

Louis Toumbas <loumba@gmail.com>

 **FW: COM/130/2008 - Comments on the imposition of the 500 metre buffer area condition for Green Valley**
Jason Wagner <jason@wdc.net.au>

Tue, Jan 19, 2010 at 12:19 PM

To: "Rohl, Todd" <ToddRohl@logan.qld.gov.au>

Cc: "Murrihy, Shane" <ShaneMurrihy@logan.qld.gov.au>, Louis Toumbas <loumba@rpcqld.com.au>, maxw@mwaenviro.com.au

Todd,

Reference is made to the email from Shane and in particular the issue of the requirement of a 500m buffer. The Applicant would appreciate your time for a meeting Wednesday next week to discuss the requirements of the peer review report and a way forward to amend the conditions of approval. Attending shall be Louis Toumbas (Applicant), Max Winders (MWA) and myself. Your earliest attention is appreciated.

Regards,

Jason Wagner

Development Manager

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-----Original Message-----

From: Murrihy, Shane**Sent:** Thursday, 7 January 2010 6:56 PM**To:** 'Jason Wagner'**Cc:** Rohl, Todd; Graham, Trevor**Subject:** COM/130/2008 - Comments on the imposition of the 500 metre buffer area condition for Green Valley**Importance:** High

Hi there Jason,

I have met with Todd Rohl (DA Manager) and Trevor Graham (Program Leader - Environmental Assessment) to discuss the imposition of the conditions on the Green Valley approval for the 500 metre buffer from the boundary of Teys Abattoir.

Please find the peer review attached which was used as the basis for imposing these conditions into the approval.

I draw your attention to the 'Overall Conclusions' on page 6 of the attached document, which identifies the additional investigations that are recommended to be undertaken to further assess the need for the 500 metre buffer distance. These additional investigations are required to be read in conjunction with the items contained within Council's formal Information Request documents.

As part of the applicant's formal representations for a Negotiated Decision Notice, we anticipate that these investigations would be undertaken. The sourced data would then be collated and submitted for Council Officers' perusal, upon which Council Officers would be able to review the submitted material with the view to amending the subject conditions of approval.

If you wish to discuss this correspondence further, please do not hesitate to contact me on the number below or via return email.

Regards,

Shane Murrihy | Senior Planning Officer - Projects and Appeals

Development Assessment Branch

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 [6389193-Peer Review of Air Quality Issue-v1.PDF](#)
121K

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Logan City Council
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Logan Central QLD 4114

Attention: Shane Murrihy

18 December 2009

Ref: 2330replet

Dear Shane

Re: PEER REVIEW OF AIR QUALITY IMPACT ASSESSMENTS FOR TEYS BROTHERS ABATTOIR, BEENLEIGH

As requested, this letter report presents comments on the air quality assessments lodged with Logan City Council in relation to potential impacts associated with the operation of the existing Teys Brothers Abattoir in Beenleigh. Based on these air quality assessments, the document also provides guidance of the designation of appropriate buffer separation distances to limit future residential development in the area surrounding the facility.

Background

Teys Brothers Abattoir operate a meat processing and rendering facility in Beenleigh. The facility operates under an existing environmental authority (Permit No. IPDE00950508) and processes approximately 1200 head of cattle per day. The environmental authority places conditions on the operation of the facility to ensure that odour emissions from the site do not result in noxious or offensive odours at nearby sensitive receptors.

A number of air quality assessments have been undertaken to assess the potential impacts of odour emissions from the abattoir and provide recommendations for appropriate buffer separation distances to future sensitive landuses. This report provides a review of these air quality assessment reports and provides recommendations to assist Council in determining acceptable buffer separation distances to limit future residential development in the area.



The air quality assessment documents provided by Council for the purposes of the review are as follows:

- Document 1: Land-use planning survey (odour), Tey Brothers abattoir, Beenleigh (August 2008), (prepared by Parsons Brinckerhoff)
- Document 2: Air Quality Impact Assessment, Proposed Residential Development Gardiner Road Waterford (March 2004), (prepared by Max Winders and Associates)
- Document 3: Assessment of Appropriate Buffer Distances for the Beenleigh Abattoir (November 2004), (prepared by Pacific Air Environment Pty Ltd).

Comments on the methodology and conclusions of these reports are presented in the following sections.

DOCUMENT 1: LAND-USE PLANNING SURVEY

Introduction

The air quality assessment presents a dispersion modelling analysis of the potential impacts of odour emissions from four sources at the Tey Brothers Abattoir on a proposed residential development. The sources considered in the assessment include:

- rendering plant emissions;
- stockyard emissions;
- anaerobic lagoon emissions; and
- cattle truck emissions.

Dispersion Modelling

Dispersion modelling provides a means for both the regulators and the proponents of a project to assess the potential implications of future development on existing air quality and, where ambient air quality monitoring data is not available, assess the potential impacts of existing emitting uses.

As copies of the modelling data files are not available, detailed analysis of the accuracy of the modelling cannot be completed. However, based on the description presented in the report, the modelling methodology is considered to represent current best practice although it is noted that the modelling utilised the Ausplume dispersion model.

The Ausplume model is widely accepted in Australia for modelling of emission sources in Australia, and is generally adopted for modelling of simple point source emissions except in the following



circumstances:

- complex terrain, non-steady-state conditions: AUSPLUME is a steady-state model and is unable to adjust the winds to reflect the effects of terrain. The straight-line trajectory assumption of the plume model is unable to handle the curved flow associated with terrain-induced deflection of channelling. AUSPLUME should not be used for terrain where the height of any receptor exceeds the lowest release height;
- buoyant line plumes (e.g. discharges from the roof vents of aluminium smelters);
- coastal effects such as fumigation: AUSPLUME is unable to consider large changes in meteorological conditions which can occur over short distances across a coastline;
- high frequency of stable calm night-time conditions: Pollutants can accumulate under such conditions or will flow downwind with the drainage flow. AUSPLUME has no memory of the previous hour's weather conditions as each hour is treated independently of the next and material is carried away instantaneously, to the edge of the grid, even if only light winds are prevailing;
- high frequency of calm conditions: AUSPLUME cannot handle calm conditions because of the inverse wind speed dependence plume equation. AUSPLUME assumes a minimum wind speed, which shoots the plume out to the edge of the grid even though the plume may not have moved at all; and
- inversion break-up fumigation conditions.

Of the conditions above, the potential for a high frequency of calm conditions is of greatest significance in determining the appropriateness of the Ausplume model for the location under consideration. The terrain at and in the surroundings of the development site is not considered to be complex, and the site is sufficiently remote from the coast for fumigation effects to be negligible.

The potential for calm conditions, particularly during early morning periods, does however provide potential for significant odour impacts as a result of emissions from the site. Given this, in our opinion adoption of a higher order model is considered necessary to provide the appropriate degree of accuracy for this analysis. It is possible therefore, that the results of the modelling have the potential to under-predict potential impacts, particularly during early morning periods where calm conditions occur frequently.

The emissions estimations presented in the report assume a production rate of 1200 head of cattle per day, occurring over two work shifts and include a safety factor to account for atypical operations. The source locations adopted in the assessment appear to have been located in close proximity to the rendering plant and meat processing facility with emissions from the stockyards in particular, limited to those closest to the abattoir building. Site inspections have identified that stockyards are located between the abattoir buildings and the western boundary of the site with all yards appearing regularly trafficked. Given this, it is possible that the assessment under predicts the potential impacts where



cattle are placed in stockyards nearer to the western boundary of the site.

Recommended Buffer Distances

The report recommends that the existing 500 m buffer distance be revised and considers an indicative buffer distance of 100 m (indicated to be the subject of discussions between developer and Council) be adopted.

Review of the predicted 99.5th percentile odour contours presented in Figure 7.1 of the report indicate that non-compliances (with the 2.5 odour unit criteria) are predicted up to 500 m from the abattoir building. It is also noted that emissions from the stockyards appear to represent a significant source of odour emissions from the site.

Given this, adoption of a buffer distance of 100 m seems inappropriate given that cattle stockyards are located up to the western boundary of the Teys Brothers Abattoir site. In fact, review of the predicted odour contours indicates that an appropriate buffer distance would be 500 m measured from the boundary of the abattoir site.

DOCUMENT 2: AIR QUALITY IMPACT ASSESSMENT, PROPOSED RESIDENTIAL DEVELOPMENT GARDINER ROAD WATERFORD (PREPARED BY MAX WINDERS AND ASSOCIATES).

Introduction

The air quality assessment presents a dispersion modelling analysis of the potential impacts of odour emissions from four sources at the Teys Brothers Abattoir on a proposed residential development. The sources considered in the assessment include:

- rendering plant emissions; and
- anaerobic lagoon emissions.

The document also indicates that these emission rates include an allowance for other fugitive sources of odour emissions from the site although it is noted that emissions from the stockyards and cattle trucks are not specifically considered.

Dispersion Modelling

As copies of the modelling data files are not available, detailed analysis of the accuracy of the modelling cannot be completed. However, based on the description presented in the report, the modelling methodology is considered to represent current best practice although it is noted that the modelling utilised the Ausplume dispersion model.

As noted previously, the Ausplume dispersion model is not suited to applications where there is a high frequency of stable calm night-time conditions. Under these conditions pollutants can accumulate or



flow downwind with the drainage flow. AUSPLUME has no memory of the previous hour's weather conditions as each hour is treated independently of the next and material is carried away instantaneously, to the edge of the grid, even if only light winds are prevailing;

Evidence presented in other documents (see Document 3) indicates the presence of calm drainage flow conditions impacting on odour concentrations in the area surrounding the abattoir. Furthermore, evidence from the odour survey (see Document 3) also identifies emissions from the stockyards and wastewater distribution as a significant source of emissions.

Given this, it would appear that the assessment has a number of short-comings that could result in an under-estimate of potential impacts.

It is noted that a further submission to Council from MWA considered the potential for impacts associated with emissions from the stockyards and wastewater distribution system through a site odour survey. While no further dispersion modelling or detailed assessment was presented the report concludes that, based on the results of the odour e-nose survey, the maximum level of odour intensity experienced during the monitoring period was a 'weak' level of odour intensity at Teys Road. It is noted that this odour survey was not undertaken during calm drainage flow conditions when the poorest odour dispersion is likely to occur.

DOCUMENT 3: ASSESSMENT OF APPROPRIATE BUFFER DISTANCES FOR THE BEENLEIGH ABATTOIR (PREPARED BY PACIFIC AIR ENVIRONMENT PTY LTD).

Introduction

This document provides a review of the current 500 m buffer distances based on the results of an odour intensity survey and review of available odour complaints records. The assessment uses sound scientific reasoning and considers the results of the surveys in light of existing best practice buffer distances for similar activities applied by other state government departments.

The report does note that the conclusions of the assessment are intentionally conservative given the restrictions on access to the abattoir site and detailed complaints histories.

Conclusions

The assessment concludes, based on the results of an odour intensity survey that:

- there is evidence that calm conditions are resulting in adverse odour impacts in some areas as a result of complex drainage flows into low lying areas;
- emissions from the stockyards and waste water distribution are significant sources of odour in the area; and



- there was no compelling evidence to suggest it was appropriate to modify the existing 500 m buffer distances currently applied to the site.

Recommended Buffer Distances

The conclusions of the report recommends that the existing 500 m buffer distance be maintained citing emissions from the stockyards and wastewater distribution as significant sources in the area. Furthermore, the identification of the potential for calm conditions and complex drainage flows to impact on odour dispersion in the area supports these conclusions.

Given this, adoption of a buffer distance of 500 m measured from the boundary of the abattoir site would appear appropriate based on the available information.

OVERALL CONCLUSIONS

Based on the information presented in this review, it is our opinion that the air quality assessments undertaken do not support reduction of the existing 500 m buffer distance to future residential development in the area. Furthermore, it is recommended that the 500 m buffer distance be applied from the boundary of the Teys Brothers Abattoir site such that sufficient protection is provided to potential impacts of odour emissions from the stockyards located to the western boundary of the site.

Were additional investigations to be undertaken to further assess the need for the 500 m buffer distance, these investigations should include:

- measurements of actual odour emissions from the Teys Brothers Abattoir site;
- consideration of emissions from stockyards located on the western boundary of the abattoir site;
- consideration of the potential impacts of calm conditions through the use of a higher order dispersion model (e.g. Calpuff) and site specific meteorological data;
- detailed community odour surveys to provide a means of calibrating to the results of the predictive modelling.

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Yours sincerely
for Air Noise Environment Pty Ltd

Craig Beyers BEng(Env), MIEAust, RPEQ, MAAS
Associate - Queensland Manager