THE ODOUR UNIT

VEOLIA ENVIRONMENTAL SERVICES

Veolia Environmental Services (Australia) Pty Limited

Clyde Waste Transfer Terminal

Odour Audit VIII

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THE ODOUR UNIT PTY LTD

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1 INTRODUCTION

The Odour Unit Pty Ltd (TOU) was commissioned by Veolia Environmental Services (Australia) Pty Ltd (VES) to undertake the eighth odour audit on the Clyde Waste Transfer Terminal on 14th November 2006.

The eighth odour audit for the months September, October and Noveber 2006 was carried out on November 2006 required under the Conditions of Consent – *48(f)* outlined below.

> *48. The Odour Management Plan must address, but is not necessarily limited to, the following issues:*
>
> *(f) An odour audit program which provides for a comprehensive odour audit of the premises and nearby commercial and residential areas, by an independent, appropriately qualified and experienced person, to be conducted 3-monthly for the initial 24 months of receiving un-containerised waste at the terminal, and 6-monthly thereafter, unless otherwise approved in writing by the Director-General.*

Odour Audit VIII focused on issues relating to general housekeeping, fugitive odour emissions, ground level odour impacts and complaints handling. The approach included a general inspection of the tipping floor and transfer building, container packing area and site access roads; inspection of the complaint register and site meteorological data log; and a field ambient odour survey both on- and off-site.

2 ODOUR AUDIT VIII FINDINGS

2.1 General Housekeeping

The container packing area was clean and tidy with operators on hand to ensure any spilled waste is cleaned up as soon as possible. The containers appeared to be in good condition. Odour emission from this area was observed to be minimal and localised. An inspection of the transfer building found that the waste level on the tipping floor was at a minimum, being cleared into the compactor as soon as possible.

Outside, the site roads were free of litter and generally clean. A dirty and odorous bulldozer was parked outside, near the weigh station. It was emitting moderate to strong garbage odour that could be detected at lower intensities downwind but localised to the site. The VES Environmental Management Representative (EMR) was notified of this matter. It is understood that EMR raised the issue with the Operators and Site Manager of the issue at the next toolbox meeting.

2.2 Fugitive Emissions

Smoke testing was not carried out on the Waste Transfer Building as part of Odour Audit VIII as work to seal breezeways and gaps in the walls have not commenced. The proposed modifications have been submitted in a development application on 10th November to the Planning Department along with the application for the proposed new extraction system. VES are waiting for the Department's decision and will advise TOU of the outcome. Once approved, constructed and commissioned, the effect of this system will need to be assessed in future Odour Audits.

The weather conditions during Odour Audit VIII were sunny, with a light to moderate (0.8 – 2.5 m s $^{-1}$) wind blowing from a general westerly direction (210 – 340 degrees), which is similar conditions to when smoke testing was carried out in Odour Audits VI and VII. It can be assumed with reasonable confidence that the airflow patterns inside and leakage out of the Waste Transfer Building would be similar to the results found in Odour Audits VI and VII.

2.3 Odour Complaints Handling and Meteorological Data

The VES complaints handling procedure is responsive and informative. It was evident that complaints were logged and investigated as soon as was practicable by the VES Site Manager and EMR with comments on weather conditions, tipping floor waste level, observations made during inspection, and action taken. On the other hand, the use of the comment "housekeeping procedures were increased for the remainder of the day" is not specific enough to be useful information when responding to a complaint.

Table 2-1 shows the total number of documented complaints received by VES in the months September through to November 2006.

Table 2-1: Odour Complaints Summary (September - November 2006)

Month	Dates	Complainants
September	18/09/2006, 20/09/2006, 25/09/2006	Manildra
October	23/10/2006 (x2), 25/10/2006	Manildra
November (before 14th)	None	None
Total	**6**	

A detailed and comprehensive record of meteorological data was logged at 15-minute intervals by an automatic weather station, which was downloaded weekly by the VES Site Manager and stored on a database. The database included important parameters relevant to dispersion modelling including sigma-theta, 2m temperature, 10m temperature and solar radiation. Should the station go offline, data from a Bureau of Meteorology AWS located nearby at Homebush Bay can be acquired as a substitute. The station instruments appeared to be in excellent condition and properly maintained.

2.4 Ambient Odour Assessment

At present, no Australian Standard exists for field based ambient odour assessment surveys. Consequently, The Odour Unit utilises a method for assessing the ground level impacts of odour emissions using a modified version of the German Standard VDI 3940 (1993) – 'Determination of Odorants in Ambient Air by Field Inspections'.

Field based ambient odour surveys are considered a valuable odour impact assessment tool as previous experience with ambient odour sampling and subsequent olfactometry testing suggests that accurate and useful ambient odour concentration data is difficult to obtain. Therefore, TOU has adopted a more practical approach based on the field measurement of odour intensity. With this method, calibrated and experienced odour specialists traverse the downwind surrounds of odour sources in a strategically mapped pattern, assessing the presence, character and intensity of any odours encountered and recording these observations along with wind speed and direction.

An ambient odour assessment was performed downwind of the Clyde facility on 14/11/2006 (1020 – 1112). TOU assessors firstly determined the wind direction and then assessed downwind locations attempting to cover as much territory as possible, given that the area was essentially private industrial land or rail tracks. This restricted the survey's assessment locations to the site access roads and the surrounding public roads.

The assessors spent between a few minutes at each assessment location in order to gauge the effects of any odour impact. At each location, wind velocity was measured using a TSI Model 8345 Velocicalc anemometer, while wind direction was determined using a compass. If an odour was detected at a location, the assessors attempted to characterise it. The general aim was to determine the extent of the impact of odours off-site and rank their intensity. The ranking scale for the German Standard VDI 3940 'Determination of Odorants in Ambient Air by Field Inspections' was used for the intensity assessments. The standard's ranking system is based on the following seven-point intensity scale.

VDI 3940 – Intensity Scale

0 Not Detectable
1 Very Weak
2 Weak
3 Distinct
4 Strong
5 Very Strong
6 Extremely Strong

The results of the ambient assessment surveys are depicted in two principal ways. The field log sheets completed by the assessors contain the unprocessed data for each location and the derived result of the survey is illustrated as an odour impact map. The map illustrates the locations assessed, and the level of odour intensity detected downwind of the Clyde facility.

As **Appendix A** illustrates, the characteristic garbage smell on-site elicited a peak intensity score of 4 (strong) at the northeast corner of the transfer building during a container changeover. An odour impact of score 1 (very weak) was detected at the entrance road on Parramatta Road, which may likely to be caused by building wake downwash effects sourced from the Transfer Building extraction stacks.

3 ODOUR AUDIT VIII RECOMMENDATIONS

3.1 General Housekeeping

TOU recommends that any bulldozers that are not operating and parked outside need to be firstly cleaned and/or parked indoors to minimise odour impact.

3.2 Odour Complaints Handling

It is recommended that the comment “housekeeping procedures were increased for the remainder of the day” for the action taken in the complaints register be more specific in detail. It is suggested that a comment be made on the standard of ‘housekeeping’ and general plant operation, and if no obvious reasons for the odour are evident, the matter be simply documented as such.

TOU suggest that VES request an intensity rating (similar to the VDI 3940 Intensity Scale shown above) and character description of the problem odour from the complainants to be recorded with each future entry in the register.

Appendix A

Ambient Assessment Log Sheets and Location Map