

27 July 2020

Horowhenua District Council  
Private Bag 4002  
LEVIN 5540

Attention: Asli Crawford.

Dear Asli,

File ref: RC7289  
6009/1, 6010/1, 6011/1  
7289/1, 102259/1  
HSS:PNK

### **LEVIN LANDFILL COMPLIANCE REPORT – 1 JULY 2017 – 18 DECEMBER 2019**

The attached compliance report assesses the annual and quarterly monitoring data, submitted by Horowhenua District Council (HDC) from 1 July 2017 to 21 October 2019, as required by the resource consents held by HDC to operate the Levin Landfill. This report also summarises odour complaints received and the outcomes of any assessments undertaken between 30 July 2018 and 18 December 2019. This information has been used to assess the Levin Landfill against the relevant consent conditions for an overall assessment period of 1 July 2017 to 18 December 2019.

As a result of this assessment the Levin Landfill has been given an overall **Moderate Non-Compliance** for consent 6009/1, **Moderate Non-Compliance** for consent 6010/1, a **Low Risk Non-Compliance** for consent 6011, and **Comply-Full** for consents 7289/1 and 102259/1.

An invoice for Fixed Annual Preliminary Compliance Charges in relation to this report will follow. As at 1 July 2018 compliance inspections and reporting for every site inspected will incur a Fixed Annual Preliminary Compliance Charge of \$1,043.00 (incl. GST), as well as a separate Fixed Administration Charge of \$36.00 (incl. GST). The fixed annual preliminary charge accounts for costs associated with the first compliance assessment, with any further time to undertake the total annual monitoring activity recovered through additional charges based on actual and reasonable costs. Additional charges (over and above the annual preliminary charge) will also account for extra compliance monitoring (including site visits, sampling, assessment, reporting and follow up processes), which may be required as a result of non-compliance with consent conditions.

Please find attached a copy of Horizons Regional Council (Horizons) Compliance Assessment Guidelines for your reference.

If you have any queries about the attached report, please contact me via email [hamish.sutherland@horizons.govt.nz](mailto:hamish.sutherland@horizons.govt.nz), on direct dial 0508 800 800.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Hamish Sutherland', with a small dot at the end.

Hamish Sutherland  
**SENIOR CONSENTS MONITORING OFFICER**

Encl: Annual Compliance Report  
Invoice  
Cost Breakdown

# ANNUAL COMPLAINTS AUDIT REPORT

## LEVIN LANDFILL

Resource Consents  
6009, 6010, 6011, 7289 & 102259.

Reporting Period  
1 July 2017 – 18 December 2019



27 July 2020



**Prepared By**

Hamish Sutherland  
Senior Consents Monitoring Officer

**Reviewed By**

Pita Kinaston  
Team Leader Consents Monitoring

## EXECUTIVE SUMMARY

This compliance report assesses compliance for resource consents 6009, 6010, 6011, 7289 and 102259. These resource consents are held by the Horowhenua District Council (HDC) for the operation of the Levin Landfill, situated on Hōkio Beach Road. The assessment period this report covers is 1 July 2017 to 18 December 2019. During this assessment period various quarterly and annual monitoring reports have been submitted to Horizons Regional Council (Horizons), as required by the aforementioned consents. These monitoring reports have been used to assess compliance against the relevant resource consent conditions.

In addition to the monitoring reports above, Horizons have undertaken a number of odour assessments in response to odour complaints related to the landfill. The previous Horizons compliance report assessed all received odour complaints up to 29 July 2018. This report summarises all complaints received and assessments undertaken from 30 July 2018 up until 18 December 2019, which is just prior to 19 December 2019, when a new set of agreed conditions were issued for the operation of the Levin Landfill.

As a result of the inspections and assessments outlined above the following compliance grading's have been allocated;

Resource consent	Nature of resource consent	Compliance Rating
6009/1	Discharge of solid waste onto land.	Moderate Non-Compliance.
6010/1	Discharge of landfill leachate onto and into land.	Moderate Non-Compliance.
6011/1	Discharge of landfill gas, odour and dust to air.	Low Risk Non-Compliance.
7289/1	Discharge of liquid waste onto and into land.	Comply – Full.
102259/1	Discharge of stormwater to land and potentially to groundwater via soakage.	Comply – Full.

**At the back of this report there is a summary of identified non-compliances, recommendations and actions. The actions in particular will need to be addressed no later than 4 September 2020 to prevent any potential non-compliance with the consent conditions.**

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## SCOPE OF REPORT

This compliance report assesses compliance of the Levin Landfill against resource consents 6009, 6010, 6011, 7289 & 102259 which are held by the HDC. The focus of this compliance report is a data assessment of the quarterly and annual monitoring reports collated by the consent holder as required by the above resource consents. This report also summarises odour complaints received and the outcomes of any assessments undertaken. Overall the period covered by this report is 1 July 2017 – 18 December 2019.

Under the above consents various monitoring reports have been submitted to Horizons during the assessment period that relate to this compliance report. Accordingly the following monitoring reports have been utilised to assess the Levin Landfill's compliance with said consents:

- Levin Landfill Annual Compliance Report July 2017 – June 2018
- Levin Landfill Annual Compliance Report July 2018 – June 2019
- Levin Landfill July 2018 Quarterly Monitoring Report
- Levin Landfill October 2018 Quarterly Monitoring Report
- Levin Landfill January 2019 Quarterly Monitoring Report
- Levin Landfill April 2019 Quarterly Monitoring Report
- Levin Landfill July 2019 Quarterly Monitoring Report
- Levin Landfill October 2019 Quarterly Monitoring Report

This report also makes use of the following management plans related to the above consents:

- Levin Landfill Management Plan
- Levin Landfill Stormwater Management Plan
- Levin Landfill – Environmental Monitoring & Reporting Requirements

This compliance report does not assess resource consent 106798 which is associated with the operation of the landfill gas flare; this will be covered in a separate and subsequent report.

## BACKGROUND

The Levin Landfill is located on Hōkio Beach Road in the Horowhenua District, 4 kilometres west of Levin. The landfill site is located in undulating sand country surrounded by pastoral farming land, 3 kilometres from the coast and 6 kilometres from State Highway 1. The site is approximately 72 hectares in area.

The Hōkio Stream (the single outlet for Lake Horowhenua) runs in close proximity to the northern boundary of the landfill site as it flows west to the sea over a distance of approximately 2.5 kilometres. There are a number of rural residences located to the north-east of the landfill site and the small coastal settlement of Hōkio Beach is located approximately 1.5 kilometres to the north-west. The Ngatokowaru marae (Ngāti Pareraukawa, Ngāti Raukawa) is located approximately 500 metres north-east of the landfill property, while the Kawiū marae (Muaūpoko) is on the northern shore of Lake Horowhenua.

The original resource consents were granted to HDC in 1998. These covered the closed landfill and the new lined landfill.

In 2004 the then Parliamentary Commissioner for the Environment (the Commissioner), received complaints from several members of the local community expressing concern about the management and associated environmental effects of the Levin Landfill. The commissioner suggested a review was in order. Between 2004 and 2007 there was a lot of to and fro between HDC and Horizons and the various consultants that were employed in relation to these concerns.

The Commissioner had originally indicated that their formal investigations would be postponed until the consent review had been completed; however, given delays in progressing the review, in July 2007 the new Commissioner decided to commence an investigation and prepare a report for the benefit of all parties in an aim to resolve the matters at hand.

The Commissioner's report acknowledged that Horizons had made a decision to publicly notify a new consent review which would supersede previous negotiations between Horizons and HDC. Notwithstanding the proposed review, the Commissioner considered that there was significant merit in releasing their findings at that particular time given the concerns of the local community and the importance of the outcome of the proposed review.

The Parliamentary Commissioner for the Environment report (August 2008) and supporting technical assessment undertaken by Tonkin and Taylor (dated 25 March 2008) included key recommendations which were taken into consideration by the Commissioner in forming their final recommendations.

The report provided guidance for the review of the landfill's resource consents including recommendations on compliance monitoring by Horizons and the monitoring and operation of the landfill by HDC, including liaising with the Neighbourhood Liaison Group.

A formal review was initiated which was completed by 2010 and resulted in the current resource consent conditions under the following resource consents:

<b>Resource consent number</b>	<b>Nature of resource consent</b>
6009/1	Discharge of solid waste onto land.
6010/1	Discharge of landfill leachate onto and into land.
6011/1	Discharge of landfill gas, odour and dust to air.
7289/1	Discharge of liquid waste onto and into land.
102259/1	Discharge of stormwater to land and potentially to groundwater via soakage.

Recently a further review of the relevant resource consent conditions was completed; however, this was subject to an appeal. In 2019 this matter was resolved and subsequently on 19 December 2019 a new set of agreed conditions were issued for the operation of the Levin Landfill.

The assessment period of this report concludes just prior to the agreed amendment taking effect on 19 December 2019, accordingly the pre amendment conditions have been utilised to assess compliance for the landfill activities.

## **COMPLAINTS RECEIVED**

All of the complaints logged for the Levin Landfill with Horizons during this assessment period have been related to odour.

The assessment period covered by the previous compliance report for odour complaints was between 1 July 2017 and 29 July 2018. This assessment provides a summary of the odour complaints received and outcomes of any assessments between 30 July 2018 and 18 December 2019. Of the 15 odour complaints received, four were sent by email after odour events had occurred, meaning a direct assessment could not be undertaken. Eleven were called in to the Pollution Hotline. Of the eleven Pollution Hotline calls there were four occasions when staff were available to undertake site inspections or odour assessments.

None of these resulted in objectionable odour from the Levin Landfill being detected.

Horizons compliance assessment in relation to these odour complaints is discussed further under resource consent 6011, condition 3.

## GENERAL CONDITIONS APPLICABLE TO 6009

Consent is granted to the Horowhenua District Council to **discharge solid waste to land** at the Levin landfill, Hokio Road, Levin, legally described as Lot 3 DP 40743 Blk II Waitohu Survey District, for a term expiring 35 years from the commencement of the consent subject to the following conditions:

1. This permit does not authorise the disposal of liquid waste to land at the Levin Landfill.

*Liquid waste is defined as:*

*Septic tank waste, grease trap waste, sewage and any material that contains free liquids.*

*The presence of free liquids may be determined by either of the following methods, whichever is most practicable at the time:*

- i. The "Paint Filter Test"; or
- ii. Material which may be loaded, transported and deposited at the landfill without the risk of free liquid seeping from the material, and without the risk of having the deposited material flow under gravity down any slope on the landfill shall be deemed to not contain free liquids.

Condition 26 of this consent and various conditions of resource consent 7289 provide exceptions to this condition under certain situations. Despite this the Levin Landfill Management Plan requires that any liquid waste disposed of at the Levin Landfill must be accompanied by a Hazardous Waste Application Form. There have been no forms generated during this assessment period and therefore no liquid waste disposed of at the Levin Landfill. A request to provide various paperwork and logs to verify this condition are made further down in this report.

### **Condition Compliance Status: Comply Full**

#### ***General Conditions – Discharge Solid Waste to Land***

2. *The Permit Holder shall take all practicable measures to avoid the discharge of waste from within the landfill to surrounding land. To this end, the Permit Holder shall ensure:*  
*Condition*
  - a. *The amount of refuse exposed at any one time is confined in dimension to 800 square metres of tipping face; and*
  - b. *Exposed refuse is covered at the end of each day that refuse is received at the landfill.*

A site inspection of the Levin Landfill has occurred subsequent to this assessment period on 17 March 2020; this condition falls outside the scope of this report and will be assessed in a subsequent report based on the observations made during the above inspection.

### **Condition Compliance Status: Not Assessed.**

- 3. If refuse is discharged from within the active landfill areas to land outside the legal boundary of the landfill property, the Permit Holder shall ensure that such waste is cleared and removed to the landfill as soon as practicable.*

A site inspection of the Levin Landfill has occurred subsequent to this assessment period on 17 March 2020; this condition falls outside the scope of this report and will be assessed in a subsequent report based on the observations made during the above inspection.

**Condition Compliance Status: Not Assessed.**

- 4. The Permit Holder will monitor the landfill at least once every two weeks for the build up of litter, paper and other deposits outside the active landfilling areas, and remove such material as required.*

Weekly inspections are required by the Levin Landfill Management Plan.

A site inspection of the Levin Landfill has occurred subsequent to this assessment period on 17 March 2020; this condition falls outside the scope of this report and will be assessed in a subsequent report based on the observations made during the above inspection.

**Condition Compliance Status: Not Assessed.**

- 5. The Permit Holder shall regularly inspect for the presence of vermin, birds and other pests take appropriate measures to control them.*

A site inspection of the Levin Landfill has occurred subsequent to this assessment period on 17 March 2020; this condition falls outside the scope of this report and will be assessed in a subsequent report based on the observations made during the above inspection.

**Condition Compliance Status: Not Assessed.**

- 6. The Permit Holder shall regularly inspect the landfill for noxious weeds, and take appropriate measures to control those noxious weeds.*

A site inspection of the Levin Landfill has occurred subsequent to this assessment period on 17 March 2020; this condition falls outside the scope of this report and will be assessed in a subsequent report based on the observations made during the above inspection.

**As previously recommended, the Levin Landfill Management Plan or any subsequent versions should document a process where incidences of noxious weed control is recorded to demonstrate full compliance with this condition.**

**Condition Compliance Status: Not Assessed.**

## ***Hazardous Material***

7. *The Permit Holder shall not allow the disposal of waste of an explosive, flammable, reactive, toxic, corrosive or infectious nature, to an extent that the waste poses a present or future threat to the environment or the health and the safety of people.*

Any potentially hazardous material must follow an approval process with the requisite application form filled out and approved. This process is covered in the Levin Landfill Management Plan. There have been no forms generated during this assessment period, as identified in the Levin Landfill 2017-18 and 2018-19 annual compliance reports, indicating waste of this nature has not been deposited of at the Levin Landfill.

A recommendation with respect to this condition is made under condition 8 below.

### **Condition Compliance Status: Comply – Full**

8. *The Permit Holder shall develop and implement a procedure for the landfill operator, such that potentially hazardous material, as listed in Annex 1 attached to and forming part of this permit, will not be accepted for disposal at the Levin landfill without specific authorization. The Operations Manager of the Horowhenua District Council, or some other designated person, is able at their discretion to accept quantities of such wastes. The waste shall be accompanied by a Hazardous Waste Manifest, as listed in Annex 1, which will form part of the permanent record and shall be reported by the Regional Council by 31 August each year for the term of this Permit.*

Section 16 of the Levin Landfill 2017-18 and 2018-19 annual compliance reports detail the types of waste that is deemed hazardous as specified in Annex 1. The reports also state Envirowaste have maintained a hazardous waste log to record any arranged incidents of hazardous waste disposal. Both annual reports state there was no hazardous waste disposed of at the Levin Landfill during the 2017-18 and 2018-19 annual reporting periods and therefore no entries on the log.

Discussions with the consent holder's staff indicate Hazardous waste is not accepted at the Levin Landfill as a matter of course; if so this should be written into the Landfill Management Plan or any subsequent version.

**Horizons requests a copy of the 2017-18 and 2018-19 hazardous waste logs to assist in assessing compliance with this condition.**

**Condition Compliance Status: Not Assessed.**

9. *The Permit Holder shall maintain a secure facility for any small quantities of hazardous waste, pending a decision on treatment, disposal or transfer to another facility.*

The 2017-18 and 2018-19 annual reports indicate no hazardous waste was disposed of at the landfill during this assessment period. The hazardous waste logs have been requested as above to verify this.

**Condition Compliance Status: Not Assessed.**

10. *Hazardous waste stored at the facility described in Condition 9 shall be stored in a sealed and bunded area to avoid adverse effects from spills.*

A site inspection of the Levin Landfill has occurred subsequent to this assessment period on 17 March 2020; this condition falls outside the scope of this report and will be assessed in a subsequent report based on the observations made during the above inspection.

**Condition Compliance Status: Not Assessed.**

11. *Any hazardous waste accepted for disposal shall be disposed within an adequate volume of mature refuse, in accordance with Centre for Advanced Engineering's Landfill Guidelines (2000).*

The 2017-18 and 2018-19 annual reports indicate no hazardous waste was disposed of at the landfill during this assessment period. The hazardous waste logs have been requested as above to verify this.

**Condition Compliance Status: Not Assessed.**

### ***Monitoring and Reporting***

#### ***Specific Conditions – Discharge Solid Waste to Land at Existing Landfill***

12. *No solid waste shall be disposed to the existing landfill, after two years from the commencement of this consent.*

The existing landfill as described in this consent is described as the Old Closed Landfill or Stage 1 by the operators and the consent holder. This section of the Levin Landfill has final capping in place. Solid waste is currently going into Stage 2 of the lined landfill.

**Condition Compliance Status: Comply – Full**

13. *All new fill should be placed on top of at least 2 metres of existing material in the existing landfill.*

As detailed in condition 12, final capping is in place and this condition was verified as being compliant in Horizons compliance report 42517 dated 19 May 2011.

**Condition Compliance Status: Comply – Full**

14. *The Permit Holder shall update the Landfill Management Plan in respect of the operations on the lined landfill to the satisfaction of the Environmental Protection Manager at the Regional Council within six months of the completion of the review of the consents. The Landfill Management Plan shall include, but not be limited to:*
- a. *The specific conditions contained herein, related to the operation, management and monitoring of the landfill.*
  - b. *A description of the development and maintenance of the landfill.*
  - c. *A description of how the consent will be exercised in a manner to ensure compliance with the consent and the conditions thereof and the Resource Management Act 1991.*
  - d. *A description of how the consent will be exercised to minimise adverse effects on the environment.*
  - e. *A description of the hazardous waste acceptance criteria, including the criteria set out.*
  - f. *The emergency procedures to be followed in the event of natural emergencies and hazardous waste spills.*
  - g. *The methods of controlling dust and odour emissions including the criteria for assessing when, and how regularly, roadways and the landfill are dampened by water or otherwise.*
  - h. *Details of measures to avoid nuisance effects on adjacent properties i.e. birds and vermin, as a result of landfill activities.*
  - i. *Operational, intermediate and final capping requirements.*
  - j. *Closure and aftercare.*
  - k. *Procedure to update the management plan, in light of changing circumstances, to continue compliance with Conditions of this Permit.*
  - l. *A screen planting implementation description.*

- m. *The feasibility of carrying out greenwaste composting operations on top of the closed landfill shall be assessed. Where it is deemed to be feasible, the composting operations shall be incorporated into the Closed Landfill Aftercare Management Plan.*

*The Permit holder shall prepare a Closed Landfill Aftercare Management Plan in respect of the closed landfill (Area "A") to the satisfaction of the Environmental Protection Manager at the Regional Council within six months of the completion of the review of the consent conditions. The Closed Landfill Aftercare Management Plan shall include, but not be limited to those aspects that are detailed in Appendix E of the MfE publication entitled 'A guide for the Management of Closing and Closed Landfills in New Zealand (May 2001)'. The Closed Landfill Aftercare Management Plan shall require at the least:*

- n. *Grading to a final slope on the landfill faces and caps of between 1V:3H (1 in 3) and 1V:40H (1 in 40);*
- o. *Ensuring the final landfill surface is sloped to promote run-off toward the outside of the landfill footprint and prevent surface water ponding on the landfill cap;*
- p. *Ensuring the landfill cap incorporates a layer at least 700 mm thick. All material added to the existing cap to bring the thickness up to 700 mm, or for future cap maintenance purposes, is to have a permeability of not greater than  $1 \times 10^{-7}$  m/s.*
- q. *Establishing and maintaining a grass or tussock vegetation cover on the capped landfill consistent with an ongoing ability to monitor and maintain the integrity of the landfill cap as per Condition 15 (d) of Consent 6010.*
- r. *Monitoring the landfill cover on an annual basis to identify areas of differential settlement slope stability issues, erosion and changing vegetation patterns, including a topographic survey to ensure Conditions 14(n) to (q) continue to be met;*

*The Permit holder shall submit an annual report to the Regional Council by 31 August each year for the duration of this Permit documenting the condition of the unlined landfill and any maintenance carried out during the previous year. The annual report shall address but not be limited to those aspects listed in Conditions 14(n) to 14(r) above. The annual report shall include a plan of the unlined landfill specifically documenting the shape of the closed landfill and any changes during the previous year related to Condition 14(q) [The annual report can be written in conjunction with the annual report required as part of Condition 15 (f) for Consent Number 6010]*

The consent holder provided a comprehensive management plan on 30 November 2010. This plan addresses points (a) to (m) of condition 14. This plan also includes an aftercare management plan addressing points (n) to (r) of condition 14. Section 12 of the 2017-18 and 2018-19 Levin Landfill annual reports provide detail on the old landfill remediation as required by this condition.

**Condition Compliance Status: Comply – Full**

### ***Specific Conditions – Discharge of Offal and Dead Animals to Land***

15. *Offal waste shall be immediately buried in depth of 0.6 metres upon delivery.*

Section 6.8 of the Levin Landfill Management Plan requires that offal waste is to be immediately buried to a depth of 0.6m.

#### **Condition Compliance Status: Comply – Full**

16. *All animals disposed of as diseased animals under the Animal Act 1967 shall be immediately buried to a depth of at least 1 metre.*

Section 6.8 of the Levin Landfill Management Plan requires the disposal of diseased animals under the animal act are immediately buried to a depth of at least 1.0m.

#### **Condition Compliance Status: Comply – Full**

17. *Pits for the burial of offal and animals shall be excavated in mature refuse and shall be away from the public tipping area.*

There is no public tipping at the Levin Landfill; however, the under section 6.8 of the Levin Landfill Management Plan it states that *“If the contractor excavates and prepares holes for the disposal of offal, they will be in a closed previous tipping area and shall be at least 10 metres from any landfill batter slope.”*

#### **Condition Compliance Status: Comply – Full**

18. *Pits for the burial of offal and animals shall be at least 10 metres from any landfill batter slope.*

As detailed under condition 17 section 6.8 of the Levin Landfill Management Plan requires all offal is to be buried 10m from any batter slope.

#### **Condition Compliance Status: Comply – Full**

19. *Pits for the burial of offal and animals shall not exceed a maximum size of two metres by 15 metres.*

Section 6.8 of the Levin Landfill Management Plan states: *“If used, the offal holes shall be excavated to a depth of at least 2.5 metres and to a maximum size of 2m by 15m.”*

#### **Condition Compliance Status: Comply – Full**

20. *The immediate cover material of all offal and animals shall be a minimum depth of at least 100 millimetres unless these conditions specify otherwise. Pits shall be filled to within one metre of the prior refuse surface level and reinstated with appropriate compaction with previously removed refuse or other suitable material.*

Section 6.8 of the Levin Landfill Management Plan states: *“All materials placed in the offal hole shall be covered within one hour of being deposited. The intermediate cover material shall be to a minimum depth of at least 100mm, with a final cover of greater than 300mm provided when closing that hole. The contractor shall maintain the surface over a closed offal hole as a level surface.”*

**Condition Compliance Status: Comply – Full**

21. *Pits for the burial of offal and animals shall be demarcated as such and shall be fenced off.*

Section 6.8 of the Levin Landfill Management Plan states: *“Offal holes shall be fenced off and the location recorded and sign-posted accordingly.”*

**Condition Compliance Status: Comply – Full**

22. *Any other malodorous wastes not already covered specifically by these conditions shall be covered immediately upon disposal.*

Section 6.8 of the Levin Landfill Management Plan states: *“All other materials requiring specific burial shall be immediately buried to the specified depth in the presence of the relevant observers.”*

**Condition Compliance Status: Comply – Full**

**Note Conditions 15 – 21:** The aforementioned conditions require specific practices for the disposal of dead animals and offal which is provided for in the Landfill Management Plan. This report strongly recommends any future annual reports should provide photographic examples that these practices are being strictly followed.

### ***Specific Conditions – Discharge of Biosolids and Sludges to Land***

23. *Biosolids, sludges and similar materials which do not contain free liquids may be accepted at the landfill as solid waste. This shall include dewatered municipal wastewater treatment plant solids, dewatered processing plant solids and dewatered agricultural wastes.*

*The presence of free liquids may be determined by either of the following methods, whichever is most practicable at the time:*

- i. The “Paint Filter Test”; or*
- ii. Material which may be loaded, transported and deposited at the landfill without the risk of free liquids seeping from the material, and without the risk of having the deposited material flow under gravity down any slope on the landfill shall be deemed to not contain free liquids.*

The consent holder keeps a special waste log which records, among other things, when sludges and biosolids are disposed of at the landfill. The Levin Landfill Management Plan states that only biosolids and sludges that do not contain free liquids may be accepted at the landfill.

**Horizons requests a copy of the 2017-18 and 2018-19 special waste logs to assist in assessing compliance with this condition.**

**Condition Compliance Status: Not Assessed.**

24. *If not co-disposed of within the landfill, the biosolids, sludges and similar materials shall be applied to the landfill surface in accordance with the 1992 Ministry of Health Guidelines for the “safe use of sewage effluent and sewage sludge on land”.*

The Levin Landfill Management Plan states: *“Biosolids that are not co-disposed or buried should be applied in accordance with MfE and NZWWA Guidelines for the Safe Application of Biosolids to Land in New Zealand (2003). This document supersedes the Ministry of Health’s Public Health Guidelines for the Safe Use of Sewage Effluent and Sewage Sludge on Land (1992) which is the document referred to in the resource consent.”*

**Condition Compliance Status: Comply – Full**

25. *The Permit Holder shall maintain records of:*
- a. *The type of waste received;*
  - b. *The volume of waste received;*
  - c. *Source of waste; and*
  - d. *The location in which the material was placed.*

**Horizons requests a summary of the type, volume and source of the waste received by the Levin Landfill covering the 2017-18 and 2018-19 annual reporting periods to verify compliance with this condition.**

**Condition Compliance Status: Not Assessed.**

26. *Disposal of site-generated sludge from cess-pits, leachate ponds or other site activities that contain free liquids is acceptable to facilitate site operation, provided this does not adversely affect landfill stability or face operations.*

Leachate generated onsite is piped directly to the Levin Waste Water Treatment Plant.

**Condition Compliance Status: Comply – Full**

***Specific Conditions – Discharge Solid Waste to Land at Lined Landfill***

27. *Design specifications and a set of construction drawings for the lined landfill shall be forwarded to the Regional Council (Environmental Protection Manager) for certification, to ensure compliance with the conditions of this consent and all related consents, at least three months prior to the intended construction of the lined landfill begins.*

Appendix B – G of the Levin Landfill Management Plan dated November 2010 details design specifications and includes design drawings for the lined landfill. The latest cell constructed on site was Stage 3. At this time the consent holder engaged Tonkin & Taylor to undertake a peer review of MWH's design specifications for the liner system. Subsequent to Tonkin & Taylor's review the following documents were forwarded to Horizons:

1. MWH Borrow Area Operational Plan Levin Landfill dated August 2010;
2. MWH design drawings B0500663-01-001-C001, C002, C003, C004, C005, C006, C007 all Revision A;
3. Tonkin & Taylor Levin Landfill – Stage 3 Design Peer review dated 13 March 2013;
4. MWH Levin Landfill Stage 3 Design Response to Peer Review Report dated 8 April 2013;
5. MWH Levin Landfill – Change to Side Slope Liner Protection Layer letter dated 12 April 2013;
6. Tonkin & Taylor Levin Landfill – Stage 3 Peer Review – MWH Response to Peer Review Report dated 26 April 2013;
7. Email from Joel Dykstra to Stuart Standen dated 10 May 2013; and
8. Tonkin & Taylor Levin Landfill – Stage 3 Peer Review – Protection Geotextile dated 6 June 2013.

Based on the information contained in this document Horizons sent a letter to the consent holder dated 1 July 2013 certifying the liner design in accordance with condition 27.

**Condition Compliance Status: Comply – Full**

28. *The Permit Holder shall construct the liner system for all new cells to include the following elements:*
- a. *A smooth base constructed from insitu materials the level of which is above the winter groundwater level.*
  - b. *A geosynthetic clay liner (GCL) a minimum of 5mm thick, with a coefficient of permeability not exceeding  $3 \times 10^{-11}$ m/s. The Permit Holder shall supply documentation from the manufacturer demonstrating quality control procedures ensuring that 95 % of the GCL meets the coefficient of permeability standard required.*
  - c. *A synthetic flexible membrane (high density polyethylene, HDPE with a minimum thickness of 1.5 mm, or polypropylene, PP with a minimum thickness of 1.0 mm).*
  - d. *A protective layer of sand 100 mm thick on the base overlain by a 300 mm thick gravel drainage layer, and on the sides a protective layer of sand 300 mm thick that will be placed progressively as the landfill rises.*
  - e. *Provision for the collection of leachate from the liner and reticulating to a treatment system outside the landfill area.*
  - f. *An alternative to any of the above as agreed from time to time, in writing, between the Permit Holder and the consent authority.*

The documents detailed under condition 27 confirm the liner design conforms to the requirements of this condition.

**Condition Compliance Status: Comply – Full**

29. *Nine months prior to placement of refuse on the lined landfill, the Permit Holder shall present a Management Plan to the Regional Council including the same items as those described in Condition 14 (a) to (m).*

The consent holder provided a comprehensive management plan on 30 November 2010. This plan addressed points (a) to (m) of condition 14.

**Condition Compliance Status: Comply – Full**

30. *If any ancient human remains or artefacts are discovered during any earthworks activity associated with the construction and maintenance of the landfill, then works shall cease, and the Consent Holder shall immediately inform the Environmental Protection Manager of the Regional Council and relevant iwi. Further work in the vicinity of the find shall be suspended while relevant iwi carry out their procedures for the removal of taonga. The Environmental Protection Manager of the Regional Council will inform the Consent Holder when work can recommence in the vicinity of the find.*

HDC have advised there have been no works on the site resulting in the accidental discovery of human remains or artifacts during this assessment period.

**Condition Compliance Status: Not Applicable**

31. *The Regional Council shall initiate a publicly notified review of Conditions 2, 8, 14 (a) to (m), 28, 29, 32, 33, and 34 of this permit in April 2015, 2020, 2025, 2030 and 2035, unless the Neighbourhood Liaison Group (NLG) agrees that a review is unnecessary. The reviews shall be for the purpose of:*

- a. *Assessing the adequacy of the management plan outlined in Conditions 14 and 29 of this consent; and/or*
- b. *Assessing the effectiveness of Conditions 2, 8 and 28 of this consent.*
- c. *Assessing the effectiveness of the NLG outlined in Conditions 32, 33 and 34.*

*In avoiding, remedying or mitigating adverse effects on the environment surrounding the Levin Landfill, the review of conditions shall allow for:*

- d. *Modification of the management plan outlined in Conditions 14 and 29 of this consent;*
- e. *Deletion or changes to Conditions 2, 8 and 28 of this consent;*
- f. *Deletion or changes to Conditions 32, 33, and 34; and*
- g. *Addition of new conditions as necessary.*
- h. *An alternative to any of the above as agreed from time to time, in writing, between the Permit Holder and the consent authority.*

*To avoid, remedy or mitigate adverse effects on the environment surrounding the Levin Landfill.*

On 30 October 2015 notice was given to the consent holder of Horizons intent to undertake a review pursuant to this condition. On 10 December 2015 Horizons gave public notification of this review. On 29 January 2016 submissions for this review closed. This review was subsequently appealed; a series of mediation meetings failed to resolve this appeal and consequently the matter was heard by the Environment Court. On 19 December 2019 an amended condition set was issued by Environment Court order pursuant to Section 279(1)(b) RMA.

The amended version of this condition states Horizons may initiate a review with the next date this may occur on being October 2024.

### **Condition Compliance Status: Comply – Full**

#### ***Specific Conditions – Neighbourhood Liaison Group (hereinafter “NLG”)***

32. *The Permit Holder shall establish a NLG. The following shall be eligible to be members:*

- a. *Representation from Lake Horowhenua Trustees and Ngati Pareraukawa;*
- b. *The owners and occupiers of those properties adjoining the Levin Landfill property described as A through to N on Drawing 2181 attached;*
- c. *Other parties who are invited from time to time as agreed by the Permit Holder and/or the NLG, including but not limited to original submitters; and*
- d. *A representative from each of the Horowhenua District and the Regional Council, being consent authorities.*

The consent holder has established a NLG which is open to the members outlined in this condition.

### **Condition Compliance Status: Comply – Full**

33. *The Permit Holder shall:*

- a. *Convene one meeting one month after the commencement of the consents;*

These consents commenced on 24 May 2002, the first meeting of the NLG occurred on 24 June 2002 this meeting was attended by four neighbours, one trustee member and representatives of Horizons and the consent holder.

This is detailed in Horizons Compliance Report 600007 and demonstrates compliance with condition 33a. This condition has previously been complied with and is not relevant to this assessment period.

### **Condition Compliance Status: Not Applicable**

- b. *Thereafter at intervals of six months for the first 18 months after the date of exercising the consent; and*

Records of these meetings are not available, however; the timeframe for this condition has passed and not relevant to this assessment period.

**Condition Compliance Status: Not Applicable**

- c. *Thereafter at intervals of no more than 12 months unless 80% of the people attending a meeting agree that changes to the intervals are acceptable.*

Horizons last compliance report was published on 21 August 2018 and assessed a period of 1 July 2017 to 30 June 2018. At that time Horizons recommended that the consent holder continued attempts to arrange NLG meetings at least every 12 months and was to copy in the NLG members and Horizons into those communications. Failure to meet this requirement would result in non-compliance with this condition.

Since that report was published the following NLG meetings have occurred:

- 19 February 2019
- 12 March 2019
- 4 April 2019
- 27 August 2019

The next NLG Meeting must occur before 27 August 2020 to maintain compliance with this condition.

**Condition Compliance Status: Comply – Full.**

34. *The Permit Holder Shall:*

- a. *Supply notes of each meeting to the Group Members;*

Minutes of the above meetings were kept and emailed to NLG members on 22 August 2019 and 5 December 2019.

**Condition Compliance Status: Comply – Full.**

- b. *Forward an annual report to members and to the Regional Council and the District Council;*

The consent holder has provided copies of the Levin Landfill 2017-18 and 2018-19 Annual Reports to Horizons and the other NLG members via the Solid Waste Newsletter.

**Condition Compliance Status: Comply – Full.**

- c. *Forward any other information to the Group Members, in accordance with the conditions of the consents; and*

The information assessed as part of this report shows the majority of the relevant reports and information required by these consents were forwarded to the NLG members with the exception of the July 2018 and July 2019 quarterly monitoring reports.

**Condition Compliance Status: Moderate – Non Compliance.**

- d. *The Permit Holder shall ensure the NLG members are:*

- i. *Able to advise the Permit Holder of potential members of the NLG.*

This has been a frequently debated point shown in minutes from the recent NLG meetings discussed above.

**Condition Compliance Status: Comply – Full**

- ii. *Given the opportunity to inspect the operations on site on the occasion of NLG meetings, and/or on such other occasions as are agreed by the Permit Holder. The Permit Holder shall not unreasonably withhold such agreement. The Permit Holder shall grant the NLG members access to the landfill property, during working hours, subject to relevant health and safety regulations and the Management Plan.*

Mr Ryan Hughes, previous Solid Waste Officer with HDC, had recommended a site visit to the Levin Landfill in an email dated 18 July 2017. The 27 August 2019 NLG minutes at Page 8 record a request for an onsite meeting at the landfill be organised. An offer was made that if anyone would like to attend a meeting onsite they could email Mr Hughes. It was also suggested video footage could be taken for those who could not make it.

**This report recommends the consent holder tables an offer of an onsite visit to members of the NLG at each NLG meeting.**

**Condition Compliance Status: Comply – Full**

- iii. *Consulted by the Permit Holder as a group prior to any review of the resource consents or any change of conditions pursuant to section 127 of the Resource Management Act 1991 (and/or any consequential amendments).*

The Levin Landfill was subject to a review initiated by Horizons under Section 128 RMA, which concluded in 2010. This decision was then appealed and the matter was not resolved until 19 December 2019 when an amended condition set was issued by Environment Court order pursuant to Section 279(1)(b) RMA.

This condition requires consultation with the NLG if there are changes to the consent conditions pursuant to Section 127 RMA, which allows for changes or cancellation of consent conditions initiated by the consent holder. Accordingly the above review and subsequent condition changes are not applicable to this condition.

**This report recommends a copy of the amended conditions are provided to the NLG members at the next NLG meeting as a matter of good faith.**

**Condition Compliance Status: Not Applicable.**

- iv. Provided by the Permit Holder with a copy of all monitoring reports and other documentation relating to the non-commercially sensitive, environmental operation of the landfill, at the same time as such reports are provided to the Regional Council in accordance with the resource consents.*

The resource consents pursuant to this condition require quarterly reports and an annual report each year. These are distributed to Horizons and the NLG members via the Solid Waste Newsletter.

During this assessment period the following reports were required:

Levin Landfill July 2018 Quarterly Report.

Completed 29 August 2018 and sent to Horizons on 30 August 2018. There is no evidence suggesting this was sent out to the NLG members.

Levin Landfill Annual Compliance Report 2017-18.

Completed 17 September 2018 and distributed via the Solid Waste Newsletter on 30 November 2018.

Levin Landfill October 2018 Quarterly Report.

Completed 29 November 2018 and distributed via the Solid Waste Newsletter on 30 November 2018.

Levin Landfill January 2019 Quarterly Report.

Completed 12 March 2019 and distributed via the Solid Waste Newsletter on 13 March 2019.

Levin Landfill April 2019 Quarterly Report.

Completed 20 June 2019 and distributed via the Solid Waste Newsletter on 25 June 2019.

Levin Landfill July 2019 Quarterly Report.

Completed 29 August 2018 but was not sent out to the NLG or Horizons; this report has been requested and now received as part of this compliance assessment.

Levin Landfill Annual Compliance Report 2018-19.

Completed 3 October 2019 and distributed via the Solid Waste Newsletter on 9 October 2019. This report was provided late with no explanation as to the delay.

Levin Landfill October 2019 Quarterly Report.

Completed 09 December 2019 and distributed via the Solid Waste Newsletter on 18 December 2019.

As detailed above in 34(c) there have been two instances where quarterly reports were produced but have not been provided to the NLG or Horizons in accordance with this condition. In addition to this the 2018-19 Annual Report was provided late without explanation. This condition was previously graded as a minor/low risk non-compliance during the last assessment; accordingly, the grading has been escalated to a moderate Non-Compliance.

**Condition Compliance Status: Moderate Non-Compliance**

- v. *Able to raise with the Permit Holder, as necessary, any matter which the NLG member believes the Permit Holder should address in order to meet the conditions of the consent(s).*

As explained above there have been four NLG meetings during this assessment period. The minutes of these meetings show there has been ample discussion regarding compliance with the consent conditions.

**Condition Compliance Status: Comply-Full**

- vi. *Formally acknowledged and considered by the Permit Holder with respect to NLG member's written suggestions to the Permit Holder on possible improvements to, or concerns about, the landfilling operations.*

Formal minutes have been kept as above with suggested actions where appropriate.

**Condition Compliance Status: Comply – Full**

- vii. *Kept informed by the Permit Holder as to whether or not progress is being made towards a regional landfill.*

**Condition Compliance Status: Not assessed**

**Condition 34 Overall Compliance Status: Moderate Non-Compliance.**

### **Charges**

35. *Charges, set in accordance with section 36(1)c of the Resource Management Act 1991, and section 690 A of the Local Government Act 1974, shall be paid to the Regional Council for the carrying out of its functions in relation to the administration, monitoring and supervision of this resource consent and for the carrying out of its functions under section 35 (duty to gather information, monitor, and keep records) of the Act.*

*[Note: Section 36(1)c of the Act provides that Council may from time to time fix charges payable by holders of resource consents. The procedure for setting administrative charges is governed by section 36(2) of the Act and is currently carried out as part of the formulation of the Council's Annual Plan.]*

There are no outstanding charges in relation to this consent.

**Condition Compliance Status: Comply – Full**

**Overall Compliance Rating Resource Consent 6009/1: Moderate Non-Compliance.**

## GENERAL CONDITIONS APPLICABLE TO 6010

Consent is granted to the Horowhenua District Council to **discharge landfill leachate onto and into land** at the Levin landfill, Hokio Beach Road, Levin, legally described as Lot 3 DP 40743 Blk II Waitohu Survey District, for a term expiring 35 years from the commencement of the consent subject to the following conditions:

1. Charges, set in accordance with section 36(1)c of the Resource Management Act 1991, and section 690 A of the Local Government Act 1974, shall be paid to the Regional Council for the carrying out of its functions in relation to the administration, monitoring and supervision of this resource consent and for the carrying out of its functions under section 35 (duty to gather information, monitor, and keep records) of the Act.

*[Note: Section 36(1)c of the Act provides that Council may from time to time fix charges payable by holders of resource consents. The procedure for setting administrative charges is governed by section 36(2) of the Act and is currently carried out as part of the formulation of the Council's Annual Plan.]*

The consent holder has paid all fees in accordance with this condition to date.

**Condition Compliance Status: Comply – Full**

### *General Conditions – Discharge leachate to ground*

2. Landfill leachate shall not contaminate adjoining land.

A review of the monitoring data provided by these resource consents shows there were two potential minor leachate breakouts detected in August 2017 and January 2018. These breakouts were discovered during weekly inspections and immediately contained. There was no evidence to indicate leachate had escaped the landfill footprint and contaminated adjoining ground.

**Condition Compliance Status: Comply – Full**

3. The Permit Holder shall commence the following monitoring programme:

**Table A: Landfill Groundwater Monitoring Locations, Parameters, and Frequency – Deep Aquifer Wells**

<b>Location</b>	<b>Parameters and frequency</b>
<i>C2dd, E1d, E2d and any other future deep monitoring well unless installed for background monitoring purposes.</i>	<i>Quarterly comprehensive for 2 years. Subsequently, conditional Annual comprehensive Quarterly indicator.</i>
<i>G1d and any other future deep monitoring well installed for background monitoring purposes.</i>	<i>Quarterly comprehensive for 1 year Subsequently Annual comprehensive Quarterly indicator</i>
<i>All monitoring wells where indicator parameters show leachate influence over 3 consecutive sampling rounds.</i>	<i>Annual pesticide / semi VOC</i>

Wells C2dd, E1d, E2d and G1d were monitored on 11-12 July 2018, 9-10 October 2018, 11-14 January 2018, 10-15-16 April 2019, 11-22-23 July 2019, 11-14-15 October 2019 with the results being provided in their respective quarterly reports. Wells C2dd, E1d, E2d and G1d were monitored for all indicator parameters on every monitoring occasion and were monitored for the comprehensive parameters on the 11-14 January 2019 and 10-15-16 April 2019 monitoring events. None of these wells have shown influence from leachate over three consecutive sampling rounds and have therefore not been analysed for pesticides or semi VOC. All of the monitored parameters have been compared to relevant Australian and New Zealand Environmental and Conservation Council livestock watering limits (ANZECC) and Drinking Water Standards New Zealand (DWSNZ) limits.

**Condition Compliance Status: Comply – Full**

**Table B: Summary of Landfill Groundwater Monitoring Locations, Parameters, and Frequency – Shallow Aquifer Wells**

<b>Location</b>	<b>Parameters and frequency</b>
<i>C1, C2, C2ds, D4 B1, B2, B3s, E1s, E2s and any other shallow <b>Compliance</b> monitoring well installed in the future.</i>	<i>Six monthly comprehensive for 2 years Quarterly indicator Subsequently, conditional Annual comprehensive Quarterly indicator</i>
<i>D5, F1, F2, F3 and any other shallow monitoring well installed to monitor <b>leachate irrigation areas</b> in the future.</i>	<i>Six monthly comprehensive for 2 years Quarterly indicator Conditional Annual comprehensive Quarterly indicator</i>
<i>G1s and any other shallow <b>Background</b> monitoring well installed in the future.</i>	<i>Quarterly comprehensive for 1 year Subsequently, conditional Quarterly indicator</i>
<i>D1, D2, D3r, D6, and any other <b>Early Detection</b> wells installed in the future.</i>	<i>Quarterly comprehensive for 2 years Subsequently, conditional Annual comprehensive Quarterly indicator</i>
<i>All monitoring wells where indicator parameters show leachate influence over 3 consecutive sampling rounds.</i>	<i>Annual pesticide/ semi VOC</i>

Wells C1, C2, C2ds, D4, B1, B2, B3s, E1s, E2s G2s were sampled on 11-12-13-17 & 18 July 2018, 9-10-11-15-16 & 17 October 2018, 11-14-15 & 16 January 2019, 10-12-15-16-17-23 & 14 April 2019, 11-22-23 & 24 July 2019 and 10-14-15-16 & 17 October 2019 for all indicator parameters. Comprehensive analysis was undertaken on the January and April 2018 samples. Wells C2, C2ds, B1, B2, B3s & G2s were analysed for semi VOC during the January and April 2019 sampling rounds.

Wells D5, F1, F2, F3 were sampled on 11 & 12 July 2018, 9 & 10 October 2018, 14 January 2019, 12 & 15 April 2019, 22 July 2019 and 10 & 14 October 2019. Comprehensive analysis was undertaken on the January and April 2019 samples.

Well G1s was sampled on 11 July 2018, 9 October 2018, 11 January 2019, 11 April 2019, 11 July 2019 and 10 October 2019. Comprehensive analysis was carried out on the January and April 2019 samples.

Wells D1, D2, D3r, D6 were sampled on 12-13 & 18 July 2018, 11 October 2018, 15 January 2018, 16 & 17 April 2019, 23 July 2019 and 15 October 2019. Comprehensive analysis was undertaken on the January and April 2019 samples.

All of the data from the above sampling and analysis has been included in their respective quarterly reports. Where appropriate this data has been compared against the ANZECC and DWSNZ limits.

**Condition Compliance Status: Comply – Full**

*Groundwater levels are to be measured and recorded during each sampling procedure.*

Ground water level data taken during sampling has been included in each quarterly report.

**Condition Compliance Status: Comply – Full**

**Conditions:** *A reduction in sampling frequency at any groundwater monitoring point is conditional on:*

- A. Completion of the initial monitoring program;*

Previous monitoring reports have confirmed completion of the initial monitoring program onsite.

**Condition Compliance Status: Comply – Full**

- B. Good consistency of groundwater sample analysis results, or a clearly identified reason for inconsistent results that excludes the contaminant source being landfill operations, stored waste or leachate;*
- C. No decline in groundwater quality as determined from indicator parameter trends over a period of four consecutive sampling rounds;*
- D. If a well being monitored on a conditional frequency becomes non-compliant with condition C, the monitoring frequency for that well should return to the initial monitoring frequency until conditions B and C are again being fulfilled.*

*Sampling frequency for the shallow monitoring wells installed to monitor proposed leachate irrigation areas as defined in Table B may begin on the conditional basis, however the frequency is to revert to the unconditional frequency if leachate irrigation begins and continues from that date as if the monitoring well had been newly installed.*

All leachate is pumped off site to the Levin WWTP. Also HDC has not requested a reduction in the monitoring frequency.

**Condition Compliance Status: Not Applicable**

If site management planning indicates any early detection monitoring well is likely to become buried or otherwise destroyed within the following year as a result of normal operations:

- E. This must be communicated to the regional council as soon as practicable;
- F. A replacement well is to be constructed in a position agreed upon with the Environmental Protection Manager at Horizons Regional Council;
- G. The replacement well should be installed in a position suitable to act as an early detection well and be classed as an early detection well; and
- H. The replacement well should be constructed as a nested well (or two separate wells) with screens positioned in both shallow and deep aquifers.

Onsite operations have not eliminated any monitoring wells onsite during this compliance assessment period. The last well to be replaced was well D3r in 2009.

**Condition Compliance Status: Not Applicable.**

**Table C: Other Water Monitoring Locations, Frequencies and Parameters**

<b>Location</b>	<b>Parameters and frequency</b>
HS1, HS2, HS3	Quarterly comprehensive for 2 years Subsequently, conditional Six monthly comprehensive Quarterly indicator
Leachate Pond Outlet	Quarterly comprehensive for 2 years Six monthly pesticide / semi VOC Subsequently, conditional Six monthly comprehensive Quarterly indicator Annual pesticide / semi VOC

Sampling points HS1, HS2 and HS3 were sampled on 1 & 11 July 2018, 2 & 9 October 2018, 9 January 2019, 3 & 12 April 2019, 11 & 31 July 2019 and 10 & 21 October 2019 for all indicator parameters. Comprehensive analysis was undertaken on the July 2018 and January, April and October 2019 samples. Leachate samples were analysed for semi VOC during the January and April 2019 sampling rounds.

**Condition Compliance Status: Comply - Full.**

**Conditions:** A reduction in sampling frequency at the Hokio Stream monitoring locations is conditional on:

- I. Completion of the initial two year monitoring program;*
- J. Good consistency of water sample analysis results, or a clearly identified reason for inconsistent results that excludes the contaminant source being landfill operations, stored waste or leachate;*
- K. No decline in water quality between monitoring sites HS1 and HS3 as determined from indicator parameter trends over a period of four consecutive sampling rounds.*
- L. If the Hokio Stream monitoring locations are being sampled on a conditional frequency and become non-compliant with condition K, the monitoring frequency for all three monitoring locations should return to the base case intensive monitoring until conditions J and K are again being fulfilled.*

**Conditions:** A reduction in sampling frequency at the leachate pond outlet is conditional on:

- M. Completion of the initial 2 year monitoring program;*
- N. Good consistency of water sample analysis results, or a clearly identified reason for inconsistent results;*
- O. No decline in water quality over a period of four consecutive sampling rounds.*
- P. If the leachate pond outlet is being sampled on a conditional frequency and becomes non-compliant with condition O, the monitoring frequency should return to the base case intensive monitoring until conditions N and O are again being fulfilled.*

*If existing analysis records indicate that the water quality at a monitoring location complies with the requirements permitting a shift to a conditional sampling schedule, this may be done immediately. If the site complies, sampling for these parameters can be instigated following the base schedule while sampling for the other parameters can be continued based on the conditional schedule.*

**Locations:** (Unless otherwise stated, locations are described on Figure 4, attached to and forming part of this consent).

**Table D: Monitoring Point Locations**

<b>Monitoring group</b>	<b>Monitoring point</b>	<b>Location</b>
<i>Shallow groundwater</i>	<i>B1</i>	
	<i>B2</i>	
	<i>B3s</i>	
	<i>C1</i>	
	<i>C2</i>	
	<i>C2ds</i>	
	<i>D1</i>	
	<i>D2</i>	
	<i>D3r</i>	
	<i>D4</i>	
	<i>D5</i>	<i>Lined landfill area groundwater bore</i>
	<i>D6</i>	<i>Lined landfill area groundwater bore</i>
	<i>E1s</i>	
	<i>E2s</i>	
	<i>F1</i>	<i>Groundwater bore downflow from irrigation area</i>
<i>F2</i>	<i>Groundwater bore downflow from irrigation area</i>	
<i>F3</i>	<i>Groundwater bore downflow from irrigation area</i>	
<i>G1s</i>	<i>South Eastern boundary of the site (proposed location)</i>	
<i>Deep groundwater</i>	<i>C2dd</i>	
	<i>E1d</i>	
	<i>E2d</i>	
	<i>G1d</i>	<i>South Eastern boundary of the site (proposed location)</i>
<i>Stream</i>	<i>HS1</i>	<i>Hokio Stream – upstream of landfill (Refer Fig. 2)</i>
	<i>HS2</i>	<i>Hokio Stream – alongside landfill (Refer Fig. 2)</i>
	<i>HS3</i>	<i>Hokio Stream at or about 50 metres downstream of landfill property boundary(Refer Fig. 2)</i>
<i>Soils</i>	<i>Refer Condition 5</i>	<i>In land disposal area</i>
<i>Leachate</i>		<i>Pond outlet</i>

**Parameters:** The comprehensive and indicator parameter lists referenced in Tables A, B and C are presented in Tables E and F.

**Table E: Comprehensive Analysis List**

<b>Type</b>	<b>Parameters</b>
Characterising	pH, electrical conductivity (EC), alkalinity, total hardness, suspended solids
Oxygen demand	COD, BOD
Nutrients*	NO <sub>3</sub> -N, NH <sub>4</sub> -N, DRP, SO <sub>4</sub>
Metals*	Al, As, Cd, Cr, Cu, Fe, Mg, Mn, Ni, Pb, Zn
Other elements	B, Ca, Cl, K, Na
Organics	Total organic carbon, total phenols, volatile acids
Biological	Faecal coliforms

\* Analyses performed for nutrients and metals are for dissolved rather than total concentrations.

**Table F: Indicator Analysis List**

<b>Type</b>	<b>Parameters</b>
Characterising	pH, EC
Oxygen demand	COD
*Nutrients	NO <sub>3</sub> -N, NH <sub>4</sub> -N
*Metals	Al, Mn, Ni, Pb
Other elements	B, Cl

\* Analyses performed for nutrients and metals are for dissolved rather than total concentrations.

**Schedule:** The sampling regime defined in Tables A to C shall be undertaken based on the following schedule:

Q. The first samples for all parameters shall be taken in July 2010.

This condition has already been complied with and falls outside this assessment period.

**Condition Compliance Status: Not Applicable**

R. Quarterly monitoring referred to in Tables A and B shall be carried out in January, April, July and October.

The quarterly monitoring referred to in Tables A and B were undertaken and have been detailed above.

**Condition Compliance Status: Comply – Full.**

- S. *Six monthly monitoring referred to in Tables A and B shall be carried out in April and October.*

The six monthly sampling requirement was for the first two years after the commencement of monitoring concluding in 2012.

**Condition Compliance Status: Not Applicable.**

- T. *Annual monitoring referred to in Table A shall be carried out in April.*

As previously detailed the consent holder has undertaken annual comprehensive monitoring in April as required by this condition.

**Condition Compliance Status: Comply – Full.**

**Condition 3 Overall Compliance Status: Comply – Full.**

4. *The Permit Holder shall monitor soils in the irrigated areas. The first soil samples from an irrigation area shall be taken in the first year that leachate is irrigated to land in that area and shall be taken prior to irrigation. Thereafter, samples shall be taken on the schedule provided in Table H.*

Leachate from the new landfill was irrigated during the period of 2004 to October 2008. From June 2009 leachate from the Levin Landfill was pumped off site to the Levin WWTP with some recirculation through Stage 1a. Since January 2012 all leachate has been pumped off site to the Levin WWTP. This condition came into effect on 31 May 2010 following a review pursuant to section 128 of the Resource Management Act 1991; this is subsequent to the last occasion leachate was irrigated to the irrigation area. On this basis soil sampling is not required at this time and this condition is not applicable.

**Condition Compliance Status: Not Applicable.**

**Table H: Soil Monitoring Locations, Parameters, and Frequencies**

<b>Location</b>	<b>Parameters and frequency</b>
All soil sampling locations.	Background prior to irrigation Six monthly metals and other elements for 2 years Annual pesticide / semi VOC Subsequently, conditional Annual metals and other elements

**Parameters:** The analysis parameters applied for soil monitoring are presented in Table I:

**Table I: Irrigated Soil Analysis List**

<b>Type</b>	<b>Parameters</b>
Metals	Al, As, Cd, Cr, Co, Hg, Ni, Pb, Zn
Other elements	Cl, B
Organics	Pesticides to screen concentrations Semi-volatile organic compounds

**Schedule:** The sampling regime defined in Table H shall be undertaken based on the following schedule:

- A. Six monthly monitoring referred to in Table H shall be carried out in April and October.

**Condition Compliance Status: Not Applicable.**

- B. Annual monitoring referred to in Table I shall be carried out in April.

The first samples required by the schedule in Table H shall be taken during April or October immediately following the start of irrigation, whichever comes first.

Soil sample sites shall be chosen in consultation with the Regional Council. Soil samples shall be obtained from two locations within each leachate irrigation area, with the sampling locations separated by at least 50 m. In addition, a soil sample shall be obtained from one location down gradient from each leachate irrigation area, with the sampling point selected at a low point between dunes. Each soil sample shall consist of a continuous soil core obtained from the surface to a depth of 0.2 m.

**Condition Compliance Status: Not Applicable.**

**Conditions:** A reduction in soil sampling frequency for the sites located within a leachate irrigation area, based on the mean of the analysis results for the two sites, is conditional on:

- C. Completion of the initial two year monitoring program.

**Condition Compliance Status: Not Applicable.**

D. *Good consistency of soil sample analysis results.*

**Condition Compliance Status: Not Applicable.**

E. *No continuous increase in contaminant concentrations in soils as determined from parameter trends for the majority of the metals tested over four consecutive sampling rounds.*

**Condition Compliance Status: Not Applicable.**

F. *If a leachate area being monitored on a conditional frequency becomes non-compliant with condition E, the monitoring frequency for that area should return to the base case intensive monitoring until conditions D and E are again being fulfilled.*

**Condition Compliance Status: Not Applicable.**

G. *Pesticides or semi-volatile organic compounds being below the screen detection limits in the leachate collected from the lined landfill during the previous two sampling rounds.*

Leachate is piped off site to the Levin waste water treatment plant therefore irrigation does not occur onsite

**Condition 4 Overall Condition Status: Not Applicable.**

5. *The results of monitoring under Conditions 3 and 4 of this Permit shall be reported to the Regional Council by 31 August each year for the duration of this Permit.*

Condition 4 is not applicable. The monitoring results under condition 3 are reported to Horizons on a quarterly basis.

**Condition Compliance Status: Comply – Full.**

6. *The Permit Holder shall ensure the above monitoring programme is undertaken by either the Regional Council, or, an independent organisation approved by the Environmental Protection Manager of the Regional Council.*

The above monitoring programme is undertaken by Stantec which is an environmental engineering consultancy. MWH Global previously undertook this work and were approved by Horizons. In 2016 MWH Global was acquired by Stantec; accordingly Horizons approval still stands for Stantec to undertake the monitoring programme.

**Condition Compliance Status: Comply – Full**

7. *The Permit Holder shall inform the Neighbourhood Liaison Group of the identity of the organisation carrying out the monitoring.*

As demonstrated under condition 34(d)(iv) of resource consent 6009 quarterly monitoring reports are sent out to members of the NLG. Section 1 of each report clearly states that the consent holder has commissioned Stantec to carry out the monitoring programme.

**Condition Compliance Status: Comply – Full**

8. *The Permit Holder shall meet the costs of the monitoring.*

All costs for monitoring are paid by the consent holder.

**Condition Compliance Status: Comply – Full**

9. *The Permit Holder shall report the results of the monitoring to the Neighbourhood Liaison Group by 31 August each year for the duration of the Permit.*

As discussed under condition 7 quarterly monitoring reports are forwarded to members of the NLG via the solid waste newsletter as shown under condition 34(d)(iv) of resource consent 6009.

**Condition Compliance Status: Comply – Full**

10. *If a laboratory is used for water quality analyses which do not have independent accreditation for the parameters measured, then on each sampling occasion duplicate samples from a least one sampling location shall be analysed by a laboratory with independent accreditation for the parameters measured. Continued analysis by the unaccredited laboratory shall be at the discretion of the Regional Council.*

All water quality analysis is undertaken by Eurofins ELS Ltd laboratory in Lower Hutt. Eurofins ELS Ltd is accredited by International Accreditation New Zealand. The tests reported were performed in accordance with their terms of accreditation with the exception of tests marked 'not IANZ' or is asterixed. Eurofins ELS are accredited for all of the tests in the monitoring reports with the exception of Volatile Fatty Acids. Horizons has allowed the continued analysis of this parameter by Eurofins ELS.

**Condition Compliance Status: Comply – Full**

11. (a) *Should any shallow aquifer groundwater and surface water parameters tested for under Condition 3 of this consent exceed the Australian and New Zealand Environment and Conservation Council Water Quality Guidelines (2000) for Livestock Watering, the Permit Holder shall report to the Regional Council as soon as practicable on the significance of the result and, where the change can be attributed to landfill leachate, consult with the Regional Council to determine if further investigation or remedial measures are required.*

Each quarterly report provides an executive summary that highlights any exceedances against the ANZECC guideline limits. The following was reported, with attached laboratory reports, in the quarterly reports submitted during this assessment period:

#### July 2018.

Water quality from shallow bores located hydraulically down-gradient of the new landfill (D-series bores) were all below the ANZECC Livestock Drinking Water Trigger Values.

Water quality from shallow bores located hydraulically down-gradient of the old landfill (B-series and C-series bores) were all below the ANZECC Livestock Drinking Water Trigger Values.

Water quality from shallow bores located immediately down-gradient of the leachate irrigation area were below the ANZECC Livestock Drinking Water Trigger Values.

The quarterly report states one sample from the Hōkio Stream (HS2) showed a faecal coliform concentration above the ANZECC Livestock Drinking Water Trigger Values. The HS2 sampling point is located immediately upstream of the Tatana drain (not subject to this condition) discharge which has comparatively higher faecal coliform counts than at HS1, located further up-stream. This suggests the presence of localised contamination from the confluence with the Tatana drain.

#### October 2018

Water quality from shallow bores located hydraulically down-gradient of the new landfill (D-series bores) were all below the ANZECC Livestock Drinking Water Trigger Values.

Water quality from shallow bores located hydraulically down-gradient of the old landfill (B-series and C-series bores) were all below the ANZECC Livestock Drinking Water Trigger Values.

Water quality from shallow bores located immediately down-gradient of the leachate irrigation area were below the ANZECC Livestock Drinking Water Trigger Values.

Water quality from surface sampling along Hōkio Stream was below the ANZECC Livestock Drinking Water Trigger Values.

#### January 2019.

Water quality from shallow bores located hydraulically down-gradient of the new landfill (D-series bores) were all below the ANZECC Livestock Drinking Water Trigger Values.

Water quality from shallow bores located hydraulically down-gradient of the old landfill (B-series and C-series bores) were all below the ANZECC Livestock Drinking Water Trigger Values.

Water quality from shallow bores located immediately down-gradient of the leachate irrigation area were below the ANZECC Livestock Drinking Water Trigger Values.

The January 2019 monitoring results show three exceedances from surface monitoring at the Hōkio Stream these being pH at HS1 and faecal coliforms at HS2 and HS3. The quarterly report suggests these exceedances in pH and faecal coliforms may be related to localised activities related to the Tatana Drain.

#### April 2019.

Water quality from shallow bores located hydraulically down-gradient of the new landfill (D-series bores) were all below the ANZECC Livestock Drinking Water Trigger Values.

Water quality from shallow bores located immediately down-gradient of the leachate irrigation area were below the ANZECC Livestock Drinking Water Trigger Values.

There was one exceedance of the ANZECC Livestock Drinking Water Trigger Values for the shallow bores located hydraulically down-gradient of the old landfill; specifically, faecal coliform levels at bore C2 exceeded the ANZECC Livestock Drinking Water Trigger Values.

With respect to this result the April 2019 Quarterly Report states:

*“This result appears to be unusually high given that faecal coliform levels at this C2 have consistently been below the ANZECC values since monitoring begun in 1996. C2 is close to the Tatana Drain where very elevated faecal coliform counts were measured at SW1. The groundwater depth at C2 is very shallow and it is considered possible that surface water from Tatana property is affecting the C2 groundwater quality...”*

Water quality from shallow bores located immediately down-gradient of the leachate irrigation area were below the ANZECC Livestock Drinking Water Trigger Values.

Three exceedances of the ANZECC Livestock Drinking Water Trigger Values were detected for elevated faecal coliform levels at HS1, HS2 and HS3 which are upstream, midstream and downstream of the old landfill. The data shows increasing levels heading upstream indicating a source upstream of the landfill site and therefore cannot be attributed to the landfill itself.

### July 2019.

Water quality from shallow bores located hydraulically down-gradient of the new landfill (D-series bores) were all below the ANZECC Livestock Drinking Water Trigger Values.

Water quality from shallow bores located immediately down-gradient of the leachate irrigation area were below the ANZECC Livestock Drinking Water Trigger Values.

An exceedance of ANZECC Livestock Drinking Water Trigger Values was detected for faecal coliforms (100 CFU/100mL limit) at bore C2, with a faecal coliform count of 3900 CFU/100mL.

The ANZECC Livestock Drinking Water Trigger Values trigger value for faecal coliforms was also exceeded at all three monitoring locations within Hōkio Stream (HS1, HS2, and HS3). Again the results upstream were higher than downstream indicating that upstream activities are likely to be contributing bacterial contamination to Hōkio Stream.

### October 2019.

Water quality from shallow bores located hydraulically down-gradient of the new landfill (D-series bores) were all below the ANZECC Livestock Drinking Water Trigger Values.

Water quality from shallow bores located hydraulically down-gradient of the old landfill (B-series and C-series bores) were all below the ANZECC Livestock Drinking Water Trigger Values.

Water quality from shallow bores located immediately down-gradient of the leachate irrigation area were below the ANZECC Livestock Drinking Water Trigger Values.

Monitoring results from the Hōkio Stream show three exceedances from surface monitoring these being faecal coliforms at HS1, HS2 and HS3. The quarterly report shows these exceedances are relatively consistent upstream to downstream suggesting an upstream influence as seen in historical results.

As required by this condition the consent holder has reported on any exceedances of the ANZECC Livestock Drinking Water Trigger Values in shallow aquifer groundwater and surface water. Where there have been exceedances the consent holder has identified this in quarterly reports and has provided comment as to whether this can be attributed to leachate contamination, meeting the requirements of this condition.

During this assessment period there have been various incidences where faecal coliforms have been exceeded in the Hōkio Stream and in bore C2 situated near the Tatana drain. Data provided for exceedances in the Hōkio Stream show an upstream influence with the predominant pattern being higher concentrations upstream than downstream. The other exceedances are in bore C2 which is a very shallow bore. Given this, it is more than likely there is an influence from the Tatana Drain which bore C2 is in close proximity to, as the Tatana Drain has typically high faecal coliform levels.

Given the regular faecal coliform exceedances within the Tatana Drain may be affecting bore C2, it is recommended the consent holder undertakes an investigation into the potential sources of the faecal coliform levels within the Tatana Drain. It is also noted the quarterly reports recommend all sampling should occur within one week to prevent variance; this report supports that recommendation.

**Condition Compliance Status: Comply – Full**

- (b) *Should any surface water parameters tested for under Condition 3 of this consent indicate a decline in water quality between monitoring points HS1 and HS3, as referred to in Table E, the Permit Holder shall report to the Regional Council as soon as practicable on the significance of the result and, where the change can be attributed to landfill leachate, consult with the Regional Council to determine if further investigation or remedial measures are required.*

Each quarterly report provides surface water monitoring data for monitoring points HS1, HS2 and HS3. These results are compared against the ANZECC livestock drinking water trigger values. As discussed above exceedances were detected with the data provided showing an upstream influence with the predominant pattern being higher concentrations upstream than downstream. The quarterly report discussed this and stated observed data indicates that leachate from the landfill is not having a detrimental effect on the Hōkio Stream.

**Condition Compliance Status: Comply – Full**

- (c) *In the event that a report is submitted to the Regional Council pursuant to Conditions 11(a) or 11(b) and the Regional Council has determined that further investigation or remediation measures are required, then:*
- (i) *The Regional Council may require the Permit Holder to develop a mitigation or remediation plan.*
- (ii) *In the event that the Regional Council determines that a mitigation or remediation plan is required, the Regional Council shall advise the Permit Holder of this requirement in writing within two months of receiving the Condition 11(a) or 11(b) report.*
- (iii) *Within six months of receipt of advice in writing from the Regional Council pursuant to Condition 11(c) (ii), the Permit Holder shall submit a mitigation or remediation plan to the Regional Council for approval.*
- (iv) *Any mitigation or remediation plan prepared in accordance with Condition 11(c) shall include a timetable for implementation.*

- (v) *Following approval of a mitigation or remediation plan prepared in accordance with Condition 11(c) (iii), if the Regional Council determines that the adverse effects of the landfill activity itself on the shallow groundwater aquifer or surface water will be more than minor, the Regional Council shall require the Permit Holder to implement the plan within the timeframe specified in the timetable for implementation required by Condition 11(c) (iv).*

Based on the information provided in the quarterly reports pursuant to conditions 11(a) and 11(b) Horizons has recommended further investigation into the potential source of faecal coliforms effecting bore C2. Accordingly the consent holder shall develop a monitoring plan to investigate the source of the faecal coliforms and the potential activity giving rise to it. This a draft of this plan shall be provided to Horizons for discussion one month following receipt of this report.

Depending on the results of this investigation Horizons may request a mitigation or remediation plan pursuant to this condition.

#### **Condition Compliance Status: Not Applicable**

- (d) *The Permit Holder shall annually review the data derived from the groundwater monitoring program and evaluate contaminant mass load projections for discharges from the landfill to the Hokio Stream. The contaminant mass load projections shall be based primarily, but not exclusively, on the monitoring data obtained for the "B" and "C" series bores indicated in Table D of this discharge permit. The annual report required under Condition 5 shall include the following information:*

- (i) *A summary of the methodology used to calculate the mass load projections.*

An initial report on Levin Landfill Mass Contaminant Loading Assessment was completed in April 2011 a brief summary of the assumptions incorporated into the initial model is detailed in the 2017-18 and 2018-19 annual reports. Section 7 of both annual reports outlines the methods used to calculate mass load projections. Section 7.3 of the 2018-19 annual report provides a review of these calculations. The detailed mass contaminant loading calculation is included in Appendix F of both reports.

#### **Condition Compliance Status: Comply – Full**

- (ii) *The calculated mass loads transported in the groundwater and comparable mass loads in the Hokio Stream.*

This information is provided in Appendix F of the 2017-18 & 2018-19 Levin Landfill Annual reports.

#### **Condition Compliance Status: Comply – Full**

- (iii) *An analysis of the implications of the mass load calculations with respect to ensuring discharges from the landfill would not result in a decline in the water quality in the Hokio Stream under Condition 3.*

Section 7.2 of the Levin Landfill 2017-18 and 2018-19 Annual Reports detail the mass loading evaluation for the Hokio Stream.

**Condition Compliance Status: Comply – Full**

- (e) *Should the groundwater parameters tested for under Condition 3 of this consent, and subsequent evaluation and indicative assessment of contaminant mass loads under Condition 11(d) of this consent indicate that contaminants sourced from either the closed or active areas of the Levin Landfill are likely to result in a future decline in the water quality of the Hokio Stream, as defined under Condition 3, then:*

- (i) *The Permit Holder shall include in the annual report required by Condition 5 an analysis of the significance of the result.*
- (ii) *The Regional Council may at any time require the Permit Holder to undertake further investigations and/or conduct a detailed assessment of mass loads to evaluate the actual likelihood of a future decline in water quality of the Hokio Stream as a result of landfill activities as measured under Condition 3. The Permit Holder shall provide a report to the Environmental Protection Manager at the Regional Council documenting the further investigations undertaken or the methodology, procedure and outcomes of the detailed assessment.*
- (iii) *If the work required under Condition 11(e) (ii) discloses an actual likelihood of a future water quality decline of the Hokio Stream as a result of landfill activities, and the Regional Council determines that this decline in water quality would constitute a more than minor effect on the water quality of the Hokio Stream, the Regional Council shall require the Permit Holder to develop a mitigation or remediation plan.*
- (iv) *For the purposes of quantifying whether the adverse effects of the landfill activity itself on the water quality of the Hokio Stream will be more than minor, any determination made by the Regional Council may be independently peer reviewed, at the request of either the NLG or the Permit Holder, by an appropriately qualified and experienced person. The request for a peer review must be lodged with the Regional Council within a period of one month following the determination by the Regional Council.*

*The peer reviewer shall prepare a detailed report which analyses the determination of adverse effects made by the Regional Council, and provide clear recommendations as to whether implementation of a mitigation or remediation plan is required for the purposes of adopting the best practicable option to remove or reduce the more than*

*minor adverse effect on the water quality of the Hokio Stream. This report shall be completed within a period of three months of the request for a peer review.*

*Should a peer review of the determination be undertaken, the Regional Council shall take into account the outcome of the review in again determining whether this decline in the water quality of the Hokio Stream would constitute a more than minor effect on the water quality of that stream.*

- (v) In the event that the Environmental Protection Manager at the Regional Council determines that a mitigation or remediation plan is required, the Regional Council shall advise the Permit Holder of this requirement in writing within two months of receiving the annual report.*
- (vi) Within six months of receipt of advice in writing from the Regional Council pursuant to Condition 11(e) (v) the Permit Holder shall submit a mitigation or remediation plan to the Regional Council for approval.*
- (vii) Any mitigation or remediation plan prepared in accordance with Condition 11(c) or Condition 11(e) (v) shall include a timeframe or threshold for implementation.*
- (viii) Following the completion of the mitigation or remediation plan, if the Regional Council determines that the potential adverse effects of the landfill activity itself on the water quality of the Hokio Stream, as monitored under Condition 3, continue to be more than minor, the Regional Council shall require the Permit Holder to implement the plan within the timeframe specified in the timetable for implementation required by Condition 11(c) (vii) or alternatively when the threshold identified is triggered .*

**[Advice Note:** *Condition 11 may be subject to a review pursuant to s 128 (1)(a) of the Resource Management Act 1991 (see condition 31) and it is anticipated such a review will occur in the event of disagreement by either the Permit Holder or NLG with any determination of the Regional Council in relation to condition 11 (a) – (e)]*

A review of the groundwater data presented in the quarterly reports, pursuant to condition 3 and the evaluation and indicative assessment of contaminant mass loadings presented in section 7 of the Levin Landfill 2017-18 and 2018-19 annual reports, pursuant to condition 11(d), do not currently indicate a future decline of the water quality in the Hōkio Stream. Therefore at this time Horizons is not requiring the consent holder to undertake an additional detailed analysis of the mass loading as per condition 11(e)(ii).

**Condition Compliance Status: Comply – Full.**

12. *Should any parameters tested for under Condition 3 of this consent from the deeper gravel aquifer (bores identified as C2dd, E1, E2, the proposed G1d and any other monitoring bore intersecting the deep gravel aquifer), exceed the requirements of the Ministry of Health's Drinking Water Standards for New Zealand 2000, the Permit Holder shall report to the Regional Council as soon as practicable on the significance of the results and, where the change can be attributed to landfill leachate, consult with the Regional Council to determine if further investigation or remedial measures are required.*

The parameters monitored under condition 3 are reported in the quarterly monitoring reports sent to Horizons as required by the Levin Landfill resource consents. The following information has been reported to Horizons with respect to exceedances of the DWSNZ in the deep aquifer wells.

July 2018.

There was one exceedance of Manganese in well C2dd of 0.668 mg/L with respect to the DWSNZ limit which is 0.4mg/L.

The report notes:

*"...manganese concentration at C2DD exceeded the DWSNZ MAV. Manganese concentration at C2DD (0.668mg/L) was however consistent with historical results and representative of ground water quality in the area."*

A review of historical data in previous reports supports this statement.

October 2018.

There was one exceedance of Manganese in well C2dd of 0.580 mg/L with respect to the DWSNZ limit which is 0.4mg/L.

The report notes:

*"...manganese concentration at C2DD exceeded the DWSNZ MAV. Manganese concentration at C2DD (0.580mg/L) was however consistent with historical results and representative of ground water quality in the area."*

January 2019.

There was one exceedance of Manganese in well C2dd of 0.555 mg/L with respect to the DWSNZ limit which is 0.4mg/L.

The report notes:

*"...manganese concentration at C2DD exceeded the DWSNZ MAV. However, the exceedance is marginal when compared to historical results."*

#### April 2019.

There was one exceedance of Manganese in well C2dd of 0.533 mg/L with respect to the DWSNZ limit which is 0.4mg/L.

The report notes:

*“Manganese concentration at C2dd (0.533mg/L) was however consistent with historical results and representative of ground water quality in the area.”*

#### July 2019.

There was one exceedance of Manganese in well C2dd of 0.488 mg/L with respect to the DWSNZ limit which is 0.4mg/L and one exceedance of Iron in well G1d of 1.49 mg/L with respect to the DWSNZ limit which is 0.2mg/L.

The report notes:

*“Concentrations of manganese and iron exceeded the respective DWSNZ MAVs at C2DD (manganese) and G1D (iron), within the deep gravel aquifer, in July 2019. However, it is noted that the manganese concentration at C2DD (0.488mg/L) was consistent with historical results and representative of background groundwater quality in the area. The concentration of iron in July 2019 is elevated above historic results for bore G1D (which have typically been below 1 mg/L until 2019).”*

During this monitoring round there were two exceedances of the DWSNZ limits in two separate deep bores. Well C2dd for Manganese which is marginally above the DWSNZ limit and consistent with historical data. Iron also exceeded the DWSNZ limit in well G1d; however, this is a hydraulically up-gradient well and therefore represents background levels.

#### October 2019.

There was one exceedance of Manganese in well C2DD of 0.624 mg/L with respect to the DWSNZ limit which is 0.4mg/L.

The report notes:

*“... it is noted that the manganese concentration at C2DD (0.624mg/L) was consistent with historical results and representative of background groundwater quality in the area.”*

Monitoring data provided in the quarterly reports above show a consistent exceedance of manganese in well C2dd it is also noted there is not an increasing trend of manganese levels in this well over the monitoring period; moreover, corresponding exceedances in other parameters have not been detected in this well. Because of this, there is insufficient evidence to support a hypothesis of leachate influence; accordingly, further investigation is not warranted at this time.

In accordance with this condition the consent holder has provided data of any exceedances of the DWSNZ limits over this assessment period these have been reported by the consent holder with explanations related to the significance of the results. There is no pattern arising from these exceedances suggesting influence from leachate contamination of the deeper gravel aquifer; on this basis Horizons will not require further investigation at this stage.

**Condition Compliance Status: Comply – Full**

13. *Sampling of the groundwater wells within a 1.5 km radius down-flow or across-flow from the landfill property boundary is to be carried out by the Permit Holders representative upon receiving a written invitation from the bore owners. The frequency of sampling is to be decided through discussion between the bore owner and the Permit Holder. Initial analyses from individual bores are to be tested for the parameters in the Comprehensive Analysis List in Condition 3. Subsequent testing may be performed based on the Indicator Analysis List in Condition 3. Should analysis of water obtained from any groundwater wells used for human drinking water show concentrations of parameters which exceed the requirements of the Ministry of Health’s Drinking Water Standards for New Zealand 2000, or repeated sampling from a specific bore indicates a decrease in water quality, the Permit Holder shall report to the Regional Council and the bore owner as soon as practicable on the significance of the results. Where the exceedance or decreasing water quality can be attributed to landfill leachate, the Permit Holder shall consult with the Regional Council and the bore owner to determine if further investigation or remedial measures are required.*

There has been no report of bore owners pursuant to this condition approaching the consent holder for groundwater sampling.

**Condition Compliance Status: Not Applicable.**

14. *Any currently active and future lined landfill area shall be closed and remediated by:*

The lined portions of the Levin Landfill are yet to reach their final slope dimensions therefore some of the following sub-conditions are not applicable. Where appropriate data is provided, a compliance rating has been given. In addition to this, comments have been made based on information contained on the Levin Landfill reports and Management Plan.

- a) *Compacting refuse to such an extent and consistent with CAE guidelines of 600-800 kg/m<sup>3</sup>, to ensure post closure settlement is minimised as far as practicable; and*

Refuse density survey data presented in the Levin Landfill 2017-18 and 2018-19 Annual Reports show the density achieved during the 2017-18 and 2018-19 periods were 1800 kilograms per cubic meter for both periods. Refuse of this density reduces the use of airspace and is higher than the minimum guideline standard to prevent settlement.

**Condition Compliance Status: Comply – Full**

- b) *Grading to a final slope of less or equal to 1V:3H (1 in 3) on any face; and*

Although final slopes are not yet in place the Levin Landfill management plan requires all temporary fill batters to be a ratio 1V:3H.

**Condition Compliance Status: Not Applicable**

- c) *Ensuring the landfill cap incorporates a layer at least 700 mm thick with a permeability of no greater than  $1 \times 10^{-7}$  m/s, or has a material and layer structure that reduces rainwater infiltration to the waste to an equivalent extent; and*

Although final capping is yet to be applied on the new landfill cells the Levin Landfill Management Plan requires capping material to meet the standard set by this condition.

**Condition Compliance Status: Not Assessed**

- d) *Establishing and maintaining a grass or tussock vegetation cover on the capped landfill, unless it can be demonstrated to the Regional Council's satisfaction that a different vegetation cover can produce clear benefits through reducing infiltration to the covered waste. Any vegetation cover should be consistent with an ongoing capacity to monitor and maintain the ongoing integrity of the landfill cap.*

*In-situ refuse density shall be determined through annual calculation based on information derived from topographic surveys of the landfill and borrow areas, and from weighbridge records. The survey shall be carried out within one month of the anniversary of the previous survey.*

As discussed final capping of the existing lined landfill is yet to occur. This being said previous site inspections and communications had noted Stage 1A had a well-established grass cover over its interim capping. A final determination of compliance with this condition cannot be assessed until final capping is in place.

**Condition Compliance Status: Not Assessed**

***Specific Conditions – discharge leachate to ground from existing landfill***

15. *The Permit Holder shall close and remediate the existing unlined landfill by April 2011 by:*

Final capping of the old existing landfill was detailed in the 2010 -2011 Levin Landfill Compliance Report and has been previously assessed and complied under compliance report 42517 dated 19 May 2011. There are annual reporting requirements as per the sub-conditions below; where appropriate, information provided in the Levin Landfill reporting data has been used to provide a compliance rating.

- a) *Grading to a final slope on the landfill faces and caps of between 1V:3H (1 in 3) and 1V:40H (1 in 40);*

This has previously been complied with.

**Condition Compliance Status: Not Assessed**

- b) *Ensuring the final landfill surface is sloped to promote run-off toward the outside of the landfill footprint and prevent surface water ponding on the landfill cap;*

The 2018-19 annual report notes:

*“It is noted that the maximum settlement that occurred in the past year is 23 mm and, as noted in the previous year’s report, the surveyor noted that the area exhibits ponding (a puddle on the surface). This is of concern because it implies that water could be seeping into the landfill, instead of being shed off it.”*

**The consent holder will need to take note of where ponding is occurring and apply capping material during dry weather to ensure run-off, as required. The consent holder shall ensure this is reported to Horizons when the work is complete.**

**Condition Compliance Status: Low Risk Non-Compliance.**

- c) *Ensuring the landfill cap incorporates a layer at least 700 mm thick. All material added to the existing cap to bring the thickness up to 700 mm, or for future cap maintenance purposes, is to have a permeability of no greater than  $1 \times 10^{-7}$  m/s;*

This has previously been complied, nevertheless; please note comments under condition 15(b).

**Condition Compliance Status: Not Assessed**

- d) *Establishing and maintaining a grass or tussock vegetation cover on the capped landfill consistent with an ongoing ability to monitor and maintain the integrity of the landfill cap. The vegetation is to be managed to exclude tree species that can potentially develop root systems capable of disrupting the landfill cap and thereby enhancing rainwater infiltration;*

Both annual reports note:

*“The old landfill area has good grass cover.”*

**Condition Compliance Status: Comply-Full.**

- e) *Monitoring the landfill cover on an annual basis to identify areas of differential settlement slope stability issues, erosion and changing vegetation patterns, including a topographic survey to ensure Conditions 15(a) to (d) continue to be met; and*

Ten monitoring points to monitor settlement were established on top of the old landfill as part of the survey which was carried out in June 2014. The locations of the monitoring points are shown in Appendix I of the Levin Landfill 2016-17 Annual Report. Also shown is the extent of settlement estimated by comparing the current year's topographical survey information with that done last year. The maximum settlement for the 2018-19 monitoring period is 23mm. The report also makes observations pursuant to this condition.

**Condition Compliance Status: Comply – Full**

- f) *The Permit holder shall submit an annual report to the Regional Council by 31 August each year for the duration of this Permit documenting the condition of the unlined landfill and any maintenance carried out during the previous year. The annual report shall address but not be limited to those aspects listed in Conditions 15(a) to (e) above. The annual report shall include a plan of the unlined landfill specifically documenting the shape of the closed landfill and any changes during the previous year. [The annual report can be written in conjunction with the annual report required as part of Condition 14 for Consent Number 6009].*

*The area of the existing landfill to be remediated is defined as Area A on Figure 1 attached.*

The information required by this condition is included in the Levin Landfill 2017-18 & 2018-19 Annual Reports. The 2017-18 Annual Report was received by Horizons on 19 September 2018 due to a delay in completing the mass contaminant load evaluation. HDC advised Horizons prior to 31 August 2018 and for that reason this condition would not have been escalated to a moderate non-compliance at the time. However, the 2018-19 Annual Report was received by Horizons via email on 9 October 2019 in the HDC Solid Waste Newsletter with no explanation given for the delay. Accordingly, this condition has been escalated to a Moderate Non-compliance.

Please note, any subsequent delays of annual reports without a reasonable explanation will result in a significant non-compliance grading for this condition, which in turn will require Horizons to consider enforcement action.

**Condition Compliance Status: Moderate Non – Compliance**

**Overall Compliance Status for condition 15 is Moderate Non – Compliance**

16. *Within one month following the remediation of the Levin landfill, the Permit Holder shall report in writing to the Regional Council of the Permit Holder's compliance with Conditions 14 and 15 of this permit.*

Final remediation has not yet occurred therefore this condition cannot currently be assessed.

**Condition Compliance Status: Not Assessed**

***Specific Conditions – Discharge leachate to ground from lined landfill***

### *Environmental Effects*

17. *There shall be no disposal of leachate sludge from the pond onto irrigation areas. Leachate sludge shall be disposed of in accordance with Condition 26 of consent number 6009 and Condition 18 of consent number 7289.*

All leachate from the Levin Landfill is piped directly to the Levin WWTP; there is no irrigation of leachate to land at the Levin Landfill.

#### **Condition Compliance Status: Not Applicable**

18. *The rate of application of leachate irrigated to land shall not exceed 200 kg Nitrogen/hectare per year.*

All leachate from the Levin Landfill is piped directly to the Levin WWTP; there is no irrigation of leachate to land at the Levin Landfill.

#### **Condition Compliance Status: Not Applicable**

19. *There shall be no ponding or runoff of leachate on or beyond the irrigation areas.*

All leachate from the Levin Landfill is piped directly to the Levin WWTP; there is no irrigation of leachate to land at the Levin Landfill.

#### **Condition Compliance Status: Not Applicable**

20. *Subject to Condition 19 of this permit, application of leachate on to soil shall not exceed 50 millimetres per day. Notwithstanding, the maximum rate of application shall not exceed 5 millimetres per hour.*

All leachate from the Levin Landfill is piped directly to the Levin WWTP; there is no irrigation of leachate to land at the Levin Landfill.

#### **Condition Compliance Status: Not Applicable**

21. *There shall be no discharge of offensive or objectionable odour at or beyond the legal boundary of the Levin Landfill property as shown on Figure 1 resulting from leachate irrigation.*

All leachate from the Levin Landfill is piped directly to the Levin WWTP; there is no irrigation of leachate to land at the Levin Landfill.

#### **Condition Compliance Status: Not Applicable**

22. *Should the quality of leachate being irrigated exceed the STV parameters set out in the Australian and New Zealand Environment and Conservation Council Water Quality Guidelines (2000) for metals in Irrigation Water the Permit Holder shall report to the Regional Council as soon as practicable on the significance of the result and in consultation with the Regional Council determine if further investigation or remedial measures are required.*

All leachate from the Levin Landfill is piped directly to the Levin WWTP; there is no irrigation of leachate to land at the Levin Landfill.

**Condition Compliance Status: Not Applicable**

*Process Management*

23. *The daily volume of leachate irrigated to land shall be metered and recorded.*

All leachate from the Levin Landfill is piped directly to the Levin WWTP; there is no irrigation of leachate to land at the Levin Landfill.

**Condition Compliance Status: Not Applicable**

24. *The Permit Holder shall make regular and at least weekly, inspections of the irrigation system, including pumps, pipes, irrigators and vegetation to ensure that the system is operating efficiently and that vegetation is in good health.*

All leachate from the Levin Landfill is piped directly to the Levin WWTP; there is no irrigation of leachate to land at the Levin Landfill.

**Condition Compliance Status: Not Applicable**

25. *The Permit Holder shall have carried out the works described in Condition 14(a) to (d) of this permit to rehabilitate:*
- a. Any lined landfill area within four months following the closure of that lined landfill area, if the landfill area is closed before 35 years from the granting of this consent.*
  - b. Any lined landfill area before 35 years from the granting of this consent.*

*[Note: "lined landfill area" is defined as a distinct "cell" or stage of the landfill.]*

Stage 1a, although not closed, has interim capping in place and is in general accordance with conditions 14(a) to (d).

**Condition Compliance Status: Comply – Full**

### **Monitoring and Reporting**

26. *A plan of the leachate irrigation system shall be prepared to the satisfaction of the Regional Council's Environmental Protection Manager nine months prior to placement of refuse on the lined landfill. The plan shall include:*
- a. A map showing areas to be irrigated;*
  - b. Design of the recirculation, treatment and irrigation systems;*
  - c. Contingency measures in case of failures in the irrigation system;*
  - d. Criteria for installing aerators in the leachate pond;*
  - e. Assessment of options for recirculating leachate over the lined landfill;*
  - f. Assessment of groundwater profile beneath the irrigation area and effects leachate irrigation will have on groundwater;*
  - g. Groundwater and soil monitoring programme, including a map showing sampling locations; and*
  - h. Any other relevant matter.*

This plan was completed by MWH in 2010 and titled *Levin Landfill Leachate Management Plan*. This plan is included under Appendix B of the Levin Landfill Management Plan.

**Condition Compliance Status: Comply – Full**

27. *The Permit Holder shall keep a log of:*
- a. The dates and times of leachate irrigation;*
  - b. The total volume of leachate irrigated daily;*
  - c. The volumes of leachate irrigated to specific areas;*
  - d. Weather and ground conditions during irrigation;*
  - e. Observations made during the weekly inspections of the pump, irrigation system and irrigation areas; and*
  - f. Repairs and maintenance carried out on the irrigation system.*

*Copies of this log shall be forwarded to the Regional Council's Environmental Protection Manager on 28 February and 31 August of each year that the irrigation system is operated.*

There is no irrigation on the Levin Landfill site. All Leachate is piped to the Levin WWTP.

**Condition Compliance Status: Not Applicable**

28. *The Permit Holder shall inspect the landfill for leachate break out, settlement and other adverse environmental effects at least once per month until such time as discharge of refuse to the landfill ceases. Thereafter, the frequency of inspection shall be determined in consultation with the Regional Council.*

The current landfill is inspected weekly with observations recorded on weekly site walkover sheets.

The Levin Landfill 2017-18 Annual Report states:

*"Two minor potential breakouts were detected during the 2017-2018 reporting period, one incidents [sic] in August 2017 and one in January 2018, and were immediately contained. There were no other signs of ground settlement and other adverse environmental effects detected during the 2017-2018 reporting period."*

The Levin Landfill 2018-19 Annual Report states:

*"No leachate breakouts were recorded during the 2018/2019 reporting period. There were no other signs of ground settlement and other adverse environmental effects detected during the 2018-2019 reporting period."*

**Condition Compliance Status: Comply – Full**

29. *The Permit Holder shall record the date, time, observations and any remedial action as a result of Condition 28. The record shall be made available to the Regional Council on request.*

**Horizons requests copies of the aforementioned incidents in August 2017 and January 2018.**

**Condition Compliance Status: Not Assessed**

*Review*

30. *The Regional Council shall initiate a publicly notified review of Conditions 3, 4, 11 (a) – (e), 12, 13, 14, 24, 27, 28 and 29 of this Permit in April, 2015, 2020, 2025, 2030 and 2035, unless the Neighbourhood Liaison Group (NLG) agrees that a review is unnecessary. The reviews shall be for the purpose of:*

- a. Assessing the adequacy of monitoring outlined in Conditions 3 and 4 of this consent; and/or*
- b. Assessing the effectiveness of Conditions 11(a) – (e), 12, 13, 14, 24, 27, 28 and 29 of this consent,*

*in avoiding, remedying or mitigating adverse effects on the environment surrounding the Levin Landfill.*

*The review of conditions shall allow for the:*

- c. Modification of monitoring outlined in Conditions 3 and 4 of this consent;*
- d. Deletion or changes to Conditions 11(a) – (e), 12, 13, 14, 24, 27, 28 and 29 of this consent;*
- e. Addition of new conditions as necessary ,*  
*to avoid, remedy or mitigate adverse effects on the environment surrounding the Levin Landfill.*

This is discussed under resource consent 6009, condition 31.

**Condition Compliance Status: Comply – Full**

31. *The Regional Council may initiate a publicly notified review of Conditions 11 (a) – (e) of this Permit at any time outside those reviews required by Condition 30. The review shall be carried out pursuant to section 128 (1)(a)(i) of the Resource Management Act 1991 and shall be for the specific purpose of:*

- a. Assessing the need and appropriateness of implementing a mitigation or remediation plan as the best practicable option to remove or reduce any adverse effect on the water quality of the Hokio Stream.*

*The review of conditions shall allow for the:*

- b. Deletion or changes to Conditions 11(a) – (e) of this consent;*
- c. Addition of new conditions as necessary, to avoid, remedy or mitigate adverse effects on the environment surrounding the Levin Landfill.*

*The review of conditions shall have regard to:*

- d. The nature of the discharge and the receiving environment; and*
- e. The financial implications for the applicant of including that condition; and*
- f. Other alternatives, including a new condition requiring the observance of minimum standards of quality of the receiving environment, having regard to the need to be satisfied that including that condition is the most efficient and effective means of removing or reducing that adverse effect.*

As discussed above.

**Condition Compliance Status: Not Applicable**

**Overall Compliance Rating Resource Consent 6010/1: Moderate Non-Compliance.**

## GENERAL CONDITIONS APPLICABLE TO 6011

Consent is granted to the Horowhenua District Council to **discharge landfill gas, odour and dust to air** at the Levin landfill, Hokio Road, Levin, legally described as Lot 3 DP 40743 Blk II Waitohu Survey District, for a term expiring 35 years from the commencement of the consent subject to the following conditions:

1. Charges, set in accordance with section 36(1)c of the Resource Management Act 1991, and section 690 A of the Local Government Act 1974, shall be paid to the Regional Council for the carrying out of its functions in relation to the administration, monitoring and supervision of this resource consent and for the carrying out of its functions under section 35 (duty to gather information, monitor, and keep records) of the Act.

*[Note: Section 36(1)c of the Act provides that Council may from time to time fix charges payable by holders of resource consents. The procedures for setting administrative charges are governed by section 36(2) of the Act and is currently carried out as part of the formulation of the Council's Annual Plan.]*

There are no outstanding charges related to this consent.

### Condition Compliance Status: Comply – Full

#### *Environmental Effects*

2. The Permit Holder will ensure dust is controlled on access roads and on the landfill, if necessary, by watering or other methods.

There have been no complaints to Horizons related to dust from the site. Previous site inspections have confirmed that access up to the Levin Landfill site office is sealed and the main haul roads are metaled.

### Condition Compliance Status: Comply – Full

3. There shall be no discharge of odour or dust from the landfill that in the opinion of a Regional Council Enforcement Officer is noxious, dangerous, offensive, or objectionable beyond the property boundary. The Permit Holder will also ensure that:

When deciding whether an odour is offensive or objectionable Horizons Enforcement Officers (Officers) must consider the frequency, intensity, duration, offensiveness/character and location of an odour event. These parameters are known as the FIDOL factors and are described in **Table 1** below. Odour is monitored by officers using odour complaint & assessment forms. In completing these forms the Officer uses an interval method, noting the odour intensity every 10 seconds for 10 minutes. The Officer will indicate the hedonic tone of the odour and note the type of land use affected by the odour. This information is recorded on the assessment form along with weather information.

To determine the frequency and duration of odour events an officer may request that an odour diary is kept by affected complainants. This approach is consistent with best practice in assessing odour as per the Ministry for the Environment Guidelines titled, “*Good Practice Guide for Assessing and Monitoring Odour*”, dated 2016.

<b>Frequency</b>	How often an individual is exposed to the odour.
<b>Intensity</b>	The strength of the odour. Measured on a scale of 0 to 6.
<b>Duration</b>	The length of exposure.
<b>Offensiveness/character</b>	The character relates to the ‘hedonic tone’ of the odour, which may be pleasant, neutral or unpleasant. On a scale of -4 (Extremely unpleasant) to 4 (Extremely pleasant).
<b>Location</b>	The type of land use and nature of human activities in the vicinity of an odour source.

**Table 1:** Description of the FIDOL factors.

The previous assessment period recorded all odour complaints received and actions undertaken up to 4 August 2018; accordingly this assessment records and assesses all odour complaints received from 5 August 2018 up until 18 December 2019, which is the day prior to the new condition set being issued and taking effect.

During this assessment period Horizons has received fifteen complaints in relation to odour from the Levin Landfill. A breakdown of these incidents are summarised below in Figure 2.

Date	Incident ID	Communication Method	Assessment	Comments
10/08/18	23364	Email	–	–
19/08/18	26142	Email	–	–
21/08/18	23388	Hotline	Yes	No Odour.
27/08/18	23413	Hotline	No	Requested no attendance.
11/09/18	23474	Hotline	No	Officer unable to attend.
13/09/18	23475	Hotline	Yes	No Odour.
18/09/18	23492	Hotline	No	Requested no attendance.
06/10/18	23574	Email	–	–
05/04/19	24444	Hotline	Yes	No Odour.
26/04/19	24531	Hotline	No	Call back – Odour stopped.
09/05/19	24588	Hotline	No	Officer unable to attend.
12/06/19	25010	Email	–	–
28/06/19	24772	Hotline	No	Officer unable to attend.
29/07/19	24845	Hotline	No	Call back – Odour dropped.
09/09/19	25000	Hotline	Yes	No Odour.

**Figure 2:** Complaints Received and Horizons assessments 30 July 2018 – 18 December 2019.

Of the fifteen complaints received;

- Four complaints were received by email after the event occurred meaning they could not be verified.
- Four complaints where the complainants advised only to log the incident, the odour had stopped or dropped when called back.
- Three complaints Horizons were unable to attend. Prior to 1 July 2019 the after-hours Pollution Hotline duties was rostered with Consents Monitoring staff and Emergency Management staff. Due to Emergency Management staff not having the same level of information and training as consents monitoring staff this would result in incidents occasionally not being attended, this is reflected in the three events not attended above. This situation has now been rectified and civil defence staff now do not undertake incident response for consent monitoring.
- Four complaints were attended onsite and no odour was detected.

There were no verified incidences of objectionable odour from the Levin Landfill from 5 August 2018 to 18 December 2019.

**Condition Compliance Status: Comply – Full.**

- a. *On-site and off-site Health and Safety Effects of landfill gas being emitted by the old landfill should be quantified by sampling groundwater monitoring wells for evidence of landfill gas when groundwater samples are taken from the wells. As a minimum, the gases tested for are to include methane, carbon dioxide and oxygen; and*

Appendix G of the Levin Landfill 2017-18 and 2018-19 Annual Reports provide all of the gas monitoring data taken during groundwater well monitoring. For the 2017-18 Annual Report readings for CH<sub>4</sub>, CO<sub>2</sub> and H<sub>2</sub>S were not detected in any of these wells and O<sub>2</sub> was consistent with naturally occurring atmospheric concentrations. The 2018-19 Annual Report is mostly consistent with this; however, various levels of CH<sub>4</sub>, CO<sub>2</sub> were seen in some wells.

Of particular concern is entry number 82156 which is not allocated to a well. This entry number shows a reading of 2960 for H<sub>2</sub>S; this is of particular concern given 800 ppm is the lethal concentration for 50% of humans for 5 minutes' exposure and concentrations over 1000 ppm can cause immediate collapse with loss of breathing, even after inhalation of a single breath.

The report notes:

*“The records indicated a detection of hydrogen sulphide(H<sub>2</sub>S) at a high concentration of 2,960 ppm on 14 March 2019, but the data record for this event was not complete (e.g. no sample location included) so no further conclusions could be drawn.”*

It may be this result is an anomalous reading; however, it is recommended this is investigated by the consent holder given the potential risk.

The consent holder has undertaken the testing required by this condition.

**Condition Compliance Status: Comply - Full**

- b. *Any building constructed on the landfill site is adequately ventilated.*

The only buildings on the Levin Landfill site is the main office and storage shed area. This building has roller doors and windows and doors throughout which can be opened to ventilate the building.

**Condition Compliance Status: Comply – Full**

4. *There shall be no deliberate burning of waste or other material at the landfill. If fires occur at the landfill they shall be extinguished as quickly as possible.*

There have been no verified reports or complaints made to Horizons relating to fires at the Levin Landfill. Section 4.8 of the Landfill Management Plan prohibits the burning of fires on the site.

**Condition Compliance Status: Comply – Full**

5. *The Permit Holder shall take all practicable steps to avoid, remedy or mitigate significant adverse effects of the discharge of landfill gases to air.*

The following improvements, as noted in the Levin Landfill 2017-18 and 2018-19 Annual Reports, have been made in relation to the mitigation of landfill gas onsite.

2017-18:

- Stage 3C side slope liner was completed.
- Additional capping was provided at the back (eastern side) and the southern side of Stage 2.
- Additional vertical gas wells were installed within Stage 3 and connected through to the ring main located along the back of Stage 2.

2018-19:

- Bunding and capping was provided at the back (eastern side) and the southern side of Stage 2.
- Further vertical gas wells were installed within Stage 3 and the main gas collector pipe extended to join with the gas collection pipe on Stage 1A to make a true “ring main” around the landfill.

There have been no verified significant adverse effects of the discharge of landfill gases to air during the assessment period. The developments described above demonstrate the consent holder is taking steps to avoid the aforementioned effects.

**It is recommended the consent holder ensures the Landfill Management Plan, and any subsequent versions, incorporate procedures to balance and monitor the landfill gas wells and flare, to optimise landfill gas capture and destruction. A means of surveying the Landfill for any weaknesses/ landfill gas breakouts in the capping layer should also be incorporated.**

**Condition Compliance Status: Comply – Full**

### ***Monitoring and Reporting***

6. *The Permit Holder shall keep a record of any complaints received. The complaints record shall include the following, where possible:*

- a. Names and addresses of complainant;*
- b. Nature of complaint;*
- c. Date and time of the complaint and alleged event;*
- d. Weather conditions at the time of the event; and*
- e. Any action taken in response to the complaint.*

*The record shall be made available to the Regional Council on request.*

**Horizons requests a copy of the above records for the period of 1 July 2017 to 18 December 2019.**

*The Permit Holder shall also keep a record of landfill gas monitoring results including:*

- a. Date and time of sampling;*
- b. The concentrations of gasses detected.*
- c. Weather conditions at the time of sampling.*

*The monitoring results shall be made available to the Regional Council on a quarterly basis.*

The landfill gas monitoring required by this consent is only defined in condition 3, that being: “*sampling groundwater monitoring wells*”. This sampling has been undertaken quarterly and been included in the Levin Landfill 2017-18 and 2018-19 Annual Reports. The previous compliance report recommended this data should be included in the quarterly reports as required by this condition, unfortunately this was not followed.

**Condition Compliance Status: Low Risk – Non Compliance.**

7. *The Regional Council shall initiate a publicly notified review of Conditions 3 and 6 of this permit in April 2015, 2020, 2025, 2030 and 2035, unless the Neighbourhood Liaison Group (NLG) agrees that a review is unnecessary. The reviews shall be for the purpose of:*

*a. Assessing the effectiveness of Conditions 3 and 6 of this consent;*

*in avoiding, remedying or mitigating adverse effects on the environment surrounding the Levin Landfill, the review of conditions shall allow for the:*

*b. Changes to Conditions 3 and 6 of this consent; and*

*c. Addition of new conditions as necessary;*

*to avoid, remedy or mitigate adverse effects on the environment surrounding the Levin Landfill.*

This is discussed under resource consent 6009, condition 31. **Condition Compliance Status: Comply – Full**

**Overall Compliance Rating Resource Consent 6011/1: Low Risk Non-Compliance.**

## GENERAL CONDITIONS APPLICABLE TO 7289

Consent is granted to the Horowhenua District Council to **discharge liquid waste onto and into land** at the Levin landfill, Hokio Road, Levin, legally described as Lot 3 DP 40743 Blk II Waitohu Survey District, for a term expiring 35 years from the commencement of the consent subject to the following conditions:

1. Charges, set in accordance with section 36(1)c of the Resource Management Act 1991, and section 690 A of the Local Government Act 1974, shall be paid to the Regional Council for the carrying out of its functions in relation to the administration, monitoring and supervision of this resource consent and for the carrying out of its functions under section 35 (duty to gather information, monitor, and keep records) of the Act.

*[Note: Section 36(1)c of the Act provides that Council may from time to time fix charges payable by holders of resource consents. The procedure for setting administrative charges is governed by section 36(2) of the Act and is currently carried out as part of the formulation of the Council's Annual Plan.]*

The consent holder has no overdue charges in relation to this consent.

**Condition Compliance Status: Comply – Full.**

2. Liquid wastes shall only be placed at the Levin Landfill as a contingency to normal disposal.

The Levin Landfill Management Plan requires that any liquid waste, even that meeting the definition of condition 3, must follow the application process for hazardous waste. The Levin Landfill 2017-18 and 2018-19 Annual Reports state the waste log for the Levin Landfill shows no loads of hazardous waste were received by the Levin Landfill over the period of the report.

**As noted under condition 8 of consent 6009 Horizons requests a copy of the hazardous waste log or special waste sheets to verify compliance with this condition.**

**Condition Compliance Status: Comply –Full.**

3. For the purposes of this Permit, contingency conditions are circumstances where liquid waste is unable to be treated and disposed of at its regular location, for reasons of either, unforeseen events, breakdown or temporary closure for maintenance purposes.

There has been no disposal of liquid waste during this assessment period therefore this condition cannot be fully assessed.

**Condition Compliance Status: Not Assessed.**

4. *Liquid wastes are defined as the following:*

- a. *Septic tank waste (“septage”);*
- b. *Grease trap waste;*
- c. *Sewage; and*
- d. *Any material that contains free liquids.*

*The presence of free liquids may be determined by either of the following methods, whichever is most practicable at the time:*

- i. *The “Paint Filter Test”; or*
- iii. *Material which may be located, transported and deposited at the landfill without the risk of free liquid seeping from the material, and without the risk of having the deposited material flow under gravity down any slope on the landfill shall be deemed to not contain free liquids.*

The Levin Landfill Management Plan defines liquid waste as per this condition.

**Condition Compliance Status: Comply – Full.**

5. *The Permit Holder shall notify the Regional Council’s Environmental Protection Manager and the Neighbourhood Liaison Group as soon as practicably possible after receiving notification of the intention to dispose of waste at the landfill under the terms of this consent, or as soon as practicable following urgent disposal in accordance with Condition 3.*

*The Permit Holder shall detail the reason for the discharge, volume of discharge and timing of the discharge.*

*Each nominated member of the Neighbourhood Liaison Group shall be notified in writing by post.*

There has been no disposal of liquid waste to the Levin Landfill during this assessment period.

**Condition Compliance Status: Not Applicable.**

6. *The maximum annual volume of liquid waste discharged shall not exceed 150 cubic metres (150 m<sup>3</sup>) in any calendar year. (Calendar year is defined as being over any 12 month or 365 day period.)*

There has been no disposal of liquid waste to the Levin Landfill during this assessment period.

**Condition Compliance Status: Not Applicable.**

7. *Subject to Condition 6, the volume of liquid waste discharge shall not exceed 75 cubic metres (75 m<sup>3</sup>) during any seven day period.*

There has been no disposal of liquid waste to the Levin Landfill during this assessment period.

**Condition Compliance Status: Not Applicable.**

8. *Subject to Condition 6 and 7 the maximum daily volume of liquid waste discharged shall not exceed 20 cubic metres (20 m<sup>3</sup>).*

There has been no disposal of liquid waste to the Levin Landfill during this assessment period.

**Condition Compliance Status: Not Applicable.**

9. *The liquid material shall be placed in trenches which are no more than 2m wide, 1.5m deep and 5m long which are excavated in compacted refuse which is at least six months old and located within a lined landfill area.*

There has been no disposal of liquid waste to the Levin Landfill during this assessment period.

**Condition Compliance Status: Not Applicable.**

10. *Only one trench shall be open at any one time.*

There has been no disposal of liquid waste to the Levin Landfill during this assessment period.

**Condition Compliance Status: Not Applicable.**

11. *Trenches shall be at least 10 metres from any landfill batter slope.*

There has been no disposal of liquid waste to the Levin Landfill during this assessment period.

**Condition Compliance Status: Not Applicable.**

12. *The open trench shall be open for no longer than two weeks.*

There has been no disposal of liquid waste to the Levin Landfill during this assessment period.

**Condition Compliance Status: Not Applicable.**

13. *Trenches shall be filled with liquid wastes to a depth of not less than 1m below the prior refuse surface level and reinstated with appropriate compaction with previously removed refuse and cover.*

There has been no disposal of liquid waste to the Levin Landfill during this assessment period.

**Condition Compliance Status: Not Applicable.**

14. *The location of placement and cumulative volume will be identified on a site plan which shall be made available to the Regional Council upon request.*

There has been no disposal of liquid waste to the Levin Landfill during this assessment period.

**Condition Compliance Status: Not Applicable.**

15. *The location and placement shall be appropriately signed and fenced.*

There has been no disposal of liquid waste to the Levin Landfill during this assessment period.

**Condition Compliance Status: Not Applicable.**

16. *The Permit Holder will ensure odours, vermin and flies are not generated from or do not accumulate in open trenches.*

There has been no disposal of liquid waste to the Levin Landfill during this assessment period.

**Condition Compliance Status: Not Applicable.**

17. *The Permit Holder shall maintain records of:*

- a. *The type of liquid waste received;*
- b. *The volume of liquid waste received;*
- c. *The source of liquid waste; and*
- e. *The location in the landfill in which the material was placed.*

As stated above the Levin Landfill Management Plan requires any liquid waste being disposed of at the Levin Landfill must go through the hazardous waste application process. HDC have advised there has been no disposal of liquid waste to the Levin Landfill during this assessment period. Nevertheless a copy of the hazardous waste log or special waste sheets to verify compliance with this condition.

**Condition Compliance Status: Not Applicable.**

18. *In addition to the material that is accepted on the basis set out above, the consent holder may dispose of site-generated sludges that contain free liquids from cess-pits, leachate ponds or other site activities to facilitate site operation, provided this does not adversely affect landfill stability or face operations. The disposal of such materials is not to be included within the quantity restrictions as set out in Conditions 6, 7 and 8 of this permit.*

**It is recommended that the utilisation of this condition is recorded on weekly inspection sheets and this process is stipulated in the Landfill Management Plan or any subsequent versions.**

**Condition Compliance Status: Not Applicable.**

19. *The Regional Council shall initiate a publicly notified review of Conditions 5, 9, 12 and 17 of this permit in April 2015, 2020, 2025, 2030 and 2035, unless the Neighbourhood Liaison Group (NLG) agrees that a review is unnecessary. The reviews shall be for the purpose of:*

- a. *Assessing the adequacy of the monitoring conditions outlined in Conditions 5 and 17; and*
- b. *Assessing the effectiveness of Conditions 9 and 12 of this consent, in avoiding, remedying or mitigating adverse effects on the environment surrounding the Levin Landfill.*

*The review of conditions shall allow for the:*

- c. *Modification of monitoring outlined in Conditions 5 and 17;*
- d. *Changes to Conditions 9 and 12 of this consent; and*
- e. *Addition of new conditions if necessary, to avoid, remedy or mitigate adverse effects on the environment surrounding the Levin Landfill.*

This is discussed under resource consent 6009, condition 31. **Condition Compliance Status: Comply – Full**

**Overall Compliance Rating Resource Consent 7289/1: Comply – Full.**

## GENERAL CONDITIONS APPLICABLE TO 102259

*The Team Leader Consents of the Manawatū-Whanganui Regional Council (trading as horizons.mw) has considered this non-notified application. On 15 May 2002 the Team Leader pursuant to delegated authority under section 34 of the Resource Management Act, grants Discharge Permit 102259 pursuant to section 105 of the Act, to Horowhenua District Council to **discharge stormwater to land and potentially to groundwater via ground soakage** from the Levin landfill, Hokio Beach Road, Levin, subject to the following conditions.*

1. *This Permit shall be for a term of 35 years from the date of commencement of Levin Landfill Consents 6009 – 6011 and 7289.*

This consent is currently active.

### **Condition Compliance Status: Comply – Full.**

2. *Pursuant to section 125(1) of the Resource Management Act 1991, this Permit shall not lapse within its duration of 35 years.*

This condition is advisory and cannot be given a compliance rating.

### **Condition Compliance Status: Not Applicable.**

3. *The activities authorised by this Permit shall be restricted to the discharge of stormwater to land via ground soakage originating from the existing fill site or any part of the new lined landfill that has had, or is intended to have, refuse placed beneath or upon it, as shown on Plan C102259 attached to and forming part of this Discharge Permit.*

A site inspection of the Levin Landfill has occurred subsequent to this assessment period on 17 March 2020; this condition falls outside the scope of this report and will be assessed in a subsequent report based on the observations made during the above inspection.

### **Condition Compliance Status: Not Assessed.**

4. *All works and structures relating to this Discharge Permit shall be designed and constructed to conform to best engineering practices and shall at all times be maintained to a safe and serviceable standard.*

Previous inspections have shown that the various stormwater drains on site have been maintained to a serviceable standard.

A site inspection of the Levin Landfill has occurred subsequent to this assessment period on 17 March 2020; this condition falls outside the scope of this report and will be assessed in a subsequent report based on the observations made during the above inspection.

### **Condition Compliance Status: Not Assessed.**

5. *The Permit Holder shall ensure that the stormwater system, including all drains and ponds, is kept clear of refuse at all times.*

Weekly inspections by onsite staff occur weekly and this includes litter removal from litter fences and stormwater drains. Notwithstanding, a site inspection of the Levin Landfill has occurred subsequent to this assessment period on 17 March 2020. This condition falls outside the scope of this report and will be assessed in a subsequent report based on the observations made during the above inspection.

**Condition Compliance Status: Not Assessed.**

6. *The Permit Holder shall ensure the stormwater soakage ponds are inspected regularly and maintained to optimise their performance at all times. This shall include de-sludging or remediating the ponds as required.*

The Stormwater Management Plan requires stormwater drains to be inspected not less than monthly; however, it is silent with respect to maintenance of the stormwater soakage ponds.

Previous site inspections have not noted any deficiencies in the operation of these ponds where soakage is concerned.

**Horizons recommends the Stormwater Management Plan is amended to include this information to ensure maintenance of the stormwater soakage ponds is undertaken in accordance with this condition. This information should be recorded on inspection sheets and this process detailed in the Stormwater Management Plan.**

**Condition Compliance Status: Comply – At Risk.**

7. *There shall be no ponding in the stormwater soakage areas 12 hours after the last rain event.*

A site inspection of the Levin Landfill has occurred subsequent to this assessment period on 17 March 2020; this condition falls outside the scope of this report and will be assessed in a subsequent report based on the observations made during the above inspection.

**Condition Compliance Status: Not Assessed**

8. *There shall be no runoff or existing discharge of stormwater beyond the property boundary that has originated on any landfill area or new lined landfill area that has had, or is intended to have, refuse placed on it.*

Previous inspections have verified that any stormwater on site is either contained and soaks within the lined area of stages 1A, 2 or 3 of the Levin Landfill and leaves the site as leachate piped to the Levin WWTP or lands on the Old Closed Landfill or stormwater drainage network and soaks in stormwater ponds 1, 2 or 4. Compliance with this condition has been verified during subsequent site inspections undertaken on 14 February 2017, 12 May 2017 and 4 August 2017. Further to this there have been no complaints received by Horizons to suggest this is occurring.

Notwithstanding, a site inspection of the Levin Landfill occurred subsequent to this assessment period on 17 March 2020. This condition falls outside the scope of this report and will be assessed in a subsequent report based on the observations made during the above inspection.

**Condition Compliance Status: Not Assessed.**

*Management – Existing Landfill*

9. *As far as practically possible, the Permit Holder shall ensure that all stormwater from the existing landfill area is directed to a centralised soakage area to the south of the existing fill, as shown on Plan C 102259.*

Previous inspections show the existing Landfill is shaped to ensure stormwater is directed to stormwater ponds 1 or 2. A site inspection of the Levin Landfill occurred subsequent to this assessment period on 17 March 2020. This condition falls outside the scope of this report and will be assessed in a subsequent report based on the observations made during the above inspection.

**Condition Compliance Status: Not Assessed**

*Management – New Landfill*

10. *Where it is practical and economical to do so, the Permit Holder shall ensure that within the operational landfill cell the minimum amount of stormwater shall be allowed to come into contact with refuse. This shall be effected by **constructing impermeable barriers, diversion drains or bunds on the side slopes and within the base of the landfill.***

All stormwater falling on the operational landfill is treated as leachate and is collected by the leachate collection system and subsequently piped to the Levin WWTP. For the purpose of compliance with this condition it is expected that diversion drains and bunds are constructed to ensure stormwater falling on any operational cell stays within that operational cell and is collected by the leachate collection system; this is addressed by Condition 11 below.

**Condition Compliance Status: Not Assessed**

11. *There shall be no contamination of stormwater with leachate. Leachate includes any stormwater within an operational cell that is not separated from refuse by a barrier as defined in Condition 10.*

During the previous compliance assessment the consent holder made upgrades to the containment bunds along the eastern edge of Stage 2 following a minor leachate breakout and communicated this to Horizons. This upgrade was confirmed during a site inspection on 4 August 2017.

A site inspection of the Levin Landfill occurred subsequent to this assessment period on 17 March 2020. This condition falls outside the scope of this report and will be assessed in a subsequent report based on the observations made during the above inspection.

**Condition Compliance Status: Not Assessed.**

12. *The Permit Holder shall ensure that a suitable stormwater soakage area is available for a given design storm and the area of the operational cell from which the stormwater is collected.*

All stormwater landing on an operational cell is treated as leachate and sent to the Levin WWTP.

**Condition Compliance Status: Comply – Full**

13. *Areas designated for stormwater discharge to land and their catchment and reticulation system shall be identified and located on site plans and their dimensions submitted for approval by horizons.mw's Team Leader Compliance prior to their use.*

This condition has previously been complied with and is no longer applicable.

**Condition Compliance Status: Not Applicable**

**Monitoring**

14. *The Permit Holder shall monitor groundwater quality in at least one upgradient and one downgradient bore of the existing landfill stormwater soakage area, and at least one upgradient and two downgradient bores of the new landfill area. The location and number of bores is to be determined in consultation with horizons.mw's Team Leader Compliance. Groundwater samples shall be taken quarterly in January, April, July and October for the term of this Discharge Permit, beginning in October 2002, and analysed for the following parameters:*

- *PH*
- *Conductivity*
- *Ammonia-N*
- *Nitrate-N*
- *Sodium*
- *Boron*
- *Chloride*
- *Iron*

Water sampling is carried out from the monitoring wells, quarterly. The monitoring wells are up and down gradient of the existing landfill stormwater soakage area and the new landfill area pursuant to this condition. The required parameters are analysed and the results provided in the quarterly reports.

**Condition Compliance Status: Comply – Full**

15. *Monitoring bores required in Condition 14 of this Discharge Permit can be incorporated into the monitoring programme of other Levin Landfill Consents (6009-6011 and 7289), providing the information sought is obtained at the frequency specified and reported as required for this Permit.*

The data pursuant to condition 14 is incorporated into the quarterly reports and is obtained and the frequency specified.

**Condition Compliance Status: Comply – Full**

16. *The results of monitoring under Condition 14 of this permit shall be reported to Horizon Manawatū Team Leader Compliance by 31 August each year for the duration of this Permit beginning 31 August 2003. The annual report shall be supplemented by the raw water quality analysis data being forwarded to the Regional Council as soon as practically possible following the receipt of laboratory analysis certificates.*

Results pursuant to condition 14 are forwarded on a quarterly basis in the quarterly reports.

**Condition Compliance Status: Comply – Full**

17. *If a laboratory is used for water quality analyses which does not have independent accreditation for the parameters measured, then on each sampling occasion duplicate samples from at least one sampling location shall be analysed by a laboratory with independent accreditation for the parameters measured. Continued analysis by the unaccredited laboratory shall be at the discretion of horizons.mw.*

All parameters monitored under condition 14 are analysed by Eurofins ELS Ltd laboratory which holds an IANZ accreditation for the parameters required.

**Condition Compliance Status: Comply – Full**

18. *Should any groundwater and surface water parameters tested for under Condition 14 of this consent exceed the Australian and New Zealand Environment and Conservation Council Water Quality Guidelines (2000) for Livestock Watering, the Permit Holder shall report to horizons.mw's Team Leader Compliance as soon as practicable on the significance of the result, and where the change can be attributed to the landfill operation, consult with horizons.mw's Team Leader Compliance to determine if further investigation or remedial measures are required.*

Results for the parameters that require testing pursuant to condition 14 are all within the limits set by the ANZECC livestock drinking water standards.

**Condition Compliance Status: Comply – Full**

19. *The Regional Council shall initiate a publicly notified review of all conditions of this Permit in April 2015, 2020, 2025, 2030 and 2035, unless the Neighbourhood Liaison Group (NLG) agrees that a review is unnecessary. The reviews shall be for the purpose of:*
- i. reviewing the effectiveness of these conditions in avoiding or mitigating any adverse effects on the environment; and/or*
  - ii. reviewing the adequacy of the monitoring programme required by this discharge permit.*

*The review of conditions shall allow for:*

- i. the deletion or amendment to any conditions of this permit; and*
- ii. the amendment or addition of new conditions as necessary to avoid, remedy or mitigate any adverse effects on the environment*

*If necessary and appropriate, the review provided for under this condition shall require the Permit Holder to adopt the best practicable options to avoid, remedy or mitigate any significant adverse effects on the environment.*

This is discussed under resource consent 6009, condition 31. **Condition Compliance Status: Comply – Full**

20. *Charges, set in accordance with section 36(1)c of the Resource Management Act 1991, and section 690 A of the Local Government Act 1974, shall be paid to horizons.mw for the carrying out of its functions in relation to the administration, monitoring and supervision of this resource consent and for the carrying out of its functions under section 35 (duty to gather information, monitor, and keep records) of the Act.*

*[Note: Section 36(1)c of the Act provides that horizons.mw may from time to time fix charges payable by holders of resource consents. The procedure for setting administrative charges is governed by section 36(2) of the Act and is currently carried out as part of the formulation of horizons.mw's Annual Plan.]*

There are no outstanding charges in relation to this consent.

**Condition Compliance Status: Comply – Full**

**Overall Compliance Rating Resource Consent 102259/1: Comply – Full.**

## Conclusion

As a result of this assessment the following compliance ratings have been allocated have been allocated against the subsequent resource consents held by HDC for the operation of the Levin Landfill.

Resource consent	Nature of resource consent	Compliance Rating
6009/1	Discharge of solid waste onto land.	Moderate Non-Compliance.
6010/1	Discharge of landfill leachate onto and into land.	Moderate Non-Compliance.
6011/1	Discharge of landfill gas, odour and dust to air.	Low Risk Non-Compliance.
7289/1	Discharge of liquid waste onto and into land.	Comply – Full.
102259/1	Discharge of stormwater to land and potentially to groundwater via soakage.	Comply – Full.

The following are the specific non-compliances;

### Resource Consent 6009

#### Condition 34 – Moderate Non – Compliance.

During this assessment period there have been two instances where quarterly reports were produced but were not provided to either the NLG or Horizons in accordance with this condition. In addition to this the 2018-19 Annual Report was provided late without explanation. This condition was previously graded as a Low Risk Non-Compliance during the last assessment; accordingly, the grading has been escalated to a Moderate Non-Compliance.

### Resource Consent 6010

#### Condition 15 – Moderate Non-Compliance.

Condition 15(b) requires the consent holder to ensure the final landfill surface is sloped to promote run-off toward the outside of the landfill footprint and prevent surface water ponding on the landfill cap.

The 2018-19 annual report notes:

*“It is noted that the maximum settlement that occurred in the past year is 23 mm and, as noted in the previous year’s report, the surveyor noted that the area exhibits ponding (a puddle on the surface). This is of concern because it implies that water could be seeping into the landfill, instead of being shed off it.”*

This resulted in a Low Risk Non – Compliance for this sub condition.

Condition 15(f) requires the provision of annual reports by 31 August. The 2017-18 Annual Report was received by Horizons on 19 September 2018 due to a delay in completing the mass contaminant load evaluation. HDC advised Horizons prior to 31 August 2018 of this delay. However, the 2018-19 Annual Report was received by Horizons via email on 9 October 2019 with no explanation given for the delay. Accordingly, this condition has been escalated to a Moderate Non-Compliance. This results in a moderate non-compliance for condition 15 overall.

Please note, any subsequent delays of annual reports without a reasonable explanation will result in a Significant Non-Compliance grading for this condition, which in turn will require Horizons to consider enforcement action.

### **Resource Consent 6011**

#### Condition 6 – Low Risk – Non Compliance.

The Permit Holder is required to keep a record of landfill gas monitoring results, the monitoring results are required to be made available to the Horizons on a quarterly basis.

The landfill gas monitoring required by this consent is only defined in condition 3, that being: “*sampling groundwater monitoring wells*”. This sampling has been undertaken quarterly and been included in the Levin Landfill 2017-18 and 2018-19 Annual Reports. The previous compliance report recommended this data should be included in the quarterly reports as required by this condition, unfortunately this was not followed.

## **ACTIONS**

**The following actions need to be carried out by 4 September 2020 to prevent further non-compliance occurring.**

### **Resource Consent 6009**

If Hazardous Waste is not accepted at the Levin Landfill so this should be written into the Landfill Management Plan or any subsequent version.

Horizons requests a copy of the 2017-18 and 2018-19 hazardous waste logs to assist in assessing compliance with condition 8.

Horizons requests a copy of the 2017-18 and 2018-19 special waste logs to assist in assessing compliance with condition 23.

Horizons requests a summary of the type, volume and source of the waste received by the Levin Landfill covering the 2017-18 and 2018-19 annual reporting periods to verify compliance with condition 25.

## Resource Consent 6010

### Condition 11(c).

Based on the information provided in the quarterly reports pursuant to conditions 11(a) and 11(b) Horizons has recommended further investigation into the potential source of faecal coliforms effecting bore C2. Accordingly the consent holder shall develop a monitoring plan to investigate the source of the faecal coliforms and the potential activity giving rise to it. **This a draft of this plan shall be provided to Horizons for discussion prior to 4 September 2020.**

Depending on the results of this investigation Horizons may request a mitigation or remediation plan pursuant to this condition.

### Condition 15(b).

The 2018-19 annual report notes:

*“It is noted that the maximum settlement that occurred in the past year is 23 mm and, as noted in the previous year’s report, the surveyor noted that the area exhibits ponding (a puddle on the surface). This is of concern because it implies that water could be seeping into the landfill, instead of being shed off it.”*

The consent holder will need to take note of where ponding is occurring and apply capping material during dry weather to ensure run-off, as required. The consent holder shall ensure this is reported to Horizons when the work is complete. **Horizons would prefer this work occurs during summer to prevent damage to the capping layer; please ensure this work is completed by 29 January 2021.**

### Condition 29.

Horizons requests copies of the aforementioned incidents in August 2017 and January 2018, detailed under condition 28.

## Resource Consent 6011

### Condition 6.

Horizons requests a copy of the complaints log for the period of 1 July 2017 to 18 December 2019.

## Resource Consent 7289

### Condition 2.

As noted under condition 8 of consent 6009 Horizons requests a copy of the hazardous waste log or special waste sheets to verify compliance with this condition.

## Resource Consent 102259

No actions.

## RECOMMENDATIONS

### Resource Consent 6009

#### Condition 6

The Levin Landfill Management Plan should document a process where incidences of noxious weed control is recorded to demonstrate full compliance with this condition.

#### Conditions 15 – 21.

These conditions require specific practices for the disposal of dead animals and offal which is provided for in the Landfill Management Plan. This report strongly recommends any future annual reports should provide photographic examples that these practices are being strictly followed.

#### Condition 34(d)(ii).

This report recommends the consent holder tables an offer of an onsite inspection to members of the NLG at each NLG meeting.

#### Condition 34(d)(iii).

A copy of the amended conditions should be provided to the NLG members at the next NLG meeting.

#### Condition 34(d)(iv).

The Levin Landfill July 2019 Quarterly Report was completed 29 August 2018 but was not sent out to the NLG or Horizons; this report has been requested and now received as part of this compliance assessment. This report should be provided to the NLG members at the next NLG Meeting.

#### Condition 34(d)(iv)

### Resource Consent 6010

#### Condition 11(a).

Given the regular faecal coliform exceedances within the Tatana Drain may be affecting bore C2, it is recommended the consent holder undertakes an investigation into the potential sources of the high faecal coliform levels within the Tatana Drain. It is also noted the quarterly reports recommend all sampling should occur within one week to prevent variance; this report supports that recommendation.

### Resource Consent 6011

#### Condition 5

The consent holder should ensure the Landfill Management Plan, and any subsequent versions, incorporate procedures to balance and monitor the landfill gas wells and flare, to optimise LFG capture and destruction. A means of surveying the Landfill for any weaknesses/LFG breakouts in the capping layer should also be incorporated.

## Resource Consent 7289

### Condition 18.

Condition 18 allows the disposal of site-generated sludges that contain free liquids from cess-pits, leachate ponds or other site activities to facilitate site operation, provided this does not adversely affect landfill stability or face operations. The consent holder should ensure the utilisation of this condition is recorded on weekly inspection sheets and this process is stipulated in the Landfill Management Plan or any subsequent versions.

The aforementioned non-compliance ratings are primarily due to failure to provide monitoring reports as required by the resource consent conditions. It is important to note that failure to provide reports in accordance with the resource consent conditions without prior explanation will result in an escalation of non-compliance in future compliance reports.

Ensure the Actions as outlined above are completed by 4 September 2020.

Please take note of the recommendations made as they are made in the interest of maintaining ongoing compliance of the Levin Landfill site through accurate and comprehensive reporting.

Should you have any queries about the attached report, please contact me via email [hamish.sutherland@horizons.govt.nz](mailto:hamish.sutherland@horizons.govt.nz) or on 0508 800 800.

Yours sincerely



Hamish Sutherland  
**SENIOR CONSENTS MONITORING OFFICER**

**Table 1. Compliance Assessment Guideline for Individual Consents**

Site Compliance Grade	Examples
Comply - Full	Complying with all conditions of consent;
Comply – At Risk	At Risk grading identified against key condition(s) of one or more of consents for the site.
Low Risk Non-Compliance	Compliance with most of the relevant consent conditions. Non-compliance carries a low risk of adverse environmental effects or is technical in nature (e.g. failure to submit a monitoring report).
Moderate Non-Compliance	Non-compliance with one or more of the relevant consent conditions, where there are some environmental consequences and/or there is a moderate risk of adverse environmental effects.
Significant Non-Compliance	Non-compliance with one or more of the relevant consent conditions, where there are significant environmental consequences and/or a high risk of adverse environmental effects.
Not assessed	Monitoring has not been undertaken of this consent during the reporting period.

**Table 2. Compliance Assessment Guideline for Individual Conditions**

Condition Compliance Grade	Examples (not exhaustive)
Comply - Full	Conditions of consent are fully complied with.
Comply – At Risk	Compliant at time of inspection but management / system deficiencies indicate there is a real risk of a non-compliance occurring (e.g. insufficient effluent storage, poor irrigator performance). Sampling out of sequence or late due to circumstances outside of consent holders control (e.g. flow related sampling).
Low Risk Non-Compliance	One-off failure to comply with a condition of consent (e.g. One off minor exceedance in key parameter in sampling. Intent of condition met however data and / or report provided late. First up failure to provide management plan or environmental information (e.g. water quality information) within required timeframes.
Moderate Non - Compliance	Four minor exceedances of key parameters for one year’s worth of sampling / data. Repeat failure to provide a report or monitoring data. Repeat Failure to undertaken sampling. Failure to install water meter. Cow numbers being exceeded for dairy shed effluent consent.
Significant Non-Compliance	Water quality results indicate there is a potential for or an actual effect which is more than minor that is not authorised by the resource consent. Unauthorised discharge of wastewater / effluent into water or onto land where it may enter water, excessive ponding of effluent on the land surface. Repeated failure to provide a report/monitoring data/ management plans/install water metering equipment etc. Repeated failure to undertake sampling. Repeated failure to comply with authorised discharge or water take volumes.
Not Applicable	Applies to conditions that are no longer applicable. Generally relates to historic conditions that may require provision of a management plan, which has been provided and consent requires no further action.
Not Assessed	Monitoring not undertaken of consent condition.

