THE ODOUR UNIT

VEOLIA ENVIRONMENTAL SERVICES

Veolia Environmental Services (Australia) Pty Limited

Clyde Waste Transfer Terminal

Odour Audit XI

August 2008

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 eleventh odour audit on the Clyde Waste Transfer Terminal (CTT) on 20th August 2008. This Odour Audit is the first to be carried out since the commissioning of the new forced air extraction system within the transfer building. Eight 3-monthly Odour Audits over a 24-month period, followed by two 6-monthly audits have been carried out before this report. Odour Audit XI for the period June 2008 through to August 2008 was carried out on August 2008 required under the recently modified 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, 3-monthly for the 12 months following commissioning the odour control system subject to MOD-133-11-2006, and 6-monthly thereafter, unless otherwise approved in writing by the Director-General.*

Odour Audit XI has focused on issues relating to general housekeeping, fugitive odour emissions from the transfer building, ground level odour impacts, meteorological monitoring and complaints handling. The approach included a general inspection and smoke testing of the transfer building, inspection of the container packing area and site access roads; inspection of the complaint register; review of the site meteorological data log and equipment maintenance/calibration; and a downwind field ambient odour survey.

2 FINDINGS

2.1 Assessment of General Housekeeping

2.1.1 Transfer Building

There was a larger than normal amount of waste stockpiled within the transfer building compared to recent experiences by the assessor. It is understood that one out of the two container compactors was offline temporarily for maintenance, which would have been the main contributor to the backlog of waste. The area of floor that was used as driving space for dump trucks was very dirty upon the first inspection, albeit during a very busy period of the day. Upon a second inspection an hour later, when it was less busy, the floor area had improved to a cleaner and more acceptable state. All considered, the atmosphere within the tipping building was surprisingly low in odour and dust.

2.1.2 Container Packing Area and Site Roadways

The container packing area and site roadways were very clean with no sign of poor housekeeping practises. The areas had a very weak, dusty odour present but it appeared to be localised around the containers and the container packing area.

2.2 Fugitive emissions

2.2.1 Transfer Building Breezeways

The transfer building breezeways could potentially be a problem for fugitive odour emissions as they are not adequately sealed. Some of the mats that have been used as temporary seals are in need of repair or replacing. A few of the mats have fallen down all together, which have left gaps exposed around various positions of the transfer building. Smoke testing that was carried out had revealed the potential for intermittent leaks (below).

2.2.2 Smoke Testing

Smoke testing was carried out within the Transfer Building. This was the first opportunity to test the effectiveness of the new forced air extraction system as well as how well the transfer building has been sealed from leaks. The predominant wind outside during the testing was a moderate west to north-westerly, which the wind was blowing directly into the dump truck entrance on the western side of the building. Smoke was released from within the building mainly from four areas: the south-east corner, the north-east corner, centre-north and centre-south of the transfer building.

When the smoke was released at the south- and north-centres, it would rise in rapid motion vertically towards the roof. There also appeared to be a slower horizontal transport towards the intake of the forced air extraction system. A small amount of smoke did appear to hang around in an eddy that had formed in the mid-centre of the building. This is an improvement since the last set of smoke testing in Odour Audit VII that had revealed a more stagnant airflow within the transfer building.

The testing in the eastern corners of the building suggested good air containment. Smoke was released towards the eastern walls and directed outside. The main result was that a vast majority of the smoke did not escape but had turned back towards the centre of the building. However, during infrequent wind gusts entering the western side of the building, there was some smoke escaping from the gaps in the breezeways. This was a vast improvement upon the results of the smoke testing carried out in Odour Audit VII that had revealed significant fugitive emissions at the southeast corner.

The forced air extraction system is performing near expectation based on evidence of the air movement within the building and the observation of the smoke slowly heading towards the intakes. Gas sampling and measurements from the stack outside later in the day had revealed that the system was running at approximately 80% of design flow. If the system was to run closer to optimal performance and the breezeways were fully and properly sealed (temporarily or permanently), the forced air extraction should improve even further.

2.3 Odour Complaints Handling and Meteorological Data

2.3.1 Odour Complaints Handling

Two odour complaints were received during the period that was covered by the Odour Audit and are listed along with the handling of the complaints in **Table 2.1**.

Table 2.1: Odour complaints received by CTT June 2008 – August 2008.

Date	Complainant	Response
23/06/08	Manildra	• Complainant facility inspected by CTT site supervisor and odour assessment made. • Operators put on alert for any emissions of concern. • Corresponding meteorological conditions noted.
27/06/08	Manildra	• Complainant facility inspected by CTT site supervisor and odour assessment made. • Operators put on alert for any emissions of concern. • Corresponding waste volume inside transfer building noted. • Corresponding meteorological conditions noted.

Other details that were recorded included time of complaint, time of when complaint was received by VES, and the response date by VES. The response given by VES to the complainant was seen to be adequate. Although, it would be suitable in the future to include as part of the response procedure an inspection of the CTT site, processes and operations for a cause, if any, of adverse odour emissions.

2.3.2 Meteorological Data

The meteorological data is collected weekly and stored on a database. The dataset had all parameters relevant to dispersion modelling and the assessment of odour impacts. Upon inspection, the station instruments appeared good condition and in working order. However, the weather station site is becoming overgrown with vegetation, which could compromise the quality of the data if not acted upon in the near future. Weather data calibration reports are attached in **Appendix A**.

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 20/08/2008 (1030 – 1200). The TOU assessor 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 assessor spent 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 9545 Velocicalc anemometer, while wind direction was determined using a compass. If an odour was detected at a location, the assessor 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 assessor 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 B** illustrates, the characteristic garbage smell was not detected downwind on this occasion.

3 RECOMMENDATIONS

3.1 Fugitive emissions

3.1.1 Transfer building

A high priority should be given to fully sealing all gaps and breezeways around the transfer building to help prevent intermittent release of fugitive odour emissions to the outside atmosphere. Once this has been completed, smoke testing should be carried out during a future Odour Audit to assess effectiveness. Further optimising the forced air extraction system by increasing the fan speed could follow this up but it is not seen to be necessary at this point in time.

3.2 Odour Complaints Handling and Meteorological Data

3.2.1 Odour Complaints Handling

As part of future responses to complaints an inspection of the CTT site, processes and operations should be carried out and documented in addition to what is currently occurring in practice. This should include, but not necessarily limited to, check if transfer building forced air extraction system is running optimally, if there are major fugitive odour leaks from the breezeways, or if there are any major garbage spills around the container packing area, container storage area, and/or site roads.

3.2.2 Meteorological data

The meteorological station site needs to be cleared of existing or potential obstructions, including vegetation, to the current practiced Standards.

Appendix A

Weather data calibration reports

Appendix B

Field Ambient Odour Assessment

Impact Map and Field Log Sheets