates several sites across the South Island of New Zealand. As the region's main supplier of aggregate they are a major contributor to the reconstruction of Christchurch, a city hit by two devastating earthquakes in 2012.

To satisfy the high demand for aggregate in the Christchurch rebuild Road Metals identified the need to establish a new quarry at Burnham, 20km to the west of Christchurch City.

The problem

As with all new quarry developments, Road Metals faced public opposition to the new Burnham site. They applied for consent from Environment Canterbury, the regional environmental regulator, back in 2010.

Environment Canterbury had to balance the community's need for aggregates against the community's desire to be protected from the potential negative impact of quarrying activity. Most public resistance related to the impact of dust that might be generated during quarrying.

Environmental Canterbury gave consent for the development on the condition that Road Metals implement continuous total suspended particulate (TSP) monitoring at two specific locations for a period of 3 months prior to the quarry becoming operational and for a period of 3 years after.

Road Metals wanted to comply with the requirement, but wanted to do so in a way that minimised the upfront investment and ongoing cost.

The solution

Road Metals sought advice from the engineering consultants, BECA. BECA was familiar with the Dust Sentry real-time dust monitoring system from another quarry and recommended Road Metals contact Aeroqual.

Road Metals procured two Dust Sentry units. The units are configured to measure TSP continuously and in real-time and have integrated ultra-sonic sensors for the measurement of wind speed and direction (another requirement of their consent).

Both Dust Sentries are fitted with GPRS modems to enable remote data access and alarms to be sent via text and/or email. In the event dust levels reach the "trigger levels" in the consent, Road Metals staff are immediately alerted and can implement a dust management response.

By using the Dust Sentry PC software Road Metals are able to extract data periodically without having to physically go to site. The modem also gives Aeroqual technicians the ability to connect with the instrument for running system checks and remote diagnosis.



Evaluation

Road Metals are satisfied with their choice of equipment and the support provided by the supplier. First and foremost the Dust Sentry has allowed them to meet their consent and get on with developing the quarrying.

Now that they're getting familiar with the Dust Sentry, Road Metals sees other ways in which a real-time dust monitoring system can add benefit.

For example, by using real-time TSP levels and wind information they have seen the opportunity to be more targeted in their usage of water. The use of water for dust control can be expensive and is also a key consideration under the site consent.

Road Metals are starting to think of the Dust Sentry as a management tool which can help them optimise productivity whilst keeping to within the limits of their consent.