

Memo

Date	20 th August 2019
To	Hannah Goslin, Consultant.
From	Steve Firth, Regional Leader - Compliance Monitoring Regional Support.

Yaldhurst Air Quality Monitoring Programme brief for the Fulton Hogan Proposed Roydon Quarry hearing

This Memo is to provide a brief on the findings of the Yaldhurst Air Quality Monitoring Programme (YAQM). At the time of the monitoring programme I was Zone Manager for the Christchurch West Melton zone, and was involved in overseeing the programme.

Background

- In 2017 Environment Canterbury, Christchurch City Council and the Canterbury District Health Board worked together on a comprehensive air quality monitoring programme in response to concerns about the health effects of dust coming from quarries in the Yaldhurst area. The joint agencies' primary concern is the health of the community. The agencies agreed it was important to understand if respirable crystalline silica, a fine dust that can cause serious health problems, was present in airborne dust around the quarries.
- The intent of the monitoring programme was to gather sufficient data that the Medical Officer of Health could use to determine if levels of dust and respirable crystalline silica (RCS) from quarrying activities poses a long-term health risk to residents. As dust containing crystalline silica particles can be too small to see, special equipment and lab analysis is required to measure airborne concentrations.
- The Yaldhurst Air Quality Monitoring programme was run by an independent company, Mote, and was designed with input from residents, the quarrying industry and the agencies involved. It was peer reviewed by international experts to ensure it was robust and comprehensive. Some equipment was in place mid-December 2017 with final equipment installed in mid-January 2018.
- The length of the programme was dependant on the results; if the results of the three-month programme showed RCS and PM₁₀ levels were tracking around the health guideline, the agreed approach to monitoring and dust mitigation would continue. If the results were to show unacceptable levels of RCS or PM₁₀, action would be taken. However the results from the early months indicated RCS well below the guidelines and there was sufficient evidence of dust events recorded to conclude the programme.

Results

- The air quality monitoring programme in Yaldhurst showed no serious public health risk to residents from airborne dust. The Canterbury Medical Officer of Health reviewed the results and stated that:

“Overall, the results show there is no serious public health risk to Yaldhurst residents from airborne dust. Nuisance dust levels will not cause long-term health effects, but we know it can cause irritation and symptoms of concern in some people and we have prepared a factsheet with advice for residents¹.”

- Based on the study results, Environment Canterbury concluded that while the results show there is no serious public health risk, there was a nuisance dust issue from time to time. Environment Canterbury acknowledged that nuisance dust is a concern for some residents, and as a result, signalled new tougher new quarry dust management and monitoring requirements. A key outcome was the requirement for all quarries within 500 metres of someone’s home to install dust monitors on their boundaries by December 1, with the following requirements:
 - The boundary monitors are required to run continuously and must be fitted with an alarm system to send the quarry manager a message if it starts getting close to the threshold level for nuisance dust.
 - If the alarm is triggered the quarry will be expected to take whatever action they need to, such as stopping work or adding more water carts, to ensure the dust doesn’t breach the Ministry for the Environment’s 1-hour nuisance dust guideline level (150 µg/m³ hourly).
 - If the guideline is breached the quarry will need to cease operations until dust levels have been managed to acceptable levels.
 - Quarry operators also have to make this data available to Environment Canterbury and inform Environment Canterbury if there is a breach.

Outcome

- Environment Canterbury can confirm that all sensitive boundary monitoring is now in place with the required quarries in the Yaldhurst area.
- Environment Canterbury is confident the monitors are fit for purpose and has received confirmation from the quarries that all their monitors were factory calibrated.
- As per standard practice, the quarries have been working through a process of field testing to ensure they’re calibrated for the right conditions and ready for the drier weather.
- To date Environment Canterbury have received a number of weekly, monthly snapshots of data and using the Mote recommendation of modifying data by a scaling factor, the early indications show dust is being managed.

¹ Canterbury Medical Officer of Health Dr Ramon Pink. Update 29, 22/06/2018 at <https://ecan.govt.nz/get-involved/news-and-events/2017/working-together-to-resolve-quarry-dust-issues/>