

BEFORE THE CANTERBURY REGIONAL COUNCIL

IN THE MATTER of the Resource Management Act 1991

A N D

IN THE MATTER of the Proposed Canterbury Regional Air Plan

A N D

IN THE MATTER of submissions and further submissions by Lyttelton Port of Christchurch.

STATEMENT OF EVIDENCE OF JEFFREY GEORGE BLLUETT Jeffrey George Bluett

1. INTRODUCTION

Qualifications and Experience

- 1.1 My full name is Jeffrey George Bluett.
- 1.2 I am employed as the leader of the air quality team by Golder Associates (NZ) Limited (Golder), a ground engineering and environmental consulting firm. I have been employed by Golder since April 2012 and have over 18 years of experience in the field of air quality management.
- 1.3 I hold the qualifications of a Bachelor of Science (University of Otago) and a Master of Science degree (First Class Honours) in Environmental Science (Lincoln University), specialising in air pollution modelling.
- 1.4 I am a member of the Clean Air Society of Australia and New Zealand (CASANZ). Within CASAANZ, I currently hold or have held the following positions, NZ Branch committee member (1998-present), NZ Branch secretary (2014-present), CASANZ Council (2014-present), Transport Special Interest Group deputy chair (2010-2014), Training Activities Chairperson (2002-2008) and Conference Co-convenor (2002).

- 1.5 I have authored or co-authored approximately 100 reports and peer reviewed papers in aspects of transport, industrial, domestic and agricultural emissions to air. My research work focused on measuring real-world emissions and comparing those to laboratory measurements. I also have extensive experience in air quality and meteorological monitoring, air quality management plans, dispersion modelling and impact assessment statements. I have been involved in consultancy and advice to local and central government and to industry. My most recent investigations have focused on quantifying the effects of dust and the efficacy of various dust suppressants from roadways, bulk material stockyards and open cast coal mines.
- 1.6 Previously I have worked as investigating officer for the Canterbury Regional Council processing resource consent applications (1997-2000) and leader of the air quality team and research scientist at the National Institute of Water and Atmospheric Research (2000 to 2012).

My Role – Lyttelton Port of Christchurch

- 1.7 Lyttelton Port of Christchurch (LPC) sought advice from Golder's air quality experts as to whether they considered there were any implications for LPC arising from the Proposed CARP (pCARP).
- 1.8 I provided this initial advice and then assisted with the preparation of LPC's submission. Given my involvement in this process, I am familiar with the nature of LPC's facilities, how they operate and the resource consents, and associated conditions, they hold for these facilities.

Code of Conduct

- 1.9 Whilst this is a Council Hearing, I acknowledge that I have read and am familiar with the Environment Court's Code of Conduct for Expert Witnesses, contained in the Environment Court updated Practice Note 2014, and agree to comply with it. My qualifications as an expert are set out above. Other than where I state that I am relying on the advice of another person, I confirm that the issues addressed in this statement 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 that I express.

2. SCOPE OF EVIDENCE

- 2.1 My evidence will cover the following issues:

- (a) **Definitions of localised and ambient air quality** (Objective 5.1, Objective 5.2 and Policies 6.1, 6.7 and 6.8)
- (b) **Discharge of PM₁₀ from industrial, trade and large scale devices.** (Rules 7-15 and 7-16)
- (c) **Discharge of contaminants from large scale solid burning devices** (Rules 7-17 and 7-18)
- (d) **Diesel Generators** (Rule 7-25)
- (e) **Emissions from workshops** (Rule 7-36)
- (f) **Schedule 2 Assessment of Offensive and Objectionable Effects** (Schedule 2)

3. DEFINITIONS OF LOCALISED AND AMBIENT AIR QUALITY (OBJECTIVES 5.1 AND 5.2, AND POLICIES 6.1, 6.7 AND 6.8)

- 3.1 To effectively manage air quality while allowing for the appropriate use of the air resource by industry, I consider it important that the pCARP:
- (a) Differentiates between localised and ambient air quality effects
 - (b) Enables the management of air quality at these two different spatial scales.
- 3.2 The definition of ambient air quality provided in the Officer's Section 42a report effectively covers all areas within the airshed including locations at industrial site boundaries. Therefore, this definition of ambient air quality includes localised air quality effects from industrial emissions.
- 3.3 Mr Roger Cudmore (Golder), has produced evidence for Fonterra Co-operative Group Limited and Ravensdown Co-operative Group Limited on the importance of understanding the differences between the effects of localised and ambient air quality. Mr Cudmore highlights the importance of providing for a dual management regime which will enable industrial activity in both rural and urban airsheds. In the process of producing my evidence, I reviewed Mr Cudmore's evidence. The key relevant points from Mr Cudmore's evidence are that:
- (a) Within CRC's Natural Resources Regional Policy Statement there is direction given in regards the need to separately manage "ambient air quality" and "localised air quality".

- (b) It is important to have policies and rules in the pCARP that are applied to ambient air quality that is representative of the airshed and that is not significantly impacted by localised industrial discharge effects. Separate policy is required for managing localised air quality effects from industry.
 - (c) There are two approaches which the pCARP could take to ensure it effectively differentiates and manages localised and ambient air quality:
 - a. Accept the Officer's ambient air quality definition but require that Policies 6.2 and 6.3 and related rules apply to ambient air quality that is not significantly influenced by localised effects of industrial discharges.
 - b. Define localised air quality as: *The air quality that is localised to relatively small specific areas of Canterbury where emissions from single industrial sources significantly influence maximal air contaminant concentrations at ground level. Localised air quality concentrations are less persistent than, and not characteristic of those that typically occur within the wider rural, urban or business district areas.*
 - (d) As a way forward, Mr Cudmore suggests accepting the Officer's recommended definition of ambient air but amended as recommended in the evidence of **Ms Ashley** (Table 2.1 of the Section 42A Report) and also including a definition of localised air quality in the Plan's list of definitions.
 - (e) Mr Cudmore suggests that the inclusion of definitions for both localised and ambient air quality within the pCARP should encourage the assessment of localised air quality effects due to industry separately from the assessment of impacts upon the wider airshed.
 - (f) Mr Cudmore concludes, the ambient and localised air quality effect definitions would work hand in hand and would allow for an effects based air quality impact assessment approach.
- 3.4 I concur with Mr Cudmore's suggestions and conclusions on this issue and repeat them in my evidence in support of LPC's planning evidence on Objectives, 5.1 and 5.2 and Policies 6.1, 6.7 and 6.8.

4. DISCHARGE OF PM₁₀ FROM INDUSTRIAL, TRADE AND LARGE SCALE DEVICES. (RULES 7-15 AND 7-16)

- 4.1 Rules 7.15 and 7.16 relate to the discharge of PM₁₀ from industrial, trade and large scale devices. While these rules do not relate to any of LPC's current activities, for

purposes of planning for potential future development LPC seek to clarify the intent of these rules.

- 4.2 The CRC S42A report proposes Rules 7.15 and 7.16 be amended to:
- (a) Outside a Clean Air Zone, the discharge into air of total PM₁₀ at concentration exceeding 250 mg/m³ air, when tested in accordance with schedule 6 and adjusted to 0° Celsius, dry gas basis, 101.3 kilopascals, and 8% oxygen or 12% carbon dioxide, is a discretionary activity.
 - (b) Inside a Clean Air Zone, the discharge into air of total PM₁₀ at concentration exceeding 250 mg/m³ air, when tested in accordance with schedule 6 and adjusted to 0° Celsius, dry gas basis, 101.3 kilopascals, and 8% oxygen or 12% carbon dioxide, is a discretionary activity.
- 4.3 It is not clear within the pCARP or within the CRC S42A report if Rules 7.15 and 7.16 are intended specifically for fuel burning devices or whether the proposed emission limit also applies to process emissions which are discharged via a stack (e.g. milk powder). To provide certainty the emission source type/s to which they apply must be clearly defined.
- 4.4 Schedule 6, as referred to in Rules 7.15 and 7.16, details the testing method for particulate matter in exhaust gases from combustion sources. If rules 7.15 and 7.16 are intended to manage only emissions from fuel burning devices, then the methods detailed Schedule 6 are appropriate. However as noted above, to make these rules effective the applicability of these rules only to fuel burning devices must be clearly stated.
- 4.5 However, if Rules 7.15 and 7.16 are also intended to control process emissions which are discharged via a stack or other point source type, the current wording of the rules and particulate emission test method detailed in Schedule 6 is not appropriate. To make Schedule 6 relevant to process emissions, it needs to be refined or expanded to include an appropriate test method for particulate from non-combustion sources where adjustments to 8% oxygen or 12% carbon dioxide is typically not appropriate. The wording of Rules 7.15 and 7.16 also needs to be refined to clarify the rules also apply to process emissions and to have the test conditions, "*adjusted to 0° Celsius, dry gas basis, 101.3 kilopascals, and 8% oxygen or 12% carbon dioxide*" removed.

5. DISCHARGE OF CONTAMINANTS FROM LARGE SCALE SOLID BURNING DEVICES (RULES 7-17 AND 7-18)

5.1 Rules 7.17 and 7.18 relate to the discharge of contaminants into the air from large scale solid fuel burning devices. While there are no solid fuel burning devices at the Port, and my understanding is that none are being considered, such a device at a Port can never be discounted and framework to assess these devices needs to be correct.

5.2 Mr Roger Cudmore,(Golder), has produced evidence for Fonterra Co-operative Group Limited on concerns over rules 7.17 and 7.18. In the process of producing my evidence, I reviewed Mr Cudmore's evidence. The key relevant points from Mr Cudmore's evidence are that:

(a) The pCARP management framework appears to require industry to achieve the same level of air quality effect within localised areas just beyond their site boundary as that required in areas that are set well back from industry. In practice, for many larger industrial activities – including those that have deliberately located in a rural area to minimise or avoid effects on the urban environment (and which may not be able to fully internalise their effects), this could impose best practice controls and costs with minimal environmental benefit.

(b) The modification of Policies 6.20 and 6.21 combined with the deletion or amendment of Rules 7.17 and 7.18 is necessary to enable localised air quality effects from industry.

5.3 I concur with Mr Cudmore's evidence and conclusions on Policies 6.20, 6.21 and Rules 7-17 and 7-18 and repeat them in my evidence to make this point.

6. DIESEL FIRED ELECTRICITY GENERATORS (RULE 7-25)

6.1 LPC operates two 600 kiloWatt diesel fired electricity generators. The generators are approximately 15 years old. The generators are used for emergency electricity supply when mains supply is interrupted. During periods of peak electricity demand on winter mornings or evenings, the generators are also used for load shedding when they supply electricity back into the national grid. Over the last two years LPC estimated that the generators have been used for approximately 24 hours per year for emergency supply. In 2014 and 2015 during the months of July and August, the LPC generators were operated on average for 7.25 hours per month for load shedding. On the days that load shedding occurred the generators were operated for an average of 1 hour and 18 minutes. The exhaust of the generators is discharged via short stacks which protrude approximately 0.5 m above the container which houses each generator.

- 6.2 The generators are located on the northern side of the container terminal in the area between Gladstone Quay and Cashin Quay. There is an eight metre high services building located immediately to the east of the two generators. The surrounding area to the north, west and south of the generators up to a distance of 300 m is open and flat. Approximately 100 m to the northeast of the generators a cliff rises to a height of approximately 30 m. Sumner Road runs along the top of this cliff and a number of houses are located on the northern side of Sumner Road. The nearest residential property is located approximately 35 m above and approximately 160 m to the northwest of the generators.
- 6.3 As some of the port activities are shifted east and the reclaimed land is developed into a container terminal, LPC have plans to install two additional generators toward the eastern end of Cashin Quay (approximately 600 m to the west of the location of the current generators). The location and size of the planned generators is still to be finalised. But for, at least, the first ten years of operation of the new container facility the diesel generating capacity is likely to match the current installation (i.e. 2 x 600 kW generators). The new generators will also be used for emergency electricity supply and load shedding.
- 6.4 The current rule under the operative Natural Resources Regional Plan (NRRP -Rule AQL26A) permits LPC up to 5 megawatts (MW) of generating capacity, provided a 120 m buffer zone is maintained from any sensitive activity located on a different property or outside the Lyttelton Port Zone, where any individual is likely to be exposed to the contaminant for a period of one hour or more per day.
- 6.5 The pCARP does not include this buffer condition for LPC and the LPC activity would be re-classified under Rule 7-25 as controlled, with conditions relating to the stack configuration which LPC's current generators would not meet.
- 6.6 My evidence will show that adverse effects from LPC's current and proposed generators are less than minor and the current NRRP rules provide sufficient environmental protection without the need for additional control on factors such as stack height. In addition to this, it is my opinion that if LPC were to comply with the proposed generator stack height requirements this would increase the potential adverse effects on the houses which are located in relatively close proximity to the generators.
- 6.7 I have undertaken an investigation to assess the potential adverse effects of the particulate matter (PM₁₀) and nitrogen dioxide (NO₂) discharged from the generators. A dispersion model (AUSPLUME) was used to assess the likely ground level concentrations of PM₁₀ and NO₂ in the area surrounding the generators. I assumed that both generators were operating for the purposes of load shedding for a total of four hours per day (06:00 to 08:00 and 18:00 to 20:00) during the cooler months of the year

(May to September inclusive). The pollutant emission rates and exhaust gas velocities input into the model were taken from manufactures specifications for a common type of 600 kW diesel generator. As far as practical the model was configured to replicate the scale and dimensions of the site and included estimating the effect of building downwash from the 8 m high services building to the east of the generators.

- 6.8 Given the actual hours the generators are used for load shedding are closer to two hours per day rather than four, the assessment is likely to provide conservative results for the estimated 24-hour average GLCs of PM₁₀ and NO₂. I have assumed that 20% the oxides of nitrogen (NO_x) discharged from the generator are in the form of NO₂. A number of the other parameters used to configure the model such as the meteorological data set and pollutant emission rates employ the best available information rather than obtaining site or generator specific information. The cliffs located to the south of the generators present complex topography which can influence dispersion under some meteorological conditions. For these reasons the outcomes of the investigation should be considered a screening assessment, providing indicative results, rather than precise estimates of likely GLCs. Despite these limitations the modelling study will provide information of appropriate quality to support LPC's retention of the current NRRP Rule AQL26A.
- 6.9 The dispersion modelling predicts that maximum 24-hour average PM₁₀ concentration will be 13 µgm⁻³ and that this peak value occurs at approximately 20 m from the discharge point. This maximum predicted 24-hour average PM₁₀ concentration is 26 % of the National Environmental Standard (NES) for PM₁₀ (50 µgm⁻³).
- 6.10 The dispersion modelling predicts that maximum 24-hour average NO₂ concentration will be 53 µgm⁻³ and occur at 22 m from the discharge point. This maximum predicted 24-hour average NO₂ concentration is 53 % of the Ministry for the Environment's ambient air quality guidelines (AAQG) for NO₂ (100 µgm⁻³). The dispersion modelling predicts that maximum 1-hour average NO₂ concentration will be 428 µgm⁻³ and occur at approximately 20 m from the discharge point. This maximum predicted 1-hour average NO₂ concentration is 210 % of the National Environmental Standard (NES) for NO₂ (200 µgm⁻³). It is important to note the location and the extent of the exceedance is limited to a very small area within 20 m of the generators where the general public are not exposed.
- 6.11 This modelling shows that the maximum GLCs of PM₁₀ and NO₂ occur in very close proximity to the location of the generators and well within the boundary of the Lyttelton Port Zone (LPZ). It is my opinion that the dispersion of pollutants from the generators is to a large extent affected by the building downwash caused by the relatively tall services building which is located adjacent to the generators.

- 6.12 At approximately 120 m from the generators, the closest point of the LPZ boundary, the dispersion modelling predicts that maximum:
- 24-hour average PM_{10} concentration will be approximately $2 \mu\text{gm}^{-3}$ which is 4 % of the NES for PM_{10} ($50 \mu\text{gm}^{-3}$).
 - 24-hour average NO_2 concentration will be $8 \mu\text{gm}^{-3}$ which is 8 % of the AAQG for NO_2 ($100 \mu\text{gm}^{-3}$).
 - 1-hour average NO_2 concentration will be $80 \mu\text{gm}^{-3}$ which is 40 % of the NES for NO_2 ($200 \mu\text{gm}^{-3}$).
- 6.13 Limited monitoring of ambient quality has been undertaken in Lyttelton. The Canterbury Regional Council undertook a PM_{10} air quality monitoring programme in June 2003. Air quality was monitored at three sites; the cemetery toward the northern end of Canterbury Street, the kindergarten on Winchester Street and at the swimming pool on Oxford Street. A total of 15 days were sampled. These results showed that the maximum 24-hour PM_{10} concentration recorded during the monitoring programme was $45 \mu\text{gm}^{-3}$ measured at the swimming pool site. The average 24-hour PM_{10} concentration of the 15 days monitored at the three sites was $21 \mu\text{gm}^{-3}$. All PM_{10} concentrations were below the NES value of $50 \mu\text{gm}^{-3}$. A comparison of the Lyttelton data to that measured in St Albans Christchurch at the same time shows the air quality in Lyttelton was degraded to a much lesser degree than in St Albans. To the best of my knowledge no air quality monitoring has been undertaken in Lyttelton since 2003.
- 6.14 Using the limited PM_{10} data available for Lyttelton, I have made an estimate of the background 24-hour average concentration of PM_{10} as $20 \mu\text{gm}^{-3}$. To assess the cumulative effect the PM_{10} GLC from the contaminants discharged from the generators ($2 \mu\text{gm}^{-3}$) is added to the estimate of the background air quality ($20 \mu\text{gm}^{-3}$) to give a cumulative PM_{10} concentration of $22 \mu\text{gm}^{-3}$.
- 6.15 There is no NO_2 monitoring data for Lyttelton which can be used to assess background concentrations. The main source of NO_2 emissions in the area will be the diesel trucks delivering the containers to the terminal and the diesel driven straddler vehicles which move containers around the terminal. At any one time when a ship is being loaded there are approximately 15 straddlers operating and as many trucks delivering containers to the port. Given the lack of site specific background NO_2 data, I consider a conservative estimate can be gained from CRC's Riccarton Road roadside which has 25,000 vehicles per day pass, of which approximately 4% (1,000) are heavy duty diesel vehicles. An analysis of the Riccarton Road data shows the average NO_2

concentrations for the months of July and August over the years 2010 to 2014 was approximately $50 \mu\text{gm}^{-3}$.

- 6.16 To assess the cumulative effect of NO_2 , the one hour average NO_2 GLC discharged from the generators ($80 \mu\text{gm}^{-3}$) is added to the estimate of the background air quality ($50 \mu\text{gm}^{-3}$) to give a cumulative NO_2 concentration of $130 \mu\text{gm}^{-3}$ (65% of the 1-hour NES value).
- 6.17 These results show that at the LPZ boundary the maximum predicted cumulative concentrations of PM_{10} and NO_2 are well below the relevant NES assessment criteria.
- 6.18 The dispersion modelling undertaken considers all the potential meteorological conditions that occur in the mornings and evenings of the months May to September. However, in reality the generators are most likely to be operated for load shedding on cold and often still winter mornings and evenings. During these periods the port area is subject to drainage air flows as cold, relatively dense, air slides down the southern side of the port hills. These drainage flows will carry the generator exhaust plumes south into the harbour and away from any populated areas. This means that when the generators are operating the plumes will be dispersed away from Lyttelton Township and the level of cumulative effects predicted to occur on the edge of the LPZ are most likely to occur only on the harbour where no people are likely to be exposed.
- 6.19 The same assessment approach used for the existing generators can be applied to the proposed generators. The main variable that is different between the existing and proposed generator sites is the distance between the generators and any sensitive receptor outside the LPZ boundary. At the location of the existing generators the nearest sensitive receptor is approximately 160 m away. At the location of the proposed generators the nearest sensitive receptor is approximately 500 m away. Therefore it can be concluded that the maximum predicted cumulative concentrations of PM_{10} and NO_2 discharged from the proposed generators are well below the relevant NES assessment criteria.
- 6.20 The proposed Rule 7.25, condition 1 requires that: The discharge is from an emission stack with a height of at least 7 m above ground level and 3 m above the roofline of any building with a radius of 15 from the emission stack. Given the 8 m high services building adjacent to the generators, to meet this condition LPC would have to extend the exhaust stacks to a height of approximately 11 m.
- 6.21 To assess the effect of the increased stack height, the dispersion model was reconfigured so the stack height was 11 m and the model rerun. Under this stack configuration at approximately 120 m from the generators, the closest point of the LPZ boundary, the dispersion modelling predicts that maximum 1-hour average NO_2

concentration will be 60 μgm^{-3} . The increased stack height provides a 25% improvement in one hour average NO_2 GLCs over the current stack heights and is not considered cost effective. Increasing the LPC generator stack heights may actually increase the impact the discharge has in the some circumstances. The plume discharged from an increased stack height:

- (a) Extends further than that from the shorter stacks and this will increase the area and number of people exposed to the plume.
- (b) Is more likely to directly impact the houses located on Sumner Road above the generators (particularly during a southerly wind).

6.22 In conclusion my evidence is that LPC's current and proposed generators can be operated without significant adverse environmental effects on any areas outside the LPZ. With this information, I am able to support LPC's request to retain Rule 7.25A contained in the operative air plan.

7. EMISSIONS FROM WORKSHOPS (RULE 7-36)

7.1 LPC has three workshops where metal work is undertaken. The straddler workshop area is located near Cashin Quay NO 4 close to the reclamation area, which is at least 400 m from any from any sensitive activity located outside the LPZ. The second and third workshop is located at the CityDepot site on Chapmans Road, Woolston, where the repair of 20 foot and 40 foot containers is undertaken.

7.2 Rule 7.36 of the pCARP controls the emissions into air from mechanical grinding, cutting and shaping by the application of heat, machining, welding soldering or arc air gouging of metals provided three conditions are met. Condition 2 of Rule 7.36 states:

- (a) All discharges via an extraction vent are filtered so that PM_{10} is less than 20 mg/m^3 when tested in accordance with Schedule 6 and adjusted to 0° Celsius, dry gas basis, 101.3 kilopascals.

7.3 I consider condition 2 to contain an error which should be corrected. Schedule 6 details the testing for particulate matter in exhaust gases from combustion sources. The vents which service metal workshops do not exhaust combustion gases. Therefore the method detailed in Schedule 6 is not appropriate to determine the concentrations of particulate being discharged from workshop vents. To make condition 2 relevant to workshop vent emission Schedule 6 needs to be refined or expanded to include an appropriate test method for non-combustion sources.

- 7.4 Notwithstanding the issues with the particulate test method, I consider the requirement to filter and test workshop vents to be onerous for LPC's straddler workshop and any other workshop outside a clean air zone. Designing, purchasing, installing operating filtration for workshop vents comes at a cost, likely to be in the order of several thousand dollars per vent. If emission testing is required this will add at least \$1,000 per test per vent. These costs are significant and should be considered in context of the likely environmental benefit gained by the filtration of workshop vents.
- 7.5 On an airshed scale the PM₁₀ emissions from metal workshops are likely to be very minor part of the total PM₁₀ loading. The particles generated by metal work mechanical processes tend to be relatively large with only a small proportion being PM₁₀ or smaller. An indicator of the relatively small scale of PM₁₀ emissions from metal workshops is that they are not considered or quantified in the CRC's current air emission inventory. In addition to this due to scale and nature of the discharge points, any effects are likely to be constrained to a small area in close proximity to the workshop.
- 7.6 Lyttelton is not defined as a polluted airshed because there is no evidence to suggest that it exceeds or is likely to exceed the NES for PM₁₀. Therefore the need to control PM₁₀ emissions within Lyttelton's airshed is not as great as it is for polluted airsheds. The buffer distance between any of LPC's workshop vents and any sensitive activity located outside the LPZ is at least 300 m. At a distance of 300 m it would be very difficult, if not impossible, to detect the influence of a metal workshop vent. Considering the scale, nature and number of LPC's straddler workshop discharges, the buffer distance provided to any sensitive activity located outside the LPZ and the non-polluted status of Lyttelton's airshed, I consider there is have minimal environmental benefit gained from requiring the filtration of metal workshop vents. If the costs implications of installing, operating and testing these vents were considered the cost to benefit ratio would be low.
- 7.7 The container repair workshops are located a minimum of 40 m from the boundary of the CityDepot site and over 300 m to the nearest residential dwelling. These distances, provide a very useful buffer distance which will ensure that the discharges of particulate from the workshop will have a minimal impact beyond the site boundary.
- 7.8 In summary, my evidence shows filtering PM₁₀ emission from workshops within the LPZ will have minimal environmental benefit and is not justified on a cost basis. Beyond LPC's Lyttelton port site, there may be a small airshed benefit gained by filtering PM₁₀ emissions from workshops located within clean air zones. However given that there is an effective buffer distance provided at the CityDepot site for the workshop, I suggest condition 2 of Rule 7.35 is either deleted or at least amended to:

- (a) All discharges via extraction vents from **workshops located within a clean air zone and with buffer distances to residential houses of less than 100 m** are filtered so that PM₁₀ is less than 20 mg/m³ when tested in accordance with Schedule 6 (which is amended to include an appropriate test procedure).

8. SCHEDULE 2 ASSESSMENT OF OFFENSIVE AND OBJECTIONAL EFFECTS

- 8.1 Schedule 2 of the pCARP details the recommended approaches for assessing offensive and objectionable effects of smoke particles, dust and odour. The suggested tools for assessing the offensive and objectionable effects dust and odour are comprehensive and cover the important and useful approaches that can be used to assess the frequency (F), intensity (I), duration (D), offensiveness (O) and location (L) or FIDOL factors.
- 8.2 In addition to the specific guidance provided in Schedule 2, it suggests that regard be given to the Ministry for the Environment's (MfE) Good Practice Guide (GPG) for dust (published in 2001) and the GPG for odour (published in 2003).
- 8.3 The MfE dust and odour GPGs are currently in the process of being revised and the updated GPGs should provide improved and more current guidance. I understand that MfE aim to publish the revised odour GPGs before the end of 2015. To ensure CRC's Schedule 2 reflects current best practice and takes a nationally consistent approach, it should be revised to incorporate reference to the 2015 updates of MfE's dust and odour GPGs.

9. CONCLUSIONS

- 9.1 I support inclusion of definitions for both localised and ambient air quality within the pCARP as this should encourage the assessment of localised air quality effects due to industry separately from the assessment of impacts upon the wider airshed.
- 9.2 Rules 7.15 and 7.16 which set a concentration limits at which PM₁₀ can be discharged at 250 mg/m³ needs to be refined to clearly define which source types these rules apply and to better define the PM₁₀ emissions test methods to be used to assess compliance with this rule.
- 9.3 I support the modification of Policies 6.20 and 6.21 combined with the deletion or amendment of Rules 7.17 and 7.18 to enable localised air quality effects from industry.

- 9.4 My evidence shows that LPC's current and proposed generators can be operated without significant adverse environmental effects on any areas outside the LPZ. With this information, I support LPC's request to retain Rule 7.25A contained in the operative air plan.
- 9.5 My evidence is that filtering PM₁₀ emission from workshops within the LPZ will have minimal environmental benefit. Beyond LPC's Lyttelton port site, there may be a small airshed benefit gained by filtering PM₁₀ emissions from workshops located within clean air zones if an appropriate buffer zone cannot be complied with, I suggest condition 2 of Rule 7.35 is either deleted or at least amended so it applies only to workshops located within a clean air zone and with a buffer distances of less than 100 m.
- 9.6 To ensure CRC's Schedule 2 reflects current best practice and takes a nationally consistent approach, it should be revised to incorporate reference to the 2015 updates of MfE's dust and odour GPGs.



JEFF BLUETT
18 October 2015