Employees, environment, spared problems when quarry invests in dust collection system

'Preventative action' to preserve its OH&S levels and the local environment was the motivation for a drill and blast quarry operation at Readymix Toowoomba, Queensland, to replace liquid spray media with a customised dust collection system in 2004.

At the plant's highest operating altitude, a truck dumps raw material extracted from the quarry into a primary crusher/screener at a rate of about 300 tonnes per hour. Plant management saw that on windy days the exposed nature of this action may cause dust to disperse across the hillside.

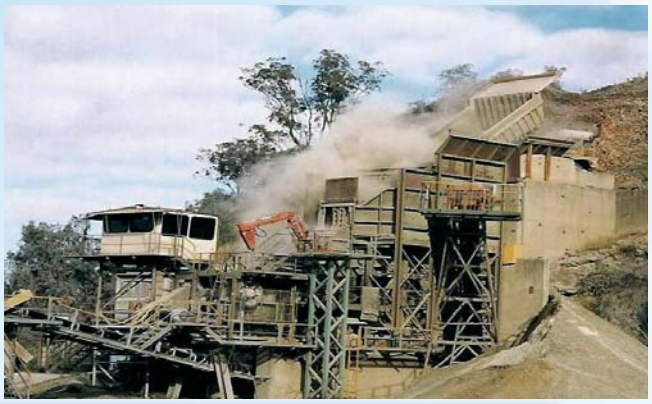
"As our facility is on the edge the metropolis of Toowoomba, we weren't encountering any complaints from the residents that are in the area," said Readymix Toowoomba Quarry Manager, Mr Darryn Klein. "But we did take note that the slightest breeze had the capacity to blow it everywhere so we immediately decided that as a preventative measure to maintain local environment standards as well as employee well-being, we would stop it before it became a problem, which also could cost productivity. We experimented watering the shot before the dumping action but that had limited effect. It wasn't until a Donaldson-Torit DCE consultant made a cold call that we actually considered dust collection equipment as a solution – and ensured ongoing productivity levels at the same time."

Donaldson-Torit DCE custom-fit a '2-6-15 Case Dalamatic reverse pulse dust collector' capable of handling 26,000 cubic metres per hour of dust output caused by the truck as it dumped raw material into the primary hopper. The system installed is a cased filter type, which generally ranges in size from 60m² to 1200m². These 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 fabric 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. Systems can be applied as a central ducted type to installations where dust collection is required from several generation points.

Magna-helic pressure gauges work by measuring differential pressure to advise when replacement of the filters is necessary. The units can be installed at any point of the quarrying process to allow maximum flexibility in application and optimal dust control. Engineering an enclosure to maximise the dust collection action, the Donaldson-Torit DCE units is able to capture such a large amount of air borne dust the action is clearly visible from the compound below.

"Where the truck dumps in you could say it is 95% better than it was before. The dust collector alternates between the primary, secondary and tertiary plants and is linked by a clever system of ducting. As we had to work around production schedules, it took about eight months to fully install the insertable system which is a small unit mounted on a conveyor belt. The 10 on-site people that work on the site are greatly impressed by its performance. The dust collected is not only easier to handle, given the right quantity we have the potential to on sell what we collect as it is a high grade."



L. Before installation R. After installation

Donaldson Torit® DCE Australia
Freecall: 1800 503 878 **Fax:** +612 8713 1333
Email: toritdce@donaldsonfilters.com.au

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