IN THE SUPREME COURT OF VICTORIA	Not Restricted

AT MELBOURNE
Common Law Division
MAJOR TORTS LIST

S CI 2022 01121

FLORENCE WINSOME ANDERSON & ORS (according to the Schedule attached)	Plaintiffs
v	
PWM (LYNDHURST) PTY LTD (ACN 005 470 584)	First Defendant
and	
VEOLIA RECYCLING & RECOVERY PTY LTD (ACN 002 902 650)	Second Defendant

---

JUDGE:	McDonald J
WHERE HELD:	Melbourne
DATE OF HEARING:	15, 16, 21, 22, 23, 24, 27, 28 November 2023, 7 December 2023, 9, 20, 21 February 2024, 15, 18 March 2024
DATE OF JUDGMENT:	18 July 2024
CASE MAY BE CITED AS:	Anderson v PWM (Lyndhurst) Pty Ltd & Anor
MEDIUM NEUTRAL CITATION:	[2024] VSC 417

ENVIRONMENTAL LAW – Second defendant (Veolia) the holder of a statutory licence to store and possess putrescible waste – Licence required Veolia to take all practicable measures to prevent emissions of landfill gas from exceeding prescribed levels – Emissions of methane gas up to 80 times prescribed levels – Veolia failed to take all practicable measures to prevent landfill gas emissions exceeding prescribed levels.

ENVIRONMENTAL LAW – Where Veolia engaging in an activity that may give rise to risks of harm to human health and the environment from pollution or waste – Veolia subject to general environmental duty to minimise risks of harm to human

health and the environment so far as reasonably practicable – Veolia breached duty by failing to ensure that its landfill gas extraction system operated at optimal efficiency – Veolia breached duty by failing to prepare and implement a remediation action plan.

ENVIRONMENTAL LAW – Plaintiffs' application for orders to prevent, minimise and remedy the breach of licence and breach of general environmental duty – Orders made requiring Veolia to place final caps on landfill cells, improve efficiency of landfill gas extraction system and prepare and implement remediation action plan.

TORTS – Nuisance – Plaintiffs' claim that migration of landfill gas from Veolia's land prevented them from obtaining a planning permit for horticultural development of their land – Plaintiffs failed to establish that but for migration of landfill gas they would have been able to undertake horticultural development of land – Interference with potential use of land not an actionable nuisance.

PRACTICE AND PROCEDURE – Undertaking – Defendants proffered undertaking *regardless of outcome of proceeding* – Court's power to make orders in the terms of the undertaking required a finding that Veolia had breached its statutory licence or the general environmental duty – Undertaking proffered for purpose of final disposition of proceeding – Basis upon which undertaking proffered misconceived as undertaking proffered irrespective of whether Court concluded that Veolia had not breached licence and general environmental duty.

WORDS AND PHRASES CONSIDERED – 'Amenity' – 'Enjoyment' – 'May give rise to risks' – 'Eligible person' – 'All practicable measures' – 'At the boundary' – 'Reasonably practicable'.

Environment Protection Act 2017 ss 1, 3, 4, 5, 6, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 308, 309, 313.

Civil Procedure Act 2010 s 56(2)(h).

APPEARANCES:	Counsel	Solicitors
For the Plaintiff	Mr D A Klempfner with Mr A Walker	Thomson Geer Lawyers
For the Defendants	Ms F Hudgson	Ashurst Australia

TABLE OF CONTENTS

Annexure A: Extracts of Master LFG Borehole Spreadsheet 178

HIS HONOUR:

Introduction

1 The second defendant ('Veolia') is the holder of a statutory licence ('the licence') under the *Environment Protection Act 2017* ('the Act') permitting it to engage in the activity of storage and/or possession of waste at a landfill site situated at 274-310 Hallam Road, Hampton Park ('the landfill site'). The plaintiffs own 38 hectares of land sharing the eastern boundary of the landfill site ('the plaintiffs' land').

2 The microbial degradation of putrescible waste produces landfill gas ('LFG'). During the anaerobic phase, where decomposition occurs in the absence of oxygen, methane and carbon dioxide are the major constituents of the gas produced. If not appropriately managed, LFG can be emitted from a landfill site through a number of pathways, including the landfill site's surface and subsurface geology.

3 The plaintiffs contend that as a result of faults in the design and construction of landfill waste cells adjacent to the eastern boundary of the landfill site, methane gas has migrated via subsurface geology from Veolia's land to the plaintiffs' land. The plaintiffs claim that the migration of LFG is a substantial interference with the use and enjoyment of their land and constitutes a nuisance. In particular, the plaintiffs contend that the migration of LFG onto their land prevented them from obtaining approval from the City of Casey for a significant horticultural development of their land.

4 The plaintiffs also claim relief under s 309 of the Act. The claim under s 309 has two separate bases. First, the plaintiffs allege that Veolia has breached clause 5 of the licence by failing to take all practicable measures to prevent emissions of LFG from exceeding the prescribed levels in the subsurface

geology at the landfill boundary: 1% v/v methane and 1.5% v/v carbon dioxide. Second, the plaintiffs allege that Veolia has breached the general environmental duty ('GED') under s 25(1) of the Act. Section 25(1) provides that a person who is engaging in an activity that may give rise to risks of harm to human health or the environment must minimise those risks so far as reasonably practicable.

5 I have dismissed the plaintiffs' claim in nuisance. The plaintiffs have not established that but for the presence of LFG on their land the City of Casey would have granted their planning permit application for a horticultural development. Further, an interference with a potential use of land does not constitute an actionable nuisance.

6 I have concluded that the plaintiffs are entitled to relief under s 309 of the Act. Between 1 July 2022 and 30 October 2023 Veolia failed to take three practicable measures to prevent emissions of methane gas from exceeding 1% v/v in the subsurface geology at the landfill boundary. First, Veolia failed to place a final cap on cell 12. Second, Veolia failed to ensure that its LFG extraction system operated at optimal efficiency. Third, Veolia failed to prepare and implement a remediation action plan.

7 Veolia has also breached the GED. Veolia engages in the activity of the storage and possession of putrescible waste. This is an activity that may give rise to risks of harm to human health and the environment. Veolia must minimise those risks so far as reasonably practicable. Veolia breached the GED by reason of its failure to comply with s 25(4)(a) and (b) of the Act. Veolia's failure to ensure that its LFG extraction system operated at optimal efficiency between 1 July 2022 and 30 October 2023 breached s 25(4)(a). Veolia's failure to prepare and implement a remediation action plan between 1 July 2022 and 30 October 2023 breached s 25(4)(b).

8 Section 309(2)(a) provides that an order under s 309(1) may require a person to do a specified act or thing that the Court considers reasonably necessary to prevent, minimise or remedy a breach of the GED or non-compliance with a licence. The plaintiffs sought orders which would require Veolia to undertake an assessment of the feasibility of constructing a vent curtain system ('VCS') along the boundary between the landfill site and the plaintiffs' land. I do not consider that such an order is reasonably necessary to prevent, minimise or remedy Veolia's breach of the GED or non-compliance with the licence. I consider the following orders are reasonably necessary to prevent, minimise and remedy Veolia's breach of the GED and non-compliance with the licence:

1. Veolia must forthwith engage an environmental auditor to prepare a landfill gas remediation action plan identifying all practicable measures to reduce emissions of landfill gas at the landfill boundary. The practicable measures to be considered by the environmental auditor are to include measures to enhance the efficiency of the gas extraction system including but not limited to:

    (i) increasing the existing number of pumps, turbines and flares which comprise part of the system;

    (ii) sinking additional gas extraction wells in the area of land adjacent to cells 11, 12 and 13 and the landfill boundary and connecting these wells to the existing gas extraction system infrastructure.

    (iii) sinking additional wells into cells 11, 12 and 13.

    (iv) reviewing the design of gas extraction wells to identify and recommend improvements to reduce leakage of landfill gas from the extraction wells.

2. The landfill gas remediation action plan must be verified by an environmental auditor as taking all practicable measures to reduce emissions of landfill gas at the landfill boundary.

3. Veolia must forthwith implement any measures identified in the landfill gas remediation action plan as verified by the environmental auditor.

4. Veolia must forthwith provide the Environment Protection Authority with the final cap design for cells 12 and 13 at the Hallam Road landfill and following approval of the cap design by the Environment Protection Authority must forthwith progress construction of the final cap.

9 The mandatory injunction requiring implementation of measures identified in the remediation action plan will be stayed until 26 August 2024. This will allow time for the preparation of a remediation action plan by an environmental auditor. The Court will make orders on or about 26 August 2024 to facilitate the implementation of any recommendations made by the environmental auditor.

Background

History of the plaintiffs' land

10 The plaintiffs are joint proprietors of a 90 acre/36 hectare block of land known as 'Kings View' at 280 Hallam Road, Hampton Park in the State of Victoria. The plaintiffs own the land in their capacity as executors of the estate of the late Bertie Richard Knight Anderson. The plaintiffs and their forebears have been farming cattle on the plaintiffs' land and surrounding properties since the late nineteenth century. The plaintiffs' family originally owned some 1800 acres of land in the area, but over the years have divided and sold their

property. From 2002 onwards only the present 90 acre block remains.

11 Prior to the second half of 2022, the plaintiffs used the plaintiffs' land to graze Jersey cattle. Due to concerns about litter blowing onto the property from the adjacent Hallam Road landfill, in the latter half of 2022 the plaintiffs ceased grazing cattle. The plaintiffs now use the land primarily for the cutting of hay that is fed to cattle on other properties owned by the plaintiffs.

12 The plaintiffs' land is landlocked with no direct road access. Access to the plaintiffs' land is via a carriageway easement which runs from the northwest corner of the plaintiffs' land along the northern boundary of the defendants' land, before joining the access road to the defendants' land that ultimately leads to Hallam Road.

13 The eastern boundary of the plaintiffs' land abuts an established residential area. The northern boundary of the property abuts both an Urban Floodway Zone and the general residential area. The southern boundary abuts the Urban Floodway Zone and land designated as Special Use Zone. The western boundary of the plaintiffs' land abuts the defendants' land.

14 The plaintiffs' land is subject to several zoning overlays (see Figure 1). Horticulture is a permitted use in each of the zones subject to obtaining a planning permit. The western and southern areas of the property are subject to a Special Use Zone overlay. Under Schedule 1 Section 2 of the City of Casey Planning Scheme, a permit is required *Figure 1: Taken from CB2202, Expert report of Colleen Peterson dated 23 May 2023.*

within a Special Use Zone for agriculture, which includes horticulture.

15 A section of the property extending from the northern boundary to the southern and eastern boundaries is a designated Urban Floodway Zone and Inundation Overlay. Under the City of Casey Planning Scheme and s 55 of the *Planning and Environment Act 1987*, the construction of any building in an Inundation Overlay must be referred to the relevant floodplain authority.

16 The north-eastern corner of the property is subject to a General Residential

Zone overlay. However, the area of the property subject to this zoning overlay is entirely covered by a 152-metre-wide electricity easement that extends from the south-western corner of the property to the eastern boundary, and then continues along the eastern boundary of the property up to the north-eastern corner of the property. A 4.4-meter-wide sewerage easement also runs along the northern boundary of the site.

17 Finally, almost the entirety of the plaintiffs' land falls within a '500-metre landfill buffer' by virtue of being located within a 500-metre radius of the edge of landfill cells located on the defendants' land. The 'landfill buffer' is not a formal zoning overlay but it is an area regulated by the Landfill Best Practice Environmental Management ('BPEM') and Environment Protection Authority ('EPA') Publication 1642 titled 'Assessment planning proposals within the buffer of a landfill' ('EPA Publication 1642'). EPA Publication 1642 establishes that where a use is proposed within a landfill buffer, sufficient assessment is required to justify that there will be no human health impacts. The EPA does not provide a determination on the suitability of a proposed use with respect to landfill buffers, but rather assists the responsible authority with their assessment of the environmental and human health risks of any proposed use of the land within the buffer. EPA Publication 1642 and the BPEM are used to determine the suitability of development within a landfill buffer. EPA Publication 1642 uses a 'scoring system' to categorise the risk of development within a landfill buffer and accordingly require or recommend differing levels of risk assessment.

History of the defendants' land

18 The first defendant is the registered proprietor of 274-310 Hallam Road, Hampton Park. The first defendant is a wholly owned subsidiary of Veolia. For this reason, I will refer to this property as 'Veolia's land'. The western and southern boundaries of the plaintiffs' land abut Veolia's land. That is, the

plaintiffs own and occupy land to the east of Veolia's land.

19 Veolia is the owner and operator of a waste management business and landfill operated on Veolia's land. Prior to its use as a landfill, Veolia's land was used as a quarry between around the 1950s and 2004 when quarrying finished. From around October 1997 Veolia's land commenced receiving domestic and commercial waste for landfill.

Landfill gas components, migration, and risks to human health and the environment

20 LFG is a product of the breakdown of putrescible waste in anaerobic conditions (ie without oxygen). It is made up of a number of gases, principally methane and carbon dioxide.

21 Where there is a build-up of LFG in any given area, LFG will migrate through either diffusion or pressure-driven flow along pathways permeable to LFG, if such pathways exist. This includes venting to the atmosphere or along subsurface migration pathways, where the LFG will remain in the subsurface soil.

22 The term 'receptors' is used in relation to a landfill gas risk assessment to refer to people or places where LFG might have an impact. The presence of LFG in subsurface soil or the atmosphere is not necessarily of itself a 'receptor' and does not necessarily pose a risk of material harm to humans or the environment. The risk of material harm from LFG eventuates when subsurface LFG interacts with a receptor in a harmful way. Methane is flammable and explosive between 5-15% v/v. Where there are no receptors in the presence of LFG, LFG poses no or limited risk of harm to human health or the environment. Similarly, in low concentrations and where LFG is sufficiently ventilated, LFG poses no or limited risk to human health and the

environment.

23 However, LFG can be hazardous when it is in excessive quantities in the presence of receptors. This is because it may exclude oxygen and at a sufficient concentration it is flammable due to its high methane levels. LFG is typically present in these excessive quantities where it has built up in a confined space. For example, where LFG is present in subsurface soil below a building and there are no LFG migration mitigation measures in place, LFG could migrate and accumulate within the building. Similarly, where confined spaces such as trenches are dug into soil that is polluted with subsurface LFG, LFG will accumulate within the confined trench space. Therefore, buildings (and trenches dug during the construction of such buildings) may be receptors with an explosive or asphyxiating concentration of LFG that pose a risk of harm to human health and the environment.

Veolia's landfill operations

Licences and permits for landfill operations

24 On 22 September 1993 the City of Casey issued Planning Permit number 930016A for the use and development of Veolia's land as a 'municipal putrescible waste landfill (private rubbish tip)' to be commenced within 5 years. A putrescible waste landfill is one which is licensed to receive organic waste such as food waste which is decomposed predominantly by bacteria.

25 On 30 October 1997 the EPA issued waste discharge licence (now referred to as an operating licence) ES33144 governing the operation of the landfill. On 23 December 2011 this was replaced by operating licence number CL68819 — issued under s 20 of the *Environment Protection Act 1970* (Vic) ('EP Act 1970'). The licence was then amended under the same licence number on 24 May 2012 and 3 October 2012.

26 The licence was further amended under licence number 74643 on: 5 August

2013, 29 August 2013, 25 August 2014, 24 April 2015, 15 October 2015, 14 March 2016, 19 May 2016, 23 December 2016, 21 June 2017, 31 May 2018, 23 April 2020, 9 October 2020, and 29 June 2021.

27 On 10 September 2021 the licence was further amended under licence number OL000069939 — issued under s 74(1)(a) of the Act. The licence was further amended under the same licence number on: 1 June 2022, 22 July 2022, 28 March 2023 and 12 May 2023. Despite a change in licence number, the licence stated that it had been issued on 23 December 2011 and therefore was a further amendment to the original licence rather than the issue of a new licence. Prior to 2023 the operating licence included additional sites other than the Hallam Road landfill. In 2023 the licences were then split in that the current operating licence only relates to the Hallam Road landfill.

Summary of cell construction, filling and capping

28 Landfill cells are used to contain and manage waste material and prevent the release of pollutants. Cell construction at the landfill began in April 1997 with landfilling beginning in October 1997 and continuing today. For present purposes the operation of a landfill cell can be described as being in one of four phases:

(a) Cell construction;

(b) Cell filling whereby waste is filled into the cell;

(c) Cell closure whereby no further waste is deposited into the cell; and

(d) Cell capping whereby a final cap/layer is placed over the cell.

29 The table below outlines the approximate location of cells and their respective dates of construction, filling, closure and capping:

Cell No.	Location	Date of cell construction (planned)	Date filling began	Date cell closed	Date of final capping
Cell 1	North-west corner	Apr-97	Est Sep-97	2000	2001
Cell 1B	North-west corner	May-99	May-99	2000	2001
Cell 2	North-west corner	Apr-00	Apr-00	Jul-04	2007
Cell 2 Ext	North-west corner	Jun-05	Jun-05	Nov-05	2007
Cell 3A	Middle of landfill	Jun-01	Sep-01	Oct-04	2007
Cell 3B	Middle of landfill	Jan-02	Jan-02	Oct-04	2007
Cell 3C	Middle of landfill	May-02	May-02	Oct-04	2007
Cell 3B & 3C Ext	Middle of landfill	Aug-03	Aug-03	Oct-04	2007
Cell 4	Western boundary	Aug-04	Sep-04	Jun-05	2007
Cell 5	South-west corner	Jun-06	Jul-06	Jul-07	2008
Cell 6	Middle of landfill	Nov-05	Nov-05	Jun-06	2007
Cell 7	Southern boundary	Jun-07	Jun-07	Jan-09	2010
Cell 8	Southern boundary	Jul-08	Dec-08	Jun-12	2012
Cell 9A	Southern boundary	Mar-12	Jul-12	Dec-13	2016
Cell 9B	Southern boundary	Nov-13	Dec-13	Aug-14	2016
Cell 10A	Southern boundary	Mar-15	Apr-15	Aug-18	2019
Cell 10B	Southern boundary	Mar-16	May-16	Dec-16	2021
Cell 11A-P1	South-east corner	Dec-16	Dec-16	Dec-17	2021
Cell 11A-P2	South-east corner	Jun-17	Jun-17	Dec-17	2021
Cell 12-P1	Eastern boundary	Nov-17	Dec-17	May-20	Not yet occurred
Cell 12-P2	Eastern boundary	May-18	Jun-18	May-20	Not yet occurred
Cell 13-P1	Eastern boundary	Jul-19	May-20	Feb-23	Not yet occurred
Cell 13-P2	Eastern boundary	Jul-19	May-20	Feb -23	Not yet occurred
Cell 14A	Middle of landfill	Jul-14	Aug-14	Apr-14 [sic]	Not yet occurred
Cell 14B	Middle of landfill	Jan-23	Mar-23	Not yet occurred	Not yet occurred

Cell 15	North of landfill	Not yet constructed	Not yet occurred	Not yet occurred	Not yet occurred

30 *Figure 2: Taken from CB2446, Expert Report of Anthony Lane dated 5 June 2023.*

The location of the landfill cells is set out in Mr Lane's expert report dated 5 June 2023 and is presented below at Figure 2. The plaintiffs' land abuts the eastern boundary of Veolia's land, adjacent to cells 11, 12 and 13.

The plaintiffs' planning application

31 In September 2020 the plaintiffs applied to the City of Casey for planning permission to use and develop the plaintiffs' land for horticulture ('the plaintiffs' planning application'). The plaintiffs' planning application was supported by a report by the plaintiffs' town planning consultant, Glossop Town Planning ('Glossop'), which detailed the proposal to develop a glasshouse horticultural complex at the site comprising 304 greenhouse lots, a warehouse/office building and a 26-space car park. The plaintiffs' planning application also detailed plans to develop the carriageway easement to the plaintiffs' land into a larger carriageway with a 10-metre wide landscape and acoustic fencing buffer.

32 On 10 November 2020 Vanessa Carson, Senior Statutory Planner at the City of Casey, sent an email to Hew Gerrard of Glossop requiring a LFG risk assessment to support the application. On 16 November 2020, in correspondence to the City of Casey, the EPA recommended that a section 53V environmental audit be completed to assess the risk of harm from the adjacent landfill. A section 53V environmental audit is more stringent than the LFG risk assessment required in Ms Carson's e-mail to the plaintiffs of 10 November 2020.

33 On 7 July 2021 Glossop sent a letter to the City of Casey enclosing (among

other things) an application to amend the planning permit application, an amended planning report, and a report by Ratio Transport, all of the same date. On 30 July 2021 Glossop sent a letter to the City of Casey attaching a Landfill Gas Risk Assessment dated 27 July 2021 prepared by Australian Environmental Auditors ('AEA Assessment'). The AEA Assessment recommended the use of an in-ground pathway intervention structure at the boundary of the landfill to address the changing risks of LFG. The AEA Assessment stated that the design of such a pathway must:

> Be based upon a LFG RA [risk assessment] that further determines the risk to the development of the subject site using geological information and ground gas/LFG monitoring data obtained from an intrusive investigation of the subject site, and;
>
> Be of a detailed design by a suitably qualified and experienced professional. AEA suggest that the designer should have demonstrated experience in designing in-ground pathway intervention structures for LFG migration, and;
>
> Be constructed by a suitably qualified and professional and the construction verified by an environmental auditor appointed under Section 191 of the Environment Protection Act 2017. AEA suggest that the company should have demonstrated experience in constructing in-ground pathway intervention structures for LFG migration.

34 On 13 August 2021 Cynthia Lambert, Senior Statutory Planner at the City of Casey, sent an email to Mr Gerrard stating that the Council's Contaminated Land Team required further information, namely, the design of the proposed in-ground pathway intervention and verification of the design by an environmental auditor.

35 On 17 August 2021 Ms Lambert sent Mr Gerrard an email following their meeting that day. That e-mail contained requests for further information from the Contaminated Land Team of the Council. Among other items, that request included comments that '[f]urther information needs to be provided on the design and location of the in-ground structure, how it will be managed into the future, if it requires monitoring or maintenance and if a Section 173 agreement

will be required. An environmental auditor must confirm that the greenhouses on the subject site do not require LFG mitigation measures. If this cannot be confirmed, then the design of suitable mitigation measures must be provided'.

36 On 25 August 2021 the EPA again recommended in correspondence to the City of Casey that an audit be conducted prior to a decision on a permit. The EPA recommended an audit on the basis that:

> Until an audit is completed, the responsible authority cannot know if the site is suitable for the proposed use. A responsible authority must ensure a site is suitable for a proposed use under section 60(1)(e) of the *Planning and Environment Act 1987*.
>
> An audit may include a statement with recommendations relating to built form, ongoing monitoring and other measures that may impact the planning merits of a proposal.

The letter went on to state as follows:

> However, where the applicant justifies a decision to defer an audit, conditions may be applied on a permit. To ensure that the site is made suitable for the proposal, applicable recommendations of the environmental audit must be translated into requirements of a planning approval. Relevant guidance on environmental audit conditions can be found on pages 11-13 of the Planning Practice Note 30 – Potentially Contaminated Land (DELWP, 2021).
>
> Subject to the completion of an environmental audit and implementation of environmental audit statement recommendations through permit conditions, EPA does not object to the issue of a planning permit. However, EPA strongly recommends that an audit be completed prior to a decision on a permit.

37 On 13 September 2021 Mr Gerrard e-mailed Ms Lambert and asked if the matters raised could be dealt with in permit conditions. On 29 September 2021 Ms Lambert responded that the matters raised could not be the subject of permit conditions and must be addressed before a permit was granted. That letter also noted that the EPA had recommended an environmental audit of the site.

38 On 13 October 2021 Mr Gerrard emailed Ms Lambert, asking the City of Casey to reject the plaintiffs' application, stating:

> Thank you for the advice in your email of 29 September that all the comments from Council's Contaminated Land Team must be addressed prior to the issuing of a planning permit for the above application. It is with some regret that I advise that the client after considering these comments is not prepared to invest what would be a considerable amount of money in an attempt to satisfy these comments without first having the security of a planning permit.
>
> I appreciate that policy guidance (such as the two EPA publication's [sic] (e.g. EPA publication 788.3) referenced within the EPA referral) recommends a cautious approach when it comes to proposals within landfill buffers and understand that in the absence of the additional information sought by Council's Contaminated Land Team that Council will refuse the application on landfill gas risk grounds.
>
> While landfill gas risk from the adjacent landfill is the only issue (as I understand) that is preventing the issuing of the permit, in the circumstances I would nevertheless request that Council refuses the application and our client will subsequently consider their options. If when you issue your refusal you could also send through your accompanying officer report that would be much appreciated.
>
> It is a shame that we've reached an impasse with the application but I would like to say thank you to you (and Vanessa) for your help with this application over its quite lengthy journey.

39 On 8 February 2022 the City of Casey wrote to the Estate of Bertie Richard Knight Anderson advising that the planning permit application had been refused. The letter enclosed a Notice of Decision to Refuse to Grant a Permit and a Delegate Report. The grounds for the refusal were as follows:

> 1. The proposal fails to satisfy the relevant policies under the Planning Policy Framework of the Casey Planning Scheme, namely in relation to:
>
> - Clause 11 (Settlement)
> - Clause 13 (Environmental Risks & Amenity)
> - Clause 12.06-1S (Air Quality Management)
> - Clause 13.07-1S (Land Use Compatibility)
> - Clause 19.03-5S (Waste & Resource Recovery)

2. In the absence of further details, construction, location, and suitability of the proposed in-ground pathway intervention structure, Council is unable to determine the suitability or otherwise of the proposed development and/or use on the subject land.

3. In the absence of an Environmental Audit under Section 53V (Landfill Gas Risk Assessment) of the *Environment Protection Authority Act 1970* Council is unable to determine the suitability or otherwise of the proposed development and/or use on the subject land.

4. The proposed development and/or use would result in an unreasonable level of risk to human life and health due to the impacts associated with landfill gas migration, dust, noise and odour given its proximity to the active putrescible landfill site at 274 Hallam Road, Hampton Park.

The plaintiffs' claim

40 On 1 April 2022 the plaintiffs commenced proceedings against the defendants by way of writ and statement of claim ('SOC'). On 1 July 2022 the plaintiffs filed an amended statement of claim ('ASOC'). On 28 February 2023 the plaintiffs filed a further amended statement of claim ('FASOC'). On 20 July 2023 the plaintiffs filed a second further amended statement of claim ('2FASOC'). In the 2FASOC the plaintiffs claim:

(a) a claim in nuisance arising from the defendants substantial and unreasonable interference with the plaintiffs' use and enjoyment of the plaintiffs' land ('nuisance claim'); and

(b) a claim under ss 308, 309 and 313 of the Act based on:

(i) Veolia's breach of condition OL_L5 of the operating licence OL000069939 issued by the EPA. The plaintiffs allege that Veolia has not taken all practicable measures to prevent subsurface emissions of LFG from exceeding the action level specified in table 6.4 of the BPEM (1% v/v for methane gas and 1.5% v/v for carbon dioxide) ('claim for breach of the operating licence'); and

(ii) a breach of the general environmental duty (the statutory duty to minimise the risks of harm to human health or the environment, so far as reasonably practicable pursuant to s 25(1) of the Act) ('claim for breach of the general environmental duty').

41 The plaintiffs' prayer for relief in the 2FASOC claims:

A. Damages or alternatively compensation pursuant to section 313 of the Environment Protection Act 2017 (Vic);

B. Interest;

C. A permanent injunction requiring the Defendants to abate the nuisance caused or threatened to be caused by the landfill gas migration, dust, noise and odour from the Defendants' Land;

D. Orders requiring the Defendants to remedy the breach of the conditions of the Operating Licence and/or the breach of the General Environmental Duty pursuant to section 309 of the Environment Protection Act 2017 (Vic);

E. Costs;

F. Such further or other order as the Court considers appropriate.

42 During the course of the proceeding the plaintiffs abandoned a number of ancillary claims:

(a) damages for diminution in value of the plaintiffs' land; and

(b) a mandatory injunction requiring Veolia to design and construct an in-ground pathway intervention system in the form of an LFG vent curtain system at an estimated cost of approximately $14.5 million.

43 On 4 December 2023 the plaintiffs submitted the following proposed orders (later superseded by revised proposed orders):

1. There be judgment for the Plaintiffs.

2. The Court finds and declares that the Second Defendant has:

a. failed to comply with the requirements of Condition OL_L5 of the Operating Licence by failing to take all practicable measures to prevent landfill gas from

exceeding the BPEM action levels; and

b. contravened section 25(1) of the Act by virtue of the uncontrolled landfill gas emissions migrating from the Site to the Plaintiffs' Land across the eastern boundary of the Site.

3. The Second Defendant must not add any further waste to cells 12 and 13 of the Landfill.

4. Within 6 months of the date of this order, the Second Defendant must submit to the EPA designs for the final landfill caps for cells 12 and 13 endorsed by a person who has been appointed as an environmental auditor under the Act (the **Capping System Auditor**) and all other necessary information in accordance with Condition OL_L25 of the Operating Licence and EPA Publication 1323 'Landfill licensing' guidelines (**Landfill Licensing Guidelines**).

5. The Second Defendant must complete the final capping of cells 12 and 13 by no later than 28 February 2025.

6. Within 90 calendar days of the date of practical completion of the final capping for each of cell 12 and 13, the Second Defendant must submit an environmental audit report to the EPA in accordance with Condition OL_26 of the Operating Licence and Appendix 14 of the Landfill Licensing Guidelines.

7. The environmental audit report submitted pursuant to Order 6 above must verify that the construction of the landfill caps for cells 12 and 13 is in accordance with the EPA approved designs.

8. The Second Defendant must provide a copy of the environmental audit report submitted pursuant to Order 6 above to the Plaintiffs within 90 calendar days of the date of practical completion of the final capping for each of cell 12 and 13.

9. Within 6 months of the date of this order, the Second Defendant must ensure that an "in-ground pathway intervention system " in the form of an landfill gas vent curtain system, as described in paragraphs [149] – [168] of the expert report of Mr Warren Pump dated 20 March 2023 (**LFG Vent Curtain System**), or if an LFG Vent Curtain System is not feasible, an alternative form of in-ground pathway intervention system **(alternative in–ground pathway intervention system)** is designed by a suitably qualified professional.

10. The LFG Vent Curtain System or alternative in–ground pathway intervention system must:

a. be constructed upon the First Defendant's land as close as practicable to the eastern boundary of the Site; and

b. so far as reasonably practicable, capture, transmit, treat and disperse to atmosphere landfill gas from the Landfill

so as to prevent the further migration of landfill gas within the subsurface geology across the eastern boundary of the Site on to the Plaintiffs' Land (**the Design Intent**).

11. The Design Intent is to be verified by a person who has been appointed as an environmental auditor under the Act (the **Vent Curtain Auditor**).

12. As soon as practicable or within 18 months of the date of this order (whichever is the sooner), the LFG Vent Curtain System or alternative in–ground pathway intervention system must be installed.

13. The LFG Vent Curtain System or alternative in–ground pathway intervention system must be maintained by the Second Defendant so that it, as far as reasonably practicable captures, transmits, treats and disperses to atmosphere landfill gas in order to prevent the further migration of landfill gas within the subsurface geology across the eastern boundary of the Site on to the Plaintiffs' Land.

14. Within 90 calendar days of the date of practical completion of the LFG Vent Curtain System or alternative in–ground pathway intervention system, the Second Defendant must submit to the EPA and the Plaintiffs an environmental audit report prepared by the Vent Curtain Auditor and in accordance with section 208 of the Act that:

    a. sets out the detailed design of the LFG Vent Curtain System or alternative form of in-ground pathway intervention system;

    b. verifies (with photographic evidence, and records of Auditor inspections and as-constructed engineering drawings) that the LFG Vent Curtain System or alternative in-ground pathway intervention system has been installed in accordance with the Auditor-endorsed design; and

    c. details ongoing monitoring and maintenance protocols to ensure that the LFG Vent Curtain System or alternative in-ground pathway intervention system operates in accordance with the Design Intent.

15. The Plaintiffs must, at all times, permit the Second Defendants and their agents to have all reasonable access to the Plaintiffs' Land in order to enable the Second Defendant's compliance with this Order.

16. The Second Defendant pay the Plaintiffs the sum of $115,476.38 as damages for nuisance together with interest in the nature of damages in the sum of interest on $115,476.38 from 1 April 2022 to the date of judgment.

17. The Defendants pay the Plaintiffs' costs of and incidental to the proceeding, including reserved costs.

44 On 18 March 2024 during the plaintiffs' final submissions the plaintiffs submitted the following revised proposed orders to the Court:

1. There be judgment for the Plaintiffs.

2. The Court finds and declares that the Second Defendant has:

   a. failed to comply with the requirements of Condition OL_L5 of the Operating Licence by failing to take all practicable measures to prevent landfill gas from exceeding the BPEM action levels at the landfill boundary;

   b. contravened section 25(1) of the Act by virtue of the uncontrolled landfill gas emissions migrating from the Site to the Plaintiffs' Land across the eastern boundary of the Site; and

3. The Second Defendant must forthwith cease depositing any further waste to cells 12 and 13 of the Landfill.

4. The Defendants must, at their cost, within 12 months of the date of this Order, install the final landfill caps for cells 12 and 13 and complete an LFG Remediation Action Plan (**LFGRAP**) which is verified by an EPA accredited auditor (**the auditor**). The LFGRAP shall include a consideration of whether efficiency of the LFG extraction system in those cells can be improved.

5. The Defendants must, at their cost, operate the LFG extraction system for cells 11, 12 and 13 to the maximum efficiency as determined pursuant to the LFGRAP.

6. After operating the LFG extraction system for a continuous period of 12 months at maximum efficiency as determined pursuant to the LFGRAP, the auditor is to conduct testing of the subsurface landfill gas in the perimeter bores adjacent to the east boundary of the landfill and provide those results to the Plaintiffs and the EPA.

7. In the event the bore monitoring results show exceedance of the BPEM action level for subsurface LFG, then the Plaintiffs have liberty to apply for such further or other order as they consider appropriate.

8. During the first 12 months of this order, the Defendants will instruct the auditor to determine the feasibility of a 600-metre vent curtain along the eastern boundary as a means to prevent subsurface migration of landfill gas and will provide the auditor's reports regarding the feasibility of the vent curtain to the Plaintiffs and the EPA.

9. The Defendants must ensure that the LFG extraction system

operates at maximum efficiency for a period of 30 years from the date of this Order.

10. The Plaintiffs must, at all times, permit the Second Defendants and their agents to have all reasonable access to the Plaintiffs' land in order to enable the Second Defendant's compliance with this Order.

11. The Second Defendant pay the Plaintiffs the sum of $115,476.38 as damages for nuisance together with interest in the nature of damages in the sum of interest on $115,476.38 from 1 April 2022 to the date of judgment.

12. The Defendants pay the Plaintiffs' costs of and incidental to the proceeding, including reserved costs.

45 By the completion of the hearing the relief sought by the plaintiffs had three principal elements:

(a) a mandatory injunction requiring the final capping of cells 12 and 13;

(b) a mandatory injunction requiring Veolia to complete a LFG remediation Action Plan, including consideration of whether the efficiency of the LFG extraction system in cells 11, 12 and 13 can be improved; and

(c) a mandatory injunction requiring Veolia to undertake an assessment of the feasibility of a 600 meter VCS along the eastern boundary of Veolia's land.

Legislative Framework

***Environment Protection Act 2017* (Vic)**

46 The purposes of the Act are described in s 1:

> The main purposes of this Act are—
>
> (a) to provide for the continuation of the Environment Protection Authority; and
>
> (b) to specify a new objective of the Environment Protection

Authority; and

(c) to provide for a new governance structure of the continued Environment Protection Authority; and

(d) to provide for the Governing Board of the Environment Protection Authority; and

(e) to set out principles of environment protection; and

(f) to set out the legislative framework for the protection of human health and the environment from pollution and waste; and

(g) to provide for a general environmental duty to minimise risks of harm to human health and the environment from pollution or waste; and

(h) to establish a permissions scheme that enables the Environment Protection Authority to issue or grant development licences, operating licences, pilot project licences, permits and registrations; and

(i) to provide a framework for the management of waste; and

(k) to enable the Environment Protection Authority and authorised officers to ensure compliance with the Act and require action to manage risks of harm to human health and the environment from pollution or waste; and

(l) to provide for a system of criminal and civil penalties; and

(m) to provide for a system of civil remedies and compensation orders available to the Court; and

(o) to make consequential amendments to the Public Administration Act 2004 and other Acts.

47 Section 3 of the Act defines 'activity', 'place', 'pollution', 'premises' and 'waste' as follows:

activity includes—

(a) the storage or possession of waste or any other substance or thing; or

(b) anything prescribed to be an activity;

…

place includes land, waters, a location, an area or a region;

…

pollution includes any emission, discharge, deposit, disturbance or escape of—

(a) a solid, liquid or gas, or a combination of a solid, liquid or gas, including but not limited to smoke, dust, fumes or odour; or

(b) noise; or

(c) heat; or

(d) a thing prescribed for the purposes of this definition—

but does not include a thing prescribed not to be pollution for the purposes of this definition;

…

premises includes a structure, building or vehicle;

…

waste includes any of the following—

(a) matter, including solid, liquid, gaseous or radioactive matter, that is deposited, discharged, emitted or disposed of into the environment in a manner that alters the environment;

(b) a greenhouse gas substance emitted or discharged into the environment;

(c) matter that is discarded, rejected, abandoned, unwanted or surplus, irrespective of any potential use or value;

(d) matter prescribed to be waste;

(e) matter or a greenhouse gas substance referred to in paragraph (a), (b), (c) or (d) that is intended for, or is undergoing, resource recovery;

48 Sections 4, 5 and 6 define harm in relation to human health or the environment. Sections 4, 5 and 6 respectively state:

4 What is *harm*?

(1) In this Act, harm, in relation to human health or the environment, means an adverse effect on human health or the environment (of whatever degree or duration) and includes—

(a) an adverse effect on the amenity of a place or premises that unreasonably interferes with or is likely to unreasonably interfere with enjoyment of the place or

premises; or

(b) a change to the condition of the environment so as to make it offensive to the senses of human beings; or

(c) anything prescribed to be harm for the purposes of this Act or the regulations.

(2) For the purposes of subsection (1), harm may arise as a result of the cumulative effect of harm arising from an activity combined with harm arising from other activities or factors.

5 What is *material harm*?

(1) In this Act, material harm, in relation to human health or the environment means harm that is caused by pollution or waste that—

(a) involves an actual adverse effect on human health or the environment that is not negligible; or

(b) involves an actual adverse effect on an area of high conservation value or of special significance; or

(c) results in, or is likely to result in, costs in excess of the threshold amount being incurred in order to take appropriate action to prevent or minimise the harm or to rehabilitate or restore the environment to the state it was in before the harm.

(2) For the purposes of subsection (1), harm may become material harm regardless of the period of time in which the harm occurs and as a result of—

(a) a single occurrence of harm arising from an activity; or

(b) multiple occurrences of harm arising from the same activity; or

(c) the cumulative effect of harm arising from an activity combined with harm arising from other activities or factors.

(3) In this section, threshold amount means $10 000 or a higher amount prescribed by the regulations.

6 The concept of minimising risks of harm to human health and the environment

(1) A duty imposed on a person under this Act to minimise, so far as reasonably practicable, risks of harm to human health and the environment requires the person—

(a) to eliminate risks of harm to human health and the environment so far as reasonably practicable; and

(b) if it is not reasonably practicable to eliminate risks of harm to human health and the environment, to reduce those risks so far as reasonably practicable.

(2) To determine what is (or was at a particular time) reasonably practicable in relation to the minimisation of risks of harm to human health and the environment, regard must be had to the following matters—

(a) the likelihood of those risks eventuating;

(b) the degree of harm that would result if those risks eventuated;

(c) what the person concerned knows, or ought reasonably to know, about the harm or risks of harm and any ways of eliminating or reducing those risks;

(d) the availability and suitability of ways to eliminate or reduce those risks;

(e) the cost of eliminating or reducing those risks.

49 Chapter 3 of the Act describes the duties relating to environmental protection.

Section 25 prescribes the general environmental duty as follows:

25 General environmental duty

(1) A person who is engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste must minimise those risks, so far as reasonably practicable.

Notes

See section 6 in relation to the concept of minimising risks of harm to human health and the environment.

Section 314 provides that subsection (1) is a civil penalty provision. The penalty for contravention of this civil penalty provision is set out in the table in section 314. See also section 314(3).

(2) A person commits an offence if the person contravenes subsection (1) in the course of conducting a business or an undertaking.

Penalty: In the case of a natural person, 2000 penalty units;

In the case of a body corporate, 10 000 penalty units.

(3) An offence under subsection (2) is an indictable offence.

Note

This offence may be heard and determined summarily (see section 28 of the Criminal Procedure Act 2009).

(4) Without limiting subsection (1), a person who is conducting a business or an undertaking contravenes that subsection if the person fails to do any of the following in the course of conducting the business or the undertaking, so far as reasonably practicable—

(a) use and maintain plant, equipment, processes and systems in a manner that minimises risks of harm to human health and the environment from pollution and waste;

(b) use and maintain systems for identification, assessment and control of risks of harm to human health and the environment from pollution and waste that may arise in connection with the activity, and for the evaluation of the effectiveness of controls;

(c) use and maintain adequate systems to ensure that if a risk of harm to human health or the environment from pollution or waste were to eventuate, its harmful effects would be minimised;

(d) ensure that all substances are handled, stored, used or transported in a manner that minimises risks of harm to human health and the environment from pollution and waste;

(e) provide information, instruction, supervision and training to any person engaging in the activity to enable those persons to comply with the duty under subsection (1).

(5) Without limiting subsection (1), a person who is conducting a business or an undertaking and engaging in an activity that involves the design, manufacture, installation or supply of a substance, plant, equipment or structure, contravenes that subsection if the person fails to do any of the following in the course of conducting the business or the undertaking and engaging in the activity, so far as reasonably practicable—

(a) minimise risks of harm to human health and the environment from pollution and waste arising from the design, manufacture, installation or supply of the substance, plant, equipment or structure when the substance, plant, equipment or structure is used for a purpose for which it was designed, manufactured, installed or supplied;

(b) provide information regarding the purpose of the substance, plant, equipment or structure and any conditions necessary to ensure it can be used in a manner that complies with the duty under subsection (1).

50 Chapter 11 contains provisions relevant to enforcement and civil proceedings.

51 Section 308 provides:

308 Eligible persons

(1) In this Part—

eligible person, in relation to an application under this Part, means a person—

(a) whose interests are affected by the contravention or non-compliance in relation to which the application is made; or

(b) who has the leave of the Court to make the application.

(2) The Court must not give a person leave to make an application for the purposes of subsection (1)(b) unless the Court is satisfied that—

(a) the application would be in the public interest; and

(b) the person has requested in writing that the Authority take enforcement action or compliance action in relation to the contravention or non-compliance; and

(c) the Authority has not, within a reasonable time after receiving that request, taken enforcement action or compliance action.

52 Sections 309 provides:

309 Court orders

(1) On an application by the Authority or an eligible person, a Court may make an order restraining a person from engaging in specified conduct or requiring a person to take any specific action, in such terms as the Court considers appropriate, if the Court is satisfied that a person—

(a) is not complying or has not complied with a permission issued or granted under this Act; or

(b) is contravening or has contravened any other

requirement or duty imposed on the person by or under this Act.

(2) Without limiting subsection (1), an order under that subsection may—

(a) require a person to do a specified act or thing that the Court considers reasonably necessary to prevent, minimise or remedy the contravention or non-compliance; or

(b) require a person to provide a financial assurance as a condition for engaging in specified conduct.

(3) The Authority or an eligible person may apply for an order under subsection (1) whether or not proceedings have been taken for—

(a) an offence against this Act or the regulations; or

(b) a contravention of a civil penalty provision under this Act.

(4) The power of a Court to grant an order under subsection (1) may be exercised whether or not the contravention or non-compliance —

(a) is likely to result in harm to any person or the environment; or

(b) is likely to result in an infringement of the rights of any person.

(5) An application for an order under subsection (1) may be made ex parte.

Operating licence conditions

53 Condition OL_L5 of Veolia's operating licence ('clause 5') stipulates as follows:

OL_L5	You must take all practicable measures to prevent emissions of landfill gas from exceeding the action levels specified in Table 6.4 of Best Practice Environmental Management, Siting, Design, Operation and Rehabilitation of Landfills (EPA Publication 788).

Landfill licencing guidelines

54 The EPA publishes landfill licencing guidelines ('guidelines') which provide:

> guidance to assist landfill operators and environmental auditors with ongoing environmental management of the landfill and with gaining EPA approval for construction of new landfill cells at existing landfills. Guidance on understanding landfill licence conditions is provided in Appendix 1.

55 Guidance in relation to clause 5 is as follows:

> L5 Landfill gas management
>
> You must take all practicable measures to prevent emissions of landfill gas from exceeding the action levels specified in Table 6.4 of Best practice environmental management, siting, design, operation and rehabilitation of landfills' (EPA Publication 788).
>
> It is a required outcome of the Landfill BPEM to undertake a site-specific landfill gas risk assessment and to take all practicable measures to achieve the landfill gas action levels detailed in Table 6.4 of the Landfill BPEM.
>
> If landfill gas monitoring shows that the action levels have been exceeded you must:
>
> - take action to reduce emissions to within the landfill gas action levels;
>
> - notify EPA of the exceedance within 24 hours (in line with required outcomes and instructions in BPEM and the guidance in the Landfill Gas Fugitive Emissions Monitoring Guideline); and
>
> - provide to EPA, and implement, a landfill gas remediation action plan (as per the required outcomes of BPEM).
>
> Not taking all practicable measures to control and manage landfill gas emissions to within the gas action levels, not notifying EPA within the prescribed timeframe and not providing and implementing a landfill gas remediation action plan are considered to be breaches of this licence condition.
>
> Fugitive landfill gas emissions can present a hazard to people and the environment. Landfill gas also contains many odourous trace gases which can cause significant degradation of amenity values of nearby residential and industrial / commercial land uses. Landfill gas is comprised of 98-99% methane and carbon dioxide. Methane is

flammable and explosive between 5-15 % v/v. Both methane and carbon dioxide are asphyxiants and will displace oxygen in enclosed spaces including buildings. Landfill gas can adversely affect vegetation and crops when it moves through soils, it will also change groundwater chemistry if dissolved in aquifer water. Management of landfill gas at landfills is required to reduce the risks of the hazards and amenity impacts presented by landfill gas being realised at human and environmental receptors.

The BPEM gas action levels are reflective of the concentrations at which hazards are presented by landfill gas and are an early warning of when action must be taken to reduce emission. The gas action levels apply at the landfill boundary so that action is triggered before a sensitive receptor is impacted.

You must take all practicable measures to manage landfill gas to meet the BPEM gas action levels. Examples of practicable measures include, but are not limited to:

- installing and running a landfill gas extraction system

- regular balancing of landfill gas extraction wells, a minimum frequency of monthly is required, unless balancing records show longer stability trends at specific wells

- extraction of leachate such that it is managed to a maximum level in the waste which keeps the landfill gas extraction wells unsaturated

- application and maintenance of intermediate cover and final capping layers to allow sufficient vacuum to be applied to landfill gas extraction wells

- progressive installation of the landfill gas extraction system when each completed cell is rehabilitated. In most cases it is observed that intermediate cover is used for a period of 1-2 years before a final cap is installed. Therefore landfill gas extraction systems should be installed immediately after the intermediate cover has been placed

- condensate collection and removal from landfill gas extraction system pipework

- regular inspection and maintenance of landfill gas extraction wells, manifolds, pipework, condensate management infrastructure, blowers, engines and flares

- landfill gas extraction infrastructure future planning to enable expansion of the gas extraction system as required to continually meet the BPEM gas action levels. For example, installing new engines and increasing the electrical interconnection (mains export capacity)

- having flaring capacity which matches the installed engine capacity to maintain gas extraction in the event of

interconnection outage

- the use of passive landfill gas extraction and treatment if gas generation volumes are demonstrated to not be able to sustain an active landfill gas extraction system

- undertaking landfill gas extraction pumping trials to more accurately determine gas generation and design, and size an appropriate landfill gas management system.

In addition to mitigating hazards and impacts on humans and the environment landfill gas emissions should be controlled to reduce emissions of greenhouse gases. Methane and carbon dioxide are important greenhouse gases to control due to their radiative forcing impacts on global warming. There are also other potent greenhouses gases within the trace gases in landfill gas. These trace gases are minor by volume but have radiative forcing potential orders of magnitude greater than carbon dioxide and methane.

Best Practice Environmental Management

56 Objectives of the BPEM include:

1.1 Objectives of the Landfill BPEM

These guidelines aim to provide existing and future operators of landfills, planning authorities and regulating bodies with:

- information on potential impacts of landfills on the environment and how these are to be mitigated
- a clear statement of environmental performance objectives for each segment of the environment
- information on how to avoid or minimise environmental impacts, including suggested measures to meet the objectives.

These guidelines are intended to be used as a default position for landfill siting, design, operation and rehabilitation. Landfill operators must meet the objectives and required outcomes by implementing the relevant best-practice measures, described as suggested measures, contained herein.

57 Paragraph 6.7.1 of the BPEM considers the 'best-practice design' in relation to LFG and provides:

Landfill gas risk assessment

Due to the variable nature of landfill sites, the most appropriate way to evaluate the level of risk posed by landfill gas from an individual site is to conduct a site-specific landfill gas risk assessment (LGRA).

Appropriate measures for monitoring and managing landfill gas can subsequently be determined based on the findings of the LGRA. Guidance on how to complete a LGRA is provided in the *Landfill Licensing Guidelines* (EPA publication 1323).

…

Landfill gas monitoring

Landfill gas monitoring is an integral component in landfill gas management and should be developed and implemented based on the findings of a site-specific LGRA.

…

The action levels for landfill gas at different monitoring locations are set out in Table 6.4. When these action levels are exceeded, the landfill operator must notify EPA within 24 hours. The notification is also to advise what action will be taken to address the matter, what further testing will be done to demonstrate effectiveness of the works, anticipated time frame for the works, or when a detailed landfill gas remediation action plan (LFGRAP) would be prepared and forwarded to EPA.

EPA need not be advised of an excursion above an action level where only an onsite location was affected and the matter is rectified within 24 hours.

Where an action level has been exceeded at an offsite location, or the result indicates that an action level would be exceeded offsite, then the landfill operator must prepare an LFGRAP.

When buildings offsite are or may be impacted by landfill gas, the LFGRAP must be verified by an environmental auditor as taking all practicable measures in the circumstances to reduce the risks from the landfill gas to acceptable levels.

Notwithstanding the requirement for auditor verification, the draft LFGRAP is to be forwarded to the EPA as soon as practicable. Auditor verification of the draft LFGRAP is not required prior to its submission to the EPA

Table 6.4: Landfill gas action levels

Location	Parameter(s)	Action level and unit
Landfill surface final cap	Methane concentration in air*	100 ppm
Within 50mm of penetrations through the final cap	Methane concentration in air**	100 ppm
Landfill surface intermediate cover areas***	Methane concentration in air*	200 ppm
Within 50mm of penetrations through the intermediate cover	Methane concentration in air**	1000 ppm

Biofilters	Methane flux	1.0g/m^2/hr
Subsurface geology at the landfill boundary	Methane and Carbon Dioxide concentrations	1% v/v Methane or 1.5% v/v Carbon Dioxide above background
Subsurface services on and adjacent to the landfill site	Methane concentration	10,000 ppm
Building/structures on and adjacent to the landfill site	Methane concentration in air	5000 ppm
Landfill gas flares	Methane and Volatile Organic Compounds	98% Destruction efficiency
* Point of measurement is 50mm above the landfill surface. ** Point of measurement is 50mm from the point of discharge. *** Intermediate cover areas are those that do not have an engineered landfill cap and are not scheduled to receive waste during the next three months.		

Issues for determination

58 There are five issues for determination:

(i) Do the plaintiffs have standing to claim relief under s 309(1) of the Act?

(ii) Has Veolia breached clause 5 of the licence by failing to take all practicable measures to prevent emissions of LFG from exceeding the BPEM action levels?

(iii) Has Veolia breached the general environmental duty in s 25(1) of the Act.

(iv) Does Veolia's use of its land for the purposes of waste management and landfill constitute a substantial and unreasonable interference with the plaintiffs' use and enjoyment of their land and thereby constitute a nuisance?

(v) If Veolia has breached clause 5 of the licence and /or s 25(1) of the Act what relief, if any, should the Court grant?

Before addressing these issues it is necessary to set out in some detail the evidence in relation to the origin of LFG, migration of LFG onto the plaintiffs'

land, and practicable measures to prevent LFG emissions. Warren Pump and Richard Evans were called to give evidence by the plaintiffs, with Anthony Lane called by the defendants ('LFG experts'). The parties tendered the following expert evidence:

- Expert report of Mr Evans dated 21 March 2023;
- Expert report of Mr Pump dated 21 March 2023;
- Expert report of Mr Lane dated 5 June 2023;
- Expert report of Mr Evans in reply dated 8 August 2023;
- Expert report of Mr Pump in reply dated 10 August 2023;
- Expert report of Messrs Pump, Evans and Lane dated 30 August 2023;
- Further expert report of Mr Evans dated 16 February 2024;
- Further expert report of Mr Pump dated 16 February 2024; and
- Further expert report of Mr Lane dated 16 February 2024.

59 Expert reports in relation to quantity surveying, land valuation and town planning were also tendered in relation to the costs of potential relief, rectification works and potential development of the plaintiffs' land. The parties tendered the following reports:

- Expert report of Geoffrey Brown (plaintiffs) dated 21 March 2023;

- Expert report of John Lawlor (plaintiffs) dated 21 March 2023;

- Expert report of Colleen Peterson (defendants) dated 23 May 2023 and subsequent addendum dated 31 October 2023;

- Expert report of Scott Ferguson (defendants) dated 23 May 2023 and supplementary memoranda dated 12 October 2023;

- Expert report of Brian Dudakov (defendants) dated 1 June 2023;

- Expert report of Mr Brown in reply dated 17 August 2023;

- Expert report of Mr Lawlor in reply dated 22 August 2023;

- Expert report of Messrs Brown and Dudakov dated 29 August 2023; and

- Expert report of Messrs Lawlor and Ferguson dated 5 September 2023.

60 The evidence of Messrs Brown and Dudakov related to the value of the plaintiffs' land with and without a planning permit for a horticultural development. The evidence of Mr Lawlor related to the cost of construction of a VCS. The claim in relation to diminution in the value of the land was not pressed and the plaintiffs did not press for orders requiring Veolia to design and construct a VCS.

Evidence of LFG emissions onto the plaintiffs' land

Monitoring at the eastern boundary of Veolia's land

61 LFG at the Hallam Road landfill is monitored through LFG monitoring bores located across the landfill. There are 9 on-site LFG monitoring bores located on the eastern boundary of Veolia's land (adjacent to the western boundary of the plaintiffs' land). From north to south along the boundary, they are numbered LFG 50, LFG 35, LFG 51, LFG 36, LFG 52, LFG 37, LFG 53, LFG 38 and LFG 54. Bores LFG 36, 52, 37, 53, 54 and 38 are all placed adjacent to a landfill boundary cell (see Figure 3). In accordance with Appendix B section B7.1 of the BPEM, some of these bores were installed at a distance of 20 metres from the landfill cell boundary where there was sufficient space between the cell boundary and the boundary of Veolia's land. If no such space was available the bores were placed at a closer distance to the landfill cell boundary than that recommended within the BPEM.

Figure 3: Taken from CB20322, Letter from Bayden Darmody and Prue Rice (Resolve) to Lachlan James (Veolia) dated 30 March 2023, Appendix A, Figure 2: Site Features Plan.

62 Readings and recordings of methane, carbon dioxide, oxygen, atmospheric pressure, differential pressure, and gas flow are taken from these monitoring bores by Veolia on a monthly basis. Readings are also taken by an independent environmental consultant on behalf of the defendants every six months. The results of these readings are publicly available through EPA environmental audit reports of the landfill.

63 On 31 May and 1 June 2022 a further five dual-purpose bores were installed on the plaintiffs' land, referred to as B01 to B05. B02 to B05 were installed along the western boundary of the plaintiffs' land, with B01 located on the eastern boundary of the plaintiffs' land. These bores were installed to assess the possibility that LFG could be migrating from adjacent landfill cells onto the plaintiffs' land. Readings of landfill gas within these bores was undertaken by Mr Evans between 31 May 2022 and 21 June 2022.

Background carbon dioxide and methane levels on Veolia's land

64 The BPEM states that methane cannot exceed 1% v/v above background and carbon dioxide cannot exceed 1.5% v/v above background i.e., naturally occurring and not attributable to Veolia's activity of waste management and storage. Before evidence with regard to LFG exceedances can be considered, it is necessary to establish what the background levels of carbon dioxide and methane are on both the plaintiffs' land and Veolia's land.

65 There is no evidence of background tests on the eastern boundary of the landfill as to the background levels of carbon dioxide and methane prior to the commencement of landfill operations on Veolia's land in 1997. However, Mackenzie Environmental were engaged by Veolia sometime in 2016 until August 2017 to establish background carbon dioxide concentrations. At this time, cell filling had commenced in landfill cells 1 through to 11A as well as cell 14A, but had not commenced in the remainder of the landfill cells. Due to the variation in carbon dioxide levels between monitoring bores, the final Mackenzie Environmental report with regard to background carbon dioxide levels dated August 2017 recommended a 'zoned' approach in which Veolia adopt different background levels across the landfill site.

66 The Mackenzie Environmental report recommended that Veolia adopt a background carbon dioxide level of 10.8% v/v for the north, east and south boundary of the property. This recommended background level was not adopted by Veolia. No explanation was provided to the Court for this decision. As at 2021, no background level of carbon dioxide had been firmly established or adopted by Veolia for the north, east, and south boundary. The background level of carbon dioxide on the east boundary of Veolia's land was the subject of expert evidence in the proceeding.

67 The experts agreed that the background levels of methane in the soil of the plaintiffs' land was likely to be 0% v/v.

68 There was disagreement among the experts as to what the background levels of carbon dioxide were on the border of Veolia's and the plaintiffs' land. That disagreement is assessed below.

69 Mr Lane gave evidence that in his opinion the background levels of carbon dioxide were approximately 7% v/v on the border shared by the plaintiffs and Veolia. This opinion was based on:

(a) The topography of the plaintiffs' land, which in the opinion of Mr Lane is 'low-lying and a former swamp'. Elevated background carbon dioxide levels are 'typical of areas with shallow geological units and soil with high organic carbon which produces CO2'.

(b) The 2016 and 2017 reports prepared by Mackenzie Environmental which in turn were based on data gathered from bores LFG 33, LGF 34, LFG 35, LFG 36 and LFG 37, and 'median and average statistics to characterise the expected background at the eastern boundary.' However, Mr Lane did note that only some of the monitoring points used in this Mackenzie Environmental report may have the '"12 data sets representative of a 12-month period" as recommended in the UK Environment Agency guidelines' required to establish background carbon dioxide levels with certainty.

70 Mr Pump gave evidence that the method for determining the naturally occurring carbon dioxide or methane within a given area is to take a sample from a monitoring bore that is in a location where there is no artificial or anthropogenic source of gas of any kind. Mr Evans undertook to do so by

installing B01, a monitoring bore nearby the eastern boundary of the plaintiffs' land (the boundary furthest from the landfill) and monitoring the results of this bore between 31 May 2022 and 21 June 2022.

71 The results of Mr Evans' assessment of the data from B01 was that 'the soil on the Site is not a likely source of methane above 0% or of carbon dioxide above 2.7% v/v.' Mr Pump agreed with Mr Evans' assessment.

72 Mr Pump did not agree that elevated background carbon dioxide levels of 10.8% v/v would represent background carbon dioxide on the boundary with the plaintiffs' land (as was concluded in the Mackenzie Environmental report). In Mr Pump's opinion, that figure is likely to be elevated above background levels as 'there is a possibility that there are, for example, leakages from the piping of the landfill gas extraction system that may cause pathways that are yet to be discovered, through to gas bore 35' being one of the gas bores on the boundary with the plaintiffs' land from which the Mackenzie background figure was based.

73 Mr Evans stated that the background level of carbon dioxide was likely to be approximately 2.7% v/v and there was not enough information to conclude that the background level of carbon dioxide of 10.8% v/v recommended by the Mackenzie report was an accurate assessment of the background carbon dioxide levels in the land surrounding that area. Mr Evans formed this opinion based on the fact that, despite the bores in question being partially geographically removed from the active landfill cells by being located closer to landfill cells that were empty at the time of the Mackenzie Environmental report, the monitoring bores used to form Mackenzie Environmental's recommendation were on the boundary of the landfill.

74 I prefer the evidence of Messrs Pump and Evans that the background levels of carbon dioxide on the boundary of the plaintiffs' land was 2.7%. Ultimately, little turns on the differing opinion of Mr Lane that the background level of carbon dioxide is 7%. All experts agree that the background level of methane gas was 0%. As set out later in this judgment the question of whether Veolia has breached clause 5 of the licence and s 25(1) primarily involves consideration of methane gas emissions in excess of the BPEM action levels, rather than carbon dioxide emissions.

Landfill gas monitoring results

75 The relevant monthly data reflecting LFG emissions in excess of the BPEM action levels for each relevant bore along the eastern boundary is annexed to this judgment. Both parties accepted the accuracy of this data. The monitoring results that were the subject of most consideration during the evidence of the experts were the BPEM action level exceedances at LFG 36, LFG 52, LFG 37, LFG 38, LFG 53 and LFG 54. These boreholes are adjacent to landfill cells 11, 12 and 13.

76 These boreholes were the subject of a series of BPEM methane action level exceedances.

(a) LFG 36 experienced its first BPEM action level exceedance of methane on 14 April 2023 with a reading of 3.1% v/v. A second exceedance of 10.7% v/v was recorded on 19 July 2023. The readings for the period June 2022 to October 2023 are as follows:

Bore LFG36	
Date	**Reading**
20 June 2022	0.0% v/v
21 July 2022	0.0% v/v
30 August 2022	0.0% v/v
27 September 2022	0.0% v/v

26 October 2022	0.0% v/v
22 November 2022	0.0% v/v
19 December 2022	0.0% v/v
16 January 2023	0.0% v/v
7 February 2023	0.0% v/v
9 March 2023	0.0% v/v
14 April 2023	3.1% v/v
12 May 2023	0.0% v/v
22 June 2023	0.0% v/v
19 July 2023	10.7% v/v
25 August 2023	7.4% v/v
4 September 2023	23.6% v/v
23 October 2023	18.6% v/v

(b) LFG 52 experienced its first BPEM action level exceedance of methane on 25 July 2022 with a reading of 6.3% v/v. A series of higher methane readings all 32.0% v/v or higher were recorded between 9 March 2023 and 23 October 2023, with the highest reading of 83.2% v/v recorded on 4 September 2023.

Bore LFG52	
Date	**Reading**
20 June 2022	0.0% v/v
25 July 2022	6.3% v/v
30 August 2022	5.3% v/v
27 September 2022	13.0% v/v
26 October 2022	5.2% v/v
22 November 2022	6.1% v/v
19 December 2022	10.5% v/v
16 January 2023	4.2% v/v
7 February 2023	0.6% v/v
9 March 2023	32.1% v/v
14 April 2023	55.6% v/v
15 May 2023	77.3% v/v
29 June 2023	No reading recorded
19 July 2023	72.6% v/v
25 August 2023	43.5% v/v
4 September 2023	83.2% v/v
23 October 2023	69.0% v/v

(c) LFG 37 experienced its first BPEM action level exceedance of methane on 25 July 2022 with a reading of 4.1% v/v. A series of higher methane readings all 26.0% v/v or higher were recorded between 9 March 2023 and 23 October 2023, with the highest reading

of 48.2% v/v recorded on 4 September 2023.

Bore LFG37	
Date	**Reading**
20 June 2022	1.2% v/v
25 July 2022	4.1% v/v
30 August 2022	4.3% v/v
27 September 2022	17.3% v/v
26 October 2022	0.0% v/v
22 November 2022	3.8% v/v
19 December 2022	5.9% v/v
16 January 2023	16.0% v/v
7 February 2023	14.0% v/v
9 March 2023	26.5% v/v
14 April 2023	39.0% v/v
18 May 2023	No reading recorded
22 June 2023	35.3% v/v
19 July 2023	No reading recorded
25 August 2023	43.8% v/v
4 September 2023	48.2% v/v
23 October 2023	38.4% v/v

(d) LFG 53 experienced its first BPEM action level exceedance of methane on 30 August 2022 with a reading of 1.5% v/v, with the highest exceedance recorded on 4 September 2023 at a reading of 40.9% v/v.

Bore LFG53	
Date	**Reading**
20 June 2022	0.0% v/v
25 July 2022	0.4% v/v
30 August 2022	1.5% v/v
27 September 2022	4.8% v/v
26 October 2022	9.4% v/v
22 November 2022	0.0% v/v
19 December 2022	0.0% v/v
16 January 2023	1.7% v/v
7 February 2023	0.5% v/v
9 March 2023	0.0% v/v
18 April 2023	0.0% v/v
12 May 2023	1.8% v/v
22 June 2023	17.4% v/v
19 July 2023	24.6% v/v
25 August 2023	19.9% v/v
4 September 2023	40.9% v/v
23 October 2023	0.0% v/v

(e) LFG 38 experienced its first BPEM action level exceedance of methane on 20 July 2022 with a reading of 4.9% v/v, with the highest exceedance recorded on 30 August 2022 at a reading of 13.1%v/v.

Bore LFG38	
Date	**Reading**
20 June 2022	12.1% v/v
20 July 2022	4.9% v/v
30 August 2022	13.1% v/v
27 September 2022	3.2% v/v
26 October 2022	7.9% v/v
22 November 2022	5.6% v/v
19 December 2022	4.7% v/v
16 January 2023	7.4% v/v
8 February 2023	0.0% v/v
9 March 2023	0.0% v/v
14 April 2023	5.5% v/v
15 May 2023	2.3% v/v
22 June 2023	1.8% v/v
19 July 2023	7.1% v/v
25 August 2023	4.7% v/v
4 September 2023	6.0% v/v
23 October 2023	7.1% v/v

(f) LFG 54 experienced its first BPEM action level exceedance of methane on 30 August 2022 with a reading of 1.6% v/v, with the highest exceedance recorded on 26 October 2022 at a reading of 4.6% v/v.

Bore LFG54	
Date	**Reading**
20 June 2022	6.4% v/v
20 July 2022	0.0% v/v
30 August 2022	1.6% v/v
27 September 2022	0.1% v/v
26 October 2022	4.6% v/v
22 November 2022	0.0% v/v
19 December 2022	0.0% v/v
16 January 2023	0.1% v/v
8 February 2023	0.0% v/v
9 March 2023	0.0% v/v
14 April 2023	0.1% v/v
15 May 2023	0.0% v/v
22 June 2023	0.0% v/v

19 July 2023	No reading recorded
25 August 2023	0.0% v/v
4 September 2023	2.9% v/v
23 October 2023	0.0% v/v

77 Exceedances of carbon dioxide in the subsurface soil bordering the plaintiffs' land were also summarised in a Master Spreadsheet authored by Veolia. That spreadsheet contained data relevant to all boreholes bordering the plaintiffs' land and the results are as follows:

(a) Within the relevant period between July 2022 and October 2023, reading levels for LFG 50 ranged from a low of 1.5% v/v recorded on 30 August 2022 to a high of 12.0% v/v recorded on 19 December 2022.

Bore LFG50	
Date	**Reading**
20 June 2022	7.9% v/v
20 July 2022	7.9% v/v
30 August 2022	1.5% v/v
27 September 2022	9.5% v/v
25 October 2022	8.2% v/v
22 November 2022	5.8% v/v
19 December 2022	12.0% v/v
16 January 2023	11.5% v/v
7 February 2023	7.6% v/v
9 March 2023	10.3% v/v
12 April 2023	9.0% v/v
12 May 2023	5.5% v/v
22 June 2023	1.9% v/v
19 July 2023	7.2% v/v
25 August 2023	5.0% v/v
4 September 2023	6.1% v/v
23 October 2023	7.2% v/v

(b) Within the relevant period between July 2022 and October 2023, reading levels for LFG 35 ranged from a low of 0.0% v/v recorded on 25 October 2022 to a high of 22.0% v/v recorded on 19 December 2022.

Bore LFG35

Date	Reading
20 June 2022	7.7% v/v
20 July 2022	11.6% v/v
30 August 2022	0.2% v/v
27 September 2022	8.2% v/v
25 October 2022	0.0% v/v
22 November 2022	4.8% v/v
19 December 2022	22.0% v/v
16 January 2023	16.2% v/v
7 February 2023	11.6% v/v
9 March 2023	8.1% v/v
12 April 2023	6.4% v/v
12 May 2023	6.3% v/v
22 June 2023	11.8% v/v
19 July 2023	10.3% v/v
26 August 2023	8.0% v/v
4 September 2023	10.5% v/v
23 October 2023	11.2% v/v

(c) Within the relevant period between July 2022 and October 2023, reading levels for LFG 51 ranged from a low of 0.1% v/v recorded on 4 September 2023 to a high of 16% v/v recorded on 16 January 2023.

Bore LFG51	
Date	**Reading**
20 June 2022	15.8% v/v
20 July 2022	10.6% v/v
31 August 2022	6.3% v/v
27 September 2022	15.4% v/v
25 October 2022	13.6% v/v
22 November 2022	5.2% v/v
19 December 2022	7.8% v/v
16 January 2023	16.0% v/v
7 February 2023	9.0% v/v
9 March 2023	9.4% v/v
12 April 2023	10.7% v/v
12 May 2023	7.9% v/v
22 June 2023	9.3% v/v
19 July 2023	7.0% v/v
25 August 2023	8.6% v/v
4 September 2023	0.1% v/v
23 October 2023	14.7% v/v

(d) Within the relevant period between July 2022 and October

2023, reading levels for LFG 36 ranged from a low of 0.0% v/v recorded on 19 December 2022 and 16 January 2023 to a high of 14.5% v/v recorded on 4 September 2023.

Bore LFG36	
Date	**Reading**
20 June 2022	4.1% v/v
21 July 2022	1.0% v/v
30 August 2022	2.7% v/v
27 September 2022	4.4% v/v
26 October 2022	11.1% v/v
22 November 2022	9.2% v/v
19 December 2022	0.0% v/v
16 January 2023	0.0% v/v
7 February 2023	0.1% v/v
9 March 2023	0.0% v/v
14 April 2023	5.0% v/v
12 May 2023	1.2% v/v
22 June 2023	0.6% v/v
19 July 2023	5.8% v/v
25 August 2023	3.2% v/v
4 September 2023	14.5% v/v
23 October 2023	9.6% v/v

(e) Within the relevant period between July 2022 and October 2023, reading levels for LFG 52 ranged from a low of 7.4% v/v recorded on 30 August 2022 to a high of 21.6% v/v recorded on 4 September 2023.

Bore LFG52	
Date	**Reading**
20 June 2022	8.5% v/v
25 July 2022	8.4% v/v
30 August 2022	7.4% v/v
27 September 2022	9.2% v/v
26 October 2022	9.1% v/v
22 November 2022	10.9% v/v
19 December 2022	10.1% v/v
16 January 2023	10.3% v/v
7 February 2023	7.5% v/v
9 March 2023	19.3% v/v
14 April 2023	20.0% v/v
15 May 2023	20.6% v/v
29 June 2023	No reading recorded

19 July 2023	20.9% v/v
25 August 2023	16.4% v/v
4 September 2023	21.6% v/v
23 October 2023	21.2% v/v

(f) Within the relevant period between July 2022 and October 2023, reading levels for LFG 37 ranged from a low of 0.9% v/v recorded on 26 October 2022 to a high of 18.1% v/v recorded on 9 March 2023.

Bore LFG37	
Date	**Reading**
20 June 2022	6.8% v/v
25 July 2022	9.2% v/v
30 August 2022	9.8% v/v
27 September 2022	9.1% v/v
26 October 2022	0.9% v/v
22 November 2022	10.7% v/v
19 December 2022	4.0% v/v
16 January 2023	13.4% v/v
7 February 2023	9.8% v/v
9 March 2023	18.1% v/v
14 April 2023	15.6% v/v
18 May 2023	No reading recorded
22 June 2023	13.6% v/v
19 July 2023	No reading recorded
25 August 2023	14.4% v/v
4 September 2023	17.8% v/v
23 October 2023	10.2% v/v

(g) Within the relevant period between July 2022 and October 2023, reading levels for LFG 53 ranged from a low of 0.0% v/v recorded on 22 November 2022 and 19 December 2022 to a high of 14.4% v/v recorded on 4 September 2023.

Bore LFG53	
Date	**Reading**
20 June 2022	4.7% v/v
25 July 2022	9.5% v/v
30 August 2022	10.4% v/v
27 September 2022	8.9% v/v
26 October 2022	9.9% v/v
22 November 2022	0.0% v/v
19 December 2022	0.0% v/v

16 January 2023	4.5% v/v
7 February 2023	1.8% v/v
9 March 2023	0.6% v/v
18 April 2023	1.8% v/v
12 May 2023	3.9% v/v
22 June 2023	11.4% v/v
19 July 2023	12.2% v/v
25 August 2023	9.3% v/v
4 September 2023	14.4% v/v
23 October 2023	13.3% v/v

(h) Within the relevant period between July 2022 and October 2023, reading levels for LFG 38 ranged from a low of 0.6% v/v recorded on 8 February 2023 to a high of 11.9% v/v recorded on 23 October 2023.

Bore LFG38	
Date	**Reading**
20 June 2022	11.0% v/v
20 July 2022	4.1% v/v
30 August 2022	10.5% v/v
27 September 2022	3.9% v/v
26 October 2022	9.3% v/v
22 November 2022	6.1% v/v
19 December 2022	5.4% v/v
16 January 2023	9.3% v/v
8 February 2023	0.6% v/v
9 March 2023	0.7% v/v
14 April 2023	11.8% v/v
15 May 2023	7.3% v/v
22 June 2023	6.5% v/v
19 July 2023	10.7% v/v
25 August 2023	9.6% v/v
4 September 2023	11.7% v/v
23 October 2023	11.9% v/v

(i) Within the relevant period between July 2022 and October 2023, reading levels for LFG 54 ranged from a low of 0.0% v/v recorded on 20 July 2022 to a high of 17.3% v/v recorded on 16 January 2023.

Bore LFG54	
Date	**Reading**
20 June 2022	16.9% v/v

20 July 2022	0.0% v/v
30 August 2022	16.8% v/v
27 September 2022	13.7% v/v
26 October 2022	11.6% v/v
22 November 2022	0.0% v/v
19 December 2022	14.2% v/v
16 January 2023	17.3% v/v
8 February 2023	7.5% v/v
9 March 2023	6.7% v/v
14 April 2023	5.3% v/v
15 May 2023	3.6% v/v
22 June 2023	14.6% v/v
19 July 2023	No reading recorded
25 August 2023	14.3% v/v
4 September 2023	15.3% v/v
23 October 2023	10.0% v/v

Source of subsurface landfill gas migration onto the plaintiffs' land

78 As set out in their joint report, 'the experts agree that there has been migration of LFG across the eastern boundary of the Landfill towards and onto the Andersons' Land for an unknown distance from the joint boundary'. Despite recording exceedances, monitoring bores were unable to distinguish the source of LFG exceedances.

79 In the conclave report of the LFG experts, the following was agreed:

(a) LFG is present in the eastern boundary of the landfill and in the plaintiffs' land;

(b) the landfill is the source of the LFG; and

(c) LFG has migrated across the eastern boundary from the landfill to the plaintiffs' land, however, Mr Lane is of the view that LFG has migrated across the eastern boundary proximal to cells 11, 12 and 13 only.

80 The experts and parties are in agreement that the likely cause of the LFG

migration from cells 12 and 13 is the construction and design of the drainage system in those cells. The exact source of LFG emissions was a point of contention between experts.

81 The plaintiffs submit that subsurface emissions of LFG 'are primarily as a result of a design flaw in the construction of cell 13 of the landfill which, because of this design flaw, leads to LFG being vented out from cell 13 towards the plaintiffs' land.'

82 Despite accepting that there were faults in the construction and design of cells 11 and 12, the defendants submit 'that any design defects in cells 11, 12 and 13 are the combined responsibility of the EPA as regulator, the cell designer and the environmental auditor.' On this basis, Veolia submits that there has been no breach of the operating licence 'because the cells and gas and leachate management systems have been designed and constructed in accordance with the EPA's requirements and as audited'.

83 The precise cause of the LFG emissions was not the subject of evidence in the reports filed by Messrs Pump and Evans on 21 March 2023 and Mr Lane on 5 June 2023. On 21 November 2023, during the evidence of Mr Christopher Watkins, it became apparent that Mr Lane had been provided with design drawings showing the construction plans for cells 11, 12 and 13 that had not been discovered to the plaintiffs. On 23 November 2023 the defendants served approximately 6,000 pages of new material on the plaintiffs. That material included the plans for the construction of cells 11, 12 and 13. That information enabled the expert witnesses to ascertain with greater certainty what the causes of subsurface LFG migration onto the plaintiff's land might be.

84 In describing the design faults within cells 11, 12 and 13 the experts focused

on two types of leachate drainage measures to explain the source of LFG emissions from the landfill: (a) strip drains; and (b) the geocomposite layer: 'A drainage geocomposite is an engineered flexible material comprising of a polymer lattice and wrapped in a geotech style. So it is a flexible drain. It is about a centimetre thick. And in this design it covers the geomembrane in all locations'.

85 In oral evidence, Mr Lane provided an explanation of these drainage systems:

> The strip drain and the geocomposite layer are the same - have the same function. … They are side wall leachate, the water drainage elements in the design to prevent leachate build up on the side wall.

86 It was common ground that:

(a) Cell 11 utilised strip drains for leachate draining terminating two meters below the top of the waste filling;

(b) Cell 12 utilised a geocomposite layer for leachate draining that goes beyond the anchor trench; and

(c) Cell 13 utilises a geocomposite layer for leachate draining that terminates within the anchor trench.

87 Mr Pump's opinion is that the primary source of subsurface LFG migration onto the plaintiffs' land had 'directly arisen primarily from the deficient design, operation and delayed capping of cells 12 and 13'.

88 Mr Pump gave the following evidence in respect of cells 11, 12 and 13:

(a) Cell 11 had been designed with a strip/panel drains terminating two meters below the top of the waste filling. Despite being utilised as drainage pipes, strip drains have the potential to act as a pathway for

LFG to travel and escape. Mr Pump considered that designing the strip drains to terminate two meters below waste mass was an appropriate 'design allowance' to prevent gas leaving the cell and escaping into the atmosphere. On this basis, Mr Pump considered cell 11 was not a source of LFG subsurface migration.

(b) Cell 12 utilises a different design to cell 11 that includes a drainage geocomposite layer to allow for the drainage of leachate to the bottom of the cell. Like strip drains, the drainage geocomposite can act as an air gap to the top of the cell, providing an opportunity for gas to fill the air gap and travel unimpeded into the atmosphere. Cell 12 is yet to have placement of a final capping layer. In oral evidence Mr Pump considered the design of cell 12 had not 'been fully considered but it would not present a significant risk for subsurface migration'. Mr Pump reiterated his lack of concern regarding cell 12 for subsurface migration later in oral evidence when asked if there was a deficiency: 'I do not believe cell 12 is a significant contributor to landfill gas in monitoring bores at the eastern boundary'. Mr Pump conceded that the systems utilised in cells 11 and 12 would contribute to some gas migration but that in the case of cell 12 it was going to be a 'minor contribution'. However, in his final expert report Mr Pump then went on to state:

> Adoption of defective design of the liner of cells 12 and 13, which by incorporation of a "geocomposite" layer in contact with the atmosphere has allowed continuous venting over extended periods of LFG into both the atmosphere and surrounding soils.

(c) Cell 13 abuts the eastern boundary of the landfill. Between the eastern edge of cell 13 and the plaintiffs' land is an access track with a variable trafficable width of at least seven meters. Cell 13, like cell 12, includes a geocomposite drainage layer for the full perimeter of the

cell, ‘held securely around the perimeter of the cell by this anchor trench’ which ‘prevents the dragging down of the drainage geocomposite during the filling of the cell with waste as weight is placed on it’. The geocomposite layer within cell 13 terminates within the anchor trench, that is, the geocomposite layer ends approximately a meter from the edge of the access track. As stated in relation to cell 12, the ‘drainage geocomposite acts as an air gap to allow landfill gas to move up the batter and head in a horizontal direction’ creating a preferential pathway for subsurface LFG migration. Mr Pump went on to say:

> It is my interpretation of this design that its pathway for landfill migration is an oversight by the designers…
>
> …
>
> There is clearly a record of persistent exceedances at any boundary of the landfill, and with that experience in mind I would have thought the designers would have been taking very careful attention to ensure that a design does not further exacerbate an existing problem…
>
> …
>
> This geomembrane should have been terminated below the level of this area within the waste as we saw with the panel drains in cell 11.

In Mr Pump’s opinion the drainage geocomposite layer should have been terminated at an earlier point, within the waste, further down the slope:

> …by burying the end of that drainage geocomposite at that location, burying it in waste. It is one mechanism to attempt to mitigate the escape of gas as we see in this diagram. There would have been other methods, it might have been a different form of drain, it might have been a different configuration with respect to the geomembrane liner.
>
> I'm not saying there is only one solution, but there appears to be a fairly obvious candidate to adjust this design to prevent the escape of gas into the subsurface outside the cell.

89 In conclusion Mr Pump offered the following:

> Taking all these factors together I think it is likely that the gas measured in the monitoring bores opposite this cell are sourced from the waste within cell 13 and have travelled away from cell 13 by virtue of the drainage geocomposite.
>
> …
>
> [Cells 11 and 12] have less of a problem. It is less likely that gas has travelled in the same way for those cells.

Mr Pump confirmed he found the drainage system in cell 13 the most problematic of cells 11, 12 and 13 that 'will lead to the migration of LFG from the geocomposite layer at the top of the anchor trench into the subsurface soils on the eastern perimeter of cell 13' – the most likely system to lead to subsurface LFG migration (over the system employed in cells 11 and 12).

90 Mr Lane considered:

(a) Each drainage system utilised in cells 11, 12 and 13 was contributing to subsurface migration of gas outside the cell, with gas escaping through each drainage system in cells 11, 12 and 13;

(b) Mr Lane gave evidence that the design of cell 12 whereby the geocomposite layer extended beyond the anchor trench out into the soil was the most concerning issue for subsurface migration;

(c) That the 'design fault' in cell 13 was contributing to gas migration and was the reason for elevated levels of gas in the vicinity of monitoring bore LFG 52, yet Mr Lane could not confirm if this was the 'main culprit' of LFG migration; and

(d) Despite originally stating in the conclave report that strip drains were constituted at the directive of the EPA, Mr Lane conceded that

other than by inference there was no evidence that the EPA requested the specific drainage designs implemented in cells 12 and 13.

91 The defendants submit they are 'not in breach of their operating licence because of the mistakes of others':

> …[and] that the court does not need to reach a conclusion on: (a) the respective contributions of the sidewall drainage designs to the landfill gas migration problem at the eastern boundary of the landfill; or (b) whether the EPA or the cell designer Golder Associates is principally responsible for the inclusion of the drainage layer design in cells 12 and 13,
>
> because all of the designs were the responsibility of an external designer, were verified by the auditor and were signed off by the EPA. The implementation of the systems is the combined responsibility of actors other than Veolia. For the reasons set out in the following section, the deficiencies identified in the sidewall drainage layer of cells 11, 12 and 13 should not lead to a conclusion that Veolia has failed to take all practicable steps to keep methane and carbon dioxide levels on the eastern boundary under the BPEM action levels.
>
> …
>
> It is submitted that the Court should accept the evidence of Mr Lane that there has been no breach of the operating licence because the "cells and gas and leachate management systems have been designed and constructed in accordance with the EPA's requirements and as audited".

92 The regulatory framework in relation to cell design and construction approval was also the subject of evidence. Both Mr Pump and Mr Lane agreed that cell development and construction goes through a design and approval process with the EPA which is heavily reliant on the role of the EPA appointed auditor who scrutinises, reviews and assesses the designs, yet final approval lies with the EPA itself. Mr Pump added as follows:

> The EPA goes through a process of review when a design is submitted for agreement and approval. In my personal opinion - and I don't wish to convey any criticism of the people involved - the people that have this role in the EPA I wouldn't call them experts, I would call them experienced environmental officers. Whether they have experience in engineering, design and construction of the landfills is another matter. I have yet to meet anyone who could claim to be an expert in that area in recent times. The EPA relies very heavily on the role of the EPA appointed auditor to scrutinise these designs, provide comment to Veolia

> and then to oversee the construction of the cell in accordance with the designs, and that's where I think the expertise lies in terms of a regulatory oversight, is the role of the auditor.
>
> …
>
> So the cell is constructed according to this design. The auditor verifies the design as being implemented. Filling is then allowed to commence after EPA ratification. Filling commences with waste. As Mr Lane has explained sometime after that the buried waste starts to generate gas.

93 Veolia submits it is not responsible for any defects in the design and construction of the side walls of cells 11, 12 and 13 as the designs were the responsibility of a third party consultant, the auditor and/or the EPA. It submits that any design defects in cells 11, 13 and 13 were the combined responsibility of the EPA as regulator, the cell designer and the environmental auditor.

94 There were differences between the evidence of Mr Lane and Mr Pump as to the source of the LFG escaping from cells 11, 12 and 13. It is not necessary to express a concluded view as to which evidence is to be preferred. It is plain that LFG is escaping from cells 12 and 13 due to faults in the design and construction of the cells. I accept Veolia's submission that faults in the design and construction of cells 12 and 13 do not constitute a breach by Veolia of clause 5 of the licence and/or s 25(1) of the Act. Veolia engaged appropriately qualified third parties to undertake the design and construction of cells 11, 12 and 13. The design and construction of cells 11, 12 and 13 does not constitute either:

(i) a failure to so far as reasonably practicable minimise risks of harm to human health or the environment (s 25(1)); or

(ii) a failure to take all practicable measures to prevent emissions of LFG from exceeding the BPEM action levels (clause 5 of the

licence).

95 Although not relied upon by Veolia, there is another reason why faults in the design and construction of cells 11, 12 and 13 do not constitute a breach of s 25 and/or clause 5 of the licence. The plaintiffs rely upon breaches of clause 5 and s 25 in aid of their claim for relief under s 309 of the Act. Section 309 commenced operation on 1 July 2022. Section 309 does not have retrospective effect. Cells 11, 12 and 13 were constructed between December 2016 and July 2019. Any fault in the design and construction of these cells occurred before s 309 commenced operation and cannot be relied upon in aid of the plaintiffs' claim for relief. What is relevant is whether Veolia has failed to take practicable measures to minimise the emissions of subsurface LFG which are a consequence of any fault in the design and construction of cells 11, 12 and 13.

The landfill gas vent curtain system

96 The plaintiffs initially sought a mandatory injunction requiring Veolia to construct an in-ground pathway intervention system to prevent the migration of LFG across the eastern boundary onto the plaintiffs' land in the form of an LFG vent curtain system. Mr Pump and Mr Evans describe the LFG vent curtain system ('VCS') as a means of mitigating LFG risk. The VCS should be installed at the landfill boundary on Veolia's land, extending the full length of the parties' shared boundary, to intercept the subsurface migration of LFG. Below the subsurface, the VCS would draw LFG from above the water level. The LFG experts agreed that a venting curtain is an example of an in-ground pathway intervention structure utilising bores for venting LFG by passive means likely to be more technically feasible than the other proposed options, subject to further feasibility studies.

97 The plaintiffs submit that the installation of the LFG vent curtain is both a

practicable and reasonably practicable measure that has not been undertaken by the defendants. Although initially proposing orders requiring the design and construction of the VCS, by the conclusion of the proceeding, the plaintiffs' claim in respect of a VCS was confined to an assessment of the feasibility of a VCS.

98 Veolia submits that the installation of a VCS is not a practicable measure for the purposes of either clause 5 of the licence or s 25(1) of the Act. Veolia points to the distinction between 'preventative' and 'remedial' measures. It submits that practicable measures are those which are preventative (preventing subsurface exceedances) rather than remedial (addressing subsurface migration after it has occurred). Veolia contends that the Court should not exercise its discretion under s 309 to order a VCS. It submits the relief granted should be directed towards the mischief (subsurface LFG exceedances) to be prevented.

99 Veolia also submits the cost of a VCS ($14.5 million) would be disproportionate to any benefit in circumstances where there is no evidence that the migration of LFG onto the plaintiffs' land has had any impact upon the current low intensity agricultural use of the land.

100 Veolia submits that the plaintiffs have not established that the VCS or similar measures are likely to be feasible for the following reasons:

(a) the proposed solutions are subject to long, detailed and costly technical feasibility studies before they can be implemented;

(b) the proposed solutions are not likely to reduce the subsurface methane and carbon dioxide levels below the BPEM action levels at the boundary of the landfill;

(c) the design, and therefore cost, of any technically feasible solution is

unknown. As a consequence, the plaintiffs have not established that such a solution is affordable; and

(d) the VCS and other options are subject to obtaining regulatory approval, which is not certain.

101 In relation to the VCS the experts agreed:

(a) the VCS is a reasonably practicable remedial measure for minimising the elevated LFG levels in the subsurface;

(b) the VCS is likely to be more feasible than other options explored, subject to further feasibility testing;

(c) the vertical depth of the curtain would be dependent on the 'long term recovered (rebounded) water table level along the eastern boundary';

(d) Mr Pump and Mr Lane agree that any necessary mitigation measure should be developed in stages and on a risk basis;

(e) subject to further testing, could be implemented within Veolia's land; and

(f) the design of the LFG VCS required further investigation and assessment, with the effect that the expert evidence was qualified on this basis.

102 The LFG experts disagreed as to the appropriate length and depth of the VCS. Mr Evans, with Mr Pump agreeing, considered the VCS should be 1000 meters long being the entire shared boundary of the parties and 7 meters deep to intercept all gas pathways given the depth of stabilised ground water. Mr Evans considered the depth to ground water/water table in accessing the vertical depth of the vent curtain is important so bores can sufficiently be

sunken to extract LFG. Mr Lawlor, a quantity surveyor, estimated that the cost of this option would be approximately $14,549,517. Mr Lane considered that the LFG vent curtain should be 450 meters long, 'the length of the joint boundary potentially affected by LFG migration', and 5 meters deep just above the recovered water table, isolated in length from the northern point of cell 13 to the southern point of cell 11. There is no evidence as to the cost of a VCS built in accordance with these dimensions.

103 The LFG experts also disagreed as to the efficacy and utility of the VCS to reduce subsurface LFG levels. Mr Pump considers the VCS necessary. Mr Pump, who had direct experience with the installation and effectiveness of similar vent curtain initiatives at two other landfills, contended that the installation 'would have an immediate beneficial effect and the [LFG] concentrations along [the eastern] boundary and those monitoring bores would fall very rapidly, [within] a matter of weeks', and agreed that a VCS would make a difference to the gas levels at the eastern boundary. Mr Pump acknowledged this was due to LFG being drawn into the VCS, pushed through the biofilter, turning methane into carbon dioxide venting into the atmosphere. He conceded that without further testing he could not say what particular proportion of LFG levels would be reduced and whether the reduction would be below BPEM action levels. Nevertheless, he considered it was certain that levels would fall significantly.

104 Mr Evans considered the VCS necessary. Mr Evans considered as long as the source of the subsurface migration had resolved then the LFG VCS had the 'potential to reduce the concentrations to natural levels which would be zero'. Mr Evans also acknowledged this was due to LFG being drawn into the VCS, pushed through the biofilter, turning methane into carbon dioxide venting into the atmosphere. Mr Evans gave evidence that he was 'highly certain' that the VCS would reduce LFG levels on the plaintiffs' land.

105 Mr Lane, on a risk basis, did not consider the VCS to be necessary as there is no current proposed horticultural development on the plaintiffs' land. Mr Lane considered that the LFG VCS 'would not guarantee that at the monitoring bores that the gas would…immediately or soon or in any particular timeframe reduce to less than 1 per cent methane'. However, he accepted that if the VCS was deemed feasible and the design worked, the VCS would dramatically reduce LFG levels at the perimeter bores. Mr Lane also accepted that the LFG VCS would have to be installed should the plaintiffs' development of a greenhouse proceed and no other protection measures within the greenhouse was utilised. Mr Lane accepted that in the long term the VCS may have the potential to reduce concentrations of subsurface LFG to below the levels prescribed in table 6.4 of the BPEM.

106 The LFG experts agree in their joint report that the LFG VCS is likely to be the most practicable mitigation measure of the options considered, subject to further feasibility testing. On this point, the experts agreed that further investigations are necessary to assess the feasibility and design of the VCS or a similar system. Mr Pump considered it would not be feasible to proceed with the LFG vent curtain, prior to further feasibility testing and investigation.

107 In his expert report Mr Evans considered that limited investigations had been completed at the site in relation to installing any mitigation system. Significant further works and regulatory approvals were identified by Mr Evans prior to understanding the feasibility of a mitigation measure like the VCS. Mr Lane described the purpose of additional testing as being to 'understand the subsurface conditions and improve the conceptual site model… so as to evaluate the feasibility of drawing landfill gas out using vertical bores'.

108 Mr Evans estimated that further testing would likely cost at least $1 million. Mr Lawlor also offered evidence in relation to the estimate for the pre-

construction (provisional sum) for the vent curtain to be $1.2 million.

109 Mr Evans and Mr Pump considered it highly likely that the LFG VCS would be found to be feasible after further investigations had been undertaken. Mr Pump based this in part on the geology of the landfill which he deemed is favourable to the transmission of LFG. Mr Lane disagreed with this aspect of Mr Pump's evidence. He did not accept that there was any available evidence showing that the ground conditions of the landfill were equivalent to other landfill sites where a VCS has been installed.

Final capping

110 After the filling of a landfill cell is complete, a 'final cap' is placed over the waste. Construction of a final cap consists of a subgrade layer, a geosynthetic clay layer, an LLPD plastic layer, a drainage layer, a subsoil layer and a topsoil layer. A final cap is designed to be impermeable to gas. For this reason, a final cap is instrumental in preventing LFG exceedances after the closure of a cell. All experts and parties agreed that the placement of a final cap greatly reduces LFG emissions. Placement of a final cap also increases the efficiency of the LFG gas extraction system.

111 The design of the final cap on a landfill cell must be approved by the EPA before its construction. It takes approximately six months for a final cap design to be approved by the EPA.

112 The plaintiffs submit that the final capping of cells 12 and 13 is a practicable measure that Veolia can undertake to prevent the subsurface LFG emissions from exceeding the BPEM action levels. The plaintiffs submit that LFG will continue to migrate into the subsurface of the plaintiffs' land until a final cap on cell 13 is installed. They submit that there is no evidence that Veolia cannot commence the design and construction of the final caps on cells 12 and

13 immediately.

113 Veolia submits that there is no evidence that the design flaws in the sidewall drainage layers of cells 11, 12 and 13 can be remedied by the placement of a final cap. Veolia submits that the placement of the final cap will not reduce LFG emissions.

114 The timing for the placement of the final cap is related to both the contour plan of the landfill and the settlement of waste inside the landfill cell. A contour plan forms part of a landfill's licence conditions and provides vertical levels set by the EPA to which the filling of the landfill cell must conform. This limits the amount of waste that can be placed inside a landfill cell by preventing the landfill operator from placing waste inside a cell that would exceed the vertical level of the contour plan. A cell must be closed once a contour plan limit is met. Condition OL_L27 of the defendants' Operating Licence states that '[y]ou must complete final capping of cells within 2 years of the date that cell became full, in compliance with the approved rehabilitation plan.'

115 However, over time, waste inside a cell settles under its own weight as the waste decomposes and the gasses are removed. The rate of settlement of waste is usually predictable, allowing operators to predict the settlement height that is lower than its height when it is initially placed. Mr Pump gave evidence that in his career as a landfill auditor he has noted that it is 'common practice to wait as long as possible in the hope that settlement is large which creates a commercial opportunity for the landfill operator to place more waste inside the cell. So it is getting as much volume as possible into the cell by delaying the final capping'. An alternative is to place more waste into the cell than is permissible under the contour plan contained within the landfill's licence conditions. A landfill operator may then wait for a number of years for settlement to occur until the contour settles to the prescribed licence limit.

Once this settlement has occurred, the final cap is placed on the cell.

116 There was no evidence as to the current rate of waste settlement inside the cells adjoining the plaintiffs' land. However, there is evidence that Veolia overfilled cell 13. In a letter to the EPA dated 24 January 2024 Veolia acknowledged that cell 13 had been overfilled above pre-settlement contour levels in anticipation that the waste would settle below the contour levels.

117 There was disagreement between the experts as to whether a final cap could be placed over waste that is yet to settle to its final level. Mr Lane stated that a final cap consisting of a geomembrane layer could not be placed over waste that is yet to settle to its final height because as the waste settles, the geomembrane of a final cap will tear. Geomembrane tears are particularly frequent at the points at which the geomembrane is joined to gas extraction wells. Tears will reduce the impermeability of the final cap to water and air as well as the effectiveness of the cap at preventing the emission of LFG.

118 Mr Pump acknowledged that geomembrane tears are likely to occur on a final cap placed over unsettled waste. He also acknowledged that settlement may have an adverse effect on a final cap and that the timing of the placement of the final cap should consider the rate at which settlement is occurring. If settlement is occurring at a high rate in the early period of the waste settlement, it would not be advisable to place an engineered final cap. However, it is possible to observe and monitor the rate of settlement. Once the rate of settlement starts reducing, it is possible to place the final cap and design the cap to accommodate an ongoing slow rate of settlement. Where settlement is occurring at a slower pace, geomembrane tears are able to be effectively identified and repaired. Identification and repair of geomembrane tears is part of the regular maintenance of any final cap over a landfill cell. As a result, the risk of geomembrane tears is not necessarily a barrier to the

placement of a final cap after the initial early period of waste settlement.

119 Mr Evans agreed with Mr Pump and stated that there was no reason for allowing geomembrane tears to delay the placement of a final cap. Mr Evans stated that a plan for the continuous management of the final cap should be implemented by the landfill operator upon the cap's placement and this plan can and should provide for cracking and tearing of the geomembrane layer.

The landfill gas extraction system

120 Within any landfill cell, a landfill operator will place a gas extraction and collection system into the waste to manage the production of gas that occurs as waste decomposes. Operation of the LFG extraction system is a key component of managing LFG in a landfill. The management and operation of the LFG extraction system impacts both the ability and the availability of the LFG to migrate outside of the cell, causing either odour or subsurface LFG emissions.

121 The management of a LFG extraction system within a landfill involves placing a landfill cell under a partial vacuum through the installation of extraction wells that cover the entire waste mass. Those extraction wells are then responsible for removing gas from the waste mass as the waste decomposes. The installation and operation of this vacuum must balance competing risks. On the one hand, the vacuum must not 'pull' gas from the waste mass to such a degree that air is sucked into the waste. Oxygen ingress into the waste mass is a cause of underground landfill fires. On the other hand, the vacuum must work effectively and ensure that the extraction system is working efficiently to prevent the build-up of gas inside the waste mass. This prevents both the emission of odours as well as the migration of gas in the subsurface soil.

122 The efficiency of a LFG extraction system can be assessed by comparing a modelled theoretical volume of gas produced by the waste mass over a

particular period of time against the actual volume of gas produced during that period. In Victoria, the BPEM does not prescribe the benchmark efficiency for LFG extraction systems. There is no prescribed rate of efficiency that an extraction system should be operating at in order to maximise extraction whilst preventing oxygen ingress into the waste. However, there are guidelines and benchmarks in other jurisdictions which inform the level of efficiency that a LFG extraction system should be operating at within Victoria. Mr Pump stated that 'a reasonable estimate for a modern LFG extraction efficiency in the USA is 75 to 85 percent. The benchmark efficiency in the UK is 85 percent.'

123 The LFG extraction system at the Hallam Road landfill is managed by Landfill Management Services Pty Ltd ('LMS'). LMS are a third-party contractor engaged to install and manage the gas extraction system at the Hallam Road landfill site. They do so in order to run a sustainable energy plant in which LFG is collected and used to operate engines and produce electricity. LMS also receives and retains the right to benefits such as Carbon Credits gained in the operation of this plant. The gas that is collected but not run through the energy plant is flared (burnt). The relationship between LMS and the defendants is governed by a contract dated 14 June 2005 ('LMS Contract').

124 Mr Watkins gave evidence about the relationship between Veolia and LMS and the ability for Veolia to communicate with LMS and require them to install wells across the landfill site if the need arose. Mr Watkins stated that, whilst there is no provision under the contract for Veolia to unilaterally make changes, Veolia has instructed LMS to install additional wells.

125 During the initial phase of the filling of active cells Veolia installs 'sacrificial' temporary gas extraction systems that are placed horizontally in the lower levels of the cell. The horizontal sacrificial gas extraction systems installed by the defendants ultimately perish and are replaced. Once the filling of each cell

is complete, LMS install, at their cost, the final gas extraction system consisting of permanent vertical extraction wells. Vertical LFG extraction wells are installed at approximately 30 to 40 m spacings, and are drilled to approximately 75% of the depth of the infilled waste. LMS then engage in a monitoring process. The base form of monitoring undertaken by LMS is to visit each extraction well on a monthly basis and 'balance' it by adjusting the gas flow from each well. Gas flow is adjusted so that the extraction well is neither pulling air too hard and risking oxygen ingress into the waste mass, nor working under its capacity where its extraction could be improved. New wells and wells that otherwise 'needed attention' would be subject to more regular checks. LMS has a program of new well installations and replacements, though no evidence was lead in regard to what this program consists of.

126 No witnesses from LMS gave evidence in the proceeding. No document authored by LMS in relation to the operation of the gas extraction system was discovered by Veolia, save for monthly LFG collection reports and maps of the wellfield.

127 Mr Watkins gave evidence that 'LMS makes money by extracting the maximum amount of landfill gas. It is in the LMS interest to do as good a job as it possibly can.' However, Mr Evans and Mr Pump gave evidence that the commercial nature of the operation of LFG extraction systems means that LFG extraction systems in landfills are managed to the extent that the installation, expansion and upkeep of such infrastructure is financially beneficial to the LFG extraction system operator. If there is not sufficient gas being produced within a cell to make the installation of extraction infrastructure profitable, the operator is not incentivised to install it. Further, as waste decomposes and less gas is produced, there is a diminishing return on the upkeep of such infrastructure. Similar concerns were expressed by

Veolia's environmental auditor Tonkin and Taylor in a letter to Veolia dated 21 April 2023:

> I note that the well spacing is determined by LMS. As discussed on other occasions, this is a potential weakness as the extraction well layout is optimised for commercial LFG extraction, not odour control. Operators responsible for both aspects of the design tend to use closer well spacing (perhaps a 25m grid and certainly no more than 30m typically).

Audit reporting

128 The efficiency of the LFG extraction system has been addressed in environmental audit reports commissioned by Veolia. As filling of cells bordering the plaintiffs' land only began in 2017, I have considered the audit reporting on the operations of the landfill from 2017 onwards.

(a) Tonkin and Taylor 2017 Annual Landfill Gas Review (released March 2018)

129 This audit report identified that there were 286 points where LFG was being extracted by LMS in 2017. That audit report summarises the well types, flow rates, and yearly extraction trends as follows:

> …there are 239 vertical wells, of which 30 are blocked or shut down. The average flow rate across all the active extraction points is approximately 20 m3/hr. There are 69 locations where the flow is considered to be low (less than 5 m3/hr).
>
> …
>
> …there are periods where there is a drop off in LFG collected and these lows appear to occur around April each year, which coincide with an increase in odour complaints. Further investigation on what is causing these drops in flow has been recommended by the Auditor. Discussion with SUEZ suggests that April may be the time of the year when the well field typically is expanded and areas of the well field are shut off for the expansion works. If this is the case, consideration should be given to installing additional isolation valves to maximise the area of the well field that can remain operational during such works.
>
> …
>
> The Auditor notes that a number of improvements have been made to the LFG collection system. However, these improvements should be documented to allow tracking of the effectiveness of the works

undertaken, based on monitoring data.

130 The report made the following recommendations:

> **Develop LFG generation model and review collection efficiency and related monitoring and response processes**
>
> The site currently has no baseline against which to assess the effectiveness of LFG collection, or the need for supplementary perimeter LFG control bores. This activity requires assessment of collection system performance, as well as update of the LFGMP and specific monitoring activities as set out in this report and in the PAN.
>
> …
>
> **Further LFG system upgrade**
>
> … some work has been done, but a work plan is required for further system upgrading.
>
> …
>
> Investigate the cyclic reduction in gas collection observed to occur April each year.

(b) Tonkin and Taylor 2018 Hallam Road Landfill Environmental Audit Report - Landfill Gas (released March 2019)

131 The 2018 Environmental Audit Report provided analysis of the efficiency of the LFG extraction system as follows:

> **Auditor comment**
>
> The Auditor recommends that the effectiveness of LFG extraction field operation be reviewed in conjunction with the operator LMS, with the aim being to ensure that the field is operated for optimal management of fugitive LFG odour. This is the subject of an Auditor recommendation.
>
> **4.8.3 LFG collection efficiency**
>
> LFG generation modelling was conducted in November 2017. In 2018, the estimated LFG generation rate ranged from 3,600 to 5,800 m3/hr. From July 2017 to July 2018, the average LFG collection rate at the site was approximately 4,360 m3/hr, an increase from 4,030 m3/hr in the previous year. Comparing the current LFG collection rate to the upper bound LFG generation estimate, the current gas collection efficiency appears to be approximately 75%.
>
> …
>
> The current LFG collection efficiency is considered adequate and the Auditor expects some improvement to this as the site is progressively

rehabilitated.

132 The auditor noted that the audit recommendations in its previous audit had not yet been addressed. As a result, the following recommendations were made:

> **Address cyclic LFG collection system anomalies**
>
> A "cyclic" reduction in gas collection is observed to have occurred during each April in recent years. This needs to be addressed immediately to avoid a repeat in 2019. A review of arrangements in relation to LFG field operation should be undertaken … This should include a review of overall field performance and flare utilisation, in particular in relation to any system shutdown or upgrading events known to occur in April each year.
>
> **Forward planning of LFG system upgrading and optimisation**
>
> Noting recommendation 1 and while considerable LFG system upgrading work has recently been carried out based on earlier Auditor recommendations, a documented LFG/odour management work plan is required. This plan should detail the scope and timing of further system upgrading planned for the next 1-3 years and should be regularly updated. The plan will need to integrate with the findings in relation to … incidences of exceedance in perimeter monitoring bores. While neither odour nor LFG migration currently represent a critical issue or direct hazard, plans for ongoing system improvement should be in place and implementation should be routinely monitored.

(c) Tonkin and Taylor 2019 Annual Landfill Gas Review – (released May 2020)

133 This audit report provided an update on the size of the overall LFG extraction system as well as the average performance of the extraction wells but it did not provide an updated figure of the efficiency of the landfill. The summary was as follows:

> … there are 381 vertical wells, of which 9 are disconnected and 92 had no observed flow. The average flow rate across all the active extraction points is approximately 12 m3/hr. There are 157 locations where the flow is considered to be low (less than 5 m3/hr) (not including locations that are disconnected).
>
> The collected LFG is fed to eight 1.1 MW engines (Caterpillar G3516), backed up by six flares. Operating at full capacity, the engines would each utilise approximately 650 m3/hr of LFG ... The average LFG collection rate during this review period (July 2018 to August 2019) was approximately 4,446 m3/hr, and ranges between 4,050 and 5,001 m3/hr (Figure 6.1).
>
> Based on the total capacity of the 8 engines of 5,200 m3/hr LFG,

> **additional engines may be needed for the site**. This should be planned in advance so the system can be optimised, rather than tuning the system to meet the capacity of the existing engines.
>
> …
>
> Landfill gas collection rates appear to be relatively steady over the years. Overall, the number of engines appears reasonably balanced with the LFG flow rate from the installed wellfield, reducing the reliance on or use of flaring. The 2019 EMP states that the flares are able to provide 100 % redundancy should all engines shutdown.
>
> …
>
> When total landfill gas collected is reviewed in closer detail, the decrease in LFG collection around April each year is still evident (Figure 6.2). This is typically followed by a marked increase in LFG collection the following month and a peak in June each year. SUEZ explains that this could be linked to the timing of when new wells are installed. The dates of when new wells are installed should be provided to the Auditor for consideration. We understand the horizontal wells are installed during filling and vertical wells are installed once the cell reaches final height. Therefore, we would not expect gas collection to decline by 800 m3/hr LFG over a 10 month period unless the system is not being tuned/ optimised. Toward the end of 2019, LFG collection appears to be on an increasing trend. The next annual review will confirm if this cyclic pattern re-occurs in 2020.

134 The audit noted that the previous audit recommendations had not yet been addressed, and renewed its audit recommendations as follows:

(a) Under the topic 'Address cyclic LFG collection system anomalies', the auditor stated that this was:

> 'Not yet fully addressed.
>
> The drop in gas collection is still observed in 2019. More current trends suggest gas collection has been increased and a review in 2020 will confirm if this issue has been addressed.
>
> The odour complaints record for 2019 suggests that operational issues in relation the extraction system were less significant in early 2019. However, a spike in complaints occurred in July/ August associated with a lack of LFG control near the northern side of Cell 12. This resulted in a PAN being issued, and subsequent remedial works being undertaken. The auditor recommends that SUEZ actively plans for LFG management in all active cell areas, refer R2.'

(b) Under the topic 'Forward planning of LFG system upgrading

and optimisation', the auditor stated that this was:

> 'Not yet addressed**. Evidence of forward planning has not been provided.**
>
> The odour episodes associated with Cell 12 indicate the extent of problems which can occur if operational practices and LFG extraction infrastructure are not optimised. The site is accepting a significant daily waste tonnage and careful forward planning is essential in order to avoid such issues.
>
> The forward work plan must be developed in collaboration with SUEZ and LMS, and align with filling rates and capping schedules. If these change, then the timing of well installation would change or alternative options should be developed to ensure odour and LFG is adequately managed.

135 Areas for improvement identified in the 2017 audit therefore remained incomplete in May 2020.

(d) Resolve Environmental Landfill Gas Risk Assessment 2020 (released 13 August 2020)

136 This risk assessment report was prepared by Resolve Environmental, a different environmental consultancy firm than the auditors of the 2017, 2018 and 2019 reviews. The risk assessment provided an updated calculation of the LFG extraction system's efficiency as follows:

> The average gas collection rate for 2019 reported by LMS to be 4,707 m3hr-1 compared with the modelled gas generation rate of 7,107 m3hr-1. This indicates the current gas collection system is operating at an efficiency of 66%. The USEPA estimates that the collection efficiency for a typical comprehensive landfill gas collection system ranges from 60 to 85%. As such, the current extraction rate is considered to be acceptable but does have capacity for improvement. As extraction is expanded into the current cells the gas extraction is expected to improve.

137 That risk assessment report also contained the following recommendations and improvements:

- …the LFG extraction system is acceptable but does have capacity for improvement. As extraction is expanded into the current cells the gas extraction is expected to improve. However, investigation of protentional improvement of the LFG extraction system is also recommended to improve gas extraction in the western portion of the site.

- Monitoring bores on each boundary recorded methane and/ or carbon dioxide concentrations in exceedance of the action levels. Further consideration of the potential risk should be made following the improvement of the gas extraction system. Should this demonstrate decreasing LFG concentrations and low or negative flow rates within boundary bores the potential risk to off-site receptors may be reduced and be of an acceptable level. As such, the following actions should be undertaken:

    - Following improvement of the LFG extraction system installation in this part of the site, monitoring should be completed to evaluate the effectiveness of the system on LFG migration.

(e) Hallam Road Landfill S53V Operations Audit (released 27 November 2020)

138 This operations audit provided an update on the size of the well field as follows:

> There are 403 vertical wells, of which 36 were closed or disconnected, and 51 had no observed flow. The average flow rate across all the active extraction points is approximately 25 m3/hr. There are 43 locations where the flow is considered to be low (less than 5 m3/hr) (not including locations that were disconnected).
>
> There has been overall improvement in gas flow from each well and a marked increase in total LFG collected. Monthly LFG collection reports were provided to the Auditor for review. The average LFG collection rate during this review period (July 2019 to June 2020) has increased from 4,387 to 7,012 m3/hr (Figure 5.1).
>
> …
>
> The collected LFG is fed to eight 1.1 MW engines (Caterpillar G3516), backed up by eight flares. Operating at full capacity, the engines would each utilise approximately 650 m3/hr of LFG. Based on the total capacity of the 8 engines of 5,200 m3/hr LFG, additional engines or flares may be needed for the site and it was noted that additional flares were being installed at the time of the audit. It is essential that adequate destruction capacity is planned for and provided in advance so the system can be optimised, rather than tuning the system to meet the capacity of the existing destruction system.
>
> Figure 5.2 shows that since August 2019, there has been a marked increase of LFG sent to the flares, and LFG utilised by the engines have been stable. The 2020 EMP states that the flares are able to provide 100 % redundancy should all engines shutdown. As the flares are currently burning 2,000 m3/hr LFG, the capacity of all 8 flares should be confirmed to cope with at least an additional 5,000 m3/hr if the engines were to shut down.

…

> In the 2018 LFG Audit, the Auditor noted a decrease in LFG collection around April each year. This was typically followed by a marked increase in LFG collection the following month and a peak in June each year. SUEZ explained that this could be linked to the timing of when new wells are installed. Additional works to increase LFG collection (and address odour issues) were carried out in August 2019 which explains the marked increase in LFG collection, and fall in LFG collection in April 2020 is no longer considered an issue.

139 The 2020 audit report did not make any recommendations in regard to increasing the size of the extraction system or planning for the future filling of the cells.

(f) Resolve Environmental Risk Assessment (released 15 September 2023)

140 This second Risk Assessment provided an updated calculation of the efficiency of the LFG extraction system, as well as commentary on target efficiencies as follows:

> Comparison of the modelled LFG generation for 2022 (low, medium and high) with the average gas collection rate for 2022 indicates the current gas collection system is operating at an efficiency in the range of 61% to 83%. The USEPA (AP-42 Compilation of Air Emissions Factors, Chapter 2.4: Municipal Solid Waste Landfills, Draft update 2009) estimates that the collection efficiency for a typical comprehensive landfill gas collection system range from 50 to 95% with the lower end representative of 'landfills with a large number of open cells, no liners, shallow soil covers, poor collection system and cap maintenance programs and/or a large number of cells without gas collection'. Conversely, the higher end of the range is described as representative of 'closed sites employing good liners, extensive geomembrane-clay composite caps in conjunction with well engineered gas collection systems, and aggressive operation and maintenance of the cap and collection system'.
>
> **As such, the extraction system could be improved (particularly if the lower estimate is correct). However, it is noted, the site contains active and intermediate caps cells, which limit the performance ability.** As the final capping is placed and the gas extraction is expanded, the gas collection efficiency would be expected to improve. For odour control the site should be targeting >80% and ideally >90% efficiency, consistently for final capped areas. Veolia acknowledge this an area for improvement.

141 That risk assessment was then reviewed by Tonkin and Taylor:

> As noted, the collection efficiency could be improved. 60-70% is likely

> not good enough for odour control in the context of the site. There should be more discussion/development of this aspect. Ideally the site should be targeting >80% and ideally >90%, consistently for final capped areas.

142 Prior to the delivery of the final report, on 10 July 2023 Tonkin and Taylor e-mailed Lachlan James, Veolia's compliance officer, and supplied the following comments and recommendations:

> While considerable LFG system upgrading work has recently been carried out based on earlier Auditor recommendations, a documented LFG/odour management work plan is required. This plan should detail the scope and timing of further system upgrading planned for the next 1-3 years and should be regularly updated. This covers both LFG infrastructure and a forward capping/cap improvement schedule. Such a work plan would enable the Auditor and EPA to see evidence that an ordered schedule for system inspection, monitoring and extraction upgrading is in place and that significant actions to manage Licence compliance are not lagging from annual inspections and periodic audits.

(g) Draft Tonkin and Taylor Hallam Road Landfill – Operations Audit Report 2020 – 2022 (dated 12 January 2024)

143 The final draft audit document dated 12 January 2024 summarised the size of the well field as well as the overall performance of the extraction system and stated as follows:

> The LFG collection system is managed by a contractor (LMS Energy) which monitors and reports to Veolia on a monthly basis. The July 2021, December 2021, and June 2022 well field summaries were provided to the Auditor and are summarised in Table 6.1 [sic]. During the previous audit period 403 LFG extraction wells were monitored. These include vertical and horizontal wells, and leachate sumps. The number of extraction wells monitored appears to have decreased. Although [sic] Veolia has advised that an additional 74 wells have been installed since July 2020.
>
> The average flow across the active extraction wells is approximately 21 m3/hr. Based on the data provided, typically approximately 20% of the well field had no measured flow.
>
> **Table 5.1: Well field summaries for July 2021, December 2021 and June 2022**

Month	Total vertical wells	Wells with no information provided	Wells with no flow observed	Average flow from individual wells (m^3/hr)

July 2021	402 total 13 disconnected 54 closed 6 newly installed	12	64 (16%)	20.5
December 2021	395 total 1 disconnected 77 closed	17	83 (21%)	21.7
June 2022	388 total 1 disconnected 73 closed 16 unable to test/ inaccessible	0	71 (18%)	21.7

Monthly LFG collection reports prepared by LMS up to June 2022 were provided to the Auditor for review. Although additional wells have been installed since the previous Audit, the total LFG collection rate from the well field has been steadily decreasing from July 2020 onwards. The LFG collection rate in July 2020 was 7,375 m3/hr and the collection rate decreased to 4,795 m3/hr in June 2022 (Figure 5.1).

In the 2018 LFG audit, the Auditor noted a decrease in LFG collection around April each year. This was typically followed by a marked increase in LFG collection the following month and a peak in June each year. At the time SUEZ explained that this could be linked to the timing of when new wells are installed. Additional works to increase LFG collection (and address odour issues) were carried out in August 2019 which explains the marked increase in LFG collection during that period. The fall in LFG collection in April is no longer considered an issue. However, the decrease in LFG collection should be addressed as based on the on-going placement of waste and progressive well field expansion the Auditor considers that we should be seeing an increase in LFG collection. As we are not, then the rate of escape of fugitive LFG may be increasing. This is unlikely to result in a direct hazard, but may be resulting in episodes of offsite odour.

…

The collected LFG is fed to eight 1.1 MW engines (Caterpillar G3516), backed up by eight flares. Operating at full capacity, the engines would each utilise approximately 650 m3/hr of LFG. Based on the total capacity of the 8 engines of 5,200 m3/hr LFG, additional engines or flares may be needed for the site and it was noted that additional flares were being installed at the time of the 2020 audit.

An additional flare (resulting in a total of 9 flares) was installed and was operated from September 2020 to June 2021. It has not been explained why the 9th flare ceased operation. However, this is potentially due to the decreasing trend in LFG collection.

It is essential that adequate destruction capacity is planned for and

provided in advance so the system can be optimised, rather than tuning the system to meet the capacity of the existing destruction system.

Figure 5.2 shows that since August 2019, there was a marked increase of LFG sent to the flares until July 2020 where LFG flow to flares has gradually reduced. The LFG flow to engines has been gradually increasing since August 2020.

The 2023 RMMP states that the flares can provide 100 % redundancy should all engines be shut down. As the flares were burning at an average of 1,100 m3/hr LFG during the monitoring period, the capacity of all 8 flares currently being used should be confirmed as being able to cope with at least an additional 5,000 m3/hr LFG if the engines were to shut down.

144 The audit report also made the following recommendations:

(a) Under the heading 'Forward planning of LFG system upgrading and optimisation' the auditor stated that this was:

Partially addressed.

Odour complaints have generally reduced since 2019, but then increased again and peaked at significantly higher levels in October 2020, when 199 complaints were recorded.

While complaints have since reduced again, there appears to be an increasing trend from March 2022 to June 2022.

Odours attributable to the site appear to be largely associated with fugitive LFG emissions and/or tip face practices.

Surface emissions monitoring has been increased from bi-annually to quarterly.

Updated recommendations include:

1. **Veolia to provide the Auditor with design of LFG collection wells for review to identify potential design improvements to reduce recurrence of leaks.**

2. **Auditor to be provided with a Landfill Rehabilitation Plan with timebound milestones for capping works, and similar timebound plan for progressive expansion of the LFG collection system.**

3. **The Auditor has reviewed the filling and horizontal well drilling plans for Cells 13 and 14B. The timing and extent of installation of vertical wells should be developed and provided.**

145 Regular documentation, reporting, and planning for the expansion of the LFG extraction system has been a consistent item noted for improvement by environmental auditors when preparing audit reports for Veolia since 2017. At the time of trial, Veolia's environmental auditor was still recommending that steps be taken to improve the efficiency of the LFG extraction system.

Standing

146 In addition to a claim of nuisance the plaintiffs pursue two statutory causes of action under Part 11.4 of the Act. First, the plaintiffs claim an entitlement to relief under s 309(1)(a) based on an alleged breach of clause 5 of the licence. Second, the plaintiffs bring a claim under s 309(1)(b) based on alleged breach of the general environmental duty ('GED') under s 25(1) of the Act. The plaintiffs' standing to apply for orders under s 309 is contingent upon them establishing that they are 'eligible persons'. An eligible person is defined in s 308(1)(a) as follows:

> eligible person in relation to an application under this Part, means a person–
>
> (a) whose interests are affected by the contravention or non-compliance in relation to which the application is made; or
>
> (b) who has the leave of the Court to make the application.

147 Veolia submits that the plaintiffs are not eligible persons and do not have standing to seek orders under s 309. Veolia submits that: (i) the plaintiffs have not established that they have suffered any harm as a consequence of the alleged breaches of s 25 or clause 5 of the licence, and (ii) the plaintiffs' interests have not been relevantly affected so as to enable them to qualify as eligible persons within the meaning of s 308.

148 The explanatory memorandum in respect of the definition of eligible person states that 'a person whose interests are affected will be determined in accordance with common law principles'. Veolia submits that the common

law principles referred to in the explanatory memorandum are the principles of standing under administrative law. I accept this submission.

149 It is well established that only a person with a special interest in the subject matter of a proceeding will have standing. The standing of a private citizen to seek judicial review of an exercise of public power depends on that person having a special interest in the subject matter of the proceeding, beyond a mere intellectual or emotional concern or a strongly felt belief that the law should be observed. In *The people of the small town of Hawkesdale v Minister for Planning and Others* the Court of Appeal endorsed the following statement of principle governing the special interest test:

(a) The special interest test is flexible, and its content in a given case depends on the nature and subject matter of the litigation. There is no precise formula as to what amounts to a special interest in the subject matter of a particular proceeding; the application of the test is fact and context specific.

(b) A 'special interest' sufficient to invoke the Court's jurisdiction to supervise the exercise of public power is not limited to the legal, proprietary or financial interests that are protected by the private law.

(c) The requirements of standing serve to keep the exercise of judicial power within proper bounds, namely the resolution of legal controversies between parties who are affected by the outcome.

(d) The special interest test requires an intersection between an interest identified by the plaintiff and the subject matter of the proceeding. It is necessary to assess how the plaintiff's interest may be affected by the matter in respect of which it seeks relief.

(e) The statutory context is important. It will be relevant whether

> and to what extent the statute accommodates the plaintiff's interest, and how it intersects with that interest. However, the statutory context does not control standing: a 'plaintiff may have standing to challenge the exercise of power because of its practical or legal affect'.

150 The content of the special interest test in a given case depends on the nature and subject matter of the litigation. The nature and subject matter of the present proceeding involves allegations of breaches of the GED and clause 5 of the licence. The plaintiffs allege that a consequence of Veolia's breach of the GED and clause 5 has been the migration of methane and carbon dioxide from Veolia's landfill site onto the plaintiffs' land. The fact that LFG has migrated from Veolia's land onto the plaintiffs' land is not in dispute. What is disputed is whether or not the circumstances in which this gas migration has occurred amounts to a breach of the GED and clause 5 of the licence.

151 I am satisfied that if the plaintiffs are granted the relief which they seek under s 309 this will have the practical effect of reducing the amount of landfill gas which is migrating from the landfill cells adjacent to the boundary of the plaintiffs' land. This in turn will have the practical effect of reducing the amount of landfill gas migrating from Veolia's land onto the plaintiffs' land.

152 Section 309(4) provides:

> The power of a Court to grant an order under sub-section (1) may be exercised whether or not the contravention or non-compliance–
>
> (a) is likely to result in harm to any person or the environment; or
>
> (b) is likely to result in an infringement of the rights of any person.

153 In order for the plaintiffs to have standing to claim relief under s 309(1) it is not necessary for the plaintiffs to establish that the alleged breach of clause 5 and the GED is likely to result in harm to any person or the environment. The relief which the plaintiffs claim will reduce LFG emissions from the landfill cells adjacent to the boundary of the plaintiffs' land and will, in turn, reduce

the level of LFG pollution on the plaintiffs' land. Section 3(1) of the Act defines pollution as including 'any emission, discharge, deposit, disturbance or escape of gas'. 'Waste' is defined in s 3(1) to include '(a) matter, including solid, liquid, gaseous or radioactive matter, that is deposited, discharged, emitted or disposed of into the environment in a manner that alters the environment'. The plaintiffs' land is being polluted by waste in the form of LFG emissions migrating from Veolia's land onto the plaintiffs' land. Veolia does not dispute this. The plaintiffs' interests are affected by the relief which they seek because if granted this will reduce the pollution of their land from Veolia's site.

154 Further, I have concluded that Veolia has breached s 25(1) by engaging in activity that may give rise to risks of harm to human health or the environment. Establishing that Veolia breached the GED does not require proof that the breach caused actual harm to the plaintiffs. The GED is modelled on s 21 of the *Occupational Health and Safety Act 2004* (Vic). The duty created by the GED is risk based, not outcome based. The duty is breached where a person who is engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste fails to eliminate those risks so far as reasonably practicable. Veolia's contention that the plaintiffs do not have standing because they have failed to establish that they have suffered actual harm reflects a misunderstanding of the risk based nature of the duty created by s 25(1) of the Act.

155 The plaintiffs' interest in the proceeding is not a mere intellectual or emotional concern. As adjoining land owners the plaintiffs have an interest in minimising pollution of their land by LFG escaping from Veolia's landfill site. The plaintiffs' interest in reducing the level of pollution of their land from Veolia's site is sufficient to constitute a special interest in the subject matter of the proceeding.

Section 309(1)(a): Breach of licence

156 Section 309(1)(a) of the Act confers power upon the Court to make an order restraining a person from engaging in specified conduct or requiring a person to take specified action in such terms as the Court considers appropriate if the Court is satisfied that a person is not complying with or has not complied with a permission granted under the Act.

157 On 23 December 2011 Veolia was issued an operating licence under s 74(1)(a) of the Act. The definition of 'permission' in s 3(1)(a) of the Act includes an operating licence. The licence has been amended on 21 occasions since it was first issued. The most recent amendment was 12 May 2023. The plaintiffs allege that Veolia has breached condition OL L5 ('clause 5') of the licence which provides:

> You must take all practicable measures to prevent emissions of landfill gas from exceeding the action levels specified in Table 6.4 of Best Practice Environmental Management, Siting, Design, Operation and Rehabilitation of Landfills (EPA Publication 788).

158 Table 6.4 of the BPEM prescribes that methane concentrations in 'subsurface geology at the landfill boundary' are not to exceed 1%. It is common ground that since July 2022 methane concentrations of in excess of 1% have been recorded at LFG Bores 36, 37, 38, 52, 53 and 54 which are adjacent to cells 11, 12 and 13.

Bore LFG36	
Date	**Reading**
20 June 2022	0.0% v/v
21 July 2022	0.0% v/v
30 August 2022	0.0% v/v
27 September 2022	0.0% v/v
26 October 2022	0.0% v/v
22 November 2022	0.0% v/v
19 December 2022	0.0% v/v
16 January 2023	0.0% v/v
7 February 2023	0.0% v/v
9 March 2023	0.0% v/v
14 April 2023	3.1% v/v

12 May 2023	0.0% v/v
22 June 2023	0.0% v/v
19 July 2023	10.7% v/v
25 August 2023	7.4% v/v
4 September 2023	23.6% v/v
23 October 2023	18.6% v/v

Bore LFG37	
Date	**Reading**
20 June 2022	1.2% v/v
25 July 2022	4.1% v/v
30 August 2022	4.3% v/v
27 September 2022	17.3% v/v
26 October 2022	0.0% v/v
22 November 2022	3.8% v/v
19 December 2022	5.9% v/v
16 January 2023	16.0% v/v
7 February 2023	14.0% v/v
9 March 2023	26.5% v/v
14 April 2023	39.0% v/v
18 May 2023	No reading recorded
22 June 2023	35.3% v/v
19 July 2023	No reading recorded
25 August 2023	43.8% v/v
4 September 2023	48.2% v/v
23 October 2023	38.4% v/v

Bore LFG38	
Date	**Reading**
20 June 2022	12.1% v/v
20 July 2022	4.9% v/v
30 August 2022	13.1% v/v
27 September 2022	3.2% v/v
26 October 2022	7.9% v/v
22 November 2022	5.6% v/v
19 December 2022	4.7% v/v
16 January 2023	7.4% v/v
8 February 2023	0.0% v/v
9 March 2023	0.0% v/v
14 April 2023	5.5% v/v
15 May 2023	2.3% v/v
22 June 2023	1.8% v/v
19 July 2023	7.1% v/v
25 August 2023	4.7% v/v
4 September 2023	6% v/v
23 October 2023	7.1% v/v

Bore LFG52	
Date	**Reading**
20 June 2022	0.0% v/v
25 July 2022	6.3% v/v
30 August 2022	5.3% v/v
27 September 2022	13.0% v/v
26 October 2022	5.2% v/v
22 November 2022	6.1% v/v
19 December 2022	10.5% v/v
16 January 2023	4.2% v/v
7 February 2023	0.6% v/v
9 March 2023	32.1% v/v
14 April 2023	55.6% v/v
15 May 2023	77.3% v/v
29 June 2023	No reading recorded
19 July 2023	72.6% v/v
25 August 2023	43.5% v/v
4 September 2023	83.2% v/v
23 October 2023	69.0% v/v

Bore LFG53	
Date	**Reading**
20 June 2022	0.0% v/v
25 July 2022	0.4% v/v
30 August 2022	1.5% v/v
27 September 2022	4.8% v/v
26 October 2022	9.4% v/v
22 November 2022	0.0% v/v
19 December 2022	0.0% v/v
16 January 2023	1.7% v/v
7 February 2023	0.5% v/v
9 March 2023	0.0% v/v
18 April 2023	0.0% v/v
12 May 2023	1.8% v/v
22 June 2023	17.4% v/v
19 July 2023	24.6% v/v
25 August 2023	19.9% v/v
4 September 2023	40.9% v/v
23 October 2023	0.0% v/v

Bore LFG54	
Date	**Reading**
20 June 2022	6.4% v/v
20 July 2022	0.0% v/v
30 August 2022	1.6% v/v
27 September 2022	0.1% v/v
26 October 2022	4.6% v/v
22 November 2022	0.0% v/v

19 December 2022	0.0% v/v
16 January 2023	0.1% v/v
8 February 2023	0.0% v/v
9 March 2023	0.0% v/v
14 April 2023	0.1% v/v
15 May 2023	0.0% v/v
22 June 2023	0.0% v/v
19 July 2023	No reading recorded
25 August 2023	0.0% v/v
4 September 2023	2.9% v/v
23 October 2023	0.0% v/v

159 Before addressing the competing contentions of the parties regarding Veolia's alleged breach of clause 5 it is necessary to record my findings as to the proper construction of clause 5.

160 The licence is a statutory licence issued pursuant to s 74 of the Act. It is common ground that the principles of construction in respect of a planning permit are applicable to the construction of a licence issued under s 74. In *Lantrak Developments Pty Ltd v Kingston City Council* I summarised the principles applicable to the construction of a planning permit as follows:

> The meaning of a planning permit is to be ascertained primarily from the terms of the permit itself. The meaning of planning permit is to be determined objectively. The inquiry is as to the meaning that the terms of a permit would convey to a reasonable person. A planning permit has an enduring nature. It is not personal to the permit applicant but rather is a public document operating for the benefit of third parties. As a general rule a permit should be construed without reference to extrinsic evidence, save for a document or thing expressly or impliedly incorporated into the permit. A planning permit should be construed, not as a document drafted with legal expertise, but to achieve practical results. Nevertheless, a permit should be construed so as to produce a harmonious result and to give meaning to every word of its provisions.

161 The first issue is the meaning of the phrase in clause 5 'all practicable measures'. A measure is 'practicable' if it is capable of being put into practice or feasible. Determining whether measures are practicable raises issues of both common sense and specialist knowledge and will vary in any given set of circumstances. The fact that a measure is theoretically capable of being

implemented does not mandate a conclusion that the measure is practicable.

162 The second issue is whether once subsurface emissions of methane gas have exceeded 1%, clause 5 imposes a continuing obligation upon Veolia to take all practicable measures to reduce emissions below 1%. Veolia submits that once emissions have exceeded 1% clause 5 has no work to do. It submits that clause 5 imposes an obligation to take measures to *prevent* emissions exceeding 1% and that once emissions have exceeded 1% clause 5 does not thereafter impose an ongoing obligation upon Veolia to take remedial measures to bring emission levels below 1%. I reject this submission.

163 Prior to 23 December 2016 clause 5 of the licence provided:

> You must prevent emissions of landfill gas from exceeding the investigation levels specified in the [BPEM].

164 As with the current version of the BPEM, prior to 23 December 2016 the prescribed level of subsurface methane emissions was 1% v/v and 1.5% v/v for carbon dioxide. Clause 5 in its current form was introduced by an amendment to the licence which commenced operation on 23 December 2016. Prior to 23 December 2016 clause 5 imposed a mandatory unqualified obligation upon Veolia to prevent emissions of methane gas exceeding 1% v/v. Post 23 December 2016 Veolia has been required to take all practicable measures to prevent emissions from exceeding 1% v/v.

165 The licence should be construed not as a document drafted with legal expertise, but rather to achieve practical results. The practical result which clause 5 seeks to achieve is to prevent emissions of methane gas exceeding 1%. It would be inconsistent with this objective if Veolia was not subject to an ongoing obligation to take remedial measures once emission levels exceed 1%. The period of time between emissions being recorded at 0% and 1% might be a very limited duration, affording little, if any, practical opportunity for Veolia to take practicable measures to prevent emissions from exceeding

1%. If clause 5 is construed as imposing no ongoing obligation upon Veolia to take remedial measures to reduce emission levels once they have exceeded 1%, there would be little incentive for Veolia to take measures to prevent emissions from exceeding 1%. Veolia could refrain from taking any preventative measures in the knowledge that once emission levels reached 1% it would not be subject to any ongoing requirement to reduce the levels below 1%.

166 A literal construction of clause 5 produces an absurd result. It would free Veolia of any obligation to take measures to reduce emissions of methane gas once emissions are recorded at 1%, irrespective of the extent to which the gas levels exceed 1%. The history of gas exceedances recorded at bores adjacent to cells 11, 12 and 13 since July 2022 discloses methane gas levels in excess of 80 times the prescribed level under the BPEM. If clause 5 is construed literally, there is no other provision in the licence which would: (a) impose an obligation upon Veolia to take practicable measures to reduce methane gas omissions once they exceed 1%; and (b) render Veolia liable for a breach of the licence if practicable measures to reduce emission levels were not taken.

167 Prior to December 2016 if Veolia permitted emissions of methane gas to exceed 1% it breached its licence. The amendment to clause 5 introduced in December 2016 ameliorated what had previously been an unqualified mandatory obligation to prevent emissions of methane gas exceeding 1%. Construed objectively the amendment to clause 5 was not intended to relieve Veolia of an obligation to take remedial measures once methane gas emissions exceed 1%. Although the licence is not to be construed as a statute, the observations of the High Court in *Project Blue Sky v The Australian Broadcasting Authority* regarding the limitations of a literal approach to construction are apposite:

> …the duty of a court is to give the words of a statutory provision the meaning that the legislature is taken to have intended them to have.

> Ordinarily, that meaning (the legal meaning) will correspond with the grammatical meaning of the provision. But not always. The context of the words, the consequences of a literal or grammatical construction, the purpose of the statute or the canons of construction may require the words of a legislative provision to be read in a way that does not correspond with the literal or grammatical meaning.

168 The absurd consequences which flow from a literal construction of clause 5 are illustrated by Mr Lane's evidence that the construction of a VCS is not a practicable measure within the meaning of clause 5. Mr Lane gave evidence that a measure is not a practicable measure unless it will reduce emission of methane gas to below 1%. He stated that as methane concentrations along the boundary of Veolia's land and the plaintiff's land are very high there is no realistic prospect that the construction of a VCS would reduce emissions of methane to below 1%. On this basis he considered that the construction of a VCS is not a practicable measure within the meaning of clause 5.

169 If clause 5 is construed in a manner consistent with Mr Lane's evidence this would have absurd consequences. Where, as in the present case, concentrations of methane gas are up to 80 times the limits prescribed by the BPEM, a landfill operator could refrain from taking any remedial measures safe in the knowledge that emissions were so far in excess of the prescribed levels that it would be unlikely that any remedial measures would reduce concentrations of LFG below 1%.

170 I place no weight on this aspect of Mr Lane's evidence. The meaning of the phrase "all practicable measures" in clause 5 is a question of law. Evidence of the expert witnesses in respect of measures such as the construction of a VCS or the final capping of cells 12 and 13 is relevant and admissible on the question of whether these measures are feasible. However, the evidence is not relevant to the construction of clause 5.

171 If I am wrong and clause 5 does not impose an ongoing obligation upon Veolia to take remedial measures once LFG levels exceed BPEM levels, it does not

follow that once the BPEM levels are exceeded that clause 5 has no work to do.

172 Part 11.4 of the Act commenced operation on 1 July 2022. Part 11.4 does not have retrospective operation. A breach of clause 5 of the licence will only provide the basis of a cause of action under Part 11.4 where the breach has occurred after 1 July 2022.

173 I have set out earlier in this judgment the LFG exceedances recorded at LFG bores in the vicinity of cells 11, 12 and 13. This data discloses that on a number of occasions post 1 July 2022 LFG exceedances were above 1% and then subsequently fell below 1% before again exceeding 1%. LFG 52 records an exceedance of 4.2% on 16 January 2023, falling to 0.6% on 7 February 2023 before rising to 32.1% on 9 March 2023. LFG 37 records an exceedance of 17.3% on 27 September 2022, falling to 0% on 26 October 2022 and then rising to 3.8% on 22 November 2022. LFG 53 records an exceedance of 0.4% on 25 July 2022, rising to 1.5% on 30 August 2022 and falling to 0% on 22 November 2022 and then increasing to 1.7% on 16 January 2023, falling to 0% on 9 March 2023, remaining at 0% on 18 April 2023 and then rising to 1.8% on 12 May 2023. LFG 36 records an exceedance of 3.1% on 14 April 2023, falling to 0% on 12 May 2023 before rising to 10.7% on 19 July 2023. LFG 54 records an exceedance of 1.6% on 30 August 2022, falling to 0.1% on 27 September 2022 before rising to 4.6% on 26 October 2022. If Veolia was not required to take remedial measures once LFG concentrations exceed 1%, on each occasion LFG methane emissions fell below 1% and carbon dioxide emissions below 1.5%, Veolia was required to take all practicable measures to prevent emissions of methane gas from exceeding 1% and carbon dioxide from exceeding 1.5%.

174 The third issue is the meaning of the phrase ‘at the landfill boundary’. Table 6.4 of the BPEM is incorporated by reference into clause 5 of the licence.

Table 6.4 prescribes action levels for landfill gas in the 'subsurface geology at the landfill boundary'. Veolia submits that the phrase 'at the landfill boundary' means the boundary of the landfill cells into which waste is deposited as distinct from the boundary between Veolia's land and the plaintiffs' land. The plaintiffs submit that 'at the landfill boundary' means the boundary of the Hallam Road landfill site and includes the boundary of the site adjacent to cells 11, 12 and 13. This submission is only relevant to the plaintiffs' claim in respect of a VCS. For reasons set out below I have rejected the plaintiffs' claim in respect of a VCS. Nevertheless, for the sake of completeness, I shall address the parties' competing submissions.

175 The plaintiffs submit that the construction of a VCS along the boundary between the plaintiffs' land and Veolia's land is a practicable measure which Veolia could take to reduce emissions of landfill gas. Veolia contends that the construction of a VCS is not a practicable measure because it will not reduce emissions of landfill gas 'at the landfill boundary', which it contends is the boundary of the landfill cells.

176 The Oxford English Dictionary defines 'boundary' as 'that which serves to indicate the bounds or limits of anything whether material or immaterial; also the limit itself.' The ordinary meaning of the phrase 'the landfill boundary' is the boundary of the site comprising the entire landfill as distinct from the boundary of the numerous cells which are within the boundary of the landfill site.

177 Throughout the BPEM, references to 'a landfill', 'landfill', or 'the landfill' are properly understood as referring to the entire site. For example, in clause 4, 'Classification of landfills': 'The classification given to a landfill is the most stringent based on the waste received or proposed to be received'.

178 Clause 5: Best Practice Siting Considerations states: 'The appropriate siting of

a landfill is the primary environmental control'; 'Screening of potential landfill sites starts with preparing a list of all possible sites' (clause 5.1); 'Local infrastructure must also be able to sustain the operation of a landfill' (clause 5.1.8).

179 Clause 5.1.5, 'Buffer distances' distinguishes between the boundary of a landfill premises and the boundary of a landfill cell: 'Buffers are measures from the sensitive land use to the edge of the closest cell. All cells, including closed cells need to be considered in calculating buffers. For sites where there is uncertainty in the location of landfill cells, the boundary of the landfill premises is the point of measurement'.

180 Table 6.4 is within clause 6.7.1, Landfill Gas and appears under a sub-heading 'Landfill gas monitoring':

> The LFG monitoring should include, as a minimum, the following locations:
>
> • the landfill's surface
>
> • subsurface geology
>
> • subsurface services on and adjacent to the site
>
> • buildings/structures on and adjacent to the site
>
> • landfill gas treatment/management equipment (such as flares and engines).
>
> In some cases, it may be appropriate to also monitor landfill gas present in groundwater and leachate.
>
> Further guidance on the typical spacing and design of landfill gas monitoring bores is contained in Appendix B.

181 Appendix B includes the following:

> EPA recommends that landfill gas monitoring bores are sited at least 20 metres from the boundary of the landfill waste, to ensure validity of the landfill gas monitoring data subsequently obtained.

The 'boundary of the landfill waste' is a reference to a landfill cell. This is an example of the BPEM expressly referring to the boundary of a landfill cell as

distinct from the boundary of the premises.

182 I reject Veolia's contention that the phrase 'at the landfill boundary' in table 6.4 means at the boundary of a landfill cell. The phrase 'at the landfill boundary' means the boundary of the landfill premises. I reject Veolia's contention that, by reason of its proposed location, the construction of a VCS along the boundary between Veolia's land and the plaintiffs' land could not be a practicable measure to prevent emissions of LFG from exceeding the BPEM levels.

Has Veolia taken all practicable measures to prevent LFG emissions from exceeding the BPEM action levels?

183 Before addressing the parties' submissions it is necessary to consider Veolia's submission that the pleadings make no allegation about any deficiencies in the LFG extraction system. Veolia submits the only practicable measure pleaded by the plaintiffs is Veolia's failure to construct a VCS. The corollary of this submission is as follows. First, that improvements to the efficiency of Veolia's LFG extraction system was not "in the ring" as a practicable measure which could have been taken by Veolia to prevent emissions of LFG from exceeding the BPEM action levels. Second, that Veolia was not required to discover documents relating to the operation of the LFG extraction system. Third, that if the plaintiffs fail to establish that the construction of a VCS is a practicable measure, the claim that Veolia breached clause 5 must be dismissed.

184 The plaintiffs' allegation that Veolia breached clause 5 by failing to take all practicable measures to prevent LFG emissions exceeding the BPEM levels is pleaded at [16] of the second further amended statement of claim ('2FASOC'):

> 16. The Defendants have failed to comply at all relevant times with the requirements of the Operating Licence.
>
> **Particulars**

Licence Condition	Summary of requirement	Criteria	Result

OL_L5/LI_L5.	Take all practicable measures to prevent emissions of landfill gas from exceeding the BPEM action levels	$CH_4 > 1\%$ $CO_2 > 4.2\%$	Criteria exceeded

> Further and better particulars have been provided will be provided by way of the expert reports following the exchanged of expert evidence in the proceeding.

Veolia submits that in [16] of the 2FASOC the plaintiffs allege only one practicable measure which Veolia failed to take, namely, the installation of a VCS. Veolia submits that the reference to the 'expert reports exchanged in the proceeding' is a reference to the expert reports of Messrs Evans and Pump filed on 21 March 2023. Veolia submits that the only practicable measure referred to in these reports is the construction of a VCS. I reject this submission.

185 The further and better particulars of paragraph [16] of the 2FASOC were filed and served on 20 July 2023. On 21 March 2023 the plaintiffs filed an expert report of Warren Pump. Paragraph 111 of the report included the following:

> Options for 'reasonably practicable risk control measures' at the Site were assessed by Evans (2023). In my opinion, and expanding on the work by Evans (2023), remedial measures to address and mitigate LFG risks should include a feasibility review the following risk mitigation options:
>
> a) Defendants' Land:
>
> 1) A properly designed and installed in-ground pathway intervention structure (LFG Barrier) on the western side of the Landfill boundary beside the Site to block or intercept the subsurface migration of LFG.
>
> 2) Remediation works within the Landfill (and/or the Landfill cells) to remove or mitigate fugitive emissions of LFG the subsurface [sic].
>
> b) Plaintiff's Land:
>
> 1) A properly designed and installed in-ground pathway intervention structure (LFG Barrier) on the eastern side of the Landfill boundary within the Site to block or intercept the subsurface migration of LFG.
>
> 2) Engineering controls such as engineered gas protection barriers within the Site to prevent LFG from entering any future buildings.

186 A VCS is not the only measure identified by Mr Pump which could prevent LFG emissions exceeding the BPEM levels. The reference to 'remediation works within the landfill (and/or the landfill cells) to remove or mitigate fugitive emissions of LFG (sic) for subsurface', refers to the extraction of gas by means other than a VCS.

187 Mr Lane was retained by Veolia to act as an expert witness on 21 November 2022. On 9 January 2023 he was instructed by Ashurst to prepare an independent expert report by 3 April 2023. On 23 May 2023 Ashurst provided Mr Lane with a fourth letter of instruction. Mr Lane was instructed to consider the following assumptions when preparing his report:

> 4. The following process is how Veolia maximises the extraction of landfill gas (and minimises odour).
>
> **During filling**
>
> a. Veolia installs horizontal lines every 40 metres in every lift. It is staggered versus the previous lift.
>
> b. Where possible, Veolia installs T wells on batters on top of the buffer sand layers.
>
> c. All sumps are hooked up to extraction as soon as possible.
>
> d. Vertical wells are drilled into areas that reach height as soon as possible.
>
> e. Sacrificial liners are laid on long-term waste batters with extraction underneath.
>
> **During intermediate capping**
>
> a. All the steps above remain in place.
>
> b. When the areas reach height, capping is placed as soon as possible.
>
> c. Vertical systems are installed into intermediate capped areas as soon as possible.
>
> d. Flow lines and mains are installed on top of intermediate capping.
>
> **During final capping**

a. Vertical system and pipe network remain in place and under extraction.

b. Final capping is placed around vertical pipes and over the existing flow lines so the maximum number of wells remain under extraction throughout.

c. A new flow line and main system is installed into final capping above the plastic.

d. The original flow lines are abandoned below the liner.

e. There is minimal time when the extraction is off while wells are connected to the new flow lines.

188 On 26 May 2023 Ashurst briefed Mr Lane with two additional documents:

> You are now briefed with the following documents:
>
> (a) the Landfill Gas Risk Assessment Report prepared by Resolve Environmental dated 13 August 2020 which was submitted to EPA on 12 November 2020. The Tonkin + Taylor auditor verification of this report has already been briefed to you at document number 53 (dated 12 November 2020); and
>
> (b) Tonkin + Taylor s 53V Operations Audit dated 16 November 2021.

189 In his report dated 5 June 2023 Mr Lane addressed the efficiency of Veolia's LFG extraction system. He did so in the context of addressing Veolia's compliance with the GED, and in particular, s 25(4)(a) and (b) of the Act which provides:

> Without limiting sub-section (1), a person who is conducting a business or an undertaking contravenes that sub-section if the person fails to do any of the following in the course of conducting the business or the undertaking, so far as reasonably practicable–
>
> (a) use and maintain plant, equipment, processes and systems in a manner that minimises risk of harm to human health and the environment from pollution and waste;
>
> (b) use and maintain systems for identification, assessment and control of risks of harm to human health and the environment from pollution and waste that may arise in connection with the activity, and for the evaluation of the effectiveness of controls.

190 At [256] to [260] of his report Mr Lane stated:

> 256. Section 25(4)(a) states that the person in control must not fail to:

s.25(4)(a) use and maintain plant, equipment, processes and systems in a manner that minimises risks of harm to human health and the environment from pollution and waste;

257. In my view, Veolia have satisfied the s.25(4)(a) requirement of the GED for reasons of:

a. Veolia operate a landfill to comply with its licence conditions by designing and constructing cell liners, caps and leachate ponds in accordance with the specifications in BPEM (Publication 788.3). These minimise the likelihood of LFG being emitted to the subsurface (and to atmosphere).

b. Veolia have installed LFG collection and destruction equipment and systems to remove the hazard SFARP [so far as reasonably practicable]. I note that the LFG energy recovery system is operated by LMS under contract to Veolia, however it has redundancy [sic] to allow for flaring of LFG if electricity generators are inoperative. These systems also minimise the likelihood of LFG being emitted to the subsurface (and to atmosphere).

c. Additional measures in the form of sacrificial geomembrane covers have been applied to the eastern batter of the intermediate capping on Cells 11, 12 & 13 (although this may have had unintended consequences which I discuss in Paragraph 271).

258. Section 25(4)(b) states that the person in control must not fail to:

s.25(4)(b) use and maintain systems for identification, assessment and control of risks of harm to human health and the environment from pollution and waste that may arise in connection with the activity, and for the evaluation of the effectiveness of controls;

[deleted]

260. In terms of "controls", the key measures, steps, processes or systems that constitute controls are also represented by those I have described in relation to s.25(4)(a) above. In my view, the effectiveness of risk controls is measured by:

[deleted]

b. The LFG collection system is a key control and is assured by:

i. The proactive measures by Veolia to collect as much LFG as early as possible in the filling of a new cell, as described in section 3.10.

ii. Installation and operation of vertical gas wells

early in the cell life as described in section 3.10.

iii. Maximum extraction of LFG by operation of the power station by LMS as illustrated in Figure 3-6).

c. The LFG collection system effectiveness is measured by a combination of odour monitoring (and lack of complaints), monitoring of cap emissions, monitoring of LFG in the subsurface and comparison with results of a gas generation prediction model. I discuss each of these in turn (except LFG ground gas monitoring addressed in my response to Question 2 and 3):

i. Odour monitoring and complaints in the period 1 July 2021 to 8 February 2022 are not provided in the available documents, however in his annual review report (Ashurst Ref 87) f or [sic] the period 1 July 2020 to 30 June 2021, the auditor (Tonkin & Taylor) concluded that "*the Auditor has sighted and reviewed the odour complaints records and associated reports and noted the decrease in the frequency of odour complaints. The management measures as described are considered adequate and the Auditor recommends that these continue*." This in my view is consistent with improved environmental controls on odour.

ii. Monitoring of fugitive emissions (p.28 Resolve, 2020; Ashurst Ref 86) from the landfill caps, both final and intermediate, in the period 1 July 2021 to 8 February 2022 shows that cap emissions surveys in October 2016 reported 5 locations out of 700 exceeding the surface emission trigger levels, in September 2018 this increased to 28 and fell back to zero in January 2019 and through 2019 but increased to 13 in February 2020. The latter consisted of 8 intermediate cap points, one final cap and 5 intermediate cover penetration. This, in my view is consistent with improved environmental controls on fugitive LFG emission on the caps.

iii. A comparison has been made of the actual extracted (also means collected, recovered or captured) volume (in m3/hr) of LFG during the period 1 July 2021 to 8 February 2022 with that predicted using a gas generation model run by Resolve in their LFGRA report of 2020 (s.5.2.2 Resolve 2020; Ashurst Ref 86). The model used was a public domain software application LandGEM published by the US EPA as described in Appendix I of Resolve 2020. The model calculates the maximum theoretical LFG

generation rate (based on an assumed default rate of decomposition of an average municipal solid waste) in each time period for which data on past waste disposal is provided and for forecast waste volumes into the future. Therefore, this maximum generation rate is also the maximum theoretical rate at which gas could be extracted by the landfill gas extraction system operator LMS. Therefore, the actual extraction rate divided by the modelled generation rate (multiplied by 100) will give you the extraction or collection efficiency of the landfill's gas collection system. In section 5.2.2. of Resolve's LFGRA (Ashurst Ref 86) they report for 2019 a gas collection rate by LMS of 4,707 m3/hr and a model prediction generation rate of 7,107 m3/hr for the same period, indicating an LFG collection efficiency of 66%. I have also compared the model output reproduced in Resolve's **Figure** 5-12 with the LMS production record for the period July 2015 to July 2020 in **Figure 3-6**. Reading the values from each graph, the LMS collection rate for July 2020 was 7,000 m3/hr compared with the Resolve modelled rate (**Figure 5-12**) of 7,900 m3/hr or an efficiency of 89%. This indicates that Veolia have greatly improved their LFG collection efficiency between April 2019 and July 2020.

d. In summary, these measures indicate that Veolia are continuously improving their implementation of LFG controls in response to the results of their monitoring program and recommendations by the environmental auditor.

e. In my view, the fact of periodic upgrades and adjustment to the way Veolia manage the landfill operation is not an indication of failure or non-compliance, rather a demonstration of their commitment to continuous improvement towards eliminating risk of harm or at least minimise risk of harm so far as reasonably practicable.

Figure 5-12 Resolve modelled LFG generation (Ashurst Ref 86)

191 Paragraph 260 of Mr Lane's report refers to 'the proactive measures by Veolia to collect as much LFG as early as possible in the filling of a new cell as described in section 3.10'. Paragraph 260(b)(iii) refers to 'maximum extraction of LFG by operation of the power station by LMS as illustrated in figure 3.6'.

192 Section 3.10 of Mr Lane's report (which includes figure 3.6) is as follows:

3.10 LFG Extraction System and Performance Data

64. LFG extraction is described in section 6.4 of the AEA LFGRA (Ashurst Ref 30) and referred to in the Tonkin & Taylor 2020 Environmental Audit Report (Ashurst Ref 47). My description of the LFG collection system is based on these references, and which is operated by LFG energy company LMS, is discussed in the following paragraphs.

65. The LFG collection system operated by energy company LMS consists of 403 vertical wells of which 87 were not operating during the auditor's review in 2020. The vertical wells connect to horizontal flow lines above the intermediate or final cap. The horizontal flow lines transmit extracted LFG to engines for electricity production, which are supported by backup LFG flares. LFG extraction had increased from 4,387 m3/hr in July 2019 to 7,012 m3/hr in June 2020. Figure 3-6 below shows the rate of LFG extraction recorded by LMS between 2015 and 2020 (Ashurst Ref 47).

Figure 3-6 LFG Extraction Volumes 2015 – 2020, (Ashurst Ref 47)

66. An explanation provided by Veolia via Ashurst briefing letter of 23 May 2023 also provides details on the approach by Veolia to LFG control and capture to safely maximise gas yield and also minimise odour. The gas extraction and collection system functions due to the partial vacuum applied to the collection pipe network by the "blowers" at the LMS power station.

67. The process used to maximise the extraction of landfill gas during filling includes (Ashurst briefing letter of 23 May 2023 with minor editorial changes for clarity):

    a. Staggered installation of horizontal LFG collection lines at 40 m spacings in every lift.

    b. Installation of "T wells" on batters on top of the buffer sand layers over the side membrane.

    c. Connection of leachate sumps to LFG extraction system as soon as possible.

    d. Vertical gas wells are installed as soon as possible after the maximum planned waste height is achieved.

e. Sacrificial liners are laid on long-term waste batters with underlying extraction pipes.

68. The process used to maximise the extraction of landfill gas during intermediate capping (Ashurst briefing letter of 23 May 2023) includes (a) to (e) described in paragraph 67 to stay in place in addition to:

a. Installation of capping as soon as possible once the maximum planned waste height is achieved.

b. Installation of vertical gas well systems into areas of intermediate capped areas as soon as possible.

c. Installation of flow pipe lines and gas collection mains on top of intermediate capping.

69. The process used to maximise the extraction of landfill gas during final capping includes (Ashurst briefing letter of 23 May 2023):

a. Maintaining the ongoing vertical gas well system and pipe network under extraction by the power station.

b. Placement of final capping around vertical pipes and over the existing flow lines to ensure the maximum number of wells remain under extraction throughout.

c. Installation of a new flow line and gas mains system into the final capping soil layers above the geomembrane layer.

d. Abandonment of the original flow lines below the liner.

e. Minimisation of time when extraction is not occurring in and part of a cell while existing wells are being connected to the new flow lines.

70. I note that side wall strip drains are required by EPA (pers comms Mr Chris Watkins, 2 May 2023) as a contingency to collect perched leachate. These also act as LFG collection pathways (and a potential emission pathway which in my view makes the side drains counter-productive and inappropriate for inclusion in landfill cell designs) needing LFG to be intercepted at the top edge of the cell, by:

a. Horizontal collectors at the top of the side wall.

b. Sacrificial geomembrane placed on top of the intermediate cap with collector pipes below.

193 At paragraph 277 of Mr Lane's report he stated:

The improved performance of the LFG collection system between July 2019 and July 2020 points to Veolia's appreciation of the potential risks

> of harm from LFG and their ability to respond by implementing an accelerated gas collection program to address previously low effectiveness, as discussed in paragraph 260.

194 I shall address later in this judgment the weight to be attributed to the opinions expressed above by Mr Lane. For present purposes it is sufficient to record my finding that subsequent to the filing of expert reports of Mr Pump and Mr Evans on 21 March 2023 Mr Lane was briefed to prepare a report on the basis of assumptions and documents which required Mr Lane to address the efficiency of Veolia's LFG extraction system.

195 Counsel for Veolia described Mr Lane's evidence that the LFG extraction system was operating at 89% efficiency and 'that Veolia had greatly improved their LFG collection efficiency between April 2019 and July 2020', as a 'throw away comment'. Counsel also submitted that 'the issue of gas extraction was raised for the first time obliquely in Mr Walker's cross-examination of Mr Watkins, and then it was raised subsequently by Your Honour with the experts on a number of occasions'. I reject the characterisation of Mr Lane's evidence as 'a throw away comment'. I also reject counsel's submissions that 'the issue of the LFG extraction system' was raised for the first time in Mr Walker's cross-examination of Mr Watkins. Mr Lane's evidence regarding the efficiency of the LFG extraction system was relied upon by Veolia in support of its contention that it had complied with s 25(4)(a) and (b) of the Act. The evidence was also relevant to the question of whether Veolia had taken all practicable measures to prevent LFG emissions from exceeding the BPEM action levels and had thereby complied with clause 5 of the licence.

196 Prior to the expert witnesses giving oral evidence, the parties were directed to reach agreement on a list of issues to be addressed by the experts. The list of issues included the following:

> 5. Has there breach of the operating licence condition OL_5?

…

(c) In assessing whether there has been a breach of the operating licence:

(i) Has Veolia designed constructed and operated lined landfill cells and LFG extraction and leachate in removal in accordance with the BPEM under EPA Environmental Audits, in order to minimise emissions of LFG and possible risks of harm arising:

(ii) Has Veolia undertaken risk assessments in accordance with the EPA licence in order to identify potential risk of harm?

…

7. How would the installation of the final landfill cap for cells 12 and 13 affect, if at all, the subsurface LFG levels in the boreholes on the eastern boundary?

8. The Landfill gas extraction system.

(a) First question relates to the landfill cells with the temporary caps – that is cells 12 and 13.

(b) Is the efficiency of the landfill gas extraction system is able to be improved [sic]?

(c) If it is able to be improved, will that reduce the subsurface LFG levels in the boreholes on the eastern boundary, and if so, by how much?

(d) Second question relates to the landfill cells with the final caps – that is cells 12 and 13 after the final caps have been installed.

(e) Again, is the efficiency of the landfill gas extraction system is able to be improved [sic]?

(f) If it is able to be improved, will that reduce the subsurface LFG levels in the boreholes on the eastern boundary, and if so, by how much?

197 The agreed list of issues was provided to the Court on the sixth day of the trial. When the list of issues was provided I observed, in respect of the efficacy of the LFG extraction system, 'sitting here at the moment seems to be a critical issue in the case which is the existing plant which seems to be a central component of the [LFG] mitigation at the moment'.

198 Veolia called one lay witness, Mr Watkins. He was employed by Veolia in various roles between April 2016 and September 2023. From November 2020 until September 2023 he was the operations manager for the Hallam Road landfill. Mr Watkins identified three means by which LFG at the landfill site is managed:

> 12. There are a number of ways in which landfill gas is managed.
>
> (a) The first way is through the construction and capping of cells in the landfill which are lined and capped with clay and synthetic materials which are relatively impermeable to landfill gas.
>
> (b) The second way is through the use of a landfill gas extraction system. This is a system of pipes (usually vertical but sometimes horizontal) installed in the landfill cell which extract the landfill gas by suction and then transport it to a processing plant where it is burned to generate electricity or flared to the atmosphere. Both methods of combustion effectively destroy odour and methane, yielding carbon dioxide and water vapour.
>
> (c) The third way is through the management of leachate, which can interfere with landfill gas extraction systems. Leachate is the liquid produced both by the wetting of the waste mass from either surface water or groundwater and from the decomposition of the waste mass.

199 Mr Watkins gave detailed evidence regarding the LFG extraction system operated by LMS. His witness statement which he adopted as his evidence in chief included the following:

> 36. The landfill gas extraction system at the Hallam Road Landfill is provided by Landfill Management Services Pty Ltd (LMS). It is operated under a contract entered into on 14 June 2005 between PWM (Lyndhurst) Pty Ltd (as owner of the landfill site), SITA Australia Pty Ltd (as Veolia was then known, as operator of the landfill) and LMS [VEO.001.003.9195] (LMS Contract).
>
> 37. The LMS Contract started on the date it was signed (14 June 2005) and runs for a period of 30 years to 13 June 2035 (clause 2.1). Part of the landfill site is leased to LMS to operate its Gas Utilisation Facility (the plant which is used to generate electricity or flare the landfill gas) (LMS Contract, clause 5.1).
>
> 38. Under the LMS Contract, in exchange for the provision of services and the payment of royalties, LMS is given the exclusive right to the production and use of all the landfill gas

produced at the landfill and any rights from using that gas either for combustion or for any form of carbon or green credits (clause 3.1). In exchange, LMS was and is responsible for the installation, modification and extension of the Gas Management System and the construction of the Gas Utilisation Facility at its own cost (clauses 6.1 and 6.4(a)) and for the payment of royalties (clause 7.1).

39. The type of infrastructure comprising the Gas Management System and the responsibility for payment of that infrastructure has changed progressively over time. Many of these changes were made before I commenced working at Suez, so I am not sure whether, and if so how, they were documented.

40. The process that was followed between my commencement at Suez and around 2020 was as follows (for cell 10A specifically):

    (a) Suez installs sacrificial horizontal gas extraction wells in the waste mass as the cell is being filled in alternate waste lifts. Waste lifts are horizontal layers of waste roughly 4 metres in height which are used to progressively fill the cell and facilitate safe access and ensure proper compaction and stability. The horizontal gas extraction wells allow for landfill gas extraction prior to the completion of filling of the cell. Suez paid for this infrastructure, which usually collapses or is subject to settlement over time under the weight of the waste mass;

    (b) once a landfill cell had been filled with waste, Suez covered it with a temporary cap comprising of clay. The use of a temporary cap, ensures that waste is adequately covered in a timely fashion rather than waiting for installation of the permanent final cap;

    (c) LMS then installed interim vertical gas extraction wells through the temporary cap together with horizontal pipes and other extraction equipment on the top of the temporary cap to extract the landfill gas and transport it to the Gas Utilisation Plant; and

    (d) once the waste in the cell had settled, LMS removed the pipe work and other extraction equipment on top of the temporary cap in stages, Suez installed the permanent cap in stages, and LMS then reinstalled extraction equipment and pipe work to transport the landfill gas to the Gas Utilisation Plant above the permanent cap.

41. The disadvantage of this method is that the extraction system has to be switched off for those areas that are being final capped until it is effectively complete and new flow lines can be installed.

42. The system used at present, which has been in place since around 2020, is as follows:

(a) Veolia installs sacrificial horizontal gas extraction wells in the waste mass in every waste lift as the cell is being filled. These allow for landfill gas extraction prior to the completion of filling of the cell. Veolia pays for this infrastructure, which usually collapses or is subject to settlement over time under the weight of the waste mass;

(b) when sufficient areas of the active cell reach a suitable waste depth, LMS installs:

(i) targeted vertical gas extraction wells at its own cost; and

(ii) a temporary and sacrificial system of pipes and extraction equipment on top of the current waste mass;

(c) when waste batters (slopes) in the active cell are of sufficient size and access is no longer required over them, Veolia installs sacrificial geomembrane (plastic) over these areas with extraction lines running underneath. Veolia pays for this infrastructure, which is entirely sacrificial and is removed when filling the following cell or when final capping in installed;

(d) once the cell is closed and the temporary (immediate) capping is put in place, LMS installs:

(iii) vertical gas extraction wells at its own cost; and

(iv) a temporary and largely sacrificial system of pipes and extraction equipment on top of the temporary cap, which Veolia pays for. This system remains in place and is operational while the permanent cap is constructed on top of it and means that landfill gas extraction continues during the construction of the permanent cap; and

(e) a permanent system of pipes and extraction equipment is placed on top of the permanent cap by LMS at its own cost.

200 Mr Watkins stated that he was not qualified to give evidence as to whether an increase in the efficiency of the LFG extraction system would reduce LFG emissions at the eastern boundary of the landfill site.

201 At the conclusion of Mr Watkins' evidence the following exchange took place between myself and counsel for the defendants:

HIS HONOUR: Yes. Thank you. Ms Hudgson, I must say, I'm a

little troubled that given the evidence that's fallen from Mr Watkins, that there is no evidence being led on behalf of your client from the plant operator. There is plainly going to be an issue in this case in respect of the question of liability for breach of the licence as to whether one of the practicable measures which could have been taken by your client was to increase the efficiency of the gas extraction plant about which Mr Watkins has given evidence. There were plainly limitations in respect of the evidence which he's been able to give in respect of that matter.

That's entirely a matter for you, but it is what is and of course ultimately how you choose to conduct your case is entirely a matter for you, Ms Hudgson, but again, in my experience it is always best if a judge has got concerns, perhaps for those concerns to be voiced sooner rather than later so you don't read about it for the first time in the judgment.

There is an issue there, Ms Hudgson. I would be greatly assisted by hearing direct evidence from the plant operator about the operation of that plant because it goes directly to the issue of the extraction of gas from the cells adjacent to the eastern boundary, and the efficacy thereof and whether your client has taken all practicable measures available to it to reduce the amount of gas being emitted from those cells, and there is no direct other than Mr Watkins' evidence which plainly has got its limitations, about that matter. So I don't expect you to respond if you don't wish to, but I'm raising that with you for your consideration.

MS HUDGSON: I do wish to mention just one thing.

HIS HONOUR: Yes, sure.

MS HUDGSON: There is direct documentary evidence of the review undertaken by Resolve in its Landfill Gas Risk Assessment of the efficacy of the system. So rather than the less than partial evidence of the operator of the system, there is an independent consultant who has reviewed that and it is also being reviewed by the auditors each year when they conduct the operational audit.

So they are independent people, I accept that the auditors and people from Resolve have not been called but the documents are in evidence that

> address their particular review of that system, and that in turn has been reviewed by the independent experts in this case. That's all I wish to mention at the moment in relation to that.

202 Counsel did not cavil with the proposition that one of the issues for determination in the proceeding was whether one of the practicable measures which could have been taken by Veolia to prevent LFG emissions exceeding the BPEM action levels was to increase the efficiency of the LFG extraction system. In particular, counsel did not submit that the efficacy of the LFG extraction system was not relevant to the plaintiffs' claim for relief under s 309 of the Act because there was no express reference to the LFG extraction system in the particulars of the allegation in [16] of the 2FASOC.

203 Further, when the list of issues to be addressed by the expert witnesses was provided to the Court on the sixth day of the trial I raised with the parties the question of whether the experts would be qualified to address the efficiency of the LFG extraction system. In response, counsel for the defendants submitted:

> MS HUDGSON: I just wanted to mention something, Your Honour, in relation to that matter that may be of assistance in focusing the questions to the experts. Both Mr Lane for the defendant and Mr Pump for the plaintiff are EPA accredited environmental auditors. I think I understand correctly that Mr Evans is not. And the audit documents in this matter are in the court book and also consulting documents such as the Resolve Landfill Gas Risk Assessment demonstrate that it is a regular part of an auditor's job to go onto a landfill site and evaluate these systems.
>
> So while they not be at the coalface working with the system day in, day out, they report to the EPA on if it's working properly, or alternatively, do they have suggested improvements.

204 Notwithstanding the matters set out above, Veolia's written closing submissions included the following:

> 32. The pleadings make no allegation about any deficiencies in the LMS gas extraction system and expert reports (up to and including the joint expert report) do not identify improvements in the gas extraction system as a practicable or reasonably practicable measures

> which Veolia should have taken. As noted above, it is for the plaintiffs to identify the practicable or reasonably practicable measures upon which they rely. There has been some debate among the experts about that issue but it is not a matter in respect of which the defendants have had any discovery obligation.

205 In the passages set out above counsel referred to the Resolve Environmental Landfill Gas Risk Assessment. This is the document drafted 13 August 2020 relied upon by Mr Lane for his conclusion that the LFG extraction system was operating at 89% efficiency. By pointing to this document and prospective evidence of Mr Lane and Mr Pump in respect of the LFG extraction system, counsel explicitly accepted that the efficacy of the LFG extraction system was 'in the ring' for the purpose of addressing the question of whether Veolia had breached the GED and clause 5 of the licence. Veolia's submission that the efficiency of the LFG extraction system was not relevant to the alleged breach of clause 5 of the licence is plainly untenable. So too is its submission that it did not have any discovery obligation in respect of the LFG extraction system.

206 The reports of Messrs Pump and Evans filed 21 March 2023 do not expressly refer to the final capping of cells 12 and 13 as a practicable measure to reduce emissions of LFG. Nevertheless, the final capping of cells 12 and 13 was the subject of expert evidence in the proceeding. As set out above, item 7 of the agreed list of issues to be addressed by expert witnesses was: 'How would the installation of the final landfill cap for cells 12 and 13 affect, if at all, the subsurface LFG levels in the bore holes on the eastern boundary'.

207 It was common ground between the experts that the capping of cells 12 and 13 is a measure which would be practicable to prevent the escape of LFG from the cells. It was also common ground that the final capping of cell 12 and 13 would improve the efficacy of the LFG extraction system in those cells. Veolia did not object to the expert evidence in respect of the final capping of cells 12 and 13. Having agreed to the issue being included in the list of issues to be addressed by the experts there would have been no basis upon which

Veolia could have objected to the admissibility of the evidence. The question of whether the final capping of cells 12 and 13 is a practicable measure to prevent LFG omissions exceeding the BPEM action levels is a matter which falls for determination.

208 The plaintiffs contend that Veolia's failure to prepare and implement a Remediation Action Plan ('RAP') constitutes a breach of clause 5 of the licence. It is common ground between the experts that a RAP is a document which records the outcome of investigations to address LFG emissions exceeding the BPEM action levels and which proposes solutions which can be implemented. The defendants have not prepared a RAP prior to or after 1 July 2022 when Part 11.4 of the Act commenced operation. The reports of Messrs Pump and Evans filed 21 March 2023 do not refer to the preparation of a RAP as a practicable measure to reduce emissions of LFG. Notwithstanding this, Veolia did not submit that the Court should not address the question of whether the failure to prepare a RAP constitutes a breach of a licence. Rather, Veolia submits that a RAP is a *remedial* rather than *preventative* measure. Veolia submits that, so characterised, a failure to prepare a RAP does not constitute a breach of clause 5 of the licence.

209 For the purpose of determining whether Veolia has breached clause 5 it is necessary to address four questions:

(i) Is Veolia's failure to undertake an assessment of the feasibility of a vent curtain system a breach of clause 5;

(ii) Has Veolia failed to operate its LFG extraction system at optimal efficiency, and if so, does this constitute a breach of clause 5;

(iii) Is Veolia's failure to place a final cap on cells 12 and/or 13 a

breach of clause 5; and

(iv) Is Veolia's failure to prepare and implement a RAP a breach of clause 5.

Is Veolia's failure to undertake an assessment of the feasibility of a vent curtain system a breach of clause 5?

210 A VCS is a series of bore holes in a straight line spread regularly apart. Subsurface LFG goes up the bore holes into a horizontal collection pipe and is directed into a biofilter which converts methane gas into carbon dioxide. A VCS has both a remedial and preventive character. It would reduce LFG levels in the immediate vicinity of the boundary between the plaintiffs' land and Veolia's land and would also prevent LFG from migrating from Veolia's land onto the plaintiffs' land.

211 The experts agree that if it is feasible to install a VCS this would dramatically reduce the concentration of LFG along the boundary between Veolia's land and the plaintiffs' land. However, it is common ground that further investigations (for example in relation to soil geology) are necessary to assess the feasibility of a VCS. Mr Pump stated:

> I can't give Your Honour a categorical opinion yes or no whether a vent curtain system is feasible or not.

212 The plaintiffs' claim in respect of the installation of a VCS contracted significantly throughout the course of the trial. The plaintiffs opened their case on the basis that Veolia had breached the GED and clause 5 of the licence by failing to construct a VCS along the boundary between Veolia's and the plaintiffs' land. In opening submissions the VCS was described as a solid wall, one kilometre in length and 7 meters deep. The cost of installing the VCS was stated to be $14,569,517.13.

213 During the trial the plaintiffs were requested to provide a draft of the order

they sought in respect of the installation of a VCS. The proposed order was provided on 4 December 2023 and included, inter alia, a mandatory injunction as follows:

> 9. Within 6 months of the date of this order, the Second Defendant must ensure that an "in-ground pathway intervention system " in the form of an landfill gas vent curtain system, as described in paragraphs [149] – [168] of the expert report of Mr Warren Pump dated 20 March 2023 (LFG Vent Curtain System), or if an LFG Vent Curtain System is not feasible, an alternative form of in-ground pathway intervention system (alternative in–ground pathway intervention system) is designed by a suitably qualified professional.
>
> 10. The LFG Vent Curtain System or alternative in–ground pathway intervention system must:
>
> a. be constructed upon the First Defendant's land as close as practicable to the eastern boundary of the Site; and
>
> b. so far as reasonably practicable, capture, transmit, treat and disperse to atmosphere landfill gas from the Landfill so as to prevent the further migration of landfill gas within the subsurface geology across the eastern boundary of the Site on to the Plaintiffs' land (the Design Intent).
>
> 11. The Design Intent is to be verified by a person who has been appointed as an environmental auditor under the Act (the Vent Curtain Auditor).
>
> 12. As soon as practicable or within 18 months of the date of this order (whichever is the sooner), the LFG Vent Curtain System or alternative in–ground pathway intervention system must be installed.

214 The sections of Mr Pump's report dated 20 March 2023 at [149] – [168] referenced in [9] of the proposed order do not contain design specifications for a VCS tailored to the plaintiffs' land or Veolia's land. Those sections of Mr Pump's report refer to specifications of a VCS implemented on other landfill sites. The proposed orders dated 4 December 2023 contained no specific design plans for the construction of a VCS along the boundary between the plaintiffs' land and Veolia's land

215 The plaintiffs provided a revised form of proposed order during final

submissions on 18 March 2024. Those orders proposed the following in respect of the VCS:

> 8. During the first 12 months of this order, the Defendants will instruct the auditor to determine the feasibility of a 600-metre vent curtain along the eastern boundary as a means to prevent subsurface migration of landfill gas and will provide the auditor's reports regarding the feasibility of the vent curtain to the Plaintiffs and the EPA.

The basis of the '600-metre vent curtain' is not clear. None of the experts recommended a VCS with a length of 600 metres.

216 The plaintiffs' counsel confirmed that [8] of the proposed order does not require Veolia to undertake the design of a VCS. This would only occur if geological testing established that the soil conditions along the eastern boundary of Veolia's land are suitable for the installation of a VCS. Counsel submitted that [8] of the proposed order required Veolia to do three things:

(i) install additional bores and undertake additional monitoring to delineate and confirm the source of LFG;

(ii) installation of dedicated LFG bores and measurement of LFG flow; and

(iii) more detailed geological studies and modelling.

Counsel submitted that these three items 'are merely to establish that the geology is suitable for the particular option to be implemented on the land'.

217 To establish that Veolia has breached clause 5 of the licence the plaintiffs must establish that Veolia failed to take all practicable measures to prevent emissions exceeding the BPEM action levels since 1 July 2022 when Part 11.4 of the Act commenced operation. Veolia's failure to undertake the three steps set out in the preceding paragraph does not constitute a failure to take all practicable measures to prevent LFG emissions from exceeding the BPEM

action levels. First, the three steps are preliminary steps to establish whether the geology of the eastern boundary is suitable for installation of a VCS. These steps would not reduce LFG emissions. Second, clause 5 should be construed as part of a document intended to achieve practical results. The practical result which clause 5 is intended to achieve is the prevention of LFG emissions in excess of BPEM action levels. A measure will not be a practicable measure if the licence holder has no knowledge of the measure and/or could not reasonably be expected to have such knowledge. There is no evidence that prior to the filing of Mr Pump's report and Mr Evan's report on 21 March 2023 the option of installing a VCS had been raised with Veolia. Prior to 18 March 2024 when the plaintiffs submitted the final version of the proposed orders, Veolia was not aware of the precise form of the plaintiffs' claim in respect of a VCS.

218 In September 2016 the EPA published landfill licensing guidelines, publication 1323.3. Appendix 1 of the guidelines is entitled: 'Understanding Landfill Licensing Conditions'. Clause 5 of the licence appears under the heading: 'Landfill Gas Management'. Relevantly, the guidelines state:

> You must take all practicable measures to manage landfill gas to meet the BPEM gas action levels. Examples of practicable measures include, but are not limited to:
>
> - installing and running a landfill gas extraction system
>
> - regular balancing of landfill gas extraction wells, a minimum frequency of monthly is required, unless balancing records show longer stability trends at specific wells
>
> - extraction of leachate such that it is managed to a maximum level in the waste which keeps the landfill gas extraction wells unsaturated
>
> - application and maintenance of intermediate cover and final capping layers to allow sufficient vacuum to be applied to landfill gas extraction wells
>
> - progressive installation of the landfill gas extraction system when each completed cell is rehabilitated. In most cases it is observed that intermediate cover is used for a period of 1-2 years before a final cap is installed. Therefore landfill gas extraction systems should be installed

> immediately after the intermediate cover has been placed
>
> - condensate collection and removal from landfill gas extraction system pipework
>
> - regular inspection and maintenance of landfill gas extraction wells, manifolds, pipework, condensate management infrastructure, blowers, engines and flares
>
> - landfill gas extraction infrastructure future planning to enable expansion of the gas extraction system as required to continually meet the BPEM gas action levels. For example, installing new engines and increasing the electrical interconnection (mains export capacity)
>
> - having flaring capacity which matches the installed engine capacity to maintain gas extraction in the event of interconnection outage
>
> **- the use of passive landfill gas extraction and treatment if gas generation volumes are demonstrated to not be able to sustain an active landfill gas extraction system**
>
> - undertaking landfill gas extraction pumping trials to more accurately determine gas generation and design, and size an appropriate landfill gas management system.

219 Mr Pump described a VCS as a 'passive system' which is not mechanically driven. The landfill licensing guidelines recommend the use of passive LFG extraction and treatment if gas generation volumes are demonstrated not to be able to sustain an active LFG extraction system. The volume of LFG at Veolia's site is able to sustain an active extraction system. Based on the landfill licensing guidelines, prior to receipt of Mr Pump's report and Mr Evan's report filed 21 March 2023 Veolia could not reasonably have considered a VCS to be a practicable measure to prevent LFG emissions from exceeding the BPEM action levels.

220 Determining whether a measure is practicable raises issues of common sense and specialist knowledge and will vary in any given set of circumstances. Common sense dictates that if Veolia had no awareness prior to receipt of Mr Pump's report that a VCS was an option to prevent emissions of LFG, the failure to undertake an assessment of the feasibility of a VCS prior to March 2023 does not constitute a failure to take a practicable measure.

221 It is common ground that if a geological assessment establishes that a VCS could be installed on Veolia's land, it will still be necessary to obtain design approval from the EPA and the City of Casey. Veolia's failure to undertake geological testing to assess the feasibility of a VCS does not constitute a failure to take a practicable measure to prevent LFG emissions exceeding the BPEM levels. Even if geological assessment establishes that the soil conditions are appropriate for the installation of a VCS there remain additional regulatory steps which must be complied with before a VCS could be constructed.

222 The significant contraction of the plaintiffs' claim in relation to the VCS throughout the course of the trial is relevant to whether Veolia's failure to assess the feasibility of a VCS is a breach of clause 5. When the trial commenced the plaintiffs were seeking an order requiring Veolia to construct a VCS one kilometre wall seven meters deep at a cost of approximately $14.5 million. By the conclusion of the trial the plaintiffs' claim in respect of the VCS had diminished significantly. The plaintiffs did not provide costings of the work which would be required to comply with [8] of the proposed orders. However, counsel submitted that it would be less than $1.5 million. By the conclusion of the trial the monetary value of the plaintiffs' claim was approximately 10% of that which had confronted Veolia at the commencement of the trial. The seismic shift in the form and cost of the plaintiffs' claim throughout the course of the trial is a matter legitimately to be taken into account in determining whether Veolia's failure to assess the feasibility of a VCS constitutes a breach of clause 5.

223 Veolia's failure to undertake an assessment of the feasibility of a VCS does not constitute a breach of clause 5 of the licence.

Landfill gas extraction system

224 The LFG extraction system at Veolia's site is the principal means by which Veolia manages LFG emissions. The efficiency of the system is measured by reference to the percentage of gas that is produced by decomposing waste in a landfill cell compared to the rate at which gas is extracted from the cell. As more rubbish is placed in a landfill cell the LFG extraction system must be constantly monitored and expanded to cater for the increasing gas being generated by decomposing waste.

225 Installing additional turbines to generate electricity from extracted gas is an option to increase gas extraction. Efficiency can also be improved by sinking additional boreholes in a cell and adjusting the vacuum pressure in the cell in which the bores have been placed. Whether the system has operated at optimal efficiency since 1 July 2022 is relevant to an assessment of whether Veolia has taken all practicable measures to prevent LFG emissions from exceeding the BPEM levels.

226 I have set out earlier in this judgment sections of Mr Lane's report dated 5 June 2023 which addressed the efficiency of the LFG extraction system. Mr Lane assessed the extraction system as operating with an efficiency level of 89%. The data which Mr Lane relied upon as the basis for this opinion covered the period April 2019 to July 2020, as set out in the LFG risk assessment report prepared by Resolve Environmental dated 13 August 2020. Mr Lane had been briefed with this document by Ashurst on 26 May 2023.

227 When Mr Pump gave evidence on the sixth day of the trial he did not take issue with Mr Lane's favourable assessment of the efficiency of the LFG extraction system. He stated that the contents of Mr Lane's report 'indicates that since April 2019 the LFG extraction plan has quite substantially improved the rate of gas collection for treatment. I don't know the reason for that improvement, I don't know whether it's more boreholes, or as Mr Evans says, more turbines. I take it as read that the gas collection, the volume of gas being

collected has substantially improved as compared with previous years'. Mr Pump acknowledged that Mr Lane's report 'stated a high level of efficiency which my reading supports'.

228 On 28 November 2023, the eighth day of the trial, I directed Veolia to discover by 4.00pm on 4 December 2023 any written communication to or from Mr James in respect of the issue of LFG at Veolia's Hallam Road site during the period 1 January 2019 to 14 November 2023. Mr James had been identified during the evidence of Mr Watkins as Veolia's compliance officer with responsibility for the issue of LFG exceedances and any potential breach of its licence. Prior to 28 November 2023 Veolia had not discovered any document recording any communication to or from Mr James regarding the issue of LFG. On 4 December 2023 Veolia filed an affidavit of documents comprising 323 documents.

229 On 7 December 2023 the Court granted an application by the plaintiffs to recall the LFG experts to give further evidence in light of the additional documents discovered by Veolia on 4 December 2023. On 19 December 2023 orders were made for the filing of further expert reports. On 9 February 2024 the orders of 19 December 2023 were set aside. The orders made on 9 February 2024 included the following:

> 2. By midday on 16 February 2024 the parties are to file and serve further reports of the land fill gas (LFG) experts in accordance with Order 44 of the Supreme Court (General Civil Procedure Rules) 2015 in which the LFG experts are to provide their responses to the following questions:
>
> (a) Do any documents discovered by the defendants on or after 4 December 2023 which refer to measures or potential measures for reducing LFG emissions at 274-310 Hallam Road, Hampton Park (the document(s)) support a finding that the defendants have taken all practicable measures to prevent LFG emissions exceeding the action levels specified in the BPEM for subsurface LFG.
>
> (b) If yes to question 2(a), identify the document(s) and state why the document(s) supports a finding that the

> defendants have taken all practicable measures to prevent LFG emissions exceeding the action levels specified in the BPEM for subsurface LFG.
>
> (c) Do any of the document(s) support a finding that the defendants have not taken all practicable measures to prevent LFG emissions exceeding the action levels specified in the BPEM for subsurface LFG.
>
> (d) If yes to question 2(c), identify the document(s) and state why the document(s) support a finding that the defendants have not taken all practicable measures to prevent LFG emissions exceeding the action levels specified in the BPEM for subsurface LFG.

In addition to the 321 documents discovered on 4 December 2023 during January 2024 the defendants provided a further 279 documents to the plaintiffs' solicitors. Each of the experts filed a supplementary report.

230 Mr Pump's supplementary report is dated 16 February 2024. For the purpose of preparing the report Mr Pump was provided with 45 documents from the 602 documents which had been provided by the defendants on or after 4 December 2023. Section 2.4.3 of Mr Pump's report is headed 'Document Relating to the Performance of LFG Extraction Infrastructure'. His evidence includes the following:

> 76. The Briefing Documents show that Veolia and its sub-contractor, LMS, have not operated the LFG extraction system at optimal levels. This shortcoming, in my opinion, is likely to lead to increased risks posed by LFG along the eastern boundary of the Landfill.
>
> 77. During the Hearing over the period 24th to 28th November 2023, my presentation of oral evidence included discussion on the level of performance of LFG extraction by Veolia (and managed on Veolia's behalf by LMS) in active and closed Landfill cells. I commented at the time that I had no reason to dismiss the assessment by Mr Lane, as he described in Section 5.5.3.1 of the Lane Report, that the Landfill LFG extraction was performing at a suitable efficiency. Having now reviewed the Briefing Documents, my opinion has changed about the operation of the LFG extraction system at the Landfill.

231 Under the heading 'Efficiency of LFG Extraction at the Veolia Site' Mr Pump stated:

91. In Section 5.5.3.1 of the Lane Report (June 2023), discussion was presented on the inferred efficiency of LFG extraction at the Landfill in July 2020 compared with that in 2019. Mr Lane found that in his opinion Veolia had "greatly improved" their LFG collection efficiency between April 2019 (66 percent) and July 2020 (89 percent). Although this may be the case, the Briefing documents show that this interpretation by Mr Lane cannot be extrapolated beyond mid-2020.

92. In my review of the Briefing Documents, in the context of LFG extraction I have noted discussion provided in the Landfill Risk Assessment report dated 15th September 2023 (VEO.002.018.4662). (The Risk Assessment report is also contained in Appendix C of the Risk Management and Monitoring Program report [RMMP, VEO.002.018.3984], also dated 15th September 2023. Both reports have been prepared by Resolve Environmental, being environmental consultants engaged by Veolia.)

93. Section 5.2.2 of the Risk Assessment Report, VEO.002.018.4662, describes an assessment made of LFG generation for 2022 with the average LFG collection rate for that year. The assessment indicated that in 2022 the current gas collection system was operating at an efficiency in the range of 61 percent to 83 percent. Such a level is an average efficiency across all of the Landfill.

94. An estimated efficiency in the range of 61 percent to 83 percent compares poorly with the benchmark for a modern landfill of 85 percent that I discussed in paragraph 86 above.

95. For Landfill cells near the eastern boundary, given the identified LFG fugitive emissions described in the Briefing Documents at Cell 12 (as I have discussed in Section 41 above) in my opinion the efficiency of the LFG extraction system in this area has been less than adequate. If across all of the Landfill, an efficiency of LFG extraction of only 61-83% was achieved in 2022, then I would suggest that for Cell 12 (and Cell 13) the efficiency is most likely at the lower end of that range.

96. It is my interpretation, therefore, that the inefficiency of LFG extraction achieved in the years since at least 2021 in cells beside the eastern boundary of the Landfill (especially Cells 12 and 13) represents a significant contribution to the gas available to fugitively migrate from the cell, either into the atmosphere or into the surrounding subsurface soils. This is consistent with the rapid increases in LFG measured in Veolia's monitoring bores along the eastern boundary of the Landfill (as discussed in my expert report of 10th August 2023).

232 When Mr Pump was recalled to give further evidence on 20 February 2024 he gave the following explanation for the change in his evidence regarding the

efficiency of Veolia's LFG extraction system:

> MR PUMP: …In January I received and reviewed the risk management and monitoring program which discusses in some detail the landfill gas extraction system and its efficiency in 2022. And that information I thought was more current and was inconsistent with the information Mr Lane had reviewed. The RMMP showed, as I have indicated in my report, that the extraction efficiency is no longer at optimal levels. It might have been when Mr Lane was reviewing his information but that's why I changed my opinion, because I looked at more recent information that led me to believe that the operation of the extraction system is no longer at optimal levels but should be.

233 I accept Mr Pump's evidence that Veolia's LFG extraction system should be operating at 85% efficiency whereas the latest data discloses that the system is operating at 60% to 70%. I also accept Mr Pump's evidence that improving the efficiency of the LFG extraction system is a practicable measure which Veolia could take to reduce LFG emissions. Mr Lane accepted that one way of reducing LFG emissions from cells 11, 12 and 13 is to sink more wells into those cells to get more gas to the plant and to burn it off through flares that cannot be run through the plant's turbines. He gave evidence that this may require additional pumps to extract more gas from the cells.

234 Mr Evans gave evidence that the 'reality of the industry' is that once the operation of a LFG extraction system is not profitable the system is not maintained. Even if there is an increase in the efficiency of the system there is no guarantee that will last through the life of the landfill. However, if a LFG extraction system is focussed on environmental rather than commercial outcomes, Mr Evans would be more positive about the potential for improvements to the efficiency of a LFG extraction system to reduce LFG emissions. He referred to the placing of bores outside of landfill cells as an example of enhancing the environmental rather than commercial focus of a LFG extraction system.

235 On 23, 24 and 27 August 2023 the expert witnesses participated in a joint expert conference. They produced a report drafted 30 August 2023. Paragraph 146 of that report is as follows:

> 146 Mr Lane in paragraphs 254 to 286 of the Lane Report has concluded an opinion on GED compliance which is, in summary that Veolia has met it GED obligations for reasons of:
>
> a. Designed, constructed and operated lined landfill cells and LFG extraction and leachate removal in accordance with the BPEM under EPA Environmental Audits, in order to minimise emissions of LFG and possible risks of harm arising.
>
> b. Undertook risk assessments [deleted] in accordance with the EPA licence in order to identify potential risk of harm and provide for their minimisation (see paragraph 259 of the Lane Report).
>
> c. Applied continuous improvements to the LFG extraction systems and processes (see section 3.10 of the Lane Report) to achieve dramatic improvements to the effectiveness of LFG extraction relative to the rate of LFG generation from waste (see paragraph 260 of the Lane Report).
>
> d. Veolia has systems for monitoring and responding to potential risks of harm identified, including by managing leachate to minimise its depth in the cells by removing and managing it in the leachate management system, and by providing the resources and trained personnel to oversee the measures necessary to minimise risk of harm potentially arising from LFG (see paragraph 261 to 266 of the Lane Report).

236 Although the opinion expressed by Mr Lane at [146] related to GED compliance, Mr Lane gave evidence that he relied upon the matters set out in [146](a)-(d) as the 'key reasons' for his opinion that Veolia was not in breach of clause 5 of the licence. One of the reasons is set out in [146](c), namely, that Veolia had achieved dramatic improvements in the effectiveness of the LFG extraction relative to the rate of LFG generated from waste. This opinion was based on out of date data. One of the key reasons identified by Mr Lane in support of his conclusion that Veolia has not breached clause 5 is not supported by current evidence regarding the effectiveness of the LFG

extraction system.

237 Veolia submits that there is no evidence specifically addressing the efficiency of the LFG extraction system in cells 11, 12 and 13. I reject this submission. The very high concentration of LFG in the vicinity of cells 11, 12 and 13 supports a finding that the LFG extraction system is not operating at optimal efficiency in these cells. In a LFG risk assessment dated 9 November 2020 Veolia's environmental auditor stated under the heading 'LFG Compliance':

> Based on the information reviewed it is determined that the LFG management at the site (i.e. the current configuration and/or operation of the LFG extraction system) is not adequate to manage landfill within the sites licence conditions and as such is not considered BPEM compliant. This is evidenced by ongoing landfill gas (methane and carbon dioxide) present at the boundary bores at concentrations in excess of BPEM action levels and detections of methane above BPEM action levels during surface emissions monitoring events.

This reasoning applies equally to the high levels of emissions recorded at the bores adjacent to cells 11, 12 and 13 post July 2022.

238 Further, I reject Veolia's attempt to rely on the absence of specific evidence in relation to the performance of the LFG extraction system in cells 11, 12 and 13. Prior to the commencement of the trial the plaintiffs' expert witnesses accepted the opinion expressed in Mr Lane's report of 5 June 2023 that the LFG extraction system was operating at 89% efficiency. The fact that this opinion was based on out of date data did not come to light until January 2024 when Mr Pump was briefed with additional documents discovered by Veolia on or after 4 December 2023. Veolia failed to lead direct evidence from the operator of the plant (LMS) and failed to meet its discovery obligations in respect of the LFG extraction system. For example, Veolia discovered no documents recording communications with LMS relating to the performance of the LFG extraction system. There is no record of the 'regular LFG operator meetings held between Veolia and LMS to discuss in detail the efficiency of the gas collection network and ensure it is running at optimal performance'.

Veolia did not submit that it has discovered all documents relating to the performance of the LFG extraction system. Rather, it submitted that it was not under any obligation to discover such documents. The basis of this submission was that [16] of the 2FASOC did not plead that inefficient operation of the LFG extraction system constituted a breach of clause 5. For the reasons set out earlier in this judgment I reject this submission. This submission is based on the untenable proposition that the plaintiffs' claim that Veolia breached clause 5 of the licence is confined to Veolia's failure to install a VCS.

239 The briefing of Mr Lane with out of date data regarding the performance of the LFG extraction system seriously prejudiced the conduct of the present proceeding. The prejudicial effect is clearly demonstrated by the significant change in Mr Pump's evidence in relation to the efficiency of the LFG extraction system. When he initially gave evidence he accepted at face value the contents of Mr Lane's report which was consistent with the LFG extraction system operating at a high level of efficiency. However, when provided with up to date data he changed his evidence.

240 The data provided to Mr Lane for the preparation of his report dated 5 June 2023 ended in July 2020. The Resolve Environmental report of 13 August 2020 was provided to Mr Lane by Ashurst on 26 May 2023. The data in that report underpinned Mr Lane's conclusion that the LFG extraction system was operating at 89% efficiency as at July 2020. On 21 April 2023 Veolia's environmental auditor, Tonkin and Taylor, forwarded 'auditor comments' to Mr James on a draft risk assessment prepared by Resolve Environmental titled 'Risk Assessment, Hallam Road Landfill, Veolia Australia and New Zealand' (ref P001114-054) dated 22 March 2023. The Tonkin and Taylor letter includes a table which identifies a section of the report with auditors' comments in respect of the relevant section. Sections 5.2.1 and 5.2.2 are as

follows:

> Section 5.2.1 Suggest that comment could be made on the intent to target early control of LFG within the cell, aimed at minimising the risk of low-level fugitive waste odours and LFG odour during cell filling. I note that the well spacing is determined by LMS. As discussed on other occasions, this is a potential weakness as the extraction well layout is optimised for commercial LFG extraction, not odour control. Operators responsible for both aspects of the design tend to use a closer well spacing (perhaps a 25m grid and certainly no more than 30m typically).
>
> Section 5.2.2 As noted, the collection efficiency could be improved. 60-70% is likely not good enough for odour control in the context of the site. There should be more discussion/ development of this aspect. Ideally the site should be targeting >80% and ideally >90%, consistently for final capped areas.

241 The draft Resolve Environmental report dated 22 March 2023 is not in evidence. The final version of the report dated 15 September 2023 is in evidence. This document was discovered immediately prior to the commencement of the trial on 15 November 2023. On the morning of the second day of the trial counsel for the defendants submitted that the defendants placed no reliance upon it and it was removed from the supplementary court book.

242 Section 5.2.1 of the final version of the report includes the following introductory sentence:

> Landfill gas management is established during filling with the intent of early control of LFG within the cell aimed at minimising the risk of low level fugitive waste odours and LFG odour during the cell filling.

This wording is identical to the Tonkin and Taylor auditor comments on the 22 March 2023 draft Resolve Environmental Report in the letter to Mr James dated 23 April 2023.

243 Section 5.2.2 of the report dated 15 September 2023 includes the following:

> Data provided by landfill gas contractor LMS Energy, indicates a total of 45,504,526 m3 of landfill gas was captured in 2022, which equates to an

average collection rate of 5,195 m3hr-1.

Figure 5.1: 2022 Landfill Gas Capture

> Comparison of the modelled LFG generation for 2022 (low, medium and high) with the average gas collection rate for 2022 indicates the current gas collection system is operating at an efficiency in the range of 61% to 83%. The USEPA (AP-42 Compilation of Air Emissions Factors, Chapter 2.4: Municipal Solid Waste Landfills, Draft update 2009) estimates that the collection efficiency for a typical comprehensive landfill gas collection system range from 50 to 95% with the lower end representative of 'landfills with a large number of open cells, no liners, shallow soil covers, poor collection system and cap maintenance programs and/or a large number of cells without gas collection'. Conversely, the higher end of the range is described as representative of 'closed sites employing good liners, extensive geomembrane-clay composite caps in conjunction with well engineered gas collection systems, and aggressive operation and maintenance of the cap and collection system'.
>
> As such, the extraction system could be improved (particularly if the lower estimate is correct). However, it is noted, the site contains active and intermediate caps cells, which limit the performance ability. As the final capping is placed and the gas extraction is expanded, the gas collection efficiency would be expected to improve. For odour control the site should be targeting >80% and ideally >90% efficiency, consistently for final capped areas. Veolia acknowledge this an area for improvement.

244 I infer that section 5.2.2 of the final report is in substantially the same terms as the March 2023 draft which was the subject of the Tonkin and Taylor auditor comments on 21 April 2023. The final report states that the LFG extraction system is operating at an efficiency in the range of 61% to 83%. Tonkin and Taylor stated in respect of section 5.2.2 of the 23 March 2023 draft:

> As note the collection efficiency could be improved. 60-70% is likely not good enough for odour control in the context of this site.

245 Mr Lane's conclusion in his report dated 5 June 2023 that the LFG extraction system was operating at 89% efficiency in July 2020 was based on average landfill gas collection of approximately 7,000 cubic metres per hour. The Resolve Environmental report of 15 September 2023 noted that data provided by LMS equated to an average collection rate of 5,195 cubic metres per hour. This data was relied upon by Mr Pump when changing his evidence as to the

efficiency of the LFG extraction system.

246 When Ashurst briefed Mr Lane on 26 May 2023 with the Resolve Environmental Landfill Gas Risk Assessment report dated 13 August 2020, Veolia had already received the Tonkin and Taylor letter of 21 April 2023 which commented on section 5.2.2 of the 23 March 2023 draft Resolve Environmental Gas Risk Assessment. Mr Lane was briefed with out of date data which he relied upon to reach the conclusion that the LFG extraction system was operating at 89% efficiency. This conclusion was correct but only as of July 2020. I make no criticism of Mr Lane. He was entitled to prepare his report on the basis of the documents provided to him. However, not only did Veolia provide Ashurst with data which was out of date, it beggars belief that Veolia was not aware that the data provided to Mr Lane was both out of date and not an accurate reflection of the efficiency of the LFG extraction system in the first half of 2023.

247 On 26 May 2023 when Mr Lane was briefed with the Resolve Environmental report dated 13 August 2022, Veolia already had the monthly LMS reports which showed the level of efficiency of LFG extraction. The final version of the Resolve Environmental report of 15 September 2023 sets out the data from these reports for each month from January to December 2022. These reports provide the basis for the finding that the average collection rate for the extraction system was 5,195 cubic metres per hour.

248 I raised these concerns with Veolia's counsel during final submissions. Counsel submitted that 'there's a difference between having data and evaluating it'. Counsel also submitted that it was a reasonable inference that there was no draft of the Resolve Environmental LFG Risk Assessment of September 2023 and that it was received by Veolia in or around September 2023. I reject both these submissions. Veolia received a draft of the September 2023 LFG Risk Assessment on 23 March 2023 and received a

report from its auditor, Tonkin and Taylor, on 21 April 2023. Not only had it received data regarding the operation of its LFG extraction system it had analysis of the data. That analysis was in section 5.2.2 of the 23 March 2023 draft of the LFG Risk Assessment, which prompted the auditor's observation, '60-70% is likely not good enough for odour control in the context of this site'. Upon receipt of Mr Lane's report dated 5 June 2023, Veolia must have known that Mr Lane's conclusion that the LFG extraction system was operating at 89% efficiency as at July 2020 did not reflect the efficiency of the system as at December 2022 and thereafter.

249 Veolia was aware when the trial commenced on 15 November 2023 that Mr Lane's evidence regarding the efficiency of the LFG extraction system was based on out of date data and did not reflect the performance of the system as at December 2022 and thereafter. I infer that Veolia considered it to be in its interests to allow Mr Lane to give evidence that the LFG extraction system was operating at 89% efficiency because it believed this evidence would aid its defence of the plaintiffs' claim that it had breached the GED and clause 5 of the licence. Through the evidence of Mr Lane in his report of 5 June 2023 Veolia sought to neutralise a key issue in the case. It nearly succeeded in doing so. But for the recalling of the expert witnesses to address the additional documents discovered by Veolia on and after 4 December 2023, Mr Pump would not have had the opportunity to change his evidence in relation to the performance of the LFG extraction system. I make no adverse finding against Mr Lane or Veolia's solicitors and counsel who were entitled to proceed on the basis that Veolia had briefed Mr Lane with data which was up to date.

250 Counsel for Veolia submitted that the 'critical issue…is how the [LFG] extraction system was operating specifically at cells 11, 12 and 13…[a]nd certainly the original report relied upon by Mr Lane and the subsequent report

relied upon by Mr Pump takes your Honour nowhere in determining that particular issue'. I agree that the performance of the LFG extraction system at cells 11, 12 and 13 is a critical issue for determining whether Veolia has taken all practicable measures to prevent LFG emissions exceeding the BPEM levels. However, it is impossible to reconcile this characterisation of the importance of evidence regarding the performance of the LFG extraction system at cells 11, 12 and 13 with Veolia's failure to have discovered any documents or led any evidence from LMS which could have addressed this critical issue.

251 Counsel submitted that Veolia was not subject to any obligation to discover any documents relating to the performance of the LFG extraction system because the issue was not pleaded or particularised. I reject this submission. The performance of the LFG extraction system was directly relevant to the plaintiffs' claim that Veolia had breached the GED. This is the context in which Mr Lane addressed the issue in his report of 5 June 2023. Veolia was subject to a court order to produce documents that adversely affected its own case and which supported the plaintiffs' case. Veolia sought to rely on the efficient performance of the LFG extraction system in meeting the plaintiffs' claim that Veolia breached the GED. In order to comply with [5] of the Court's order for discovery made on 9 August 2022, Veolia was required to disclose documents which might support a finding that the LFG extraction system was not performing efficiently. It failed to do so.

252 Counsel submitted that any criticism of the adequacy of Veolia's discovery is misplaced because such criticism focuses on documents which postdate May 2022. Veolia submits that the claim alleging a breach of clause 5 of the licence is confined to the period prior to 31 May 2022. The basis of this submission is as follows. The plaintiffs allege in [16] of the 2FASOC that Veolia failed to comply at all relevant times with the requirements of the

operating licence. On 26 August 2022 Veolia served a request for further and better particulars of the amended statement of claim dated 1 July 2022. The amended statement of claim pleaded a cause of action in nuisance and a claim for relief under s 309 of the Act for an alleged breach of s 25. Veolia sought particulars of the date from which it was alleged to have failed to comply with the requirements of the operating licence. The plaintiffs provided further and better particulars on 9 September 2022. As to the allegation in [16] of the amended statement of claim, the further and better particulars stated:

> The dates on which the defendants failed to comply with the requirements of the Operating Licence are not currently known to the plaintiffs. However, the consequences of the defendants' failure to comply with the requirements of the Operating Licence manifested themselves between 31 May 2022 and 21 June 2022 when monitoring and sampling was carried out by Richard H Evans a certified environmental practitioner.

253 On the basis of these particulars Veolia contends that the plaintiffs only rely on breaches of the operating licence which occurred prior to 31 May 2022. Veolia submits it has no obligation to discover any documents which postdate 31 May 2022. I reject this contention, which was raised for the first time in Veolia's written closing submissions filed 3 March 2024.

254 If Veolia is correct in contending that the plaintiffs' allegation of breach of the operating licence and breach of s 25 is confined to breaches which occurred prior to 31 May 2022 the plaintiffs would have no cause of action under Part 11.4 of the Act. Pursuant to s 7 of the Act (read in conjunction with the Victorian Government Gazette S124, 16 March 2021) s 25 commenced operation on 1 July 2021. However, Part 11.4 of the Act which creates a statutory cause of action for breach of s 25 and breach of licence did not commence operation until 1 July 2022.

255 Part 11.4 of the Act does not operate retrospectively in respect of a breach of s 25 or the operating licence which occurred prior to 1 July 2022. The cause

of action alleging a breach of s 25 was first pleaded on 1 July 2022 which coincided with the commencement of Part 11.4 of the Act. The cause of action alleging a breach of the operating licence was first pleaded on 12 July 2023. When the request for further and better particulars was served on 26 August 2022 the plaintiffs had not yet pleaded a claim based on a breach of the operating licence. The particulars provided by the plaintiffs on 9 September 2022 were not particulars of the plaintiffs' claim alleging a breach of the operating licence.

256 Putting the matters set out above to one side, the statement in the further and better particulars that, 'the consequence of the defendants' failure to comply with the requirements of the licence manifested themselves between 31 May 2022 and 21 June 2022', does not confine the plaintiffs to a claim in respect of licence breaches which occurred prior to 31 May 2022. If the plaintiffs were so confined they would not have a cause of action under the Act. The defence to the 2FASOC does not plead that the plaintiffs do not have a cause of action because they only rely upon breaches which occurred prior to 1 July 2022. Further, prior to the commencement of the trial on 15 November 2023 the defendants provided discovery of 16 permission notification forms ranging from 23 June 2022 to 7 August 2023. In each of these forms Veolia notified the EPA of LFG emissions in excess of the BPEM levels. This discovery is inconsistent with the temporal limitation for which Veolia now contends.

257 Consistent with the fact that the plaintiffs only have a right to bring a claim in respect of conduct which postdates 1 July 2022, the plaintiffs plead that Veolia has breached continuing licence obligations which postdate 1 July 2022. Paragraph 14 of the 2FASOC alleges, 'the Operating Licence required and *requires* Veolia to take all practicable measures to prevent emissions of LFG exceeding … (BPEM action level)'. The particulars of [14] referred to 'condition OL5 of the current Operating Licence as amended on 28 March

2023 and as amended on 10 September 2021 …'. If the plaintiffs had confined their allegation that Veolia had breached clause 5 of the licence, to conduct occurring prior to 31 May 2022 there would have been no reason to particularise the allegation in [14] by reference to the 'Current Operating Licence' which was amended on 12 May 2023 and the licence as amended on 28 March 2023.

258 The plaintiffs allege in [16] of the 2FASOC that the defendants failed to comply *at all relevant times* with the requirements of the operating licence. The reference to 'all relevant times' is properly understood as a reference to the period of time the licence as particularised in [14] was operative, which includes the licence as amended on 28 March 2023 and 12 May 2023.

259 Veolia advanced a further submission in support of its contention that its discovery obligations were subject to a temporal limitation. Veolia submits that any documents which postdate 8 February 2022 are not discoverable. The City of Casey rejected the plaintiffs' planning permit application on 8 February 2022. Veolia submits that the plaintiffs' claim for loss and damage is confined to loss arising from the rejection of the planning permit application on 8 February 2022. Veolia submits that any documents which postdate 8 February 2022 are not relevant to any issue which falls for determination in the proceeding and are not relevant. I reject this submission.

260 The plaintiffs' claim under Part 11.4 of the Act based on alleged breaches of s 25 and clause 5 of the licence do not have any nexus with the rejection of the planning permit application on 8 February 2022. The relief which the plaintiffs claim under s 309 is not a claim for loss and damage arising from the rejection of their permit application by the City of Casey on 8 February 2022. Further, the claim based on breach of the licence and breach of s 25 could not be pleaded until 1 July 2022. Any breach of the licence or s 25 which occurred prior to this date does not give rise to any entitlement for relief under

s 309. The contention that Veolia's discovery obligations are constrained by the date of the rejection of the planning permit application is plainly untenable.

261 I have set out earlier in this judgment evidence of LFG emissions recorded at bores along the eastern boundary of Veolia's landfill site which disclose that subsequent to July 2022 there have been significant variations in LFG emissions. I accept the evidence of Mr Pump that the LFG extraction system is a critical element in the management of LFG at the site. I also accept his evidence that based on the Resolve Environmental Landfill Gas Risk Assessment report dated 15 September 2023 the LFG extraction system has not been operating at optimal efficiency during 2022. The data recording emissions to October 2023 supports a finding that the extraction system has continued to perform at less than optimal efficiency. The frequency and extent of exceedances recorded at LFG bores in the vicinity of cells 11, 12 and 13 supports a finding that the LFG extraction system has not been operating at optimal efficiency in these cells. This in turn supports a finding that Veolia has breached clause 5 of the licence by not taking all practicable measures to prevent LFG emissions from exceeding the BPEM levels.

262 This finding is reinforced by (but is not dependent upon) the failure of Veolia to discover documents relating to the performance of the LFG extraction system. There has been a serious breach by Veolia of its obligation to make discovery in accordance with the Court's order of 5 August 2022. Pursuant to s 56(2)(h) of the *Civil Procedure Act 2010* I draw an adverse inference that had Veolia complied with its discovery obligations and produced all documents in its possession or control regarding the operation of the LFG extraction system such documents would not have assisted Veolia's defence of the plaintiffs' claim that Veolia has failed to take all practicable measures to prevent LFG emissions from exceeding the BPEM levels.

Final capping of cells 12 and 13

263 Clause OL L27 of the licence mandates that Veolia must complete final capping of cells in accordance with an approved rehabilitation plan within 2 years of the date that a cell becomes full. The purpose of a final cap is to provide an engineered layered system over the full surface of the filled cell as the final layer of the cell. The final cap seals the cell off and traps the LFG inside. A final cap enhances the capacity of the LFG extraction system to extract more gas. It takes approximately 6 months to design a final cap and obtain EPA approval of the design. The cost of a final cap is in the range of $1 million to $2 million.

264 Filling of cell 11 was completed in 2017 and a permanent cap was installed in 2021. Filling of cell 12 was completed in May 2020. Filling of cell 13 was completed in February 2023.

265 The experts agree that design flaws in the drainage layers of cells 12 and 13 have provided a pathway for LFG to escape from the cells. In addition, both Mr Lane and Mr Pump agree that the anchor trench in cell 13 is a design fault in the construction of the cell. It acts as an air gap to allow LFG to move up the inside of the cell and then head in a horizontal direction. The experts agree that the installation of final caps on cells 12 and 13 will reduce the amount of LFG escaping from the cells. The experts also agree that the final capping of the cells will contribute to the improved performance of the LFG extraction system connected to cells 12 and 13. Mr Watkins gave evidence to the same effect.

266 Mr Pump identified the 'key issue' to address the elevated levels of LFG in the vicinity of cell 13 as being to fill the cell as rapidly as possible and place a final cap on the cell. Mr Pump gave evidence that a final cap would 'very likely' stop LFG continuing to vent from outside cell 13. I accept Mr Pump's

evidence. He has a master's degree in geotechnical engineering. The timing and placement of a permanent cap on the cell is a matter falling within his area of particular expertise.

267 LFG bores adjacent to cells 12 and 13 have recorded LFG in excess of the BPEM levels since 1 July 2022. The LFG bores adjacent to cell 11 which was capped in 2021 have recorded much lower LFG levels. The LFG bores adjacent to cell 11 are LFG 38, 53 and 54. Between July 2022 and October 2023:

(i) LFG 38 recorded emissions within a range of 0% to 13.1%;

(ii) LFG 53 recorded emissions within a range of 0% to 40.9%;

(iii) LFG 54, which is positioned furthest away from cells 12 and 13, recorded emissions in the range of 0% to 4.6%.

268 LFG 37 is situated on the boundary between cells 11 and 12. Between July 2022 and October 2023 it recorded LFG emissions ranging from 0% to 48.2%. LFG 52 is situated on the boundary between cells 12 and 13. Between July 2022 and October 2023 it recorded emissions ranging from 0.6% to 83.2%. LFG 36 is situated adjacent to the midpoint of cell 13. Between July 2022 and October 2023 it recorded emissions ranging from 0% to 23.6%.

269 Filling of cell 13 was completed in February 2023. It is common ground that prior to installation of a final cap it is necessary to allow a period of time for the waste in a cell to settle. The construction of a final cap is also subject to a design and EPA approval process. The failure of Veolia to have placed a final cap on cell 13 does not constitute a failure to take a practicable measure to prevent emissions of LFG exceeding the BPEM levels. It was not a practicable measure for Veolia to have completed construction of a final cap for cell 13 prior to the commencement of the trial in November 2023.

However, I accept Mr Pump's evidence that there is currently no impediment to Veolia setting in train the steps necessary for the permanent capping of cell 13 and no sound reason why Veolia should not immediately proceed with the process of designing a permanent cap, obtaining EPA approval and then undertaking construction.

270 Filling of cell 12 was completed in May 2020. Mr Pump gave evidence, which I accept, that there is no impediment to Veolia placing a permanent cap on cell 12. Mr Lane could not identify any reason why a permanent cap could not be installed forthwith on cells 12 and 13. He stated: 'There is operational reasons that Veolia would have to speak to'. No witness gave evidence on behalf of Veolia to provide an explanation why a permanent cap has not been placed on cell 12 notwithstanding the fact that the filling of the cell was completed in 2020.

271 LFG 37, which is adjacent to the boundary between cells 11 and 12, recorded 0% emissions on 26 October 2022 and 3.8% on 22 November 2022. Emissions between November 2022 and October 2023 were recorded as being significantly in excess of 1%. LFG 52, which is on the boundary between cells 12 and 13, recorded emissions of 0.6% on 7 February 2023 and 32.1% on 9 March 2023. Thereafter, emissions are recorded as being very significantly above BPEM levels: 83.2% in September 2023 and 69% in October 2023.

272 It is common ground that the time required for installation of a final cap must take into account the initial settlement of the waste in a landfill cell and cap design, EPA approval and construction. These factors do not explain Veolia's failure to have installed a final cap on cell 12 prior to July 2022. The expert evidence in respect of the settlement of waste and the process for design and construction of a final cap supports a finding that there was no impediment for Veolia to have placed a final cap on cell 12 by July 2022.

273 Earlier in this judgment I have recorded a finding that clause 5 of the licence imposes an ongoing obligation upon Veolia to take remedial measures to reduce landfill gas emissions below the BPEM levels once those levels have been exceeded. Under this construction of clause 5, Veolia's failure to have placed a permanent cap upon cell 12 constituted a breach of clause 5 because it entailed a failure to take a practicable measure to prevent LFG emissions from exceeding the BPEM levels. However, assuming in Veolia's favour that the only obligation imposed upon it by clause 5 is to *prevent* emissions from exceeding the BPEM levels and that it was not under any obligation to take remedial action once the BPEM levels had been exceeded, the failure to install a permanent cap on cell 12 by July 2022 or thereafter, constitutes breach of clause 5 of the licence. In October/November 2022 LFG 37 records methane gas emissions rising from 0% to 3.8%. In February/March 2023 LFG 52 records methane gas emissions rising from 0.6% to 32.1%. Veolia's failure to have installed a final cap on cell 12 prior to October/November 2022 and/or February/March 2023 constituted a failure by it to take a practicable measure to prevent emissions of methane gas from exceeding the BPEM levels.

274 Veolia did not provide discovery of any documents which shed any light on its failure to have installed a final cap on cell 12. I infer that if Veolia had provided discovery in respect of its failure to have placed a final cap on cell 12, such evidence would not have assisted its defence to the plaintiffs' claim that its failure to place a final cap on cell 12 constitutes a failure to take a practicable measure to prevent LFG emissions from exceeding the BPEM levels. A finding that Veolia's failure to have placed a final cap on cell 12 breached clause 5 is reinforced by, but is not dependent upon, the drawing of an adverse inference arising from Veolia's inadequate discovery.

Veolia's failure to prepare and implement a Remediation Action Plan

275 A Remediation Action Plan (RAP) is a document prepared by an

environmental auditor which assesses feasible options to remediate the risks identified in a Risk Management and Monitoring Plan (RMMP) and which provides a preferred strategy to address the prioritised risks. It also proposes a methodology to assess whether the strategy to address the risk is successful. A RMMP is a document which Veolia was required to prepare by virtue of clause OL_G5 of the licence:

> 1. You must develop a risk management and monitoring program for your activities which:
>
> (a) identifies all the risks of harm to human health and the environment which may arise from the activities you are engaging in and your activity site;
>
> (b) clearly defines your environmental performance objectives;
>
> (c) clearly defines your risk control performance objectives;
>
> (d) describes how the environmental and risk control performance objectives are being achieved;
>
> (e) identifies and describes how you will continue to eliminate or minimise the risks in 1(a) above so far as reasonably practicable (SFARP);
>
> (f) describes how the information collated in compliance with this clause, is or will be disseminated, used or otherwise considered by you or any other entity.
>
> 2. The risk management and monitoring program must be:
>
> (a) documented in writing;
>
> (b) signed by a duly authorised officer of the licensed entity; and
>
> (c) made available to the Authority on request.

276 Clause 6.7.1 of the BPEM includes the following:

> Where an action level has been exceeded at an offsite location, or the result indicates that an action level would be exceeded offsite, then the landfill operator must prepare an LFGRAP.
>
> When buildings offsite are or may be impacted by landfill gas, the LFGRAP must be verified by an environmental auditor as taking all practicable measures in the circumstances to reduce the risks from the landfill gas to acceptable levels.

> Notwithstanding the requirement of auditor verification, the draft LFGRAP is to be forwarded to the EPA as soon as practicable. Auditor verification of the draft LFGRAP is not required prior to its submission to the EPA.

277 Clause L5 of the Landfill Licensing Guidelines (EPA publication 1323.3 September 2016) provides the following guidance as to when clause 5 of Veolia's operating licence will be breached:

> Not taking all practicable measures to control and manage landfill gas emissions to within the gas action levels, not notifying EPA within the prescribed timeframe and not providing and implementing a landfill gas remediation action plan are considered to be breaches of this licence condition.

278 Mr Watkins gave evidence that during the period of his employment between 2016 and September 2023 he was not aware of Veolia ever having taken steps to prepare and implement a RAP.

279 Veolia submits that insofar as the landfill licensing guidelines and clause 6.7.1 of the BPEM require Veolia to prepare and implement a RAP, neither the guidelines nor the BPEM have any legal effect. I accept this submission. Neither the guidelines nor the BPEM are legislative instruments. Save for the reference to table 6.4 of the BPEM in clause 5 of the licence, neither the guidelines nor the BPEM are incorporated into the licence.

280 Whether Veolia's failure to prepare and implement a RAP constitutes a breach of clause 5 of the licence requires consideration of whether the failure to prepare and implement a RAP constitutes a failure to take a practicable measure to prevent LFG emissions from exceeding the BPEM action levels.

281 Veolia submits that its failure to prepare and implement a RAP is not a breach of clause 5 because a RAP is a *remedial* rather than a *preventative* measure. I accept that the ordinary meaning of 'remediation' is different from 'prevention'. I also accept that a RAP will be directed to lowering LFG emissions where these are in excess of the BPEM action levels. It does not

follow, however, that once the BPEM action levels have been exceeded, 'the horse has bolted' and there is no requirement under clause 5 for Veolia to prepare and implement a RAP.

282 The evidence of LFG emissions along the eastern boundary of the landfill site since July 2022 establishes that at different points in time emissions have exceeded and then fallen below the BPEM levels before once again rising above the BPEM levels:

- LFG 36:
  - March 2023 0%
  - April 2023 3.1%
  - May/June 2023 0%
  - July 2023 10.7%
- LFG 37:
  - September 2022 17.3%
  - October 2022 0%
  - November 2022 3.8%
- LFG 38:
  - January 2023 7.4%
  - February/March 2023 0%
  - April 2023 5.5%
- LFG 52:
  - January 2023 4.2%
  - February 2023 0.6%
  - March 2023 32.1%
- LFG 53:
  - July 2022 0.4%
  - August 2022 1.5%
  - November/December 2022 0%
  - January 2023 1.7%
  - February 2023 0.5%
  - May 2023 1.8%
- LFG 54:
  - July 2022 0%
  - August 2022 1.6%
  - September 2022 0.1%
  - October 2022 4.6%
  - November/December 2022 0%
  - September 2023 2.9%.

283 Veolia's failure to prepare and implement a RAP when LFG emissions

exceeded the action levels constitutes both a failure to remediate excessive emissions and a failure to take preventative measures to stop emissions from once again rising above the BPEM action levels.

284 Assuming in Veolia's favour that the obligation under clause 5 to take measures to prevent emissions exceeding the BPEM levels is only enlivened when LFG levels are below the BPEM action levels, Veolia has been subject to such an obligation on 11 occasions since July 2022. On each of these occasions LFG emissions have previously exceeded and then fallen below the BPEM action levels. Developing and implementing a RAP was a practicable measure which could have been taken by Veolia to prevent LFG emissions from rising back above the prescribed action levels. Veolia failed to do so despite being advised by its own auditors on multiple occasions that it should prepare and implement a RAP. On 17 October 2023 Mark Walker of Resolve Environmental e-mailed Kaz Svaras of Veolia with a proposal to update the Hallam Road Landfill Management Plan and Gas Risk Assessment. This included a proposal to 'develop a Landfill Gas Remediation Action Plan to document any identified remedial works required to address unacceptable LFG risks.' The description of works included 'extraction system optimisation.' In response, Mr Svaras told Mr Walker 'we'll hold off on item 4 until further notice.'

285 I accept Mr Pump's evidence that Veolia's failure to prepare and implement a RAP means that Veolia does not have a plan in place to address the very high concentration of LFG at its eastern boundary. Further, it has no plan to prioritise actions, whether by way of monitoring, risk assessment or actual remedial work. A RAP is a plan to take practicable measures to lower gas levels below the BPEM action levels. Since July 2022 Veolia has not had such a plan. The absence of a RAP was a direct consequence of the fact that between July 2022 and 15 September 2023 it did not have an up to date

RMMP. Veolia's failure to prepare an up to date RMMP was the subject of an Improvement Notice issued by the EPA on 10 August 2023.

286 When Mr Lane gave evidence on 28 November 2023 he accepted that Veolia's failure to prepare a RAP in circumstances where its own environmental auditors had recommended it do so, constituted a breach of clause 5. He also accepted that Veolia's failure to prepare a RAP despite LFG emissions being far in excess of the BPEM action levels 'is a deficiency in the way in which the landfill's been operated'.

287 Mr Lane gave evidence on 20 February 2024 when the expert witnesses were recalled to give further evidence arising out of Veolia's discovery of additional documents during the trial. Mr Lane gave evidence to the effect that his previous evidence that a failure to produce and implement a RAP was a breach of clause 5 'was not a very considered response'. I do not accept this evidence. On 28 November 2023 Mr Lane gave evidence on three separate occasions that the failure to prepare and implement a RAP was a breach of clause 5. Two occasions were in response to questions from myself. On no view could it be said that his evidence was not a considered response. When he subsequently gave evidence on 20 February 2024 he stated a RAP is 'pointless' because 'the RAP is just a document that says what you were going to do. Now what we're going to do is put a cap on it and extract from the wells that's known. So the RAP is pointless'.

288 It is unnecessary and unproductive to consider why Mr Lane changed his evidence in relation to the question of whether Veolia's failure to prepare and implement a RAP constitutes a breach of clause 5. It is sufficient that I record my rejection of his contention that the evidence he gave on 28 November 2023 'was not a very considered response'. I accept Mr Pump's evidence that a RAP is a plan to take practicable measures to lower gas levels below the BPEM action levels. Notwithstanding consistently high concentrations of

LFG along its eastern boundary post July 2022, Veolia has had no plan in place to lower gas emissions when they have exceeded the BPEM levels. This has meant that on the 11 occasions post July 2022 when emission levels had fallen below 1% Veolia has had no plan in place identifying practicable measures to keep emission levels below 1%.

289 Veolia breached clause 5 of the Licence between July 2022 and October 2023 by failing to take three practicable measures to prevent LFG emissions from excessing the BPEM action levels:

(i) placing a permanent cap on cell 12;

(ii) improving the efficiency of the LFG extraction system; and

(iii) preparing and implementing a remediation action plan.

Breach of general environmental duty

290 The plaintiffs contend that Veolia has breached the GED. They contend that this breach enlivens the Court's power to make orders under s 309(1)(b) of the Act.

291 Section 25(1) provides:

> **25 General environmental duty**
>
> (1) A person who is engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste must minimise those risks, so far as reasonably practicable.

292 Section 3(1) defines 'activity' as including the storage or possession of waste or any other substance or thing.

293 Section 3(1) defines 'waste' as including:

> (a) matter, including solid, liquid, gaseous or radioactive matter, that is deposited, discharged, emitted or disposed of into the environment in a manner that alters the environment;

…

(c) matter that is discarded, rejected, abandoned, unwanted or surplus, irrespective of any potential use or value.

294 Section 4(1) defines 'harm' as follows:

> In this Act, ***harm***, in relation to human health or the environment, means an adverse effect on human health or the environment (of whatever degree or duration) and includes—
>
> (a) an adverse effect on the amenity of a place or premises that unreasonably interferes with or is likely to unreasonably interfere with enjoyment of the place or premises; or

295 Section 5(1) defines 'material harm' as follows:

> In this Act, ***material harm***, in relation to human health or the environment means harm that is caused by pollution or waste that—
>
> (a) involves an actual adverse effect on human health or the environment that is not negligible; or
>
> (b) involves an actual adverse effect on an area of high conservation value or of special significance; or
>
> (c) results in, or is likely to result in, costs in excess of the threshold amount being incurred in order to take appropriate action to prevent or minimise the harm or to rehabilitate or restore the environment to the state it was in before the harm.

296 Section 6(2) prescribes matters which must be taken into account for the purpose of determining what is reasonably practicable in relation to the minimisation of risks of harm to human health and the environment:

> (2) To determine what is (or was at a particular time) reasonably practicable in relation to the minimisation of risks of harm to human health and the environment, regard must be had to the following matters —
>
> (a) the likelihood of those risks eventuating;
>
> (b) the degree of harm that would result if those risks eventuated;
>
> (c) what the person concerned knows, or ought reasonably to know, about the harm or risks of harm and any ways of eliminating or reducing those risks;
>
> (d) the availability and suitability of ways to eliminate or

reduce those risks;

(e) the cost of eliminating or reducing those risks.

297 An activity 'may give rise to' risks of harm to human health or the environment if the risk is a 'real possibility' or is 'on the cards'. The phrase 'might give rise to a claim' in s 40(3) of the *Insurance Contracts Act 1984* (Cth) was described by Meagher JA (Bathurst CJ agreeing) in *DIF 111 – Global Co-Investment Fund LP v DIF Capital Partners Ltd* as creating 'a deliberately undemanding test'. This reasoning applies equally to the phrase 'may give rise to' in s 25(1). In order for the GED to apply it is not necessary that the activity may give rise to actual harm to human health or the environment. Rather, the GED applies where an activity may give rise to *risks* of harm to human health or the environment of whatever degree or duration from pollution or waste. The duty created by s 25(1) is risk-based, not outcome-based.

298 Veolia accepts that the migration of LFG from its land to the plaintiffs' land is pollution that is defined in s 3. Veolia also accepts that LFG discharged from the cells adjacent to the boundary of the plaintiffs' land is waste as defined in the Act. Veolia submits:

> However, just because the LFG is classified as pollution or waste under the Act does not mean that it gives rise to a risk of harm. That must be evaluated separately.

299 This submission does not reflect the terms of s 25(1). For the purpose of determining whether Veolia is subject to the GED the question is not whether LFG discharged from Veolia's land onto the plaintiffs' land 'gives rise to a risk of harm'. Rather, the question is whether Veolia is engaging in an *activity* (collection and storage of decomposing waste) that *may give rise to risks* of harm to human health or the environment, of whatever degree or duration.

300 The questions of whether the GED applies to Veolia, and if so, whether it has been breached are separate and distinct. Consideration of whether the GED

applies to Veolia is not constrained by the current low level agricultural use of the plaintiffs' land. The question is simply whether Veolia is engaging in an activity that may give rise to risks of harm to human health or the environment. The phrase 'may give rise to risks' allows for consideration of future potential uses of the land, including the potential construction of buildings which might act as receptors for methane gas and carbon dioxide.

301 Veolia will breach the GED if it fails to minimise the risk of harm to human health and the environment so far as reasonably practicable. For the purpose of determining whether Veolia has failed to minimise the risk of harm to human health and the environment s 6(2)(a) requires consideration of the likelihood of a risk to harm to human health or the environment eventuating. Section 6(2)(b) requires consideration of the degree of harm if the risks eventuated.

302 Mr Pump gave evidence, which I accept, that assuming the presence of receptors, the concentration of methane gas in the subsurface of the plaintiffs' land is likely to be, or is currently in excess of explosive limits and that it has the capability of being flammable or explosive in contact with an ignition source and in the presence of oxygen. The level of carbon dioxide would cause distinct human health effects.

303 The fact that the plaintiffs do not have a building permit for the construction of buildings which could be a receptor for methane gas and carbon dioxide is not determinative of whether Veolia is subject to the GED. Subject to the operation of s 25(4) of the Act, the likelihood of the plaintiffs obtaining a building permit is a matter relevant to the question of whether Veolia has breached the GED: i.e. whether it has minimised the risks of harm to human health and the environment so far as reasonably practicable.

304 Section 25(4) qualifies the GED in respect of 'a person who is conducting a

business or undertaking.' If a person conducting a business fails to comply with s 25(4)(a) to (e) the person contravenes s 25(1). Consequently, irrespective of the operation of s 6(2), a person conducting a business will be deemed to have failed to minimise the risk of harm to human health or the environment and will breach the GED if the person fails to comply with s 25(4)(a) to (e).

305 Veolia submits that:

> … the Court should concluded [sic] that a duty-holder is not required to take into account potential uses and developments of surrounding land which require a planning permit in evaluating risk for the purpose of discharging their duty under the GED unless and until a permit is granted for such use and development.

I reject this submission. It could only be accepted if the phrase 'may give rise to a risk' in s 25(1) excludes consideration of future potential use of land which may be impacted by the activities of a duty holder. The ordinary meaning of risk is 'the possibility of something bad happening'. The ordinary meaning of risk, permits consideration of future potential uses of land which may give rise to a risk of harm to human health or the environment.

306 Potential use and development of the land surrounding Veolia's landfill site is a matter properly taken into account for the purpose of determining whether Veolia's possession and storage of waste may give rise to risks to human health and the environment. Section 6(2)(a) requires an assessment of the likelihood of risks to human health and the environment eventuating. This supports a finding that the risks of harm to human health and the environment under the GED includes risks which may arise in the future and which are not constrained by the status quo. The likelihood of a permit being granted in respect of any potential use and development is relevant to an assessment of whether Veolia has minimised the risks of harm to human health and the environment so far as reasonably practicable. However, because Veolia is conducting a business it will be deemed to have failed to minimise the risks

associated with future potential development of the land if it fails to comply with s 25(4)(a) to (e).

307 Section 25(4)(a) and (b) provides:

> (4) Without limiting subsection (1), a person who is conducting a business or an undertaking contravenes that subsection if the person fails to do any of the following in the course of conducting the business or the undertaking, so far as reasonably practicable—
>
> (a) use and maintain plant, equipment, processes and systems in a manner that minimises risks of harm to human health and the environment from pollution and waste;
>
> (b) use and maintain systems for identification, assessment and control of risks of harm to human health and the environment from pollution and waste that may arise in connection with the activity, and for the evaluation of the effectiveness of controls.

308 Earlier in this judgment I set out sections of Mr Lane's report of 5 June 2023 which addressed the efficiency of the LFG extraction system in the context of whether Veolia satisfied the obligations imposed upon it by s 25(4)(a) and (b). Mr Lane's conclusion regarding the efficiency of the LFG extraction system was based on out of date data. The current data supports a finding that Veolia failed to comply with s 25(4)(a). Between July 2022 and October 2023 Veolia has not used and maintained its LFG extraction system in a manner which minimises the risks harm to human health and the environment from the migration of LFG.

309 Further, Veolia's failure to prepare and implement a RAP is a breach of s 25(4)(b). I accept Mr Pump's evidence that a RAP assesses the feasible options to remediate risks identified by an environmental auditor in a RMMP and provides a preferred strategy to address those prioritised risks. The RAP proposes a methodology to assess whether the strategy to address the risks is successful. The preparation and implementation of a RAP is part of a system for the identification, assessment and control of risks of harm to human health

and the environment from pollution and waste that may arise in connection with the storage and/or possession of waste and for the evaluation of the effectiveness of controls. There is a direct correlation between Mr Pump's evidence as to what a RAP is and the terms of s 25(4)(b). Veolia has failed to 'use' a RAP because it has never instructed its environmental auditor to prepare a RAP, notwithstanding recommendations that it should do so. The requirement to 'maintain' systems for identification, assessment and control of risks requires a party to update its RAP. As Veolia has never had a RAP there has been nothing to update.

310 Veolia has failed to comply with s 25(4)(a) and (b). Consequently, it has breached the GED by failing to minimise, so far as reasonably practicable, the risk of human harm if buildings are erected on the plaintiffs' land at some time in the future. Veolia has also breached the GED by failing to minimise, so far as reasonably practicable, the risk to vegetation on the plaintiffs' land.

311 There is no evidence of vegetation having died on the plaintiffs' land as a result of the migration of LFG. However, Mr Pump gave evidence, which I accept, that some plants are intolerant to methane gas.

> HIS HONOUR: So going back to your evidence, Mr Pump, about the risk of harm to the environment, so at what level would methane gas concentration need to be at in order to - I think you said asphyxiate the root ball of a plant. Is that at the current levels or are you referring there to the - because there is evidence as to the current levels of methane gas which has migrated - or there is some evidence as to gas having migrated to the Anderson's land. Is it your evidence that at the current levels there is that prospect of asphyxiation of plants roots?
>
> MR PUMP: It would be more the case that I believe there is a risk of that adverse effect and I hasten to add, I don't have expertise in horticulture or landscape architecture, but from my reading various plants have

> various levels of tolerance to these situations. And some plants can survive near a landfill and others do not. And it's common for rehabilitation of landfills to choose the vegetation carefully, to give every chance of some regrowth occurring.

312 This evidence is consistent with the Landfill Licensing Guidelines which state: '[l]andfill gas can adversely affect vegetation and crops when it moves through soils'. There is a risk that at some time in the future the plaintiffs may introduce vegetation on their land which will be intolerant to methane gas. This is an alternative basis upon which the GED applies to Veolia. For the reasons set out above, Veolia has breached s 25(4)(a) and (b) and has therefore breached the GED.

313 If I am wrong in concluding that it is permissible to have regard to potential future uses of the plaintiffs' land for the purpose of determining whether Veolia is subject to the GED, Veolia is nevertheless subject to the GED based on the plaintiffs' current use of their land. Veolia is subject to the general environmental duty if its activity of storing waste may give rise to a risk of an adverse effect on the amenity of the plaintiffs' premises that unreasonably interferes with the plaintiffs' enjoyment of the premises.

314 'Amenity' is not defined in the Act. Absent a definition of 'amenity' it is necessary to determine its meaning in accordance with principles of statutory construction. The correct approach to the interpretation of statutory provisions was considered by the Victorian Court of Appeal in *Treasurer of Victoria v Tabcorp Holdings Ltd*. Maxwell P, Beach JA and McMillan AJA stated:

> As the High Court has repeatedly emphasised, the task of statutory interpretation begins, and ends, with the words which Parliament has used. For it is through the statutory text that the legislature expresses, and communicates, its intention.
>
> Interpreting a particular provision requires consideration of the legislative context and — where relevant — the legislative history. But if the words are clear and unambiguous, and can be intelligibly applied to the subject-matter, the provision must be given its ordinary and

> grammatical meaning, even if the result may seem inconvenient or unjust.

315 The Oxford English Dictionary defines 'amenity' as 'the quality of being pleasant or agreeable; a. of places, their situation, aspect, climate'. The term 'amenity', when given its ordinary meaning, is clear and unambiguous and can be intelligibly applied to the definition of 'harm' in s 4(1) of the Act.

316 It is well-established that the question of whether there has been an adverse effect on the amenity of a premises is not to be determined solely on the basis of an objective test. In *Broad v Brisbane City Council* Thomas J (with whom Connolly J agreed) described the concept of amenity as follows:

> The wide ranging concept of amenity contains many aspects that may be very difficult to articulate. Some aspects are practical and tangible such as traffic generation, noise, nuisance, appearance, and even the way of life of the neighbourhood. Other concepts are elusive such as the standard or class of the neighbourhood and the reasonable expectations of the neighbourhood.

317 De Jersey J stated:

> Ms Kiefel, who appeared for the Council, relied, in support of her submission, on two decisions of Sugerman J in the New South Wales Land and Valuation Court. Each involved consideration of the ambit of the expression "injury to amenity" appearing in a planning ordinance. Neither case supports the conclusion that only objectively based views of the likely effect on a proposal on amenity may be admitted into evidence and affect a judge's determination of the issue.
>
> In *Cecil Mayo Pty Ltd v Sydney City Council* Sugerman J described the amenity of a neighbourhood as "the quality which it has of being pleasant or agreeable". One would think that the assessment of that quality would necessarily involve subjective judgments, and often judgments for which it would be difficult to offer a rational, concrete foundation. In *Balgowlah Investments v Manly Municipal Council* he suggested that central to the significance of apprehended injury to amenity is the question of what residents are "justly entitled to expect". But that question is ordinarily not to be answered by reference to absolute, immutable standards, but would usually itself depend in turn on other "questions of degree".
>
> In *Vaccum Oil Co Pty Ltd v Ashfield Municipal Council* Sugerman J offered the following observations on the concept of "amenity" in town planning legislation:
>
> > "Amenity" is not confined to the negative factor of freedom from

> physical discomfort through the effects of noise, smell and other matters referred to in the proviso to cl 27 of the *County of Cumberland Planning Scheme Ordinance*. It relates also to the preservation of such characteristics of a neighbourhood as makes it pleasing in appearance as well to the passerby as to the resident, and as well to those across the road, who may be unaffected by noise, etc, as to the adjoining and other occupiers of the same side. "Amenity" may be taken to express that element in the appearance or layout of town and country which makes for a comfortable and pleasant life rather than a mere existence.

See also *Humby v Woollahra Municipal Council*:

> There is no doubt that the concept of amenity is wide and flexible. In my view it may in a particular case embrace not only the effect of a place on the senses, but also the residents' subjective perception of his locality. Knowing the use to which a particular site is, or may be, put may affect one's perception of amenity.

318 The passages from the judgment in *Broad* regarding the concept of amenity set out above have been cited with approval on many occasions.

319 The GED will apply to Veolia if its activity of collecting waste may give rise to a risk that the plaintiffs' will know that their land had been polluted by LFG emissions from Veolia's land and this knowledge will have an adverse effect on the land's 'quality of being pleasant or agreeable'. The fact that the pollution is not tangible does not alter this conclusion. Further, there is a risk that the pollution of the plaintiffs' land may constitute an adverse effect on its amenity even if it does not involve an actual adverse effect (amounting to material harm) on human health or the environment that is not negligible. The Act distinguishes between 'harm' and 'material harm'. In order to establish a risk of an adverse effect on amenity within the meaning of s 4(1) it is not necessary to establish an actual adverse effect on human health or the environment.

320 It is an undisputed fact that substantial amounts of methane gas have migrated from Veolia's land onto the plaintiffs' land. This is neither a pleasant nor agreeable aspect of the premises. It is not in dispute that very high

concentrations of LFG have been recorded at LFG bores situated on the boundary between the plaintiffs' land and Veolia's land. Mr Pump gave unchallenged evidence that the gas in the vicinity of the monitoring bores will spread within the plaintiffs' land and will be present for many decades. Testing undertaken by Mr Evans in June 2022 on the plaintiffs' land recorded methane gas concentrations of 14.8% This predates the very high concentration of LFG recorded at bore LFG 52 between March and July 2023 (32.1% – 72.6%) and bore LFG 37 between March and April 2023 (26.5% – 39%). The evidence of significant concentrations of methane gas at the boundary of Veolia's and the plaintiffs' land together with the evidence of migration of LFG onto the plaintiffs' land supports a finding that there is a risk of an adverse effect on the amenity of the plaintiffs' premises.

321 The experts agree that there is low or negligible risk of harm to human health or the environment from migration of LFG from Veolia's land if the plaintiffs' land continues to be used for low level agricultural purposes such as grazing cattle or cutting grass for hay. This evidence supports a finding that to date the migration of LFG from Veolia's land to the plaintiffs' land has not caused *material harm*. However, it does not preclude a finding that Veolia's possession and storage of waste might give rise to a risk of an adverse effect on the amenity of the premises.

322 Mr Anderson gave evidence that he was concerned the concentration of methane gas on the plaintiffs' land created a risk of explosion when cutting hay. He also gave evidence that he believed that LFG was likely to make dam water on his property very acidic and unsuitable for consumption by cattle. Mr Pump gave evidence that the LFG on the plaintiffs' land did not pose a risk of explosion from cutting hay and that there was negligible risk to the plaintiffs' cattle from pollution of the plaintiffs' dams. For the purpose of determining whether Veolia's possession and storage of waste may give rise to

a risk of an adverse effect on the amenity of the plaintiffs' premises it is permissible to take into account the plaintiffs' subjective perception of the impact of the presence of LFG. However, to the extent that the plaintiffs' subjective perception does not have a rational basis, I do not place any weight upon such perception. A fear or concern without a rational or justified foundation is not a matter which can be taken into account when determining whether there might be an adverse effect on amenity. This approach is consistent with authorities which have disregarded evidence of genuine but unsubstantiated concerns of health impact related to emissions of electromagnetic energy from electricity transmission infrastructure.

323 Mr Anderson gave evidence of his concern that if methane gas leaked into enclosed space there could be an explosion: 'I could see that happening very easily on our property with the current concentrations that are emanating from the landfill'. Mr Anderson's concerns regarding the risk of an explosion if there was a receptor present to capture LFG are well justified. The quality of the plaintiffs' land of being pleasant and agreeable has been diminished by the presence of LFG in concentrations which pose potential risk of explosion in a confined space. This conclusion is not altered by the fact that there is not currently a receptor on the plaintiffs' land and that the plaintiffs would need to obtain a building permit to construct a building which could be a receptor for LFG. As de Jersey J observed in *Broad*, 'Knowing the use to which a particular site is, or may be, put may affect one's perception of amenity'. The absence of a planning permit for the construction of a building which could be a receptor for LFG may preclude a finding that the migration of LFG onto the plaintiffs' land constitutes a *material* harm, being an actual adverse effect on human health or the environment that is not negligible. The absence of a planning permit does not preclude a finding that Veolia's collection and storage of waste may give rise to a risk of an adverse effect on the amenity of

the plaintiffs' land.

324 Veolia submits that the plaintiffs' unhappiness about the pollution of their land by LFG from Veolia's land, 'is a point going to grievance, not a point going to amenity'. Veolia submits to establish an adverse effect on amenity the plaintiffs must point to more than a psychological impact arising from the knowledge that their land has been polluted.

325 Based on the ordinary meaning of 'amenity', if there is a risk that an individual will have an adverse psychological impact as a result of knowledge that their premises has been polluted, this may constitute an adverse effect on the amenity of the premises. However, in order to establish that the GED applies to Veolia it is not necessary to establish that the plaintiffs have in fact had an adverse psychological response to the presence of LFG on their land. The GED applies to Veolia if its collection and storage of waste may give rise to a risk of an adverse effect on the plaintiffs' enjoyment of their premises, that is likely to unreasonably interfere with enjoyment of the premises.

Is there a risk of an adverse effect on the amenity of the plaintiffs' premises that is likely to unreasonably interfere with enjoyment of the premises?

326 The Oxford English Dictionary 2nd edition defines 'enjoyment' as:

> The action or state of deriving gratification from an object. Also, in a weaker sense, the possession and use of something which affords pleasure or advantage. Gratification, pleasure; something which gives pleasure.

327 The definition of harm in s 4(1) refers to an unreasonable interference with 'enjoyment of the place or premises'. 'Place' and 'premises' are defined in s 3(1) of the Act. 'Place' includes land, waters, a location, an area or a region. 'Premises' includes a structure, building or vehicle.

328 The broad definition of 'place' and 'premises' support a finding that an interference with enjoyment of a place or premises is not confined to an

interference with enjoyment of rights in the use of land. The definition of 'place', 'premises' and 'vehicle' (a vessel or aircraft, and a trailer attached to a vehicle) extend well beyond the definition of 'land' (any land, whether publicly or privately owned, and includes– (a) any buildings or other structures permanently affixed to the land; and (b) groundwater).

329 Consistent with the Court of Appeal's judgment in *Tabcorp Holdings*, 'enjoyment' should be given its ordinary meaning: gratification, pleasure, something which gives pleasure. This construction is supported by the contextual consideration that s 4(1)(a) refers to an adverse effect on the amenity of a place or premises, that unreasonably interferes with the enjoyment of the place or premises. The ordinary meaning of 'amenity' is 'the quality of being pleasant or agreeable'. There is a nexus between the amenity of a premises and the enjoyment of a premises.

330 The definition of harm in s 4(1)(a) refers to interference with enjoyment of a premises as opposed to the *use* and enjoyment of a premises. The text of s 25(1) and s 4 does not support a finding that the meaning of 'enjoyment' in s 4(1) corresponds with 'use and enjoyment' for the purposes of the tort of nuisance. Under s 4(1)(a) a property owner's enjoyment of their premises is not constrained by their use of the premises. A property owner's enjoyment of their premises may include a subjective connection with the premises arising from a longstanding family connection with the premises. Where, as in the present case, owners of land know that their land has been polluted, this, of itself, may give rise to a risk that their enjoyment of the premises will be diminished.

331 If, contrary to the findings set out above, 'enjoyment' does not have its ordinary meaning but has the same meaning as in the phrase 'interference with use and enjoyment of land' for the tort of nuisance, there is still a risk of an adverse effect on amenity that is likely to unreasonably interfere with the

enjoyment of the premises. Interference with the use and enjoyment of land for the tort of nuisance may be constituted by interference with the enjoyment of the plaintiffs' land by reason of its adverse psychological impact on a plaintiff. There can be an actionable nuisance even though there is not a tangible emanation from a defendants' land, such as odours, vapours or noise.

332 *Frost v Northern Beaches Council* involved a claim for a mandatory injunction to remove or secure a large boulder which sat atop a cliff that straddled the plaintiff's land and the defendant's land. Geotechnical evidence established that the boulder would fall at some point in time with catastrophic damage to the plaintiff's property. Brereton JA was required to address the question of whether the presence of the boulder constituted an interference with the plaintiff's use and enjoyment of his land:

> It is established that there can be an actionable nuisance where there has not been any "emanation" – such as of odours, vapours, or noise – from the defendant's land, but where the use of that land unreasonably interferes with the enjoyment of the plaintiff's land by its psychological impact (or the mental anguish that it occasions), such as using it to "watch and beset" the plaintiff, or in a manner that is perceived to be morally offensive – for example, *Thompson-Schwab v Costaki* (prostitutes operating in the street) and *Laws v Florinplace Ltd* (sex shop operating nearby). Although these have been described as "very special cases", Young J subsequently embraced the principle, founding on the principle that "watching and besetting" constituted a nuisance to hold that the installation of surveillance cameras on the defendant's land to monitor the plaintiff's property was likewise a nuisance. I see no reason why these cases would not support a conclusion that it was a nuisance for the defendant to place on his or her land a weapon or other contraption aimed at (and thereby threatening) the plaintiff's land. The effect of the boulder in the present case is that it poses a clear and present danger so threatening 4 Taminga and its occupants as to render it presently uninhabitable from the perspective of a reasonable landowner, albeit that it may not fall for decades or even centuries. To my mind, its impact on the enjoyment of 4 Taminga is considerably greater than that involved in the watching and besetting and brothel cases. Such "sterilisation" of a home or part thereof sounds in damages for nuisance. If the defendants are responsible in law for this state of affairs, then actual damage has already been incurred.

333 The word 'enjoyment' in s 4(1) should be given its ordinary meaning rather than being construed more narrowly by reference to the concept of 'use and

enjoyment' for the tort of nuisance. Veolia's possession and storage of waste may give rise to a risk of an adverse effect on the amenity of the plaintiffs' premises that is likely to interfere with their enjoyment of the premises by diminishing the pleasure which they derive from the premises. However, even if 'enjoyment' is read as co-extensive with 'use and enjoyment' in nuisance, an interference with enjoyment of premises is not limited to interference with the use of the land. Such interference may also be constituted by an adverse psychological impact on the owner of the premises as a result of the risk of an adverse effect on the amenity of the plaintiffs' premises.

334 Veolia's activity of possessing and storing waste may give rise to a risk of an adverse effect on the amenity of the promises which interferes with the plaintiffs' enjoyment of the premises. However, the adverse effect on the amenity of the premises will not constitute harm within the meaning of s 4(1)(a) unless the interference with the plaintiffs' enjoyment of the premises is unreasonable. Whether an adverse effect on the amenity of the plaintiffs' premises unreasonably interferes with the plaintiffs' enjoyment of their land requires consideration of whether Veolia has taken steps, so far as reasonably practicable, to minimise the risk of LFG migrating from their land onto the plaintiffs' land. If Veolia has taken all reasonably practicable steps to limit the migration of LFG onto the plaintiffs' land, Veolia will not have unreasonably interfered with the plaintiffs' enjoyment of their premises.

335 Earlier in this judgment I have identified three practicable measures which could have been taken by Veolia between July 2022 and October 2023 to prevent emissions of LFG from exceeding the BPEM action levels: the final capping of cell 12; the preparation and implementation of a remediation action plan; and improving the efficiency of the LFG extraction system. The obligation under clause 5 of the licence to take 'all practicable measures' is more onerous than an obligation to take a 'reasonably practicable' measure. In

Warburton Environment Inc v VicForests (No 5) Garde J addressed the meaning of reasonably practicable as follows:

> 307. Three general principles are to be found in the decided cases:
>
> (a) the phrase 'reasonably practicable' means something narrower than 'physically possible' or 'feasible';
>
> (b) what is 'reasonably practicable' is to be judged on the basis of what was known at the relevant time; and
>
> (c) to determine what is 'reasonably practicable' it is necessary to balance the likelihood of the risk occurring against the cost, time and trouble necessary to avert that risk.
>
> 308. While the word 'practicable' has been taken as meaning 'capable of being carried out in action; feasible', 'reasonable' is a relative term, which requires that any measure 'be proportioned to the circumstances of the case considered as a whole'. In this sense, the word 'reasonably' serves to limit or qualify the scope of what would otherwise be an absolute obligation or duty to take particular measures. Despite the coupling of the notions within the term 'reasonably practicable', they are in fact not complementary, but instead appear to operate in conceptual opposition. Whether a measure is reasonably practicable is an objective assessment, which is concerned with the state of knowledge generally possessed by persons engaged in the relevant field of activity, rather than the actual knowledge of a specific person in particular circumstances.

336 In March 2023 bore LFG 52 recorded methane concentrations at 32.1% followed by 55.6% in April and 77.3% in May 2023. In March 2023 LFG 37 recorded methane concentrations at 26.5% followed by 39% in April 2023. These recordings placed Veolia on notice that there were substantial emissions of LFG from cells 12 and 13. It should have been readily apparent to Veolia that there was a significant likelihood that this gas would migrate onto the plaintiffs' land. It should also have been readily apparent that the migration of LFG onto the plaintiffs' land created the risk of an adverse effect on the amenity of the plaintiffs' land.

337 The unchallenged evidence of Mr Pump and Mr Evans is that LFG which has escaped from cells 12 and 13 will migrate onto the plaintiffs' land and will

remain on the land for decades. Veolia ought reasonably have known that if there was an adverse impact on the amenity of the plaintiffs' land due to the migration of LFG that the impact on the amenity would be significant.

338 Veolia knew by March 2023 that there was significant emissions of LFG being recorded along the boundary adjacent to cells 12 and 13. Veolia should have taken steps to prepare and implement a RAP to identify options for reducing emissions. On 21 April 2023, Veolia was advised by its environmental auditor, Tonkin and Taylor, that the efficiency of its LFG extraction system could be improved and that 'ideally the site should be targeting > 80% and ideally > 90%, consistently for final capped areas'. On 10 July 2023, Tonkin and Taylor advised Veolia:

> While considerable LFG system upgrading work has recently been carried out based on earlier Auditor recommendations, a documented LFG/odour management work plan is required. This plan should detail the scope and timing of further system upgrading planned for the next 1-3 years and should be regularly updated. This covers both LFG infrastructure and a forward capping/cap improvement schedule. Such a work plan would enable the Auditor and EPA to see evidence that an ordered schedule for system inspection, monitoring and extraction upgrading is in place and that significant actions to manage Licence compliance are not lagging from annual inspections and periodic audits.

339 The final capping of cell 12 was a reasonably practicable measure which could have been taken by Veolia prior to March 2023. No evidence has been led by Veolia which provides any explanation for its failure to replace the cap on cell 12. Consequently, there were three options available to Veolia which could have reduced the risk of an adverse effect on the amenity of the plaintiffs' land from the migration of LFG:

(i) the preparation and implementation of a RAP;

(ii) the final capping of cell 12;

(iii) improving the efficiency of the LFG extraction system.

Veolia has not submitted, and there would be no basis for it doing so, that the

cost of these options is such that they are not reasonably practicable.

340 Veolia has failed to minimise the risk of an adverse effect on the amenity of the plaintiffs' land as a consequence of the migration of LFG from its land. The adverse effect on the amenity of the land is an unreasonable interference with the plaintiffs' enjoyment of their land. Veolia has failed to minimise the risk of migration of LFG onto the plaintiffs' land by taking steps which were reasonably practicable to reduce the risk of LFG migration. As Veolia has failed to comply with s 25(4)(a) and (b) it is deemed to have failed, so far as reasonably practicable, to have minimised the risk of an adverse effect of the amenity of the plaintiffs' land. Veolia has breached the general environmental duty prescribed by s 25(1) of the Act.

341 Although it is not necessary to do so I set out my reasons for rejecting a further basis upon which the plaintiffs submit that the GED applied to Veolia. The plaintiffs submit that an adverse effect on the amenity of the premises includes an adverse effect on the ability to use and develop land for fair and reasonable purposes. The plaintiffs submit that the migration of LFG from Veolia's land onto the plaintiffs' land has had an adverse effect on the ability of the plaintiffs to obtain a planning permit for a horticultural development of their land. They submit that this constitutes an adverse impact on the amenity of the premises. I do not accept this submission. It is not supported by the ordinary meaning of 'amenity'. The authorities relied upon by the plaintiffs support a finding that amenity is a broad concept. However, no authority relied upon by the plaintiffs, and none disclosed by my own research, supports a finding that the ability to use and develop land is, of itself, part of the amenity of a premises.

342 There are three discrete basis upon which Veolia is subject to the GED. First, Veolia's possession and storage of waste may give rise to a risk of harm to human health if at any time in the future there is a building on the plaintiffs'

land which could be a receptor for methane gas and carbon dioxide. Second, Veolia's possession and storage of waste may give rise to a risk of an adverse effect of vegetation on the plaintiffs' land if at any time in the future the plaintiffs introduce vegetation which is intolerant to methane gas. Third, its possession and storage of waste may give rise to a risk of an adverse effect on the amenity of the plaintiffs' premises that is likely to unreasonably interfere with the enjoyment of the premises. For the reasons set out above Veolia has not complied with s 25(4)(a) and (b) of the Act. Consequently, Veolia has breached s 25(1) of the Act.

Nuisance

343 The plaintiffs allege that Veolia's use of its land for the purpose of waste management and landfill constitutes a substantial and unreasonable interference with their use and enjoyment of their land. The particulars of the allegation of nuisance in paragraph 12 of the 2FASOC are as follows:

> The defendants' operation of the defendants' land as landfill has prevented the development and use of the plaintiffs' land in accordance with the plaintiffs' planning application. The plaintiffs refer to and repeat the matters set out in paragraph 10 above as being the City of Casey's grounds for refusing the plaintiffs' planning application.

344 The plaintiffs submit that, 'the nuisance arises from the fact that the risk of LFG emissions has limited the utility of the plaintiffs' land to its current low intensity agricultural use'. I reject this submission.

345 First, the plaintiffs have failed to establish that but for Veolia's landfill operations and the risk of migration of LFG they would have proceeded with the proposed horticultural development. Second, an interference with a future potential use of land for horticultural purposes does not constitute an actionable nuisance.

346 The plaintiffs' application for a planning permit was supported by a landfill gas risk assessment (LFGRA) prepared by Australian Environmental Auditors

(AEA) dated 27 July 2021. AEA did not undertake any investigation or risk assessment on the plaintiffs' land. Rather, they based their report on publicly available data and audit reports in respect of the landfill site. The executive summary in the LFGRA includes the following:

> The LFGRA found that the immediate current risk to the subject land from LFG subsurface migration is moderate to high, but that this risk will change in the near future due to the immediate proximity of the active and recently active cells of the land fill to the subject site. A risk range was found due to uncertainties around the cause of highly variable gas flows within the subsurface geology. The required design of gas protection measures for the buildings proposed at the subject site therefore cannot be determined at this time, as these buildings would be in use in future when the LFG migration risks from the immediately adjacent land fill will change. However, the change in LFG migration risk could be satisfactorily addressed by the design and construction of an appropriate inground pathway intervention structure. The design and construction of such a structure is not part of this assessment and should be undertaken as per section 8.3 of this LFGRA and be verified by an environmental auditor appointed under section 191 of the Environment Protection Act 2017. The environmental auditor should have demonstrated experience in the design of inground pathway intervention structures.

347 The Delegate's report which was annexed to the City of Casey's notice of decision refusing to grant the plaintiffs a planning permit included the following:

> …While the proposed use is deemed appropriate and supported, Council needs the confidence that any proposed inground pathway intervention structure is appropriate, including details of its design and location of the inground structure, how it will be managed into the future, if it requires monitoring and maintenance and if a section 173 agreement will be required. The requested further information will provide Council with certainty.
>
> Therefore, the applicant has been advised that the items requested would need to be addressed prior to any permit issue.
>
> Subsequently, in an email dated 13/10/21, the applicant has advised that they will not be providing the further information requested by Contaminated Land:
>
> > *"It is with some regret that I advise that the client after considering these comments is not prepared to invest what would be a considerable amount of money in an attempt to satisfy these comments without first having the security of a planning permit. I appreciate that policy guidance (such as two EPA publications (eg EPA publications 788.3) referenced within the EPA referral)*

recommends a cautious approach when it comes to proposals within landfill buffers and understand that in the absence of the additional information sought by Council's Contaminated Land Team that Council will refuse the application on landfill risk grounds".

348 The 'further information' requested by 'Contaminated Land' was set out in an email dated 17 August 2021 from Cynthia Lambert of the City of Casey to Hew Gerrard of Glossop Town Planning. The required information sought was as follows:

i. A suitably qualified consultant must be engaged to design the site specific in-ground pathway intervention structure and any additional mitigation measures for the enclosed buildings in accordance with British Standards 8485:2015 + AI 2019. The designs must be verified by an Environmental Auditor appointed under Section 191 of the Environment Protection Act 2017. The Environmental Auditor should have demonstrated experience in the design of in-ground pathway intervention structures and landfill gas mitigation measures.

- Further information needs to be provided on the design and location of the in-ground structure, how it will be managed into the future, if it requires monitoring or maintenance and if a Section 173 agreement will be required.

- An environmental auditor must confirm that the greenhouses on the subject site do not require landfill gas mitigation measures. If this cannot be confirmed, then the design of suitable mitigation measures must be provided.

- Based on the proximity of the proposed in-ground pathway intervention structure to the urban floodway zone extent, an environmental auditor needs to verify if flooding in the vicinity will impact on the effectiveness of the pathway intervention.

- During the site development works landfill gas can migrate into pits, trenches and excavations creating an asphyxiating environment. Therefore, care should be taken when working within any pits, trenches, excavations or enclosed spaces. These risks must be taken into consideration when developing the health and safety management plan for the development works. Constant monitoring should be undertaken when workers are in deep trenches or excavation (>1.5 m depth).

- The environmental auditor must take into consideration the likely impact of elevated risk of landfill gas migration during and immediately after final capping works at the adjacent landfill.

- Any soil required to be disposed off-site must be chemically classified in accordance with EPA Publication 1828.2. If soil is classified as a priority waste, the soil must be transported by an appropriately licenced vehicle, in accordance with EPA's waste

tracker system and disposed of at a lawful place of disposal.

- Based on the proposed development plans it is understood that no below ground structures are proposed such as basements, lift shafts or tunnels. Alterations to the proposed plans are not permitted to include below ground structures.

349 The further information required by the City of Casey as a condition for granting a planning permit goes far beyond the relief sought by the plaintiffs in the present proceeding in respect of a VCS. That relief, as articulated in the final form of order sought by the plaintiffs, is confined to an assessment of the feasibility of constructing a VCS. In contrast, the information required by the City of Casey included the design of the site specific inground pathway intervention structure and any additional mitigation measures for the enclosed building. The designs were to be verified by an environmental auditor appointed under s 191 of the Act.

350 In the course of his final submissions the plaintiffs' counsel submitted that an assessment of the feasibility of a VCS would cost approximately $1.5 million. I infer that the cost of providing the information sought by City of Casey would be significantly more than the $400,000 to $600,000 which was identified by Mr Anderson as being the cost of a full environmental audit which he was not prepared to spend for the purposes of obtaining a planning permit. In addition to the cost of engaging an environmental auditor in order to comply with the requirements of the City of Casey the plaintiffs would have been required to engage a consultant to design both a VCS and gas mitigation measures for the proposed 34 green houses.

351 As acknowledged by the plaintiffs' town planning consultant, the City of Casey's request for additional information was consistent with the cautious approach recommended by the EPA in respect of development proposals falling within a landfill buffer. The requirement for additional information was imposed on the plaintiffs in August 2021 prior to there being any evidence that LFG had migrated onto their land. The AEA report concluded that the

risk to the plaintiffs' land from subsurface migration of LFG was moderate to high. That conclusion is not surprising given the proximity of the plaintiffs' land to the landfill site.

352 The fact that the Council required further information as a condition for the grant of a planning permit does not support a finding that Veolia's use of its land as a landfill site prevented the development and use of the plaintiffs' land in accordance with the planning permit application. Veolia was lawfully entitled to conduct a landfill operation pursuant to a statutory licence granted under the Act. The further information required by the Council was due to the operation of a landfill site which entailed the risk of subsurface migration of LFG to adjoining properties, including the plaintiffs' land.

353 If the plaintiffs' planning permit application had been granted it would still have been necessary for the plaintiffs to finance a very expensive development. The plaintiffs have failed to establish that they had the financial resources necessary to proceed with the proposed horticultural development. The planning permit application rejected by the City of Casey on 8 February 2022 involved the construction of 304 greenhouses together with associated vehicle access areas and a staff car park, a warehouse and administrative building. An initial, larger version of the proposed horticultural development was costed at $68 million. However, the plaintiffs did not obtain revised costings for the smaller proposed development which was the subject of the planning permit application rejected on 8 February 2022. The plaintiffs were in discussions with potential investors, including Rabo Bank, but no agreement for the provision of finance had been concluded prior to the rejection of the planning permit application. The plaintiffs' accountant, Mr Davies, was not able to state that the project, which was the subject of the planning permit application, was commercially viable. He had been involved in high level and preliminary discussions with representatives of Rabo Bank

but these had not resulted in an agreement to provide finance.

354 Even if, contrary to the findings set out above, the plaintiffs had established that Veolia's use of its land as a landfill site had prevented the plaintiffs from developing their land for horticultural purposes, this would not constitute an actionable nuisance. An activity on a defendant's land which does not interfere with an existing use but which might interfere with a future potential use of land does not constitute an actionable nuisance. In *Fearn v The Board of Trustees of the Tate Gallery* Lord Leggatt (with whom Lord Reed and Lord Lloyd-Jones agreed) said:

> One alternative approach would be to treat an activity as an actionable nuisance even though it is not interfering with any actual use of the claimant's property if it impairs a potential use. Such an approach would have allowed Dr Sturges (or his predecessor in title) to bring an action to stop the use of Mr Bridgman's pestles and mortars before the consulting room was built even though that use was then causing no material inconvenience, on the basis that the noise and vibrations would prevent the ordinary use of any new room that his neighbour might wish to build against the party wall. There are good reason why the law does not permit such a claim. First, requiring actual interference to be shown allows someone in Mr Bridgman's position to make use of his land, at least for the time being, in a way that benefits him and is not inconveniencing his neighbour. Second, the potential conflict of use might never actually arise. For example, Mr Bridgman's neighbour might never have chosen to build a new room on the other side of the party wall or Mr Bridgman might have installed new kitchen equipment which did not cause the same noise and vibrations, or his premises might have been converted to a different use. It is not desirable to have litigation about possible future conflicts that may never actually occur.

355 The migration of subsurface LFG from Veolia's land on to the plaintiffs' land does not interfere with the existing low level agricultural use of the plaintiffs' land. However, the migration of LFG from Veolia's land to the plaintiffs' land does interfere with the potential use of the land for horticultural purposes because the green houses which would be constructed as part of any horticultural development are potential receptors for subsurface gas migrating on to the plaintiffs' land. The interference with this potential use of the plaintiffs' land is not an actionable nuisance.

356 The reasoning in *Fearn* set out above is directly on point. Any interference with the potential use of the plaintiffs' land for horticultural purposes might not occur. The plaintiffs might not obtain a planning permit because they cannot satisfy the requirements of the City of Casey for additional information regarding the feasibility, design and construction of a VCS. Alternatively, the plaintiffs may not have the financial resources to be able to proceed with the proposed horticultural development. As Lord Leggatt observed it is not desirable to have litigation about possible future conflicts that may never actually occur.

357 The plaintiffs' claim for damages for nuisance must be dismissed. However, the plaintiffs have succeeded in establishing an entitlement to relief under s 309 of the Act based on a breach of clause 5 of the licence and s 25(1) of the Act.

Remedy

358 Veolia has not complied with clause 5 of the licence and has breached s 25(1) of the Act. Section 309(1) of the Act confers power on the Court to restrain a person from engaging in specified conduct or requiring a person to take such action as the Court considers appropriate. Section 309(2)(a) provides that an order under s 309(1) may require a person to do a specified act or thing that the Court considers necessary to prevent, minimise or remedy the contravention or non-compliance. The power conferred on the Court by s 309(1) is a broad discretionary power. However, the discretion is not unqualified. Section 309(2) provides that an order under s 309(1) may require a person to do a specified act or thing which the Court considers reasonably necessary to prevent, minimise or remedy the contravention or non-compliance.

359 On 15 March 2024 during the course of Veolia's final closing submissions,

counsel for Veolia proffered an undertaking to the Court in the following terms:

> Regardless of the outcome of this proceeding, the defendants by their counsel undertake to the Court to:
>
> 1. Conduct a Landfill Gas Risk Assessment (**LGRA**) to evaluate the performance of the landfill gas extraction system in relation to cells 11, 12 and 13 at the Hallam Road Landfill, such evaluation to be verified by the environmental auditor appointed by the Environment Protection Authority Victoria (**EPA**), and to implement any recommendations in relation to the extraction system which arise from the LGRA; and
>
> 2. Provide the EPA with a final cap design for cells 12 and 13 at the Hallam Road Landfill by 30 June 2024, and to use reasonable endeavours to progress the construction of the final cap following approval of the cap design by the EPA.

360 The undertaking proffered by Veolia raises the question of whether any orders are reasonably necessary. However, before addressing this question, a threshold question arises as to whether the Court can accept an undertaking for the purpose of the final disposition of the proceeding if the Court does not otherwise have power to make orders in the terms of the undertaking. This threshold issue arises because of the opening words of the undertaking: 'Regardless of the outcome of this proceeding, the defendants by their counsel undertake to the Court'. Counsel for Veolia confirmed that the undertaking was proffered on the basis that it would operate even if the Court concluded that Veolia had not breached clause 5 of the licence and s 25 of the Act.

361 The basis upon which the undertaking was proffered is misconceived. The Court can only accept an undertaking if it has power to make an order in the terms of the undertaking. The Court only has such power if it is satisfied that there has been a breach of clause 5 of the licence and/or s 25 of the Act. Veolia proffered the undertaking for the final disposition of the proceeding irrespective of whether the Court made a finding that it had breached clause 5 of the licence and/or the GED. As the basis upon which the undertaking was

proffered is misconceived it is not appropriate to accept the undertaking.

362 The judgment of the High Court in *Thomson Australian Holdings Pty Ltd v Trade Practices Commission* is authority for the proposition that a court cannot accept an undertaking for the purpose of final disposition of a proceeding if the court does not otherwise have power to make orders in the terms of the undertaking. In *Thomson* the plurality stated:

> Limitations which affect the court's jurisdiction or power to grant a final injunction must be observed in the acceptance of an undertaking when it is offered as a substitute for a final injunction. The court cannot escape such limitations by the expedient of accepting an undertaking in lieu of an injunction. The court cannot put itself in the position of enforcing conduct which it has no capacity to command or compel. No doubt the Federal Court has power to accept an undertaking at an interlocutory stage when the undertaking is reasonably related to the orderly procedure of the Court or to the subject matter of the litigation, as Deane and Fisher JJ observed, even though it is not in a form which falls within s 80. But, with great respect to their Honours, this does not justify the conclusion that the Court has power to accept an undertaking by way of final disposition of the case when the Court lacks power to make a formal order in that form and the effect of the undertaking is to restrain conduct which the Court has no power to restrain.

363 I have concluded that Veolia has breached clause 5 of the licence and s 25(1) of the Act. Although the Court has power to make an order in the terms of the undertaking, the form of the undertaking is fundamentally flawed because it purports to operate irrespective of whether the Court makes the findings necessary to enliven the power conferred by s 309(1) and (2) of the Act. However, even if the form of the undertaking was not deficient, I would not make orders in the terms of paragraphs 1 and 2 of the undertaking because I consider the relief contained therein to be inappropriate.

364 Paragraph 1 of the undertaking has the potential to improve the efficiency of the LFG extraction system which in turn has the potential to reduce the amount of LFG which is being emitted from cells 11, 12 and 13. Notwithstanding this beneficial effect of the undertaking, paragraph 1 is deficient. First, it does not prescribe a timeframe for the evaluation of the

performance of the LFG extraction system in relation to cells 11, 12 and 13. Second, the terms of the undertaking are too narrow because the evaluation of the performance of the LFG extraction system is confined to the existing infrastructure connected to cells 11, 12 and 13. I accept that it is appropriate that there be an evaluation of the performance of the LFG extraction system in relation to cells 11, 12 and 13. This evaluation should form part of the RAP, the preparation and implementation of which I propose to order. Enhancements to the LFG extraction system should not be confined to the existing infrastructure connected to cells 11, 12 and 13. I propose to order that as part of a RAP an environmental auditor will be required to consider and make recommendations for the installation of additional LFG extraction wells along the eastern boundary of Veolia's land adjacent to cells 11, 12 and 13. Mr Lane agreed that it is possible to augment the existing LFG extraction system infrastructure by installing additional LFG extraction wells adjacent to cells 11, 12 and 13 and to connect the wells to the existing infrastructure connected to cells 11, 12 and 13. Mr Lane described this option as a 'variant to the vent curtain system proposed by the plaintiffs'. He described this as a 'remedial option that is there to be assessed'.

365 The auditor will also be required to consider and make recommendations in relation to sinking additional extraction wells in cells 11, 12 and 13. By letter dated 21 April 2023 Veolia's environment auditor, Tonkin and Taylor, provided comments on the draft March 2023 risk management and monitoring program prepared by Resolve Environmental Pty Ltd. Commenting on section 5.2.1 of the RMMP Tonkin and Taylor stated:

> Suggest that comment could be made on the intent to target early control of LFG within the cell, aimed at minimising the risk of low level fugitive waste odours and LFG odour during cell filling. I note that the well spacing is determined by LMS. As discussed on other occasions, this is a potential weakness as the extraction well layout is optimised for commercial LFG extraction, not odour control. Operators responsible for both aspects of the design tend to use closer well spacing (perhaps a

25m grid and certainly no more than 30m typically).

366 The auditor will also be required to consider whether improvements can be made to the design of the extraction wells to reduce LFG leaks. This was recommended by Tonkin and Taylor in their draft Operations Audit Report dated 12 January 2024 as set out above.

367 The existing LFG extraction system is optimised for commercial LFG extraction. LMS as the operator of the plant has a commercial incentive to maximise its revenue from the operation of the plant. LMS is not necessarily focussed on environmental issues such as minimising LFG concentrations outside of the cells and the risk of subsurface LFG migration on to the plaintiff's land. An environmental auditor conducting a review of the current LFG extraction system will be required to consider whether it is appropriate to enhance the existing infrastructure with a view to reducing concentration of LFG along the eastern boundary of Veolia's land adjacent to cells 11, 12 and 13.

368 Veolia did not submit that the terms of its contract with LMS constrained the Court from making any orders which will result in an enhancement of the LFG extraction system. The undertaking which it proffered to the Court included an undertaking to implement any recommendations arising out of the evaluation of the performance of the LFG extraction system, in relation to cells 11, 12 and 13. Further, Veolia cannot avoid the consequences of finding that it has breached its licence obligations and the GED by recourse to the terms of a contract with LMS.

369 Paragraph 2 of the undertaking has two components. First, a commitment to provide the EPA with a final cap design for cells 12 and 13 by 30 June 2024. Second, a commitment to use 'reasonable endeavours' to progress the construction of the final cap following approval of the cap designed by the EPA. I infer that Veolia would not have proffered an undertaking to provide

the EPA with the final cap design for cells 12 and 13 by 30 June 2024 if the design was not yet finalised or nearly finalised. I propose to order Veolia to forthwith provide the EPA with a final cap design for cells 12 and 13. I propose to order Veolia to forthwith with the construction of the final cap following approval of the cap design.

370 The undertaking proffered by Veolia is subject to its using 'reasonable endeavours' to progress the construction of the final cap. Veolia's obligation to comply with the Court's orders should not be qualified by using reasonable endeavours to progress the construction of the final cap. Contractual obligations framed in terms of reasonable endeavours are ordinarily inserted into commercial contracts between parties at arms-length who have their own independent business interests. The qualification of reasonableness is directed to situations of conflict between the obligation to undertake an agreed task and the independent interests of the contracting party who is contractually bound to undertake a particular task. These considerations are not relevant to Veolia's obligation to comply with a court order. In particular, if compliance with the Court's orders would conflict with Veolia's commercial interests this would not provide any justification for Veolia not to comply with the order. Further, if compliance with the Court's orders is subject to Veolia's reasonable endeavours there is potential for debate as to whether Veolia has used reasonable endeavours to progress construction of the final cap following approval of the cap designed by the EPA.

371 I do not consider Veolia to be prejudiced by an order in unqualified terms requiring it to forthwith progress construction of the final cap of cell 12 and 13 following approval of the cap designed by the EPA. Veolia will comply with the order if it acts promptly to engage third party contractors to construct the final cap following EPA approval of the design.

372 Earlier in this judgment I have concluded that Veolia has not breached clause 5

of the licence by reason of its failure to assess the feasibility of the construction of a vent curtain system. For the reasons which underpin that conclusion I do not propose to make orders as set out in [8] of the plaintiffs' proposed orders requiring Veolia to instruct an auditor to determine the feasibility of a 600 metre VCS along the eastern boundary of Veolia's land. I am not satisfied that this order is reasonably necessary to prevent, minimise or remedy Veolia's breach of clause 5 of the licence and s 25 of the Act. The order sought by the plaintiffs would do no more than allow for an assessment of the feasibility of a VCS. If such an order was made it would still be necessary for the VCS to be designed and approved by the EPA and the City of Casey.

373 Prior to the commencement of the proceeding the plaintiffs could have undertaken their own assessment of the feasibility of a VCS and engaged an appropriately qualified environmental auditor to design a VCS. The AEA report provided to the plaintiffs in July 2021 recommended this course of action. The plaintiffs could have come to Court seeking orders requiring Veolia to construct a VCS in accordance with an approved design. By analogy, this is what occurred in *Gales Holdings Pty Ltd v Tweed Shire Council* ('*Gales*'). The judgment of the Court of Appeal summarises the orders made at first instance as follows:

> [7] On 13 March 2012, for reasons published on 21 September 2011, the Chief Judge in Equity:
>
> - declared that, on and from 4 May 2004, the Council had been and continued to be guilty of nuisance by discharging untreated stormwater from its drains onto the Land and preventing stormwater from flowing away from the Land;
>
> - ordered the Council to pay damages of $600,000 to Gales;
>
> - ordered that if Gales be required to maintain a habitat for the Wallum froglet, the Council pay to Gales 30% of Gales' costs of treating the stormwater runoff to make it suitable for the Wallum froglet habitat up to the date of completion of either its drainage works on the Land or of the Blue Jay Circuit Scheme, whichever

be the earlier;

- ordered the Council to pay to Gales damages in the sum of $150,000 for the costs of expert advice and assistance in respect of the table drain installed on the Land in 2004 and the costs of and associated with its construction;

- **ordered the Council to undertake works at its own cost on the Quigan Street drainage outlets in accordance with a concept plan and specifications identified in the order; and**

- ordered the Council to pay 75% of Gales' costs of the proceedings.

374 The order requiring the Council to undertake works at its own costs on the Quigan Street drainage outlets in accordance with the concept plan and specification identified in the primary judges' order was not challenged on appeal.

375 In *Gales* the Court made an order which specified the particular works which the defendant was required to undertake. Neither party referred me to any authority where a court has made an order of the type sought in [8] of the plaintiffs' proposed order. My own research has not disclosed any precedent for the Court to make such an order.

376 I propose to make the following orders:

1. The Court declares that:

(i) The second defendant failed to comply with the requirements of condition OL–L5 of licence OL00069939 between 1 July 2022 and 30 October 2023 by failing to take all practicable measures to prevent emissions of landfill gas from exceeding the action levels prescribed in table 6.4 of the Best Practice Environment Management, Siting, Design, Operation, and Rehabilitation of Landfills (Environment Protection Authority Publication 788);

(ii) The second defendant contravened s 25(1) of the *Environment*

Protection Act 2017 between 1 July 2022 and 30 October 2023 by failing so far as reasonably practicable to minimise the risk that its storage and possession of waste may give rise to a risk of human harm as a result of the migration of methane gas and carbon dioxide onto the plaintiffs' land:

(a) by failing to use and maintain its gas extraction system in a manner that minimised risk of harm to human health and the environment from pollution and waste; and

(b) by failing to prepare and implement a remediation action plan.

(iii) The second defendant contravened s 25(1) of the *Environment Protection Act 2017* between 1 July 2022 and 30 October 2023 by failing so far as reasonably practicable to minimise the risk that its storage and possession of waste may give rise to a risk of an adverse effect on vegetation on the plaintiffs' land:

(a) by failing to use and maintain its gas extraction system in a manner that minimised risk of harm to human health and the environment from pollution and waste; and

(b) by failing to prepare and implement a remediation action plan.

(iv) The second defendant contravened s 25(1) of the *Environment Protection Act 2017* between 1 July 2022 and 30 October 2023 by failing to so far as reasonably practicable to minimise the risks that its storage and possession of waste may give rise to a risk of an

adverse effect on the amenity of the plaintiffs' premises that unreasonably interferes with the plaintiffs' enjoyment of their premises:

(a) by failing to use and maintain its gas extraction system in a manner that minimised risk of harm to human health and the environment from pollution and waste; and

(b) by failing to prepare and implement a remediation action plan.

2. The second defendant must forthwith engage an environmental auditor to prepare a landfill gas remediation action plan identifying practicable measures to reduce emissions of landfill gas at the landfill boundary. The measures to be considered by the environmental auditor are to include measures to enhance the efficiency of the gas extraction system including but not limited to:

(i) increasing the existing number of pumps, turbines and flares which comprise part of the system;

(ii) sinking additional gas extraction wells in the area of land adjacent to cells 11, 12 and 13 and the landfill boundary and connecting these wells to the existing gas extraction system infrastructure.

(iii) sinking additional wells into cells 11, 12 and 13.

(iv) reviewing the design of gas extraction wells to identify and recommend improvements to reduce leakage of landfill gas from the extraction wells.

3. The landfill gas remediation action plan must be verified by an environmental auditor as taking all practicable measures to reduce emissions of landfill gas at the landfill boundary.

4. The second defendant must forthwith implement any measures identified in the landfill gas remediation action plan as verified by the environmental auditor.

5. The second defendant must forthwith provide the Environment Protection Authority with the final cap design for cells 12 and 13 at the Hallam Road landfill and following approval of the cap design by the Environment Protection Authority must forthwith progress construction of the final cap.

377 There is some uncertainty attending the orders I propose to make. In particular, there is uncertainty as to the measures identified by an environmental auditor and the timeframe for the implementation of the measures. Given this uncertainty it is not appropriate to make final orders disposing of the proceeding. Rather, I shall stay the operation of the mandatory injunctions requiring implementation of the measures identified by the environmental auditor until 26 August 2024. I shall direct Veolia to file and serve an affidavit by 4:00pm on 15 August 2024 which annexes the environmental auditor's remediation action plan. The proceeding will be listed for further hearing on 19 August 2024. On 19 August 2024 I shall hear submissions as to the form of order to give effect to the measures identified by the environmental auditor.

378 The plaintiffs are to file and serve submissions on the costs of the proceeding not exceeding 10 pages in length by 4:00pm on 25 July 2024. The defendants are to file and serve submissions not exceeding 10 pages in length by 4:00pm on 1 August 2024. I shall determine the question of costs on the papers and

will make orders as to costs following the hearing on 19 August 2024.

SCHEDULE OF PARTIES

FLORENCE WINSOME ANDERSON, LINDSAY CLIFTON ANDERSON, IAN RICHARD ANDERSON AND ROBERT GREGORY ANDERSON	Plaintiffs
AND	
PWM (LYNDHURST) PTY LTD (ACN 005 470 584)	First Defendant
AND	
SUEZ RECYCLING & RECOVERY PTY LTD (ACN 002 902 650)	Second Defendant

Annexure A: Extracts of Master LFG Borehole Spreadsheet