



THE ODOUR
UNIT *m³*



Veolia Environmental Services (Australia) Pty Limited

Clyde Waste Transfer Terminal

Odour Audit XIII

May 2009

THE ODOUR UNIT PTY LTD

ACN 091 165 061

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

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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 thirteenth odour audit on the Clyde Transfer Terminal (CTT) on 6th May 2009. This Odour Audit is the third to be carried out since the commissioning of the new forced air extraction system within the transfer building. Odour Audit XIII is current for the 3-month period March 2009 to May 2009. 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.

As with previous Audits, Odour Audit XIII 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 moderate amount of garbage on the floor, which was expected as the time of inspection was towards the end of the morning peak for receivals. The floor space without garbage was clean with little to no litter or leachate. There was a low level of odour observed within the building.

2.1.2 Container Packing Area and Site Roadways

A visibly dirty front-end loader that looked to have been used inside the transfer building was parked outside at the western perimeter of the site. It appeared that the loader had been parked there for a long period, long enough that the bulk of odour from the machine had already volatilised.

The container packing area and site roadways were very clean and well managed. The areas had a very weak garbage 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

Inspection of the transfer building revealed that a number of the rubber mats that act to temporarily seal the breezeways have fallen. The implication could be increased risk of fugitive odour emissions.

2.2.2 Truck Entrance Plastic Strips

The plastic strips hanging down from the truck entrance have moved or have been damaged. A number of gaps have formed between groups of strips since the last Audit. There could be increased risk of fugitive odour emissions.

Maintenance of the plastic strips is part of daily operations. As the site is an operational facility these plastic strips are maintained as required. It is noted that movement of the plastic strips may have occurred on the day of the Audit and addressed soon after.

2.2.3 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 west to north-westerly. Smoke was released from within the building from the four quarters of the transfer building.

When the smoke was released at floor of the south-eastern quarter, it circulated in an eddy and slowly rose vertically towards the roof. At a few metres below ceiling, there was a slower horizontal transport towards the intake of the forced air extraction system. A small amount of smoke remained stagnant in the eddy.

Smoke released at the north-eastern quarter of the building moved slowly westward and in a vertical motion and entered into the louver intake of the odour extraction system.

When the smoke was released at the south-western quarter, the plume was picked up by the westerly wind entering the truck door such that the smoke was transported across to the south-eastern quarter of the building.

Smoke released in the north-western quarter of the building moved slowly southward and in a vertical motion towards the truck door entrance where it was picked up by the westerly wind entering the truck doorway and transported across to the other side of the building.

In all instances the smoke was fully contained within the Transfer Building therefore no evidence of any fugitive odour release on this occasion.

2.3 Odour Complaints Handling and Meteorological Data

2.3.1 Odour Complaints Handling

One odour complaint was 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 March 2009 – May 2009		
Date	Complainant	Response
8/4/09 (11:24 am)	Manildra	<ul style="list-style-type: none"> • Site manager and supervisor checked CTT site and surround for presence of odour (no odour found) • Waste level on floor noted (no waste) • Corresponding meteorological conditions logged (Light Westerly)

Other details that were recorded included time of complaint, time of when complaint was received by VES, and the response date by VES. The only detail that is missing is whether or not the extraction fan was operating. The response by VES on this occasions was seen to be adequate.

2.3.2 Meteorological Data

The meteorological data provided to TOU for the three months to May 2009 was in good order. Observations were recorded in 15-minute intervals, included were all parameters necessary to develop a meteorological dataset for odour dispersion modelling.

The weather station site could not be inspected on this occasion as the area was cordoned off as a construction zone. The immediate area around the station appeared to be in good order when observed from a distance and there appears that an attempt has been made to clear vegetation. However, build-up of vegetation that is

a small distance from the site is becoming, or already has become, a major issue. This concern was also noted on the calibration report for this period and on other reports for previous calibrations:

“Dense scrub around the weather station, on Pacific National land, needs to be cut back as soon as possible as the site is extremely overgrown.”

An implication is that the meteorological data could probably fail scrutiny from the period that this issue was first raised until once the issue is addressed. The 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 05/06/2009 (1115 – 1145). 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, a very weak garbage smell was detected adjacent to the Cement Australia Entrance.

3 RECOMMENDATIONS

3.1 Fugitive emissions

3.1.1 Transfer building

Reduce the risk of fugitive odour emissions by re-aligning fallen rubber mats so that the inside of the building is sealed as much as possible from the outside atmosphere.

3.1.2 Truck Entrance Plastic Strips

Reduce the risk of fugitive odour emissions by repair of the plastic strips above the truck entrance so that gaps are minimised. Priority should be given to this.

Maintenance of the plastic strips is part of daily operations. As the site is an operational facility these plastic strips are maintained as required. It is noted that movement of the plastic strips may have occurred on the day of the Audit and addressed soon after.

3.2 Odour Complaints Handling and Meteorological Data

3.2.1 Meteorological Data

Remove the dense scrub from around the weather station so that the relevant Standards are met and maintained. Namely:

AS 2922-1987 Ambient Air – Guide for the siting of sampling units.



Appendix A

Weather data calibration reports

Hydrometric Consulting Services Pty Ltd

ABN 16 091 437 071

27 April 2009

Stephen Bernhart
Environmental Monitoring Officer
Veolia Environmental Services

Re – quarterly service of weather stations

Dear Stephen,

As per our service agreement, on the 24/04/09 HCS undertook the service, calibration and maintenance of the weather stations located at the Clyde and Horsley Park sites. Field readings were obtained by a combination of a Kestral 3500, compass, Monitor Solar Radiation field unit and HS TBRG calibration device. Details are as follows

Clyde

Sensor	Actual (field)	Logger
Temperature – 10m	20 deg *	19 deg
2m	20 deg *	19.9 deg
Relative Humidity	67%	67%
Wind Speed	3 m/sec	3 m/sec
Wind Direction	345 deg	345 deg
Solar Radiation	600 w/sq.m	600 w/sq.m
TBRG	20mm	42 tips
Battery	13.2v	

* Note 1: field reading is not inside the radiation shield

Note 2: ignore rainfall tips logged at approx. 10:00am as these were testing and calibration.

Additional Items

1. Guy wire tension checked and adjusted.
2. Solar panel and components cleaned.
3. Grass trimmed around installation and scrub cut back.
4. Dense scrub around the weather station, on Pacific National land, needs to be cut back as soon as possible as the site is extremely overgrown.
5. Installation sprayed for insects.

Horsley Park

Sensor	Actual (field)	Logger
Temperature – 10m	24 deg *	22 deg
2m	24 deg *	24 deg
Relative Humidity	55%	55%
Wind Speed	2 m/sec	2 m/sec
Wind Direction	350 deg	350 deg
Solar Radiation	630 w/sq.m	620 w/sq.m
TBRG	20mm	40 tips
Battery	13.2v	

* Note 1: field reading is not inside the radiation shield

Note 2: ignore rainfall tips logged at approx. 1.30pm as these were testing and calibration.

Additional Items

1. Guy wire tension checked.
2. Solar panel and components cleaned.
3. Installation sprayed for insects.

The weather stations at both sites were fully operational as at 24/04/09

Should you require any further information on this report please do not hesitate to contact me on 0402 134 092.



Glen Murphy

Hydrometric Consulting Services Pty Ltd

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Guildford NSW 2161
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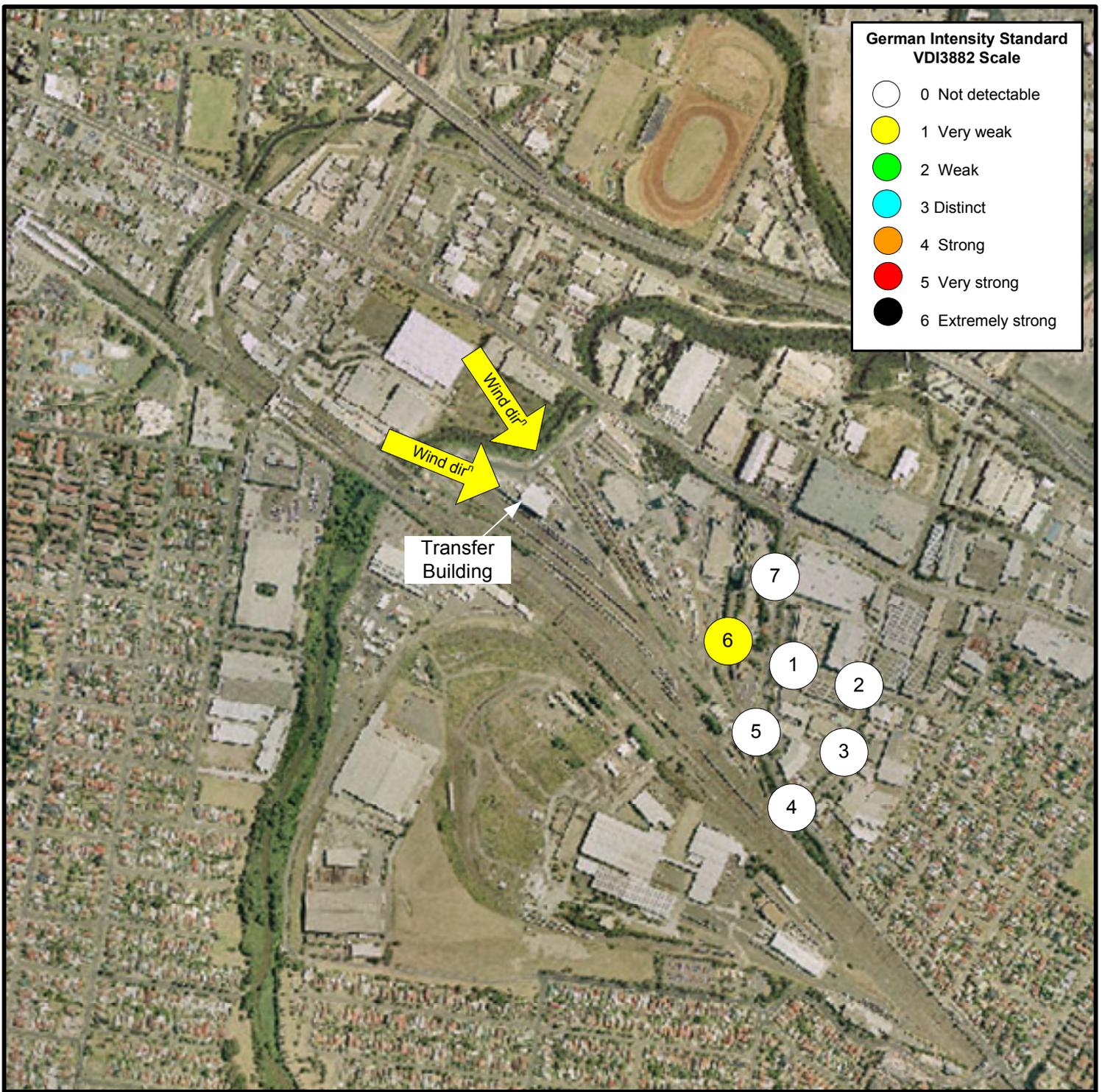
www.hydrometric.com.au



Appendix B

Field Ambient Odour Assessment

Impact Map and Field Log Sheets



Veolia Environmental Services
 Clyde Transfer Terminal, Clyde NSW
 Field Ambient Odour Assessment Survey



Wednesday 06/05/2009
 1115 – 1145

Client: *Veolia Environmental Solutions (Aust) Pty Ltd*
 Client Contact: *R. Bachu, S. Bernhart*
 Survey Site: *Clyde Transfer Terminal*
 Survey Date: *06/05/2009*
 Survey Time: *1115 - 1200*



ASSESSMENT LOCATION	TIME	WIND DIRECTION	WIND VELOCITY (m/s)	ODOUR PRESENT (Y/N)	ODOUR CHARACTER	GERMAN INTENSITY STANDARD VDI3882 SCALE (0-6)	COMMENTS
1	1115	W/NW	0.5 - 3.9	N	-	0	None.
2	1120	W/NW	0.5 - 3.9	N	-	0	None.
3	1125	W/NW	0.5 - 3.9	N	-	0	None.
4	1130	W/NW	0.5 - 3.9	N	-	0	None.
5	1135	W/NW	0.5 - 3.9	N	-	0	None.
6	1140	W/NW	0.5 - 3.9	Y	Garbage	1	Very weak. Detected intermittently for a breif period.
7	1145	W/NW	0.5 - 3.9	N	-	0	None.