



Odour Emission Report Summary

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 EPA is now incorporated into the Office of Environment and Heritage (OEH).

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 26 and 31 October 2016 at various times during a typical composting cycle.

Table 1-1 shows when emission testing was carried out on the stack.

Day of the Week	Date	Time of the Day Sample was Taken	Number of Odour Samples Taken per Visit
Wednesday	26/10/2016	PM	1
Thursday	27/10/2016	AM	1
Friday	28/10/2016	AM	1
Sunday	30/10/2016	AM	1
Monday	31/10/2016	AM	1

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.



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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. 5719/ORLA/01, 5719/ORLA/02 and 5719/ORLA/03 are presented in Appendix A of this report.

TABLE 3-1 ODOUR EMISSION CONCENTRATION RESULTS

Day of Week	Wednesday	Thursday	Friday	Sunday	Monday
Date	26/10/2016	27/10/2016	28/10/2016	30/10/2016	31/10/2016
Time Sample Taken (hours)	13:52	03:00	03:13	08:35	03:11
SEMA Sample No.	725834	725835	725837	725838	725839
ORLA Sample No.	4590	4591	4594	4596	4597
Concentration (ou)	1,800	2,000	2,400	2,000	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/s = Odour units per second which is a misnomer in EPA Licence 6229 (EPL) and should now read odour units. cubic metres per second (ou.m³/s)



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ODOUR EMISSION RATES

The MOER for all samples was determined to establish compliance with the EPA/OEH 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 2016

Day	Wed	Thurs	Fri	Sun	Mon	Ave.
Date	26 Oct 16	27 Oct 16	28 Oct 16	30 Oct 16	31 Oct 16	
ORLA Sample No.	4590	4591	4594	4596	4597	
Time (hours)	13:52	03:00	03:13	08:35	03:11	
Odour Concentration (ou)	1,800	2,000	2,400	2,000	2,200	2,100
MOER (ou.v/s)	31,000	34,000	43,000	33,000	37,000	36,000
EPL MOER Limit (ou/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.v/s = Odour Unit volumes per second ou/s = Odour Units per second

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 31,000 ou.m³/s to 43,000 ou.m³/s. The average MOER for the spring 2016 composting cycle, which was considered to be typical, was 36,000 ou.m³/s.

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