

**IN THE MATTER** of the Resource Management Act 1991

**AND**

**IN THE MATTER** of Proposed Private Plan Change 2 to  
the Hamilton City Operative District  
Plan: Te Awa Lakes Private Plan  
Change

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**STATEMENT OF REPLY EVIDENCE OF STEVEN MITCHELL PEARCE FOR THE APPLICANT  
(AIR QUALITY)  
25 NOVEMBER 2019**

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## **1. INTRODUCTION**

- 1.1 My full name is Steven Mitchell Pearce.
- 1.2 I have the relevant qualifications and experience as set out in section 2 of my evidence.
- 1.3 I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 and to the extent that I am giving expert evidence, have complied with it in preparing this evidence. I confirm that the issues addressed in this evidence are within my area of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in my evidence.

## **2. SCOPE OF EVIDENCE**

- 2.1 I have asked to respond to the statements in the planning evidence of Mark Chrisp, and in the corporate evidence of Brigid Buckley, on behalf of Fonterra Ltd in relation to assertions they make regarding the potential for reverse sensitivity effects on Fonterra's Te Rapa Dairy Factory due to the proposed Te Awa Lakes development. I also respond to comments made by Mr Chrisp about whether the Te Awa Lakes development is an incompatible use.
- 2.2 I respond to those statements below by reference to the particular paragraphs that require a response.

## **3. RESPONSE TO SUBMITTER EVIDENCE**

### **Fonterra Ltd – Mark Chrisp and Brigid Buckley**

#### *Paragraphs 9.10 and 9.11*

- 3.1 In paragraphs 9.10 and 9.11 of his evidence, Mr Chrisp makes comments in relation to the potential effects on sensitive receptors from odour generated by Fonterra's lawful operations at its Te Rapa Dairy Factory.
- 3.2 At paragraph 9.10, he asserts that the reason why there have been more complaints in relation to odour from residents on the eastern side of the Waikato River adjacent the Dairy Factory is because that is where the highest number and density of residential activities is located. Mr Chrisp then suggests that the addition of 1,100 residential

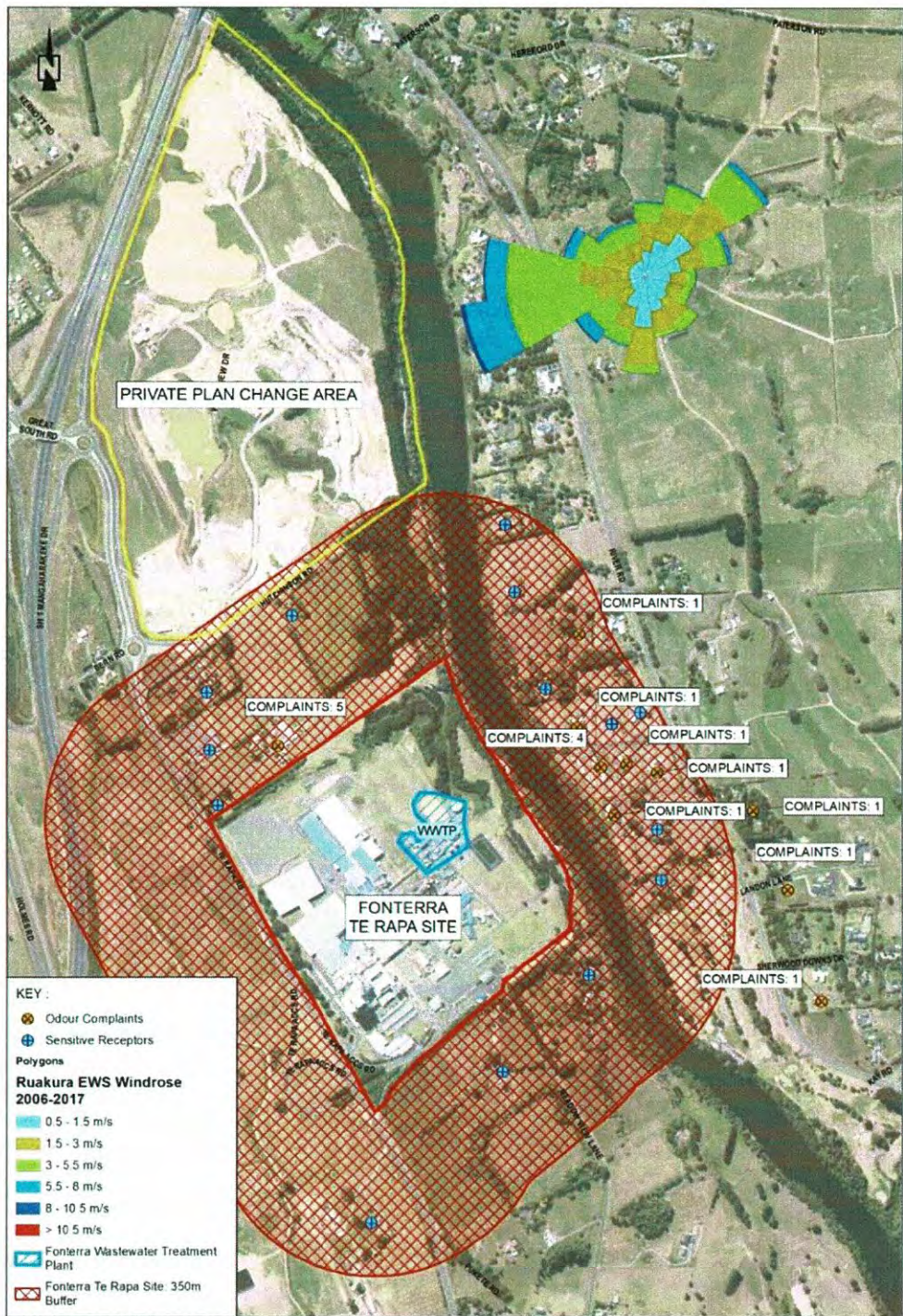
dwellings at Te Awa Lakes would lead to a significantly greater risk of complaints arising from that area.

- 3.3** I disagree with Mr Chrisp that additional sensitive receptors in the form of residences at Te Awa Lakes will lead to a significantly greater risk of complaints from that area. There are a number of factors that combine to result in complaints occurring at residences on the eastern side of the Waikato River adjacent to Fonterra Te Rapa, with wind direction and proximity being the primary factors and these are discussed in the paragraphs that follow.
- 3.4** As I set out in my primary evidence in paragraphs 6.1 and 6.2, the prevailing winds are from west/southwest and the locations of all but one odour complaint are downwind of the Fonterra Te Rapa site in the prevailing wind direction.
- 3.5** Furthermore I note with reference to Figure 1 in my primary evidence (reproduced below for ease of reference with the 350 m separation distance added), that there are number of sensitive receptors (marked as blue circles) to the north and south of Fonterra Te Rapa that are located within the proposed 350 m separation distance. As noted in my primary evidence, only one of the 5 sensitive receptors located to the north of Fonterra Te Rapa were noted by BECA<sup>1</sup> as having complained of odour from Fonterra Te Rapa. It can be concluded from Figure 1 that a number of sensitive receptors located within proposed 350 m separation distance of Fonterra Te Rapa have not complained about offensive or objectionable odours. BECA further reported in 2016 that the Waste Water Treatment Plant (WWTP) was upgraded in 2015 to address the most significant sources of odour, with a corresponding reduction in complaints.<sup>2</sup>

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<sup>1</sup> Fonterra Te Rapa: Air Quality Impact Assessment, BECA, 23 March 2016, pp 40.

<sup>2</sup> Fonterra Te Rapa: Air Quality Impact Assessment, BECA, 23 March 2016, pp 58.



SOURCE:  
 1. AERIAL IMAGE BY AIRPHOTO.COM THE LAND DATA PROVIDED AND LICENSED BY PEPPER HALL UNDER THE  
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FIGURE 1 : LOCATION PLAN

SCALE : 1:11,000 (A4)  
 0 50 100 200 300  
 METRES

- 3.6** There are also a number of residences located to the north of Fonterra Te Rapa on the eastern side of the Waikato River adjacent to the proposed Te Awa Lakes site. Some of these residences are closer to Fonterra Te Rapa than the proposed Te Awa Lakes residential development. As far as I am aware none of these residences have made complaints about odour from the Fonterra Te Rapa site. In my opinion the lack of complaints is likely to be due to a combination of a lower frequency of winds from the direction of the Fonterra Te Rapa site, and there being an adequate separation (or buffer) distance to “address unintended or accidental releases, and/or any effects that cannot be internalised even with the adoption of the best practicable option”.<sup>3</sup> Essentially the buffer is big enough and, combined with the limited nature of the odour emissions and wind direction and speeds, any increased sensitivity of the residences doesn’t result in reverse sensitivity effects.
- 3.7** As I set out in my primary evidence, in paragraphs 6.8 to 6.18, a minimum separation distance 350 m is appropriate to ensure any unintended or accidental odour discharges from Fonterra Te Rapa will not cause adverse impacts upon the Te Awa Lakes development and as a result, Fonterra will not be impacted by reverse sensitivity effects from the proposed Te Awa Lakes Development.
- 3.8** Mr Chrisp’s assertion that because new sensitive receptors (residences) are proposed to be located on the Te Awa Lakes site, that (by implication) means that Fonterra will be at greater risk of complaints arising from its activities is not supported by the analysis I have conducted. My analysis demonstrates that the proposed separation distance from Fonterra Te Rapa’s property boundary combined with a reduced frequency of winds from the direction of the Fonterra Te Rapa site will result in any potential reverse sensitivity effects being avoided.
- 3.9** At paragraph 9.11, Mr Chrisp makes reference to the FIDOL factors. Assessing whether an odour has an offensive or objectionable effect requires an overall judgement that considers the frequency, intensity, duration, offensiveness/character and location of the odour event. These are known as the FIDOL factors.<sup>4</sup> Mr Chrisp asserts that by Proposed Plan Change 2 (PPC2) providing for sensitive activities at Te Awa Lakes, Fonterra will be held to a higher standard in terms of what is deemed to be an objectionable or

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<sup>3</sup> Good Practice Guide for Assessing and Managing Odour, MfE, 2016 pp 56

<sup>4</sup> Good Practice Guide for Assessing and Managing Odour, MfE, 2016 pp 18

offensive odour, based on a change in the sensitivity of the receiving environment, as assessed in FIDOL as the “L” factor or “Location”. I disagree.

**3.10** FIDOL assessments are undertaken to determine if an odour effect could be considered to be offensive or objectionable. I agree with Mr Chrisp that when assessing odour related concerns, the sensitivity of the receiving environment where the effect is being assessed is relevant and is taken into consideration in a FIDOL assessment via the “L” factor. The receiving environment within part of the Te Awa Lakes proposal, post development, would be considered to be of higher sensitivity than currently, where it will be largely residential in nature.

**3.11** While the “L” factor in a FIDOL assessment of odour would be given a higher weighting within the Te Awa Lakes development due to the higher sensitivity of residences to odour, a number of other factors in the FIDOL assessment are likely to have reduced weighting due to:

- Te Awa Lakes being downwind of Fonterra Te Rapa less frequently than other locations resulting in reduced Frequency (F) and Duration (D) factors;
- Due to the 350 m minimum separation distance from the Fonterra Te Rapa property boundary, the Intensity (I) of odour experienced would be reduced or non-existent due to increased dispersion and mixing as a result of increased separation distances; and
- Similarly the Offensiveness (O) of any odours would be reduced, again due to increased dispersion and mixing as a result of increased separation distances.

**3.12** In assessing what is deemed to be an objectionable or offensive odour using a FIDOL analysis, all the FIDOL factors need to be considered holistically.

**3.13** As I set out in my primary evidence in paragraphs 6.28, it is my opinion that any future complaints around odour from the Fonterra site are more likely to come from residences on the eastern bank of the Waikato River adjacent to Fonterra Te Rapa rather than residents of the Te Awa Lakes development as a result of:

- a) the prevailing west/southwest wind;

- b) reduced separation distance to Fonterra Te Rapa compared to that of the Te Awa Lakes Development; and
- c) historical odour complaints originating almost exclusively from residences on the eastern bank of the Waikato River.

*Paragraph 5.13*

- 3.14** At paragraph 5.13 of his evidence, Mr Chrisp again asserts that, in his opinion, locating sensitive activities on the Te Awa Lakes site creates the potential for reverse sensitivity to constrain Fonterra's operations or any future expansion of the Te Rapa Dairy Factory or new industrial activities on the surrounding land. In my opinion, and from an odour perspective, there is no evidential basis for that assertion.

*Paragraph 7.1*

- 3.15** At paragraph 7.1 of her evidence, Ms Buckley claims that the location of sensitive activities on the Te Awa Lakes site "*will result in significant adverse reverse sensitivity effects on nearby industrial land uses, and in particular the Te Rapa Dairy Factory*". Again, from an odour perspective, based on my analysis, that is incorrect. I am of the opinion that any potential odour related reverse sensitivity effects of the Te Awa Lakes development on the Fonterra Te Rapa site can be avoided and/or mitigated via a separation distance of 350 m (as measured between the boundary of the Fonterra Te Rapa site and any proposed dwellings at the Te Awa Lakes Development), as is proposed under PPC2.

*Paragraphs 9.15 and 9.16*

- 3.16** In paragraph 5.8(g) Mr Chrisp refers to a Regional Planning Principle referring to "incompatible land uses" and in paragraphs 9.15 and 9.16 asserts that Te Awa Lakes is such a use. I disagree in relation to odour. For the reasons explained above, I consider Fonterra need not be concerned about odour effects on Te Awa Lakes and the 350m separation and the wind direction and speeds mean that the two developments will be compatible.



#### **4. CONCLUSION**

- 4.1** In my opinion, the conclusions reached by Mr Chrisp and Ms Buckley are inconsistent with an evidence based approach to assessing odour impacts in the area. I confirm my earlier view that any potential reverse sensitivity effects on Fonterra's Te Rapa Dairy Factory operations arising from its odour emissions will be avoided or substantially mitigated to a less than minor degree. I also do not consider the two sites to be incompatible in terms of any concerns over odour.

**Steven Mitchell Pearce**

**29 November 2019**