

Council's clever dust solution eases all fears for residents

The convergence of suburbia on an existing quarry operation in the hilly inner-Brisbane suburb of Mt Coot-tha has forced Brisbane City Works to adopt a simple, yet innovative, solution to a dust problem cited by local residents.

This is a high speed operation, regularly blasting and screens for fine aggregates used in road rehabilitation throughout Brisbane. A foam suppression system had been used on the dust to only limited effect.

Growing local community pressure to eradicate the problem made an improved solution that little bit more urgent, so Brisbane City Works officials contracted Donaldson-Torit DCE to engineer and progressively implement a dust collection and disposal system over several stages of its plant.

Since installation the production has gone up 200%, therefore the dust volume would have doubled to about nine tonnes per day had Donaldson-Torit DCE not stepped in.

Before the first of a two stage installation, the plant couldn't work when the breeze picked up from the

south west as this would direct dust to the densest residential area. If it wasn't anything other than dead still, the plant could only operate if the wind blew in the other direction.

Donaldson-Torit DCE Queensland designed a system based around the company's 2-5-15 Cased Dalmatic reverse pulse dust collector, capable of collecting dust at a rate of 19,500m³ per hour.

The quarry blasts adjacent rock which is fed into a primary crusher/screener at a rate of 3,000 tonnes per day producing (250mm product), which moves onto a secondary screening (to -50mm) at 2,500 tonnes per day, and onto a tertiary process (1,700 tonnes per day). By this stage there is about 55% dust portion as the system is producing 18mm, 10mm and 7mm fines as well as dust (-3mm).

The system installed is a cased filter type, which can be centrally located and linked through a ducting system allowing a single collection point for the entire dust control burden. Modular design allows unlimited bank and tier configurations for each specific application area.

Designed to handle air columns of between 2,500 m³/hr to 300,000m³/hr, they are ideal for high dust burdens in the quarry industry and large concentrations of process and nuisance dust. Magna-helic pressure gauges work by measuring differential pressure to advise when replacing of the filters is necessary. It can be installed at any point of the quarrying process to allow maximum flexibility in application and optimal dust control.

At Mt Coot-tha, dust collection equipment has been particularly significant in double screening areas that are exposed to wind pressure - especially the conveyors and change points. The screens can be covered up and the dust contained, but the vertical shaft impact crusher was not and dust was pluming from belts at change points.

The employees have stated that there is nowhere near as much dust on the ground and work surfaces, therefore there is less dust to blow in the wind and the secure collection of dust means it doesn't get into the bearings.



L. Before installation
R. After installation

