IN THE MATTER	of the Resource Management Act 1991
AND	
IN THE MATTER	of the Proposed Canterbury Air Regional Plan

STATEMENT OF EVIDENCE OF ANDREW CURTIS
ON BEHALF OF WINSTONE WALLBOARDS LIMITED

Dated 18 September 2015

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1 INTRODUCTION

1.1 My name is Andrew Curtis.

1.2 I have a degree in Chemical Engineering (BE Chemical and Materials) from the University of Auckland and a Postgraduate Diploma in Toxicology from RMIT University, Australia.

1.3 I am an Associate Director with the firm AECOM New Zealand Ltd, specialising in air quality assessment, and a Certified Hearing Commissioner. I have over 25 years' engineering experience and have specialised in air quality assessment for over 18 years.

1.4 I have been involved with a number of aspects of the preparation of air quality plans in New Zealand, including:

(a) Presenting evidence to the Auckland Council on the Operative Regional Plan Air Land and Water and on the air quality aspects of the proposed Unitary Plan;

(b) Preparing the air quality section of the Northland Region Coastal Plan; and

(c) Assisting the Horizons Regional Council with air quality advice during hearings on its One Plan.

1.5 I have significant experience in the assessment of discharges to air associated with heavy industry, including:

(a) The proposed Holcim cement works near Oamaru;

(b) The Golden Bay cement works near Whangarei;

(c) The Nuplex resin manufacturing plant in Auckland;

(d) The Gelita manufacturing plant in Christchurch; and

(e) The Ravensdown fertiliser plant in Dunedin which I assessed for the Otago Regional Council.

1.6 I have given evidence before Councils and the Environment Court on many occasions, as well as giving evidence before both Boards of Inquiry and the High Court.

1.7 I have advised Winstone Wallboards for a number of years and have recently advised the company in relation to its air discharge consents for its Auckland gib manufacturing operation. My involvement with the company's gib manufacturing site at Opawa in Christchurch has been more limited, given the length of the air discharge consent for that site (which expires in January 2030), but I have visited the Opawa site and provided some advice on air quality matters. Most recently, I have been involved in considering the impacts of the proposed Air Plan on the operations in Opawa.

1.8 My evidence addresses the following:

(a) Air discharges from Winstone Wallboard's Opawa site;

(b) Reverse sensitivity issues (Objective 5.9 and Policies 6.7 and 6.8);

(c) Policy 6.4 and the focus on $PM_{2.5}$;

(d) Offsetting and Rule 7.14;

(e) Rule 7.18 – Prohibited activity status;

(f) Rule 7.19 - External combustion (gas);

(g) Rules 7.24 and 7.25 (Discharges from emergency electricity generation, maintenance and peak electricity load management); and

(h) Rule 7.27 Combustion discharges not complying with or provided for by other rules.

1.9 I have read the Code of Conduct for Expert Witnesses as contained in the Environment Court's Consolidated Practice Note (2014), and I agree to comply with it. My qualifications as an expert are set out above. I confirm that the issues addressed in this brief of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

2 AIR DISCHARGES - WINSTONE WALLBOARD'S OPAWA SITE

2.1 The air discharges from Winstone Wallboard's Opawa site fall into three main categories:

(a) The first is the combustion related discharges associated with the Board Dryer and boilers on site. These discharges are primarily combustion products (PM_{10} and nitrogen dioxide), although there is also a visual element to the Board Dryer stack due to the water being evaporated. These discharges are authorised by the current site air discharge consent (CRC9215758.1).

(b) The second type of discharge is that associated with processing the gypsum so that it can be used in the manufacturing process. These emissions are mainly particulate, and are discharged to air after passing through a range of control devices, primarily baghouses. Again these discharges are authorised by the site consent.

(c) Finally there are potential particulate discharges associated with raw material stockpiles, which are contained in buildings in order to minimise any potential for effects.

2.2 Winstone Wallboards regularly monitors the discharges from its on-site sources and I understand that it is fully compliant with its consent conditions.

2.3 Winstone Wallboards have been operating on the Opawa site since 1961. The site is located in an industrial (B5) area in the operative Christchurch City Plan, with land in close proximity zoned residential (L1). While I am not aware that there have been any air quality related complaints or issues associated with company's operations since it enclosed its raw material store in 2006, the possibility exists that reverse sensitivity effects could arise because of the proximity of these two dissimilar land uses.

3 REVERSE SENSITIVITY ISSUES (OBJECTIVE 5.9 AND POLICIES 6.7 AND 6.8)

Objective 5.9

3.1 Objective 5.9 of the proposed Plan appears to be intended to deal with reverse sensitivity issues; that is, the problems that occur when new activities locate into an area, resulting in complaints about some form of discharge from an existing legally established activity. The classic example of this is the establishment of rural lifestyle blocks adjacent to farms, resulting in a variety of complaints ranging from noise to odour and dust.

3.2 In my view, the fact that the Regional Council feels compelled to have such an objective appears to suggest that it cannot rely on District Councils to appropriately zone land.

3.3 Unfortunately, if the objective and its associated policies are included in the Air Plan, it will be industry (and other activities that are required to seek consent) that are forced to resolve the issue.

3.4 Consequently while I accept that industry should minimise its emissions and further accept that what may need to be implemented will be increased over time as standards are tightened, I do not accept that the Air Plan should direct where an activity should or should not be located, as this is largely out of industry's hands, particularly when surrounding land use changes.

3.5 Therefore it is my opinion that Objective 5.9 should be deleted, or if it is to be retained, that it be amended as set out in Ms Buckingham's planning evidence for Winstone Wallboards:

> *5.9 <u>New d</u>~~D~~ischarging and sensitive activities are spatially located so that appropriate air quality outcomes are achieved both at present and in the future.*

Policy 6.7

3.6 Policy 6.7 makes it clear that industry will be expected to either reduce its effects or move.

3.7 It is my opinion that the focus should be on controlling emissions from sites. The intent of the Air Plan should be to ensure that

discharges to air from an activity do not result in significant adverse effects. When emissions are consented, then the Regional Council should ensure that the industry meets its consent conditions, and take appropriate enforcement action if it does not.

3.8 Relocation would only likely be appropriate if there are no further mitigation measures that can be economically implemented at an existing location, and the cost of mitigation was greater than the cost of relocation, which would be significant (tens of millions) for a company such as Winstone Wallboards.

3.9 However I do not consider that the presumption should be that an industry relocates, as overall that may not be either the most practicable or economical option.

3.10 Therefore I support the deletion of Policy 6.7. If the policy is to be retained, I support amendment of the policy as recommended by Ms Buckingham.

Policy 6.8

3.11 Policy 6.8 appears to be aimed at new activities, and in that regard I support the intent of this policy. However there is no comparable policy for existing activities that are located in appropriate locations, and therefore I consider that this policy should be modified to provide the same benefit to them.

3.12 Otherwise you could have the bizarre situation where two comparable activities with similar discharges are adjacent to each other, with one having a long duration consent because it is new and the other a shorter duration because it is long established.

3.13 This would serve no resource management purpose if the emissions were the same, and therefore I support the amendment of policy as suggested by Ms Buckingham as follows:

> *6.8 Where activities that discharge into air <u>are</u> locate<u>d</u> appropriately ~~to avoid the potential for reverse sensitivity effects~~, then longer consent duration may be available to provide ongoing operational certainty*

4 POLICY 6.4 AND THE FOCUS ON $PM_{2.5}$

4.1 Policy 6.4 focuses on $PM_{2.5}$, which is a subset of PM_{10}. International research has indicated that $PM_{2.5}$ is more closely correlated to health effects than PM_{10} and therefore it is a legitimate pollutant to monitor.

4.2 While I have no particular concerns about the legitimacy of having such a policy, it stands in isolation, with no rules which would implement it.

4.3 In addition there is no analysis provided which would indicate whether the policy is practical, and whether it is possible to achieve a 24 hour average concentration of 25 $\mu g/m^3$ by 2030 while providing for industrial growth. This is of particular concern given the comment in Section 4.5.1 of the Christchurch Air Quality Status Report[1] that "$PM_{2.5}$ may remain an issue even once PM_{10} is reduced down to threshold levels."

4.4 Consequently I can see little benefit in having this policy and consider it should be deleted.

5 RULE 7.14 - OFFSETTING

5.1 Rule 7.14 seeks to implement Regulation 17 of the NES AQ[2]. Given that the regulation exists and applies regardless of whether it is included in the proposed Plan, I am not sure that the rule is even necessary.

5.2 However I can understand why, for completeness the Regional Council might want to include the rule, to ensure that it is clear that an application for resource consent cannot be granted if the 2.5 $\mu g/m^3$ (as a 24 hour average) trigger value will be (or will likely be) exceeded.

5.3 But if the Council chooses to include such a rule it needs to be consistent with the requirements of the NES AQ, which I do not consider is the case at the moment.

5.4 I note that the Council has sought to address (in the section 42A report) some of the concerns that were raised in submissions, and

[1] Environment Canterbury, Air quality status report Christchurch airshed, Report No R14/116, December 2014
[2] Resource Management (National Environmental Standards for Air Quality) Regulations 2004

has modified its proposed rule so that it is more in line with Regulation 17. However I consider that the rule as written is still significantly flawed and needs to be either modified as I will discuss below, or be deleted.

5.5 My concern about the wording is that there is a high degree of ambiguity as to whether the "*100% of the discharge will be off-set*" applies to the **incremental change** in the discharge which results in the trigger limit being exceeded, or **all** of the emissions from the site.

5.6 In addition Regulation 17 does not apply when the discharge is from an existing activity which is seeking to renew its consent. As drafted, Rule 7.14 would also apply to that activity as the rule does not include the exclusions contained in subsection 2 of Regulation 17 (included in full below):

> *"However, subclause (1) does not apply if—*
>
> *(a) the proposed consent is for the same activity on the same site as another resource consent* (the existing consent*) held by the applicant when the application was made; and*
>
> *(b) the amount and rate of PM_{10} discharge to be expressly allowed by the proposed consent are the same as or less than under the existing consent; and*
>
> *(c) discharges would occur under the proposed consent only when discharges no longer occur under the existing consent."*

5.7 Therefore I recommend that the amendments to the rule suggested by Ms Buckingham are made:

> *7.14 Any discharge of PM_{10} into air that would be likely, at any time, to increase the concentration of PM_{10} (calculated as a 24-hour mean) by more than 2.5µg/m³ in any part of a polluted airshed other than the site on which the discharge occurs, is a restricted discretionary activity provided the following condition is met:*

1. ~~100%~~ *The portion of the discharge which results in the exceedance will be off-set within the polluted airshed in accordance with Regulation 17 of the Resource Management (National Environmental Standards for Air Quality) Regulations 2004.*

The exercise of discretion is restricted to the following matters:

1. The proposal to off-set 100% of the emissions within the polluted airshed to ensure that there is no net increase of PM10 emissions; and

2. The matters set out in rule 7.2.

Note: when an application is for a renewal of an existing consent, this rule does not apply unless the amount or rate of PM_{10} discharge to be expressly allowed by the proposed consent is greater than under the existing consent.

5.8 I consider that the suggested amendments are consistent with point 1 of the matters for discretion in the rule, which indicates that the intention of the condition is to make sure that there is "no net increase of PM_{10} emissions" within the polluted airshed.

5.9 I would further note that in my experience developing plans for off-setting emissions are difficult, and therefore while the ability to do this exists, I am not aware that it has been successfully implemented for any large industries.

6 RULE 7.18 – PROHIBITED ACTIVITY STATUS

6.1 As drafted in the proposed Plan, Rule 7.18 was a rather draconian rule which in many ways duplicated the requirements of the NES AQ with respect to some pollutants, and introduced new prohibitions on discharges for some pollutants contained in the Ambient Air Quality Guidelines (AAQG).

6.2 Given that this latter document was not intended for that purpose, I did not think that this was appropriate.

6.3 As noted by Ms Buckingham in her evidence for Winstone Wallboards, in locations where any of the AAQG are already exceeded, this rule could prevent existing industrial activities from

obtaining renewals of their existing air discharge permits and force them to effectively close down and move elsewhere.

6.4 The Council, in its section 42A report, has indicated that it accepts (at least in part) the submissions made, and that it will be preparing a "new rule or rules that enable application of BPO as appropriate".

6.5 Without having seen any proposed rule it is not possible to state whether I support the changes or not, and consequently I wish to address the panel further in regard to this Rule once the Council proposal is provided.

7 RULE 7.19 – EXTERNAL COMBUSTION (GAS)

7.1 I am generally supportive of Rule 7.19 and I consider that it is appropriate that there is a permitted activity rule for small gas fired appliances.

7.2 However unfortunately, in drafting the conditions attached to the rule, the Council has effectively negated the permitted activity status for industrial activities by including Condition 3.

7.3 This condition does not allow any building more than 5 m high to be within 25 m of the stack. Based on my experience, most large industrial buildings are a minimum of 6 m high, and the majority of them would be within 25 m of the stack.

7.4 Therefore the majority of activities would default to being discretionary under Rule 7.27.

7.5 I understand and agree with the intent of the condition (which is to reduce building downwash effects and the consequential poor dispersion of any stack emissions). However it is building heights **in relation to** the stack height which affects the dispersion of the products of combustion, and therefore air quality (which is addressed in Condition 5).

7.6 The table included in Condition 5 contains sensible requirements for stack heights which are in line with my experience, having undertaken many stack height assessments over the past 19 years.

7.7 I therefore recommend that the Panel delete Condition 3 from Rule 7.19, as it serves no purpose other than defaulting otherwise

complying and permitted combustion devices to a discretionary status.

7.8 I note in passing that while it is not part of Winstone Wallboards submission that a similar condition (Rule 7.20 Condition 4; Rule 7.21 Condition 5; Rule 7.22 Condition 6) appears in some of the other rules, with a similar outcome. It is my opinion, given that these rules also contain tables with specific stack heights, that the above conditions are also removed if there is scope for the Panel to do so.

8 RULES 7.24 AND 7.25 (DISCHARGES FROM EMERGENCY ELECTRICITY GENERATION, MAINTENANCE AND PEAK ELECTRICITY LOAD MANAGEMENT)

8.1 I support the intent of Rules 7.24 and 7.25, and consider that they are appropriate for the management of emissions from emergency generation equipment.

8.2 However there is an issue with Condition 4 in Rule 7.24 and Condition 3 in Rule 7.25. These conditions, which are identical, limit the sulphur content of the fuel to be burnt to 0.001% by weight. While this is appropriate for any diesel fired generators as this is the maximum amount of sulphur allowed in diesel by the New Zealand fuel regulations[3], it is significantly lower that the sulphur content allowed in petrol[2] (0.005% by weight).

8.3 While I accept that the majority of large generators are diesel fired, this condition would make all petrol fuelled generators (especially those less than 300 kW which are more likely to be petrol fuelled) discretionary activities and require consents to be sought.

8.4 I do not consider that there would be any adverse environmental effects from the small difference in the amount of sulphur associated with any such discharges from the combustion of petrol, and can therefore see no purpose in making the activity fully discretionary.

8.5 I therefore recommend that the mass limit of sulphur in the respective conditions be increased from 0.001% by weight to 0.005% by weight.

[3]http://www.legislation.govt.nz/regulation/public/2011/0352/latest/whole.html accessed 14 September 2015

9 RULE 7.27 COMBUSTION DISCHARGES NOT COMPLYING WITH OR PROVIDED FOR BY OTHER RULES

9.1 I have some concerns about Rule 7.27, and its discretionary status, primarily because of the comments that I have made above about some of the other rules. In particular I am concerned that for what are essentially technical breaches of some the rules, without any particular effect, an activity would become fully discretionary.

9.2 The five permitted activity conditions proposed in Rules 7.19 for example are related to discrete technical matters. Breaches of these technical standards will not always give rise to adverse effects particularly given that natural gas (whatever its form) is the cleanest burning fuel, and the maximum output of the combustion devices covered by this rule is 5 megawatts.

9.3 In Rule 7.19 as it is currently drafted, despite the fact that an activity had a stack meeting the minimum heights in Condition 5, it would become discretionary if there was a 5 m high building within 25 m of the stack.

9.4 I therefore support the inclusion of new rule 7.19A recommended by Ms Buckingham in her planning evidence:

> *7.19A The discharge of contaminants to air from the combustion of liquefied petroleum gas or compressed natural gas in any large scale combustion device with a net energy output of less than or equal to 5MW that does not comply with one or more of conditions 1-5 in Rule 7.19 is a restricted discretionary activity.*
>
> *The exercise of discretion is restricted to the purpose of the condition(s) that is not complied with, and the BPO for the discharge.*

10 CONCLUSION

10.1 I have set out above my concerns about some aspects of the proposed Plan. It is my opinion that with the changes I have recommended, the Air Plan will become more robust and workable for both the Council and Industry.

10.2 I do have a residual concern that despite there being significant technical information on airshed issues in Canterbury and analysis of effects of home heating, there does not appear to be any specific technical air quality reports to support the preparation of the Air Plan or the response to submissions in the Section 42A report.

10.3 This is perhaps best exemplified by the lack of a response in the section 42A report to Winstone Wallboard's submission on Rule 7.19, and the fact that Condition 3 of that rule contradicts Condition 5.

Andrew Curtis

September 2015