



Odour Emission Report Summary

odour testing exercise 03 – 08 May

2017



1 - INTRODUCTION

The principal objectives of the tests were to measure odour emission concentrations from the stack and to determine compliance of the odour emission with the facility's Environment Protection Licence (EPL) No. 6229. The EPL was issued by the Environment Protection Authority (EPA) in accordance with the Protection of the Environment Operations Act 1997.

The emission parameters monitored in this survey were:

- ❖ Odour concentration
- ❖ Stack exhaust gas velocity, exhaust gas temperature, and hence discharge volume
- ❖ Moisture
- ❖ Mass Odour Emission Rate (MOER).

Odour emission testing was undertaken between 03 and 08 May 2017 at various times during a typical composting cycle.

Table 1-1 Odour Testing Program

Day of the Week	Date	Time of the Day Sample was Taken	Number of Odour Samples Taken per Visit
Wednesday	3/05/2017	PM	1
Thursday	4/05/2017	AM	1
Friday	5/05/2017	AM	1
Sunday	7/05/2017	AM	1
Monday	8/05/2017	AM	1

2 - PRODUCTION CONDITIONS

The odour emission samples were collected with the composting plant operating under a normal cycle commencing on a Wednesday. Samples were taken on five separate days over a six day period.

Elf Farm Supplies holds all relevant production records should they be required for review.



3 RESULTS AND DISCUSSION

3.1 Emission Test Results

The results of the compliance emission tests are presented in Table 3-1. SEMA completed the odour sampling. SEMA is NATA accredited for the odour sampling, NATA accreditation number 15043.

Odour Research Laboratories Australia (ORLA) performed the odour analysis. ORLA is a division of Peter W Stephenson & Associates Pty Ltd and is NATA accredited to AS4323.3 for odour analysis, accreditation number 15043.

The Certificates of Analysis, Olfactometer Test Reports No. 5817/ORLA/01, 5817/ORLA/02 and 5817/ORLA/03 can be provided on request to Elf farm supplies.

The odour emission sampling and olfactometric analysis was conducted in accordance with Australian Standard (AS) 4323.3. Refer to Section 5 of this report for further detail.

Table 3-1 Odour Emission Concentration Results

Day of Week	Wednesday	Thursday	Friday	Sunday	Monday
Date	03/05/2017	04/05/2017	05/05/2017	07/05/2017	08/05/2017
Time Sample Taken (hours)	13:55	03:00	03:19	16:01	03:05
SEMA Sample No.	726212	726213	726214	726215	726216
ORLA Sample No.	4712	4713	4714	4715	4716
Concentration (ou)	2,900	2,400	2,900	1,700	2,200

Key: ou = odour unit

Table 3-2 summarises the odour emission limit for the tunnel composter stack at Elf Farm Supplies Pty Ltd under their EPL Licence No. 6229. The criterion is defined by the 100th percentile odour emission limit as a Mass Odour Emission Rate (MOER) in Odour Units per second (ou/s) on a rolling annual average.

Table 3-2 100th Percentile Odour Emission Limit

	EPA Licence Criteria
100th Percentile MOER Limit	55,400 ou/s
Averaging Period	Rolling annual

Key:

MOER = Mass odour emission rate

ou.m³/s = odour unit volume cubic metres per second



3.2 Odour Emission Rates

The MOER for all samples was determined to establish compliance with the EPA EPL criteria.

The MOER can be calculated using the following formula: $MOER = \text{velocity (m/s)} \times \text{internal area of the stack (m}^2) \times \text{odour concentration (ou)}$.

TABLE 3-3 ODOUR EMISSION RATES OVER A TYPICAL SEVEN DAY COMPOSTING CYCLE SPRING

Day	Wed	Thurs	Fri	Sun	Mon	Ave.
Date	3.05.2017	4.05.2017	5.05.2017	7.05.2017	8.05.2017	
ORLA Sample No.	4712	4713	4714	4715	4716	
Time (hours)	13:55	03:00	03:19	16:01	03:05	
Odour Concentration (ou)	2,900	2,400	2,900	1,700	2,200	2,400
MOER (ou.m ³ /s)	48,000	39,000	48,000	27,000	38,000	40,000
EPL MOER Limit (ou.m ³ /s) Annual Rolling Average	55,400	55,400	55,400	55,400	55,400	55,400

Key:

Ave. = average

No. = Number

ou = odour unit

m/s = metres per second

m² = square metres

MOER = Mass Odour Emission Rate

ou.m³/s = odour unit volume cubic metres per second

ou/s = Odour Units per second

4. CONCLUSIONS

This odour emission survey was conducted over a typical composting cycle. The measured stack MOER's for the monitoring period were in the range of 27,000 ou.m³/s to 48,000 ou.m³/s. The average MOER for the autumn 2017 composting cycle, which was considered to be typical, was 40,000 ou.m³/s.

Therefore, these MOER's comply with the EPA EPL No. 6229 Licence Criteria of 55,400 ou.m³/s Rolling Annual Average.