



THE ODOUR  
UNIT *m<sup>3</sup>*



# **Veolia Environmental Services (Australia) Pty Limited**

---

**Clyde Waste Transfer Terminal**

---

**Odour Audit XII**

**February 2009**

**THE ODOUR UNIT PTY LTD**

**ACN 091 165 061**

**Australian Technology Park  
Locomotive Workshop  
Suite 16003, 2 Locomotive St  
Eveleigh, NSW 2015**

This document may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement for the commission. This document should not be used or copied without written authorisation from THE ODOUR UNIT PTY LTD or VEOLIA ENVIRONMENTAL SERVICES (AUSTRALIA) PTY LTD.

**Project Number: N1473L**

<b>Report Revision</b>		
<b>Revision Number</b>	<b>Date</b>	<b>Description</b>
Version 1	February, 2009	Version 1 for comment.
<b>Report Preparation</b>		
Report Prepared By: S. Hayes		Approved By: T. Schulz
Report Title: Veolia Environmental Services (Australia) Pty Limited Clyde Waste Transfer Terminal – Odour Audit XII		

## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION .....</b>	<b>4</b>
<b>2</b>	<b>FINDINGS.....</b>	<b>5</b>
<b>2.1</b>	<b>Assessment of General Housekeeping .....</b>	<b>5</b>
2.1.1	Transfer Building .....	5
2.1.2	Container Packing Area and Site Roadways .....	5
<b>2.2</b>	<b>Fugitive emissions .....</b>	<b>5</b>
2.2.1	Transfer Building Breezeways.....	5
2.2.2	Smoke Testing .....	5
<b>2.3</b>	<b>Odour Complaints Handling and Meteorological Data .....</b>	<b>6</b>
2.3.1	Odour Complaints Handling .....	6
2.3.2	Meteorological Data .....	8
<b>2.4</b>	<b>Ambient Odour Assessment .....</b>	<b>8</b>
<b>3</b>	<b>RECOMMENDATIONS.....</b>	<b>10</b>
<b>3.1</b>	<b>Fugitive emissions .....</b>	<b>10</b>
3.1.1	Transfer building.....	10
<b>3.2</b>	<b>Odour Complaints Handling and Meteorological Data .....</b>	<b>10</b>
3.2.1	Odour Complaints Handling .....	10

**Appendix A:** Weather data calibration reports

**Appendix B:** Field Ambient Odour Assessment Impact Map and Field Log Sheets

---

## 1 INTRODUCTION

---

The Odour Unit Pty Ltd (TOU) was commissioned by Veolia Environmental Services (Australia) Pty Ltd (VES) to undertake the twelfth odour audit on the Clyde Transfer Terminal (CTT) on 12th February 2009. This Odour Audit is the second to be carried out since the commissioning of the new forced air extraction system within the transfer building. Odour Audit XII is retrospective for the 3-month period September 2008 to November 2008 and current for the 3-month period December 2008 to February 2008. Odour Audit XII was carried out to the requirements of 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, 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 XII has focused on issues relating to general housekeeping, fugitive odour emissions from the transfer building, ground level odour impacts, meteorological monitoring, complaints handling and actions on past Odour Audit recommendations. 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 relatively low amount of garbage on the floor considering inspection was during the end of the morning peak for municipal receivals. The floor space without garbage was mostly clean with a small amount of litter and leachate. There was a low level of odour observed within the building.

#### 2.1.2 Container Packing Area and Site Roadways

The container packing area and site roadways were very clean and well managed. The areas had a very weak, dusty odour present but it appeared to be localised around containers and the container packing area.

### 2.2 Fugitive emissions

#### 2.2.1 Transfer Building Breezeways

The transfer building has had almost all the temporary seals on the breezeways repaired and/or replaced since the recommendation was made in Odour Audit XI which TOU was pleased to see. The only unsealed section of the breezeways exists near the southeastern door exit.

#### 2.2.2 Smoke Testing

Smoke testing was carried out within the Transfer Building. This was to test the effectiveness of the 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 light south to southeasterly. Smoke was released from within the building from the four sections of the transfer building.

When the smoke was released at the southeastern section, it rose vertically towards the roof. There was a slower horizontal transport towards the intake of the forced air

extraction system. A small amount of smoke appeared to hang around in an eddy that had formed in the mid-centre of the building.

Smoke released at the northeastern sections of the building, adjacent to a garbage stockpile, moved rapidly in a vertical motion and entered into the louver intake of the odour extraction system.

When the smoke was released at the northwestern and southwestern sections, the plume would rise gradually and slowly move away from the extraction system. Plastic strips that are hung down to about halfway from the top of the truck entry were effective enough to redirect most of the plume back towards the centre of the building. However, some smoke exited out of the entry either through gaps between the strips or from beneath them. This could have been due to the prevailing easterly component winds outside that caused a slight negative pressure on the downwind side of the building, which can help draw out some building air. This may have implications regarding adverse odour impacts off-site. Smoke testing has not coincided with easterly aspect prevailing winds during previous Odour Audits.

## **2.3 Odour Complaints Handling and Meteorological Data**

### **2.3.1 Odour Complaints Handling**

#### **September 2008 to November 2008**

No odour complaints were received during the period.

#### **December 2008 to February 2009**

Two odour complaints were received by VES during this period and are listed along with the handling of the complaints in **Table 2.1**.

Table 2.1: Odour complaints received by CTT December 2008 – February 2009.		
Date	Complainant	Response
3/12/08	Manildra	<ul style="list-style-type: none"> <li>• Site manager and supervisor checked site [assumed CTT] and surround for presence of odour (no odour found)</li> <li>• Fan operation checked (OK)</li> <li>• Waste level on floor noted (no waste)</li> <li>• Corresponding meteorological conditions logged (Light Easterly)</li> </ul>
31/12/08	Manildra	<ul style="list-style-type: none"> <li>• Site manager and supervisor checked site [assumed CTT] and surround for presence of odour (no odour found)</li> <li>• Fan operation checked (offline)</li> <li>• Waste level on floor noted (above average)</li> <li>• Corresponding meteorological conditions logged (Moderate WSW)</li> </ul>

Other details that were recorded included time of complaint, time of when complaint was received by VES, and the response date by VES. They have improved the level of detail recorded as 'response' in the register since the last Odour Audit, which can help identify if CTT is likely at fault and what the cause is likely to be. The complaint that occurred on 3/12/08 was during a time where there was no waste in the tipping building and the wind was blowing in a direction believed to be well away from the complainant. In contrast, the complaint that occurred on 31/12.08 was during maintenance and shut down of the forced air extraction system, with above average waste levels in the transfer building and the wind was believed to be blowing directly towards the complainant. The response by VES on both occasions was seen to be adequate.

### 2.3.2 Meteorological Data

The meteorological data was collected weekly and stored on a database. The dataset had all parameters relevant to dispersion modelling and the assessment of odour impacts. The weather station could not be directly accessed for an inspection, as the area has become a construction zone. It was noticed that an attempt was made to clear vegetation and other obstructions as recommended in the last Odour Audit. Weather data calibration reports for October and January 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 23/02/2008 (1630 – 1707). 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 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

There is evidence from the smoke testing that fugitive odour emissions can escape out of the truck entrance during easterly aspect winds. The field ambient odour assessment survey carried out the following Monday had found weak garbage odours were detectable across the railway track to the south under E/NE winds. If possible, increasing the forced ventilation system towards 100% capacity will assist in preventing unwarranted fugitive emissions.

### 3.2 Odour Complaints Handling and Meteorological Data

#### 3.2.1 Odour Complaints Handling

VES need to be more specific about which 'site' was inspected. Such as, whether it was the complainant site, the CTT site or a third-party site.



## **Appendix A**

### **Weather data calibration reports**



## **Appendix B**

### **Field Ambient Odour Assessment**

### **Impact Map and Field Log Sheets**