

31th August 2017

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Dear Sara,

Thank you for deputation on 20 July 2017 to the Environment Canterbury Councillors. Please find below our response.

The Emissions from the Yaldhurst Quarries - Dr Kelvin Duncan

I must stress Environment Canterbury (ECan), Christchurch City Council (CCC) and the Canterbury District Health Board (CDHB) are taking the health concerns of the residents in the Yaldhurst quarry environment very seriously. We are working closely together on delivering an air quality monitoring programme, as outlined later in my letter, to better gather evidence of the situation to understand what further action is required.

The Council has received a very full briefing of the history and actions being undertaken around the concerns you have expressed and in summary these are;

Complaints on nuisance dust have been a sporadic, but a long standing issue around the "Yaldhurst Quarries". The increased demand for aggregate, and consequential increase in quarrying activity has increase community angst in this regard.

In December 2015, Environment Canterbury initiated a four-month dust monitoring programme at five sites around the quarries on Old West Coast Road in response to residents' concerns around nuisance dust. The report detailing the monitoring results was published in 2016. The monitoring included two days of sampling for silica. Particle levels were low on those days, and the silica amounts were below the detection limit.

In October 2016 residents raised concerns regarding the health effects of exposure to respirable crystalline silica.

In November 2016, Environment Canterbury contracted K2 Environmental — air quality monitoring specialists — to take samples of dust from surfaces at a quarry, and at a local residential property adjacent to the quarry operations in Yaldhurst and analysed these for crystalline silica. Whilst a low reading, the results showed that there was a potential health risk to the residents, with silica content of the respirable fraction being around 30%.

Quarry owners were immediately informed that no visible dust was to go beyond the boundaries of the quarries and that enforcement action would be taken if evidence of

Our ref: Response to YRRA deputation of 20th July 2017
Your ref:
Contact:

this was found. The quarries agreed and regular monitoring of the Yaldhurst quarries area is being undertaken.

In April 2017, following communication with Environment Canterbury and the Christchurch City Council (CCC), Winstone Aggregates implemented extensive additional dust mitigation measures at its quarry, including movement of the quarry exit from Old West Coast Road to Miners road.

A project has been initiated to ensure that the various response activities on behalf of CCC/CDHB and ECAN are undertaken in a coordinated manner.

Currently an air quality monitoring programme, of which there are three core threads, is being implemented to gather further evidence on the ambient dust, and any potential health risk. This will answer the questions being asked by residents regarding potential for health effects.

These are:

1. The component of dust that is visible, and would normally be considered a nuisance.

This we believe is dealt with and extensive monitoring over the last 5-6 months has confirmed there is no dust leaving the boundary of the "Yaldhurst quarrying operations". There are minor issues at quarry exits and these are associated with trucks running onto muddy roadside verges, rather than the quarrying operation.

2. The component of dust that is very small ("invisible"), respirable and may contain crystalline silica.

A 12 month air quality monitoring programme is required to measure ambient air quality (including visible and non-visible particulate), and if there is a potential health risk due to this dust or respirable crystalline silica. This air quality monitoring programme (to be delivered by Mote and Emission Impossible) is currently in the design phase. We are working with CDHB and CCC to ensure this meets the requirements of all the agencies. We expect to have this in place within the next month.

3. There is an argument that dwellings immediately adjacent to the quarries have a component of "accumulated dust" that may be difficult to remove given its very small particle size. This small component of dust may be accumulating over time and being re-suspended within homes and causing symptoms being presented.

A personal monitoring programme is underway with 8 residents. This programme intends to monitor exposure to total dust, and respirable crystalline silica, and provide results of exposure. The intention is, to then industrially clean these homes, and re measure, to provide a reasonable dust baseline. Symptoms will be monitored to see whether there is

improvement. Future monitoring would then be conducted at, yet to be determined, time periods to measure re accumulation, if any.

We are confident that these three threads, and the measures in place to address each answers, or will answer, all the questions raised by the YRRA, via Dr Kelvin Duncan.

Specific answers to the questions raised are contained within the memorandum attached.

It is worth noting that Dr Kelvin Duncan's deputation had a number of incorrect statements and Environment Canterbury scientists have significant concerns around the data he has collected and the validity of the calculations he has used in his findings. Environment Canterbury have had three scientists, including two external peer reviews by NIWA and the Canterbury University, agree his calculations were incorrect, though he was unwilling to comment on these findings. We have responded to these scientific statements in the attached memorandum document.

Water Quality – Mr Dennis Thomson

While your deputation was nominally regarding the issue of dust from the quarries, Environment Canterbury have taken on board Mr Thomson's concerns around the water quality of wells in this area.

Our water scientists have carried out six rounds of testing between July 2015 and July 2017 on a significant number of both private and consent holder wells. There are only minor changes in groundwater quality relating to aesthetics (such as water hardness) at the quarries and slight effects measured in the closest downstream neighbouring wells. The private wells meet all drinking-water standards. The only health-based exceedances have been sporadic *E. coli* detections which are commonly expected to be found in shallow groundwater in semi-rural areas where there are septic tanks and livestock present, and are not likely from quarrying.

The latest water sampling (on Monday 24th July) continued to show no evidence of significant groundwater contamination associated with quarrying activities or the accumulated demolition debris at the Blakestones Quarry (the focus of Mr Thomson's deputation), despite the recent heavy rainfall. Preliminary results from *E.coli* testing were sent to Mr Thomson on 26th and 27th July as soon as they were received. The full laboratory reports for all the wells were sent to him directly on the 4th August by email. From the six samples taken from Mr Thomson's well, over the past two years, the tests have twice detected low levels of *E.coli* bacteria, which are likely to be coming from local source(s) near his well, not from the quarries. In addition, his property is upstream of the quarry zone so it is highly unlikely that the quarries are the cause of any water quality issues in his well. We have engaged with Mr Thomson on numerous occasions and he is unwilling to accept the evidence supplied to date.

Our ref: Response to YRRA deputation of 20th July 2017
Your ref:
Contact:

We have responded to the specific questions around consenting, reporting, legislation, and general queries raised in the deputation in the attached document.

The Environment Canterbury reports are publicly available on the following website:
<https://www.EnvironmentCanterbury.govt.nz/about-us/your-council/information-requests/>

Yours sincerely

Encl: 20th July Deputation Response Memorandum to YRRA

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