

Carey's Gully Southern Landfill

Annual Resource Consents Report 2021/2022



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Control Sheet

Document Title: Carey's Gully Southern Landfill Annual Resource Consents Report 2021/2022

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Document Control Register

Version	Status	Date	Details of Revision
0	Draft	18/07/2022	Draft version of report
1	Final	29/07/2022	Report reviewed and approved by Manager, Wastewater Contracts.
1.1	Final	08/08/2022	Revised Figure 4 due to data labels had interchanged.

Executive Summary

This report has been prepared on behalf of the Wellington City Council (WCC) for compliance with the following resource consents:

WGN070230 [26013]

This discharge permit allows WCC to discharge dewatered human effluent ('sludge') contaminants to land at the Carey's Gully Southern Landfill. The landfill is located in Brooklyn, Wellington at map references NZTM 1746265.5423785.

WGN070230 [34284]

This discharge permit allows WCC to discharge contaminants to air, namely odour, from the biofilter, centrate treatment plant and other structures and operations at Carey's Gully Landfill Sludge Treatment Facility. The landfill is located in Brooklyn, Wellington at map references NZTM 1746265.5423785.

WGN080003 [26015]

This discharge permit allows WCC to discharge contaminants to air, namely odour, from the disposal of dewatered human effluent ('sludge') contaminants to land at the Southern Landfill. The landfill is located in Brooklyn, Wellington at map references NZTM 1746265.5423785.

The report will cover the period from 1 July 2021 to 30 June 2022.

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Resource Consent

WGN070230 [26013]

Dewatered human effluent ('sludge') discharge to land is governed by the resource consent under the Greater Wellington Regional Council consent file number WGN070230 [26013]. In general, the consent allows the discharge of up to 200 wet tonnes per day of sludge to the Southern Landfill with a weekly average of 20% dry solids or greater.

The following outlines the conditions of this resource consent required for this report.

WGN070230 [34284]

In addition to the above resource consent, the discharge of contaminants to air, namely odour, from the biofilter, centrate treatment plant and other structures and operations at Carey's Gully Landfill Sludge Treatment Facility is governed by resource consent under the Greater Wellington Regional Council consent file number WGN070230 [34284]. This resource consent replaced WGN070230 [26014] on 29 September 2016.

The following will also outline the conditions of this resource consent required for this report.

WGN070230 [26015]

The discharge of contaminants to air, namely odour, from the disposal of dewatered human effluent ('sludge') contaminants to land at the Southern Landfill is governed by the resource consent under the Greater Wellington Regional Council consent file number WGN070230 [26015].

The resource consent does not specify any annual reporting requirements.

WGN070230 [26013]

Condition (11)

The consent holder will provide to the Manager, Environmental Regulation, Wellington Regional Council, the annual reports that are provided to the Strategy and Policy Committee, Wellington City Council, regarding any alternative options for the disposal of bio-solids in the Wellington District.

WCC manages the Sludge Minimisation Project. More information about the project can be found on their website: [Moa Point Sludge Minimisation Facility](#)

Condition (15)

The permit holder shall keep daily records and weekly averages for:

- The total tons per day of sludge contaminated disposed of to landfill;
- The source of the dewatered sludge contaminants (e.g. the SDF or the Western Waste Water Treatment Plant);
- The dry solids content of the sludge in the skip bins determined by the grab samples. Presented as a weekly average;
- The volume of solid municipal waste deposited and mixed with the sludge at the landfill; and
- An estimate of the volume of any additional bulking material used to achieve the required mixing ratio.

The records shall meet the satisfaction of the Manager, Environmental Regulation, Wellington Regional Council.

The records shall be submitted to the Manager, Environmental Regulation, Wellington Regional Council. The records shall be submitted within three months of 30 June of each year, and contain information for all reporting conditions from the previous year between 1 July and 30 June.

Figure 1 below summarises the total tons of sludge disposed to landfill. Please note that the total daily sludge is the sum of dewatered sludge coming from Western WWTP and Carey's Gully sludge dewatering plant. Daily values are available upon request.

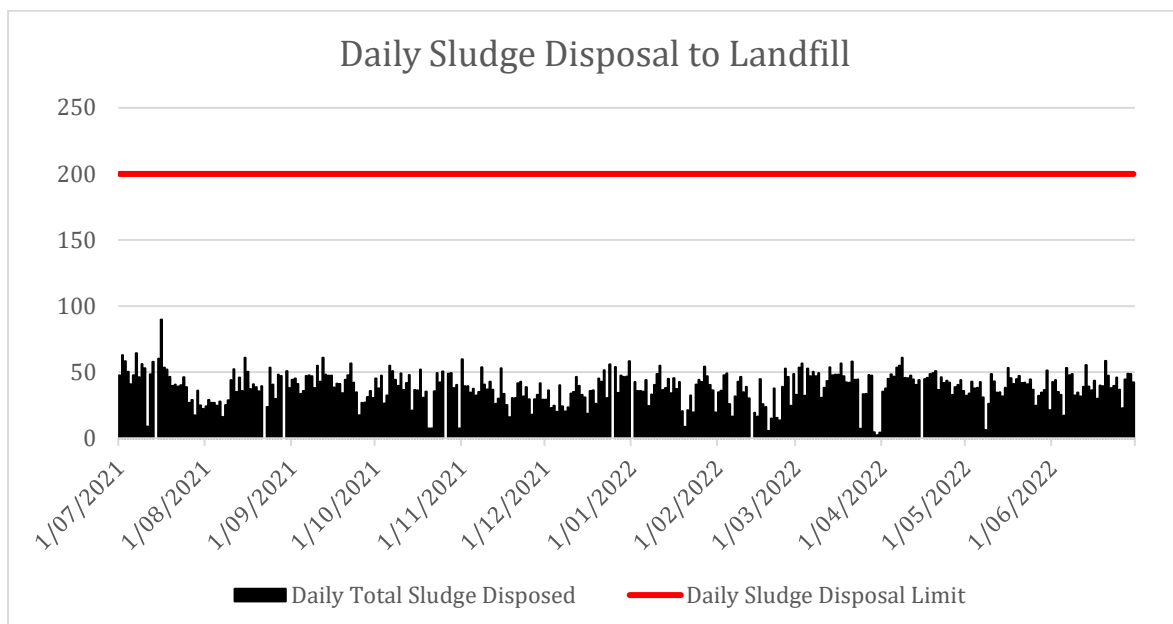


Figure 1: Daily Total Sludge Disposed to Landfill

Figure 2 below summarises the total tons of sludge disposed to landfill from Western WWTP. Daily values are available upon request.

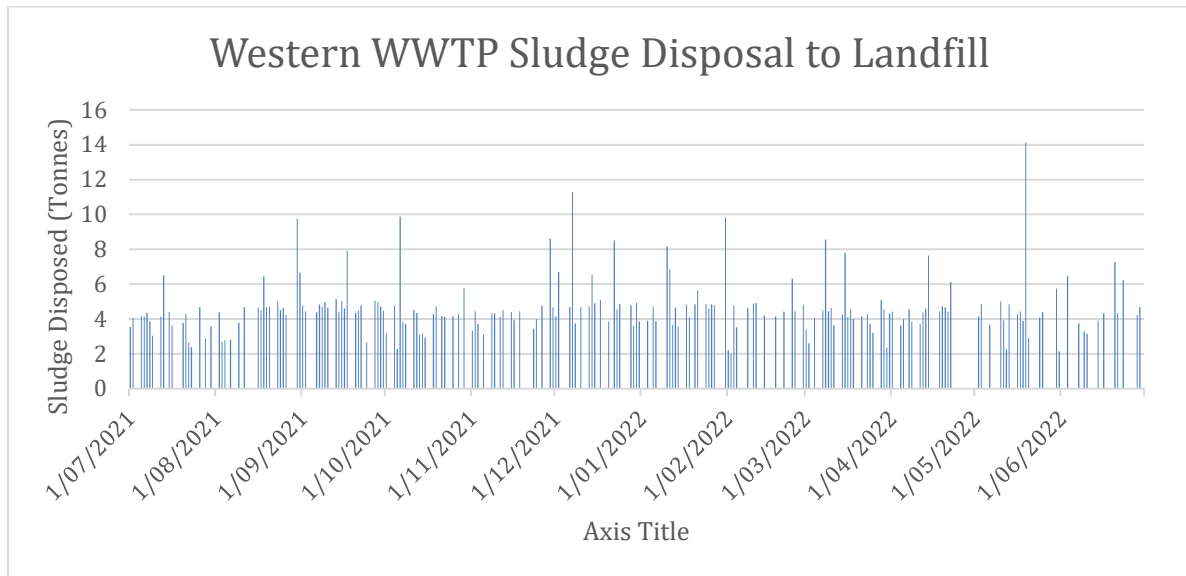


Figure 2: Western WWTP Sludge Disposed to Landfill

Figure 3 below summarises the total tons of sludge disposed to landfill from Carey's Gully Sludge Dewatering Plant. Daily values are available upon request.

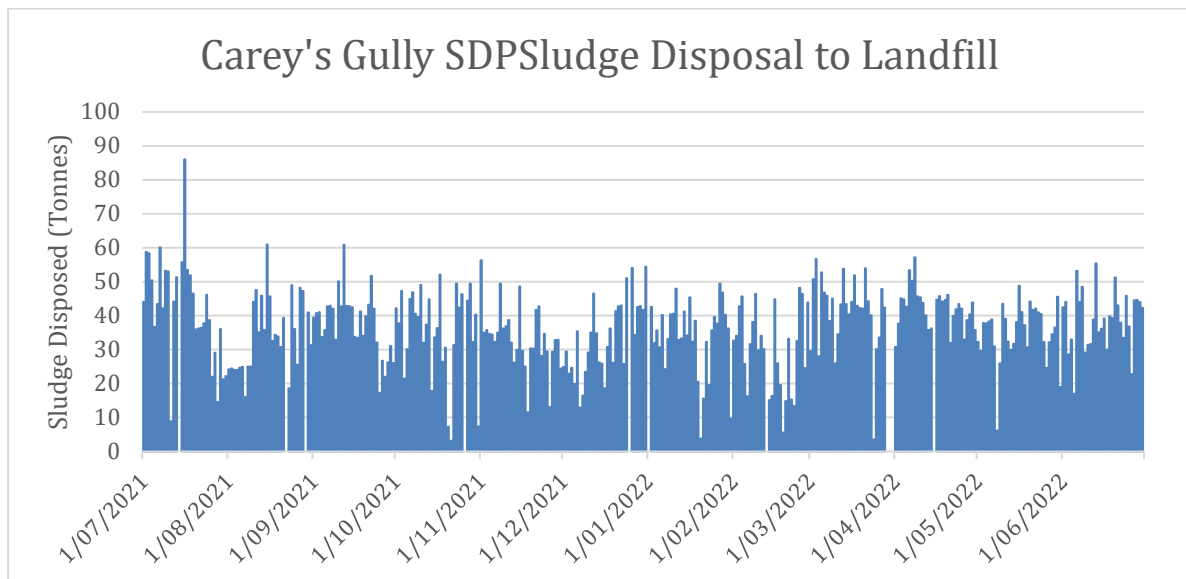


Figure 3: Carey Gully Sludge Dewatering Plant Sludge Disposed to Landfill

Figure 4 below summarises the % dry solids of dewatered sludge sent to landfill. Daily values are available upon request.

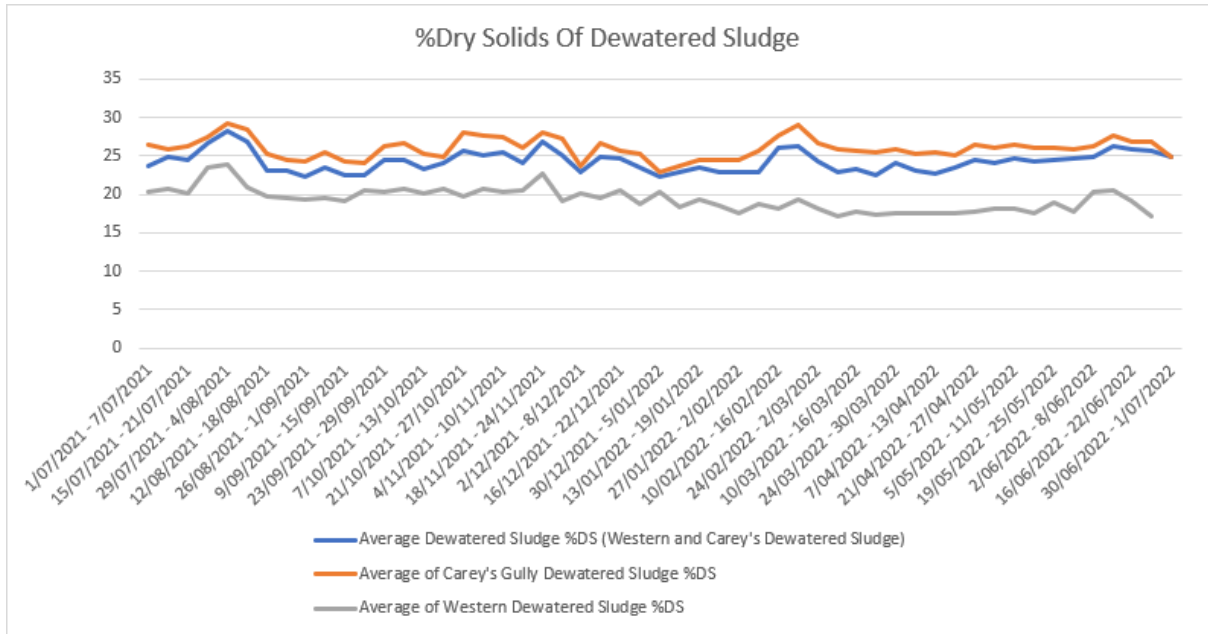


Figure 4: %Dry Solids of Dewatered Sludge

The table 1 below summarizes the volume of solid municipal waste deposited and mixed with the sludge at the landfill and an estimate of the volume of any additional bulking material used to achieve the required mixing ratio.

Material Type	Weight (tonnes)
Domestic Clean fill	1,117
Mixed Commercial	54,791
Mixed Domestic	8,892
Total Landfill – Excluding Sludge (tonnes)	64,800
Total Sludge & Screenings to Landfill (tonnes)	14,578
Ratio of Sludge to Waste (tonnes)	1 : 4.45

Table 1: Solids Waste and Sludge Weights

WGN070230 [34284]

Condition (11)

Building tightness: The permit holder shall ensure that an independent, appropriately qualified person who meets the satisfaction of the Manager, Environmental Regulation, Wellington Regional Council conducts a 'building tightness' audit a minimum of once every two years (the first being conducted within one year of the commencement of this permit). At a minimum, the audit shall take into account the:

- Design extraction rates of the ventilation system;
- Actual rate of extraction; and
- Negative pressure within the building.

A report shall be produced and submitted with the findings and any recommendations to ensure compliance with the conditions of this permit (with specific regard to condition 6) to the Manager, Environmental Regulation, Wellington Regional Council within one month of the completion of the audit.

Should the report and audit find that the 'building tightness' is lower than necessary to ensure compliance with the conditions of this permit, the permit holder shall undertake any maintenance and repair works that are to the satisfaction of the Manager, Environmental Regulation, Wellington Regional Council within two weeks of the submission of the report or other timeframe as agreed with the Manager, Environmental Regulation, Wellington Regional Council.

The building tightness audit was performed last November 2021. A copy of the report has been provided in Appendix i: Sludge Dewatering Plant Building Tightness Assessment.

Condition (12)

Annual biofilter monitoring: The permit holder shall undertake a comprehensive assessment of the quality of the biofilter media on an annual basis (or more frequently if deemed appropriate by the permit holder). The assessment shall involve an evaluation of the media size distribution and composition.

The results of this assessment, including a summary of the findings, details of any action(s) to be taken to improve the efficiency and function of the biofilter, and a timetable for those actions to be undertaken, shall be submitted to the Manager, Environmental Regulation, Wellington Regional Council within one month of the assessment being undertaken.

Actions to be undertaken may include, but are not limited to:

- Turning, restructuring and dampening of bed material;
- The addition of supplementary bed material;
- Partial bed material replacement' or
- Total bed material replacement.

The biofilter assessment was performed November 2021. A copy of the report has been provided in Appendix ii: Sludge Dewatering Plant Biofilter Media Assessment.

Condition (13)

Scheduled biofilter monitoring: The permit holder shall measure and record the following parameters:

- Continuous online display of differential pressure in the final air duct ahead of the biofilter that is automatically logged,
- Weekly recording of pressure across the biofilter bed,
- Weekly general visual observations of the biofilter condition, including weed growth, compaction, and short circuiting,
- Monitoring of the media moisture content in the upper two thirds layer shall be undertaken once a month for the months of November to March, and once every 3 months during the months of April to October
- Monitoring of the pH of the bio-filter bed media in the upper two thirds layer shall be once a month for the months of November to March, and once every 3 months during the months of April to October.
- The permit holder shall submit to Greater Wellington Regional Council an annual report of the distribution of continuously measured inlet air temperature to the bio-filter system.

All monitoring results shall be recorded and compiled and be made available to an officer of Wellington Regional Council on request and as part of the overall reporting condition as required by Condition 15 of this permit.

Figure 5 summarises the average biofilter weekly backpressure readings.

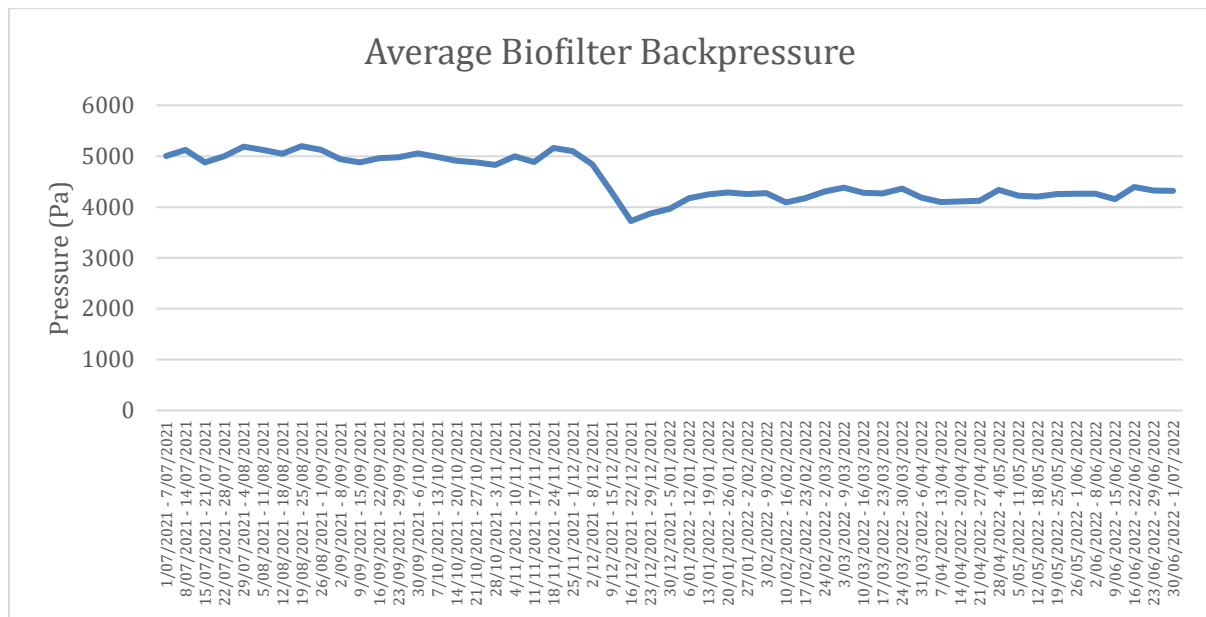


Figure 5: Biofilter Backpressure Readings

Figure 6 summarises the average biofilter monthly % moisture content.

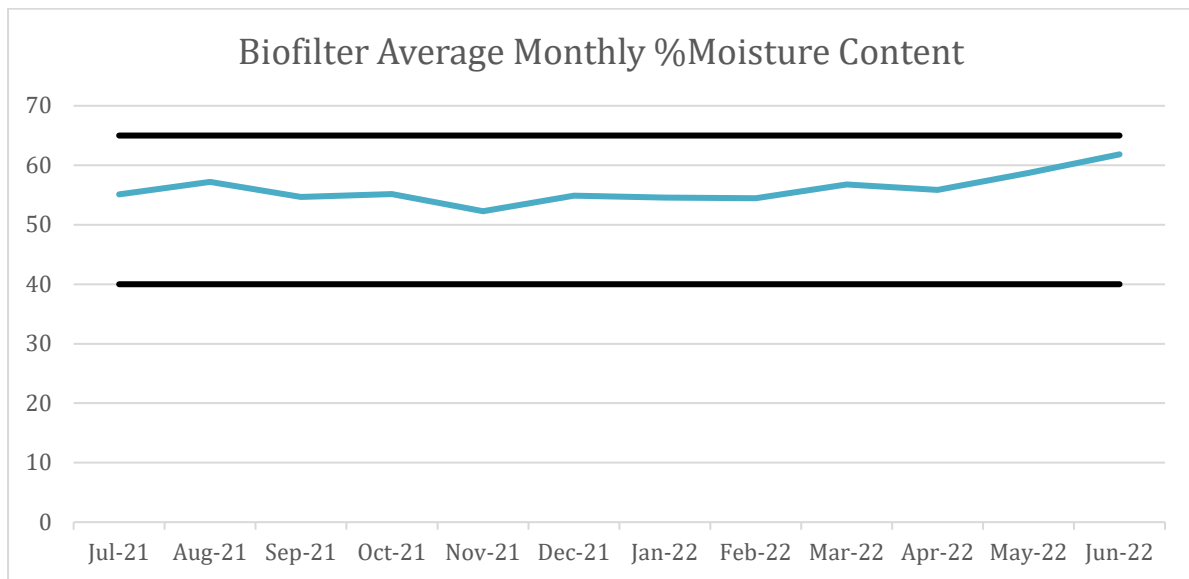


Figure 6: Biofilter Average Monthly %Moisture Content

Figure 7 summarises the average biofilter monthly % moisture content.

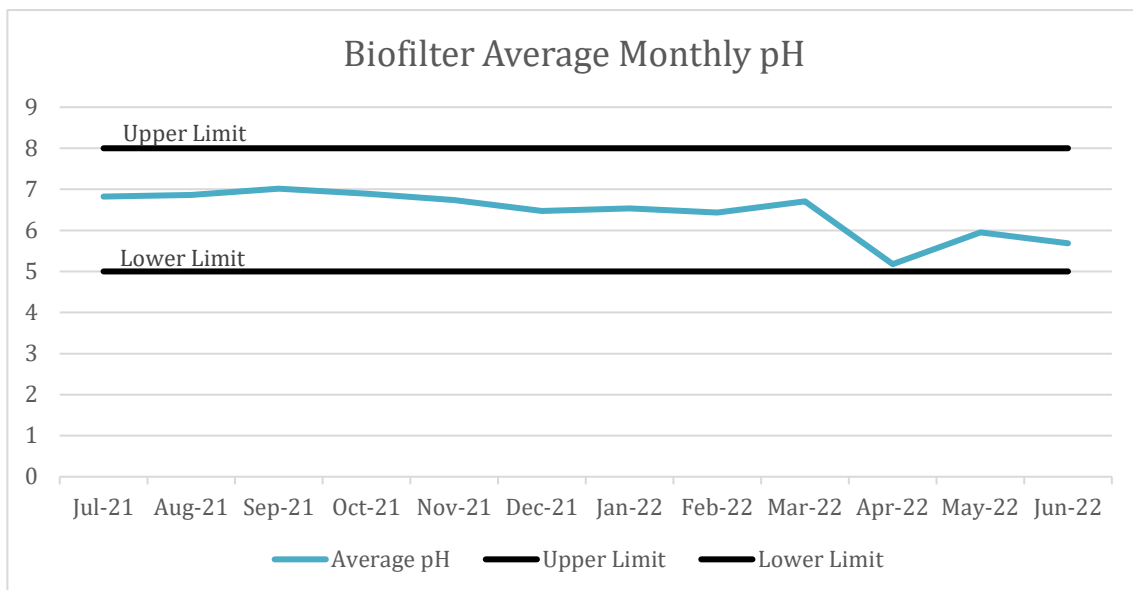


Figure 7: Biofilter Average Monthly pH

Condition (14)

Biofilter requirements: The permit holder shall ensure that the biofilter and bed complies with the following limits at all times:

- A minimum bed depth of filter media of 1.0 metres,
- A minimum gas retention time based on an empty bed volume of 90 seconds, except during planned maintenance works that have been notified to the Wellington Regional Council under Condition 7 of this permit.
- A bed moisture content of between 40 - 65% by weight,
- A pH of filter media between 5 and 8,
- An even distribution of gas flow through the filter bed, and
- That there are no short circuits of untreated air through the filter bed.

The monitoring requirements have been added to the tables in WGN070230 [34284], Condition (13).

Condition (15)

The permit holder shall prepare and submit the relevant monitoring results, data and other information as required by conditions 11 - 14 of this permit in the form of a report to the Manager, Environmental Regulation, Wellington Regional Council.

The report shall meet the satisfaction of the Manager, Environmental Regulation, Wellington Regional Council and be submitted within three months of 30 June of each year, and contain information from all monitoring condition for the previous year between 1 July and 30 June.

The information required by this condition has been summarised in the previous conditions outlined in the section of resource consent WGN070230 [34284] in this report.

Condition (17)

The permit holder shall continue to engage with the Community Liaison Group (CLG) established and maintained under Consent WGN940045 [20316] and [20346] (general Southern Landfill consents).

The role of the CLG will be to liaise with the community about activities relating to the Carey's Gully Sludge Dewatering Plant and associated disposal to the Landfill, and provide information to the community. Meetings of the CLG will be held on a quarterly basis (i.e. every three months). However, the frequency of the meetings can be reduced by agreement at the CLG.

A terms of reference, setting out the rights and responsibilities of the CLG and its relationship to Council and its officers, will be drawn up by the permit holder in consultation with the CLG within four months of the commencement of this permit.

A summary of each meeting that includes, but is not limited to, issues discussed, actions agreed upon and any follow-up on agreed actions from previous meetings, shall be forwarded to the Manager, Environmental Regulation, Wellington Regional Council within 10 working days of each CLG meeting.

It will be the responsibility of the members of the community who wish to be a member of the CLG to contact the permit holder to register expressions of interest. The permit holder will contact all persons who had registered interest to inform them of upcoming meetings.

The CLG meetings are organized by the operators of the landfill. Wellington Water Ltd. does not have authority/responsibilities regarding the CLG. A copy of the minutes during the CLG meetings can be requested from the Southern Landfill Operations team. The meetings were held on 24th November 2021 and 27th April 2022.

Appendix i:

Sludge Dewatering Plant Building Tightness Assessment

Appendix ii:

Sludge Dewatering Plant Biofilter Media Assessment