

*Taggart Earthmoving
Joint Hearing
6 May 2021*

Before the Hearings Panel

**Appointed by Environment Canterbury
and Waimakariri District Council**

Under the Resource Management Act 1991

In the matter of an application by **Taggarts Earthmoving Limited**
for various resource consents for a quarry at Rangiora
Racecourse (**Racecourse quarry**) under section 88 of
the Act

And the submission of **The Rangiora Ashley Community
Board**

**Summary of Evidence of Donovan Van Kekem and Further Comment on
Points of Contention Between the Air Quality Experts**

Dated: 6 May 2021

Summary Evidence of Donovan Van Kekem:

1. My name is Donovan Van Kekem. I am the managing director of NZ Air Limited (NZ Air). I have over 17 years specialist air quality experience. I have been engaged by the Rangiora-Ashley Community Board (RACB) to assess the potential for adverse effects on ambient air quality and any potential reduction in local amenity values as a result of the proposed Taggart Earthmoving Limited (Taggart, the applicant) Rangiora Racecourse aggregate quarry.
2. My qualifications and experience as an air quality expert are included in my evidence in chief (EIC)
3. I have reviewed and commented the Air Quality Impact Assessment (AQIA) prepared by PDP, the subsequent Section 92 Response, and Mr Jeffery Bluett's evidence in support of the proposed Taggart Rangiora Racecourse Quarry.
4. I have also reviewed and commented on the technical review report produced by Mr Richard Chilton and proposed draft Consent Conditions.
5. In my evidence in chief I had the following concerns:
6. The proposed hours of operation were indicative only. However, these have now been clarified by the applicant and to my understanding are proposed to be in the draft air discharge consent conditions.
7. The proposed location of the aggregate and virgin excavated natural material (VENM) stockpiles was stated as "indicative" in the AQIA. However, I understand that in the Evidence of Mr Taggart that these are now fixed locations.
8. The length of the main access road and internal haul roads was incorrect. Furthermore, the separation distances between a number of potential dust discharging activities (i.e. the main access road, stockpiles, etc) and the nearest sensitive receptors (including the gazetted airshed) was incorrect. However, I understand that these have been clarified in the Joint Witness Statement and Mr Bluett's presentation yesterday.
9. I expressed concerns about the proximity of the proposed unsealed main access road to the Rangiora gazetted airshed and the potential for PM₁₀

emissions from this source to exceed the National Environmental Standards for Air Quality (NESAQ) Regulation 17 requirements. My opinions in my EIC were that this access road should either be moved to a location more central to the site or sealed in its entirety. If this is not to occur it is my professional opinion that regulatory PM₁₀ monitoring should be undertaken on the boundary of the airshed to demonstrate compliance with the NESAQ Regulation 17 requirements.

10. I understand that the applicant has now proposed that this main access road will be formed with rolled and compacted milled asphalt. In informal expert conferencing undertaken on 4th May 2021 (after the end of evidence presentation on Tuesday), Mr Chilton and I requested that Mr Bluett provide the design and maintenance specifics of this road surface. Furthermore, Mr Bluett is to provide his professional opinions/supporting evidence as to the potential for dust emissions from this form of road surface. Upon receiving this additional information Mr Chilton and I will review this information and provide our professional opinions.
11. In my EIC I discussed my concerns around the proposed PM₁₀ boundary monitoring to determine the efficacy of dust mitigation measures on-site and the utilisation of PM₁₀ concentration trigger levels to stipulate additional mitigation or stop work conditions. My opinion is that TSP monitors and associated triggers would be more appropriate for this purpose. I discuss this in more detail in a sperate Section below.
12. To be clear I want to highlight that there are two different levels of dust monitoring that I am discussing. One is regulatory PM₁₀ monitoring on the boundary of the airshed. This monitoring requires an NESAQ compliant monitor(s) which have a higher level of cost, accuracy, and lower detection thresholds. The other is the dust mitigation efficacy boundary monitoring, for which lower cost, less accurate, dust monitors are proposed.
13. In my EIC I expressed concerns about the potential for dust emissions from the western boundary earthworks and bund construction, primarily due to the very close proximity of sensitive receptors to this activity. I considered that additional mitigation is required to mitigate potential off-site nuisance effects. However, in paragraphs 7 – 9 of the Joint Witness

Statement the other air quality experts and I have agreed appropriate controls for this activity. If these controls are implemented I consider that the potential for adverse nuisance dust effects on these very close receptors is low.

14. I also noted in my EIC that the calculations in Mr Bluett's evidence for the required water for dust suppression, as compared with that available in the current consented water take were incorrect. I believe this has been clarified by Mr Bluett in his presentation on Tuesday. I am now comfortable that there is sufficient water available for dust mitigation purposes.
15. In my EIC I also discussed why I consider that the applicant has not supplied sufficient detail in the draft AQMP. I consider that without being able to view the proposed SOPs for dust management and mitigation (amongst other elements in the proposed AQMP), I am not in a position to be able to provide my professional opinion as to whether these are appropriate for the proposed quarry operations in the existing receiving environment. I note that the mitigation proposed has a direct bearing on the potential for off-site effects. Hence, I consider that I am unable to determine the potential for adverse off-site effects on the sensitive receptors which my client represents.

TSP versus PM₁₀ monitoring

16. I consider that continuous TSP monitoring is needed to assess and manage the impact of dust emissions from the western bund construction. I am also of the opinion that TSP monitoring should be undertaken on the boundary whenever dust discharging activities are occurring within 250 m of a neighboring sensitive receptor (between the discharge activity and the receptor).
17. I consider that, whilst the use of nephelometers are preferred by quarry operators due to cost and practicality considerations, there are mobile beta attenuation monitors which accurately monitor TSP. I note that the Ministry for the Environment Good Practice Guide for Managing Dust states that light scattering methods (nephelometers) can underestimate PM₁₀ and TSP concentrations compared with beta attenuation monitors

and that TSP monitoring and associated triggers have been used successfully in road construction projects and quarries.

18. My understanding is that all of the air quality experts agree that the particulate size distribution of the dust emitted from the proposed quarry operations will be heavily dominated by TSP. Therefore, in my opinion, monitoring for TSP would be the best indication of nuisance dust emissions crossing the boundary. TSP monitors the total amount of dust in the air (including the PM₁₀ size fraction). To monitor for the very small portion of PM₁₀ which will be in the dust emissions (which is variable dependant on the source of the dust) would be less accurate and effective at determining nuisance dust concentrations crossing the boundary.
19. Whilst I agree with Mr Bluett that nephelometers are cheaper and easier to deploy than beta attenuation monitors, I don't think that cost should limit the applicant's ability to accurately determine the potential for off-site nuisance dust effects. The cost of a nephelometer as proposed by the applicant is approximately \$10,000, whereas the cost of a mobile beta attenuation monitor is approximately \$30,000. In my opinion, this is not substantive in the overall cost of the quarry operations.
20. I have supplied photos of the two monitors in Figure 1 and Figure 2 below.

Figure 1. TSP Beta attenuation monitor – solar powered



Figure 2. TSP nephelometer monitor – solar powered (currently installed at Rangiora Racecourse)



21. The maintenance and operational costs for each type of monitor are comparable.
22. Whilst a beta attenuation monitor would likely require a mains power source (as a large solar array is required in NZ), it is possible that the racecourse has power available at a number boundary locations (yet to be determined).
23. I also want to note that the applicant originally proposed TSP boundary monitoring in the AQIA and is currently using a nephelometer to measure background TSP levels at the site (data from which was supplied in the AQIA and Mr Bluett's evidence). Appropriate TSP trigger levels were also proposed in the AQIA.

Summary

24. In summary, whilst I agree that the proposed quarry could operate without generating adverse nuisance dust effects which would affect the amenity values of the surrounding sensitive receptors, I consider that the applicant has not provided sufficient detail in the AQIA or Air Quality Management Plan for me to be certain of this.
25. I also consider that the proposed unsealed haul road along the eastern boundary has the potential to result in an exceedance of the NESAQ Regulation 17 requirements. In my opinion this road needs to be sealed or moved to reduce the potential for an exceedance of the NESAQ. Alternatively, or in addition to, a Consent Condition requiring PM₁₀ monitoring at the boundary of the gazetted airshed will be required to demonstrate that the proposed quarry will not result in an exceedance of the NESAQ.
26. Given the stringent requirements under the current NESAQ regulations I consider that it is not appropriate for a quarry to be situated so close to a polluted airshed.
27. I agree with the applicant and Mr Chilton that there is a low potential for the proposed quarry operations to result in an exceedance of health base ambient air quality criteria.
28. With regard to the proposed draft Consent Conditions, I have not been able to review the latest version, but am happy to do so in due course.

Date: 6 May 2021



Donovan Van Kekem