

Before Independent Hearings Commissioners Appointed by Canterbury Regional Council and Selwyn District Council

In the Matter of the Resource Management Act 1991

And

In the Matter of Applications by Fulton Hogan Limited for all resource consents necessary to establish, operate, maintain and close an aggregate quarry (Roydon Quarry) between Curraghs, Dawsons, Maddisons and Jones Roads, Templeton

**Updated summary of evidence of Charles Alexander Kirkby
on behalf of Templeton Residents' Association Incorporated**

Air Quality

Dated: 03 December 2019

1. I have been engaged by the Templeton Residents' Association ('TRA') to provide advice and evidence, within my field of expertise, in relation to the TRA's submission on the proposed Roydon Quarry ('the Proposal').
2. In updating this summary, I reviewed the following additional documents:
 - 2.1. Rebuttal Statement of Mr Roger Cudmore of Golders Associates (New Zealand) on behalf of Fulton Hogan Ltd dated 21 October 2019
 - 2.2. Joint Witness Statement of the air quality experts in relation to the Roydon Quarry proposal dated 14 November 2019.
 - 2.3. Supplementary Statement of Louise Fleur Wickham dated 21 November 2019.
 - 2.4. Audio recording of Mr Cudmore's presentation to the Hearing, 19 November 2019.
3. I have also reviewed PM₁₀ monitoring data (only, not meteorological data) collected at the proposed site between 1 July 2018 and 30 June 2019, made available courtesy of Fulton Hogan.

National Environmental Standards

4. I still concur with the view expressed by the CRC's reporting officer that the applicant had not **adequately** demonstrated that discharges of PM₁₀ from the proposed quarry will not **be likely to** increase ground level concentrations of PM₁₀ within the Air Zone by more than 2.5 µg/m³ as a 24-hour average on any occasion during the period of consent.
5. I consider that the assumptions used by Mr Cudmore to conclude that the Proposal will comply with this requirement are not sufficiently conservative, and therefore I do not consider that this has been demonstrated.
6. The key assumptions that I question are:
 - 6.1. The derivation of the 0.1 scaling factor to convert calculated contributions from the Yaldhurst quarries to off-site PM₁₀ concentrations, into estimated contributions from the proposed Roydon Quarry;
 - 6.2. The apparent assumption that the contribution from the quarry will vary with wind direction
7. One of Mr Cudmore's assumptions underlying the use of a 0.1 scaling factor is that there are several dust generating activities within the Yaldhurst quarries upwind of monitoring site 3 that may all contribute to the elevated PM₁₀ concentrations recorded at that site. **On the other hand**, Mr Cudmore suggests that any contribution from the central processing plant at the proposed Roydon Quarry should be discounted because of its distance from the site boundary. These views appear contradictory – if any contribution to off-site PM₁₀ due to the central processing plant should be discounted, then so should contributions from plant at the Yaldhurst Quarries that are more than 500m from the monitoring site.
8. With respect to the status of the Christchurch Airshed, I partially concur with the comments expressed by Mr Cudmore in his oral presentation, regarding the section of the airshed adjoining the eastern boundary of the proposed quarry site. From a technical and scientific

perspective, it is unclear how this portion of the airshed **was defined**. However, the fact remains that it is a gazetted airshed, so discharges of PM₁₀ that impact it must be assessed in accordance with Regulation 17 of the NESAQ.

9. When the NESAQ Regulations were introduced in 2004, the use of the term 'airshed' in the Regulations was a matter of some controversy among air quality professionals. From a scientific perspective, an airshed would typically be defined by geographic features (i.e. hills) that limit the interchange of air with adjacent areas. Under the NESAQ, by contrast, an airshed is a legislative and management tool, whose boundaries are defined along existing legal boundaries.
10. I am aware that many regional councils have attempted to take a reasonably scientific approach to defining airsheds, for example by use of emission inventories and atmospheric dispersion modelling, but these methods are only tools. Ultimately, each airshed requires legal definition – in Auckland, for example, the airshed boundary was defined as aligning with the Metropolitan Urban Limit, although there was no physical boundary to air movement across that line.

Mitigation measures

11. In the event that the Commissioners conclude that consent can be granted, I have made recommendations that aim to improve management and mitigation of dust emissions from the site.
12. I note that most of the recommendations made in my evidence-in-chief have been addressed in the draft conditions of consent tabled by Mr Bligh on 18 November 2019.
13. My previous recommendations regarding particulate monitoring and trigger values have been superseded by the JWS arising from caucusing between the air quality experts.
14. However, there are still some matters that have not been fully addressed or that I did not identify in my previous statement. These are identified below, with numbering that refers to the draft conditions tabled by Mr Bligh:
 - 14.1. Condition 17(e) of CRC192410 limits the height of stockpiles to not more than 3.m above ground level during initial site preparation, but does not appear to restrict the height of stockpiles once the site is established. At the same time, Condition 17(f) only required vegetating of long-term stockpiles up to a height of 3m above ground level – i.e. stockpiles more than 3m above ground level would not require vegetating.
 - 14.2. I consider that either the 3m height limit in 17(e) should apply to all stockpiles above ground level, and that the height restriction for vegetating stockpiles in 17(f) should be removed.
 - 14.3. I note that the applicant has not accepted my recommendations regarding the setback around 319 Maddison Road and 153 Curraghs Road. Those recommendations still stand.
 - 14.4. I also note that there are not yet any draft conditions that require compliance with the proposed activity areas to be demonstrated.

14.5. The air quality assessments were based in part on 'active areas' – i.e. areas of the quarry that require active dust management, that are considerably smaller than those listed in condition 13 of the CRC land use consents (6 ha total rather than 26 ha).

Date 03 December 2019

Charles Kirkby
Director and Air Quality Specialist, The Air We Breathe Limited