



Bowral Waste Centre

EPL 13366

Landfill Gas Monitoring Report

February 2024



Report Reference: 20190701BOW_GasMonitoring_202401

Version: V1.0

Published: 13 February 2024

Prepared for:

Bowral Landfill Pty Ltd T/A Bowral Waste Centre

ABN: 47 629 389 519

Contact: Ewen Mckenzie

E: Ewen@benedict.com.au

Prepared by:

4Pillars Environmental Consulting Pty Ltd

ABN: 73 616 670 994

Lead author: Kay Porter, Senior Consultant

Report approved by: Rhys Thompson, General Manager

E: james@4Pillars.com.au

P: 02 8313 7054

A: PO Box 3160, North Strathfield NSW 2137

W: www.4Pillars.com.au

Copyright notice

© 4Pillars Environmental Consulting Pty Ltd 2024

Except as permitted by Australian copyright law, you may not use, reproduce, alter or communicate any content of this document, including photos, tables and diagrams, without the permission of the copyright owner.

Confidentiality notice

This document contains commercial-in-confidence information. Recipients and users of this document agree to hold the information presented within as confidential and agree not to disclose, or allow the disclosure, of this information to any other party, unless authorised, except to the extent required by law.



Statement of capacity

4Pillars is an independent, professional consulting firm, providing expert advice on environmental matters to clients from a range of business sectors. This document has been approved by a certified environmental practitioner (CEnvP), with extensive experience in environmental management, impact assessment, monitoring, sampling and analysis. The performance and professional integrity of CEnvPs are independently verified by the Environment Institute of Australia and New Zealand (www.cenvp.org).

For further information, please visit www.4Pillars.com.au.

Declaration and limitations of this document

To the best of our knowledge and based on information provided to us by the client or their representatives, the information contained in this report is accurate at the date of issue. 4Pillars has used a degree of care and skill ordinarily exercised in similar assessments by reputable members of the environmental sector in Australia. No other warranty, expressed or implied, is made or intended. The opinions and judgements expressed in this report should not be construed as legal opinions or advice. 4Pillars is also not responsible or liable for any third-Party use or reliance on this report.

Document Approved by:	Rhys Thompson, CEnvP rhys@4Pillars.com.au CEnvP Seal: 1718	Signature:	 
------------------------------	--	-------------------	--

Acknowledgement of Country

4Pillars acknowledges the Traditional Owners of the land on which this site is located, the people of the Gundungurra and Tharawal Nation. We acknowledge their continuing connection to land and sea Country, and we pay our respects to their Elders past, present and emerging.

1. Introduction and background

1.1 Objectives and scope of work

Bowral Landfill Pty Ltd engaged 4Pillars Environmental Consulting Pty Ltd (4Pillars) to conduct landfill gas monitoring for Bowral Waste Centre (8 Kiama Street, Bowral, NSW – the Site), to ensure compliance with Environment Protection Licence (EPL) 13366.

4Pillars' scope of work was as follows:

- measure landfill gas accumulation, in accordance with licence requirements;
- assess data against relevant licence limits (where they exist); and
- prepare the monitoring report.

1.2 Site details and monitoring requirements

The subject Site is 8 Kiama Street, Bowral, NSW, 2576 – part lots 13 and 14 DP1022146. The landfill site is located within the Wingecarribee Shire local government area (LGA) and falls within the E4 (General Industrial) development zone under the Wingecarribee Local Environment Plan 2010. Surrounding land zoning includes E4 (General Industrial), SP2 (Rail Infrastructure), R3 and R2 (Medium and Low Density Residential), RU4 (primary production small lots) and RE1 (Public Recreation). The majority of the surrounding land uses are residential, agricultural or industrial (including horticulture, landscaping supply, self-contained storage, car repairs, etc.). The nearest residential area is medium density and occurs immediately to the east of the Site, along Railway Parade. Residential and business receivers are located to the east and west of the Site (refer Figure 1).

The landfill licence was transferred to Bowral Waste Centre Pty Ltd (the Licensee) in July 2019. The Site was not operational under the Licensee until November 2019. Since the commencement, the Site progressively reached full scale of operations in February 2020.

As noted above, the Site is subject to EPL 13366 (the EPL). Conditions P1.1 and M2.2 of the EPL require landfill gas (methane- CH₄) to be monitored every six months in two locations;

1. anywhere intermediate or final cover has been placed (EPL point 9); and
2. inside all buildings within 250 m of deposited waste (EPL point 10).

Conditions R2.3 and R2.4 of the EPL detail notification requirements if methane is detected above 500 ppm (v/v) (surface gas monitoring), or above 1% (v/v) (gas accumulation monitoring).

2. Monitoring methodology

Where relevant, the sampling and analysis program was undertaken in accordance with the NSW EPA Environmental Guidelines: Solid Waste Landfills (2016) and in accordance with the Site Landfill Environmental Management Plan (LEMP).

2.1 Monitoring

Neither intermediate nor final cover was placed in the landfill on the day of monitoring; therefore, landfill gas measurements were not taken on the active cell. As per the Site's EPL, the measurement of methane in buildings within 250 m of deposited waste (see Figure 1) was undertaken.

Attended landfill gas monitoring was carried out on 30 January 2024 by two qualified and experienced environmental scientists (Ms K Porter and Ms L Kent) using a portable gas analyser (see details below). Accumulated landfill gas measurements were taken inside residences and businesses on Alcorn Street, Belmore Street, Carrington Street, Funston Street, Kiama Street, Loftus Street, Moss Vale Road, Oxley Hill Road, and Railway Parade. All buildings were approached, but not all were accessible on the day of sampling, either because the occupant refused access, or the occupier was not present. Where measurements were possible, they were taken within the first enclosed space encountered inside the door of the property (generally the living room or hallway). A total of 53 individual readings were obtained.

2.2 Description of Gas Analyser

A calibrated Geotech GA5000 portable landfill and contaminated land gas analyser was used for the monitoring. The GA5000 unit measures methane gas and has a range of 0%- 100% (v/v) with typical accuracy of ±0.5% (vol) at 0-70% methane and ±1.5% (vol) at 70-100% methane. The GA5000 unit is suitable for the requirements of the EPL.

3. Results and discussion

3.1 Landfill gas

Tabulated accumulated landfill gas measurements for each of the accessible residences are provided in Appendix 2. The results were between 0.0% v/v and 0.1% v/v across all residences. Therefore, no methane accumulation was identified in any structures within 250 m of the landfill, indicating that the facility was below the threshold specified in Condition R2.3 and R2.4 of EPL 13366. As such, no notifications were required.

4. Conclusion

4.1 Compliance

The result of the attended landfill gas monitoring indicate that the Site is compliant with its legal obligations related to landfill gas management.

4.2 Limitations of this assessment

To the best of our knowledge and based on information provided to us by the client or their representatives, the information contained in this report is accurate at the date of issue. 4Pillars has used a degree of care and skill ordinarily exercised in similar investigations by reputable members of the environmental sector in Australia. No other warranty, expressed or implied, is made or intended. The opinions and judgements expressed in this report should not be construed as legal opinions or advice. 4Pillars is also not responsible or liable for any third-Party use or reliance on this report.

5. List of appendices

Appendix 1. Figures.

Appendix 2. Gas Accumulation Monitoring.

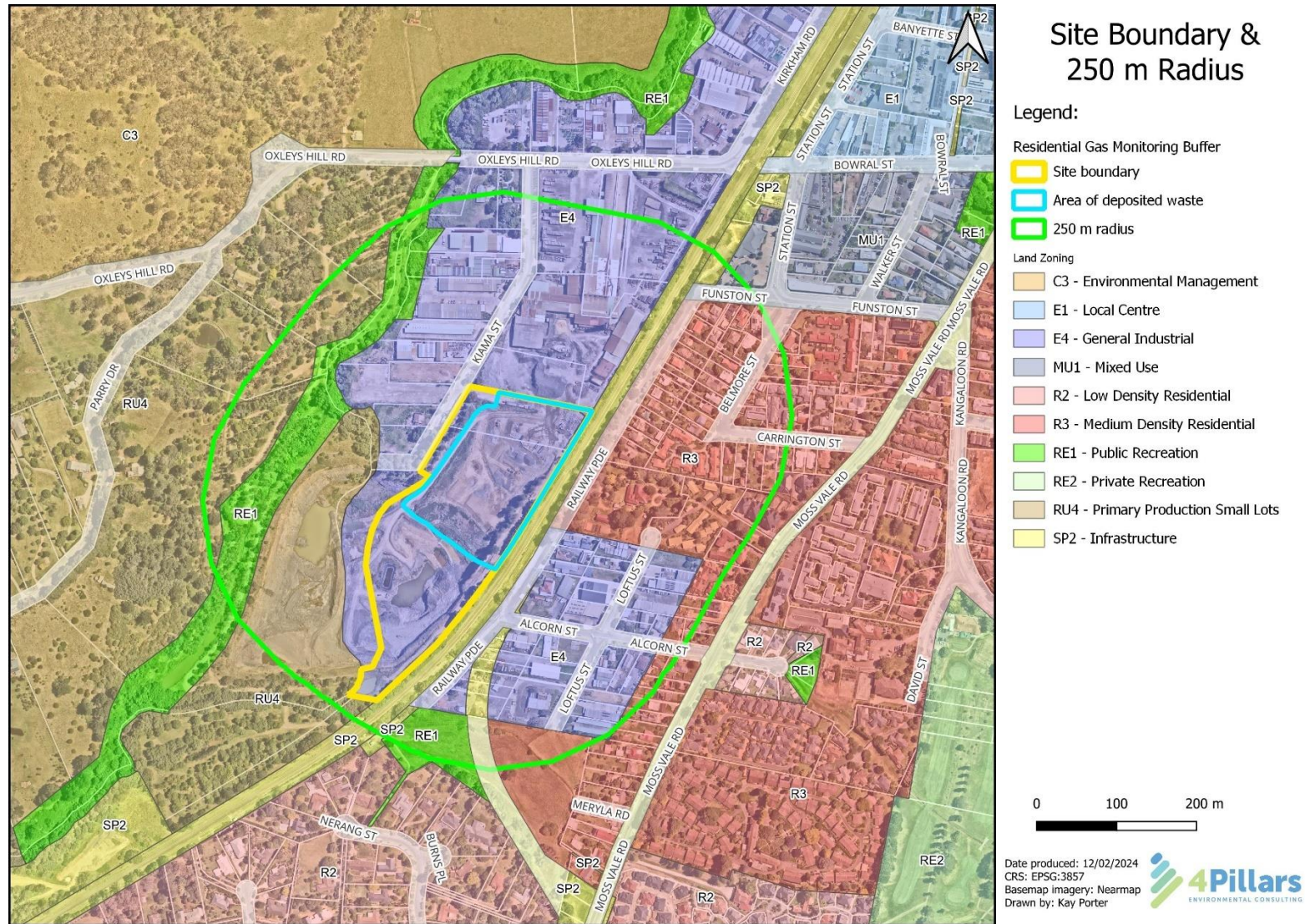


Figure 1: Site boundary, surrounding land zoning and 250 m radius from the approximate area of deposited waste.

Appendix 2 Gas Accumulation Monitoring.

Table 1: Accumulated gas monitoring results obtained from buildings within 250 m of the area of deposited waste.

Sample ID	Date sampled	Street number	Street	Access (Y/N)	Methane (% v/v)
3	30/01/2024	3/3	Carrington Street	Y	0
4	30/01/2024	4/3	Carrington Street	Y	0
5	30/01/2024	5/3	Carrington Street	Y	0
6	30/01/2024	6/3	Carrington Street	Y	0
9	30/01/2024	9/3	Carrington Street	Y	0
14	30/01/2024	5/2-4	Carrington Street	Y	0
15	30/01/2024	6/2-4	Carrington Street	Y	0
16	30/01/2024	7/2-4	Carrington Street	Y	0
20	30/01/2024	11/2-4	Carrington Street	Y	0
21	30/01/2024	12/2-4	Carrington Street	Y	0
23	30/01/2024	8	Carrington Street	Y	0
26	30/01/2024	4	Belmore Street	Y	0
27	30/01/2024	5	Belmore Street	Y	0
28	30/01/2024	6	Belmore Street	Y	0
29	30/01/2024	7	Belmore Street	Y	0
30	30/01/2024	8	Belmore Street	Y	0
31	30/01/2024	9	Belmore Street	Y	0
32	30/01/2024	11	Belmore Street	Y	0
33	30/01/2024	13	Belmore Street	Y	0
35	30/01/2024	17	Belmore Street	Y	0
39	30/01/2024	3	Funston Street	Y	0.1
41	30/01/2024	5	Funston Street	Y	0.1
42	30/01/2024	7	Funston Street	Y	0.1
45	30/01/2024	9	Oxley Hill Road	Y	0.1

53	30/01/2024	2/481	Moss Vale Road	Y	0
57	30/01/2024	6/481	Moss Vale Road	Y	0
62	30/01/2024	16	Railway Parade	Y	0
63	30/01/2024	18	Railway Parade	Y	0
64	30/01/2024	20	Railway Parade	Y	0
69	30/01/2024	4/24	Railway Parade	Y	0
73	30/01/2024	40	Railway Parade	Y	0
74	30/01/2024	1-3	Alcorn Street	Y	0
76	30/01/2024	6A	Alcorn Street	Y	0
77	30/01/2024	6B	Alcorn Street	Y	0
78	30/01/2024	1/8	Alcorn Street	Y	0
82	30/01/2024	13	Alcorn Street	Y	0
84	30/01/2024	6	Loftus Street	Y	0
90	30/01/2024	4/12	Loftus Street	Y	0
94	30/01/2024	14-16	Loftus Street	Y	0
97	30/01/2024	2/26	Loftus Street	Y	0
99	30/01/2024	4/26	Loftus Street	Y	0
103	30/01/2024	8/26	Loftus Street	Y	0
109	30/01/2024	14/26	Loftus Street	Y	0
110	30/01/2024	15/26	Loftus Street	Y	0
112	30/01/2024	17/26	Loftus Street	Y	0
113	30/01/2024	18/26	Loftus Street	Y	0
116	30/01/2024	21	Loftus Street	Y	0
121	30/01/2024	1	Kiama Street	Y	0.1
122	30/01/2024	3	Kiama Street	Y	0.1
126	30/01/2024	2/8	Kiama Street	Y	0.1
130	30/01/2024	6/8	Kiama Street	Y	0.1
134	30/01/2024	10/8	Kiama Street	Y	0.1
141	30/01/2024	Bowral Brickworks	Kiama Street	Y	0.1