Hume Planning Scheme Amendment C207 and C208: Sunbury South and Lancefield Road PSPs Permit Application Nos (P18858, P18854, P18855)

Statement of evidence of Michael Assal from The Odour Unit Pty Ltd

Filed on instructions from Russell Kennedy Pty Ltd, solicitors for Veolia Environmental Services (Australia) Pty Ltd

14 August 2017

A. The Expert Witness

1. *Name and address*

I, Michael Assal, am a Senior Engineer & Consultant of The Odour Unit Pty Ltd (**TOU**) that resides at Bay 4 Suite 3011 Australian Technology Park 2 Locomotive Street, Eveleigh, New South Wales 2015.

2. *Expert's qualifications and experience*

My employment with TOU commenced in January 2011. I hold a double Bachelor's Degree in Chemical Engineering (Honours) and Science (Mathematics) from the University of New South Wales, Sydney, Australia (**UNSW**). I am currently completing a Masters of Engineering Science at UNSW specialising in Environmental Engineering, with graduation expected at the end of 2017.

I am a certified member of Engineers Australia; a certified air quality professional by Clean Air Society Australia & New Zealand (**CASANZ**); a member of Waste Management Association of Australian (**WMAA**) and International Water Association (**IWA**); and an associate member of Institution of Chemical Engineers (**IChemE**).

A copy of my CV is enclosed at **Annexure A**.

3. *Expert's area of expertise to make the report*

My expertise includes air quality, with specific experience in air quality related to odour science and management.

I have more than 6 years of experience in the waste management sector, with an in-depth knowledge base and understanding in organic composting processing. My specific experience lies in the physical, chemical, and biological pathways in which odour can be generated, controlled and managed in the organic composting process. This specific experience also extends to the assessment of odour from organic composting facilities in Australia.

I am the main author for the *Food Organics Garden Organics Odour Impact Assessment Research Project* prepared for the NSW Environment Protection Authority in October 2013 (hereafter referred to as the **FOGO Report**). The FOGO Report discussed the regulatory approaches, technologies, and odour emissions from FOGO operators in Australia and around the world, and included how this information is relevant to regulating odour from FOGO composting in NSW.

B. Relationship between the Expert Witness and the Party for who the expert report is prepared

4. I have worked for Veolia Environmental Services (Australia) Pty Ltd (**Veolia**) on a project basis since my employment with TOU, carrying out odour impact assessments, odour control system design projects, odour audits, and development of odour management strategies for several Veolia sites in Australia.

5. I am aware that Veolia holds a licence (101952) allowing for the in-vessel aerobic composting of 85,000 tonnes per annum of greenwaste, solid domestic waste and grease interceptor trap effluent on land at 580-600 Sunbury Road, Bulla, Victoria (hereafter referred to as **the Bulla Organics Recovery Facility**). I am also aware that Veolia leases the land that the Bulla Organics Recovery Facility resides from Hi-Quality Quarry Products Pty Ltd (**Hi-Quality**).

C. Instructions

6. I was retained by Veolia through Stefan Fiedler of Russell Kennedy Lawyers to prepare a report detailing my opinion with respect to the *Hume Planning Scheme Amendments C207 and C208: Sunbury South and Lancefield Road PSPs Permit Application Numbers P18858, P18854 and P18855*.

7. Specifically, I was retained to review and provide an opinion on the proposed amendment C207 to the Hume Planning Scheme Sunbury South Precinct Structure Plan (hereafter referred to as the **Sunbury South PSP**) and the existing 1.3 kilometres (**km**) odour buffer distance associated with the Bulla Organics Recovery Facility.

   A copy of my instructions received to prepare this report is enclosed at **Annexure B**.

D. Introduction

8. I have been asked to prepare an expert report in relation to the appropriateness of the 1.3 km odour buffer distance identified in the Sunbury South PSP for the Bulla Organics Recovery Facility and provide an opinion on the assumptions, data methodology and findings of the *Veolia Buffer Assessment Odour Monitoring and Modelling Results Report – August 2017* commissioned by Hi-Quality Quarry Products Ltd and completed by GHD (hereafter referred to as the **GHD August 2017 Report**).

9. I have been provided with a copy of the GHD August 2017 Report and refer to the other relevant documents relied upon in this expert report, listed as follows:

a. Victoria Planning Authority (VPA)*, State Planning Policy Framework,* 27 July 2017 (hereafter referred to as **the VPA SPPF July 2017**).

b. EPA Victoria, *Designing, constructing and operating composting facilities*, Publication 1588.1, June 2017 (hereafter referred to as **the EPA VIC Publication 1588.1**).

c. *Hume Planning Scheme Amendment C207 and concurrent permit application P18858 Explanatory Report Exhibition Draft*, November 2016 (hereafter referred to as **the Hume Explanatory Report November 2016**).

d. Victorian Planning Authority (VPA), *Sunbury South Precinct Structure Plan Exhibition – Part One Documentation,* November 2016 (hereafter referred to as **the VPA Sunbury South PSP November 2016**)**.**

e. EPA Victoria*, Licence Number 101952*, issued to Veolia on 19 May 2014 (hereafter referred to as **Veolia's EPA Licence**).

f. EPA Victoria, *Recommended Separation Distances for Industrial Residual Air Emissions*, Publication 1518, March 2013 (hereafter referred to as **the EPA VIC Publication 1518**).

g. GHD, *Veolia Environmental Services: Bulla In-vessel Composting Facility Works Approval Application Supporting Documentation,* July 2011 (hereafter referred to as **the GHD July 2011 Report**).

h. Australian Standard, *4323.4 Stationary source emissions Method 4: Area source sampling—Flux chamber technique*, 2009 (hereafter referred to as **AS4323.4**)

i. NSW EPA*, Technical Framework - Assessment and management of odour from stationary sources in NSW*, November 2006 (hereafter referred to as **the NSW EPA Framework November 2006**).

j. Statement Environment Protection Policy (Air quality management)*, Victoria Government Gazette No. S240,* 21 December 2001 (hereafter referred to as the **SEPP (AQM)**).

k. Application form for EPA works approval, *Assessment Report including Veolia works approval application for an in-vessel composting facility at Bulla* (hereafter referred to as **EPA Response to Veolia's Works Approval Application**).

l. EPA Victoria, *Environmental Guidelines for composting and other organic recycling facilities,* Publication 508, June 1996 (hereafter referred to as the **EPA June 1996 Publication 508**).

10. I have structured this expert report into four sections, as follows:

a. The first section (commencing from Paragraph E of this expert report) provides a summary description of my understanding of the Bulla Organics Recovery Facility;

b. The second section (commencing from Paragraph F of this expert report) provides a description of the purpose and function of a buffer distance;

c. The third section (commencing from Paragraph G of this expert report) is assessment on the assumptions, data, methodology and findings of the GHD August 2017 Report in relation to the buffer distance for the Bulla Organics Recovery Facility; and

d. The fourth section (commencing from Paragraph H of this expert report) details a commentary on the appropriateness of the 1.3 km identified in the Sunbury South PSP for the Bulla Organics Recovery Facility.

E. Section 1 - A summary description of the Bulla Organics Recovery Facility

11. Composting, as defined in the EPA VIC Publication 1588.1, "*is the microbiological transformation of organic materials under controlled aerobic* [that is, in the presence of oxygen] *conditions. There are two phases to the thermophilic composting process:*

11.1 *Pasteurisation which generates heat within the material to significantly reduce the number of viable pathogens and plant propagules;* and

11.2 *Maturation which sees the decline in microbial activity and an increase in biological stability of the organic material."*

12. In general terms, the primary objective of any composting process/technology is to provide a controlled environment to accelerate the decomposition of an organic waste substrate to achieve a stable and nutrient rich compost product that can be reused for the purposes land application or soil conditioner - diverting waste disposal to landfill.

13. To my knowledge, several composting processes/technologies are currently used in Australia including, but not limited to:

a. Open windrow composting (aerobic and anaerobic);

b. Aerated static pile composting, with or without covers;

c. **In-vessel composting**;

d. Fully enclosed composting;

e. Anaerobic digestion; or

f. Incineration/combustion.

14. The Bulla Organics Recovery Facility is an **in-vessel composting** operation for the recycling of organic waste. It is licensed to receive and process up to 85,000 tonnes per annum of greenwaste, solid domestic waste and grease interceptor trap effluent.

15. There are two key receival pathways for which the waste inputs arrive at the Bulla Organics Recovery Facility:

15.1. **Outdoor** receival of green/organic, including:

a. Kerbside garden/food organics directly from collection vehicles;

b. Bulk loads of garden/woody organics from Member Council Transfer Stations;

c. Shredded kerbside garden/food organics and seaweed/sweepings from the Wyndham Transfer Station; and

d. Street sweepings from Member Councils.

15.2 **Indoor** receival of grease interceptor trap effluent, including bulk loads of grease trap sludge from the Veolia Tallow Recovery Plant at Dandenong or from other similar processing facilities.

16. For the processing of waste inputs mentioned in Paragraphs 15.1 & 15.2 of this expert report, the Bulla Organics Recovery Facility adopts the following key process steps:

a. Outdoor receival of green/organic waste;

b. Indoor receival of grease trap waste;

c. Outdoor pre-sorting;

d. Under-cover shredding;

e. Indoor in-vessel composting;

f. Outdoor maturation; and

g. Indoor screening.

17. An inevitable by-product of the above process steps is the generation of two process streams including:

17.1 Foul air: a mixture of gaseous compounds that are predominately biodegradable and associated with odour; and

17.2 Leachate: an organic-rich liquid stream that is generated as result of the composting process.

18. For Paragraph 17.1, foul air, the Bulla Organics Recovery Facility has implemented an odour collection and control system in the form of a biofilter system to service the in-vessel composting operations. A biofilter involves the passage of foul air through a bed of suitably moist and biologically active filter medium for treatment prior to atmospheric discharge. For a working biofilter system, the discharged airstream is of a treated quality with none of the original inlet process character present.

19. For Paragraph 17.2, leachate, an on-site leachate management system is employed at the Bulla Organics Recovery Facility that is designed to collect and treat all generated leachate from the composting operations.

F. Section 2 - A description of the purpose and function of buffer distances

20. Separation distance, or buffer distance, as defined in the EPA VIC Publication 1588.1 "*is the distance between the premises and the sensitive land use, for example, land used for a residential dwelling (other than a caretaker's house on industrial or commercial premises), hospitals, schools, caravan parks or other similar use involving the presence of individual people for extended periods".*

21. The purpose and function of a buffer distance, as specified in the EPA VIC Publication 1588.1, is "*to protect sensitive land users being affected by odour in instances of upset conditions (for example, equipment failure, accidents or abnormal weather conditions)."*

22. For the Bulla Organics Recovery Facility, the recommended buffer distance as per the criteria specified in EPA VIC Publication 1588.1, is derived to be 1.3 km. This default buffer distance value of 1.3 km as specified in the EPA VIC Publication 1588.1 is acknowledged on Page 3 in the GHD August 2017 Report, as follows:

"Since the licence was granted, EPA has released an updated guideline that provides high-level guidance for industry, government and the community on EPA's expectations and requirements for the siting, design, construction and operation of composting facilities. This revised guideline has updated the separation distance requirements for composting facilities, with the Veolia facility now being subject to a default 1.3 km buffer."

23. In *Section 8.2* of the EPA Response to Veolia's Works Approval Application, which discusses the EPA's assessment of a suitable buffer distance at that time under the EPA June 1996 Publication 508, determined that a suitable buffer distance would be 1.23 km. This was revised to 900 m to obtain a 'realistic average' given that the corresponding default buffer distance for 85,000 tonnes at the time was calculated to be 600 m. Based on EPA Response to Veolia's Works Approval Application, my opinion is that if this same assessment was undertaken with the current EPA VIC Publication 1588.1 a value of 1.3 km would have been selected by EPA as the recommended (or realistic average value) buffer distance for the Bulla Organics Recovery Facility.

G. Section 3 - Assessment of the assumptions, data, methodology and findings of the GHD August 2017 Report in relation to the buffer distance for the Bulla Organics Recovery Facility

24. The GHD August 2017 Report is structured into six key sections (apart from Section 1 – Limitations):

- *Introduction and background;*
- *Project methodology;*
- *Odour Sampling – Source;*
- *Odour Modelling;*
- *Odour environmental risk assessment; and*
- *Conclusions and recommendations*

25. I have structured my opinions of the GHD August 2017 Report in a similar order to that provided in Paragraph 24 of this expert report.

G-1 Introduction and Background

26. The key focus of the GHD August 2017 Report is the outdoor raw greenwaste receival pad and biofilter system at the Bulla Organics Recovery Facility. On Page 2 of the GHD August 2017 Report, there is an acknowledgement that EPA has "*previously raised concerns regarding odour complaints received from*

residents north of the facility. EPA considers that these complaints may be due to emissions from the raw greenwaste receival stockpile and have requested odour emission rate (OER) measurement be conducted on this source."

27. To satisfy the request by EPA for OER measurements from the raw greenwaste receival stockpile, the GHD August 2017 Report adopt the OER measurements from the odour modelling conducted in the GHD July 2011 Report and sourced from a similar operation in New South Wales. This OER measurement set, used as part of Veolia's Works Approval for the Bulla Organics Recovery Facility, is coupled with odour sampling and testing conducted at the Bulla Organics Recovery Facility in September 2016 and May 2017.

28. In addition to the sampling and testing of the raw greenwaste receival pad, EPA had requested OER measurements be collected from the biofilter during the September 2016 and May 2017 sampling and testing. This requested sampling and testing is reflected in the GHD August 2017 Report.

G-2 Project methodology

29. The GHD August 2017 assessed two scenarios, as follows:

    29.1 "*Conditions as observed and measured by GHD in September 2016 and May 2017 – new emissions rates for the raw greenwaste receival stockpile and biofilter for normal operations of 760 m^2"* - hereafter referred to as the **Baseline Scenario 1***;* and

    29.2 "*Zero emissions for the raw greenwaste receival stockpile. This scenario would represent the following situation: mitigation to be applied to the raw greenwaste receival pad by fully enclosing and extracting emissions to the biofilter. Biofilter emissions were modelled as measured September 2016 and May 2017 (average)"* – hereafter referred to as the **Enclosed Scenario 2**.

30. Based on Paragraphs 29.1 & 29.2, it appears to me that the GHD August 2017 Report selected the Baseline Scenario 1 and Enclosed Scenario 2 as to address reported EPA concerns raised in Paragraph 26 to 28 of this expert report. No odour sampling and testing of other sources were undertaken as part of the GHD August 2017 Report and instead, the previous OER data in the GHD July 2011 Report were assumed.

31. It is my opinion that the Enclosed Scenario 2 in the GHD August 2017 Report represents a scenario that is unrealistic for the following reasons:

    a. The raw greenwaste receival pad can cover an area of up to 1,245 m^2, as found in the September 2016 sampling scenario and stated on Page 9 of GHD August 2017. By comparison, the GHD July 2011 Report used

a figure of 2,000 m^2. Nevertheless, such a large area would require significant infrastructure and capital for its full enclosure;

b. The enclosure of the raw greenwaste receival pad area will result in the need to significantly upgrade the existing odour collection and control system. Based on a volumetric flowrate given in the GHD August 2017 Report of 20 m^3/s for a biofilter size of 800 m^2 (400 m^2 per cell, two cells), there appears to be limited reserve capacity in the biofilter system to handle the additional volumetric flow that would be generated from the enclosure of the raw greenwaste receival pad;

c. Based on the GHD July 2011 Report, the full enclosure of the raw greenwaste receival pad will result in the need to evacuate and duct approximately 22 m^3/s of exhaust air to a biofilter (based on a raw greenwaste receival pad of 2,000 m^2 at a building height of 8 m). This is comparable to the volumetric flowrate found in the GHD August 2017 for the Bulla Organics Recovery Facility of 20 m^3/s, suggesting that a duplication of the existing odour collection and control system will be required should the raw greenwaste receival pad be fully enclosed;

d. To my knowledge, no cost/benefit analysis of fully enclosing the raw greenwaste receival pad at the Bulla Organics Composting Facility has been undertaken to evaluate its technical viability and benefit with respect to the odour outcomes. I would anticipate that the full enclosure of the raw greenwaste receival pad at the Bulla Organics Composting Facility would likely lead to the extraction of a heavily diluted airstream (assuming a building air exchange rate of 5 to 10 per hour would be required) for treatment via an additional biofilter system. On this basis, it would seem to me that this may not necessarily be the most effective use of resources given that there is an existing buffer distance of 1.3 km;

e. In light of Paragraphs 31a, 31b, 31c and 31d, it is very likely that the suggested mitigation measures in the GHD August 2017 that justify a reduction in the buffer distance to 600 metres (**m**) will not be economically feasible to implement, resulting in a scenario that would jeopardise the economic viability of the Bulla Organics Recovery Facility; and

f. The GHD August 2017 Report does not factor in the additional volumetric flow or OER that would be generated from the full enclosure of the raw greenwaste receival pad and subsequent ducting of the extracted building air to the biofilter system under the Enclosed Scenario 2. In practice, the Enclosed Scenario 2 of the GHD August 2017 Report would result in either:

- A scenario where the biofilter system will require a significant upgrade to accommodate the additional volumetric flow from the full enclosure of the raw greenwaste receival pad; or

- A scenario where the enclosed raw greenwaste receival pad is ducted directly to the existing biofilter system without any upgrade. Under this scenario, it would be reasonable to expect that biofilter emissions will increase and be much higher than that measured in the GHD August 2017, given the additional volumetric loading that the existing biofilter system would be required to treat.

32. For the reasons mentioned in Paragraphs 31a to 31f of this expert report, the Enclosed Scenario 2 assessed in the GHD August 2017 Report does not represent a realistic or representative scenario to justify a variation to the existing buffer distance of 1.3 km for the Bulla Organics Recovery Facility.

33. Based on Paragraph 32 of this expert report, I am of the opinion that the modelling plots shown in *Figure 4* on Page 16 and *Figure 6* on Page 21 of the GHD August 2017 Report, which both represent Baseline Scenario 1, would be the most suitable outcomes that can be relied upon for the purposes of gauging the potential odour impact of the Bulla Organics Recovery Facility and the requirements of any future buffer distance as part of the Sunbury South PSP. This opinion is made based on the information provided in the GHD August 2017 Report and in the absence of any other odour emissions or modelling assessment.

G-3 Odour Sampling – Source OERs

34. The GHD August 2017 Report highlights the sampling methodology used to derive the OER measurements for the raw greenwaste receival pad and biofilter system at the Bulla Organics Recovery Facility.

35. On Page 4 of the GHD August 2017 Report, it states that "*a waiting period of about 30 minutes was undertaken before odour emission were measured, to allow the test stockpiles settle."*

36. I disagree with this sampling philosophy mentioned in Paragraph 35 of this expert report for the sole reason that it is known that actively composting material, even at the early stages such as that of the raw greenwaste receival pad of the Bulla Organics Recovery Facility, will result in transient peaks of odour when the material is disturbed. Such a case exists when the raw greenwaste receival pad material is transported from outdoors to indoors for processing at the Bulla Organics Recovery Facility. Therefore, there exists a potential that the OER measurements used in the GHD August 2017 Report may have captured or represented the transient levels of odour that arises from

the disturbance of the material stored on the raw greenwaste receival pad at the Bulla Organics Recovery Facility.

37. In addition to Paragraph 36, I also disagree with the sampling methodology used to collect the OER measurements from the raw greenwaste receival pad in the GHD July 2017 Report, which sees the use of a non-conventional method referred to as draped wind tunnel method. To my knowledge, the draped wind tunnel sampling method is not a standardised method and there is currently no Australian Standard for its use in the collection of area sources such as composting surfaces (for example, raw material stockpiles, compost windrows and final product stockpiles).

38. The sampling method used to collect samples from an area source such as the raw greenwaste receival pad at the Bulla Organics Recovery Facility should see the adaptation of the standardised technique for area sources as referred to in AS4323.4 which specifically states that suitable area sources include:

"Composting surfaces (e.g. raw material stockpiles, compost windrows and final product stockpiles)."

39. Based on Paragraph 37 & 38 in this expert report, I therefore disagree with the following statement made in the GHD August 2017 Report:

GHD considers that the most appropriate OER measurement method on permeable surfaces, such as greenwaste stockpiles, is the draped wind tunnel method instead of the isolation flux chamber (IFC).

It is my opinion that the significant discrepancy between the Specific Odour Emission Rate (**SOER**) measurements used in the GHD July 2011 Report (1 ou/m^2/s, however noting that on Page 7 of the GHD August 2017 states that the SOER used was 4 ou/m^2/s) and the GHD August 2017 Report (109 ou/m^2/s and 369 ou/m^2/s for fresh and aged raw greenwaste material, respectively) could be in part due to the odour sampling method adopted for the collection of samples from the raw greenwaste receival pad at the Bulla Organics Recovery Facility. On Page 23 of the GHD 2017 August Report other reasons to the higher greenwaste OER measurements are provided, which are predominately attributed to upset conditions, as follows:

- *"An increase in receival pad SOER*
- *Aged material older than 24 hours sitting on the pad*
- *An increase in the volume of green waste on the receival pad."*

40. I have no objection to the OER measurements used to model the biofilter system for the Baseline Scenario 1 conducted in the GHD August 2017 Report. I also have no objection to the OER measurements used for the maturation stockpile, given that this OER data was vetted and approved for use by EPA Victoria for in the GHD July 2011 Report as indicated on Page 2, Paragraph 7, of the GHD August 2017 Report.

G-4 Odour Modelling

41. I have no objection to the selection and use of the CALPUFF modelling system as used in the GHD August 2017 Report for the Bulla Organics Recovery Facility. I agree with the GHD August 2017 Report that the use of the CALPUFF modelling system under the topography and meteorological conditions that characterise the Bulla Organics Recovery Facility is appropriate in the given context.

42. The SEPP (AQM) provides the necessary guidance for the appropriate selection of the design criterion for mixed odorants. In *Schedule A* of the SEPP (AQM), where under *substance - unclassified indicators*, the design criterion for *general odour* is set to one odour unit (**ou**). *Unclassified indicators*, as defined for the purposes of the SEPP (AQM), are indicators of the beneficial uses of local amenity and aesthetic enjoyment, namely odour and total suspended particles. Moreover, *Part C Schedule C* of the SEPP requires that the predict maximum concentration of the pollutant should not exceed the 9th highest in the 100 highest tables of model results – or the 99.9th percentile level.

43. The GHD August 2017 Report acknowledges Paragraph 42 of this expert report, however, goes on to propose that:

> "*…the SEPP (AQM) allows a relaxation for intensive animal husband in rural areas where the criterion was to 5 ou at 99.9 percentile. As such, GHD has used both the 1 ou and 5 ou, 99.9th percentile criteria to gauge the potential odour impact of Veolia's operations."*

44. I agree with Paragraph 43 of this expert report in the selection of a 1 ou and 5 ou criterion to gauge the potential odour impacts from the Bulla Organics Recovery Facility as used for the Baseline Scenario 1 in the GHD August 2017 Report.

H. Section 4 – Commentary on the appropriateness of the 1.3 km identified in the Sunbury South PSP for the Bulla Organics Recovery Facility

45. The GHD August 2017 Report acknowledges that the EPA has received odour complaints pertaining to the operations being undertaken at the Bulla Organics Recovery Facility. I have not been briefed of information verifying these reported odour complaints, nor if the source of these odour complaints are

attributable to the Bulla Organics Recovery Facility whilst also discounting other potential sources in proximity.

46. For the reasons provided in Paragraphs 31 to 33 of this expert report, Enclosed Scenario 2 of the GHD August 2017 Report, in my opinion is unlikely to be realistically achieved in practice.

47. Based on Paragraph 46 of this expert report, I am of the opinion that it would be prudent to have regard to the reality that upset, malfunction and maintenance conditions can and will occur at the Bulla Organics Recovery Facility at given times of the year. Under such abnormal circumstances, emissions from the raw greenwaste receival pad and biofilter system at the Bulla Organics Recovery Facility would be expected to be much higher than under normal operating conditions.

48. The view expressed in Paragraph 47 of this expert report is supported by the GHD August 2017 Report in its acknowledgement that the higher OERs for the raw greenwaste receival pad and biofilter system during the September 2016 and May 2017 sampling and testing sessions at the Bulla Organics Recovery Facility can be attributed due to upset conditions that prevailed at that time.

49. By way of example, the reality of operational upset conditions at the Bulla Organics Recovery Facility is mentioned on Pages 9 and 10 of the GHD August 2017 Report, which states:

"…*Veolia did indicate that the volume of greenwaste on the pad on this day of testing was abnormal (that is an operational upset), and around double the volume compared to normal operations. The increase in volume was due to a breakdown in the shredder earlier in the week, which had set back processing by several days.*

This would be considered to be an upset scenario and in conjunction with the earlier unusual conditions (high rainfall, aged material in bins) has led to high levels of odour recorded.

…Normally, this 'upset' condition would arise when the matrix in one cell was being replaced, so that the duration (possibly two days) and return interval (possibly 3-5 years) could be estimated and a site-specific buffer for this upset would be calculated…"

50. It is clear to me from Paragraphs 47 and 49 of this expert report that upset conditions can and do occur at the Bulla Organics Recovery Facility that have the potential to result in higher than normal levels of odour emissions, thereby supporting my view that preserving the existing buffer distance of 1.3 km is most suitable for the future viability of the Bulla Organics Recovery Facility.

51. The view expressed in Paragraph 50 of this expert report is further supported in the EPA VIC Publication 1518, which states:

"It needs to be recognised that where there are industrial air emissions from premises, even with good pollution control technology and practice, there may still be unintended emissions which must be anticipated and allowed for. While it is an objective of SEPP (AQM) that such emission should be eliminated, it is recognised that even 'state of the art' facilities are not always guaranteed to achieve this goal 100 per cent of the time. Equipment failure, accidents and abnormal weather conditions are among the causes that can lead to emissions affecting sensitive land uses beyond the boundary of the source premises.

Unlike routine emissions, unintended emissions – industrial residual air emissions (IRAEs) – are often intermittent or episodic and may originate at or near ground level. Separation distance seek to avoid the consequence of IRAEs. An adequate separation distance should allow IRAEs to dissipate without adverse impacts on sensitive land uses."

52. In the GHD August 2017 Report, Page 23, it states that

"As the EPA guideline for buffers are intended to minimise odour impact in the event of a process upset/malfunction or extreme weather condition, the greenwaste facility should be designed and operated in accordance with best practice and to ensure that higher risk operating conditions are avoided…"

53. Paragraph 52 of this expert report appears to lack consistency in the spirit of the view expressed in the EPA VIC Publication 1518 which states:

"In addition, if a premises has been located on a site with an inadequate separation distance, subsequent remedial action to alleviate off-site effects, either within or beyond the separation distance, will be required if IRAEs [industrial residual air emissions] *occur. However it should be realised that such action may require costly, high technology solutions, which may not be economically feasible or fully effective, thus jeopardising the economic viability of the industry and potentially not alleviating off-site effects. This is a lose/lose situation which needs to be avoided".*

54. Moreover, Paragraph 53 of this expert report is consistent in spirit with *Clause 13.04-2* of VPA SPPF July 2017, which states that:

"Ensure, wherever possible, that there is suitable separation between land uses that reduce amenity and sensitive land uses".

55. The views expressed in Paragraphs 53 are also supported on Page 34 of the GHD July 2011 Report, which states that:

"The receival pad covers an area of 2,000 m2 and if enclosed would require a building of 8 m height to allow for truck receival, truck unloading and excavator operation. The air in this workspace would have to be turned over approximately 5 times per hour due to the large number of diesel fuelled vehicles entering and exiting the area. The evacuated air would then need to be ducted to a biofilter. As such, this biofilter would need to process approximately 80,000 m3/hr or 1,300 m3/min of exhausted air. Assuming a typical odour level for the biofilter exhaust emissions of 250 OU, this would equate to an odour emission rate of 325,000 OU/min (cf an estimated odour emission rate of 120,000 OU/min for the outdoor receival pad). However, if a conservative value of 500 OU for biofilter odour emission is adopted (as suggested by EPA), then this would contribute 650,000 OU/min to the overall facility emissions during operating hours; an increase of approximately 50%.

As such, it is considered that enclosure of the receival area would create a lesser environmental outcome with regard to potential odour impact".

56. The preservation of the existing buffer distance is considered a legitimate form of managing odour in the pathway, particularly in the event of upset and maintenance conditions. This represents a realistic circumstance for the Bulla Organics Recovery Facility.

57. Given the modification in land use as proposed in the Sunbury South PSP, particularly the provisions for the nearby future urban structure to the Bulla Organics Recovery Facility, it is relevant to provide a statement from the NSW EPA Framework November 2006 as it is generally applicable to any population group irrespective of the state of residency:

"…any given population contains individuals with a range of sensitivities to odour. The larger a population, the greater the number of sensitive individuals it contains. The population sensitivity will also depend on previous exposure to the odour and associations with the odour (for example, whether the community members work at, or use products from, the facility that generates the odour, or whether the facility is considered to be an asset to the community)."

58. For the reasons mentioned in Paragraphs 45 to 57 of this expert report, I am of opinion that maintaining the existing 1.3 km buffer distance is most appropriate and will ensure the viability of the Bulla Organics Recovery Facility. The 1.3 km buffer distance for the Bulla Organics Recovery Facility will also facilitate in the avoidance of potential incompatibility and conflict relating to mixed land uses as proposed by the Sunbury South PSP. Moreover, the preservation of the 1.3 km buffer distance will facilitate in protecting existing and future sensitive receptors that may be located near or close to the Bulla Organics Recovery Facility from adverse levels of odour release under operational upset conditions. The preservation of the 1.3 km buffer distance will also ensure compatibility with the evolution in waste policy and organic waste streams received at the Bulla

Composting Facility in the future (for example, increase uptake of food waste from domestic origin and kerbside collection). These external factors, which are typically driven by waste policies and market demands, are often beyond the control of the compost operators.

I. Declaration

59. Preparation of this expert witness statement has been made in accordance with the requirements of *Planning Panels Victoria - Guide to Expert Evidence.*

I have made all the inquiries that I believe are desirable and appropriate and that no matters of significance which I regard as relevant have to my knowledge been withheld from the Panel.

The Odour Unit Pty Ltd

Michael Assal
Senior Engineer & Consultant
14 August 2017

THE ODOUR UNIT

Annexure A –

Curriculum vitae for Michael Assal

Michael Assal

Senior Engineer & Consultant

THE ODOUR UNIT PTY LTD

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Career History/Roles

2015 – Present

Senior Engineer & Consultant

The Odour Unit Pty Ltd

As a senior engineer & consultant at TOU, Michael is extensively involved in a broad range of projects which span across various industries, focused on addressing air quality and odour challenges. Michael's role is certainly considered diverse and, more often than not, involves adapting to environments with complex dynamics and challenges to address.

The key aspects of Michael's role include:

- Project Management;
- Design, engineering & commissioning of air emission control systems (particularly in biological-based systems such as biofiltration);
- Engineering-based assessments and reviews of air emission control systems;
- Air quality and odour assessments;
- Odour audits;
- Consulting;
- Expert witness; and
- Public speaking roles.

2011 - 2014

Engineer

The Odour Unit Pty Ltd

Promoted to Senior Engineer in 2015

Education and Training	Master of Engineering Science (Environmental Engineering) University of New South Wales, Sydney Australia 2013 - 2017 Bachelor of Chemical Engineering (Hons)/Bachelor of Science (Mathematics) – University of New South Wales, Sydney Australia (2012)

Capabilities and Experience

As a curious chemical engineer, Michael is process and solution focused - a stand-out quality of TOU's core philosophy in undertaking any project. The industries that Michael is involved in since joining the team at TOU include:

- Organic waste composting;
- Mushroom composting;
- Solid waste management;
- Meat processing and rendering;
- Liquid waste management;
- Coffee roasting;
- Vegetable oil processing;
- Industrial wastewater treatment;
- Mineral processing;
- Municipal wastewater treatment;
- Oil refining;
- Oilseed crushing and refining;
- Aquaculture processing;
- Breweries;
- Cattle feedlots;
- Broiler farms;
- Food processing;
- Poultry production
- Petroleum refining;
- Grease and petrochemical waste processing;
- Glass beneficiation processing;
- Brick processing;
- Soil remediation; and
- Pharmaceutical processing.

Distinguishing qualifications include:

- Measurement, minimisation and control of environmental odours;
- Odour emissions sampling;
- Odour impact assessments;
- Assessment of levels of community annoyance to odour;
- Advice on thermal, chemical, physical or biological odour control technologies;
- Design of biological systems (particularly biofilters) for volatile organic compounds (VOC) and odour control;
- Solid waste management;
- Composting and resource recovery; and
- Industrial & municipal wastewater treatment.

Project Experience (2011 – current)

- GWF and DonKR Castlemaine Odour Control System: Project management, design, engineering, construction and commissioning.
- GSK Port Fairy VOC Emissions Control System: Project management, design, engineering, construction, commissioning and on-going biofilter assessments.
- Goodman Fielder West Footscray Odour Control System: Project

management, design, engineering, construction and commissioning.

- Australian Tallow Producer Brooklyn Rendering Plant Odour Control System: Design, engineering review, odour impact assessment and on-going consulting advice.
- ActewAGL Fyshwick Wastewater Treatment Plant-wide Odour Impact Assessment.
- DECCW Mount Annan Odour and Mitigation Study.
- Meat Live Stock Australia Biogas Quality Research Study.
- Sydney Ports Odour Assessment at Port Botany.
- Land Foam St Marys Odour Impact Assessment.
- SITA Belrose Odour Impact Assessment.
- AOM Australia Electrostatic and Ozone Control Technology Performance Review.
- Freshfood Services Corporation Concord Processing Plant: Plant-wide engineering review, odour impact assessment, and emissions reduction study.
- Camden Soil Mix Spring Farm Odour Impact Assessment and Mitigation Study.
- EnviroAg Whitebox Irrigation Farm Odour Study.
- Manildra Shoalhaven Starches Ethanol Plant Nowra: Odour control system review and on-going biofilter assessments.
- Cargill Oilseed Processing Odour Control System: Project management, design, engineering, post-commissioning, and on-going biofilter assessments.
- Countryside Farming Tamworth Chicken Composting Trial: Odour Assessment.
- Earthpower Technologies Camellia Waste Management Facility: Plant investigation and engineering review of air emissions control system.
- Global Renewables Eastern Creek: Odour Control System design, engineering assessment, and addition of RDF dryer engineering review.
- Transpacific Industries Padstow Grease Trap Plant Processing: Odour impact assessment and mitigation study, and odour control system design review upgrade.
- GrainCorp Oilseeds Processing (formerly Riverland Oilseed Processing) Numurkah Oilseeds Processing Plant: Project management of proposed upgrade to physical refining plant and odour control system engineering review and design, odour impact assessment, and on-going odour control system assessments.
- Thomas Foods International (formerly T & R Pastoral): Project management, odour control system design, project management, commissioning, post-commissioning
- Caltex Oil Refinery Kurnell Odour Emissions & Mitigation Study
- Odour Management Plan Alliance Malabar STP Chemical Scrubber Odour Control System Performance Assessment
- Johns Environmental, JBL Beef Abattoir Cover Anaerobic Lagoon Biogas Quality Testing King Island TAS
- AAA Egg Company Bears Lagoon Odour Assessment.
- Ingham's Turkey Processing Plant Tahmoor Odour Assessment.
- Veolia Woodlawn Bioreactor Facility Odour Audit.
- Simplot Australia Bathurst Food Processing Plant Odour Control System Assessment.
- Harrison Grease Manufacturing Plant Investigation: Odour control system review and assessment.
- NSW EPA Western Sydney Regional Odour Assessment (Baseline).
- NSW EPA Western Sydney Regional Odour Assessment (Follow-up).
- JBS Environmental, Orica Botany Land Remediation Air Quality Assessment.
- Global Renewables/Austral Bricks OGM Light Brick Trial Baseline Odour Assessment.

- Hoxton Park Recycled Water Scheme Treatment Plant Upgrade: Odour

assessment.
- Transpacific Refiners Rutherford NSW Odour Study.
- Cargill Oilseed Processing West Footscray Facility: On-going odour audits.
- British American Tobacco Eastgardens Processing Facility: Odour control system review and assessment.
- Mars Petcare Bathurst NSW Odour Control System Review and Assessment Study.
- Shell Greenwich Petroleum Depot Odour Assessment.
- Yates Wyee Fertiliser Processing Plant: Odour control system design and assessment.
- Transpacific Industries Ltd (Dumpex) Specialised Waste Processing Plant Revesby Odour Control System Review.
- Gabriel Coffee Roasting Chatswood Plant: Odour assessment.
- NSW EPA Rutherford Odour Investigation Project Rutherford Industrial Estate.
- Kimbriki Resource Recovery Terrey Hills Waste Management Facility: Odour Management Assessment.
- Kimbriki Resource Recovery Terrey Hills Vegetation Processing Area: Odour management plan, Australian Native Landscape AeroSorb system efficacy verification and design upgrade, and odour monitoring procedures.
- Southern Water Tasmania Rosny WWTP: Odour control system audit.
- SUEZ Environmental (formerly SITA Australia) Kemps Creek ARRT & Spring Farm Biofilter Assessment.
- Longridge Estate Kulnura Poultry Farm Odour Assessment.
- Odour Management Plan Alliance North Head WWTP NSOOS Scrubber Testing.
- Odour Management Plan Alliance North Head WWTP Odour emissions study.
- Australian Native Landscapes Cooranbong Composting Facility: Odour assessment, odour management plant, and on-going consulting.
- Australian Native Landscapes Bomaderry Composting Facility: Odour assessment.
- New South Wales Environment Protection Authority Food Organics Garden Organics Odour Impact Assessment Research Project.
- SITA Organics Camden Soil Mix Shredder Odour Assessment.
- Transpacific Technical Services Homebush Liquid Waste Processing Plant: Plant-wide odour and engineering audit and odour management plan.
- Sargents Pies Eastern Creek Processing Facility Upgrade: Odour assessment.
- Odour Control Systems Parker St Pumping Station: Performance testing.
- Watpac Illawarra Small Goods Facility Odour Assessment.
- Elf Farm Supplies Mushroom Substrate Facility: Odour audit, odour control system review, and modification to approved expansion odour impact assessment.
- Elf Farm Supplies Mushrooms Modification Expansion Project Odour Impact Assessment and Odour Control Design Review
- Environmental Earth Sciences Cootamundra Soil Remediation Modelling Assessment.
- Odour Management Plan Alliance Cronulla Biotrickling Filter Performance Testing.
- Balala Compost Uralla Odour Audit.
- ResourceCo Ipoh Waste-to-Energy Plastics Recycling Facility, Malaysia: Project management and design of biofilter-based odour control system.
- Teys Australia Wagga Wagga Beef Abattoir: Odour audit, odour control system design, review and upgrade, and on-going odour control system assessments.
- Tassal Triabunna Fresh By-Product Processing Plant Upgrade: Project

	management and odour control system design. ▪ Glass Recovery Services Penrith Glass Beneficiation Plant: Odour Verification Assessment. ▪ Soilco Wogamia Composting Facility: Odour audit. ▪ CSR Cecil Park Brick Processing Plant: Odour impact & mitigation study

Professional Afflictions	As part of Michael's commitment to professional development and further developing his engineering skills, he is a member of Engineers Australia, a Certified Air Quality Professional accredited by Clean Air Society of Australia and New Zealand (CASANZ), Waste Management Association of Australia (WMAA), The International Water Association (IWA) and an associate member of Institution of Chemical Engineers (IChemE). Michael is also in the process of obtaining his chartered engineering accreditation from Engineers Australia.

Publications	*1. The Removal of VOCs from Two Chemical Industry Airstreams using an Open-bed Biofilter - Two Case Studies in Pilot Trial Testing, Full-scale Design and Performance Testing*, CASANZ Conference 2013 Conference Proceedings, Sydney, Australia - Paper 202, September 2013. *2. The Removal of Xylene and other VOCs from a Chemical Industry Airstream using an Open-bed Biofilter - A Case Study in Design, Pilot Testing, Commissioning and Testing*, 5th IWA Specialized Conference on Odours and Air Emissions Jointly Held With 10th Conference on Biofiltration for Air Pollution Control, San Francisco, USA, 4-7 March 2013 - Paper 066, March 2013.

THE ODOUR UNIT

Annexure B –

Instructions from Stefan Fiedler of Russell Kennedy Lawyers dated 31 July 2017

Russell Kennedy Lawyers

Our Ref: SHF 302045-00002

Contact
Stefan Fiedler
Tel +61 3 9609 1672
Fax +61 3 9609 6886
sfiedler@rk.com.au

31 July 2017

BY EMAIL: massal@odourunit.com.au

Mr Michael Assal
Senior Engineer & Consultant
The Odour Unit Pty Ltd

Dear Sir

Amendment C207 & C208 – Hume Planning Scheme

1. We act for Veolia Environmental Services (Australia) Pty Ltd ("**Veolia**").

2. Veolia operates an organic waste composting facility on land at 570 Sunbury Road, Bulla ("**Land**").

3. Veolia holds licence 101952 allowing composting of 85,000 tonnes per annum of green waste, solid domestic waste and grease interceptor trap effluent on a portion of the Land ("**Premises**")

4. Veolia leases the Premises from Hi-Quality Quarry Products Pty Ltd ("**Hi-Quality**").

5. Hi-Quality operates a quarry and landfill on the Land and owns adjoining land identified as 580 and 600 Sunbury Road, Bulla (together with the Land comprising the "**Hi-Quality Land Holding**").

6. The Victorian Planning Authority ("**VPA**") as the proponent has prepared the:

   6.1 South Sunbury Precinct Structure Plan ("**South Sunbury PSP**"); and

   6.2 Lancefield Road Precinct Structure Plan ("**Lancefield Road PSP**").

7. Amendments C207 and C208 to the Hume Planning Scheme ("**Scheme**") propose to introduce the South Sunbury PSP and Lancefield Road PSP, respectively.

8. The South Sunbury PSP identifies a 1.3km buffer distance for the Premises addressing odour.

9. Hi-Quality seeks a reduction in the buffer distance allowing modification to the South Sunbury PSP resulting in an uplift in land value of part of the Hi-Quality Land Holding.

10. Hi-Quality relies on a draft report titled 'Veolia Buffer Assessment – Odour Monitoring and Modelling Results – Draft' prepared by GHD Pty Ltd and dated June 2017 ("**Draft GHD Report**").

Scope of retainer

11. We are instructed to retain your services on behalf of our client to provide an expert opinion in relation to the above proceeding, which is listed for hearing before Planning Panels Victoria ("**Panel**") and to appear to give expert evidence to the Panel.

12. You will be retained by Veolia via this office. You should liaise with this office to obtain instructions and for the purpose of providing all advice.

13. We will provide you separately a brief of documents.

14. Please prepare a fee proposal addressing this retainer.

15. As an expert witness you will also need to:

    15.1 consider the documents provided to you by us;

    15.2 undertake or procure such enquiries and investigations as you consider necessary for the formulation of your opinions;

    15.3 if necessary, meet with any such other persons or organisations as may be appropriate to obtain supplementary information to assist you in formulating an opinion;

    15.4 provide your opinions in writing in the form of a report; and

    15.5 give evidence as to your opinions orally at any hearing.

Timing

1 Your expert witness statement is required to be circulated by 2pm on Friday, 11 August 2017 unless otherwise varied by directions from the Panel.

2 You will be required to attend the hearing (listed for Thursday, 7 September 2017) to give evidence viva voce.

Expert witness statement

16. You may stage your work at your discretion allowing delivery of your expert advice in a single report or a series of reports for convenience and timing.

17. You are to prepare a report in writing detailing your opinions in respect of:

    17.1 the assumptions, data, methodology and findings of the Draft GHD Report in relation to the buffer distance for Veolia's Premises; and

    17.2 the appropriateness of the 1.3km buffer distance identified in the South Sunbury PSP for Veolia's Premises.

18. Your report/s should take the form of a narrative. Further, your report/s should be expressed in a manner that is unemotional and non-partisan and that reflects the

objectivity and independence you have brought to the completion of your tasks pursuant to your retainer as expert. However, in your report/s you should address the points specifically raised in this letter and answer the questions put to you.

19. Your report will be filed with the Panel and will be made available to the public.

20. If, after reviewing this letter and the documents you have been provided, you come to the view that it is appropriate for you to address matters in addition to those set out in the list above, please let us know. If appropriate, we will provide you with a supplementary letter of instructions inviting you to answer some or all of the questions you propose.

21. Please ensure that your report is clearly marked "Privileged" and is sent to this office only.

22. You may assume that all documents and correspondence passing between this firm and you may be or become discoverable and therefore be seen by the other parties. Such documents include this letter, the documents provided to you as part of your retainer, email and other communications and any drafts of your report/s.

Duties as an expert witness

23. The preparation of your expert witness statement and the giving of expert evidence to the Panel must comply with the 'Guide to Expert Evidence' published by Planning Panels Victoria.

Your conduct

24. You should assume that all documents and correspondence passing between this firm and you, may be, or become, discoverable and therefore be seen by the other parties in any proceeding arising out of the subject-matter of your retainer. Such documents include this letter, the documents provided to you as part of your retainer, email and other communications and any drafts of your report.

25. Please do not discuss this matter or any of the enclosed material with any person, including employees of Veolia without the prior consent of this office. All communications should in the first instance be through this office. This includes seeking further documents or information in order to prepare your report; this should be done through this firm rather than from any other person directly.

26. Should it become necessary for you to retain the services of another person in order to assist you in the preparation of any aspect of your report, please let us know. Should that be necessary, you are (of course) at liberty to discuss the matter and the documents provided to you with that person provided that you do so on a strictly confidential basis.

27. It may be necessary for you to visit the site and the surrounding area. Please arrange permission to do so through this office noting the site is privately owned.

Conclusion

28. Please contact our office in order to confirm receipt of this letter.

Yours sincerely
RUSSELL KENNEDY

Stefan Fiedler
Principal