

**BEFORE THE COMMISSIONERS
AT NEW PLYMOUTH**

IN THE MATTER of the Resource
Management Act 1991
("RMA")

AND

IN THE MATTER an application to renew
existing resource
consents associated
with a composting
operation at Uruti

BETWEEN **Remediation New
Zealand Limited**
Applicant

AND **Taranaki Regional
Council**
Consent Authority

**SUPPLEMENTARY STATEMENT OF EVIDENCE OF
DUNCAN BACKSHALL
ON BEHALF OF DAWN & GLEN GENDALL AND JENNIFER
BAKER
Dated: 25TH MARCH 2021**

1. **INTRODUCTION**

- 1.1 My full name is Duncan Backshall. I am currently a director of Air Quality NZ, a company that provides air quality consulting and technical services.
- 1.2 This evidence is given in respect of the application by Remediation (NZ) Ltd to operate a composting facility at 1460 Mokau Road, Uruti.
- 1.3 My qualifications, experience and involvement are as stated in my evidence in chief dated 16 March 2021.
- 1.4 This evidence was prepared following the receipt of additional information from TRC following completion of my evidence in chief, including further details of odour complaints. I have also reviewed the supplementary evidence of Mr Curtis.

Expert Witness Code of Conduct

- 1.5 I have been provided with a copy of the Code of Conduct for Expert Witnesses contained in the Environment Court's 2014 Practice Note. I have read and agree to comply with that Code. This evidence is within my area of expertise, except where I state that I am relying upon the specified evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

2. **SUPPLEMENTARY EVIDENCE**

Chronic odour effects

- 2.1 Effects for exposure to odour can be characterised as chronic or acute, as described in section 2.6 of the MfE Odour GPG:
- *high-intensity and/or highly unpleasant odours occurring infrequently or for short periods (a few minutes to an hour) (**acute**), and/or*
 - *low-intensity and/or moderately unpleasant odours occurring frequently or continuously over a long period (**chronic**).*
- 2.2 As noted in the GPG, acute and chronic effects can arise from different sources and may require different assessment and management. Odours which do not meet the offensive and objectionable threshold for acute odour effects may be considered as such if they recur frequently or are experienced over a longer period. This may require repeat visits by the investigating officer in order to establish whether further exposure results

in offensive or objectionable effects, which is likely to present practical difficulties for complaint investigations.

- 2.3 There are also implications for appropriate odour control and mitigation measures. The highest odour levels often arise from short-term sources, for example turning windrows at a composting operation. However, if odour complaints result from chronic effects, then emissions from continuous sources may be more important, even though these may be assessed as less intense on site.
- 2.4 Meteorological conditions may also need to be considered. Less stable conditions during the day when acute effects are more likely will usually result in better dispersion of odour discharges, whereas the more stable conditions at night can result in similar or greater effects from continuous odour sources.

Odour complaint analysis

- 2.5 Further information received from Council since my evidence in chief was filed includes times for all odour complaints received from January 2010 until February 2021. This was supplied as an Excel spreadsheet.
- 2.6 There are complaints listed in the spreadsheet that are not included in table 16 of the officers' report. These were received on 13 March 2018, 27 November 2019, 2 November 2020, and 1 January 2021. A further 11 complaints are listed from 16 January to 19 February 2021, presumably after table 16 was compiled.
- 2.7 A total of 129 complaints are listed in the spreadsheet, although some of these represent multiple complaints for the same incident. 43 complaints were received before 9 AM and 70 after 6 PM, which are the periods when katabatic flows from the RNZ site would be expected. This indicates that few complaints are the direct result of daytime operations at the site such as turning the windrows or irrigation with wastewater. The distribution of odour complaints by time of day is shown as a scatter plot in attachment A of my evidence.
- 2.8 This emphasises the importance of controlling the continuous sources of odour at the site, as these are more likely to result in odour effects on the surrounding area during the periods when the majority of complaints are received.

Dispersion of emissions from composting operations

- 2.9 BTEX emissions resulting from operations at the site were monitored by TRC for a period of 20 days from 18 September until 8 October 2020. This was in response to the recommendations of Dr Jonathan Jarman as discussed in my evidence in chief. Monitoring was carried out at a series of sites in the RNZ valley from the entrance off Mokau Road to the site of the vermiculture operations.
- 2.10 The only significant source of BTEX on the site that I am aware of is the drilling muds on pad 3.
- 2.11 Low levels of all compounds were found. Of particular interest is the relationship between the measured concentrations at each location. I have attached the main results table to my evidence. The sample locations of interest are AIR012001 and AIR012002 at the site entrance and office, and AIR012003 and AIR012004 at the composting areas.
- 2.12 The ratios of the measured concentrations of toluene, ethyl benzene and xylene at the site entrance and office are all greater than 50% of the concentrations at the composting sites. This is a clear indication that emissions from the composting operations are not being dispersed as expected due to the distance of the composting operations from the road.
- 2.13 At the distances given by Mr Curtis in his supplementary evidence, I would expect concentrations of a few percent in typical terrain given normal atmospheric conditions.
- 2.14 This also has significant implications for odour control, and means that these measures will need to be highly effective to enable the site to meet the condition requiring no offensive or objectionable odour at the boundary.

Comments on the supplementary evidence of Mr Curtis

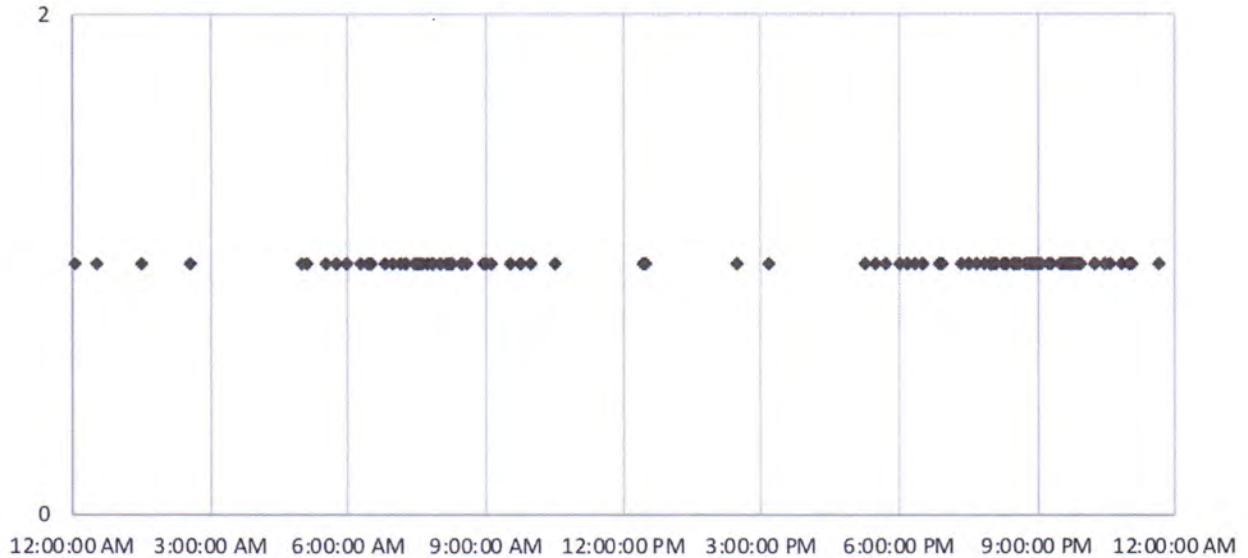
- 2.15 My comments relate to the supplementary evidence prepared by Mr Curtis on behalf of Remediation (NZ) Ltd.
- 2.16 In 2.12 and 2.13 Mr Curtis discusses the likely path for katabatic flows from the Haehanga Valley into the Mimitangiata Valley. While I agree that the flows would normally be expected to follow this valley down to the sea, there are two specific issues to consider in this case.
- 2.17 Figure 1 of the Mr Curtis' supplementary evidence shows that this valley generally trends downwards towards the north. However, the valley floor includes features, such as low hills, that result in the height variations shown in the lower part of the figure.

- 2.18 I have checked the elevation of the river flats either side of the Haehanga valley on Google Earth, which shows height to a resolution of 1 m. These are generally in the range 19 to 22 m up to 1 km either side of the valley mouth.
- 2.19 Paragraph 5.13 of my evidence in chief refers to a ridge from the north side on the Mimitangiatua Valley opposite the Haehanga Valley. This appears to be well positioned to split the katabatic flow from the mouth of the valley. Attachment 3 of my evidence is a photo taken from the RNZ site entrance showing this ridge.
- 2.20 When I initially reviewed the odour complaints from the residents, I was surprised that there could be odour at 1358 Mokau Road to the south-west, and at 1530 and 1540 to the north-east at the same time. This appears to be the result of the flat terrain either side of the RNZ Valley mouth and the position of the ridge splitting the katabatic flow.
- 2.21 Mr Curtis comments in 2.17 that he does not consider that the odours on site during his visit in February 2021 to be offensive and objectionable. I found the odours from pad 1, the organic pad, to meet that criteria during my visit on 9 March.
- 2.22 While acknowledging that potentially odorous waste streams may have been successfully composted in the past, there have been a significant number of complaints since June 2020, and the statements of evidence of the nearby residents indicate that they are currently experiencing adverse effects from odour.

Duncan Backshall
25 March 2021

Attachment 1

RNZ odour complaints by time of day Jan. 2010- Feb. 2021



Attachment 2: BTEX results table

Table 1 Actual and recalculated (using a conversion factor of $p=0.2$) BTEX results around Remediation NZ

Site ID / Where	Time total Hrs.	Benzene ($\mu\text{g}/\text{m}^3$)			Toluene ($\mu\text{g}/\text{m}^3$)		Ethyl Benzene	o,m,p – ($\mu\text{g}/\text{m}^3$) Xylene Total	
		Lab. Results	1 hr. Calc.	8 hr. Calc.	Lab. Results	1 hr. Calc.	Lab. Results	Lab. Results	1 hr. Calc.
AIR012001	478	<0.31	<1.06	<0.70	0.50	1.72	0.05	0.32	1.10
AIR012002	478	<0.31	<1.06	<0.70	0.52	1.79	0.05	0.36	1.24
AIR012003	478	<0.31	<1.06	<0.70	0.70	2.40	0.08	0.60	2.06
AIR012004	478	<0.31	<1.06	<0.70	0.81	2.78	0.09	0.70	2.40
AIR012005	477	<0.31	<1.06	<0.70	0.24	0.82	<0.04	<0.09	<0.31
Blank	480	<0.31	<1.06	<0.70	0.19	0.65	<0.04	<0.09	<0.31
MfE recommended guidelines (2000), one -hour average ($\mu\text{g}/\text{m}^3$)			22			500			1000

< = less than

Attachment 3: Ridge opposite RNZ site entrance

