Levin Landfill April 2024 Quarterly Groundwater, Surface Water and Leachate Monitoring Report

PREPARED FOR HOROWHENUA DISTRICT COUNCIL | MAY 2024

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Revision Schedule

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Abbreviations

Abbreviation	Name
ANZECC LDW	ANZECC 2000 Livestock Drinking Water
BDL	Below the detection limit
cfu	Colony-forming unit
COD	Chemical Oxygen Demand
DWSNZ GVs	Drinking Water Standards for New Zealand - Guideline Values for aesthetic determinants
DWSNZ MAVs	Drinking Water Standards for New Zealand – Maximum Acceptable Values
EC	Electrical Conductivity
HDC	Horowhenua District Council
Hg	Soluble mercury
HRC	Horizons Regional Council
mbgl	Metres below ground level
NH ₃ -N	Ammoniacal-nitrogen
NO ₃ -N	Nitrate nitrogen
ppm	Parts per million
scBOD₅	Soluble carbonaceous Biochemical Oxygen Demand (5-day)

Executive Summary

Horowhenua District Council (HDC) is required to carry out quarterly compliance monitoring of groundwater and monthly sampling at selected surface water monitoring locations at the Levin Landfill, as part of the conditions of Resource Consents ATH-2002003982.03 (formerly DP6009), ATH-2002003983.02 (formerly DP6010), ATH-2002003984.02 (formerly DP6011) and ATH-2002009801.02 (formerly DP102259). This report summarises the findings for the monitoring events from the fourth quarter (i.e., February 2024 to April 2024) sampling round and includes results for:

- Background (natural) groundwater (Bores G1S and G1D)
- Landfill leachate (manhole next to leachate pond)
- Groundwater bores, down-gradient of the new landfill (Bores D1, D2, D3rs, D4, D5, D6 and E1S)
- Groundwater bores within the old irrigation area (Bores F1, F2 and F3)
- Shallow aguifers, down-gradient of the old landfill (Bores B1, B2, B3s, C2, C2DS, E2S, G2s, Xs1 and Xs2)
- The deep aguifer (Bores C2DD, D3rd, E1D, E2D and Xd1)
- The Northern Farm Drain (TD1), and
- The Hokio Stream (HS1A, HS1, HS2 and HS3).

Stantec has reviewed the results of this fourth quarter monitoring round on behalf of HDC.

Monitoring results for other aspects of the landfill operations such as for air quality, odour, and stormwater quality are reported annually, as per resource consent requirements.

Samples were collected from 27 groundwater bores from around Levin Landfill during April 2024, and landfill leachate was sampled at a manhole next to the leachate pond. Additionally, five surface water sites were each sampled during February 2024, March 2024, and April 2024. All samples were analysed for the parameters set out in ATH-2002003983.02, and as listed in the results tables presented in this report.

For many of the samples taken during the April 2024 quarter, and particularly for the surface water samples, the recorded time between sampling and reception at the laboratory was longer than the normally accepted timeframe of <24 hours, and on some occasions was close to 3.5 days. The groundwater bore samples were practically all delivered within the accepted timeframe, but two samples had recorded sampling times that were nonsensical, one being in the early morning hours, and the other being recorded ostensibly after it was delivered to the laboratory. These matters will need to be followed up with the sampling contractor and the laboratory.

The resource consent for the landfill (namely, ATH-2002003983.02) establishes compliance limits for the quality of deeper and shallow groundwater which are based upon the Drinking Water Standards for New Zealand – Maximum Acceptable Values (DWSNZ MAVs), Guideline Values for aesthetic determinants (DWSNZ GVs), and the ANZECC 2000 Livestock Drinking Water (ANZECC LDW) trigger values, respectively. Compliance limits for surface water are based on the ANZECC 2000¹ default guideline values (DGV) for 95th percentile species protection for toxicants in freshwater, as required by the revised Resource Consent condition approved in December 2019.

The February 2024 to April 2024 monitoring results have been assessed against these limits, where they are applicable.

Twenty-seven non-compliances with resource consent conditions were recorded across nine monitoring locations, as follows:

- E. coli at Xd1 was detected at a level of 3 cfu/100mL which exceeds the DWSNZ MAV of NIL. This is not an unusual occurrence for this bore.
- Dissolved arsenic exceeded the DWSNZ MAV of 0.01 mg/L at bore D3rd (0.019 mg/L). This is characteristic of D3rd.
- Dissolved manganese concentrations exceeded the DWSNZ MAV of 0.4 mg/L in bores C2DD (0.65 mg/L), E2D (0.458 mg/L), Xd1 (0.497 mg/L) and D3rd (0.5 mg/L). The results are within the historical range of concentrations observed. Dissolved manganese is generally elevated in the deep aquifer bores.
- Nitrate-N at TD1 in February 2024 (0.82 mg/L), March 2024 (2.0 mg/L) and April 20234 (0.31 mg/L) exceeded the ANZECC (95%ile) DGV of 0.16 mg/L. This site has commonly presented elevated levels.

¹ Now superseded by the Australian and New Zealand Water Quality Guidelines 2018 (ANZG 2018), however the ANZECC 2000 guideline values are applied in accordance with the resource consent.



- Ammoniacal-N at TD1 in February 2024 (15.4 mg/L), March 2024 (24.9 mg/L), and April 2024 (11.9 mg/L) exceeded the ANZECC (95%ile) DGV of 2.1 mg/L.ScBOD₅ exceeded the ANZECC (95%ile) DGV and consent trigger value of 2 mg/L at HS2 in February 2024 with a value of 3 mg/L.
- Nitrate-N exceeded both the ANZECC (95%ile) DGV and consent trigger value of 0.16 mg/L at all Hokio Stream sites in February, March (except for HS1) and April 2024, with values ranging between 0.18 mg/L and 0.39 mg/L.
- Dissolved copper exceeded the ANZECC (95%ile) DGV and consent trigger value of 0.0014 mg/L at HS1A in February 2024 (0.0019 mg/L) and in April 2024 (0.0015 mg/L).
- Dissolved zinc exceeded the ANZECC (95%ile) DGV and consent trigger value of 0.008 mg/L at HS1A in February 2024 (0.012 mg/L).

The February 2024 to April 2024 results were also considered in the context of background water quality, both within the groundwater aquifers (shallow and deep bores) and the surface water receiving environment. For example, low pH at background bore G1S, and elevated iron concentrations in the same bore indicate that groundwater could be being impacted by up-gradient activities unrelated to the landfill operations.

There were sixteen occasions where the leachate effluent quality (at the leachate pond manhole sampling location) was outside of the ranges for typical leachate composition, as recorded generally at Class 1 landfills in New Zealand. Five of these outliers were for parameters having less concentration than the typical minimal concentrations. Note that leachate effluent is not subject to any consent limits. Typical leachate concentrations are derived from data originating from seven New Zealand landfills, dating back to between 1998 and 1999. Whilst this information is ostensibly dated, it is what is presented in the latest version of the WasteMINZ Guidelines.

Methane was detected in seven of the bores in April 2024, with the highest reading being at D6 (0.06%). The methane concentrations were well below the explosive limit of 5%, and therefore represent a 'safe' level. Methane is commonly detected at the landfill site, and its detection reinforces the need for sampling staff to take the necessary precautions for gas safety, generally applicable at landfill sites. Minor concentrations of carbon dioxide were recorded at all bores, with the highest being 0.2% at bore C2. Hydrogen sulphide was detected at bore Xs1 at 1 ppm.

The possibility of encountering methane (and hydrogen sulphide) in groundwater bores endorses the need for appropriate health and safety measures to be adopted during monitoring.

The following recommendations are made, based on the results of this reporting period:

- Overall, monitoring results at G1S indicate that it is likely modified or impacted by anthropogenic activities, and
 therefore may not be suitable to use as reliable 'control' location for background water quality in the future. This
 matter should be reviewed as part of the Annual Report.
- Nitrate-N levels at D6 were the maximum value recorded to date, and maximum values were also reached for conductivity, hardness, calcium, magnesium, and potassium. Whilst all levels are below the ANZECC LDW trigger values, it is a matter to keep a check on and may merit an assessment in the future to try and identify the cause.
- *E. coli* at Xd1 was detected at a level of 3 cfu/100mL which exceeded the DWSNZ MAV of NIL. Whilst this is not an unusual occurrence for this bore which has shown presence of *E. coli* since monitoring began, it is recommended that the site be inspected to determine if there is evidence of stock or other animals getting next to the bore.
- Consecutive monthly sampling has occurred at all Hokio Stream sites for since October 2021. It is recommended
 that HDC assess the results of these 31 sampling events, as required by the conditions of the consent, to determine
 the significance of the results, and to ascertain, in conjunction with HRC, if a reduction in sampling frequency can be
 made. If it is permitted for the sampling frequency to be reduced to quarterly, then it is also proposed that the
 sampling frequency at the Northern Farm Drain (TD1) and the manhole next to the leachate pond be similarly
 reduced.

1 Introduction

Horowhenua District Council (HDC) first commissioned Stantec New Zealand (then Montgomery Watson) to carry out environmental reporting for the discharge consent monitoring undertaken at the Levin Landfill site in the early 2000s. Monitoring has been undertaken by contractors every three months at 33 locations, as required by the resource consent conditions (namely for discharge permit ATH-2002003983.02). These sampling locations consist of 27 boreholes penetrating the sand and gravel aquifers; four surface water sampling locations within Hokio Stream; one surface sampling location along the Northern Farm Drain (previously referenced as the Tatana Drain), and one leachate sampling point, as shown in the Site Plan in Appendix A.

The Levin Landfill site is comprised of two landfills: one old, closed, and unlined landfill and one new, lined landfill that has now been closed for the disposal of municipal solid waste. The new landfill footprint was developed in stages. The most recent stage was Stage 3C which was developed in 2017, though landfill operations have, until the end of October 2021, occurred over the top of Stages 1A, 2 and 3C. The current landfill has reached capacity and has been capped with a permanent clay capping (0.7 m thick) on all sides.

The Levin Landfill site is located above two identified aquifers, a shallow sand aquifer and a deeper gravel aquifer. The shallow aquifer is unconfined, has a low to moderate permeability, and flows in a northerly direction. The deeper gravel aquifer is a confined to semi-confined aquifer. Horizons Regional Council hydrology staff advises that "the general confined groundwater flow direction is towards the west". Groundwater quality in the area is highly variable because of interaction with peat deposits that are prevalent in the area, localised effects such as from grazing activities, droppings from scavenging birds and from nitrogen-fixing plants such as gorse.

Since July 2010 groundwater has been tested for dissolved metals and nutrients, rather than for total concentrations of these parameters.

A review of the resource consent conditions was finalised in December 2019. Changes have been made to some of the surface water and groundwater monitoring conditions and HDC has acted on all the changes. Sampling since the January 2021 sampling round has been in line with previous monitoring, but different reference parameters have been applied to assess the surface water sampling results, as required by the current consent conditions.

This report presents the results for the February 2024 - April 2024 quarterly monitoring period.

Laboratory detection limits are provided for all test results which are attached in Appendix C.

2 Groundwater and Surface Water Monitoring

2.1 Sample Analyses

Surface water samples were collected by Downer (a contractor to HDC) on 12 February 2024, 18 and 19 March 2024, and 11 April 2024, with the samples being received by the Eurofins ELS Ltd laboratory in Lower Hutt, Wellington. The recorded timeframe between sample collection and laboratory reception varied between 6 and 84 hours, with most of the samples being delivered to the laboratory significantly longer than 24 hours after the samples were taken. Many of the laboratory sheets show samples being taken at night, which is strange and calls into question the accuracy of the sample time being recorded on the custody sheets.

Groundwater samples were collected by Downer on 8, 9, and 10 April 2024, with the samples being received by the Eurofins ELS Ltd laboratory in Lower Hutt, Wellington. All the laboratory sheets, except two, recorded a time of less than 24 hours between the sample being taken and it being accepted at the laboratory. The exceptions were sample Xd1, which was recorded as being sampled at 01.42am and delivered to the laboratory some 34 hours after this time, and sample Xs1, which had a recorded sample time that was after the recorded laboratory receipt time, which is nonsensical.

The monitoring schedule for July 2023 - April 2026 is summarised in Appendix B. From July 2019, *E. coli* counts analyses have been included within the indicator and comprehensive analytical suites, as agreed by HDC with Horizons Regional Council (HRC). This means that *E. coli* counts will be assessed more frequently throughout each year, as compared to the past monitoring regime.

Groundwater samples taken at each of the boreholes were analysed for the comprehensive list of parameters which is outlined in Table 2-1. Surface water samples from Hokio Stream, the Northern Farm Drain and the manhole next to the leachate pond, were also analysed for the comprehensive list of parameters.

Note that, following the revision of the resource consent conditions which were approved in December 2019, 5-day soluble carbonaceous Biochemical Oxygen Demand ($scBOD_5$) and soluble mercury (Hg) have each been added to the indicator and comprehensive suites of parameters, and *E. coli* added to the comprehensive suite of parameters. The $scBOD_5$ and *E. coli* parameters replace BOD_5 and faecal coliforms, respectively. Monitoring of these additional parameters began with the April 2020 sampling round.

Table 2-1: Test Parameters

Туре	Indicator Parameters	Comprehensive Parameters
Physico-chemical characteristics	pH, Electrical Conductivity (EC)	pH, Electrical Conductivity (EC), Alkalinity, Total Hardness, Suspended Solids
Oxygen demand	Chemical Oxygen Demand (COD), scBOD5**	Chemical Oxygen Demand (COD), soluble carbonaceous Biochemical Oxygen Demand (scBOD ₅ **)
Nutrients*	Nitrate nitrogen (NO ₃ -N), Ammoniacal-nitrogen (NH ₄ -N)	Nitrate nitrogen (NO ₃ -N), Ammoniacal-nitrogen (NH ₄ -N), Dissolved Reactive Phosphorus (DRP), Sulphate (SO ₄)
Metals*	Aluminium (AI), Manganese (Mn), Nickel (Ni), Lead (Pb), Mercury (Hg)**	Aluminium (Al), Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Iron (Fe)***, Magnesium (Mg), Manganese (Mn), Nickel (Ni), Lead (Pb), Zinc (Zn), Mercury (Hg)**
Other elements	Boron (B), Chloride (CI)	Boron (B), Calcium (Ca), Chloride (Cl), Potassium (K), Sodium (Na)***
Biological+	E. coli	E. coli
Organics	Not required	Total organic carbon, total phenols, volatile acids

Note:

^{*}Analyses performed for nutrients and metals are for dissolved rather than total concentrations.

^{**} scBOD₅ and Soluble Mercury added as per revised consent conditions for Discharge Permit ATH-2002003983.02, December 2019

- *** Iron and sodium are tested at certain groundwater bores only.
- + Faecal coliforms added from July 2019 onwards (see Appendix B)

Those chemical constituents for which concentrations were below laboratory detection limits during the reporting period have had results set at 50% of the laboratory detection limit, which is then used to calculate a median value for annual reporting purposes. This is standard practice when dealing with chemical concentrations in water, where the constituent is not detected.

2.2 Background Groundwater Quality

The background (natural) quality of the groundwater water up-gradient from the landfill site is not subject to any consent conditions. However, for comparison purposes, both the ANZECC LDW trigger values and the DWSNZ guidelines are regularly used to benchmark the quality of water up-gradient from the landfill site.

Groundwater samples were collected from the two background bores situated hydraulically up-gradient from both the new and old landfills to the southeast of the site in April 2024 (bores G1S and G1D, see Site Plan, Appendix A). These two bores were constructed in late 2009 to sample background water quality from the two main hydrogeological units. Bore F3 is also included in the background table as it is near the southern boundary of the landfill site (and further west) and is unlikely to be impacted by landfill activities. A full laboratory report containing analytical results is presented in Appendix C and the historical graphs are presented in Appendix D.

The results for the April 2024 monitoring round are presented in Table 2-2.

For bore G1s the following results were outside the range of relevant guidelines:

- pH (6.5) was below the lower DWSNZ limit of 7.0.
- Dissolved aluminium (0.106 mg/L) exceeded the DWSNZ limit of 0.1 mg/L, which has occurred frequently in the
 past.
- Dissolved iron (1.79 mg/L) exceeded the DWSNZ limit of 0.2 mg/L, in line with historical reporting.

For bore G1d the following results was outside of the range of relevant guidelines:

• Dissolved iron (0.37 mg/L) exceeded the DWSNZ limit of 0.2 mg/L, which has usually occurred for this bore.

For bore F3 the following result was outside of the range of relevant guidelines:

• pH (6.9) was below the DWSNZ limit of 7.0.

E. coli was 'not detected' at any of the background monitoring locations, but it is noted that the laboratory detection level changed between sites – 1 cfu/100mL at G1D and 100 cfu/100mL at G1S and F3. While the DWSNZ MAV for E. coli is NIL, this guideline is only applicable to the deep aquifer bore G1D, whereas the ANZECC standard (100 cfu/100mL) is more appropriate for G1S and F3, given their shallow nature. Given this, the difference in laboratory detection limits between the bores are acceptable and compliant.

The monitoring results suggest that the quality of background groundwater may be being impacted by local ground conditions and/or activities up-gradient of the landfill. Background bore G1S consistently records elevated concentrations of a range of parameters. Elevated iron concentrations are likely to be related to hydrogeological conditions found at this site, and this phenomenon is common for groundwater in this area. Results dating to 2010 indicate that low pH values are representative of background water quality in the shallow sand aquifer, whereas the deep gravel aquifer frequently presents higher pH readings. Overall, monitoring results at G1S indicate that it is likely modified or impacted by anthropogenic activities, and therefore may not be suitable to use as reliable 'control' location for background water quality in the future. This matter should be reviewed as part of the Annual Report.

Table 2-2: Background Monitoring Results for April 2024

Determinant	Units	DWSNZ MAV	ANZECC LDW	G1S	G1D	F3
Sampling date				08/04/24	08/04/24	08/04/24
Water Level	mbgl	-	-	14.44	15.04	5.25
pН	pH units	7 to 8.5*	6 to 9	6.5	7.0	6.9
Suspended Solids	mg/l	-	-	13	8	2.5
Phenol	mg/l	-	-	0.005	0.005	0.005
VFA	mg/l	-	-	2.5	2.5	2.5

Determinant	Units	DWSNZ MAV	ANZECC LDW	G1S	G1D	F3
TOC	mg/L	-	-	25.7	1.8	1.1
Alkalinity	mg CaCO₃/L	-	-	70	61	52
Conductivity	mS/m	-	-	33.4	26.1	17.8
COD	mg/L	-	-	64	7.5	7.5
scBOD₅	mg/L	-	-	0.5	0.5	0.5
E. coli	CFU/100ml	NIL	100	50	0.5	50
Chloride	mg/L	250*	-	50.2	28.9	14.6
Nitrate-N	mg/L	11.3	90.3	0.01	0.005	1.62
Sulphate	mg/L	250*	1000	9.07	18.3	4.69
Ammoniacal-N	mg/L	1.17	-	0.04	0.1	0.005
Hardness	mg CaCO₃/L	200*	-	39	58	34
Calcium	mg/L	-	1000	7.3	8.9	5.2
Magnesium	mg/L	-	-	5.05	8.66	5.17
Potassium	mg/L	-	-	3.5	5.51	4.34
Sodium	mg/L	200*	-	55.3	33.6	24.9
D.R. Phosphorus	mg/L	-	-	0.097	0.035	0.151
Dissolved Aluminium	mg/L	0.1*	5	0.106	0.001	0.002
Dissolved Arsenic	mg/L	0.01	0.5	0.002	0.002	0.002
Dissolved Boron	mg/L	1.4	5	0.03	0.05	0.03
Dissolved Cadmium	mg/L	0.004	0.01	0.0001	0.0001	0.0001
Dissolved Chromium (VI)	mg/L	0.05	1	0.002	0.002	0.003
Dissolved Copper	mg/L	2	0.4	0.0072	0.00025	0.0011
Dissolved Iron	mg/L	0.2*	-	1.79	0.37	0.005
Dissolved Lead	mg/L	0.01	0.1	0.00025	0.00025	0.00025
Dissolved Manganese	mg/L	0.4	-	0.0355	0.0614	0.00025
Dissolved Mercury	mg/L	-	0.002	0.00025	0.00025	0.00025
Dissolved Nickel	mg/L	0.08	1	0.0014	0.00025	0.00025
Dissolved Zinc	mg/L	1.5*	20	0.001	0.001	0.003

All `<' values have been reported as half the detection limit for statistical purposes and are *expressed in italics* Values which exceeded the DWSNZ MAV are shown in **bold**

2.3 Groundwater Quality Hydraulically Down-Gradient of the New Landfill

Monitoring is carried out within the two main hydrogeological units for bores hydraulically up-gradient of the old landfill and hydraulically down-gradient of the new landfill.

2.3.1 Shallow Aquifer

Bores D1, D2, D3rs, D4, D6, and E1S (Refer to Site Plan, Appendix A) are located hydraulically up-gradient of the old landfill, but down-gradient of the new landfill. This means they are not influenced by potential leaching from the old landfill and can act as a warning system for any leaching from the new landfill.

Borehole D5 is located at the south-western corner of the site and is expected to provide an indication of shallow background groundwater quality because it is unlikely to be influenced by either landfill.



^{*}denotes guideline values for aesthetic determinants (G.V.)

It is considered unlikely that leachate from the new landfill would significantly affect groundwater quality due to the leachate collection system which is in place at the new landfill; however, these bores would still provide early warning of any potential problems. It is noted that bore D3r was replaced in June 2021 with two bores; D3rs, which is a shallow bore and D3rd, which is a deep bore. Both have been sampled from October 2021 onwards. It is also noted that new bores D3rs and D3rd are required to be monitored for the comprehensive suite of parameters for the first two years following installation.

The results from the April 2024 monitoring round for these bores are presented in Table 2-3 and the results have been compared with the ANZECC LDW trigger values as per the consent conditions. The full laboratory report is included in Appendix C and the historical graphs are presented in Appendix D.

There were **no exceedances of the resource consent conditions during the quarterly (April 2024)** monitoring round in samples from the shallow aquifer.

It is noted, however, that for some inexplicable reason dissolved arsenic was not tested for bores D3rs, D4, D6 and E1s. The maximum recorded value for arsenic at any of these bores is 0.005 mg/L, which is significantly lower than the ANZECC LDW trigger value of 0.5 mg/L. So, this oversight is minor.

It is further noted that the nitrate-N levels at D6 were 50.3 mg/L, which is the maximum value recorded to date. In the same sampling round, maximum values were also reached for conductivity, hardness, calcium, magnesium, and potassium. Whilst all levels are below the ANZECC LDW trigger values, it is a matter to keep a check on and may merit an assessment in the future to try and identify the cause. In the past this was explained because of the presence of nitrogen fixing gorse plants. A website search indicated that it has been recorded that pine trees can also accumulate nitrogen in the soil, so it is possible that the groundwater around bore D6 has been affected by the nearby pine trees.

Table 2-3: D-Series and E1S Monitoring Bore Results for April 2024

Determinant	Units	ANZECC LDW	D1	D2	D3rs	D4	D5	D6	E1S
Sampling date			09/04/24	09/04/24	09/04/24	09/04/24	08/04/24	09/04/24	09/04/24
Water Level	mbgl	-	16.82	21.36	6.14	8.12	9.8	16.42	11.37
рН	pH units	6 to 9	6.5	6.3	6.3	7.0	6.9	6.6	7.0
Suspended Solids	mg/l	-	2.5	53	6	2.5	2.5	2.5	2.5
Phenol	mg/l	-	0.005	0.005	0.005	0.005	0.005	0.005	0.005
VFA	mg/l	-	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TOC	mg/L	-	1.1	16.3	21.9	4	1.9	1.1	3.5
Alkalinity	mg CaCO₃/L		200	187	80	83	73	68	69
Conductivity	mS/m	-	58	67.8	22	27.4	28.8	73.8	24.3
COD	mg/L	-	7.5	51	63	28	7.5	7.5	44
scBOD₅	mg/L	-	0.5	1.5	2	0.5	0.5	0.5	0.5
E. coli	CFU/100ml	100	50	50	50	50	50	50	50
Chloride	mg/L	-	34.8	94.4	15.8	29.8	27.3	56.6	27.1
Nitrate-N	mg/L	90.3	6.17	0.005	0.05	0.005	1.18	50.3	0.005
Sulphate	mg/L	1000	17.9	6.15	0.81	5.61	18	7.85	6.87
Ammoniacal-N	mg/L	-	0.005	0.76	0.75	0.24	0.005	0.005	0.18
Hardness	mg CaCO₃/L	-	166	160	43	49	73	186	46
Calcium	mg/L	1000	29.4	26.8	9	9.2	12.3	32.2	7.4
Magnesium	mg/L	•	22.5	22.6	4.89	6.34	10.3	25.7	6.62
Potassium	mg/L	-	12.4	11.7	4.61	5.63	6.85	10.6	5.63
Sodium	mg/L	•	46.3	42.4	23	28.8	23.5	39.2	24.9
D.R. Phosphorus	mg/L	-	0.089	0.033	0.082	0.052	0.107	0.078	0.087
Dissolved Aluminium	mg/L	5	0.001	0.001	0.055	0.003	0.002	0.001	0.005
Dissolved Arsenic	mg/L	0.5	0.001	0.0005	n/p	n/p	0.0005	n/p	n/p
Dissolved Boron	mg/L	5	0.05	0.04	0.03	0.015	0.05	0.06	0.015
Dissolved Cadmium	mg/L	0.01	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Dissolved Chromium (VI)	mg/L	1	0.0005	0.0005	0.003	0.0005	0.0005	0.0005	0.0005

Determinant	Units	ANZECC LDW	D1	D2	D3rs	D4	D5	D6	E1S
Dissolved Copper	mg/L	0.4	0.00025	0.00025	0.00025	0.00025	0.0007	0.00025	0.00025
Dissolved Iron	mg/L	-	0.005	11.4	14.8	1.9	0.01	0.005	3.54
Dissolved Lead	mg/L	0.1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.0009
Dissolved Manganese	mg/L	-	0.0007	0.607	0.382	0.207	0.0051	0.0015	0.183
Dissolved Mercury	mg/L	0.002	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Dissolved Nickel	mg/L	1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Dissolved Zinc	mg/L	20	0.011	0.005	0.004	0.001	0.001	0.004	0.001

'ND' indicates where E. coli were not detected at or above the laboratory detection limit

All '<' values have been reported as half the detection limit for statistical purposes and are expressed in italics n/p – not provided

2.3.2 Deep Gravel Aquifer

Bores E1D, C2DD, E2D, Xd1, and the new replacement bore D3rd all penetrate the deeper gravel aquifer. Deep groundwater flow is assumed to be towards the northwest.

Boreholes E2D and C2DD are located to the north-northwest of both the landfills and are therefore considered to be hydraulically down-gradient of both landfills.

Borehole E1D is located to the southwest of the old landfill and it is therefore considered that this bore would be unlikely to be affected by either landfill.

Bore Xd1 was installed in late 2020 as a requirement of the reviewed resource consent conditions (December 2019). It is located on the western boundary of the site and slightly downstream of the old landfill.

Results for the quarterly (April 2024) compliance monitoring round are presented in Table 2-4. The results have been compared with the DWSNZ as per the requirements of discharge consent ATH-2002003983.02. The full laboratory report is included in Appendix C and the historical graphs are presented in Appendix D.

There were **six exceedances of the DWSNZ limits** in samples from the deep gravel aquifer during the April 2024 monitoring round, as follows:

- *E. coli* at Xd1 was detected at a level of 3 cfu/100mL which exceeds the DWSNZ MAV of NIL. This is not an unusual occurrence for this bore which has shown presence of *E. coli* since monitoring began in April 2021. It is recommended that the site be inspected to determine if there is evidence of stock or other animals getting next to the bore.
- Dissolved arsenic exceeded the DWSNZ MAV of 0.01 mg/L at bore D3rd (0.019 mg/L). This is characteristic of D3rd with the levels varying between 0.017 and 0.022 mg/L on all sampling occasions.
- Dissolved manganese concentrations exceeded the DWSNZ MAV of 0.4 mg/L in bores C2DD (0.65 mg/L), E2D (0.458 mg/L), Xd1 (0.497 mg/L) and D3rd (0.5 mg/L). The results for C2DD and E2D (from 1997), Xd1 (from March 2021 when sampling started), and D3rd (from October 2021 when sampling started) are within the historical range of concentrations observed. Dissolved manganese is generally elevated in the deep aquifer bores.

Table 2-4: Results for Monitoring Bores within the Deep Aquifer for April 2024

Water Level mbgl - 11.31 2.975 4.87 3.3 6.45	Determinant	Units	DWSNZ MAV	E1D	C2DD	E2D	Xd1	D3rd
pH pH units 7 to 8.5° 7.5 7.3 7.4 7.4 7.5 Suspended Solids mg/l - 72 7 2.5 6 2.5 Phenol mg/l - 0.005 0.005 0.005 0.005 0.005 VFA mg/l - 2.5 2.5 2.5 2.5 2.5 2.5 TOC mg/L - 2.9 5.5 2.7 4.3 5.8 Alkalinity mg CaCOy/L - 164 241 161 184 223 Conductivity mS/m - 44.1 59.3 44.2 53.4 53.2 COD mg/L - 7.5 20 7.5 7.5 7.5 scBOD ₅ mg/L - 0.5 0.5 0.5 0.5 0.5 E. coli CFU/100ml NIL 0.5 0.5 0.5 3 0.5 Chloride mg/L 250°	Sampling date			08/04/24	08/04/24	09/04/24	10/04/24	09/04/24
Suspended Solids mg/l - 72 7 2.5 6 2.5	Water Level	mbgl	-	11.31	2.975	4.87	3.3	6.49
Phenol mg/l - 0.005 0.005 0.005 0.005 0.005 VFA mg/l - 2.5 2.5 2.5 2.5 2.5 TOC mg/L - 2.9 5.5 2.7 4.3 5.8 Alkalinity mg CacO₂/L - 164 241 181 194 223 Conductivity mS/m - 44.1 59.3 44.2 53.4 53.2 COD mg/L - 7.5 20 7.5 7.5 7.5 scBOD₀ mg/L - 0.5 0.5 0.5 0.5 0.5 0.5 E. coli CFU/100nl NIL 0.5 0.5 0.5 3 0.5 Chloride mg/L 250° 39.4 43.8 41.8 57.8 32.6 Nitrate-N mg/L 11.3 0.005 0.005 0.005 0.005 0.005 Sulphate mg/L 250°	рН	pH units	7 to 8.5*	7.5	7.3	7.4	7.4	7.5
VFA mg/l - 2.5 2.5 2.5 2.5 2.5 TOC mg/L - 2.9 5.5 2.7 4.3 5.8 Alkalinity mg CaCO₂/L - 164 241 161 184 223 Conductivity mS/m - 44.1 59.3 44.2 53.4 53.2 COD mg/L - 7.5 20 7.5 7.5 7.5 scBOD₀ mg/L - 0.5 0.5 0.5 0.5 0.5 0.5 E. coli CFU/100ml NIL 0.5 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 <	Suspended Solids	mg/l	-	72	7	2.5	6	2.5
TOC mg/L - 2.9 5.5 2.7 4.3 5.8 Alkalinity mg CaCO√L - 164 241 161 184 223 Conductivity mS/m - 44.1 59.3 44.2 53.4 53.2 COD mg/L - 7.5 20 7.5 7.5 7.5 scBOD₅ mg/L - 0.5 0.5 0.5 0.5 0.5 E. coli CFU/100ml NIL 0.5 0.5 0.5 0.5 Chloride mg/L 250* 39.4 43.8 41.8 57.8 32.6 Nitrate-N mg/L 11.3 0.005 0.005 0.005 0.005 Sulphate mg/L 250* 0.01 0.08 0.01 0.01 0.01 Ammoniacal-N mg/L 11.17 0.2 0.35 0.23 0.38 0.33 Hardness mg CaCO√L 200* 146 197 116 134 186 Calcium mg/L - 34.9 46.6 24.8 31 53 Magnesium mg/L - 14.3 19.7 13.1 13.8 13 Potassium mg/L - 5.08 7.21 6.45 5.06 6.37 Sodium mg/L 200* 43.1 51.5 39.5 44 20.4 D.R. Phosphorus mg/L 0.1* 0.001 0.002 0.001 0.001 Dissolved Aluminium mg/L 0.1* 0.001 0.002 0.001 Dissolved Arsenic mg/L 0.01* 0.001 0.002 0.001 Dissolved Cadmium mg/L 1.4 0.07 0.10 0.001 0.007 Dissolved Cadmium mg/L 0.004 0.0001 0.0001 0.0005 0.001 Dissolved Comper mg/L 0.005 0.002 0.002 0.0005 0.0005 Dissolved Comper mg/L 0.001 0.002 0.0002 0.0005 0.0005 Dissolved Comper mg/L 0.004 0.0001 0.0001 0.0001 Dissolved Comper mg/L 0.004 0.0001 0.0001 0.0001 Dissolved Comper mg/L 0.004 0.0001 0.0001 0.0001 Dissolved Comper mg/L 0.004 0.0001 0.0002 0	Phenol	mg/l	-	0.005	0.005	0.005	0.005	0.005
Alkalinity mg CaCO ₃ /L - 164 241 161 184 223 Conductivity mS/m - 44.1 59.3 44.2 53.4 53.2 COD mg/L - 7.5 20 7.5 7.5 7.5 scBOD ₆ mg/L - 0.5 0.5 0.5 0.5 0.5 E. coli CFU/100ml NIL 0.5 0.5 0.5 0.5 Chloride mg/L 250* 39.4 43.8 41.8 57.8 32.6 Nitrate-N mg/L 11.3 0.005 0.005 0.005 0.005 0.005 Sulphate mg/L 250* 0.01 0.08 0.01 0.01 0.01 Ammoniacal-N mg/L 1.17 0.2 0.35 0.23 0.38 0.33 Hardness mg CaCO ₃ /L 200* 146 197 116 134 186 Calcium mg/L - 34.9 46.6 24.8 31 53 Magnesium mg/L - 14.3 19.7 13.1 13.8 13 Potassium mg/L - 5.08 7.21 6.45 5.06 6.33 Sodium mg/L 200* 43.1 51.5 39.5 44 20.4 D.R. Phosphorus mg/L 0.1* 0.04 0.07 0.01 Dissolved Aluminium mg/L 0.1* 0.007 0.004 0.001 0.005 0.001 Dissolved Arsenic mg/L 0.01 0.007 0.004 0.001 0.0005 0.001 Dissolved Cadmium mg/L 0.004 0.0001 0.0001 0.0001 0.0005 Dissolved Copper mg/L 2 0.00* 0.002 0.0002 0.0005 0.0005 0.000 Dissolved Copper mg/L 0.0* 0.00 0.002 0.0005 0.0005 0.000 Dissolved Lead mg/L 0.0* 0.00 0.002 0.0005 0.0005 0.000 Dissolved Manganese mg/L 0.01 0.000 0.0005 0.0005 0.0005 0.000 Dissolved Manganese mg/L 0.01 0.0002	VFA	mg/l	-	2.5	2.5	2.5	2.5	2.5
Conductivity mS/m - 44.1 59.3 44.2 53.4 53.2 COD mg/L - 7.5 20 7.5 7.5 7.5 scBODs mg/L - 0.5 0.5 0.5 0.5 0.5 E. coli CFU/100ml NIL 0.5 0.5 0.5 3 0.5 Chloride mg/L 250* 39.4 43.8 41.8 57.8 32.6 Nitrate-N mg/L 11.3 0.005 0.005 0.005 0.005 0.005 Sulphate mg/L 250* 0.01 0.08 0.01 0.01 0.0 Ammoniacal-N mg/L 1.17 0.2 0.35 0.23 0.38 0.3 Hardness mg CaCO ₃ /L 200* 146 197 116 134 186 Calcium mg/L - 34.9 46.6 24.8 31 53 Magnesium mg/L -	TOC	mg/L	-	2.9	5.5	2.7	4.3	5.8
COD mg/L - 7.5 20 7.5 7.5 7.5 scBODs mg/L - 0.5 0.5 0.5 0.5 0.5 E. coli CFU/100ml NIL 0.5 0.5 0.5 3 0.5 Chloride mg/L 250* 39.4 43.8 41.8 57.8 32.6 Nitrate-N mg/L 11.3 0.005	Alkalinity	mg CaCO₃/L	-	164	241	161	184	223
scBODs mg/L - 0.5 0.5 0.5 0.5 E. coli CFU/100ml NIL 0.5 0.5 0.5 3 0.5 Chloride mg/L 250* 39.4 43.8 41.8 57.8 32.6 Nitrate-N mg/L 11.3 0.005 0.005 0.005 0.005 0.005 Sulphate mg/L 250* 0.01 0.08 0.01 0.01 0.01 Ammoniacal-N mg/L 1.17 0.2 0.35 0.23 0.38 0.33 Hardness mg CaCO ₃ /L 200* 146 197 116 134 186 Calcium mg/L - 34.9 46.6 24.8 31 53 Magnesium mg/L - 14.3 19.7 13.1 13.8 13 Potassium mg/L - 5.08 7.21 6.45 5.06 6.37 Sodium mg/L 200* 43	Conductivity	mS/m	-	44.1	59.3	44.2	53.4	53.2
E. coli CFU/100ml NIL 0.5 0.5 3 0.5 Chloride mg/L 250* 39.4 43.8 41.8 57.8 32.6 Nitrate-N mg/L 11.3 0.005 0.005 0.005 0.005 0.005 Sulphate mg/L 250* 0.01 0.08 0.01 0.01 0.07 Ammoniacal-N mg/L 1.17 0.2 0.35 0.23 0.38 0.37 Hardness mg CaCO ₃ /L 200* 146 197 116 134 186 Calcium mg/L - 34.9 46.6 24.8 31 53 Magnesium mg/L - 14.3 19.7 13.1 13.8 13 Potassium mg/L - 5.08 7.21 6.45 5.06 6.37 Sodium mg/L - 0.421 0.663 0.612 0.115 1.14 Dissolved Aluminium mg/L 0.	COD	mg/L	-	7.5	20	7.5	7.5	7.5
Chloride mg/L 250* 39.4 43.8 41.8 57.8 32.6 Nitrate-N mg/L 11.3 0.005 0.006 0.006 0.006 0.006	scBOD ₅	mg/L	-	0.5	0.5	0.5	0.5	0.5
Nitrate-N mg/L 11.3 0.005 0.	E. coli	CFU/100ml	NIL	0.5	0.5	0.5	3	0.5
Sulphate mg/L 250* 0.01 0.08 0.01 0.01 0.07 Ammoniacal-N mg/L 1.17 0.2 0.35 0.23 0.38 0.37 Hardness mg CaCO ₃ /L 200* 146 197 116 134 186 Calcium mg/L - 34.9 46.6 24.8 31 53 Magnesium mg/L - 14.3 19.7 13.1 13.8 13 Potassium mg/L - 5.08 7.21 6.45 5.06 6.37 Sodium mg/L 200* 43.1 51.5 39.5 44 20.4 D.R. Phosphorus mg/L - 0.421 0.663 0.612 0.115 1.14 Dissolved Aluminium mg/L 0.1* 0.001 0.012 0.001 0.001 0.000 Dissolved Arsenic mg/L 0.01 0.007 0.04 0.001 0.000 0.001 0.0005 0.0	Chloride	mg/L	250*	39.4	43.8	41.8	57.8	32.6
Ammoniacal-N mg/L 1.17 0.2 0.35 0.23 0.38 0.37 Hardness mg CaCO ₃ /L 200* 146 197 116 134 186 Calcium mg/L - 34.9 46.6 24.8 31 53 Magnesium mg/L - 14.3 19.7 13.1 13.8 13 Potassium mg/L - 5.08 7.21 6.45 5.06 6.37 Sodium mg/L 200* 43.1 51.5 39.5 44 20.4 D.R. Phosphorus mg/L - 0.421 0.663 0.612 0.115 1.14 Dissolved Aluminium mg/L 0.1* 0.001 0.012 0.001 0.001 0.00 Dissolved Arsenic mg/L 0.01 0.007 0.04 0.001 0.0005 0.01 Dissolved Boron mg/L 1.4 0.07 0.1 0.04 0.07 0.01 Diss	Nitrate-N	mg/L	11.3	0.005	0.005	0.005	0.005	0.005
Hardness mg CaCO₃/L 200* 146 197 116 134 186 Calcium mg/L - 34.9 46.6 24.8 31 53 Magnesium mg/L - 14.3 19.7 13.1 13.8 13 Potassium mg/L - 5.08 7.21 6.45 5.06 6.37 Sodium mg/L 200* 43.1 51.5 39.5 44 20.4 D.R. Phosphorus mg/L - 0.421 0.663 0.612 0.115 1.14 Dissolved Aluminium mg/L 0.1* 0.001 0.012 0.001 0.001 0.00 Dissolved Arsenic mg/L 0.01 0.007 0.004 0.001 0.0005 0.01 Dissolved Boron mg/L 1.4 0.07 0.1 0.04 0.07 0.01 Dissolved Cadmium mg/L 0.004 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001	Sulphate	mg/L	250*	0.01	0.08	0.01	0.01	0.01
Calcium mg/L - 34.9 46.6 24.8 31 53 Magnesium mg/L - 14.3 19.7 13.1 13.8 13 Potassium mg/L - 5.08 7.21 6.45 5.06 6.37 Sodium mg/L 200* 43.1 51.5 39.5 44 20.4 D.R. Phosphorus mg/L - 0.421 0.663 0.612 0.115 1.14 Dissolved Aluminium mg/L 0.1* 0.001 0.012 0.001 0.001 0.001 Dissolved Arsenic mg/L 0.01 0.007 0.004 0.001 0.0005 0.01 Dissolved Boron mg/L 1.4 0.07 0.1 0.04 0.07 0.01 Dissolved Cadmium mg/L 0.004 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0002 0.0002 0.0002 0.0002	Ammoniacal-N	mg/L	1.17	0.2	0.35	0.23	0.38	0.37
Magnesium mg/L - 14.3 19.7 13.1 13.8 13 Potassium mg/L - 5.08 7.21 6.45 5.06 6.37 Sodium mg/L 200* 43.1 51.5 39.5 44 20.4 D.R. Phosphorus mg/L - 0.421 0.663 0.612 0.115 1.14 Dissolved Aluminium mg/L 0.1* 0.001 0.012 0.001 0.001 0.00 Dissolved Arsenic mg/L 0.01 0.007 0.04 0.001 0.0005 0.01 Dissolved Boron mg/L 1.4 0.07 0.1 0.04 0.07 0.01 Dissolved Cadmium mg/L 0.004 0.0001	Hardness	mg CaCO₃/L	200*	146	197	116	134	186
Potassium mg/L - 5.08 7.21 6.45 5.06 6.37 Sodium mg/L 200* 43.1 51.5 39.5 44 20.4 D.R. Phosphorus mg/L - 0.421 0.663 0.612 0.115 1.14 Dissolved Aluminium mg/L 0.01* 0.001 0.012 0.001 0.001 0.00 Dissolved Arsenic mg/L 0.01 0.007 0.004 0.001 0.0005 0.01 Dissolved Boron mg/L 1.4 0.07 0.1 0.04 0.07 0.01 Dissolved Cadmium mg/L 0.004 0.0001	Calcium	mg/L	-	34.9	46.6	24.8	31	53
Sodium mg/L 200* 43.1 51.5 39.5 44 20.4 D.R. Phosphorus mg/L - 0.421 0.663 0.612 0.115 1.14 Dissolved Aluminium mg/L 0.1* 0.001 0.012 0.001 0.001 0.00 Dissolved Arsenic mg/L 0.01 0.007 0.004 0.001 0.0005 0.01 Dissolved Boron mg/L 1.4 0.07 0.1 0.04 0.07 0.01 Dissolved Cadmium mg/L 0.004 0.0001 <t< td=""><td>Magnesium</td><td>mg/L</td><td>-</td><td>14.3</td><td>19.7</td><td>13.1</td><td>13.8</td><td>13</td></t<>	Magnesium	mg/L	-	14.3	19.7	13.1	13.8	13
D.R. Phosphorus mg/L - 0.421 0.663 0.612 0.115 1.14 Dissolved Aluminium mg/L 0.1* 0.001 0.001 0.001 0.001 0.000 Dissolved Arsenic mg/L 0.01 0.007 0.004 0.001 0.0005 0.01 Dissolved Boron mg/L 1.4 0.07 0.1 0.04 0.07 0.01 Dissolved Cadmium mg/L 0.004 0.0001	Potassium	mg/L	-	5.08	7.21	6.45	5.06	6.37
Dissolved Aluminium mg/L 0.1* 0.001 0.012 0.001 0.001 0.00 Dissolved Arsenic mg/L 0.01 0.007 0.004 0.001 0.0005 0.01 Dissolved Boron mg/L 1.4 0.07 0.1 0.04 0.07 0.01 Dissolved Cadmium mg/L 0.004 0.0001	Sodium	mg/L	200*	43.1	51.5	39.5	44	20.4
Dissolved Arsenic mg/L 0.01 0.007 0.004 0.001 0.0005 0.01 Dissolved Boron mg/L 1.4 0.07 0.1 0.04 0.07 0.01 Dissolved Cadmium mg/L 0.004 0.0001 0.0002	D.R. Phosphorus	mg/L	-	0.421	0.663	0.612	0.115	1.14
Dissolved Boron mg/L 1.4 0.07 0.1 0.04 0.07 0.01 Dissolved Cadmium mg/L 0.004 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0002	Dissolved Aluminium	mg/L	0.1*	0.001	0.012	0.001	0.001	0.003
Dissolved Cadmium mg/L 0.004 0.0001 0.0001 0.0001 0.0001 0.0001 Dissolved Chromium (VI) mg/L 0.05 0.002 0.002 0.0005 0.0005 0.0005 Dissolved Copper mg/L 2 0.00025 0.0014 0.00025 0.00025 0.0002 Dissolved Iron mg/L 0.2* 0.03 0.13 0.03 0.03 0.03 Dissolved Lead mg/L 0.01 0.00025 </td <td>Dissolved Arsenic</td> <td>mg/L</td> <td>0.01</td> <td>0.007</td> <td>0.004</td> <td>0.001</td> <td>0.0005</td> <td>0.019</td>	Dissolved Arsenic	mg/L	0.01	0.007	0.004	0.001	0.0005	0.019
Dissolved Chromium (VI) mg/L 0.05 0.002 0.002 0.0005 0.0005 0.0005 Dissolved Copper mg/L 2 0.00025 0.0014 0.00025 0.00025 0.00025 Dissolved Iron mg/L 0.2* 0.03 0.13 0.03 0.03 0.03 Dissolved Lead mg/L 0.01 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 Dissolved Manganese mg/L 0.4 0.209 0.65 0.458 0.497 0.5 Dissolved Mercury mg/L - 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025	Dissolved Boron	mg/L	1.4	0.07	0.1	0.04	0.07	0.015
Dissolved Copper mg/L 2 0.00025 0.0014 0.00025 0.00025 0.00025 Dissolved Iron mg/L 0.2* 0.03 0.13 0.03 0.03 0.03 Dissolved Lead mg/L 0.01 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.497 0.5 Dissolved Manganese mg/L - 0.00025<	Dissolved Cadmium	mg/L	0.004	0.0001	0.0001	0.0001	0.0001	0.0001
Dissolved Iron mg/L 0.2* 0.03 0.13 0.03 0.03 0.03 Dissolved Lead mg/L 0.01 0.00025	Dissolved Chromium (VI)	mg/L	0.05	0.002	0.002	0.0005	0.0005	0.0005
Dissolved Lead mg/L 0.01 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.497 0.5 Dissolved Mercury mg/L - 0.00025<	Dissolved Copper	mg/L	2	0.00025	0.0014	0.00025	0.00025	0.00025
Dissolved Manganese mg/L 0.4 0.209 0.65 0.458 0.497 0.5 Dissolved Mercury mg/L - 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025 0.00025	Dissolved Iron	mg/L	0.2*	0.03	0.13	0.03	0.03	0.03
Dissolved Mercury mg/L - 0.00025 0.00025 0.00025 0.00025 0.00025	Dissolved Lead	mg/L	0.01	0.00025	0.00025	0.00025	0.00025	0.00025
	Dissolved Manganese	mg/L	0.4	0.209	0.65	0.458	0.497	0.5
Dissolved Nickel mg/L 0.08 0.00025 0.0008 0.00025 0.00025 0.000	Dissolved Mercury	mg/L	-	0.00025	0.00025	0.00025	0.00025	0.00025
	Dissolved Nickel	mg/L	0.08	0.00025	0.0008	0.00025	0.00025	0.00025
Dissolved Zinc mg/L 1.5* 0.003 0.009 0.003 0.001 0.000	Dissolved Zinc	mg/L	1.5*	0.003	0.009	0.003	0.001	0.001

Bold – denotes an exceedance of the DWSNZ MAV

All '<' values have been reported as half the detection limit for statistical purposes and are expressed in italics

Impact of Old Landfill on Groundwater Quality 2.4

Water sampling is carried out to characterise the groundwater quality in a series of shallow bores situated hydraulically down-gradient from the old unlined landfill.

The Series B boreholes are located within 50m of the old landfill in a line along its northern edge.

The Series C boreholes are located further down the hydraulic gradient from the old landfill towards Hokio Beach Road to detect whether leachate is moving off site.



^{*}denotes guideline values for aesthetic determinants (G.V.)

Borehole E2S is located northwest of the old landfill to detect any leachate moving directly towards the nearest house down-stream of the site.

Bore G2S was installed in late 2009 and is located to the north of the landfill site, hydraulically down-gradient of the old landfill by Hokio Road and the entrance road to the landfill.

Bores Xs1 and Xs2 are located along Hokio Beach Road, within the road reserve. Bore Xs1 is adjacent to the Northern Farm property and bore Xs2 is next to the driveway leading to a Council-owned property. Bore Xs2 is hydraulically upgradient of the old landfill (See Site Plan, Appendix A).

The results from the quarterly (April 2024) consent monitoring round for these bores are presented in Table 2-5 and have been compared with the ANZECC LDW trigger values as per the requirements of discharge consent ATH-2002003983.02. The full laboratory report is included in Appendix C and the historical graphs are presented in Appendix D.

For some inexplicable reason dissolved arsenic was not tested for bore E2s. The maximum recorded value for arsenic at this bore is 0.004 mg/L, which is significantly lower than the ANZECC LDW trigger value of 0.5 mg/L. So, this oversight is minor.

There were no exceedances of the ANZECC LDW trigger values during the April 2024 monitoring round.

Table 2-5: Monitoring Results for Shallow Boreholes Down-Gradient from the Old Landfill for April 2024

Determinant	Units	ANZECC LDW	E2S	B1	B2	B3s	C1	C2	C2DS	G2S	Xs1	Xs2
Sampling date			09/04/24	10/04/24	10/04/24	10/04/24	10/04/24	10/04/24	10/04/24	08/04/24	11/04/24	10/04/24
Water level	mbgl	-	4.73	1.325	1.61	0.23	1.35	0.49	2.95	2.45	0.48	2.53
рН	pH units	6 to 9	7.7	6.9	6.8	7.0	6.8	6.9	6.7	6.7	6.8	6.6
Suspended Solids	mg/l	-	16	178	201	454	43	173	118	11	76	19
Phenol	mg/l	-	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
VFA	mg/l	-	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TOC	mg/l	-	2.1	27.6	45.3	69.1	21.8	48.8	31	9.7	27	2.5
Alkalinity	mg CaCO₃/L	-	92	677	1180	1310	380	1300	918	324	592	65
Conductivity	mS/m	-	33.6	217	265	280	120	292	193	106	143	22.4
COD	mg/L	-	7.5	145	102	411	88	43	73	41	54	7.5
scBOD5	mg/L	-	0.5	0.5	1	2	0.5	1	1	0.5	2	0.5
E. coli	CFU/100ml	100	50	50	50	50	50	50	50	50	50	50
Chloride	mg/L	•	40.2	286	173	119	137	160	110	140	130	21.3
Nitrate-N	mg/L	90.3	0.005	0.005	0.25	0.05	0.07	0.05	0.005	0.005	0.02	0.73
Sulphate	mg/L	1000	13.4	4.05	19.8	0.21	26.4	0.19	0.04	11.6	0.04	7.61
Ammoniacal-N	mg/L	•	0.3	29.1	90.6	184	13.5	185	1.85	0.03	14	0.01
Hardness	mg CaCO₃/L	•	76	309	529	307	180	282	678	224	379	58
Calcium	mg/L	1000	20.5	54.7	128	54.7	33.5	51.3	148	40.5	70	11.1
Magnesium	mg/L	-	6.13	41.8	50.9	41.3	23.4	37.3	74.8	30	49.6	7.25
Potassium	mg/L	-	5.71	41.7	126	109	26.5	82.2	15.8	10.5	29.6	5.44
Sodium	mg/L	•	27	250	105	100	129	136	101	156	92.1	18
D. R. Phosphorus	mg/L	-	0.233	0.112	0.018	0.026	0.014	0.013	0.041	0.022	0.018	0.015
Dissolved Aluminium	mg/L	5	0.003	0.021	0.010	0.006	0.023	0.019	0.001	0.005	0.003	0.01
Dissolved Arsenic	mg/L	0.5	n/p	0.001	0.004	0.028	0.001	0.002	0.001	0.0005	0.0005	0.0005
Dissolved Boron	mg/L	5	0.015	2.38	2.26	1.59	0.87	1.72	0.89	0.79	0.57	0.04
Dissolved Cadmium	mg/L	0.01	0.0001	0.0001	0.0001	0.0003	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Dissolved Chromium (VI)	mg/L	1	0.0005	0.002	0.001	0.004	0.0005	0.002	0.0005	0.0005	0.001	0.0005
Dissolved Copper	mg/L	0.4	0.00025	0.0276	0.0050	0.0491	0.0011	0.0023	0.00025	0.0073	0.00025	0.0011
Dissolved Iron	mg/L	-	0.07	0.08	0.11	0.36	1.74	0.48	2.54	0.06	4.39	0.06

Determinant	Units	ANZECC LDW	E2S	B1	B2	B3s	C1	C2	C2DS	G2S	Xs1	Xs2
Dissolved Lead	mg/L	0.1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Dissolved Manganese	mg/L	-	0.251	4.78	6.48	3.97	0.257	0.127	2.93	0.22	0.698	0.126
Dissolved Mercury	mg/L	0.002	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Dissolved Nickel	mg/L	1	0.00025	0.0077	0.0034	0.009	0.0011	0.0063	0.0027	0.0031	0.0025	0.00025
Dissolved Zinc	mg/L	20	0.002	0.02	0.012	0.006	0.006	0.022	0.003	0.009	0.004	0.016

All '<' values represent a non-detection and have been reported as half the detection limit for statistical purposes and are expressed in italics n/p – not provided

2.5 Groundwater Quality Down-Gradient of the Irrigation Area

The F-series boreholes intersect the shallow aquifer down-gradient of the area that was used to irrigate leachate from 2004 to October 2008. All leachate is now pumped to the Levin Wastewater Treatment Plant. The F1 borehole is located within the area where leachate from the new landfill was irrigated. The F2 and F3 boreholes are in an area that was set aside for leachate irrigation but was never used for that purpose. It is expected that bores F2 and F3 would therefore be representative of background groundwater quality.

The results from the F series boreholes are presented in Table 2-6 and have been compared with the ANZECC LDW trigger values, as per discharge consent ATH-2002003983.02. The full laboratory report is included in Appendix C and the historical graphs are presented in Appendix D.

There were **no exceedances of the resource consent conditions** in samples from these bores during the April 2024 (quarterly) monitoring round.

Table 2-6: Results from Monitoring Bores in the Irrigation Area for April 2024

Determinant	Units	ANZECC LDW	F1	F2	F3
Sampling Date			08/04/24	08/04/24	08/04/24
Water level	mbgl	-	8.15	2.84	5.25
рН	pH units	6 to 9	6.7	7.0	6.9
Suspended Solids	mg/l	-	2.5	7	2.5
Phenol	mg/l	-	0.005	0.005	0.005
VFA	mg/l	-	2.5	2.5	2.5
TOC	mg/l	-	4.4	1.5	1.1
Alkalinity	mg CaCO3/L	-	134	57	52
Conductivity	mS/m	-	49.3	22.2	17.8
COD	mg/L	-	7.5	7.5	7.5
scBOD5	mg/L	-	0.5	0.5	0.5
E. coli	CFU/100ml	100	50	50	50
Chloride	mg/L	-	62.6	23.3	14.6
Nitrate-N	mg/L	90.3	2.9	0.38	1.62
Sulphate	mg/L	1000	2.97	11.3	4.69
Ammoniacal-N	mg/L	-	0.005	0.005	0.005
Hardness	mg CaCO3/L	-	166	41	34
Calcium	mg/L	1000	24	6.5	5.2
Magnesium	mg/L	-	25.8	5.94	5.17
Potassium	mg/L	-	8.2	5.12	4.34
Sodium	mg/L	-	40.6	25	24.9
D. R. Phosphorus	mg/L	-	0.161	0.144	0.151
Dissolved Aluminium	mg/L	5	0.009	0.004	0.002
Dissolved Arsenic	mg/L	0.5	0.002	0.002	0.002
Dissolved Boron	mg/L	5	0.04	0.05	0.03
Dissolved Cadmium	mg/L	0.01	0.0001	0.0001	0.0001
Dissolved Chromium (VI)	mg/L	1	0.001	0.003	0.003
Dissolved Copper	mg/L	0.4	0.0021	0.0071	0.0011
Dissolved Iron	mg/L	-	0.01	0.03	0.005
Dissolved Lead	mg/L	0.1	0.00025	0.00025	0.00025
Dissolved Manganese	mg/L	-	0.0096	0.012	0.00025
Dissolved Mercury	mg/L	0.002	0.00025	0.00025	0.00025
Dissolved Nickel	mg/L	1	0.0006	0.0006	0.00025

Determinant	Units	ANZECC LDW	F1	F2	F3
Dissolved Zinc	mg/L	20	0.005	0.002	0.003

All `<' values have been reported as half the detection limit for statistical purposes and are expressed in italics

2.6 Leachate Effluent Results

Leachate effluent from the landfill is not subject to any water quality consent conditions and is sent to the Levin Wastewater Treatment Plant for treatment. However, for comparison purposes, typical leachate characteristics for landfills, as published by the Waste Management Institute New Zealand (*Technical Guidelines for Disposal to Land*, September 2023, WasteMINZ), have been compared against the leachate quality monitoring results (Table 2-7). The full laboratory report is included in Appendix C and the historical graphs are presented in Appendix D

As stated, typical leachate concentrations are derived from tables presented in the WasteMINZ *Technical Guidelines*. The data in those tables originate from seven landfills in New Zealand and date back to between 1998 and 1999. Whilst more updated data could be sought for comparison purposes, the WasteMINZ Guidelines are the latest version, and no updated information has been provided.

Table 2-7 presents the concentrations of monitored parameters for leachate effluent samples collected in February 2024, March 2024, and April 2024.

Up until April 2022, samples of leachate were tested monthly for the comprehensive suite of parameters, as stated in Table C under condition 3H of discharge permit ATH-2002003983.02. This requirement was for 2 years and condition 3P of discharge permit ATH-2002003983.02 allows the monitoring frequency to shift to a conditional sampling frequency (i.e., six monthly comprehensive, quarterly indicator) if water sample analysis results are consistent and there is no decline in water quality over a period of at least four consecutive sampling rounds. The quality of leachate is considered to have met these criteria and so the change in monitoring from April 2022 was justified. The resource consent conditions allowed this change to occur immediately after the four consecutive sampling rounds were completed. However, it was later decided to continue monthly sampling for the duration that monthly sampling at Hokio Stream was required.

There were **sixteen outliers** from the typical leachate characteristics in the February 2024, March 2024, and April 2024 results. Five of these were for parameters having **less** concentration than the typical minimal concentrations.

- TOC exceeded the maximum typical concentration in all three months.
- Alkalinity exceeded the maximum typical concentration in all three months.
- Conductivity was less than the minimum typical concentration in February 2024.
- Nitrate-N was less than the minimum typical concentration in March 2024.
- Ammonia-N exceeded the maximum typical concentration in February 2024 and April 2024.
- Dissolved arsenic exceeded the maximum typical concentration in all three months.
- Dissolved cadmium was not detected in all three months and was therefore less than the minimum typical concentrations.

While these results are not reflective of typical conditions at other, similar landfills around New Zealand, it is noted that they are generally consistent with the historical range of results observed at the Levin Landfill site.

Table 2-7: Results from Leachate Effluent Monitoring for February 2024, March 2024, and April 2024

Determinant	Units	Typical Leachate Characteristics* (range)	February 2024	March 2024	April 2024
Sampling Date			12/02/2024	18/03/2024	11/04/24
pН		5.9 - 8.5	7.8	7.9	7.6
Suspended Solids	mg/l	-	89	91	48
Phenol	mg/L	•	n/p	n/p	n/p
VFA	mg/L	•	2.5	2.5	2.5
TOC	mg/L	17.2 - 822	882	828	823
Alkalinity	mg CaCO₃/L	264 – 6,820	7,000	6,830	7,680
Conductivity	mS/m	308 – 27,900	1.9	1,860	1,900
COD	mg/L	84 – 5,090	3,000	3,910	362

Determinant	Units	Typical Leachate Characteristics* (range)	February 2024	March 2024	April 2024
scBOD₅	mg/L	12 – 3,867	94	109	119
E-Coli	CFU/100mL	-	50	100	50
Chloride	mg/L	45 – 2,584	1,280	1,120	1,180
Nitrate-N	mg/L	0.1 – 50**	0.5	0.05	0.5
Sulphate	mg/L	1 - 780	27.2	81.8	43.7
Ammonia-N	mg/L	3.4 – 1,440	1,530	1,410	1,520
Hardness	mg CaCO₃/L	300 – 11,500**	458	451	471
Calcium	mg/L	20 – 600***	84.6	86.2	92.9
Magnesium	mg/L	40 – 350***	59.8	57.2	57.9
Potassium	mg/L	10 – 2,500**	714	622	747
Sodium	mg/L	50 – 4,000**	1,120	958	1,090
D.R. Phosphorus	mg/L	-	15.2	13.3	14.2
Dissolved Aluminium	mg/L	-	0.84	0.816	1.08
Dissolved Arsenic	mg/L	0.006 – 0.191	0.264	0.283	0.246
Dissolved Boron	mg/L	0.54 – 20	7.24	7.57	7.74
Dissolved Cadmium	mg/L	0.0005 - 0.140**	0.0001	0.0001	0.0001
Dissolved Chromium	mg/L	0.005 – 50.4	0.78	0.905	0.799
Dissolved Copper	mg/L	0.004 – 1.4**	0.0096	0.0082	0.0078
Dissolved Iron	mg/L	1.6 – 220	8.12	7.98	7.52
Dissolved Lead	mg/L	0.001 - 0.42	0.0016	0.0022	0.0024
Dissolved Manganese	mg/L	0.03 - 45***	1.04	1.22	1.2
Dissolved Mercury	mg/L	0.0002 – 0.05**	0.00025	0.00025	0.00025
Dissolved Nickel	mg/L	0.02 – 2.05**	0.119	0.128	0.13
Dissolved Zinc	mg/L	0.015 – 24.2	0.053	0.079	0.1

Bold – denotes a deviation from the typical leachate characteristics range

All < values have been reported as half the detection limit for statistical purposes and are expressed in italics n/p – not provided

2.7 Northern Farm Drain (Tatana Property)

A drain is located on the Northern Farm, previously known as the Tatana Property (see Site Plan in Appendix A). Since July 2015 HDC has agreed to sample surface water from this drain for a selection of parameters that were set by HRC. Four sampling points were selected to represent the top of the drain (SW1), middle of the drain (SW2 and SW3) and lower drain (SW4) respectively.

The revised consent conditions have since reduced the extent of sampling to a single location. This is known as 'TD1' and is the same sampling location as for the previously denoted 'SW3'. The resource consent conditions require six monthly comprehensive and quarterly indicator sampling at TD1. However, HDC has been conducting monthly sampling at TD1, in line with the surface water sampling of the Hokio Stream.

^{*} for Class 1-type landfills, Table 5-5, p60, Technical Guidelines for Disposal to Land, WasteMINZ September 2023 (same as Table 4.2 of the CAE Landfill Guidelines 2000, but corrections made to Table 5-5 in line with Table 4.2)

^{**}Data taken from Table 5-4, p59 of the same guideline, for parameters for which no differences in concentrations between the phases of landfill development could be observed

^{***}Data taken from Table 5-4, p59 of the same guideline, for parameters during the methanogenic phase

Results from the February 2024, March 2024 and April 2024 sampling rounds are presented in Table 2-8 and have been compared with the ANZECC² 95%ile DGVs, as per the revised resource consent conditions.

There have been **six exceedances of the resource consent conditions** for two monitored parameters in samples from the Northern Farm property at the TD1 location during the February 2024, March 2024, and April 2024 sampling rounds.

- The concentration of nitrate-N in February 2024 (0.82 mg/L), March 2024 (2.0 mg/L) and April 20234 (0.31 mg/L) exceeded the ANZECC (95%ile) DGV of 0.16 mg/L. This site has commonly presented elevated levels.
- The concentration of ammoniacal-N in February 2024 (15.4 mg/L), March 2024 (24.9 mg/L), and April 2024 (11.9 mg/L) exceeded the ANZECC (95%ile) DGV of 2.1 mg/L.

Whilst relatively high, these results are not uncharacteristic of results within the last two years. Localised conditions, such as having stock in the paddock next to Northern Farm Drain and the slow flow of water in the drain, may contribute to some of the elevated parameters.

Table 2-8 Northern Farm Drain Monitoring Results for February 2024, March 2024, and April 2024.

		ANZECC DGV	TD1 (formerly SW3)							
Determinant	Units	(95%ile species protection)	February 2024	March 2024	April 2024					
Sampling date			12/02/2024	18/03/2024	11/04/24					
рН	pH units	-	7.4	7.8	7.3					
Suspended Solids	mg/L	-	594	137	173					
Phenol	mg/L	-	0.005	0.005	0.005					
VFA	mg/L	-	2.5	2.5	2.5					
TOC	mg/L	-	32.1	27.1	22.8					
Alkalinity	mg CaCO₃/L	-	345	528	273					
Conductivity	mS/m	-	92.8	136	82.5					
COD	mg/L	-	196	255	37					
scBOD5	mg/L	2	2	1.5	0.5					
E-Coli	CFU/100ml	-	50	300	200					
Chloride	mg/L	-	81.5	96.2	87.2					
Nitrate-N	mg/L	0.16	0.82	2.0	0.31					
Sulphate	mg/L	-	1.29	0.2	1.66					
Ammoniacal-N	mg/L	2.1	15.4	24.9	11.9					
Hardness	mg CaCO₃/L	-	183	311	231					
Calcium	mg/L	-	39.1	72.8	51.1					
Magnesium	mg/L	-	20.7	31.4	25.2					
Potassium	mg/L	-	26.4	26.3	22.5					
Sodium	mg/L	-	48.2	74.4	58.7					
D.R. Phosphorus	mg/L	-	0.019	0.035	0.026					
Dissolved Aluminium	mg/L	0.055	0.004	0.008	0.009					
Dissolved Arsenic	mg/L	0.024	0.0005	0.001	0.001					
Dissolved Boron	mg/L	-	0.33	0.52	0.35					
Dissolved Cadmium	mg/L	0.0002	0.0001	0.0001	0.0001					
Dissolved Chromium	mg/L	-	0.0005	0.002	0.0005					
Dissolved Copper	mg/L	0.0014	0.00025	0.0009	0.00025					
Dissolved Iron	mg/L	-	0.07	0.19	0.38					
Dissolved Lead	mg/L	0.0034	0.00025	0.00025	0.00025					

²Australian and New Zealand Guidelines for Fresh and Marine Water Quality - Aquatic Ecosystems (AE), Australian and New Zealand Environment and Conservation Council (ANZECC), Canberra, Australia, 2000



		ANZECC DGV	т		
Determinant	Units	(95%ile species protection)	February 2024	March 2024	April 2024
Dissolved Manganese	mg/L	1.9	0.0126	1.02	0.411
Dissolved Mercury	mg/L	0.0006	0.00025	0.00025	0.00025
Dissolved Nickel	mg/L	0.011	0.0014	0.0022	0.0017
Dissolved Zinc	mg/L	0.008	0.001	0.003	0.005

Bold - denotes an exceedance of the ANZECC DGV for 95%ile species protection

All `<' values have been reported as half the detection limit for statistical purposes and are expressed in italics

2.8 Hokio Stream

Surface water grab samples are obtained monthly from Hokio Stream at sites HS1A, HS1, HS2 and HS3 (refer to Appendix A) to investigate whether groundwater containing leachate is having an adverse environmental effect on the stream. Sites HS1A and HS1 are situated up-stream of the old landfill, HS2 is situated alongside the old landfill and up-stream of the Northern Farm Drain discharge, and HS3 is located approximately 50 m down-stream of the landfill site property boundary and the Northern Farm Drain discharge. Samples from these monitoring locations on Hokio Stream are analysed for a comprehensive suite of parameters every month (as shown in Appendix B).

Results from the February 2024, March 2024, and April 2024 monitoring rounds are presented in Table 2-9 and have been compared with the ANZECC AE 95%ile DGVs, as per the revised resource consent conditions (2019). Sampling of HS1A commenced in April 2020.

There were **fifteen exceedances** of the resource consent conditions in samples from the Hokio Stream during the February 2024, March 2024, and April 2024 sampling rounds.

The exceedances are summarised as follows:

- ScBOD₅ exceeded the ANZECC (95%ile) DGV and consent trigger value of 2 mg/L at HS2 in February 2024 with a value of 3 mg/L.
- Nitrate-N exceeded both the ANZECC (95%ile) DGV and consent trigger value of 0.16 mg/L at all sites in February, March (except for HS1) and April 2024, with values ranging between 0.18 mg/L and 0.39 mg/L.
- Dissolved copper exceeded the ANZECC (95%ile) DGV and consent trigger value of 0.0014 mg/L at HS1A in February 2024 (0.0019 mg/L) and in April 2024 (0.0015 mg/L).
- Dissolved zinc exceeded the ANZECC (95%ile) DGV and consent trigger value of 0.008 mg/L at HS1A in February 2024 (0.012 mg/L).

For this monitoring period overall, the differences in monitoring results between the sites are generally marginal and for most determinants there is little to no change in concentrations between upstream and downstream sites on the Hokio Stream. *E. coli* counts have shown some significant differences between sites and sampling rounds. However, the *E. coli* counts noted in this report are within the historical range since sampling began in 1994.

Consecutive monthly sampling and testing for the comprehensive suite of parameters has occurred at all Hokio Stream sites since October 2021. It is recommended that HDC assess the results of these 31 sampling events, as required by the conditions of the consent, to determine the significance of the results, and to ascertain, in conjunction with HRC, if a reduction in sampling frequency can be made.

It was noted that in the previous report that in January 2024 testing was done for the indicator suite of parameters. Given the extensive data set available, this was not considered to be a critical matter, though it was recommended that HDC gets agreement from HRC about the frequency and range of test parameters to be applied at the Hokio Stream sampling locations, going forward.

Table 2-9: Hokio Stream Monitoring Results for February 2024, March 2024, and April 2024.

		ANZECC DGV	Consent	HS1A	HS1	HS2	HS3	HS1A	HS1	HS2	HS3	HS1A	HS1	HS2	HS3		
Determinant	Units	(95%ile species protection)	Trigger Values (Table C1)		Februa	ary 2024			Marc	h 2024		April 2024					
Sampling date				12/02/24	12/02/24	12/02/24	12/02/24	19/03/24	19/03/24	19/03/24	19/03/24	11/04/24	11/04/24	11/04/24	11/04/24		
рН	pH units	-	-	7.6	7.7	7.7	7.5	7.6	7.5	7.5	7.4	7.4	7.4	7.4	7.6		
Suspended Solids	mg/l	-	-	7	2.5	6	8	21	2.5	2.5	7	66	7	2.5	76		
Phenol	mg/l			0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005		
VFA	mg/l			2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
TOC	mg/L	-	-	8.1	7.3	7.7	7.2	6.9	7	6.9	7.2	7	6.6	6.4	6.9		
Alkalinity	mg CaCO₃/L	-	-	50	49	55	57	60	60	66	68	66	66	70	70		
Conductivity	mS/m	-	-	23.3	23.5	25.2	25.8	25.3	25.6	27.2	27.7	25.9	26	27	27.6		
COD	mg/L	-	-	24	19	31	7.5	64	7.5	28	7.5	30	7.5	49	7.5		
scBOD₅	mg/L	2	Monthly Avg. 2	2	0.5	<u>3</u>	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5		
E. coli	CFU/100 ml	-	-	500	50	50	50	100	500	700	1400	100	200	100	100		
Chloride	mg/L	-	-	26.1	25.9	28.0	28.7	27.5	27.6	29.9	30.1	28.1	28	29	29.6		
Nitrate-N	mg/L	0.16	0.16	<u>0.18</u>	<u>0.19</u>	0.34	0.39	0.26	0.16	0.29	0.36	0.2	<u>0.19</u>	0.3	0.36		
Sulphate	mg/L	-	-	19.1	19.2	18.5	18.2	15.3	15.3	15.6	14.9	15.7	15.5	15.4	15.1		
Ammoniacal-N	mg/L	2.1	Max. 2.1 Avg. 0.400	0.10	0.04	0.04	0.03	0.08	0.04	0.06	0.14	0.01	0.03	0.04	0.04		
Hardness	mg CaCO₃/L	-	-	53	55	55	59	67	66	69	73	61	63	61	62		
Calcium	mg/L	-	-	10.5	10.9	11.2	12.3	13.8	13.8	14.7	15.5	11.3	11.4	11	11.4		
Magnesium	mg/L	-	-	6.57	6.67	6.60	6.91	7.81	7.64	7.87	8.41	8.01	8.29	8	8.1		
Potassium	mg/L	-	-	1.73	1.52	1.80	2.00	2.57	2.28	2.46	2.88	3.39	3.2	3.24	3.52		
Sodium	mg/L	-	-	23.4	24.2	23.9	24.8	25.5	25.1	25.5	27.3	24.8	25.1	24.5	25.6		
D.R. Phosphorus	mg/L	-	-	0.165	0.155	0.139	0.135	0.203	0.173	0.149	0.149	0.145	0.139	0.126	0.125		
Dissolved Aluminium	mg/L	0.055	Med. 0.055	0.022	0.019	0.019	0.018	0.027	0.018	0.019	0.018	0.007	0.005	0.008	0.005		

		ANZECC DGV	Consent	HS1A	HS1	HS2	HS3	HS1A	HS1	HS2	HS3	HS1A	HS1	HS2	HS3				
Determinant	Units	(95%ile species protection)	Trigger Values (Table C1)		Februa	ary 2024			Marc	h 2024		April 2024							
Dissolved Arsenic	mg/L	0.024	Med. 0.024	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002				
Dissolved Boron	mg/L	0.370	-	0.06	0.06	0.06	0.06	0.08	0.08	0.09	0.09	0.06	0.07	0.07	0.07				
Dissolved Cadmium	mg/L	0.0002	Med. 0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001				
Dissolved Chromium (VI)	mg/L	0.001	-	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005				
Dissolved Copper	mg/L	0.0014	Med. 0.0014	<u>0.0019</u>	0.0011	0.0010	0.0009	0.0013	0.0009	0.0011	0.0014	<u>0.0015</u>	0.0013	0.001	0.0011				
Dissolved Iron	mg/L	-	-	0.13	0.11	0.14	0.14	0.15	0.12	0.18	0.16	0.12	0.07	0.12	0.09				
Dissolved Lead	mg/L	0.0034	Med. 0.0034	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025				
Dissolved Manganese	mg/L	1.9	-	0.0101	0.0067	0.0110	0.0135	0.0082	0.0156	0.0288	0.0164	0.0243	0.0281	0.0344	0.0326				
Dissolved Mercury	mg/L	0.0006	Med. 0.0006	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025				
Dissolved Nickel	mg/L	0.011	Med. 0.011	0.0011	0.00025	0.00025	0.00025	0.0005	0.00025	0.00025	0.0008	0.0006	0.0006	0.00025	0.00025				
Dissolved Zinc	mg/L	0.008	Med. 0.008	0.012	0.001	0.003	0.006	0.002	0.001	0.003	0.007	0.003	0.003	0.001	0.002				

Bold – denotes an exceedance of the ANZECC AE 95% protection level trigger values <u>Underlined</u> – denotes exceedance of the Consent Trigger Value.

All '<' values have been reported as half the detection limit for statistical purposes and are expressed in italics

3 Landfill Gas Detection in Monitoring Wells

Condition 4 of Discharge Permit ATH-2002003984.02 requires that: "...groundwater monitoring wells shall be sampled for landfill gas when groundwater samples are taken from the wells. As a minimum, sampling shall be undertaken for methane, carbon dioxide and oxygen..."

In the past, landfill gas monitoring results were only reported in the Annual Report. A recommendation of the 2019 - 2020 Annual Report was that these results should be included in every quarterly monitoring report so that if any results are unusually high, appropriate action can be promptly undertaken, including putting safeguards in place at the monitoring bores.

Appendix E summarises the results of landfill gas monitoring undertaken on the 5 April 2024. It is noted that this is not the date of sampling of the groundwater bores, which somewhat nullifies part of the reason for doing the gas monitoring when the groundwater sampling is done.

Out of the 27 groundwater monitoring bores:

- Methane was recorded at seven bores G1s (concentration of 0.02%), D6 (0.06%), D5 (0.04%), E2s (0.02%), E2d (0.03%), C1 (0.04%) and Xs1 (0.01%). These concentrations are well below the explosive limit of 5%, and therefore represent a 'safe' level. Methane is commonly detected at the landfill site, and its detection reinforces the need for sampling staff to take the necessary precautions for gas safety, generally applicable at landfill sites.
- Carbon dioxide was recorded at all bores, but at relatively minor concentrations the highest being 0.2% at bore C2. Historically, fluctuations have been seen across the bores, and April concentrations are within historical ranges.
- Hydrogen sulphide was detected at one bore (Xs1) at 1 ppm.
- The landfill gas levels in April 2024 appear to reinforce the previous two sampling rounds' observed reduction in measured gases in comparison to previous quarters. Gas results may be due to season variations (e.g., different ground temperatures and/or groundwater levels), or may be related to prevailing weather conditions (e.g., different air pressures).

The possibility of encountering methane (and hydrogen sulphide) in groundwater bores endorses the need for appropriate health and safety measures to be adopted during monitoring. No smoking should be permitted when personnel undertake groundwater sampling and when in the vicinity of the groundwater monitoring wells, or in fact anywhere else on the Levin Landfill site. For sake of safety a personal gas detector should be worn by all staff when working in the vicinity of the landfill.

4 Sampling Quality Control and Assurance

The landfill extends over a significant area and there are many sampling locations. However, it is important that the time span of the sampling period is kept as short as possible because more infrequent (or erratic) sampling can make it difficult to compare results between rounds and determine trends at individual monitoring locations.

The surface water and groundwater samples were collected within a 7-day period, though most of the surface water samples were received by the laboratory outside the normally accepted 24-hour timeframe between sampling and reception. Twelve of the samples were received approximately between 50 and 80 hours after being sampled which could significantly affect the reliability of the results, which reduces the confidence in comparing the results with historical data.

The laboratory reports for many of the surface water samples showed the recorded "Sampled Time" as being late at night, which is assumed to be incorrect. For one of the groundwater samples the recorded date and time of receipt of the sample at the laboratory was before the recorded date and time of sampling, which is nonsensical.

5 Consent Compliance

Discharge permit ATH-2002003983.02 states that quarterly and annual monitoring results for the shallow groundwater aquifer (sand aquifer) shall comply with the ANZECC LDW trigger values, and samples from the deep groundwater (gravel aquifer) shall comply with the applicable DWSNZ values. Furthermore, samples taken from surface water bodies shall comply with ANZECC AE 95%ile DGVs. Should any parameters exceed these standards, 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 the influence of landfill leachate, consult with the Regional Council to determine if further investigations or remedial measures are required.

Background Groundwater Quality

The quality of the natural background groundwater up-gradient from the landfill site is not subject to any consent conditions.

Shallow Aquifer and Irrigation Area

There were **no exceedances** of consent conditions hydraulically up-gradient of the old landfill and down-gradient of the new landfill during this quarterly (April 2024) monitoring period.

There were **no exceedances** of consent conditions hydraulically down-gradient of the old landfill during this quarterly (April 2024) monitoring period.

There were **no exceedances** of the resource consent conditions during this quarterly (April 2024) sampling round for samples obtained from bores within the old irrigation area.

Deeper Gravel Aquifer

There were **six exceedances of the DWSNZ limits** in samples from the deep gravel aquifer during the April 2024 monitoring round, as follows:

- E. coli at Xd1 was detected at a level of 3 cfu/100mL which exceeds the DWSNZ MAV of NIL. This is not an unusual occurrence for this bore which has shown presence of E.coli since monitoring began in April 2021. It is recommended that the site be inspected to determine if there is evidence of stock or other animals getting next to the bore.
- Dissolved arsenic exceeded the DWSNZ MAV of 0.01 mg/L at bore D3rd (0.019 mg/L). This is characteristic of D3rd with the levels varying between 0.017 and 0.022 mg/L on all sampling occasions.
- Dissolved manganese concentrations exceeded the DWSNZ MAV of 0.4 mg/L in bores C2DD (0.65 mg/L), E2D (0.458 mg/L), Xd1 (0.497 mg/L) and D3rd (0.5 mg/L). The results for C2DD and E2D (from 1997), Xd1 (from March 2021 when sampling started), and D3rd (from October 2021 when sampling started) are within the historical range of concentrations observed. Dissolved manganese is generally elevated in the deep aquifer bores.

Leachate Effluent

Leachate effluent from the Levin Landfill is not subject to any water quality consent conditions and is sent to the Levin Wastewater Treatment Plant for treatment.



However, there were sixteen outliers from the typical leachate characteristics in the February 2024, March 2024, and April 2024 results. Five of these outliers were for parameters having less concentration than the typical minimal concentrations.

Northern Farm Drain

There were **six exceedances** of the resource consent conditions for samples from the Northern Farm property at the TD1 location during the February 2024, March 2024, and April 2024 sampling.

- The concentration of nitrate-N in February 2024 (0.82 mg/L), March 2024 (2.0 mg/L) and April 20234 (0.31 mg/L) exceeded the ANZECC (95%ile) DGV of 0.16 mg/L. This site has commonly presented elevated levels.
- The concentration of ammoniacal-N in February 2024 (15.4 mg/L), March 2024 (24.9 mg/L), and April 2024 (11.9 mg/L) exceeded the ANZECC (95%ile) DGV of 2.1 mg/L.

Hokio Stream

There were **fifteen exceedances** of the resource consent conditions in samples from the Hokio Stream during the February 2024, March 2024, and April 2024 sampling rounds.

- ScBOD₅ exceeded the ANZECC (95%ile) DGV and consent trigger value of 2 mg/L at HS2 in February 2024 with a value of 3 mg/L.
- Nitrate-N exceeded both the ANZECC (95%ile) DGV and consent trigger value of 0.16 mg/L at all sites in February, March (except for HS1) and April 2024, with values ranging between 0.18 mg/L and 0.39 mg/L.
- Dissolved copper exceeded the ANZECC (95%ile) DGV and consent trigger value of 0.0014 mg/L at HS1A in February 2024 (0.0019 mg/L) and in April 2024 (0.0015 mg/L).
- Dissolved zinc exceeded the ANZECC (95%ile) DGV and consent trigger value of 0.008 mg/L at HS1A in February 2024 (0.012 mg/L).

6 Conclusions

Monitoring results obtained in the February 2024 to April 2024 sampling rounds suggest that the groundwater at the background monitoring sites at the Levin Landfill is being impacted by local ground conditions and/or activities upgradient of the landfill.

During the February 2024 to April 2024 monitoring period, there were twenty-seven exceedances of resource consent conditions: six from the deep gravel aquifer, six in the samples from the Northern Farm Drain (formerly known as Tatana Property Drain), and the remaining fifteen from surface water monitoring locations along the Hokio Stream.

Methane was detected in seven of the bores in April 2024, with the highest reading being at D6 (0.06%). The methane concentrations were well below the explosive limit of 5%, and therefore represent a 'safe' level. Methane is commonly detected at the landfill site, and its detection reinforces the need for sampling staff to take the necessary precautions for gas safety, generally applicable at landfill sites. Minor concentrations of carbon dioxide were recorded at all bores, with the highest being 0.2% at bore C2. Hydrogen sulphide was detected at bore Xs1 at 1 ppm.

The possibility of encountering methane (and hydrogen sulphide) in groundwater bores endorses the need for appropriate health and safety measures to be adopted during monitoring.

The following recommendations are made, based on the results of this reporting period:

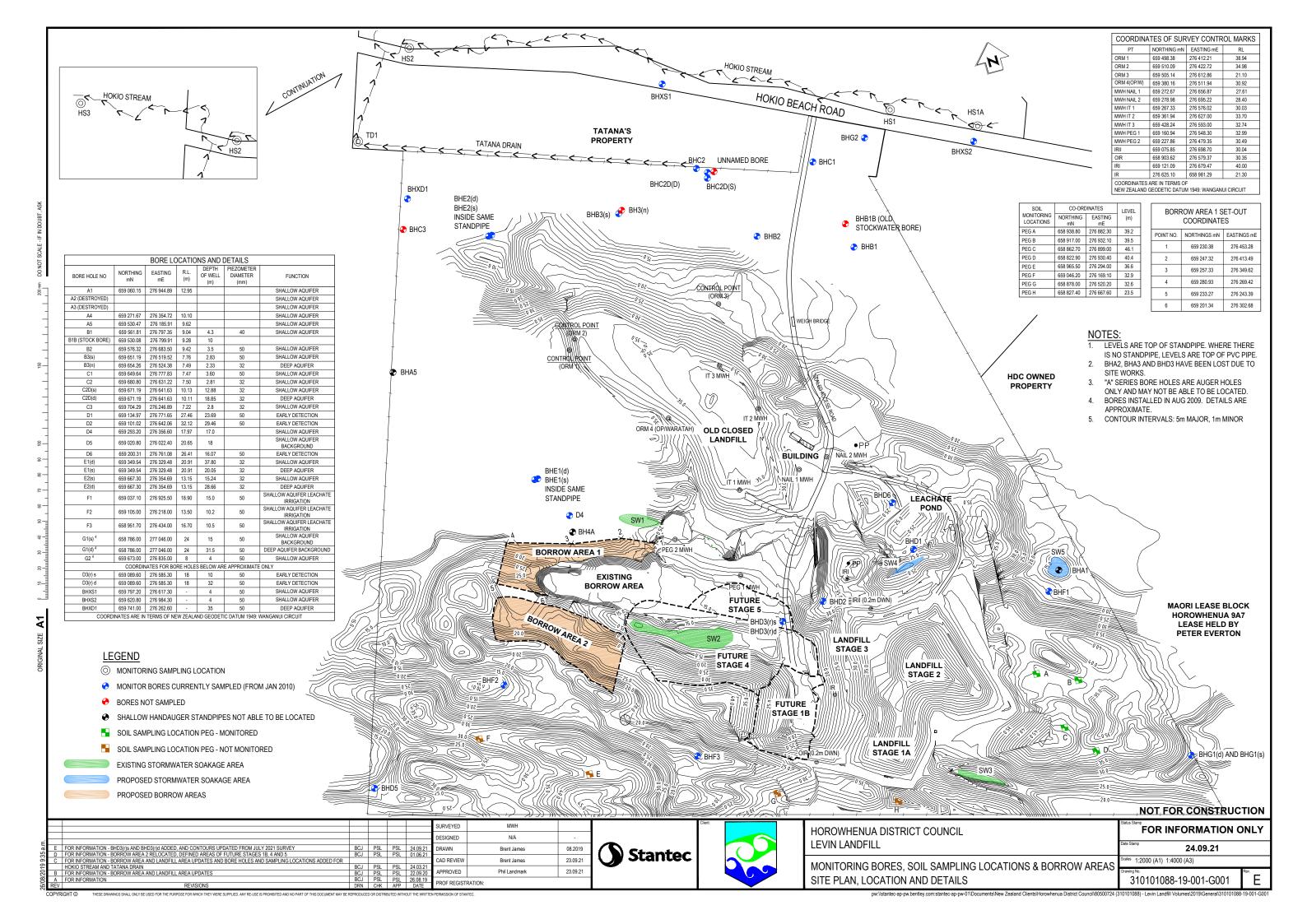
- Overall, monitoring results at G1S indicate that it is likely modified or impacted by anthropogenic activities, and
 therefore may not be suitable to use as reliable 'control' location for background water quality in the future. This
 matter should be reviewed as part of the Annual Report.
- Nitrate-N levels at D6 were the maximum value recorded to date, and maximum values were also reached for
 conductivity, hardness, calcium, magnesium, and potassium. Whilst all levels are below the ANZECC LDW trigger
 values, it is a matter to keep a check on and may merit an assessment in the future to try and identify the cause.
- E. coli at Xd1 was detected at a level of 3 cfu/100mL which exceeded the DWSNZ MAV of NIL. Whilst this is not an unusual occurrence for this bore which has shown presence of E. coli since monitoring began, it is recommended that the site be inspected to determine if there is evidence of stock or other animals getting next to the bore.
- Consecutive monthly sampling has occurred at all Hokio Stream sites for since October 2021. It is recommended
 that HDC assess the results of these 31 sampling events, as required by the conditions of the consent, to determine
 the significance of the results, and to ascertain, in conjunction with HRC, if a reduction in sampling frequency can be
 made.

Appendices

We design with community in mind

Appendix A Site Plan





Appendix B Sampling Schedule



LEVIN LANDFILL - SUMMARY OF SURFACE AND GROUNDWATER MONITORING REQUIREMENTS (July 2023 - April 2026).

(The testing regime is based on Consent Conditions following the completion of the 2015 Resource Consent Review process).

			Table C (Condition 3, ATH-2002003983.02, formerly																																
			Table A	(Conditio	on 3, ATH DP 6		3983.02,	formerly		Table B (Condition 3, ATH-2002003983.02, formerly DP 6010)											Table	Table C (Condition 3, ATH-2002003983.02, formerly DP 6010)													
Reports	Due	Sampling Month		[Deep Aqu	ifer Bore	!S			Shallow Aquifer Bores Irrigation Bores									Hokio Stream ^{(4), (8)}				Northern Farm Drain ⁽⁹⁾	Leachate											
Annual Qu	arterly		C2dd	E1d	E2d	G1d	Xd1	D3rd ⁽¹⁾	C1	C2 ⁽⁶⁾	C2ds ⁽⁶⁾	D4	B1	B2	B3s	E1s	E2s	D1 ⁽²⁾	D2 ⁽²⁾	D3rs ^(1,2)	D6 ⁽²⁾	G1s	G2s	Xs1 ⁽⁶⁾	Xs2 ⁽⁶⁾	D5 ⁽³⁾	F1 ⁽³⁾	F2 ⁽³⁾	F3 ⁽³⁾	HS1	HS1A	HS2	HS3	TD1 ⁽⁷⁾	
Sep-23 A	ug-23	Jul-23	- 1	I + SW	I	- 1	С	С	I	- 1	- 1	I + SW	- I	- 1	- 1	I + SW	I + SW	- 1	I + SW	C + SW	- 1	I + SW	- 1	С	С	I	- 1	- 1	I + SW	nth / npr	nth / npr	nth npr	nth npr	nth /	nth npr
N	ov-23	Oct-23	1	I + SW	I	I	С	С	I	I	I	I + SW	I	I	I	I + SW	I + SW	I	I + SW	C + SW	- 1	I + SW	I	С	С	- 1	I	I	I + SW	Con	Con	Mo	Mo	Con	Con
F	eb-24	Jan-24	1	I + SW	I	- 1	С	С	I	- 1	1	I + SW	I	- 1	I	I + SW	I + SW	- I	I + SW	C + SW	- 1	I + SW	- 1	С	С	- 1	I	- 1	I + SW	σ	1	1	1	1	_
M	lay-24	Apr-24	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	nue	С	С	С	С	C+A
Sep-24 A	ug-24	Jul-24	1	I + SW	- 1	1	- 1	С	- 1	- 1	1	I + SW	I	- 1		I + SW	I + SW	- 1	I + SW	C + SW	- 1	I + SW	- 1	- 1	- 1	- 1	- 1	- 1	I + SW	. onti	1	1	1	1	1
	ov-24		- 1	I + SW	- 1	- 1	- 1	С	I	- 1	I	I + SW	I	- 1		I + SW	I + SW	I	I + SW	C + SW	- 1	I + SW	- 1	I	I	I	- 1	- 1	I + SW	disc	С	С	С	С	С
F	eb-25	Jan-25	1	I + SW	I	- 1	I	С	- 1	- 1	I	I + SW	I	- 1	I	I + SW	I + SW	I	I + SW	C + SW	- 1	I + SW	- 1	- 1	- 1	- 1	I	1	I + SW	o be	1	1	1		1
M	lay-25	Apr-25	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	S1 to	С	С	С	С	C+A
Sep-25 A	ug-25	Jul-25	- 1	I + SW	ı	ı	ı	1	- 1	ı	1	I + SW	I	ı	I	I + SW	I + SW	I	I + SW	I + SW	- 1	I + SW	- 1	- 1	- 1	- 1	I	- 1	I + SW	at H.		1	1		1
N	ov-25	Oct-25	ı	I + SW	I	I	I	- 1	I	- 1	I	I + SW	I	I	I	I + SW	I + SW	I	I + SW	I + SW	I	I + SW	I	I	I	I	- 1	I	I + SW	ing.	С	С	С	С	С
F	eb-26	Jan-26	- 1	I + SW	I	I	ı	I	I	ı	- 1	I + SW	I	I	I	I + SW	I + SW	I	I + SW	I + SW	I	I + SW	I	I	I	I	- 1	I	I + SW	II II	1	1	1		1
M	lay-26	Apr-26	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	C + A	S	С	С	С	С	C+A

Measure groundwater level and sample all bores for CH₄, CO₂ and O₂ each time that groundwater is sampled (Condition 4a of DP 6011)

Notes:

- (1) Replacement bore D3r consists of two nested piezometers that have been called D3rs and D3rd. Testing for comprehensive to continue to provide 2 year's of comprehensive monitoring.
- (2) See table below
- (3) If irrigation re-commences then the annual sampling is to change from comprehensive + 3 times indicator to bi-annual comprehensive + indicator (Clause D of Condition 3, DP 6010).
- (4) See table below
- (5) See table below
- (6) Measure water level at C2, C2ds, Xs1 and Xs2 when taking monthly samples at TD1 and within the Hokio Stream. Testing of X-series bores to continue at comprehensive to provide 2 year's of comprehensive data.
- (7) Start taking comprehensive samples at TD1 every month when sampling the Hokio Stream sites. Also note the depth of water in the drain invert at TD1. Continue monthly comprehensive sampling to October 2023 to give 24 month's continuous data.
- (8) Start measuring approximately the depth of flow in the Hokio Stream at each sampling site when sampling monthly. Monthly sampling at comprehensive level to continue to, and including, October 2023, to give a full continuous 24 months of data.
- (9) Northern Farm Drain is a name change from the former 'Tatana Drain'
- C Comprehensive list (see below)
- I Indicator list (see below)
- A Pesticide and SVOC analysis
- SW Add sodium and iron analysis (for stormwater consent 102559)

A reduction in sampling frequency at any groundwater monitoring point is conditional on (Clauses A - D of Condition 3, DP 6010):

- A. Completion of the initial monitoring program;
- 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.

1 (Is iste 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 (Clauses E - H, Condition 3, DP 6010):

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

(4) A reduction in sampling frequency at the Hokio Stream monitoring locations (HS1A, HS2 and HS3) is conditional on (Clauses I - L, Condition 3 of DP 6010):

- I. No signficant increases in the concentrations between monitoring sites HS1A and HS3, for parameters exceeding the trigger values contained in Table C1 at Site HS3.
- J. A statistical analysis approach is to be used to determine if there is a significant increase in contaminant levels between HS1A and HS3.
- K. Following the 24 month monitoring period, there shall be no significant increases in concentrations between monitoring sites HS1A and HS3.
- L. If the Hokio Stream monitoring locations are being sampled on a conditional frequency and do not meet condition K, the monitoring frequency for all three monitoring locations (HS1A, HS2 and HS3) shall return to the base case intensive monitoring until conditions J and K are again being fulfilled.

A reduction in sampling frequency at the <u>leachate pond outlet</u> is conditional on (Clauses M - P, Condition 3, DP 6010):

- 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.

COMPREHENSIVE PARAMETER LIST (Table E of Condition 3, DP 6010)

	pH
Characterising	electrical conductivity (EC)
Characterising parameters	alkalinity
parameters	total hardness
	suspended solids
Oxygen demand	COD and scBOD ₅
Nutrients*	NO3-N, NH4-N, DRP and SO ₄
Metals*	Al, As, Cd, Cr, Cu, Fe, Mg, Mn, Ni, Pb, Zn and Hg
Other elements	B, Ca, Cl, K and Na
Organics	Total organic carbon, total phenols, volatile acids
Biological	E. coli

^{*} Analyses performed for nutrients and metals are for dissolved rather than total concentrations

INDICATOR PARAMETER LIST (Table F, Condition 3, DP 6010)

Characterising	рН
parameters	electrical conductivity (EC)
Oxygen demand	COD and scBOD ₅
Nutrients*	NO3-N and NH4-N
Metals*	AL, Mn, Ni, Pb and Hg
Other elements	B and Cl
Biological ⁺	E. coli

^{*} Analyses performed for nutrients and metals are for dissolved rather than total concentrations

⁺ E. coli added from April 2019 sampling onwards

Appendix C Analytical Results



EUNZWE-00177701

Levin B1

20/04/2024



Food & Water Testing

AR-24-NW-024116-01

ANALYTICAL REPORT

REPORT DATE

Copy to: Water and Waste Team

Sampling Point name:

(waterandwasteteam@horowhenua.govt.nz), McMillan

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

Phone (06) 367 2705

Contact for your orders:

REPORT CODE

horowhenuaadmin@downer.co.nz **Email**

Landfill **Contract:**

Gabriela Carvalhaes

Purchase Order Number: Landfill

Order code:

812-2024-00052907 SAMPLE CODE

349857-0 Sample Name Product: Ground water

Sampling Point code: WIL-B1

10/04/2024 14:30 Reception Date & Time:

Analysis Started on: 10/04/2024 **Analysis Ending Date:** 20/04/2024 **Product Type** Sampled Date & Time 10/04/2024 07:32 Ground water

Sampled by Eurofins Sampler(s) Client nominated external sampler No

RESULTS (UNCERTAINTY)	LOC

Ammonia Nitrogen			
Ammoniacal nitrogen (N)	29.1	(± 2.91) mg/l	0.01

NW341 **BOD5 - Soluble Carbonaceous**

BOD5 mg/l

NW020 Chemical Oxygen Demand

Chemical oxygen demand (COD) 145 (± 15) mg/l 15

NW007 Chloride

NW179

286 (± 28.6) mg/l Chloride (CI) 0.02

NW00U Chlorophenois

2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01
2,4-Dichlorophenol	<0.01	mg/l	0.01
2,6-Dichlorophenol	<0.02	mg/l	0.2
2-Chlorophenol (o-chlorophenol)	<0.01	mg/l	0.01
3,4,5-Trichlorophenol	<0.01	mg/l	0.01
4-Chloro-3-cresol	<0.01	mg/l	0.01
Pentachlorophenol	<0.005	mg/l	0.005
Phenol	<0.01	mg/l	0.01
Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02

NW023 Conductivity

217 (± 4.3) mS/m Conductivity 0.1

NW098 Dissolved Aluminium

0.021 Aluminium mg/l 0.002

NW583 Dissolved Arsenic

0.001 Arsenic (As) mg/l 0.001

NW103 Dissolved Boron

2.38 Boron (B) mg/l 0.03

> **Phone** www.eurofins.co.nz

+64 4 576 5016



85 Port Road Seaview

Eurofins ELS Limited

Lower Hutt Wellington 5010 **NEW ZEALAND**



			water rest	
		RESULT	S (UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium			
	Calcium (Ca)	54.7	mg/l	0.1
NW106	Dissolved Chromium			
	Chromium (Cr)	0.002	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	0.0276	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	0.08	mg/l	0.01
NW110	Dissolved Lead		-	
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium			5.0000
1444112	Magnesium (Mg)	41.8	mg/l	0.01
NIVA/440	, ,,		my/i	0.01
NW113	Dissolved Manganese	4.78	ma e: //	0.00==
Amazz : :	Manganese (Mn)	0	mg/l	0.0005
NW114	Dissolved Mercury	<0.0005	_	
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel	0.00==		
	Nickel (Ni)	0.0077	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	41.7	mg/l	0.01
NW193	Dissolved Reactive Phos	phorus		
	Phosphorus (soluble reactive)	. 0.440	mg/l	0.005
NW120	Dissolved Sodium			
	Sodium (Na)	250	mg/l	0.01
NW125	Dissolved Zinc		··· ·9 ··	0.01
1417125	Zinc (Zn)	0.020	mg/l	0.002
71420 A		hio ocii D M	· ·	0.002
LIVIZGA	Enumeration of Escheric	nia coli By Mer <100		400
AD4/6 / 6	Escherichia coli		cfu/100 ml	100
NW010	Nitrate-N	<0.01	(± 0 00) ~~~/l	
	Nitrate-N		(± 0.00) mg/l	0.01
NW195	pH (Tested beyond 15 mi		• •	
	рН	6.9	(± 0.2)	0.1
NW011	Sulphate			
	Sulphate	4.05	(± 0.41) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	178	mg/l	3
NW228	SVOC (GC-MSMS)			
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.001
	Adipatic acid, bis-2-ethylhexyl	<0.0001	mg/l	0.0001
	ester (DEHA)	•	··· · g··	0.0001
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.1
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.0001
			J.	3.3001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







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		RESULTS (UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	Benz(a)anthracene	<0.0001	mg/l	0.0001	
	Benzo(a)pyrene	<0.0001	mg/l	0.0001	
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001	
	Bromacil	<0.005	mg/l	0.005	
	Carbofuran	<0.001	mg/l	0.001	
	Chlordane	<0.0001	mg/l	0.0001	
	Chlordane, gamma	<0.001	mg/l	0.001	
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001	
	Chrysene	<0.0001	mg/l	0.0001	
	Cyanazine	<0.005	mg/l		
	d-BHC	<0.0001		0.005	
		<0.0001	mg/l	0.0001	
	DDD, p,p'-	<0.0001	mg/l	0.0001	
	DDE, p,p-	NotRecovered	mg/l	0.0001	
	DDT, p,p'-	<0.0001	mg/l	0.001	
	Diazinon	<0.0001	mg/l	0.0001	
	Dibenz(a,h)anthracene		mg/l	0.0001	
	Dieldrin	<0.0001	mg/l	0.0001	
	Dimethoate	<0.001	mg/l	0.001	
	Diuron	<0.001	mg/l	0.001	
	Endosulfan, alpha-	<0.001	mg/l	0.001	
	Endosulfan, beta-	<0.005	mg/l	0.005	
	Endosulfan-sulfate	<0.0001	mg/l	0.0001	
	Endrin	<0.0001	mg/l	0.0001	
	Endrin ketone	NotRecovered	mg/l	0.0001	
	Endrin-aldehyde	<0.001	mg/l	0.01	
	Fluoranthene	<0.0001	mg/l	0.0001	
	Fluorene	<0.0001	mg/l	0.0001	
	HCH, alpha-	<0.0001	mg/l		
	HCH, beta-	<0.0001		0.0001	
		<0.0001	mg/l	0.0001	
	Heptachlor	<0.0001	mg/l	0.0001	
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001	
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001	
	Hexazinone		mg/l	0.001	
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001	
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001	
	Metalaxyl and metalaxyl-M (metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))	<0.001	mg/l	0.001	
	Methoxychlor	<0.0001	mg/l	0.0001	
	Metolachlor	<0.0001	mg/l	0.0001	
	Metribuzin	<0.0001	mg/l	0.0001	
	Molinate	<0.0001			
		<0.0001	mg/l	0.0001	
	Naphthalene	<0.0001	mg/l	0.0001	
	Oxadiazon	<0.0001	mg/l	0.0001	
	PCB 101	10.0001	mg/l	0.0001	
		<0.001			
	PCB 138 PCB 183	<0.001 <0.0001	mg/l mg/l	0.001 0.0001	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







	-		valer restr		
		RESULTS	S (UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k)	<0.001	mg/l	0.001	
	fluoranthene	<0.0001		0.0004	
	Trifluralin	-0.0001	mg/l	0.0001	
NW003	Total Alkalinity	677	(1.60)		
	Alkalinity total	011	(± 68) mg CaCO3/I	1	
NW030	Total Hardness				
	Hardness	309	mg CaCO3/I	1	
NW210	Total Non-Purgeable Orga	nic Carbon			
	Total Organic Carbon	27.6	(± 2.8) mg/l	0.1	
NW229	VOC (GC-MS)			•	
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005			
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005	•	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.0005	
		<0.0002	mg/l	0.002	
	1,2-Dibromoethane	<0.0005	mg/l	0.0002	
	1,2-Dichlorobenzene (2) 1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	,	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0003	mg/l	0.0005	
	3-chloropropene	<0.0020	mg/l	0.0005	
	4-Chlorotoluene	~0.0000	mg/l	0.0005	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







		RESULTS (UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0002
	m,p-Xylene, Ethylbenzene	<0.0015		0.0005
	Naphthalene	<0.0005	mg/l	0.0015
		<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0003	mg/l	0.0005
	Vinyl chloride		mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
NWWG6	Volatile Fatty Acids (VFA)	_		
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







RESULTS (UNCERTAINTY) LOQ

LIST O	F METHODS		
NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Signature

Marylou Cabral

mbecabool

Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

Supervisor Eurofins ELS Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Ganesh Ilancko

Supervisor Eurofins ELS Limited

Arvinder Singh

Laboratory Supervisor Microbiology

Gabriela Carvalhaes Manager Food and Water **Testing Chemistry**

Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE







- Test is not accredited
- ②Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- $\ensuremath{\mathfrak{Y}}$ Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- x (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

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END OF REPORT





19/04/2024



Food & Water Testing

AR-24-NW-023587-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

Gabriela Carvalhaes

Landfill

Copy to: Water and Waste Team (waterandwasteteam@horowhenua.govt.nz), McMillan

REPORT DATE

EUNZWE-00177701 Order code:

Purchase Order Number: Landfill

812-2024-00052887 SAMPLE CODE

Sample Name 349858-0 **Product:** Ground water

Sampling Point code: WIL-B2

10/04/2024 14:30 **Reception Date & Time:**

Analysis Started on: 10/04/2024

Product Type Ground water

Sampler(s) Client nominated external sampler Sampling Point name:

Analysis Ending Date: Sampled Date & Time

19/04/2024

Levin B2

10/04/2024 08:27 Sampled by Eurofins No

		RESULTS	(UNCERTAINTY)	LOQ
NW179	Ammonia Nitrogen	00.6	(1.0.00)	
	Ammoniacal nitrogen (N)	90.6	(± 9.06) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo			
	BOD5	1	mg/l	1
NW020		400		
	Chemical oxygen demand (COD)	102	(± 11) mg/l	15
NW007	Chloride			
	Chloride (CI)	173	(± 17.3) mg/l	0.02
NW00U	Chlorophenols			
	2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01
	2,4-Dichlorophenol	<0.01	mg/l	0.01
	2,6-Dichlorophenol	<0.02	mg/l	0.2
	2-Chlorophenol (o-chlorophenol)	<0.01	mg/l	0.01
	3,4,5-Trichlorophenol	<0.01	mg/l	0.01
	4-Chloro-3-cresol	<0.01	mg/l	0.01
	Pentachlorophenol	<0.005	mg/l	0.005
	Phenol	<0.01	mg/l	0.01
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02
NIWO22	Conductivity			
1444023	Conductivity	265	(± 5.3) mS/m	0.1
NW098	Dissolved Aluminium			0.1
1444030	Aluminium	0.010	mg/l	0.002
NW583	Dissolved Arsenic			
	Arsenic (As)	0.004	mg/l	0.001
NW103	Dissolved Boron			
	Boron (B)	2.26	mg/l	0.03

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010

NEW ZEALAND

Phone www.eurofins.co.nz +64 4 576 5016





	<u> </u>			
		RESULT	S (UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium	40,0000		
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium			
	Calcium (Ca)	128	mg/l	0.1
NW106	Dissolved Chromium			
	Chromium (Cr)	0.001	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	0.0050	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	0.11	mg/l	0.01
NW110	Dissolved Lead			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium		Ŭ	2.0000
	Magnesium (Mg)	50.9	mg/l	0.01
MM443			1119/1	0.01
NW113	· ·	6.48	ma/l	0.0005
NNA/44 *	Manganese (Mn)	-	mg/l	0.0005
NW114	Dissolved Mercury	<0.0005	,,	
	Mercury (Hg)	-0.0003	mg/l	0.0005
NW116	Dissolved Nickel	0.0004		
	Nickel (Ni)	0.0034	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	126	mg/l	0.01
NW193	Dissolved Reactive Phos			
	Phosphorus (soluble reactive)		mg/l	0.005
NW120	Dissolved Sodium			
_	Sodium (Na)	105	mg/l	0.01
NW125	Dissolved Zinc		J .	0.01
1417125	Zinc (Zn)	0.012	mg/l	0.002
7842C A			_	0.002
LIVIZGA	Enumeration of Escheric	nia coli By Mer <100		400
AD4/6 / 6	Escherichia coli		cfu/100 ml	100
NW010	Nitrate-N	0.25	(± 0.03) ma/l	
	Nitrate-N		(± 0.03) mg/l	0.01
NW195	pH (Tested beyond 15 min			
	рН	6.8	(± 0.2)	0.1
NW011	Sulphate			
	Sulphate	19.8	(± 1.98) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	201	mg/l	3
NW228				
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.001
	Adipatic acid, bis-2-ethylhexyl	<0.0001	mg/l	0.0001
	ester (DEHA)			0.0001
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.1
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







		ater restir	·9
	RESULTS (UNCERTAINTY)	LOQ
SVOC (GC-MSMS)			
Benz(a)anthracene	<0.0001	mg/l	0.0001
Benzo(a)pyrene	<0.0001	mg/l	0.0001
Benzo(g,h,i)perylene	<0.001	mg/l	0.001
Bromacil		mg/l	0.005
Carbofuran		mg/l	0.001
Chlordane	<0.0001	mg/l	0.0001
Chlordane, gamma		mg/l	0.001
Chlorpyrifos (-ethyl)		mg/l	0.0001
Chrysene		mg/l	0.0001
Cyanazine		mg/l	0.005
d-BHC		mg/l	0.0001
DDD, p,p'-		mg/l	0.0001
DDE, p,p-		mg/l	0.0001
DDT, p,p'-	NotRecovered	mg/l	0.001
Diazinon	<0.0001	mg/l	0.0001
Dibenz(a,h)anthracene	<0.0001	mg/l	0.0001
Dieldrin	<0.0001	mg/l	0.0001
Dimethoate	<0.001	mg/l	0.001
Diuron		mg/l	0.001
Endosulfan, alpha-		mg/l	0.001
Endosulfan, beta-		mg/l	0.005
Endosulfan-sulfate		mg/l	0.0001
Endrin		mg/l	0.0001
Endrin ketone		mg/l	0.0001
Endrin-aldehyde		mg/l	0.01
Fluoranthene		mg/l	0.0001
Fluorene		mg/l	0.0001
HCH, alpha-		mg/l	0.0001
HCH, beta-		mg/l	0.0001
Heptachlor		mg/l	0.0001
Heptachlor epoxide, cis-		mg/l	0.0001
Hexachlorobenzene (HCB)		mg/l	0.0001
Hexazinone		mg/l	0.001
Indeno(1,2,3-cd)pyrene		mg/l	0.0001
Lindane (gamma-HCH)		mg/l	0.0001
Metalaxyl and metalaxyl-M (metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))		mg/l	0.001
Methoxychlor	<0.0001	mg/l	0.0001
Metolachlor	<0.0001	mg/l	0.0001
Metribuzin	<0.0001	mg/l	0.0001
Molinate	<0.0001	mg/l	0.0001
Naphthalene	<0.0001	mg/l	0.0001
Oxadiazon	<0.0001	mg/l	0.0001
PCB 101	<0.0001	mg/l	0.0001
PCB 138	<0.001	mg/l	0.001
. 02 .00			
	Benz(a)anthracene Benzo(a)pyrene Benzo(g,h,i)perylene Bromacil Carbofuran Chlordane Chlordane, gamma Chlorpyrifos (-ethyl) Chrysene Cyanazine d-BHC DDD, p,p'- DDE, p,p- DDT, p,p'- Diazinon Dibenz(a,h)anthracene Dieldrin Dimethoate Diuron Endosulfan, alpha- Endosulfan-sulfate Endrin Endrin ketone Endrin-aldehyde Fluoranthene Fluorene HCH, alpha- HCH, beta- Heptachlor Heptachlor epoxide, cis- Hexachlorobenzene (HCB) Hexazinone Indeno(1,2,3-cd)pyrene Lindane (gamma-HCH) Metalaxyl and metalaxyl-M (metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers)) Methoxychlor Metolachlor Metribuzin Molinate Naphthalene Oxadiazon PCB 101	SVOC (GC-MSMS) Benz(a)anthracene <0.0001	Benz(a)anthracene <0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







	l l		water resti		
		RESULTS	(UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k)	<0.001	mg/l	0.0001	
	fluoranthene		J .	0.001	
	Trifluralin	<0.0001	mg/l	0.0001	
NW003	Total Alkalinity				
	Alkalinity total	1180	(± 120) mg	1	
	•		CaCO3/I	•	
NW030	Total Hardness				
	Hardness	529	mg CaCO3/I	1	
NW210	Total Non-Purgeable Orga	anic Carbon			
	Total Organic Carbon	45.3	(± 4.5) mg/l	0.1	
NW229	VOC (GC-MS)				
•	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005			
	1,2,3-Trichloropenzene	<0.0005	mg/l	0.0005	
	• •	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	10.004	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.0002	mg/l	0.002	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane		mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
	3-chloropropene	<0.0020	mg/l	0.0005	
	4-Chlorotoluene	<0.0005	mg/l	0.0005	

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NW229 VOC (GC-MS) 4-methyl-2-pentanone <0.0005 mg/l 0.0005 mg/l	
4-methyl-2-pentanone <0.0005 mg/l 0.0005 Benzene 0.0012 mg/l 0.0005 Bromobenzene <0.0005 mg/l 0.0005 Bromochloromethane <0.0012 mg/l 0.0012 Bromodichloromethane <0.0005 mg/l 0.0005 Bromoform <0.0005 mg/l 0.0005 Bromomethane (zone 2) <0.001 mg/l 0.001 Carbon tetrachloride <0.0005 mg/l 0.0005 Carbondisulphide (CS2) <0.0005 mg/l 0.0005 Chlorobenzene 0.0180 mg/l 0.0005 Chloroethane <0.001 mg/l 0.0005 Chloroform <0.0005 mg/l 0.0005 Chloromethane <0.0006 mg/l 0.0005 Cis-1,2-Dichloroethene <0.0005 mg/l 0.0005 Cibromoethane <0.0005 mg/l 0.0005 Dibromomethane <0.0005 mg/l 0.0005 Dibromomethane <0.0005 mg/l 0.0005 Dichloromethane <0.005 mg/l <th></th>	
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Dichloromethane <0.005 mg/l 0.005	
-0.0002	
Hexachlorobutadiene <0.0002 mg/l 0.0002	
0.0002	
lsopropylbenzene (Cumene) <0.0005 mg/l 0.0005	
m,p-Xylene, Ethylbenzene <0.0015 mg/l 0.0015	
Naphthalene <0.0005 mg/l 0.0005	
n-Butylbenzene <0.0005 mg/l 0.0005	
n-Propylbenzene <0.0005 mg/l 0.0005	
p-Isopropyltoluene <0.0005 mg/l 0.0005	
sec-Butylbenzene <0.0005 mg/l 0.0005	
Styrene <0.0005 mg/l 0.0005	
tert-Butylbenzene <0.0005 mg/l 0.0005	
Tetrachloroethene <0.0005 mg/l 0.0005	
Toluene <0.0005 mg/l 0.0005	
trans-1,2-Dichloroethene <0.0005 mg/l 0.0005	
trans-1,3-Dichloropropene <0.0005 mg/l 0.0005	
Trichloroethene <0.0005 mg/l 0.0005	
Trichlorofluoromethane <0.0005 mg/l 0.0005	
Vinyl chloride <0.0003 mg/l 0.0003	
Xylene (ortho-) <0.0005 mg/l 0.0005	
①NWWG6 Volatile Fatty Acids (VFA)	
Acetic acid <5 mg/l 5	
Butyric acid <5 mg/l 5	
Heptanoic acid <5 mg/l 5	
Hexanoic acid <5 mg/l 5	
Isobutyric acid <5 mg/l 5	
Isocaproic acid <5 mg/l 5	
Isovaleric acid <5 mg/l 5	
Propionic acid <5 mg/l 5	
Valeric acid <5 mg/l 5	
Volatile fatty acids as acetic acid <5 mg/l 5	

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RESULTS (UNCERTAINTY) LOQ

LIST OF	METHODS		
NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210 B	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Signature

Marylou Cabral

mbecabool

Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

Supervisor Eurofins ELS Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Ganesh Ilancko

Supervisor Eurofins ELS Limited

Arvinder Singh

Laboratory Supervisor Microbiology

Gabriela Carvalhaes

Manager Food and Water **Testing Chemistry**

Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE







- Test is not accredited
- 2 Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- $\ensuremath{\mathfrak{A}}$ Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- ® Tested at the sampling point by Eurofins and is accredited
- 9 Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at 85 Port Road, Seaview, Lower Hutt, Wellington, NEW ZEALAND. The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.

Eurofins may subcontract the performance of part or all of the Services to a third party and the Customer authorises the release of all information necessary to the third party for the provision of the Services.

All samples become the property of Eurofins to the extent necessary for the performance of the Services.

Eurofins will not be required to store samples and may destroy or otherwise dispose of the samples or return the samples to the Customer (at the Customer's cost in all respects) immediately following analysis of the samples.

If the Customer pays for storage of the samples Eurofins will take commercially reasonable steps to store the samples for the agreed period in terms of industry practice. The Eurofins water sampling service follows methodology based on AS/NZS 5667 and / or best practice to collect and transport samples that are fit for the purpose of analytical testing. The laboratory is not responsible for sampling activities unless explicitly indicated by the statement "Sampled by Eurofins" on the report for water samples. The Customer acknowledges that the Services are provided using the current state of technology and methods developed and generally applied by Eurofins and involve analysis, interpretations, consulting work and conclusions. Eurofins shall use commercially reasonable degree of care in providing the Services.

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END OF REPORT





NEW ZEALAND

Phone

20/04/2024



Food & Water Testing

AR-24-NW-024103-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

REPORT CODE

Gabriela Carvalhaes

Landfill

Copy to: Water and Waste Team

REPORT DATE

Order code:

(waterandwasteteam@horowhenua.govt.nz), McMillan

Purchase Order Number: Landfill

SAMPLE CODE 812-2024-00052905

349859-0 Sample Name **Product:** Ground water

Sampling Point code: WIL-B3

10/04/2024 14:30 Reception Date & Time:

Analysis Started on: 10/04/2024

Analysis Ending Date:

0.028

1.59

mg/l

mg/l

Sampling Point name: Levin B3s

20/04/2024

EUNZWE-00177701

Product	t Type G	round water		Sampled Date & Time	10/04/2024 11:24
Sample	r(s) C	ient nominated exte	ernal sampler	Sampled by Eurofins	No
		RESULT	S (UNCERTAINT)	() LOQ	
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	184	(± 18.4) mg/l	0.01	
NW341	BOD5 - Soluble Carb	onaceous 2	mg/l	1	
NW020	Chemical Oxygen De Chemical oxygen deman		(± 41) mg/l	15	
NW007	Chloride Chloride (CI)	119	(± 11.9) mg/l	0.02	
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chloro 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol Phenol Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.01 <0.02	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.01 0.01 0.2 0.01 0.01 0.01 0.005 0.01 0.02	
NW023	Conductivity Conductivity	280	(± 5.6) mS/m	0.1	
NW098	Dissolved Aluminium Aluminium	0.006	mg/l	0.002	
NW583	Dissolved Arsenic				

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010

NEW ZEALAND

Arsenic (As)

NW103 Dissolved Boron

Boron (B)

Phone www.eurofins.co.nz

0.001

0.03

+64 4 576 5016







			vvater rest	
		RESULT	S (UNCERTAINTY)	LOQ
NW104	Diocontou Guannam	0.0000		
	Cadmium (Cd)	0.0003	mg/l	0.0002
NW105	2.0001.104.04.04.04.	F 1 -		
	Calcium (Ca)	54.7	mg/l	0.1
NW106	Dissolved Chromium	0.004		
	Chromium (Cr)	0.004	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	0.0491	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	0.36	mg/l	0.01
NW110	Dissolved Lead			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium			
	Magnesium (Mg)	41.3	mg/l	0.01
NW113	Dissolved Manganese			
	Manganese (Mn)	3.97	mg/l	0.0005
NW114	Dissolved Mercury			
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel		-	
	Nickel (Ni)	0.0090	mg/l	0.0005
NW117	Dissolved Potassium		J	3.0000
	Potassium (K)	109	mg/l	0.01
NW193		nhorus	3	0.01
	Phosphorus (soluble reactive		mg/l	0.005
NW120	Dissolved Sodium	,	···· g ··	0.000
144120	Sodium (Na)	100	mg/l	0.01
NIMAGE	, ,		1119/1	0.01
NW125	Dissolved Zinc	0.006	ma/l	0.000
784004	Zinc (Zn)		mg/l	0.002
ZIVIZGA	Enumeration of Escheric	chia coli By Mer <100		400
ADAIC 15	Escherichia coli		cfu/100 ml	100
NW010	Nitrate-N	<0.1		
	Nitrate-N		mg/l	0.01
NW195	pH (Tested beyond 15 mi	inute APHA hol 7.0	-	
	pH	7.0	(± 0.2)	0.1
NW011	•	0.21	(1.0.00) "	
	Sulphate	0.21	(± 0.02) mg/l	0.02
NW206	Suspended Solids	454		
	Suspended Solids	454	mg/l	3
NW228	SVOC (GC-MSMS)	.0.005		
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.001
	Adipatic acid, bis-2-ethylhexy	l <0.0001	mg/l	0.0001
	ester (DEHA)	<0.0001		
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.001	mg/l	0.1
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine		mg/l	0.0001

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1 •			
	KESULIS (UNCERTAINTY)	LOQ
SVOC (GC-MSMS)	<0.0004		
Benz(a)anthracene		mg/l	0.0001
Benzo(a)pyrene		mg/l	0.0001
Benzo(g,h,i)perylene		mg/l	0.001
Bromacil		mg/l	0.005
Carbofuran		mg/l	0.001
Chlordane	<0.0001	mg/l	0.0001
Chlordane, gamma	<0.001	mg/l	0.001
Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
Chrysene	<0.0001	mg/l	0.0001
Cyanazine	<0.005	mg/l	0.005
d-BHC	<0.0001		0.0001
	<0.0001		0.0001
	<0.0001		0.0001
	NotRecovered		0.0001
	<0.0001		
	<0.0001		0.0001
			0.0001
			0.0001
			0.001
			0.001
			0.001
		mg/l	0.005
Endosulfan-sulfate		mg/l	0.0001
Endrin		mg/l	0.0001
Endrin ketone		mg/l	0.0001
Endrin-aldehyde		mg/l	0.01
Fluoranthene	<0.0001	mg/l	0.0001
Fluorene	<0.0001	mg/l	0.0001
HCH, alpha-	<0.0001	mg/l	0.0001
HCH, beta-	<0.0001	mg/l	0.0001
Heptachlor	<0.0001		0.0001
	<0.0001		0.0001
	<0.0001		0.0001
	<0.001		0.0001
	<0.0001		0.001
, ,,,,	<0.0001		
		•	0.0001
(metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of	0.001	mg/I	0.001
	<0.0001	mg/l	0.0001
·	<0.0001		0.0001
			0.0001
			0.0001
			0.0001
Oxadiazon		mg/l	0.0001
PCB 101		mg/l	0.0001
PCB 138	<0.001 <0.0001	mg/l	0.001
	SVOC (GC-MSMS) Benz(a)anthracene Benzo(a)pyrene Benzo(g,h,i)perylene Bromacil Carbofuran Chlordane Chlordane, gamma Chlorpyrifos (-ethyl) Chrysene Cyanazine d-BHC DDD, p,p'- DDE, p,p- DDT, p,p'- Diazinon Dibenz(a,h)anthracene Dieldrin Dimethoate Diuron Endosulfan, alpha- Endosulfan, beta- Endosulfan-sulfate Endrin Endrin ketone Endrin-aldehyde Fluoranthene Fluorene HCH, alpha- HCH, beta- Heptachlor Heptachlor epoxide, cis- Hexazinone Indeno(1,2,3-cd)pyrene Lindane (gamma-HCH) Metalaxyl and metalaxyl-M (metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers)) Methoxychlor Metolachlor Metribuzin Molinate Naphthalene Oxadiazon	RESULTS (SVOC (GC-MSMS) Senz(a)anthracene < 0.0001	Benz(a)anthracene <0.0001

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	·		valer restr		
		RESULTS	(UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k)	<0.001	mg/l	0.001	
	fluoranthene		<u> </u>	- · · ·	
	Trifluralin	<0.0001	mg/l	0.0001	
NW003	Total Alkalinity				
	Alkalinity total	1310	(± 130) mg	1	
	,		CaCO3/I		
NW030	Total Hardness				
	Hardness	307	mg CaCO3/I	1	
NW210	Total Non-Purgeable Orga	nic Carbon			
	Total Organic Carbon	69.1	(± 6.9) mg/l	0.1	
NW229	VOC (GC-MS)				
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.0003	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	-		
	,	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
	3-chloropropene		mg/l	0.0005	
	4-Chlorotoluene	<0.0005	mg/l	0.0005	

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		INLOULIS (UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	0.0020	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	0.0033	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	0.0007	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	0.0012	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
NWWG6	Volatile Fatty Acids (VFA)		-	
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5 5

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RESULTS (UNCERTAINTY) LOQ

LIST O	METHODS		
NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210 B	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Signature

Marylou Cabral

mbecabool

Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

Supervisor Eurofins ELS Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Ganesh Ilancko

Supervisor Eurofins ELS Limited

Arvinder Singh

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Manager Food and Water **Testing Chemistry**

Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE







- Test is not accredited
- ②Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

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The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

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END OF REPORT





19/04/2024



Food & Water Testing

AR-24-NW-023554-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

Gabriela Carvalhaes

Landfill

Copy to: Water and Waste Team (waterandwasteteam@horowhenua.govt.nz), McMillan

REPORT DATE

EUNZWE-00177701 Order code:

Purchase Order Number: Landfill

812-2024-00052886 SAMPLE CODE

Sample Name 349860-0 **Product:** Ground water

Sampling Point code: WIL-C1

10/04/2024 14:30 **Reception Date & Time:**

Analysis Started on: 10/04/2024

Product Type Ground water

Sampling Point name: Levin C1

Analysis Ending Date: 19/04/2024

Sampled Date & Time 10/04/2024 05:03

Sampler(s) Sampled by Eurofins Client nominated external sampler No

		RESULTS	(UNCERTAINTY)	LOQ
NW179	Ammonia Nitrogen	12.5	(1.4.25) mg/l	
	Ammoniacal nitrogen (N)	13.5	(± 1.35) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo	u s <1		
	BOD5	<1	mg/l	1
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	88	(± 14) mg/l	15
NW007	Chloride			
	Chloride (CI)	137	(± 13.7) mg/l	0.02
NW00U	Chlorophenols			
	2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01
	2,4-Dichlorophenol	<0.01	mg/l	0.01
	2,6-Dichlorophenol	<0.02	mg/l	0.2
	2-Chlorophenol (o-chlorophenol)	<0.01	mg/l	0.01
	3,4,5-Trichlorophenol	<0.01	mg/l	0.01
	4-Chloro-3-cresol	<0.01	mg/l	0.01
	Pentachlorophenol	<0.005	mg/l	0.005
	Phenol	<0.01	mg/l	0.01
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02
NW023	Conductivity			
	Conductivity	120	(± 2.4) mS/m	0.1
NW098	Dissolved Aluminium Aluminium	0.023	mg/l	0.002
NW583	Dissolved Arsenic			
	Arsenic (As)	0.001	mg/l	0.001
NW103	Dissolved Boron			
	Boron (B)	0.87	mg/l	0.03

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010

NEW ZEALAND

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	<u> </u>			
		KESULT	S (UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium	40,0000		
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium	00 =		
	Calcium (Ca)	33.5	mg/l	0.1
NW106	Dissolved Chromium			
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	0.0011	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	1.74	mg/l	0.01
NW110	Dissolved Lead			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium			3.0000
1444112	Magnesium (Mg)	23.4	ma/l	0.01
NII 446	,		mg/l	0.01
NW113	· ·	0.257	,,	
	Manganese (Mn)	0.231	mg/l	0.0005
NW114	Dissolved Mercury	.0.005=		
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel			
	Nickel (Ni)	0.0011	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	26.5	mg/l	0.01
NW193	Dissolved Reactive Phos	nhorus	5	0.01
1111133	Phosphorus (soluble reactive)	0.014	mg/l	0.005
NIVA/4 O O			1119/1	0.005
NW120	Dissolved Sodium	129	ma e B	2.21
	Sodium (Na)	.20	mg/l	0.01
NW125	Dissolved Zinc	0.006		
	Zinc (Zn)	0.006	mg/l	0.002
ZM2GA	Enumeration of Escherich		mbrane Filtration	
	Escherichia coli	<100	cfu/100 ml	100
NW010	Nitrate-N			
	Nitrate-N	0.07	(± 0.01) mg/l	0.01
NW195	pH (Tested beyond 15 mir	nute APHA hol	ding time)	
	pH	6.8	(± 0.2)	0.1
NW011			•	0.1
1444011	Sulphate	26.4	(± 2.64) mg/l	0.00
NIVALOGG			(= =-0 1) 1119/1	0.02
NW206	Suspended Solids	43	na c B	_
	Suspended Solids	70	mg/l	3
NW228	,	-0.0004		
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.001
	Adipatic acid, bis-2-ethylhexyl	<0.0001	mg/l	0.0001
	ester (DEHA)	ZO 0004		
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.1
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.0001

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			(UNCERTAINTY)	
		KESULIS	(UNCERTAINTY)	LOQ
NW228	` ,	-0.0004		
	Benz(a)anthracene	<0.0001	mg/l	0.0001
	Benzo(a)pyrene	<0.0001	mg/l	0.0001
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001
	Bromacil	<0.005	mg/l	0.005
	Carbofuran	<0.001	mg/l	0.001
	Chlordane	<0.0001	mg/l	0.0001
	Chlordane, gamma	<0.001	mg/l	0.001
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
	Chrysene	<0.0001	mg/l	0.0001
	Cyanazine	<0.005	mg/l	0.005
	d-BHC	<0.0001	mg/l	0.0001
	DDD, p,p'-	<0.0001	mg/l	0.0001
	DDE, p,p-	<0.0001	mg/l	0.0001
	DDT, p,p'-	<0.001	mg/l	0.0001
	Diazinon	<0.0001	mg/l	0.001
	Dibenz(a,h)anthracene	<0.0001	mg/l	
	Dieldrin	<0.0001		0.0001
	Dimethoate	<0.001	mg/l	0.0001
		<0.001	mg/l	0.001
	Diuron	<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.005	mg/l	0.001
	Endosulfan, beta-	<0.0001	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone		mg/l	0.0001
	Endrin-aldehyde	<0.001	mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene	<0.0001	mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001
	Metalaxyl and metalaxyl-M	<0.001	mg/l	0.001
	(metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))		g.	0.001
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001		
		<0.0001	mg/l	0.0001
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001	mg/l	0.0001
	PCB 101	<0.001	mg/l	0.0001
	DOD 400			
	PCB 138 PCB 183	<0.001	mg/l mg/l	0.001 0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			(UNCERTAINTY)	LOQ	-
NIMOOO	01/00 (00 NOTE)		(5.10-1.17.1111)	LOQ	-
NW228	,	<0.0001			
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin		mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k) fluoranthene	<0.001	mg/l	0.001	
	Trifluralin	<0.0001	mg/l	0.0001	
NW003	Total Alkalinity		··· ·	5.0001	
1111003	Alkalinity total	380	(± 38) mg CaCO3/I	1	
NW030	Total Hardness				
	Hardness	180	mg CaCO3/I	1	
NW210	Total Non-Purgeable Organ	nic Carbon	<u> </u>	•	
1444210	Total Organic Carbon	21.8	(± 2.2) mg/l	0.1	
NW229			· , 5	U. I	
1444423	VOC (GC-MS)	<0.0005	ma/l	0.0005	
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane		mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005			
	·	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene		mg/l	0.0005	
	3-chloropropene	<0.0020	mg/l	0.0005	
	4-Chlorotoluene	<0.0005	mg/l	0.0005	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			ater restir	
		RESULTS (UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	0.0006	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
DNWWG6	Volatile Fatty Acids (VFA)			
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5
	•		Ü	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







RESULTS (UNCERTAINTY) LOQ

LIST OF	METHODS		
NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Signature

Marylou Cabral

mbecabool

Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

Supervisor Eurofins ELS Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

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Supervisor Eurofins ELS Limited

Arvinder Singh

Laboratory Supervisor Microbiology

Gabriela Carvalhaes

Manager Food and Water **Testing Chemistry**

Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE







- Test is not accredited
- 2 Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- **9**Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

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END OF REPORT







AR-24-NW-024102-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

Gabriela Carvalhaes

Landfill

(waterandwasteteam@horowhenua.govt.nz), McMillan

Order code:

Copy to: Water and Waste Team

REPORT DATE

EUNZWE-00177701

20/04/2024

Purchase Order Number: Landfill

812-2024-00052885 SAMPLE CODE

349861-0 Sample Name **Product:** Ground water

Sampling Point code: WIL-C2

10/04/2024 14:30 Reception Date & Time:

Analysis Started on: 10/04/2024

Analysis Ending Date: 20/04/2024 **Product Type** Ground water

Sampler(s) Client nominated external sampler Sampling Point name: Levin C2

Sampled Date & Time 10/04/2024 05:34

Sampled by Eurofins

No

	1-7			
		RESULTS	(UNCERTAINTY)	LOQ
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	185	(± 18.5) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo	us 1	mg/l	1
NW020	Chemical Oxygen Demand		mg/i	ı
	Chemical oxygen demand (COD)	43	(± 8) mg/l	15
NW007	Chloride			
	Chloride (CI)	160	(± 16.0) mg/l	0.02
NW00U	Chlorophenols			
	2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01
	2,4-Dichlorophenol	<0.01	mg/l	0.01
	2,6-Dichlorophenol	<0.02	mg/l	0.2
	2-Chlorophenol (o-chlorophenol)	<0.01	mg/l	0.01
	3,4,5-Trichlorophenol	<0.01	mg/l	0.01
	4-Chloro-3-cresol	<0.01	mg/l	0.01
	Pentachlorophenol	<0.005	mg/l	0.005
	Phenol	<0.01	mg/l	0.01
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02
NW023	Conductivity			
	Conductivity	292	(± 5.8) mS/m	0.1
NW098	Dissolved Aluminium			
	Aluminium	0.019	mg/l	0.002
NW583	Dissolved Arsenic			
	Arsenic (As)	0.002	mg/l	0.001
NW103	Dissolved Boron	4.70		
	Boron (B)	1.72	mg/l	0.03

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Phone www.eurofins.co.nz +64 4 576 5016





			water rest	
		RESULTS	S (UNCERTAINTY)	LOQ
NW104	Diocontou Guannam	.0.005		
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium	E4.0		
	Calcium (Ca)	51.3	mg/l	0.1
NW106	Dissolved Chromium	0.000		
	Chromium (Cr)	0.002	mg/l	0.001
NW108	Dissolved Copper	0.0000		
	Copper (Cu)	0.0023	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	0.48	mg/l	0.01
NW110	Dissolved Lead			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium			
	Magnesium (Mg)	37.3	mg/l	0.01
NW113	Dissolved Manganese			
	Manganese (Mn)	0.127	mg/l	0.0005
NW114	Dissolved Mercury			
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel		,	
	Nickel (Ni)	0.0063	mg/l	0.0005
NW117	Dissolved Potassium		J	2.0000
	Potassium (K)	82.2	mg/l	0.01
NW193	Dissolved Reactive Phos	sphorus	3	0.01
	Phosphorus (soluble reactive	- 0.040	mg/l	0.005
NW120		,	···ə/·	0.000
1444 170	Sodium (Na)	136	mg/l	0.01
NIVA/40E	, ,		mg/i	0.01
NW125	Dissolved Zinc	0.022	ma/l	0.000
71100	Zinc (Zn)		mg/l	0.002
∠M2GA	Enumeration of Escheric	chia coli By Mer <100		
	Escherichia coli	-100	cfu/100 ml	100
NW010	Nitrate-N	<0.1		
	Nitrate-N		mg/l	0.01
NW195	pH (Tested beyond 15 mi			
	рН	6.9	(± 0.2)	0.1
NW011	•	0.40		
	Sulphate	0.19	(± 0.02) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	173	mg/l	3
NW228	SVOC (GC-MSMS)			
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.001
	Adipatic acid, bis-2-ethylhexy	o.0001	mg/l	0.0001
	ester (DEHA)	<0.0004		
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.1
	Aldrin	<0.001 <0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	~U.UUU1	mg/l	0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







	1 1		(UNICEDTAINTY)	
		KESULIS	(UNCERTAINTY)	LOQ
NW228	SVOC (GC-MSMS)	40.0004		
	Benz(a)anthracene	<0.0001	mg/l	0.0001
	Benzo(a)pyrene	<0.0001	mg/l	0.0001
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001
	Bromacil	<0.005	mg/l	0.005
	Carbofuran	<0.001	mg/l	0.001
	Chlordane	<0.0001	mg/l	0.0001
	Chlordane, gamma	<0.001	mg/l	0.001
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
	Chrysene	<0.0001	mg/l	0.0001
	Cyanazine	<0.005	mg/l	0.005
	d-BHC	<0.0001	mg/l	0.0001
	DDD, p,p'-	<0.0001	mg/l	0.0001
	DDE, p,p-	<0.0001	mg/l	0.0001
	DDT, p,p'-	<0.001	mg/l	0.001
	Diazinon	<0.0001	mg/l	0.001
	Dibenz(a,h)anthracene	<0.0001	mg/l	
	Dieldrin	<0.0001	mg/l	0.0001
	Dimethoate	<0.001		0.0001
		<0.001	mg/l	0.001
	Diuron	<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.005	mg/l	0.001
	Endosulfan, beta-	<0.0001	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone		mg/l	0.0001
	Endrin-aldehyde	<0.001	mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene	<0.0001	mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001
	Metalaxyl and metalaxyl-M	<0.001	mg/l	0.001
	(metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))		,	0.001
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001		
		<0.0001	mg/l	0.0001
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001	mg/l	0.0001
	PCB 101	<0.001	mg/l	0.0001
	PCB 138		mg/l	0.001
	PCB 183	<0.0001	mg/l	0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







	1 1		valer restr		
		RESULTS	S (UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k)	<0.001	mg/l	0.001	
	fluoranthene		J		
	Trifluralin	<0.0001	mg/l	0.0001	
NW003	Total Alkalinity				
	Alkalinity total	1300	(± 130) mg	1	
	,		CaCO3/I	·	
NW030	Total Hardness				
	Hardness	282	mg CaCO3/I	1	
NW210	Total Non-Purgeable Orga	nic Carbon			
	Total Organic Carbon	48.8	(± 4.9) mg/l	0.1	
NW229	VOC (GC-MS)				
	1,1,1,2-Tetrachloroethane	< 0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005			
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
		<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.001	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene		mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
	2 0	.0.000-			
	3-chloropropene	<0.0020 <0.0005	mg/l	0.0005	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







		RESULTS (UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	0.0010	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	0.0008	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	
	p-Isopropyltoluene	<0.0005		0.0005
		<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0003	mg/l	0.0005
	Vinyl chloride	<0.0005	mg/l	0.0003
	Xylene (ortho-)	~ 0.0003	mg/l	0.0005
NWWG6	Volatile Fatty Acids (VFA)	_		
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5

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RESULTS (UNCERTAINTY) LOQ

LIST OF	METHODS		
NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210 B	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Signature

Marylou Cabral

mbecabool

Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

Supervisor Eurofins ELS Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

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EXPLANATORY NOTE







- Test is not accredited
- ②Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- ④ Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- x (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

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The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

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END OF REPORT





19/04/2024



Food & Water Testing

AR-24-NW-023906-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

Gabriela Carvalhaes

Landfill

Copy to: Water and Waste Team (waterandwasteteam@horowhenua.govt.nz), McMillan

REPORT DATE

EUNZWE-00177376 Order code:

Purchase Order Number: Landfill

SAMPLE CODE 812-2024-00051384

349862-0 Sample Name **Product:** Ground water

Sampling Point code: WIL-C2dd

08/04/2024 16:45 **Reception Date & Time:**

Analysis Started on: 08/04/2024

Analysis Ending Date: Product Type Ground water

Sampler(s) Client nominated external sampler Sampling Point name: Levin C2dd

19/04/2024

Sampled Date & Time 08/04/2024 11:59

Sampled by Eurofins No

		RESULTS	(UNCERTAINTY)	LOQ
NW179	Ammonia Nitrogen			
	Ammoniacal nitrogen (N)	0.35	(± 0.04) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo	us		
	BOD5	<1	mg/l	1
NW020	Chemical Oxygen Demand			
	Chemical oxygen demand (COD)	20	(± 6) mg/l	15
NW007	Chloride			
	Chloride (CI)	43.8	(± 4.38) mg/l	0.02
NW00U	Chlorophenols			
	2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01
	2,4-Dichlorophenol	<0.01	mg/l	0.01
	2,6-Dichlorophenol	<0.2	mg/l	0.2
	2-Chlorophenol (o-chlorophenol)	<0.01	mg/l	0.01
	3,4,5-Trichlorophenol	<0.01	mg/l	0.01
	4-Chloro-3-cresol	<0.01	mg/l	0.01
	Pentachlorophenol	<0.005	mg/l	0.005
	Phenol	<0.01	mg/l	0.01
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02
NW023	Conductivity			
	Conductivity	59.3	(± 1.2) mS/m	0.1
NW098	Dissolved Aluminium			
	Aluminium	0.012	mg/l	0.002
NW583	Dissolved Arsenic			
	Arsenic (As)	0.004	mg/l	0.001
NW103	Dissolved Boron			
	Boron (B)	0.10	mg/l	0.03

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		RESULT	S (UNCERTAINTY)	LOQ
NW104	Diocontou Guannani	-0.0000		
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium	40.0		
	Calcium (Ca)	46.6	mg/l	0.1
NW106	Dissolved Chromium	0.000		
	Chromium (Cr)	0.002	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	0.0014	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	0.13	mg/l	0.01
NW110	Dissolved Lead			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium			
	Magnesium (Mg)	19.7	mg/l	0.01
NW113	Dissolved Manganese		y	0.01
1444113	Manganese (Mn)	0.650	mg/l	0.0005
NIMAA A			1119/1	0.0005
NW114	Dissolved Mercury	<0.0005	ma!!	0.0005
Amazzas	Mercury (Hg)	3.0000	mg/l	0.0005
NW116	Dissolved Nickel	0.0008		
	Nickel (Ni)	0.0000	mg/l	0.0005
NW117	Dissolved Potassium	7.04		
	Potassium (K)	7.21	mg/l	0.01
NW193	Dissolved Reactive Phos			
	Phosphorus (soluble reactive)) 0.663	mg/l	0.005
NW120	Dissolved Sodium			
	Sodium (Na)	51.5	mg/l	0.01
NW125	Dissolved Zinc			
	Zinc (Zn)	0.009	mg/l	0.002
ZMF1E	Enumeration of Escheric	hia coli By Mer	· ·	
	Escherichia coli	<1 <1	cfu/100 ml	1
NW040	Nitrate-N		514, 150 IIII	1
14 440 10	Nitrate-N Nitrate-N	<0.01	(± 0.00) mg/l	0.04
ADAMA OF				0.01
NW195	pH (Tested beyond 15 mi	inute APHA hol 7.3	-	
	pH	7.5	(± 0.2)	0.1
NW011	•	0.00	(, 0.04) "	
	Sulphate	0.08	(± 0.01) mg/l	0.02
NW206	Suspended Solids	_		
	Suspended Solids	7	mg/l	3
NW228	SVOC (GC-MSMS)			
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.001
	Adipatic acid, bis-2-ethylhexy	<0.0001	mg/l	0.0001
	ester (DEHA)			
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.1
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.0001

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			(UNCERTAINTY)	
		KESULIS	(UNCERTAINTY)	LOQ
NW228	` ,	-0.0004		
	Benz(a)anthracene	<0.0001	mg/l	0.0001
	Benzo(a)pyrene	<0.0001	mg/l	0.0001
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001
	Bromacil	<0.005	mg/l	0.005
	Carbofuran	<0.001	mg/l	0.001
	Chlordane	<0.0001	mg/l	0.0001
	Chlordane, gamma	<0.001	mg/l	0.001
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
	Chrysene	<0.0001	mg/l	0.0001
	Cyanazine	<0.005	mg/l	0.005
	d-BHC	<0.0001	mg/l	0.0001
	DDD, p,p'-	<0.0001	mg/l	0.0001
	DDE, p,p-	<0.0001	mg/l	0.0001
	DDT, p,p'-	<0.001	mg/l	0.0001
	Diazinon	<0.0001	mg/l	0.001
	Dibenz(a,h)anthracene	<0.0001	mg/l	
	Dieldrin	<0.0001		0.0001
	Dimethoate	<0.001	mg/l	0.0001
		<0.001	mg/l	0.001
	Diuron	<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.005	mg/l	0.001
	Endosulfan, beta-	<0.0001	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone		mg/l	0.0001
	Endrin-aldehyde	<0.001	mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene	<0.0001	mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001
	Metalaxyl and metalaxyl-M	<0.001	mg/l	0.001
	(metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))		g.	0.001
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001		
		<0.0001	mg/l	0.0001
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001	mg/l	0.0001
	PCB 101	<0.001	mg/l	0.0001
	DOD 400			
	PCB 138 PCB 183	<0.001	mg/l mg/l	0.001 0.0001

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	· · ·		vvater restr		
		RESULT	S (UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k) fluoranthene	<0.001	mg/l	0.001	
	Trifluralin	<0.0001	ma/l	0.0004	
NIVA/OOO			mg/l	0.0001	
NW003	Total Alkalinity Alkalinity total	241	(± 24) mg	1	
			CaCO3/I		
NW030	Total Hardness	107			
	Hardness	197	mg CaCO3/I	1	
NW210	Total Non-Purgeable Orga				
	Total Organic Carbon	5.5	(± 0.5) mg/l	0.1	
NW229	VOC (GC-MS)				
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.0003	
	1,2-Dibromoethane	<0.0002	mg/l	0.002	
	1,2-Dichlorobenzene (2)	<0.0005			
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	•	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene		mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
	3-chloropropene	<0.0005	mg/l	0.0005	
	4-Chlorotoluene	<0.0005	mg/l	0.0005	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			ater restin	
		RESULTS (UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
ก NWWG ศ	S Volatile Fatty Acids (VFA)		3	0.0000
<u></u>	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5
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RESULTS (UNCERTAINTY) LOQ

LIST O	METHODS		
A III A / O O O		NUA 400-7	
NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZMF1E	Escherichia coli E (Water) [NZ] <1 >80 /100 ml (0) Ml Agar-F: SMEWW 9222K; APHA 24th Edition

Signature

Marylou Cabral

mbecaboos

Laboratory Manager Eurofins ELS Limited Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon Supervisor Eurofins ELS

Limited

Pathma Ranjanie

Senior Analyst Senior Analyst Ganesh Ilancko

Supervisor Eurofins ELS Limited

Gabriela Carvalhaes Manager Food and Water Testing Chemistry

Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE







- Test is not accredited
- 2 Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- ④ Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- **©** Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- x (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

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END OF REPORT





19/04/2024



Food & Water Testing

AR-24-NW-023588-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

Email horowhenuaadmin@downer.co.nz

Contact for your orders: Landfill

Contract:

REPORT CODE

Gabriela Carvalhaes

Order code:

REPORT DATE

EUNZWE-00177701

Purchase Order Number: Landfill

(waterandwasteteam@horowhenua.govt.nz), McMillan

812-2024-00052919 SAMPLE CODE

Sample Name 349863-0 **Product:** Ground water

Sampling Point code: WIL-C2ds

10/04/2024 14:30 **Reception Date & Time:**

Analysis Started on: 10/04/2024

Product Type Ground water

Sampler(s) Client nominated external sampler Sampling Point name: Levin C2ds

Analysis Ending Date:

Copy to: Water and Waste Team

Sampled Date & Time

19/04/2024

10/04/2024 06:08

Sampled by Eurofins No

		RESULTS	(UNCERTAINTY)	LOQ	
NW179	Ammonia Nitrogen	1.85	(± 0.18) mg/l	0.04	
NIVA/2 4 4	Ammoniacal nitrogen (N)		(= 0.10) mg//	0.01	
1400347	BOD5 - Soluble Carbonaceo	us 1	ma/l	4	
NIMOOO			mg/l	1	
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	73	(± 12) mg/l	15	
NW007	Chloride				
	Chloride (CI)	110	(± 11.0) mg/l	0.02	
NW00U	Chlorophenols				
	2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01	
	2,4-Dichlorophenol	<0.01	mg/l	0.01	
	2,6-Dichlorophenol	<0.02	mg/l	0.2	
	2-Chlorophenol (o-chlorophenol)	<0.01	mg/l	0.01	
	3,4,5-Trichlorophenol	<0.01	mg/l	0.01	
	4-Chloro-3-cresol	<0.01	mg/l	0.01	
	Pentachlorophenol	<0.005	mg/l	0.005	
	Phenol	<0.01	mg/l	0.01	
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02	
NW023	Conductivity				
	Conductivity	193	(± 3.9) mS/m	0.1	
NW098	Dissolved Aluminium Aluminium	<0.002	mg/l	0.002	
NW583	Dissolved Arsenic Arsenic (As)	0.001	mg/l	0.001	
NW103	Dissolved Boron Boron (B)	0.89	mg/l	0.03	

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			vvaler rest	
		RESULT	S (UNCERTAINTY)	LOQ
NW104	Diocontou Guannani	.0.005		
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium			
	Calcium (Ca)	148	mg/l	0.1
NW106	Dissolved Chromium			
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	2.54	mg/l	0.01
NW110	Dissolved Lead		ŭ	
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112			···ສຸ· '	0.0000
1444112	Dissolved Magnesium	74.8	ma/l	0.04
NIIA/446	Magnesium (Mg)		mg/l	0.01
NW113	Dissolved Manganese	2.93		
	Manganese (Mn)	2.55	mg/l	0.0005
NW114	Dissolved Mercury	<0.0005		
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel			
	Nickel (Ni)	0.0027	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	15.8	mg/l	0.01
NW193	Dissolved Reactive Phos	phorus		
	Phosphorus (soluble reactive)		mg/l	0.005
NW120	Dissolved Sodium		-	
	Sodium (Na)	101	mg/l	0.01
NW125	, ,		···ə·	0.01
1444 179	Dissolved Zinc	0.003	mg/l	0.000
78400 4	Zinc (Zn)		ŭ	0.002
ZIVIZGA	Enumeration of Escheric	hia coli By Mer <100		,
	Escherichia coli	-100	cfu/100 ml	100
NW010	Nitrate-N	<0.01	(, 0.00) "	
	Nitrate-N	<0.01	(± 0.00) mg/l	0.01
NW195	pH (Tested beyond 15 mi		-	
	рН	6.7	(± 0.2)	0.1
NW011	Sulphate			
	Sulphate	0.04	(± 0.01) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	118	mg/l	3
NW228	SVOC (GC-MSMS)		-	-
220	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.0001
	Adipatic acid, bis-2-ethylhexyl	-0.0004	mg/l	0.001
	ester (DEHA)	1	1119/1	0.0001
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.1
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.001
	980.19		···ə/·	0.0001

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NW228	0)/00 /00 110110)	KESULIS (UNCERTAINTY)	LOQ
NW228				
	SVOC (GC-MSMS)	<0.0001		
	Benz(a)anthracene	<0.0001	mg/l	0.0001
	Benzo(a)pyrene	<0.001	mg/l	0.0001
	Benzo(g,h,i)perylene	<0.005	mg/l	0.001
	Bromacil	0.003	mg/l	0.005
	Carbofuran	<0.001	mg/l	0.001
	Chlordane	<0.001	mg/l	0.0001
	Chlordane, gamma	<0.001	mg/l	0.001
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
	Chrysene		mg/l	0.0001
	Cyanazine	<0.005	mg/l	0.005
	d-BHC	<0.0001	mg/l	0.0001
	DDD, p,p'-	<0.0001	mg/l	0.0001
	DDE, p,p-	<0.0001	mg/l	0.0001
	DDT, p,p'-	NotRecovered	mg/l	0.001
	Diazinon	<0.0001	mg/l	0.0001
	Dibenz(a,h)anthracene	<0.0001	mg/l	0.0001
	Dieldrin	<0.0001	mg/l	0.0001
	Dimethoate	<0.001	mg/l	0.001
	Diuron	<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.001	mg/l	0.001
	Endosulfan, beta-	<0.005	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone	NotRecovered	mg/l	0.0001
	Endrin-aldehyde	<0.001	mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene	<0.0001	mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001
	Metalaxyl and metalaxyl-M (metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))	<0.001	mg/l	0.001
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001	mg/l	0.0001
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001	mg/l	0.0001
	PCB 101	<0.0001	mg/l	0.0001
	PCB 138	<0.001	mg/l	0.001
	PCB 183	<0.0001	mg/l	0.0001

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			S (UNCERTAINTY)	LOQ	_
AUA/222		KLOOLIK	(SHOEKIAIIII)	LUQ	-
NW228	SVOC (GC-MSMS)	<0.0001	,,		
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin		mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k) fluoranthene	<0.001	mg/l	0.001	
	Trifluralin	<0.0001	mg/l	0.0001	
NWnna				0.0001	
NW003	Total Alkalinity Alkalinity total	918	(± 92) mg CaCO3/I	1	
NW030	Total Hardness		555000		
.111000	Hardness	678	mg CaCO3/l	1	
NIMOAO			mg Gaoos/i	ı	
NW210	Total Organic Carbon	31.0	(± 3.1) mg/l	0.4	
NUAVOOC	Total Organic Carbon	- 	(= 0.1) mg/1	0.1	
NW229	VOC (GC-MS)	<0.0005	n		
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane		mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l		
		<0.0005	•	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0003	mg/l	0.0005	
	3-chloropropene		mg/l	0.0005	
	4-Chlorotoluene	<0.0005	mg/l	0.0005	

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		RESULTS (UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	0.0005	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	0.0007	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	
		<0.0005		0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
		<0.0003	mg/l	0.0005
	Vinyl chloride	<0.0005	mg/l	0.0003
	Xylene (ortho-)	10.0000	mg/l	0.0005
NWWG6	Volatile Fatty Acids (VFA)	<5		
	Acetic acid	<5 <5	mg/l	5
	Butyric acid		mg/l	5
	Heptanoic acid	<5 <5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







RESULTS (UNCERTAINTY) LOQ

LIST OF	METHODS		
NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Signature

Marylou Cabral

mbecabool

Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

Supervisor Eurofins ELS Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Ganesh Ilancko

Supervisor Eurofins ELS Limited

Arvinder Singh

Laboratory Supervisor Microbiology

Gabriela Carvalhaes

Manager Food and Water **Testing Chemistry**

Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE







- Test is not accredited
- ②Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- 9 Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at 85 Port Road, Seaview, Lower Hutt, Wellington, NEW ZEALAND. The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.

Eurofins may subcontract the performance of part or all of the Services to a third party and the Customer authorises the release of all information necessary to the third party for the provision of the Services.

All samples become the property of Eurofins to the extent necessary for the performance of the Services.

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If the Customer pays for storage of the samples Eurofins will take commercially reasonable steps to store the samples for the agreed period in terms of industry practice. The Eurofins water sampling service follows methodology based on AS/NZS 5667 and / or best practice to collect and transport samples that are fit for the purpose of analytical testing. The laboratory is not responsible for sampling activities unless explicitly indicated by the statement "Sampled by Eurofins" on the report for water samples. The Customer acknowledges that the Services are provided using the current state of technology and methods developed and generally applied by Eurofins and involve analysis, interpretations, consulting work and conclusions. Eurofins shall use commercially reasonable degree of care in providing the Services.

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END OF REPORT





24/04/2024



Food & Water Testing

AR-24-NW-024780-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

Gabriela Carvalhaes

Landfill

(waterandwasteteam@horowhenua.govt.nz), McMillan

Copy to: Water and Waste Team

REPORT DATE

EUNZWE-00177658 Order code:

Purchase Order Number: Landfill

812-2024-00052260 SAMPLE CODE

349864-0 Sample Name **Product:** Ground water

Sampling Point code: WIL-D1

09/04/2024 17:39 **Reception Date & Time:**

09/04/2024

Analysis Started on:

Product Type Ground water Sampler(s) Client nominated external sampler Sampling Point name:

Analysis Ending Date:

Sampled Date & Time

24/04/2024 09/04/2024 07:20

Levin D1

Sampled by Eurofins No

		RESULTS	(UNCERTAINTY)	LOQ
NW179	Ammonia Nitrogen	.0.04		
	Ammoniacal nitrogen (N)	<0.01	(± 0.00) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo			
	BOD5	<1	mg/l	1
NW020	Chemical Oxygen Demand			
	Chemical oxygen demand (COD)	<15	(± 5) mg/l	15
NW007	Chloride			
	Chloride (CI)	34.8	(± 3.48) mg/l	0.02
NW00U	Chlorophenols			
	2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01
	2,4-Dichlorophenol	<0.01	mg/l	0.01
	2,6-Dichlorophenol	<0.02	mg/l	0.2
	2-Chlorophenol (o-chlorophenol)	<0.01	mg/l	0.01
	3,4,5-Trichlorophenol	<0.01	mg/l	0.01
	4-Chloro-3-cresol	<0.01	mg/l	0.01
	Pentachlorophenol	<0.005	mg/l	0.005
	Phenol	<0.01	mg/l	0.01
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02
NW023	Conductivity			
	Conductivity	58.0	(± 1.2) mS/m	0.1
NW098	Dissolved Aluminium			
	Aluminium	<0.002	mg/l	0.002
NW583	Dissolved Arsenic			
	Arsenic (As)	0.001	mg/l	0.001
NW103	Dissolved Boron			
	Boron (B)	0.05	mg/l	0.03

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010

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	I		water rest	
		RESULTS	S (UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium			
	Calcium (Ca)	29.4	mg/l	0.1
NW106	Dissolved Chromium			
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	<0.01	mg/l	0.01
NW110	Dissolved Lead		ý.	
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112			. 9/1	0.0003
14441112	Dissolved Magnesium	22.5	mc/l	0.04
	Magnesium (Mg)	0	mg/l	0.01
NW113	Dissolved Manganese	0.0007		
	Manganese (Mn)	0.0007	mg/l	0.0005
NW114	Dissolved Mercury	10.000=		
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel			
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	12.4	mg/l	0.01
NW193		phorus		
	Phosphorus (soluble reactive		mg/l	0.005
NW120	Dissolved Sodium	•	Ŭ	
20	Sodium (Na)	46.3	mg/l	0.01
NIM/12F	, ,		9 /1	0.01
NW125	Dissolved Zinc	0.011	ma/l	0.000
71400 1	Zinc (Zn)		mg/l	0.002
∠M2GA	Enumeration of Escheric	hia coli By Mer <100		
	Escherichia coli	~100	cfu/100 ml	100
NW010	Nitrate-N	0.47	(0.0-: "	
	Nitrate-N	6.17	(± 0.62) mg/l	0.01
NW195	pH (Tested beyond 15 mi			
	рН	6.5	(± 0.2)	0.1
NW011	Sulphate			
	Sulphate	17.9	(± 1.79) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	<5	mg/l	3
NW228	SVOC (GC-MSMS)		Ŭ	J
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	
	· · ·	-0.0004		0.001
	Adipatic acid, bis-2-ethylhexy ester (DEHA)	I · · · · ·	mg/l	0.0001
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.0001
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.001
			9/1	0.0001

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	1 •		(INICEPTAINTY)	
		KESULIS ((UNCERTAINTY)	LOQ
NW228	SVOC (GC-MSMS)			
	Benz(a)anthracene	<0.0001	mg/l	0.0001
	Benzo(a)pyrene	<0.0001	mg/l	0.0001
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001
	Bromacil	<0.005	mg/l	0.005
	Carbofuran	<0.001	mg/l	0.001
	Chlordane	<0.0001	mg/l	0.0001
	Chlordane, gamma	<0.001	mg/l	0.001
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
	Chrysene	<0.0001	mg/l	0.0001
	Cyanazine	<0.005	mg/l	0.005
	d-BHC	<0.0001	mg/l	0.0001
	DDD, p,p'-	<0.0001		
	DDE, p,p-	<0.0001	mg/l	0.0001
		NotRecovered	mg/l	0.0001
	DDT, p,p'-	<0.0001	mg/l	0.001
	Diazinon	<0.0001	mg/l	0.0001
	Dibenz(a,h)anthracene	<0.0001	mg/l	0.0001
	Dieldrin		mg/l	0.0001
	Dimethoate	<0.001	mg/l	0.001
	Diuron	<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.001	mg/l	0.001
	Endosulfan, beta-	<0.005	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone	NotRecovered	mg/l	0.0001
	Endrin-aldehyde	<0.001	mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene	<0.0001	mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.0001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.001
	Lindane (gamma-HCH)	<0.0001		
		<0.001	mg/l	0.0001
	Metalaxyl and metalaxyl-M (metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))	0.001	mg/l	0.001
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001	mg/l	0.0001
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001		
	PCB 101	<0.0001	mg/l	0.0001
	ECD IUI		mg/l	0.0001
		<0.001		
	PCB 138 PCB 183	<0.001 <0.0001	mg/l mg/l	0.001 0.0001

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			vater restr		
		RESULTS	(UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k)	<0.001	mg/l	0.001	
	fluoranthene		···· ·	0.001	
	Trifluralin	<0.0001	mg/l	0.0001	
NW003	Total Alkalinity		-		
	Alkalinity total	200	(± 20) mg	1	
	,		CaCO3/I	·	
NW030	Total Hardness				
	Hardness	166	mg CaCO3/I	1	
NW210	Total Non-Purgeable Orga	nic Carbon			
	Total Organic Carbon	1.1	(± 0.1) mg/l	0.1	
W229	VOC (GC-MS)				
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dishorhoctriane 1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l		
		<0.0005	•	0.0005	
	1,3,5-Trimethylbenzene 1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	•	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
	2 onloropropopo	٠٥.٥٥٥	ma/l	0.0005	
	3-chloropropene 4-Chlorotoluene	<0.0005	mg/l mg/l	0.0005	

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			UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)		•	
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
①NWWG6	S Volatile Fatty Acids (VFA)			
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5

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RESULTS (UNCERTAINTY) LOQ

LIST OF	METHODS		
NW003	Total Allcalinity, ADLIA Online Edition 2220 D	NW007	Chloride: APHA Online Edition 4110 B
	Total Alkalinity: APHA Online Edition 2320 B		
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
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NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
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NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210 B	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Signature

Marylou Cabral

mbecabool

Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

Supervisor Eurofins ELS

Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Ganesh Ilancko

Supervisor Eurofins ELS Limited

Arvinder Singh

Laboratory Supervisor Microbiology

Gabriela Carvalhaes Manager Food and Water **Testing Chemistry**

EXPLANATORY NOTE





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- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
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N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

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The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

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END OF REPORT







AR-24-NW-024782-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

Contact for your orders:

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Landfill Contract:

Gabriela Carvalhaes

812-2024-00052262 SAMPLE CODE

Sample Name 349865-0 **Product:** Ground water

Sampling Point code: WIL-D2

09/04/2024 17:45 **Reception Date & Time:**

Analysis Started on: 09/04/2024

Product Type Ground water

Sampler(s) Client nominated external sampler Copy to: Water and Waste Team

REPORT DATE

(waterandwasteteam@horowhenua.govt.nz), McMillan

EUNZWE-00177658 Order code:

24/04/2024

Purchase Order Number:

Landfill

Sampling Point name: Levin D2

Analysis Ending Date:

24/04/2024

Sampled Date & Time 09/04/2024 08:07

Sampled by Eurofins No

Campici	- (C)	minated extern		ampica by Euromis	
		RESULTS	(UNCERTAINTY)	LOQ	
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	0.76	(± 0.08) mg/l	0.01	
NW341	BOD5 - Soluble Carbonaceo	u s <3	mg/l	1	
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	51	(± 9) mg/l	15	
NW007	Chloride Chloride (CI)	94.4	(± 9.44) mg/l	0.02	
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chlorophenol) 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol Phenol Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.01 <0.01 <0.02 <0.01 <0.01 <0.01 <0.005 <0.01 <0.005	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.01 0.01 0.2 0.01 0.01 0.01 0.005 0.01 0.02	
NW023	·	67.8	(± 1.4) mS/m	0.1	
NW098	Dissolved Aluminium Aluminium	<0.002	mg/l	0.002	
NW583	Dissolved Arsenic Arsenic (As)	<0.001	mg/l	0.001	
NW103	Dissolved Boron Boron (B)	0.04	mg/l	0.03	

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			water rest	
		RESULT	S (UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium			
	Calcium (Ca)	26.8	mg/l	0.1
NW106	Dissolved Chromium			
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	11.4	mg/l	0.01
NW110	Dissolved Lead		-	
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium		··· ·9 ··	0.0000
1444114	Magnesium (Mg)	22.6	mg/l	0.01
NIVA/440			1119/1	0.01
NW113	Dissolved Manganese	0.607		
	Manganese (Mn)	0.007	mg/l	0.0005
NW114	Dissolved Mercury	<0.000E		
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel	-0.00C=		
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	11.7	mg/l	0.01
NW193	Dissolved Reactive Phos	phorus		
	Phosphorus (soluble reactive)		mg/l	0.005
NW120	Dissolved Sodium			
	Sodium (Na)	42.4	mg/l	0.01
NW125	Dissolved Zinc		J	
	Zinc (Zn)	0.005	mg/l	0.002
7M2C ^			· ·	0.002
ZIVIZGA	Enumeration of Escheric	nia coli By Mer <100		400
ADAIG 15	Escherichia coli		cfu/100 ml	100
NW010	Nitrate-N	<0.01	(± 0 00) ~~~//	
	Nitrate-N		(± 0.00) mg/l	0.01
NW195	pH (Tested beyond 15 mi		-	
	рН	6.3	(± 0.2)	0.1
NW011	•	0.45		
	Sulphate	6.15	(± 0.62) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	53	mg/l	3
NW228	SVOC (GC-MSMS)			
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.001
	Adipatic acid, bis-2-ethylhexyl	<0.0001	mg/l	0.0001
	ester (DEHA)		-	
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.1
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.0001
			3	

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		ater restir	·9
	RESULTS (UNCERTAINTY)	LOQ
SVOC (GC-MSMS)			
Benz(a)anthracene	<0.0001	mg/l	0.0001
Benzo(a)pyrene	<0.0001	mg/l	0.0001
Benzo(g,h,i)perylene	<0.001	mg/l	0.001
Bromacil		mg/l	0.005
Carbofuran		mg/l	0.001
Chlordane	<0.0001	mg/l	0.0001
Chlordane, gamma		mg/l	0.001
Chlorpyrifos (-ethyl)		mg/l	0.0001
Chrysene		mg/l	0.0001
Cyanazine		mg/l	0.005
d-BHC		mg/l	0.0001
DDD, p,p'-		mg/l	0.0001
DDE, p,p-		mg/l	0.0001
DDT, p,p'-	NotRecovered	mg/l	0.001
Diazinon	<0.0001	mg/l	0.0001
Dibenz(a,h)anthracene	<0.0001	mg/l	0.0001
Dieldrin	<0.0001	mg/l	0.0001
Dimethoate	<0.001	mg/l	0.001
Diuron		mg/l	0.001
Endosulfan, alpha-		mg/l	0.001
Endosulfan, beta-		mg/l	0.005
Endosulfan-sulfate		mg/l	0.0001
Endrin		mg/l	0.0001
Endrin ketone		mg/l	0.0001
Endrin-aldehyde		mg/l	0.01
Fluoranthene		mg/l	0.0001
Fluorene		mg/l	0.0001
HCH, alpha-		mg/l	0.0001
HCH, beta-		mg/l	0.0001
Heptachlor		mg/l	0.0001
Heptachlor epoxide, cis-		mg/l	0.0001
Hexachlorobenzene (HCB)		mg/l	0.0001
Hexazinone		mg/l	0.001
Indeno(1,2,3-cd)pyrene		mg/l	0.0001
Lindane (gamma-HCH)		mg/l	0.0001
Metalaxyl and metalaxyl-M (metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))		mg/l	0.001
Methoxychlor	<0.0001	mg/l	0.0001
Metolachlor	<0.0001	mg/l	0.0001
Metribuzin	<0.0001	mg/l	0.0001
Molinate	<0.0001	mg/l	0.0001
Naphthalene	<0.0001	mg/l	0.0001
Oxadiazon	<0.0001	mg/l	0.0001
PCB 101	<0.0001	mg/l	0.0001
PCB 138	<0.001	mg/l	0.001
. 02 .00			
	Benz(a)anthracene Benzo(a)pyrene Benzo(g,h,i)perylene Bromacil Carbofuran Chlordane Chlordane, gamma Chlorpyrifos (-ethyl) Chrysene Cyanazine d-BHC DDD, p,p'- DDE, p,p- DDT, p,p'- Diazinon Dibenz(a,h)anthracene Dieldrin Dimethoate Diuron Endosulfan, alpha- Endosulfan-sulfate Endrin Endrin ketone Endrin-aldehyde Fluoranthene Fluorene HCH, alpha- HCH, beta- Heptachlor Heptachlor epoxide, cis- Hexachlorobenzene (HCB) Hexazinone Indeno(1,2,3-cd)pyrene Lindane (gamma-HCH) Metalaxyl and metalaxyl-M (metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers)) Methoxychlor Metolachlor Metribuzin Molinate Naphthalene Oxadiazon PCB 101	SVOC (GC-MSMS) Benz(a)anthracene <0.0001	Benz(a)anthracene <0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







	-		valer restr		
		KESULTS	S (UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k)	<0.001	mg/l	0.001	
	fluoranthene	<0.0001		0.0004	
	Trifluralin	-0.0001	mg/l	0.0001	
NW003	Total Alkalinity	187	(1.40)		
	Alkalinity total	107	(± 19) mg CaCO3/I	1	
NW030	Total Hardness				
	Hardness	160	mg CaCO3/I	1	
NW210	Total Non-Purgeable Organ	nic Carbon	-		
	Total Organic Carbon	16.3	(± 1.6) mg/l	0.1	
NW229	VOC (GC-MS)			•••	
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005			
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,3-Trichloroproparie	<0.0005	mg/l mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005	-	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.0005	
	, ,	<0.0002	mg/l	0.002	
	1,2-Dibromoethane	<0.0005	mg/l	0.0002	
	1,2-Dichlorobenzene (2) 1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	•	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
	3-chloropropene		mg/l	0.0005	
	4-Chlorotoluene	<0.0005	mg/l	0.0005	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







		RESULTS (UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	
	p-Isopropyltoluene	<0.0005	mg/l	0.0005 0.0005
	sec-Butylbenzene	<0.0005	mg/l	
	Styrene	<0.0005		0.0005
	·	<0.0005	mg/l	0.0005
	tert-Butylbenzene Tetrachloroethene	<0.0005	mg/l	0.0005
		<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0003	mg/l	0.0005
	Vinyl chloride	<0.0005	mg/l	0.0003
	Xylene (ortho-)	10.0000	mg/l	0.0005
NWWG6	Volatile Fatty Acids (VFA)	√ E		
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







RESULTS (UNCERTAINTY) LOQ

LIST O	METHODS		
NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210 B	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Signature

Marylou Cabral

mbecalros

Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

Supervisor Eurofins ELS Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Ganesh Ilancko

Supervisor Eurofins ELS Limited

Arvinder Singh

Laboratory Supervisor Microbiology



Manager Food and Water **Testing Chemistry**

EXPLANATORY NOTE







- Test is not accredited
- ②Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- **©** Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

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END OF REPORT





24/04/2024

Levin D3rd



Food & Water Testing

AR-24-NW-024781-01

ANALYTICAL REPORT

REPORT DATE

Copy to: Water and Waste Team

Sampling Point name:

Attention Downer NZ Ltd (EDI Levin)

Horowhenua Admin

P O Box 642 4741 Levin NEW ZEALAND

Phone (06) 367 2705

REPORT CODE

Email horowhenuaadmin@downer.co.nz (waterandwasteteam@horowhenua.govt.nz), McMillan

Contact for your orders: Gabriela Carvalhaes Order code: EUNZWE-00177658

Contract: Landfill

Purchase Order Number: Landfill

SAMPLE CODE **812-2024-00052261**

Sample Name 349866-0
Product: Ground water

Sampling Point code: WIL-D3rd

Reception Date & Time: 09/04/2024 17:40

Analysis Started on: 09/04/2024 Analysis Ending Date: 24/04/2024

Product Type Ground water Sampled Date & Time 09/04/2024 08:58

Sampler(s) Client nominated external sampler Sampled by Eurofins No

	RESULTS	(UNCERTAINTY)	LOQ
Ammonia Nitrogen			
Ammoniacal nitrogen (N)	0.37	(± 0.04) mg/l	0.01
BOD5 - Soluble Carbonaceo			
BOD5	<1	mg/l	1
Chemical oxygen demand (COD)	<15	(± 5) mg/l	15
Chloride			
Chloride (CI)	32.6	(± 3.26) mg/l	0.02
Chlorophenols			
2,3,4,6-Tetrachlorophenol		mg/l	0.01
2,4-Dichlorophenol		mg/l	0.01
2,6-Dichlorophenol		mg/l	0.2
2-Chlorophenol (o-chlorophenol)		mg/l	0.01
3,4,5-Trichlorophenol		mg/l	0.01
4-Chloro-3-cresol		mg/l	0.01
Pentachlorophenol		mg/l	0.005
Phenol		mg/l	0.01
Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02
Conductivity			
Conductivity	53.2	(± 1.1) mS/m	0.1
Dissolved Aluminium	0.003		
Aluminium	0.003	mg/l	0.002
Dissolved Arsenic	0.040		
Arsenic (As)	0.019	mg/l	0.001
Dissolved Boron			
Boron (B)	<0.03	mg/l	0.03
	BOD5 - Soluble Carbonaceo BOD5 Chemical Oxygen Demand Chemical oxygen demand (COD) Chloride Chloride (CI) Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chlorophenol) 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol Phenol Total of 2,4,5 & 2,4,6 -Trichlorophenol Conductivity Conductivity Dissolved Aluminium Aluminium Dissolved Arsenic Arsenic (As) Dissolved Boron	Ammonia Nitrogen 0.37 BOD5 - Soluble Carbonaceous SOD5 BOD5 <1	Ammoniacal nitrogen (N) 0.37 (± 0.04) mg/l BOD5 - Soluble Carbonaceous SOD5 <1 mg/l Chemical Oxygen Demand Chemical oxygen demand (COD) <15 (± 5) mg/l Chloride Chloride Chloride (CI) 32.6 (± 3.26) mg/l Chlorophenols 2,3,4,6-Tetrachlorophenol <0.01 mg/l 2,4-Dichlorophenol <0.02 mg/l 2,6-Dichlorophenol <0.02 mg/l 2-Chlorophenol (o-chlorophenol) <0.01 mg/l 4-Chloro-3-cresol <0.01 mg/l Pentachlorophenol <0.005 mg/l Phenol <0.001 mg/l Total of 2,4,5 & 2,4,6 <0.02 mg/l -Trichlorophenol <0.02 mg/l Conductivity 53.2 (± 1.1) mS/m Dissolved Aluminium Aluminium 0.003 mg/l Dissolved Boron <0.02 <0.02

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			water rest	
		RESULTS	S (UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium			
	Calcium (Ca)	53.0	mg/l	0.1
NW106	Dissolved Chromium			
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	0.03	mg/l	0.01
NW110	Dissolved Lead		<u> </u>	
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium		··· ·3 ··	0.0000
1444 112	Magnesium (Mg)	13.0	mg/l	0.01
NIVA/440			mg/i	0.01
NW113	Dissolved Manganese	0.500	100 cr //	0.00==
	Manganese (Mn)	0.000	mg/l	0.0005
NW114	Dissolved Mercury	<0.000E		
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel	.0.000=		
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	6.37	mg/l	0.01
NW193	Dissolved Reactive Phos	phorus		
	Phosphorus (soluble reactive)		mg/l	0.005
NW120	Dissolved Sodium			
	Sodium (Na)	20.4	mg/l	0.01
NW125	Dissolved Zinc		J.	0.01
1444 123	Zinc (Zn)	<0.002	mg/l	0.000
ZMF1E		ship poli Dec Mari	· ·	0.002
∠IVIF1E	Enumeration of Escheric	chia coli By Mer <1		4
	Escherichia coli	•	cfu/100 ml	1
NW010	Nitrate-N	<0.01	(1.0.00)	
	Nitrate-N		(± 0.00) mg/l	0.01
NW195	pH (Tested beyond 15 mi			
	рН	7.5	(± 0.2)	0.1
NW011	Sulphate			
	Sulphate	<0.02	(± 0.01) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	<5	mg/l	3
NW228	SVOC (GC-MSMS)			
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.001
	Adipatic acid, bis-2-ethylhexyl	<0.0001	mg/l	0.001
	ester (DEHA)		J	3.0001
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.1
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.0001
			<u> </u>	

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1 •			
	KESULIS (UNCERTAINTY)	LOQ
SVOC (GC-MSMS)	<0.0004		
Benz(a)anthracene		mg/l	0.0001
Benzo(a)pyrene		mg/l	0.0001
Benzo(g,h,i)perylene		mg/l	0.001
Bromacil		mg/l	0.005
Carbofuran		mg/l	0.001
Chlordane	<0.0001	mg/l	0.0001
Chlordane, gamma	<0.001	mg/l	0.001
Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
Chrysene	<0.0001	mg/l	0.0001
Cyanazine	<0.005	mg/l	0.005
d-BHC	<0.0001		0.0001
	<0.0001		0.0001
	<0.0001		0.0001
	NotRecovered		0.0001
	<0.0001		
	<0.0001		0.0001
			0.0001
			0.0001
			0.001
			0.001
		mg/l	0.001
		mg/l	0.005
Endosulfan-sulfate		mg/l	0.0001
Endrin		mg/l	0.0001
Endrin ketone		mg/l	0.0001
Endrin-aldehyde	<0.001	mg/l	0.01
Fluoranthene	<0.0001	mg/l	0.0001
Fluorene	<0.0001	mg/l	0.0001
HCH, alpha-	<0.0001		0.0001
	<0.0001		0.0001
	<0.0001		0.0001
	<0.0001		0.0001
	<0.0001		0.0001
	<0.001		
			0.001
, , , , ,			0.0001
		•	0.0001
(metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of	\0.001	mg/l	0.001
	<0.0001	mg/l	0.0001
•	<0.0001		
			0.0001
			0.0001
			0.0001
		mg/l	0.0001
Oxadiazon		mg/l	0.0001
PCB 101	<0.0001	mg/l	0.0001
PCB 138	<0.001 <0.0001	mg/l	0.001
	SVOC (GC-MSMS) Benz(a)anthracene Benzo(a)pyrene Benzo(g,h,i)perylene Bromacil Carbofuran Chlordane Chlordane, gamma Chlorpyrifos (-ethyl) Chrysene Cyanazine d-BHC DDD, p,p'- DDE, p,p- DDT, p,p'- Diazinon Dibenz(a,h)anthracene Dieldrin Dimethoate Diuron Endosulfan, alpha- Endosulfan, beta- Endosulfan-sulfate Endrin Endrin ketone Endrin-aldehyde Fluoranthene Fluorene HCH, alpha- HCH, beta- Heptachlor Heptachlor epoxide, cis- Hexazinone Indeno(1,2,3-cd)pyrene Lindane (gamma-HCH) Metalaxyl and metalaxyl-M (metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers)) Methoxychlor Metolachlor Metribuzin Molinate Naphthalene Oxadiazon	RESULTS (SVOC (GC-MSMS) Senz(a)anthracene < 0.0001	Benz(a)anthracene <0.0001

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	1 *		S (UNCERTAINTY)	LOQ	
		KLOULI	(OHOLICIAINTI)	LUQ	
NW228	(/	<0.0001	,,		
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)		mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k) fluoranthene	<0.001	mg/l	0.001	
	Trifluralin	<0.0001	mg/l	0.0001	
NW003	Total Alkalinity				
	Alkalinity total	223	(± 22) mg CaCO3/I	1	
NW030	Total Hardness				
	Hardness	186	mg CaCO3/I	1	
NW210	Total Non-Purgeable Orga	nic Carbon			
	Total Organic Carbon	5.8	(± 0.6) mg/l	0.1	
NW229					
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005		0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l mg/l	0.0005	
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005			
	1,2,4 trimetry/benzen	<0.0005	mg/l	0.0005	
		<0.001	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.0002	mg/l	0.002	
	1,2-Dibromoethane	<0.0005	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene		mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	1,4-dicilioroperizerie	-0.000-			
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
		<0.0005	mg/l mg/l	0.0005 0.0005	
	2,2-Dichloropropane				

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			ater restir	
		RESULTS (UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
①NWWG6	Volatile Fatty Acids (VFA)			
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5
	,		J	

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RESULTS (UNCERTAINTY) LOQ

LIST O	FMETHODS		
NIMAGOOO	T () A	NIM/007	OLL 11 ABUA O E E E E E A440 B
NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210 B	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZMF1E	Escherichia coli E (Water) [NZ] <1 >80 /100 ml (0) Ml Agar-F: SMEWW 9222K; APHA 24th Edition

Signature

Marylou Cabral Laboratory Manager

mbecabool

Eurofins ELS Limited

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EXPLANATORY NOTE







- Test is not accredited
- 2 Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- x (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

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The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

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END OF REPORT





20/04/2024



Food & Water Testing

AR-24-NW-024101-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

REPORT CODE

Gabriela Carvalhaes

Landfill

Copy to: Water and Waste Team

REPORT DATE

Order code:

(waterandwasteteam@horowhenua.govt.nz), McMillan

Purchase Order Number: Landfill

SAMPLE CODE 812-2024-00052406

349867-0 Sample Name **Product:** Ground water

Sampling Point code: WIL-D3rs

10/04/2024 8:59 **Reception Date & Time:**

Analysis Started on: 10/04/2024

Product Type Ground water Sampling Point name:

Analysis Ending Date:

Sampled Date & Time

20/04/2024 09/04/2024 09:16

Levin D3rs

EUNZWE-00177701

Sample	••	round water lient nominated exte		Sampled by Eurofins	No
		RESULT	S (UNCERTAINTY) LOQ	
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N	0.75	(± 0.07) mg/l	0.01	
NW341	BOD5 - Soluble Carb	onaceous 2	mg/l	1	
NW020	Chemical Oxygen De Chemical oxygen deman		(± 11) mg/l	15	
NW007	Chloride Chloride (Cl)	15.8	(± 1.58) mg/l	0.02	
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chloro 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol Phenol Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.01 <0.02	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.01 0.01 0.2 0.01 0.01 0.01 0.005 0.01 0.02	
NW023	Conductivity Conductivity	22.0	(± 0.4) mS/m	0.1	
NW098	Aluminium	1 0.055	mg/l	0.002	
NW103	Dissolved Boron Boron (B)	0.03	mg/l	0.03	

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NW104 Dissolved Cadmium

Cadmium (Cd)

< 0.0002

mg/l

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0.0002

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	I		vvater resti	
		RESULT	S (UNCERTAINTY)	LOQ
NW105	Dissolved Calcium	0.0		
	Calcium (Ca)	9.0	mg/l	0.1
NW106	Dissolved Chromium	0.000		
	Chromium (Cr)	0.003	mg/l	0.001
NW108	Dissolved Copper	.0.005=		
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	14.8	mg/l	0.01
NW110	Dissolved Lead			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium			
	Magnesium (Mg)	4.89	mg/l	0.01
NW113	Dissolved Manganese			
	Manganese (Mn)	0.382	mg/l	0.0005
NW114	Dissolved Mercury		5	3.0000
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel		···ə/·	0.0003
1444110		<0.0005	ma/l	0.0005
NNA/44=	Nickel (Ni)	2.0000	mg/l	0.0005
NW117	Dissolved Potassium	4.61		
	Potassium (K)		mg/l	0.01
NW193	Dissolved Reactive Phos			
	Phosphorus (soluble reactive)	0.082	mg/l	0.005
NW120	Dissolved Sodium	22.2		
	Sodium (Na)	23.0	mg/l	0.01
NW125	Dissolved Zinc			
	Zinc (Zn)	0.004	mg/l	0.002
ZM2GA	Enumeration of Escheric		mbrane Filtration	
	Escherichia coli	<100	cfu/100 ml	100
NW010	Nitrate-N			
	Nitrate-N	<0.1	mg/l	0.01
NW195	pH (Tested beyond 15 min	nute APHA hol	dina time)	
	pH	6.3	(± 0.2)	0.1
NW011				
	Sulphate	0.81	(± 0.08) mg/l	0.02
NW20E	Suspended Solids		. , -	0.02
1444200	Suspended Solids Suspended Solids	6	mg/l	2
NIMPOO			1119/1	3
NW228	SVOC (GC-MSMS)	<0.0001	ma!!	0.0001
	Acenaphthelee	<0.001	mg/l	0.0001
	Acenaphthylene	-0.0004	mg/l	0.001
	Adipatic acid, bis-2-ethylhexyl ester (DEHA)	3.3001	mg/l	0.0001
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.0001
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.001
	Benz(a)anthracene	<0.0001	mg/l	0.0001
	Benzo(a)pyrene	<0.0001	mg/l	0.0001
				0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			(IINCEPTAINTY)	
		KESULIS	(UNCERTAINTY)	LOQ
NW228	` '	<0.001	_	
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001
	Bromacil	<0.005	mg/l	0.005
	Carbofuran	<0.001	mg/l	0.001
	Chlordane	<0.0001	mg/l	0.0001
	Chlordane, gamma	<0.001	mg/l	0.001
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
	Chrysene	<0.0001	mg/l	0.0001
	Cyanazine	<0.005	mg/l	0.005
	d-BHC	<0.0001	mg/l	0.0001
	DDD, p,p'-	<0.0001	mg/l	0.0001
	DDE, p,p-	<0.0001	mg/l	0.0001
	DDT, p,p'-	<0.001	mg/l	0.001
	Diazinon	<0.0001	mg/l	0.0001
	Dibenz(a,h)anthracene	<0.0001	mg/l	0.0001
	Dieldrin	<0.0001	mg/l	0.0001
	Dimethoate	<0.001	mg/l	
	Dirietiloate	<0.001		0.001
		<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.005	mg/l	0.001
	Endosulfan, beta-	<0.0001	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone	<0.0001	mg/l	0.0001
	Endrin-aldehyde		mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene	<0.0001	mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001
	Metalaxyl and metalaxyl-M	<0.001	mg/l	0.0001
	(metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))		··· · ···	0.001
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001	mg/l	0.0001
		<0.0001		
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001	mg/l	0.0001
	PCB 101	<0.0001	mg/l	0.0001
	PCB 138		mg/l	0.001
	PCB 183	<0.0001	mg/l	0.0001
	PCB 28	<0.0001	mg/l	0.0001
	FGB 20	<0.0001	3	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			(UNCERTAINTY)	LOQ
Anarass		- NEOOLI C	(SHOEKIAIIII)	LUQ
NW228	SVOC (GC-MSMS)	<0.002	-	
	Pendimethalin		mg/l	0.002
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001
	Phenanthrene	<0.0001	mg/l	0.0001
	Pirimiphos-methyl	<0.0001	mg/l	0.0001
	Procymidone	<0.0001	mg/l	0.0001
	Propanil	<0.001	mg/l	0.001
	Propazine	<0.0001	mg/l	0.0001
	Pyrene	<0.0001	mg/l	0.0001
	Pyriproxyfen	<0.0001	mg/l	0.0001
	Simazine	<0.0001	mg/l	0.0001
	Terbuthylazine	<0.0001	mg/l	0.0001
	Total Benzo(b) and Benzo(k)	<0.001	mg/l	0.001
	fluoranthene		···ə,·	0.001
	Trifluralin	<0.0001	mg/l	0.0001
NW003	Total Alkalinity		-	
	Alkalinity total	80	(± 8) mg	1
	aminy total		CaCO3/I	Į.
NW030	Total Hardness			
	Hardness	43	mg CaCO3/I	1
NW210	Total Non-Purgeable Organ	nic Carbon	Q	-
	Total Organic Carbon	21.9	(± 2.2) mg/l	0.1
NW220	-		. , 0	0.1
NW229	VOC (GC-MS)	<0.0005	/I	0.000=
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005
	1,1,2-Trichloroethane		mg/l	0.0005
	1,1-Dichloroethane	<0.0005	mg/l	0.0005
	1,1-Dichloroethene	<0.0005	mg/l	0.0005
	1,1-Dichloropropene	<0.0005	mg/l	0.0005
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005
	1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002
	1,2-Dibromoethane	<0.0002	mg/l	0.002
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0002
	1,2-Dichloroethane	<0.0005		
	•	<0.0005	mg/l	0.0005
	1,2-Dichloropropane	<0.0005	mg/l	0.0005
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005
	1,3-Dichlorobenzene		mg/l	0.0005
	1,3-Dichloropropane	<0.0005	mg/l	0.0005
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005
	2,2-Dichloropropane	<0.0005	mg/l	0.0005
	2-Chlorotoluene	<0.0005	mg/l	0.0005
	3-chloropropene	<0.0020	mg/l	0.0005
	4-Chlorotoluene	<0.0005	mg/l	0.0005
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	DONZONO		1119/1	0.0005

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







		RESULTS	(UNCERTAINTY)	LOQ
NIMOOO	\(\(\text{OO}\)\(\text{OO}\)\(\text{OO}\)		(0)	
NW229	VOC (GC-MS)	<0.0005	······································	
	Bromobenzene	<0.0012	mg/l	0.0005
	Bromochloromethane	<0.0005	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.001	mg/l	0.0005
	Bromomethane (zone 2)	<0.0005	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.001	mg/l	0.0005
	Chloroethane	<0.0005	mg/l	0.001
	Chloroform	<0.006	mg/l	0.0005
	Chloromethane	<0.0005	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	NotRecovered	mg/l	0.0005
	Dichlorodifluoromethane	< 0.005	mg/l	0.001
	Dichloromethane	<0.003	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene		mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
NWWG6	Volatile Fatty Acids (VFA)	_		
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5

LIST OF METHODS

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND









NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210	NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.
ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition		

Signature

Marylou Cabral Laboratory Manager

mbecabra

Eurofins ELS Limited

Jennifer Mont

Supervisor Eurofins ELS Limited

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Gabriela Carvalhaes Manager Food and Water Testing Chemistry

Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE







Test is not accredited

②Test is subcontracted within Eurofins group and is accredited

3 Test is subcontracted within Eurofins group and is not accredited

 $\ensuremath{\mathfrak{Y}}$ Test is subcontracted outside Eurofins group and is accredited

Test is subcontracted outside Eurofins group and is not accredited

© Test result is provided by the customer and is not accredited

Tested at the sampling point by Eurofins and is not accredited

® Tested at the sampling point by Eurofins and is accredited

Test is RLP accredited

Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

🗴 (Unsatisfactory) means does not meet the specification

✓ (Satisfactory) means meets the specification

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The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

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END OF REPORT





19/04/2024

Levin D4



Food & Water Testing

AR-24-NW-023550-01

ANALYTICAL REPORT

REPORT DATE

Copy to: Water and Waste Team

Sampling Point name:

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

Contact for your orders:

REPORT CODE

(waterandwasteteam@horowhenua.govt.nz), McMillan **Email** horowhenuaadmin@downer.co.nz

Gabriela Carvalhaes EUNZWE-00177701

Landfill

Contract:

Purchase Order Number: Landfill

Order code:

SAMPLE CODE 812-2024-00052407

Sample Name 349868-0 **Product:** Ground water

Sampling Point code: WIL-D4

10/04/2024 9:03 Reception Date & Time:

Analysis Started on: 10/04/2024 **Analysis Ending Date:** 19/04/2024 **Product Type** Sampled Date & Time 09/04/2024 12:16 Ground water

No

Sampler(s) Sampled by Eurofins Client nominated external sampler

Oumpio.		minatoa oxtorri	ar campion •	umpied by Editinio	.10
		RESULTS	(UNCERTAINTY)	LOQ	
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	0.24	(± 0.02) mg/l	0.01	
NW341	BOD5 - Soluble Carbonaceo	ous <1	mg/l	1	
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)) 28	(± 7) mg/l	15	
NW007	Chloride Chloride (Cl)	29.8	(± 2.98) mg/l	0.02	
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01	
	2,4-Dichlorophenol 2,6-Dichlorophenol	<0.01 <0.02	mg/l mg/l	0.01 0.2	
	2-Chlorophenol (o-chlorophenol) 3,4,5-Trichlorophenol	<0.01 <0.01	mg/l mg/l	0.01 0.01	
	4-Chloro-3-cresol Pentachlorophenol	<0.01 <0.005	mg/l mg/l	0.01 0.005	
	Phenol Total of 2,4,5 & 2,4,6	<0.01 <0.02	mg/l mg/l	0.01 0.02	
NW023	•	27.4	(1.0.5) == 2/==		
NW098	Conductivity Dissolved Aluminium	27.4	(± 0.5) mS/m	0.1	
NW103	Aluminium Dissolved Boron	0.003	mg/l	0.002	
NW104	Boron (B) Dissolved Cadmium	<0.03	mg/l	0.03	
	Cadmium (Cd)	<0.0002	mg/l	0.0002	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010

NEW ZEALAND

Phone www.eurofins.co.nz +64 4 576 5016







	l I		vvater rest	
		RESULT	S (UNCERTAINTY)	LOQ
NW105	2.000	0.0		
	Calcium (Ca)	9.2	mg/l	0.1
NW106	Dissolved Chromium	ZO 004		
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper	40.000F		
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	Dissolved Iron	4.00		
	Iron (Fe)	1.90	mg/l	0.01
NW110	Dissolved Lead			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium	0.01		
	Magnesium (Mg)	6.34	mg/l	0.01
NW113	Dissolved Manganese			
	Manganese (Mn)	0.207	mg/l	0.0005
NW114	Dissolved Mercury			
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel			
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	5.63	mg/l	0.01
NW193	Dissolved Reactive Phos	phorus		
	Phosphorus (soluble reactive)		mg/l	0.005
NW120	Dissolved Sodium			
	Sodium (Na)	28.8	mg/l	0.01
NW125	Dissolved Zinc			
	Zinc (Zn)	<0.002	mg/l	0.002
ZM2GA	Enumeration of Escheric	hia coli Bv Mer	•	
	Escherichia coli	<100	cfu/100 ml	100
NW010	Nitrate-N			
3.3	Nitrate-N	<0.01	(± 0.00) mg/l	0.01
NW195	pH (Tested beyond 15 mi	nute APHA hol	ding time)	
	pH (rested beyond 13 mm	7.0	(± 0.2)	0.1
NW011				V. 1
	Sulphate	5.61	(± 0.56) mg/l	0.02
NW206	Suspended Solids			0.02
1444200	Suspended Solids	<5	mg/l	3
NW228			···ə/'	J
144420	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.0001
	Adipatic acid, bis-2-ethylhexyl	-0.0004	mg/l	0.001
	ester (DEHA)		y/1	0.0001
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.1
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.0001
	Benz(a)anthracene	<0.0001	mg/l	0.0001
	Benzo(a)pyrene	<0.0001	mg/l	0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			(IINCEPTAINTY)	
		KESULIS	(UNCERTAINTY)	LOQ
NW228	` '	<0.001	_	
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001
	Bromacil	<0.005	mg/l	0.005
	Carbofuran	<0.001	mg/l	0.001
	Chlordane	<0.0001	mg/l	0.0001
	Chlordane, gamma	<0.001	mg/l	0.001
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
	Chrysene	<0.0001	mg/l	0.0001
	Cyanazine	<0.005	mg/l	0.005
	d-BHC	<0.0001	mg/l	0.0001
	DDD, p,p'-	<0.0001	mg/l	0.0001
	DDE, p,p-	<0.0001	mg/l	0.0001
	DDT, p,p'-	<0.001	mg/l	0.001
	Diazinon	<0.0001	mg/l	0.0001
	Dibenz(a,h)anthracene	<0.0001	mg/l	0.0001
	Dieldrin	<0.0001	mg/l	0.0001
	Dimethoate	<0.001	mg/l	
	Dirietiloate	<0.001		0.001
		<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.005	mg/l	0.001
	Endosulfan, beta-	<0.0001	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone	<0.0001	mg/l	0.0001
	Endrin-aldehyde		mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene	<0.0001	mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001
	Metalaxyl and metalaxyl-M	<0.001	mg/l	0.0001
	(metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))		··· · ···	0.001
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001	mg/l	0.0001
		<0.0001		
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001	mg/l	0.0001
	PCB 101	<0.0001	mg/l	0.0001
	PCB 138		mg/l	0.001
	PCB 183	<0.0001	mg/l	0.0001
	PCB 28	<0.0001	mg/l	0.0001
	FGB 20	<0.0001	3	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			water resti	
		RESULTS	S (UNCERTAINTY)	LOQ
NW228	SVOC (GC-MSMS)			
	Pendimethalin	<0.002	mg/l	0.002
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001
	Phenanthrene	<0.0001	mg/l	0.0001
	Pirimiphos-methyl	<0.0001	mg/l	0.0001
	Procymidone	<0.0001	mg/l	0.0001
	Propanil	<0.001	mg/l	0.001
	Propazine	<0.0001	mg/l	0.0001
	Pyrene	<0.0001	mg/l	0.0001
	Pyriproxyfen	<0.0001	mg/l	0.0001
	Simazine	<0.0001	mg/l	0.0001
		<0.0001	•	
	Terbuthylazine	<0.001	mg/l	0.0001
	Total Benzo(b) and Benzo(k) fluoranthene		mg/l	0.001
	Trifluralin	<0.0001	mg/l	0.0001
MIMOOS			1119/1	0.0001
NW003	Total Alkalinity	83	(± 8) mg	
	Alkalinity total		(± 6) mg CaCO3/I	1
NW030	Total Hardness			
	Hardness	49	mg CaCO3/I	1
NW210		nic Carban	mg caccon	'
1444710	Total Organic Carbon	4.0	(± 0.4) mg/l	0.4
NIIA/OGG	Total Organic Carbon	-	(= 5.7) mg/l	0.1
NW229	VOC (GC-MS)	<0.0005		
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005
	1,1,1-Trichloroethane		mg/l	0.0005
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005
	1,1-Dichloroethane	<0.0005	mg/l	0.0005
	1,1-Dichloroethene	<0.0005	mg/l	0.0005
	1,1-Dichloropropene	<0.0005	mg/l	0.0005
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005
	1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002
	1,2-Dibromoethane	<0.0002	mg/l	0.002
	·	<0.0005		
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005
	1,2-Dichloroethane	<0.0005	mg/l	0.0005
	1,2-Dichloropropane	<0.0005	mg/l	0.0005
	1,3,5-Trichlorobenzene		mg/l	0.0005
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005
	1,3-Dichloropropane	<0.0005	mg/l	0.0005
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005
	2,2-Dichloropropane	<0.0005	mg/l	0.0005
	2-Chlorotoluene	<0.0005	mg/l	0.0005
	3-chloropropene	<0.0020	mg/l	0.0005
	4-Chlorotoluene	<0.0005	mg/l	0.0005
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	DONZONO		mg/i	0.0005

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







				-9
		RESULTS	(UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
NWWG	Volatile Fatty Acids (VFA)		3	
,	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5		
	Isobutyric acid	<5	mg/l mg/l	5
	-	<5	•	5
	Isocaproic acid Isovaleric acid	<5	mg/l	5
		<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	-	mg/l	5

LIST OF METHODS

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND









NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210	NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.
ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition		

Signature

Marylou Cabral Laboratory Manager

mbecabra

Laboratory Manager Eurofins ELS Limited Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon Supervisor Eurofins ELS Limited

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Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE







- Test is not accredited
- 2 Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- **6** Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at 85 Port Road, Seaview, Lower Hutt, Wellington, NEW ZEALAND. The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.

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END OF REPORT





EUNZWE-00177376

19/04/2024



Food & Water Testing

AR-24-NW-023900-01

ANALYTICAL REPORT

REPORT DATE

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

Landfill

Gabriela Carvalhaes Order code:

> **Purchase Order Number:** Landfill

Copy to: Water and Waste Team

(waterandwasteteam@horowhenua.govt.nz), McMillan

812-2024-00051378 SAMPLE CODE

Sample Name 349869-0 **Product:** Ground water

Sampling Point code: WIL-D5

08/04/2024 16:45 **Reception Date & Time:**

Analysis Started on: 08/04/2024

Product Type Ground water

Sampler(s) Client nominated external sampler Sampling Point name: Levin D5

Analysis Ending Date:

Sampled Date & Time

19/04/2024 08/04/2024 08:45

Sampled by Eurofins

No

		RESULTS	(UNCERTAINTY)	LOQ
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	<0.01	(± 0.00) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo	us		
	BOD5	<1	mg/l	1
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	<15	(± 5) mg/l	15
NW007	Chloride			
	Chloride (CI)	27.3	(± 2.73) mg/l	0.02
NW00U	Chlorophenols			
	2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01
	2,4-Dichlorophenol	<0.01	mg/l	0.01
	2,6-Dichlorophenol	<0.2	mg/l	0.2
	2-Chlorophenol (o-chlorophenol)	<0.01	mg/l	0.01
	3,4,5-Trichlorophenol	<0.01	mg/l	0.01
	4-Chloro-3-cresol	<0.01	mg/l	0.01
	Pentachlorophenol	<0.005	mg/l	0.005
	Phenol	<0.01	mg/l	0.01
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02
NW023	Conductivity			
	Conductivity	28.8	(± 0.6) mS/m	0.1
NW098	Dissolved Aluminium Aluminium	0.002	mg/l	0.002
NW583	Dissolved Arsenic Arsenic (As)	<0.001	mg/l	0.001
NIVA/4.02			1119/1	0.001
NW103	Dissolved Boron Boron (B)	0.05	mg/l	0.03

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			vater rest	
		RESULTS	S (UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium			
	Calcium (Ca)	12.3	mg/l	0.1
NW106	Dissolved Chromium			
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	0.0007	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	0.01	mg/l	0.01
NW110	Dissolved Lead		ý.	
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112			9/1	0.0003
1444112	Dissolved Magnesium	10.3	ma/l	0.04
NIVA/446	Magnesium (Mg)		mg/l	0.01
NW113	Dissolved Manganese	0.0051	A	
	Manganese (Mn)	0.0001	mg/l	0.0005
NW114	Dissolved Mercury	<0.0005		
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel			
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	6.85	mg/l	0.01
NW193	Dissolved Reactive Phos	phorus		
	Phosphorus (soluble reactive)		mg/l	0.005
NW120	Dissolved Sodium			
•	Sodium (Na)	23.5	mg/l	0.01
NW125	Dissolved Zinc		··· ·	0.01
1444 123	Zinc (Zn)	<0.002	mg/l	0.002
7M2G 4			_	0.002
ZIVIZGA	Enumeration of Escheric	nia coli By Mer <100		400
	Escherichia coli	.00	cfu/100 ml	100
NW010	Nitrate-N	1.18	(1.0.40) !!	
	Nitrate-N		(± 0.12) mg/l	0.01
NW195	pH (Tested beyond 15 mi			
	рН	6.9	(± 0.2)	0.1
NW011	Sulphate			
	Sulphate	18.0	(± 1.80) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	<5	mg/l	3
NW228	SVOC (GC-MSMS)			
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.001
	Adipatic acid, bis-2-ethylhexyl	<0.0001	mg/l	0.001
	ester (DEHA)	•	···• J ' •	3.0001
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.1
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.0001
			<u> </u>	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







	RESULTS (UNCERTAINTY) LOQ					
NIVAGOO	0//00 (00 110110)		J. 10 E. 17 (17 (17 (17 (17 (17 (17 (17 (17 (17	LUK		
NW228	SVOC (GC-MSMS)	<0.0001	ma/l	0.0004		
	Benz(a)anthracene	<0.0001	mg/l	0.0001		
	Benzo(a)pyrene	<0.001	mg/l	0.0001		
	Benzo(g,h,i)perylene	<0.005	mg/l	0.001		
	Bromacil	<0.001	mg/l	0.005		
	Carbofuran Chlordane	<0.0001	mg/l	0.001		
		<0.001	mg/l	0.0001		
	Chlordane, gamma Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.001		
	Chrysene	<0.0001	mg/l	0.0001		
	Cyanazine	<0.005	mg/l mg/l	0.0001		
	d-BHC	<0.0001		0.005		
	DDD, p,p'-	<0.0001	mg/l mg/l	0.0001		
	DDE, p,p-	<0.0001	mg/l	0.0001 0.0001		
	DDT, p,p'-	<0.001	mg/l	0.001		
	Diazinon	<0.0001	mg/l	0.001		
	Dibenz(a,h)anthracene	<0.0001	mg/l	0.0001		
	Dieldrin	<0.0001	mg/l	0.0001		
	Dimethoate	<0.001	mg/l	0.001		
	Diuron	<0.001	mg/l	0.001		
	Endosulfan, alpha-	<0.001	mg/l	0.001		
	Endosulfan, beta-	<0.005	mg/l	0.005		
	Endosulfan-sulfate	<0.0001	mg/l	0.0001		
	Endrin	<0.0001	mg/l	0.0001		
	Endrin ketone	<0.0001	mg/l	0.0001		
	Endrin-aldehyde	<0.001	mg/l	0.01		
	Fluoranthene	<0.0001	mg/l	0.0001		
	Fluorene	<0.0001	mg/l	0.0001		
	HCH, alpha-	<0.0001	mg/l	0.0001		
	HCH, beta-	<0.0001	mg/l	0.0001		
	Heptachlor	<0.0001	mg/l	0.0001		
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001		
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001		
	Hexazinone	<0.001	mg/l	0.001		
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001		
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001		
	Metalaxyl and metalaxyl-M (metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))	<0.001	mg/l	0.001		
	Methoxychlor	<0.0001	mg/l	0.0001		
	Metolachlor	<0.0001	mg/l	0.0001		
	Metribuzin	<0.0001	mg/l	0.0001		
	Molinate	<0.0001	mg/l	0.0001		
	Naphthalene	<0.0001	mg/l	0.0001		
	Oxadiazon	<0.0001	mg/l	0.0001		
	PCB 101	<0.0001	mg/l	0.0001		
	PCB 138	<0.001	mg/l	0.001		
	PCB 183	<0.0001	mg/l	0.0001		

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







1 00d & Water resting					
		RESULTS	S (UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k) fluoranthene	<0.001	mg/l	0.001	
	Trifluralin	<0.0001	mg/l	0.0001	
NIVA/AAA			mg/i	0.0001	
1W003	Total Alkalinity Alkalinity total	73	(± 7) mg	1	
			CaCO3/I		
NW030	Total Hardness	70			
	Hardness	73	mg CaCO3/I	1	
W210	Total Non-Purgeable Organ				
	Total Organic Carbon	1.9	(± 0.2) mg/l	0.1	
W229	VOC (GC-MS)				
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
			9,.	0.0000	
		<0.0005	ma/l	0.0005	
	2-Chlorotoluene 3-chloropropene	<0.0005 <0.0005	mg/l mg/l	0.0005 0.0005	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







		RESULTS (UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
①NWWG6	Volatile Fatty Acids (VFA)			
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5
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Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







RESULTS (UNCERTAINTY) LOQ

LIST O	FMETHODS		
NW003	Total Alkalinity, ADHA Onlina Edition 2220 P	NW007	Chloride: APHA Online Edition 4110 B
	Total Alkalinity: APHA Online Edition 2320 B		
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Signature

Marylou Cabral

mbecaboos

Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

Supervisor Eurofins ELS

Limited

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Supervisor Eurofins ELS Limited

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EXPLANATORY NOTE







- Test is not accredited
- ②Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- ® Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- x (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

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END OF REPORT





19/04/2024



Food & Water Testing

AR-24-NW-023551-01

ANALYTICAL REPORT

REPORT DATE

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Landfill Contract:

Gabriela Carvalhaes Order code:

EUNZWE-00177701

(waterandwasteteam@horowhenua.govt.nz), McMillan

Purchase Order Number: Landfill

SAMPLE CODE 812-2024-00052408

Sample Name 349870-0 **Product:** Ground water

Sampling Point code: WIL-D6

10/04/2024 9:03 Reception Date & Time:

Analysis Started on: 10/04/2024

Product Type Ground water Sampler(s) Client nominated external sampler Sampling Point name:

Copy to: Water and Waste Team

Analysis Ending Date:

Sampled Date & Time

19/04/2024 09/04/2024 09:56

Levin D6

Sampled by Furofins Nο

Sample	r(s) Client	nominated extern	nal sampler	Sampled by Eurofins	No	
		RESULTS	(UNCERTAINTY) LOQ		
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	<0.01	(± 0.00) mg/l	0.01		
NW341	BOD5 - Soluble Carbona BOD5	ceous <1	mg/l	1		
NW020	Chemical Oxygen Demar Chemical oxygen demand (C		(± 5) mg/l	15		
NW007	Chloride Chloride (CI)	56.6	(± 5.66) mg/l	0.02		
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chlorophenol 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol Phenol Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.01 <0.01 <0.02 nol) <0.01 <0.01 <0.001 <0.005 <0.01 <0.02	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.01 0.01 0.2 0.01 0.01 0.001 0.005 0.01 0.002		
NW023	·	73.8	(± 1.5) mS/m	0.1		
NW098	Dissolved Aluminium Aluminium	<0.002	mg/l	0.002		
NW103	Dissolved Boron Boron (B)	0.06	mg/l	0.03		
NW104	Dissolved Cadmium Cadmium (Cd)	<0.0002	mg/l	0.0002		

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 **NEW ZEALAND**







PESHITS (INCEPTAINTY) LOG					
RESULTS (UNCERTAINTY) LOQ					
NW105	Dissolved Calcium	20.0			
	Calcium (Ca)	32.2	mg/l	0.1	
NW106	Dissolved Chromium	-0.004			
	Chromium (Cr)	<0.001	mg/l	0.001	
NW108	Dissolved Copper				
	Copper (Cu)	<0.0005	mg/l	0.0005	
NW109	Dissolved Iron				
	Iron (Fe)	<0.01	mg/l	0.01	
NW110	Dissolved Lead				
	Lead (Pb)	<0.0005	mg/l	0.0005	
NW112	Dissolved Magnesium				
	Magnesium (Mg)	25.7	mg/l	0.01	
NW113	Dissolved Manganese				
	Manganese (Mn)	0.0015	mg/l	0.0005	
NW114	Dissolved Mercury				
	Mercury (Hg)	<0.0005	mg/l	0.0005	
NW116	Dissolved Nickel				
	Nickel (Ni)	<0.0005	mg/l	0.0005	
NW117	Dissolved Potassium		J .	2.2300	
	Potassium (K)	10.6	mg/l	0.01	
NW102	Dissolved Reactive Phosp	horus	···ə/·	0.01	
144133	Phosphorus (soluble reactive)	0.078	mg/l	0.005	
NIVALAGO		· ·	mg/I	0.005	
NW120	Dissolved Sodium	39.2			
. n	Sodium (Na)	55. <u>Z</u>	mg/l	0.01	
NW125	Dissolved Zinc	0.004			
	Zinc (Zn)		mg/l	0.002	
ZM2GA	Enumeration of Escherich				
	Escherichia coli	<100	cfu/100 ml	100	
NW010	Nitrate-N	50.0			
	Nitrate-N	50.3	(± 5.03) mg/l	0.01	
NW195	pH (Tested beyond 15 min				
	рН	6.6	(± 0.2)	0.1	
NW011	Sulphate				
	Sulphate	7.85	(± 0.79) mg/l	0.02	
NW206	Suspended Solids				
	Suspended Solids	<5	mg/l	3	
NW228	SVOC (GC-MSMS)		•	-	
	Acenaphthene	<0.0001	mg/l	0.0001	
	Acenaphthylene	<0.001	mg/l	0.001	
	Adipatic acid, bis-2-ethylhexyl	<0.0001	mg/l	0.001	
	ester (DEHA)		. .	0.0001	
	Alachlor	<0.0001	mg/l	0.0001	
	Aldicarb	<0.1	mg/l	0.1	
	Aldrin	<0.001	mg/l	0.001	
	Anthracene	<0.001	mg/l	0.001	
	Atrazine	<0.0001	mg/l	0.0001	
	Benz(a)anthracene	<0.0001	mg/l	0.0001	
	Benzo(a)pyrene	<0.0001	mg/l	0.0001	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			(IINCEPTAINTY)	
		KESULIS	(UNCERTAINTY)	LOQ
NW228	` '	<0.001	_	
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001
	Bromacil	<0.005	mg/l	0.005
	Carbofuran	<0.001	mg/l	0.001
	Chlordane	<0.0001	mg/l	0.0001
	Chlordane, gamma	<0.001	mg/l	0.001
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
	Chrysene	<0.0001	mg/l	0.0001
	Cyanazine	<0.005	mg/l	0.005
	d-BHC	<0.0001	mg/l	0.0001
	DDD, p,p'-	<0.0001	mg/l	0.0001
	DDE, p,p-	<0.0001	mg/l	0.0001
	DDT, p,p'-	<0.001	mg/l	0.001
	Diazinon	<0.0001	mg/l	0.0001
	Dibenz(a,h)anthracene	<0.0001	mg/l	0.0001
	Dieldrin	<0.0001	mg/l	0.0001
	Dimethoate	<0.001	mg/l	
	Dirietiloate	<0.001		0.001
		<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.005	mg/l	0.001
	Endosulfan, beta-	<0.0001	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone	<0.0001	mg/l	0.0001
	Endrin-aldehyde		mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene	<0.0001	mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001
	Metalaxyl and metalaxyl-M	<0.001	mg/l	0.0001
	(metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))		··· · ···	0.001
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001	mg/l	0.0001
		<0.0001		
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001	mg/l	0.0001
	PCB 101	<0.0001	mg/l	0.0001
	PCB 138		mg/l	0.001
	PCB 183	<0.0001	mg/l	0.0001
	PCB 28	<0.0001	mg/l	0.0001
	FGB 20	<0.0001	3	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







	PESILITE (INCEPTAINTY)			
		RESULT	S (UNCERTAINTY)	LOQ
NW228	SVOC (GC-MSMS)			
	Pendimethalin	<0.002	mg/l	0.002
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001
	Phenanthrene	<0.0001	mg/l	0.0001
	Pirimiphos-methyl	<0.0001	mg/l	0.0001
	Procymidone	<0.0001	mg/l	0.0001
	Propanil	<0.001	mg/l	0.001
	Propazine	<0.0001	mg/l	0.0001
	Pyrene	<0.0001	mg/l	0.0001
	Pyriproxyfen	<0.0001	mg/l	0.0001
	Simazine	<0.0001	mg/l	0.0001
	Terbuthylazine	<0.0001	mg/l	
	-	<0.001	•	0.0001
	Total Benzo(b) and Benzo(k) fluoranthene	0.00	mg/l	0.001
	Trifluralin	<0.0001	mg/l	0.0001
NIVATOOO			1119/1	0.0001
NW003	Total Alkalinity	68	(± 7) mg	
	Alkalinity total	00	CaCO3/I	1
NW030	Total Hardness		2222011	
	Hardness	186	mg CaCO3/I	1
NIMOAO			mg GaGGS/I	ı
NW210	Total Non-Purgeable Orga	nic Carbon 1.1	(± 0.1) mg/l	
	Total Organic Carbon	1.1	(± 0.1) mg/l	0.1
NW229	VOC (GC-MS)	-0.000=		
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005
	1,1-Dichloroethane	<0.0005	mg/l	0.0005
	1,1-Dichloroethene	<0.0005	mg/l	0.0005
	1,1-Dichloropropene	<0.0005	mg/l	0.0005
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005
	• •	<0.0005		
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005
	1,2,4-Trichlorobenzene	<0.0003	mg/l	0.0005
	1,2-Dibromo-3-chloropropane		mg/l	0.002
	1,2-Dibromoethane	<0.0002	mg/l	0.0002
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005
	1,2-Dichloroethane	<0.0005	mg/l	0.0005
	1,2-Dichloropropane	<0.0005	mg/l	0.0005
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005
	1,3-Dichloropropane	<0.0005	mg/l	0.0005
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005
	2,2-Dichloropropane	<0.0005		
	, ,	<0.0005	mg/l	0.0005
	2-Chlorotoluene	<0.0020	mg/l	0.0005
	3-chloropropene	<0.0020	mg/l	0.0005
	4-Chlorotoluene		mg/l	0.0005
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







				-9
		RESULTS	(UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
NWWG			g/1	0.0000
PITTO	S Volatile Fatty Acids (VFA) Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	•	<5		5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5 <5	mg/l	5
	Volatile fatty acids as acetic acid		mg/l	5

LIST OF METHODS

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 **NEW ZEALAND**







NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210	NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.
ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition		

Signature

Marylou Cabral Laboratory Manager

mbecabra

Eurofins ELS Limited

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EXPLANATORY NOTE







- Test is not accredited
- 2 Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- $\ensuremath{\mathfrak{A}}$ Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at 85 Port Road, Seaview, Lower Hutt, Wellington, NEW ZEALAND. The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.

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END OF REPORT





EUNZWE-00177376

19/04/2024



Food & Water Testing

AR-24-NW-023904-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

Landfill

Copy to: Water and Waste Team

REPORT DATE

(waterandwasteteam@horowhenua.govt.nz), McMillan

Purchase Order Number: Landfill

812-2024-00051382 SAMPLE CODE

349871-0 Sample Name **Product:** Ground water

Sampling Point code: WIL-E1d

08/04/2024 16:45 Reception Date & Time:

Analysis Started on: 08/04/2024

Product Type Ground water

Sampler(s) Client nominated external sampler

Gabriela Carvalhaes

Sampling Point name:

Order code:

Levin E1d

Analysis Ending Date: Sampled Date & Time

19/04/2024 08/04/2024 12:37

Sampled by Eurofins No

RESULTS (UNCERTAINTY)	LOQ
-----------------------	-----

mg/l

mg/l

mg/l

NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	0.20	(± 0.02) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo	ous <1	mg/l	1
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	<15	(± 5) mg/l	15
NW007	Chloride Chloride (CI)	39.4	(± 3.94) mg/l	0.02
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chlorophenol) 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol Phenol Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.01 <0.01 <0.2 <0.01 <0.01 <0.01 <0.005 <0.01 <0.02	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.01 0.01 0.2 0.01 0.01 0.01 0.005 0.01 0.02
NW023	Conductivity Conductivity	44.1	(± 0.9) mS/m	0.1
NW098	Dissolved Aluminium Aluminium	<0.002	ma/l	0.002

0.007

0.07

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NW583 Dissolved Arsenic

NW103 Dissolved Boron

Boron (B)

Arsenic (As)

Lower Hutt Wellington 5010 **NEW ZEALAND** **Phone** www.eurofins.co.nz

0.002

0.001

0.03

+64 4 576 5016







			water rest	
		RESULT	S (UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium			
	Calcium (Ca)	34.9	mg/l	0.1
NW106	Dissolved Chromium			
	Chromium (Cr)	0.002	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	0.03	mg/l	0.01
NW110	Dissolved Lead		-	
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium		.	5.0000
1444112	Magnesium (Mg)	14.3	mg/l	0.01
NIVA/440			1119/1	0.01
NW113	Dissolved Manganese	0.209		0.555-
Amazza	Manganese (Mn)	0.200	mg/l	0.0005
NW114	Dissolved Mercury	<0.0005	_	
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel	10 000=		
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	5.08	mg/l	0.01
NW193	Dissolved Reactive Phos	phorus		
	Phosphorus (soluble reactive)		mg/l	0.005
NW120	Dissolved Sodium			
•	Sodium (Na)	43.1	mg/l	0.01
NW125	Dissolved Zinc		··· ·9 ··	0.01
1444 123	Zinc (Zn)	0.003	mg/l	0.002
ZMF1E			· ·	0.002
ZIVIF I E	Enumeration of Escheric	nia coli By Mer		4
ADAIC 15	Escherichia coli	-	cfu/100 ml	1
NW010	Nitrate-N	<0.01	(± 0 00) ma/l	
	Nitrate-N		(± 0.00) mg/l	0.01
NW195	pH (Tested beyond 15 mi		-	
	рН	7.5	(± 0.2)	0.1
NW011	Sulphate			
	Sulphate	<0.02	(± 0.01) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	72	mg/l	3
NW228	SVOC (GC-MSMS)			
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.001
	Adipatic acid, bis-2-ethylhexyl	<0.0001	mg/l	0.0001
	ester (DEHA)	•	.	3.0001
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.1
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.0001
			<u> </u>	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			ater restir	•9
		RESULTS (UNCERTAINTY)	LOQ
NW228	SVOC (GC-MSMS)			
	Benz(a)anthracene	<0.0001	mg/l	0.0001
	Benzo(a)pyrene	<0.0001	mg/l	0.0001
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001
	Bromacil	<0.005	mg/l	0.005
	Carbofuran	<0.001	mg/l	0.001
	Chlordane	<0.0001	mg/l	0.0001
	Chlordane, gamma	<0.001	mg/l	0.001
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
	Chrysene	<0.0001	mg/l	0.0001
	Cyanazine	<0.005	mg/l	0.005
	d-BHC	<0.0001	mg/l	0.0001
	DDD, p,p'-	<0.0001	mg/l	0.0001
	DDE, p,p-	<0.0001	mg/l	0.0001
	DDT, p,p'-	<0.001	mg/l	0.001
	Diazinon	<0.0001	mg/l	0.0001
	Dibenz(a,h)anthracene	<0.0001	mg/l	0.0001
	Dieldrin	<0.0001	mg/l	0.0001
	Dimethoate	<0.001	mg/l	0.001
	Diuron	<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.001	mg/l	0.001
	Endosulfan, beta-	<0.005	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone	<0.0001	mg/l	0.0001
	Endrin-aldehyde	<0.001	mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene	<0.0001	mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001
	Metalaxyl and metalaxyl-M (metalaxyl including other	<0.001	mg/l	0.001
	mixtures of constituent isomers including metalaxyl-M (sum of isomers))			
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001	mg/l	0.0001
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001	mg/l	0.0001
	PCB 101	<0.0001	mg/l	0.0001
	PCB 138	<0.001	mg/l	0.0001
	PCB 183	<0.0001	mg/l	0.001
	1 00 100		ilig/i	0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







	· -		(UNCERTAINTY)	LOQ	_
NIMOOO	0)/00 /00 NOTE:		(5.1.5=1.1741111)	LOQ	_
NW228	,	<0.0001			
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin		mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k) fluoranthene	<0.001	mg/l	0.001	
	Trifluralin	<0.0001	mg/l	0.0004	
NUMPOO			mg/I	0.0001	
NW003	Total Alkalinity Alkalinity total	164	(± 16) mg CaCO3/I	1	
NW030	Total Hardness				
	Hardness	146	mg CaCO3/I	1	
NW210		nic Carbon		•	
INVVZIU	Total Organic Carbon	2.9	(± 0.3) mg/l	0.4	
NIVAZOGO	Total Organic Carbon		(= 0.0) mg/i	0.1	
NW229	VOC (GC-MS)	<0.0005	r.		
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane		mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0002	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	•	<0.0005	•		
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene		mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
	3-chloropropene	<0.0005	mg/l	0.0005	
	4-Chlorotoluene	<0.0005	mg/l	0.0005	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







		RESULTS (UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	
	Dichlorodifluoromethane	NotRecovered	mg/l	0.0005 0.001
	Dichloromethane	<0.005		
	Hexachlorobutadiene	<0.0002	mg/l	0.005
		<0.0005	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0015	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0005	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene		mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
NWWG6	Volatile Fatty Acids (VFA)			
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







RESULTS (UNCERTAINTY) LOQ

LIST O	FMETHODS		
NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	•	NW010	
	Chlorophenols: Internal Method, LC-MS/MS		Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZMF1E	Escherichia coli E (Water) [NZ] <1 >80 /100 ml (0) Ml Agar-F: SMEWW 9222K; APHA 24th Edition

Signature

Marylou Cabral

mbecaboos

Laboratory Manager Eurofins ELS Limited Jennifer Mont

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Eurofins ELS Limited

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE





Phone

85 Port Road

Seaview



- Test is not accredited
- 2 Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- **©** Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at 85 Port Road, Seaview, Lower Hutt, Wellington, NEW ZEALAND. The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.

Eurofins may subcontract the performance of part or all of the Services to a third party and the Customer authorises the release of all information necessary to the third party for the provision of the Services.

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Eurofins will not be required to store samples and may destroy or otherwise dispose of the samples or return the samples to the Customer (at the Customer's cost in all respects) immediately following analysis of the samples.

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END OF REPORT





19/04/2024

Levin E1s



Food & Water Testing

ANALYTICAL REPORT

REPORT DATE

Copy to: Water and Waste Team

Sampling Point name:

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

(waterandwasteteam@horowhenua.govt.nz), McMillan **Email** horowhenuaadmin@downer.co.nz

AR-24-NW-023552-01

Gabriela Carvalhaes EUNZWE-00177701 Contact for your orders: Order code:

Landfill Contract:

Purchase Order Number: Landfill

SAMPLE CODE 812-2024-00052409

349872-0 Sample Name **Product:** Ground water

Sampling Point code: WIL-E1s

10/04/2024 9:08 Reception Date & Time:

Analysis Started on: 10/04/2024 **Analysis Ending Date:** 19/04/2024

Product Type Sampled Date & Time 09/04/2024 11:02 Ground water No

Sampler(s) Sampled by Eurofins Client nominated external sampler

Sample	(5)	ieni nominaled exten	iiai sairipiei 3	ampled by Euromis	INO	
		RESULTS	(UNCERTAINTY)	LOQ		
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	0.18	(± 0.02) mg/l	0.01		
NW341	BOD5 - Soluble Carbo BOD5	onaceous <1	mg/l	1		
NW020	Chemical Oxygen Der Chemical oxygen demand		(± 8) mg/l	15		
NW007	Chloride Chloride (CI)	27.1	(± 2.71) mg/l	0.02		
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chlorophenol 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol Phenol Total of 2,4,5 & 2,4,6	<0.01 <0.02	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.01 0.01 0.2 0.01 0.01 0.01 0.005 0.01		
NW023	-Trichlorophenol Conductivity Conductivity	24.3	(± 0.5) mS/m	0.1		
NW098	•	0.005	mg/l	0.002		
NW103	Dissolved Boron Boron (B)	<0.03	mg/l	0.03		
NW104	Dissolved Cadmium Cadmium (Cd)	<0.0002	mg/l	0.0002		

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 **NEW ZEALAND**

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NW105 Dissolved Calcium Calci		I		vater rest	
Name			RESULTS	(UNCERTAINTY)	LOQ
NW106 Dissolved Chromium Chromium (Cr)	NW105	2.000	7.4		
NW108 Dissolved Copper Copper (Cu)			7.4	mg/l	0.1
NW108 Dissolved Copper Copper (Cu)	NW106		ZO 004		
NW110 Dissolved Lead Lead (Pb) 0.0005 mg/l 0.001 NW1110 Dissolved Lead Lead (Pb) 0.0009 mg/l 0.0005 NW1111 Dissolved Magnesium Magnesium (Mg) 6.62 mg/l 0.01 NW111 Dissolved Manganese Min 0.183 mg/l 0.0005 NW111 Dissolved Marganese Min 0.0005 mg/l 0.0005 NW111 Dissolved Mercury (Hg) 0.0005 mg/l 0.0005 NW111 Dissolved Nickel Nickel (Ni) 0.0005 mg/l 0.0005 NW111 Dissolved Potassium Potassium (K) 5.63 mg/l 0.001 Phosphorus (soluble reactive) 0.087 mg/l 0.005 NW112 Dissolved Sodium Sodium (Na) 24.9 mg/l 0.001 NW120 Dissolved Zinc Zinc (Zh) 0.002 mg/l 0.001 ZM2GA Enumeration of Escherichia coli By Membrare Filtration Escherichia coli cfu/100 ml 100 NW010 Nitrate-N 0.01 (± 0.00) mg/l 0.01 NW191 Distolved Solids 0.01 (± 0.00) mg/l 0.01 NW191 Distolved Solids 0.01 (± 0.00) mg/l 0.01 NW191 Distolved Solids 0.01 (± 0.00) mg/l 0.001 NW010 Sulphate 6.87 (± 0.69) mg/l 0.001 NW011 Sulphate 0.0001 mg/l 0.001 NW0208 Suspended Solids 0.0001 mg/l 0.0001 NW208 Suspended Solids 0.0001 mg/l 0.0001 Acenaphthylene 0.0001 mg/l 0.0001 Acenaphthylene 0.0001 mg/l 0.0001 Adicarb 0.0001 mg/l 0.0001 Aldcrin 0.0001 mg/l 0.0001 Ald			<0.00T	mg/l	0.001
NW109 Dissolved Iron Fe Fe Fe Fe Fe Fe Fe F	NW108		<0.000E	_	
Iron (Fe) 3.54 mg/l 0.001 NW110 Dissolved Lead Lead (Pb) 0.0009 mg/l 0.0005 NW111 Dissolved Magnesium Magnesium (Mg) 0.662 mg/l 0.01 NW113 Dissolved Manganese Manganese (Mn) 0.183 mg/l 0.0005 NW114 Dissolved Mercury Mercury (Hg) 0.0005 mg/l 0.0005 NW115 Dissolved Nickel Nickel (Ni) 0.0005 mg/l 0.0005 NW116 Dissolved Potassium Potassium (K) 5.63 mg/l 0.0005 NW117 Dissolved Reactive Phosphorus (soluble reactive) 0.087 mg/l 0.005 NW110 Dissolved Sodium Sodium (Na) 24.9 mg/l 0.001 NW120 Dissolved Sodium Sodium (Na) 24.9 mg/l 0.002 ZM2GA Enumeration of Escherichia coli By Membrane Filtration Escherichia coli coli By Membrane Filtration Escherichia coli coli By Membrane Filtration coli By Membrane coli By Membrane Filtration coli By Membrane coli By Membr			~0.000	mg/l	0.0005
NW110 Dissolved Lead Lead (Pb) 0.0009 mg/l 0.0005 NW112 Dissolved Magnesium Magnesium (Mg) 6.62 mg/l 0.01 NW113 Dissolved Manganese Manganese (Mn) 0.183 mg/l 0.0005 NW114 Dissolved Mercury Mercury (Hg) <0.0005 mg/l 0.0005 NW115 Dissolved Nickel Nickel (Ni) <0.0005 mg/l 0.0005 NW116 Dissolved Potassium Potassium (K) 5.63 mg/l 0.001 Potassium (K) 5.63 mg/l 0.001 NW120 Dissolved Reactive Phosphorus Phosphorus (soluble reactive) 0.087 mg/l 0.001 NW120 Dissolved Sodium Sodium (Na) 24.9 mg/l 0.01 NW120 Dissolved Sodium Sodium (Na) 0.002 mg/l 0.001 NW120 Dissolved Sodium Sodium (Na) 0.002 mg/l 0.001 NW120 Dissolved Zinc Zinc (Zn) <0.002 mg/l 0.002 ZM2GA Enumeration of Escherichia coli By Membrane Filtration Escherichia coli 54.00 mg/l 0.01 NW010 Nitrate-N <0.01 (±0.00) mg/l 0.01 NW010 Nitrate-N <0.01 (±0.00) mg/l 0.01 NW195 PH (Tested beyond 15 minute APHA holding time) pH 7.0 (±0.2) 0.1 NW196 Suspended Solids Single Suspended Solids Susp	NW109		2.54		
Lead (Pb) 0.0009 mg/l 0.0005 NW112		Iron (Fe)	3.54	mg/l	0.01
NW112 Dissolved Magnesium Magnesium (Mg) 6.62 mg/l 0.01 NW113 Dissolved Manganese Manganese (Mn) 0.183 mg/l 0.0005 NW114 Dissolved Mercury Mercury (Hg) <0.0005 mg/l 0.0005 NW116 Dissolved Nickel Nickel (Ni) <0.0005 mg/l 0.0005 NW117 Dissolved Potassium Potassium (K) 5.63 mg/l 0.01 NW193 Dissolved Reactive Phosphorus (soluble reactive) 0.087 mg/l 0.005 NW120 Dissolved Sodium 24.9 mg/l 0.001 NW125 Dissolved Zinc Zinc (Zn) <0.002 mg/l 0.002 Zm2GA Enumeration of Escherichia coli By Membrane Filtration Escherichia coli 20.001 (± 0.00) mg/l 0.001 NW101 Nitrate-N √0.01 (± 0.00) mg/l 0.001 NW195 PH (Tested beyond 15 minute APHA holding time) PH 7.0 (± 0.2) 0.1 NW206 Suspended Solids √5 mg/l 0.002 NW207 Suspended Solids √5 mg/l 0.001 Acenaphthylene √0.001 mg/l 0.001 0.001 Acenaphthylene √0.0001 mg/l 0.0001 0.	NW110		0.0000		
NW113 Dissolved Manganese Manganese (Manganese (Mn) 0.183 mg/l 0.0005 NW114 Dissolved Mercury (Hg) < 0.0005 mg/l 0.0005 NW116 Dissolved Nickel Nickel (Ni) < 0.0005 mg/l 0.0005 NW117 Dissolved Potassium Potassium (K) 5.63 mg/l 0.01 NW193 Dissolved Reactive Phosphorus (soluble reactive) 0.087 mg/l 0.005 NW1120 Dissolved Sodium (Na) 24.9 mg/l 0.01 NW1125 Dissolved Zinc Zinc (Zn) < 0.002 mg/l 0.002 ZM2GA Enumeration of Escherichia coli By Membrane Filtration Escherichia coli Escherichia coli Escherichia coli Escherichia coli Gu/100 ml 100 NW010 Nitrate-N Nitrate-N < 0.01 (± 0.00) mg/l 0.01 NW195 P/ (Tested beyond 15 minute APHA holding time) pH (± 0.2) 0.1 NW010 Sulphate Sulphate			0.0009	mg/l	0.0005
NW112 Dissolved Manganese Manganese (Mn) 0.183 mg/l 0.0005 NW114 Dissolved Mercury Mercury (Hg) <0.0005 mg/l 0.0005 NW116 Dissolved Nickel Nickel (Ni) <0.0005 mg/l 0.0005 NW117 Dissolved Potassium Potassium (K) 5.63 mg/l 0.001 NW190 Dissolved Reactive Phosphorus Phosphorus (soluble reactive) 0.087 mg/l 0.005 NW112 Dissolved Sodium Sodium (Na) 24.9 mg/l 0.001 NW125 Dissolved Zinc Zinc (Zn) <0.002 mg/l 0.002 ZM2GA Enumeration of Escherichia coli By Membrane Filtration Escherichia coli et 0.001 mg/l 0.01 NW010 Nitrate-N <0.01 (± 0.00) mg/l 0.01 NW011 Sulphate Sulphate Sulphate 5.87 (± 0.69) mg/l 0.002 NW228 SVOC (GC-MSMS) Suspended Solids 5 mg/l 0.0001 Acenaphthylene <0.001 mg/l 0.0001 Adipatic acid, bis-2-ethylhexyl ester (DEHA) Alachlor Aldrin 4.001 mg/l 0.0001 Aldrin Anthracene <0.0001 mg/l 0.0001 Altrazine 6.0001 mg/l 0.0001 MR1	NW112	-	0.00		
NW114 Dissolved Mercury (Hg) < 0.0005 mg/l 0.0005 NW116 Dissolved Nickel (Ni) < 0.0005 mg/l 0.0005 NW117 Dissolved Nickel (Ni) < 0.0005 mg/l 0.0005 NW117 Dissolved Potassium (Na) 5.63 mg/l 0.01 NW193 Dissolved Reactive Phosphorus (Phosphorus (Pho		Magnesium (Mg)	6.62	mg/l	0.01
NW114 Dissolved Mercury Hg	NW113	Dissolved Manganese			
NW116 Dissolved Nickel Nickel (Ni) <0.0005 mg/l 0.0005 NW117 Dissolved Potassium Potassium (K) 5.63 mg/l 0.001 NW193 Dissolved Reactive Phosphorus (soluble reactive) 0.087 mg/l 0.005 NW120 Dissolved Sodium (Na) 24.9 mg/l 0.001 NW125 Dissolved Zinc Zinc (Zn) <0.002 mg/l 0.002 ZM2GA Enumeration of Escherichia coli By Membrane Filtration (and the policy) 100 100 NW010 Nitrate-N <0.001 (± 0.00) mg/l 0.01 NW195 PH (Tested beyond 15 minute APHA holding time) pH (Totated Deyond 15		Manganese (Mn)	0.183	mg/l	0.0005
NW116 Dissolved Nickel Nickel (Ni) <0.0005 mg/l 0.0005 NW117 Dissolved Potassium Potassium (K) 5.63 mg/l 0.001 NW193 Dissolved Reactive Phosphorus (soluble reactive) 0.087 mg/l 0.005 NW120 Dissolved Sodium (Na) 24.9 mg/l 0.001 NW125 Dissolved Zinc Zinc (Zn) <0.002 mg/l 0.002 ZM2GA Enumeration of Escherichia coli By Membrane Filtration Escherichia coli <100 cfu/100 ml 100 NW010 Nitrate-N <0.001 (± 0.00) mg/l 0.01 NW195 pH (Tested beyond 15 minute APHA holding time) pH 7.0 (± 0.2) 0.1 NW011 Sulphate Sulphate Sulphate 6.87 (± 0.69) mg/l 0.02 NW206 Suspended Solids Suspende	NW114	Dissolved Mercury			
Nickel (Ni) <0.0005 mg/l 0.0005		-	<0.0005	mg/l	0.0005
NW117 Dissolved Potassium (R) 5.63 mg/l 0.001 NW1193 Dissolved Reactive Phosphorus (soluble reactive) 0.087 mg/l 0.005 NW120 Dissolved Sodium (Na) 24.9 mg/l 0.001 NW125 Dissolved Zinc Zinc (Zn) <0.002 mg/l 0.002 ZM2GA Enumeration of Escherichia coli By Membrane Filtration Escherichia coli <100 cfu/100 ml 100 NW010 Nitrate-N <0.01 (± 0.00) mg/l 0.01 NW195 PH (Tested beyond 15 minute APHA holding time) pH 7.0 (± 0.2) 0.1 NW011 Sulphate Sulphate 6.87 (± 0.69) mg/l 0.02 NW208 Suspended Solids	NW116	Dissolved Nickel			
NW117 Dissolved Potassium Potassium (K) 5.63 mg/l 0.01			<0.0005	mg/l	0.0005
Potassium (K) 5.63 mg/l 0.01	NW117	` '		Ü	
NW193 Dissolved Reactive Phosphorus (soluble reactive) 0.087 mg/l 0.005 NW120 Dissolved Sodium Sodium (Na) 24.9 mg/l 0.01 NW125 Dissolved Zinc Zinc (Zn) < 0.002 mg/l 0.002 ZM2GA Enumeration of Escherichia coli By Membrane Filtration Escherichia coli Cfu/100 ml 100 100 NW010 Nitrate-N < 0.01 (± 0.00) mg/l 0.01 NW195 PH (Tested beyond 15 minute APHA holding time) pH 7.0 (± 0.2) 0.1 NW011 Sulphate Sulphate 6.87 (± 0.69) mg/l 0.02 NW208 Suspended Solids 5 mg/l 3 NW228 SVOC (GC-MSMS) 0.0001 mg/l 0.0001 Acenaphthene < 0.0001 mg/l 0.0001 0.0001 0.0001 0.0001 Alachlor < 0.0001 mg/l 0.0001 0.0001 0.0001 0.0001 0.0001 Alachlor < 0.001 mg/l 0.0001 0.0001 0.0001 0.0001			5.63	ma/l	0.01
Phosphorus (soluble reactive) 0.087 mg/l 0.005	NW193		nhorus	··· ·	0.01
NW120 Dissolved Sodium (Na) 24.9 mg/l 0.01 NW125 Dissolved Zinc Zinc (Zn) <0.002 mg/l 0.002 ZM2GA Enumeration of Escherichia coli By Membrane Filtration Escherichia coli <100 cfu/100 ml 100 NW010 Nitrate-N Nitrate-N (± 0.00) mg/l <0.01 (± 0.00) mg/l 0.01 NW195 PH (Tested beyond 15 minute APHA holding time) pH (2.02) 0.1 NW011 Sulphate Sulphate Sulphate 6.87 (± 0.69) mg/l 0.02 NW206 Suspended Solids Suspended Solids Suspended Solids Suspended Solids 45 mg/l 5 mg/l 3 NW228 SVOC (GC-MSMS) <0.0001 mg/l 0.0001 ng/l	1111133			ma/l	0.005
NW125 Dissolved Zinc Zinc (Zn) <0.002 mg/l 0.002	NIW/120		,	1119/1	0.000
NW125 Dissolved Zinc Zinc (Zn) <0.002 mg/l 0.002	IN VV 12U		24.9	ma/l	0.04
Zinc (Zn) <0.002 mg/l 0.002 ZM2GA Enumeration of Escherichia coli By Membrane Filtration	NIMAGE		-	mg/i	0.01
March Sulphate S	NVV125		<0.002	m a //	0.000
NW010 Nitrate-N	71.00			•	0.002
NW010 Nitrate-N Nitrate-N Nitrate-N NW195 pH (Tested beyond 15 minute APHA holding time) pH	ZM2GA				
NW195 PH (Tested beyond 15 minute APHA holding time) PH (Tested beyond 15 minute APHA holding time) PH (Tested beyond 15 minute APHA holding time) O.0.1			-100	ctu/100 ml	100
NW195 pH (Tested beyond 15 minute APHA holding time) pH 7.0 (± 0.2) 0.1	NW010		<0.01	(1.0.00)	
NW011 Sulphate Sulphate Sulphate Sulphate Sulphate Sulphate Sulphate Sulphate Suspended Solids Suspended				, , ,	0.01
NW011 Sulphate Sulphate 6.87 (± 0.69) mg/l 0.02 NW206 Suspended Solids Suspended Solids	NW195				
NW206 Suspended Solids Suspended Solids <5 mg/l 3 NW228 SVOC (GC-MSMS) <0.0001 mg/l 0.0001 Acenaphthylene <0.0001 mg/l 0.0001 Adipatic acid, bis-2-ethylhexyl ester (DEHA) <0.0001 mg/l 0.0001 Alachlor <0.0001 mg/l 0.0001 Aldicarb <0.01 mg/l 0.001 Aldrin <0.001 mg/l 0.001 Anthracene <0.0001 mg/l 0.0001 Atrazine <0.0001 mg/l 0.0001 Benz(a)anthracene <0.0001 mg/l 0.0001		pH	7.0	(± 0.2)	0.1
NW206 Suspended Solids <5 mg/l 3 NW228 SVOC (GC-MSMS) <0.0001 mg/l 0.0001 Acenaphthene <0.0001	NW011	- · • · · · · · · · · · · · · · · · · ·			
NW228 SVOC (GC-MSMS) Acenaphthene <0.0001		Sulphate	6.87	(± 0.69) mg/l	0.02
NW228 SVOC (GC-MSMS) Acenaphthene <0.0001 mg/l 0.0001 Acenaphthylene <0.0001 mg/l 0.0001 Adipatic acid, bis-2-ethylhexyl ester (DEHA) Alachlor <0.0001 mg/l 0.0001 Aldicarb <0.001 mg/l 0.0001 Aldrin <0.001 mg/l 0.001 Anthracene <0.001 mg/l 0.001 Atrazine <0.0001 mg/l 0.0001 Benz(a)anthracene <0.0001 mg/l 0.0001	NW206	Suspended Solids			
Acenaphthene <0.0001		Suspended Solids	<5	mg/l	3
Acenaphthylene <0.001 mg/l 0.001 Adipatic acid, bis-2-ethylhexyl ester (DEHA) Alachlor <0.0001 mg/l 0.0001 Aldicarb <0.1 mg/l 0.0001 Aldrin <0.001 mg/l 0.001 Anthracene <0.001 mg/l 0.001 Atrazine <0.0001 mg/l 0.001 Benz(a)anthracene <0.0001 mg/l 0.0001	NW228	SVOC (GC-MSMS)			
Acenaphthylene <0.001		Acenaphthene		mg/l	0.0001
Adipatic acid, bis-2-ethylhexyl ester (DEHA) <0.0001		Acenaphthylene	<0.001		
ester (DEHA) Alachlor		Adipatic acid, bis-2-ethylhexyl	<0.0001	mg/l	
Aldicarb <0.1 mg/l 0.001 Aldrin <0.001 mg/l 0.001 Anthracene <0.001 mg/l 0.001 Atrazine <0.0001 mg/l 0.0001 Benz(a)anthracene <0.0001 mg/l 0.0001					
Aldrin <0.001 mg/l 0.001 Anthracene <0.001 mg/l 0.001 Atrazine <0.0001 mg/l 0.0001 Benz(a)anthracene <0.0001 mg/l 0.0001		Alachlor		mg/l	0.0001
Anthracene <0.001 mg/l 0.001 Atrazine <0.0001 mg/l 0.0001 Benz(a)anthracene <0.0001 mg/l 0.0001		Aldicarb		mg/l	0.1
Atrazine		Aldrin		mg/l	0.001
Benz(a)anthracene <0.0001 mg/l 0.0001		Anthracene		mg/l	0.001
Denz(a)antinacene 1119/1 0.0001				mg/l	0.0001
Benzo(a)pyrene <0.0001 mg/l 0.0001				mg/l	0.0001
• • • • • • • • • • • • • • • • • • • •		Benzo(a)pyrene	<0.0001	mg/l	0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			(INCEPTAINTY)	
		KESULIS	(UNCERTAINTY)	LOQ
NW228	,	<0.001	_	
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001
	Bromacil	<0.005	mg/l	0.005
	Carbofuran	<0.001	mg/l	0.001
	Chlordane	<0.0001	mg/l	0.0001
	Chlordane, gamma	<0.001	mg/l	0.001
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
	Chrysene	<0.0001	mg/l	0.0001
	Cyanazine	<0.005	mg/l	0.005
	d-BHC	<0.0001	mg/l	0.0001
	DDD, p,p'-	<0.0001	mg/l	0.0001
	DDE, p,p-	<0.0001	mg/l	0.0001
	DDT, p,p'-	<0.001	mg/l	0.001
	Diazinon	<0.0001	mg/l	0.0001
	Dibenz(a,h)anthracene	<0.0001	mg/l	0.0001
	Dieldrin	<0.0001	mg/l	0.0001
	Dimethoate	<0.001	mg/l	0.0001
	Diuron	<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.001		
		<0.005	mg/l	0.001
	Endosulfan, beta-	<0.0001	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone	<0.001	mg/l	0.0001
	Endrin-aldehyde	<0.001	mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene		mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001
	Metalaxyl and metalaxyl-M (metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))	<0.001	mg/l	0.001
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001	mg/l	0.0001
		<0.0001		
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001	mg/l	0.0001
	PCB 101	<0.001	mg/l	0.0001
	PCB 138		mg/l	0.001
	PCB 183	<0.0001	mg/l	0.0001
		<0.0004		
	PCB 28 PCB 7	<0.0001 <0.0001	mg/l	0.0001 0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			valer restr		
		RESULTS	S (UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k) fluoranthene	<0.001	mg/l	0.001	
	Trifluralin	<0.0001	mg/l	0.0001	
NW003	Total Alkalinity				
	Alkalinity total	69	(± 7) mg CaCO3/I	1	
NW030	Total Hardness				
	Hardness	46	mg CaCO3/I	1	
NW210	Total Non-Purgeable Organ	nic Carbon			
	Total Organic Carbon	3.5	(± 0.4) mg/l	0.1	
NW229	VOC (GC-MS)				
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005		0.0005	
		<0.0005	mg/l		
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.001	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane1,2-Dibromoethane	<0.0002	mg/l	0.002	
	•	< 0.0005	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane		mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
	3-chloropropene	<0.0020	mg/l	0.0005	
	4-Chlorotoluene	<0.0005	mg/l	0.0005	
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005	
	Benzene	<0.0005	mg/l	0.0005	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







				-9
		RESULTS	(UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
NWWG			g/1	0.0000
PITTO	S Volatile Fatty Acids (VFA) Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	•	<5		5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5 <5	mg/l	5
	Volatile fatty acids as acetic acid		mg/l	5

LIST OF METHODS

Eurofins ELS Limited

85 Port Road

Seaview Lower Hutt Wellington 5010 **NEW ZEALAND**



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NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210	NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.
ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition		

Signature

Marylou Cabral Laboratory Manager

mbecabra

Eurofins ELS Limited

Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

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Cody Forbes

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EXPLANATORY NOTE







Test is not accredited

②Test is subcontracted within Eurofins group and is accredited

3 Test is subcontracted within Eurofins group and is not accredited

Test is subcontracted outside Eurofins group and is accredited

Test is subcontracted outside Eurofins group and is not accredited

Test result is provided by the customer and is not accredited

Tested at the sampling point by Eurofins and is not accredited

Tested at the sampling point by Eurofins and is accredited

Test is RLP accredited

Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

X (Unsatisfactory) means does not meet the specification

✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

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END OF REPORT





EUNZWE-00177658

24/04/2024



Food & Water Testing

AR-24-NW-024783-01

ANALYTICAL REPORT

REPORT DATE

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Landfill **Contract:**

Gabriela Carvalhaes

Purchase Order Number: Landfill

Order code:

SAMPLE CODE 812-2024-00052263

Sample Name 349873-0 **Product:** Ground water

Sampling Point code: WIL-E2d

Reception Date & Time: 09/04/2024 17:46

Analysis Started on: 09/04/2024 **Analysis Ending Date: Product Type** Ground water

Sampler(s) Client nominated external sampler Sampling Point name: Levin E2d

24/04/2024

(waterandwasteteam@horowhenua.govt.nz), McMillan

Sampled Date & Time 09/04/2024 06:42

Sampled by Eurofins Nο

Copy to: Water and Waste Team

Sample	r(s)	ilent nominated exter	rnai sampier S	ampled by Eurofins	No	
		RESULTS	6 (UNCERTAINTY)	LOQ		
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N) 0.23	(± 0.02) mg/l	0.01		
NW341	BOD5 - Soluble Carb	oonaceous <1	mg/l	1		
NW020	Chemical Oxygen De Chemical oxygen deman		(± 5) mg/l	15		
NW007	Chloride Chloride (Cl)	41.8	(± 4.18) mg/l	0.02		
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chloro 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol Phenol Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.01 <0.02	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.01 0.01 0.2 0.01 0.01 0.01 0.005 0.01 0.02		
NW023		44.2	(± 0.9) mS/m	0.1		
NW098	Dissolved Aluminium	n <0.002	mg/l	0.002		
NW583	Dissolved Arsenic Arsenic (As)	0.001	mg/l	0.001		
NW103	Dissolved Boron Boron (B)	0.04	mg/l	0.03		

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NW104		I		water rest	
Name			RESULTS	S (UNCERTAINTY)	LOQ
NW105 Dissolved Calcium Calcium (Ca) Calcium (Calcium (Ca) Calcium (Calcium (Ca	NW104	Dissolved Cadmium	0.6		
NW106 Dissolved Chromium Cromium (Cromium		Cadmium (Cd)	<0.0002	mg/l	0.0002
NW106 Dissolved Chromium Chromium (Cr) <0.001 mg/l 0.001 NW108 Dissolved Copper Copper (Cu) <0.0005 mg/l 0.0005 NW109 Dissolved Iron Iron (Fe) 0.03 mg/l 0.001 NW110 Dissolved Lead Lead (Pb) <0.0005 mg/l 0.0005 NW112 Dissolved Magnesium Magnesium (Mg) 13.1 mg/l 0.001 NW113 Dissolved Manganese Manganese (Mn) 0.458 mg/l 0.0005 NW114 Dissolved Margunese Manganese (Mn) 0.458 mg/l 0.0005 NW115 Dissolved Mickel Nickel (Ni) 0.0005 mg/l 0.0005 NW117 Dissolved Potassium Potassium (K) 0.645 mg/l 0.01 NW118 Dissolved Potassium Potassium (K) 6.45 mg/l 0.01 NW119 Dissolved Reactive Phosphorus (soluble reactive) 0.612 mg/l 0.005 NW110 Dissolved Sodium 39.5 mg/l 0.001 NW112 Dissolved Sodium 0.003 mg/l 0.002 NW115 Dissolved Sodium 0.003 mg/l 0.002 NW10 Dissolved Sodium 0.003 mg/l 0.001 NW101 Dissolved Sodium 0.003 mg/l 0.001 NW101 Dissolved Sodium 0.001 (± 0.00) mg/l 0.001 NW101 Dissolved Sodium 0.001 (± 0.00) mg/l 0.001 NW101 Dissolved Sodium 0.001 (± 0.00) mg/l 0.001 NW101 Dissolved Sodium 0.001 0.001 0.001 NW101 Dissolved Sodium 0.001 0.001 0.001 NW102 Dissolved Sodium 0.001 0.001 0.001 0.001 NW103 Dissolved Sodium 0.001 0.001 0.001 0.001 0.001 0.001 NW104 Dissolved Sodids 0.0001 mg/l 0.0001 0	NW105	Dissolved Calcium			
NW108 Dissolved Copper Copper (Cu)		Calcium (Ca)	24.8	mg/l	0.1
NW108 Dissolved Copper Copper (Cu)	NW106	Dissolved Chromium			
NW109 Dissolved Iron		Chromium (Cr)	<0.001	mg/l	0.001
NW109 Dissolved Iron Iron (Fe) 0.03 mg/l 0.01 NW110 Dissolved Lead Lead (Pb) <0.0005 mg/l 0.0005 NW112 Dissolved Magnesium Magnesium (Mg) 13.1 mg/l 0.01 NW113 Dissolved Manganese Manganese (Mn) 0.458 mg/l 0.0005 NW114 Dissolved Mercury Mercury (Hg) <0.0005 mg/l 0.0005 NW116 Dissolved Nickel Nickel (Ni) <0.0005 mg/l 0.0005 NW117 Dissolved Potassium Potassium (K) 6.45 mg/l 0.01 NW19 Dissolved Reactive Phosphorus (soluble reactive) 0.612 mg/l 0.005 NW120 Dissolved Sodium Sodium (Na) 39.5 mg/l 0.001 NW120 Dissolved Zinc Zinc (Zn) 0.003 mg/l 0.002 ZMF1E Enumeration of Escherichia coli By Membrane Filtration Escherichia coli ≤1 cfu/100 ml 1 NW010 Nitrate-N <0.01 (±0.00) mg/l 0.01 NW195 PH (Tested beyond 15 minute APHA holding time) pH (Tested beyond 15 minute APHA holding time) pH (Tested beyond 15 minute APHA holding time) Disphate <0.02 (±0.01) mg/l 0.02 NW206 Suspended Solids ≤5 mg/l 3 3 NW207 Suspended Solids <5 mg/l 0.0001 0.0001 Acenaphthene <0.0001 mg/l 0.0001 0.0001 Acenaphthene <0.0001 mg/l 0.0001 0.0001 0.0001 ester (DEHA) Alachlor <0.0001 mg/l 0.0001 0.000	NW108	Dissolved Copper			
NW110 Dissolved Lead Lead (Pb)		Copper (Cu)	<0.0005	mg/l	0.0005
NW110 Dissolved Lead Lead (Pb)	NW109	Dissolved Iron			
Lead (Pb)		Iron (Fe)	0.03	mg/l	0.01
NW112 Dissolved Magnesium Magnesium	NW110	Dissolved Lead			
Magnesium (Mg) 13.1 mg/l 0.01		Lead (Pb)	<0.0005	mg/l	0.0005
NW113 Dissolved Manganese Manganese (Mn) 0.458 mg/l 0.0005 NW114 Dissolved Mercury (Hg) <0.0005 mg/l 0.0005 NW116 Dissolved Nickel Nickel (Ni) <0.0005 mg/l 0.0005 NW117 Dissolved Potassium Potassium (K) 6.45 mg/l 0.01 NW193 Dissolved Reactive Phosphorus (soluble reactive) 0.612 mg/l 0.005 NW120 Dissolved Sodium Sodium (Na) 39.5 mg/l 0.005 NW125 Dissolved Zinc Zinc (Zn) 0.003 mg/l 0.002 ZMF1E Enumeration of Escherichia coli By Membrane Filtration Escherichia coli ≤1 cfu/100 ml 1 NW010 Nitrate-N Nitrate-N Nitrate-N Nitrate-N (±0.00) mg/l 0.01 ±0.00 0.01 ±0.00 NW011 Sulphate Sulphate (±0.2) 0.01 ±0.00 ±0.00 ±0.00 ±0.00 ±0.00 ±0.00 ±0.00 ±0.00 ±0.00 ±0.00 ±0.00 ±0.00 ±0.00 ±0.00 ±0.00 ±0.00 ±0.00 ±0.00 ±0.0	NW112	Dissolved Magnesium			
Manganese (Mn) 0.458 mg/l 0.0005		_	13.1	mg/l	0.01
NW114 Dissolved Mercury (Hg) <0.0005 mg/l 0.0005 NW116 Dissolved Nickel Nickel (Ni) <0.0005 mg/l 0.0005 NW117 Dissolved Potassium Potassium (K) 6.45 mg/l 0.01 NW193 Dissolved Reactive Phosphorus Phosphorus (soluble reactive) 0.612 mg/l 0.005 NW120 Dissolved Sodium Sodium (Na) 39.5 mg/l 0.001 NW125 Dissolved Zinc Zinc (Zn) 0.003 mg/l 0.002 ZMF1E Enumeration of Escherichia coli By Membrane Filtration Escherichia coli ≤1 cfu/100 ml 1 NW010 Nitrate-N Nitrate-N Nitrate-N Nitrate-N Nitrate-N Sulphate Sulphate APHA holding time) PH (7.4 (± 0.00) mg/l 0.01 NW015 Sulphate	NW113	Dissolved Manganese			
NW114 Dissolved Mercury Mercury (Hg)		-	0.458	mg/l	0.0005
Mercury (Hg)	NW114			,	
NW116		_	<0.0005	mg/l	0.0005
Nickel (Ni)	NW116			J .	3.0000
NW117 Dissolved Potassium Potassium (K) 6.45 mg/l 0.01			<0.0005	ma/l	0 0005
Potassium (K) 6.45 mg/l 0.01	NW117			··· · g··	5.0005
NW193 Dissolved Reactive Phosphorus Phosphorus (soluble reactive) 0.612 mg/l 0.005			6.45	ma/l	0.01
NW120 Dissolved Sodium Sodium (Na) 39.5 mg/l 0.001	NW102	• •		1119/1	0.01
NW120 Dissolved Sodium Sodium (Na) 39.5 mg/l 0.001	1444 133		- 0.040	ma/l	0.005
NW125 Dissolved Zinc Zinc (Zn) 0.003 mg/l 0.002	NI/A/4 O O		,	mg/i	0.005
NW125 Dissolved Zinc Zinc (Zn) 0.003 mg/l 0.002	NVV120		39 5	100 cr //	0.04
Zinc (Zn) 0.003 mg/l 0.002 ZMF1E Enumeration of Escherichia coli By Membrane Filtration Escherichia coli <1 cfu/100 ml 1 NW010 Nitrate-N Nitrate-N <0.01 (± 0.00) mg/l 0.01 NW195 pH (Tested beyond 15 minute APHA holding time) pH 7.4 (± 0.2) 0.1 NW011 Sulphate Sulphate <0.02 (± 0.01) mg/l 0.02 NW206 Suspended Solids Suspended Solids Suspended Solids <5 mg/l 3 NW228 SVOC (GC-MSMS) Acenaphthene <0.0001 mg/l 0.0001 Adipatic acid, bis-2-ethylhexyl ester (DEHA) Alachlor <0.0001 mg/l 0.0001 Aldicarb <0.001 mg/l 0.0001 Aldrin <0.001 mg/l 0.0001 Aldrin <0.001 mg/l 0.0001 Aldrin <0.001 mg/l 0.0001 Aldrin <0.001 mg/l 0.0001 Anthracene	AD4//		55.5	mg/I	0.01
ZMF1E	NW125		0.003		
Escherichia coli <1 cfu/100 ml 1				· ·	0.002
NW010 Nitrate-N Nitrate-N Nitrate-N NW195 pH (Tested beyond 15 minute APHA holding time) pH 7.4 (± 0.2) 0.1 NW011 Sulphate Sulphate Sulphate Sulphate Suspended Solids Suspended Solids Suspended Solids Suspended Solids NW228 SVOC (GC-MSMS) Acenaphthene Acenaphthylene Acenaphthylene Adipatic acid, bis-2-ethylhexyl ester (DEHA) Alachlor Aldicarb Aldrin Anthracene <0.001 mg/l 0.001 Aldrin Anthracene Cud/100 mg/l (± 0.00) mg/l 0.01 (± 0.01) mg/l 0.02 NW206 (± 0.01) mg/l 0.002 (± 0.01) mg/l 0.001 mg/l 0.0001 mg/l 0.0001 mg/l 0.0001 mg/l 0.0001	ZMF1E		•		
NW195			<u> </u>	cfu/100 ml	1
NW195 pH (Tested beyond 15 minute APHA holding time) pH 7.4 (± 0.2) 0.1 NW011 Sulphate Sulphate <0.002 (± 0.01) mg/l 0.02 NW206 Suspended Solids Suspended Solids <5 mg/l 3 NW228 SVOC (GC-MSMS) Acenaphthene <0.0001 mg/l 0.0001 Acenaphthylene <0.001 mg/l 0.001 Adipatic acid, bis-2-ethylhexyl ester (DEHA) Alachlor <0.0001 mg/l 0.0001 Aldicarb <0.0001 mg/l 0.0001 Aldrin <0.0001 mg/l 0.0001 Aldrin <0.0001 mg/l 0.0001 Anthracene <0.001 mg/l 0.0001	NW010		40.04	, , , , , , , , , , , , , , , , , , , ,	
PH 7.4		Nitrate-N	<0.01	(± 0.00) mg/l	0.01
NW011 Sulphate Sulphate	NW195	pH (Tested beyond 15 mi		-	
NW206 Suspended Solids <5 mg/l 3 NW228 SVOC (GC-MSMS) <0.0001 mg/l 0.0001 Acenaphthene <0.0001 mg/l 0.0001 Adipatic acid, bis-2-ethylhexyl ester (DEHA) <0.0001 mg/l 0.0001 Alachlor <0.0001 mg/l 0.0001 Aldicarb <0.1 mg/l 0.1 Aldrin <0.001 mg/l 0.001 Anthracene <0.001 mg/l 0.001		рН	7.4	(± 0.2)	0.1
NW206 Suspended Solids Suspended Solids	NW011	Sulphate			
NW228 SVOC (GC-MSMS) 3 Acenaphthene <0.0001		Sulphate	<0.02	(± 0.01) mg/l	0.02
NW228 SVOC (GC-MSMS) Acenaphthene <0.0001	NW206	Suspended Solids			
Acenaphthene <0.0001			<5	mg/l	3
Acenaphthene <0.0001	NW228	SVOC (GC-MSMS)			
Acenaphthylene <0.001			<0.0001	mg/l	0.0001
Adipatic acid, bis-2-ethylhexyl			<0.001		
ester (DEHA) Alachlor		· · ·	<0.0001		
Aldicarb <0.1 mg/l 0.001 Aldrin <0.001 mg/l 0.001 Anthracene <0.001 mg/l 0.001				,	
Aldrin		Alachlor		mg/l	0.0001
Anthracene <0.001 mg/l 0.001		Aldicarb		mg/l	0.1
70 0004		Aldrin		mg/l	0.001
Atrazine <0.0001 mg/l 0.0004		Anthracene		mg/l	0.001
Mazine night 0.0001		Atrazine	<0.0001	mg/l	0.0001

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			ater restri		_
		RESULTS (UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	Benz(a)anthracene	<0.0001	mg/l	0.0001	
	Benzo(a)pyrene	<0.0001	mg/l	0.0001	
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001	
	Bromacil	<0.005	mg/l	0.005	
	Carbofuran	<0.001	mg/l	0.001	
	Chlordane	<0.0001	mg/l	0.0001	
	Chlordane, gamma	<0.001	mg/l	0.001	
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001	
	Chrysene	<0.0001	mg/l	0.0001	
	Cyanazine	<0.005	mg/l		
	d-BHC	<0.0001		0.005	
		<0.0001	mg/l	0.0001	
	DDD, p,p'-	<0.0001	mg/l	0.0001	
	DDE, p,p-	NotRecovered	mg/l	0.0001	
	DDT, p,p'-	<0.0001	mg/l	0.001	
	Diazinon	<0.0001	mg/l	0.0001	
	Dibenz(a,h)anthracene		mg/l	0.0001	
	Dieldrin	<0.0001	mg/l	0.0001	
	Dimethoate	<0.001	mg/l	0.001	
	Diuron	<0.001	mg/l	0.001	
	Endosulfan, alpha-	<0.001	mg/l	0.001	
	Endosulfan, beta-	<0.005	mg/l	0.005	
	Endosulfan-sulfate	<0.0001	mg/l	0.0001	
	Endrin	<0.0001	mg/l	0.0001	
	Endrin ketone	NotRecovered	mg/l	0.0001	
	Endrin-aldehyde	<0.001	mg/l	0.01	
	Fluoranthene	<0.0001	mg/l	0.0001	
	Fluorene	<0.0001	mg/l	0.0001	
	HCH, alpha-	<0.0001	mg/l		
	HCH, beta-	<0.0001		0.0001	
		<0.0001	mg/l	0.0001	
	Heptachlor	<0.0001	mg/l	0.0001	
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001	
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001	
	Hexazinone		mg/l	0.001	
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001	
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001	
	Metalaxyl and metalaxyl-M (metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))	<0.001	mg/l	0.001	
	Methoxychlor	<0.0001	mg/l	0.0001	
	Metolachlor	<0.0001	mg/l	0.0001	
	Metribuzin	<0.0001	mg/l	0.0001	
	Molinate	<0.0001			
		<0.0001	mg/l	0.0001	
	Naphthalene	<0.0001	mg/l	0.0001	
	Oxadiazon	<0.0001	mg/l	0.0001	
	PCB 101	10.0001	mg/l	0.0001	
		<0.001			
	PCB 138 PCB 183	<0.001 <0.0001	mg/l mg/l	0.001 0.0001	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			valer rest		
		RESULT	S (UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k)	<0.001	mg/l	0.001	
	fluoranthene	<0.0004			
	Trifluralin	<0.0001	mg/l	0.0001	
NW003	Total Alkalinity	404			
	Alkalinity total	161	(± 16) mg CaCO3/I	1	
NW030	Total Hardness				
	Hardness	116	mg CaCO3/I	1	
NW210	Total Non-Purgeable Orga	nic Carbon	-		
	Total Organic Carbon	2.7	(± 0.3) mg/l	0.1	
NW229	_		. , .	0.1	
144442	VOC (GC-MS) 1,1,1,2-Tetrachloroethane	<0.0005	ma/l	0.0005	
		<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	< 0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene		mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005			
		<0.0005	mg/l	0.0005	
	3-chloropropene	< 0.0005	mg/l	0.0005	
	4-Chlorotoluene	2.0000	mg/l	0.0005	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			JNCERTAINTY)	
		NESULIS (DIACELLIMINI I)	LOQ
NW229	VOC (GC-MS)	<0.0005		
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0012	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.001	mg/l	0.0005
	Bromomethane (zone 2)	<0.0005	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.001	mg/l	0.0005
	Chloroethane	<0.0005	mg/l	0.001
	Chloroform Chloromethane	<0.006	mg/l	0.0005
		<0.0005	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromocniorometriane Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.0005
	Dichloromethane	<0.005	mg/l	0.001
	Hexachlorobutadiene	<0.0002	mg/l	0.005
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0002
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0005
	Naphthalene	<0.0005	mg/l mg/l	0.0015
	n-Butylbenzene	<0.0005	mg/l	0.0005 0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
①NWWG6	Volatile Fatty Acids (VFA)			
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5
	,		•	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







RESULTS (UNCERTAINTY) LOQ

LIST O	METHODS		
NIMA	Total Alles Busters ADUA Cultura Edition 0000 D	NIMOOZ	Oblasidas ADUA Oslina Edition 4440 D
NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZMF1E	Escherichia coli E (Water) [NZ] <1 >80 /100 ml (0) Ml Agar-F: SMEWW 9222K; APHA 24th Edition

Signature

Marylou Cabral Laboratory Manager

mbecabool

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EXPLANATORY NOTE





NEW ZEALAND

Phone



- Test is not accredited
- 2 Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- $\ensuremath{\mathfrak{A}}$ Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

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Accreditation does not apply to comments or graphical representations.

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END OF REPORT





EUNZWE-00177701

19/04/2024



Food & Water Testing

AR-24-NW-023553-01

ANALYTICAL REPORT

REPORT DATE

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Gabriela Carvalhaes Contact for your orders:

Contract:

Landfill

Purchase Order Number: Landfill

Order code:

812-2024-00052410 SAMPLE CODE

349874-0 Sample Name **Product:** Ground water

Sampling Point code: WIL-E2s

10/04/2024 9:10 Reception Date & Time:

Analysis Started on: 10/04/2024

Product Type Ground water

Sampler(s) Client nominated external sampler

(waterandwasteteam@horowhenua.govt.nz), McMillan

Copy to: Water and Waste Team

Sampling Point name: Levin E2s

Analysis Ending Date: 19/04/2024

Sampled Date & Time 09/04/2024 11:43

Sampled by Eurofins No

Campici	- Chericher	Illinated extern	ar campion •	ampica by Euromis	
		RESULTS	(UNCERTAINTY)	LOQ	
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	0.30	(± 0.03) mg/l	0.01	
NW341	BOD5 - Soluble Carbonaceo	us <1	mg/l	1	
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	<15	(± 5) mg/l	15	
NW007	Chloride Chloride (Cl)	40.2	(± 4.02) mg/l	0.02	
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chlorophenol) 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol	<0.01 <0.01 <0.02 <0.01 <0.01 <0.01 <0.005 <0.01	mg/l mg/l mg/l mg/l mg/l mg/l	0.01 0.01 0.2 0.01 0.01 0.01 0.005	
	Phenol Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l mg/l	0.01 0.02	
NW023	Conductivity Conductivity	33.6	(± 0.7) mS/m	0.1	
NW098	Dissolved Aluminium Aluminium	0.003	mg/l	0.002	
NW103	Dissolved Boron Boron (B)	<0.03	mg/l	0.03	
NW104	Dissolved Cadmium Cadmium (Cd)	<0.0002	mg/l	0.0002	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 **NEW ZEALAND**

Phone www.eurofins.co.nz +64 4 576 5016





EUNZWE-00177376

Levin F1

19/04/2024



Food & Water Testing

ANALYTICAL REPORT

REPORT DATE

Copy to: Water and Waste Team

Sampling Point name:

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

Contact for your orders:

REPORT CODE

(waterandwasteteam@horowhenua.govt.nz), McMillan **Email** horowhenuaadmin@downer.co.nz

Gabriela Carvalhaes

AR-24-NW-023899-01

Landfill

Contract:

Purchase Order Number: Landfill

Order code:

SAMPLE CODE 812-2024-00051377

Sample Name 349875-0 **Product:** Ground water

Sampling Point code: WIL-F1

08/04/2024 16:45 **Reception Date & Time:**

Analysis Started on: 08/04/2024 **Analysis Ending Date:** 19/04/2024

Product Type Sampled Date & Time 08/04/2024 09:23 Ground water

Sampler(s) Sampled by Eurofins Client nominated external sampler No

		RESULTS	(UNCERTAINTY)	LOQ
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	<0.01	(± 0.00) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo	us <1	mg/l	1
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	<15	(± 5) mg/l	15
NW007	Chloride Chloride (CI)	62.6	(± 6.26) mg/l	0.02
NW00U	2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01
	2,4-Dichlorophenol 2,6-Dichlorophenol	<0.01 <0.2 <0.01	mg/l mg/l	0.01 0.2
	2-Chlorophenol (o-chlorophenol) 3,4,5-Trichlorophenol 4-Chloro-3-cresol	<0.01 <0.01 <0.01	mg/l mg/l mg/l	0.01
	Pentachlorophenol Phenol	<0.005 <0.01	mg/l mg/l	0.01 0.005 0.01
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02
NW023	Conductivity Conductivity	49.3	(± 1.0) mS/m	0.1
NW098	Dissolved Aluminium Aluminium	0.009	mg/l	0.002
NW583	Dissolved Arsenic Arsenic (As)	0.002	mg/l	0.001
NW103	Dissolved Boron Boron (B)	0.04	mg/l	0.03

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010

NEW ZEALAND

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NW104		I		vater rest	
Name			RESULTS	6 (UNCERTAINTY)	LOQ
NW105 Dissolved Calcium Calcium (Ca) Calcium (Ca) Calcium Calcium (Ca) Calcium Calcium (Ca) Calcium Calcium (Ca) Calcium	NW104	Diocontou Guannam	40,0000		
NW106 Dissolved Chromium Cromium (Cromium		Cadmium (Cd)	<0.0002	mg/l	0.0002
NW106 Dissolved Chromium Crromium (Cr) 0.001 mg/l 0.001 NW108 Dissolved Copper Copper (Cu) 0.0021 mg/l 0.0005 NW109 Dissolved Iron	NW105		04.0		
NW108 Dissolved Copper Copper (Cu) 0.0021 mg/l 0.0005		Calcium (Ca)	24.0	mg/l	0.1
NW108 Dissolved Copper Copper (Cu) 0.0021 mg/l 0.0005 NW109 Dissolved Iron	NW106		0.004		
NW109 Dissolved Iron Iron (Fe)		Chromium (Cr)	0.001	mg/l	0.001
NW109 Dissolved Iron Iron (Fe) 0.01 mg/l 0.01 NW110 Dissolved Lead Lead (Pb) <0.0005 mg/l 0.0005 NW112 Dissolved Magnesium Magnesium (Mg) 25.8 mg/l 0.001 NW113 Dissolved Manganese Manganese (Mn) 0.0096 mg/l 0.0005 NW114 Dissolved Mercury Mercury (Hg) 0.0005 mg/l 0.0005 NW116 Dissolved Nickel Nickel (Ni) 0.0006 mg/l 0.0005 NW117 Dissolved Potassium Potassium (K) 8.20 mg/l 0.001 NW19 Dissolved Reactive Phosphorus (soluble reactive) 0.161 mg/l 0.005 NW120 Dissolved Sodium Sodium (Na) 40.6 mg/l 0.001 NW125 Dissolved Zinc Zinc (Zn) 0.005 mg/l 0.002 ZM2GA Enumeration of Escherichia coli By Membrane Filtration Escherichia coli cfu/100 ml 100 NW010 Nitrate-N 2.90 (± 0.29) mg/l 0.01 NW011 Sulphate 2.97 (± 0.30) mg/l 0.02 NW206 Suspended Solids 5 mg/l 3 NW207 Suspended Solids 5 mg/l 0.0001 NW010 Adipatic acid, bis-2-ethylhexyl ester (DEHA) Alachlor 4.0001 mg/l 0.0001 Adldrin Anthracene 4.0001 mg/l 0.0001 Anthracene Aldrin 4.000	NW108				
Iron (Fe) 0.01 mg/l 0.01 NW110		Copper (Cu)	0.0021	mg/l	0.0005
NW110 Dissolved Lead Lead (Pb)	NW109	Dissolved Iron			
Lead (Pb)		Iron (Fe)	0.01	mg/l	0.01
NW112 Dissolved Magnesium	NW110	Dissolved Lead			
Magnesium (Mg) 25.8 mg/l 0.01 NW113 Dissolved Manganese Manganese (Mn) 0.0096 mg/l 0.0005 NW114 Dissolved Mercury Mercury (Hg) 0.0005 mg/l 0.0005 NW116 Dissolved Nickel Nickel (Ni) 0.0006 mg/l 0.0005 NW117 Dissolved Potassium Potassium (K) 8.20 mg/l 0.01 NW19 Dissolved Reactive Phosphorus (soluble reactive) 0.161 mg/l 0.005 NW120 Dissolved Sodium Sodium (Na) 40.6 mg/l 0.01 NW125 Dissolved Sodium Sodium (Na) 40.6 mg/l 0.001 NW126 Dissolved Zinc Zinc (Zn) 0.005 mg/l 0.002 ZM2GA Enumeration of Escherichia coli 5400 cfu/100 ml 100 NW010 Nitrate-N 2.90 (± 0.29) mg/l 0.01 NW010 Nitrate-N 2.90 (± 0.29) mg/l 0.01 NW017 Sulphate 2.97 (± 0.20) mg/l 0.02 NW208 Suspended Solids Acenaphthylene 4.0001 mg/l 0.0001 mg/l 0.0001 mg/l 0.0001 Adipatic acid, bis-2-ethylhexyl ester (DEHA) Alachlor 4.0001 mg/l 0.0001 Aldicarb Aldrin 4.0001 mg/l 0.0001 mg/l 0.0001 Aldicarb Aldrin 4.0001 mg/l 0.0001 mg/l 0.0001 Aldicarb Aldrin 4.0001 mg/l 0.0001 Mg/l 0		Lead (Pb)	<0.0005	mg/l	0.0005
NW113 Dissolved Manganese Manganese (Mn) 0.0096 mg/l 0.0005 NW114 Dissolved Mercury (Hg) <0.0005 mg/l 0.0005 NW116 Dissolved Nickel Nickel (Ni) 0.0006 mg/l 0.0005 NW117 Dissolved Potassium Potassium (K) 8.20 mg/l 0.001 NW118 Dissolved Reactive Phosphorus (soluble reactive) 0.161 mg/l 0.005 NW120 Dissolved Sodium Sodium (Na) 40.6 mg/l 0.005 NW117 Dissolved Sodium Sodium (Na) 40.6 mg/l 0.005 NW125 Dissolved Zinc Zinc (Zn) 0.005 mg/l 0.002 ZM2GA Enumeration of Escherichia coli By Membrane Filtration Escherichia coli Cfu/100 ml 100 100 NW010 Nitrate-N 2.90 (± 0.29) mg/l 0.01 NW011 Nitrate-N 2.90 (± 0.29) mg/l 0.02 NW011 Sulphate Sulphate 2.97 (± 0.30) mg/l 0.02 NW012 Suspended Solids	NW112	Dissolved Magnesium			
Manganese (Mn) 0.0096 mg/l 0.0005			25.8	mg/l	0.01
NW114 Dissolved Mercury (Hg) <0.0005 mg/l 0.0005 NW116 Dissolved Nickel Nickel (Ni) 0.0006 mg/l 0.0005 NW117 Dissolved Potassium Potassium (K) 8.20 mg/l 0.01 NW193 Dissolved Reactive Phosphorus (soluble reactive) 0.161 mg/l 0.005 NW120 Dissolved Sodium Sodium (Na) 40.6 mg/l 0.001 NW125 Dissolved Zinc Zinc (Zn) 0.005 mg/l 0.002 ZM2GA Enumeration of Escherichia coli By Membrane Filtration Escherichia coli ciu fullo ml 100 Numana pillo millo mg/l 100 NW010 Nitrate-N Nitrate-N Nitrate-N Sulphate Sulphate APHA holding time) PH (Tested beyond 15 minute APHA holding time) PH (Tested beyond 15 minute APHA holding time) PH (Tested Sulphate	NW113	Dissolved Manganese			
Mercury (Hg)		_	0.0096	mg/l	0.0005
Mercury (Hg)	NW114	Dissolved Mercury			
NW116 Dissolved Nickel (Ni) 0.0006 mg/l 0.0005 NW117 Dissolved Potassium (K) 8.20 mg/l 0.01 NW193 Dissolved Reactive Phosphorus (soluble reactive) 0.161 mg/l 0.005 NW120 Dissolved Sodium (Na) 40.6 mg/l 0.01 NW125 Dissolved Zinc Zinc (Zn) 0.005 mg/l 0.002 ZM2GA Enumeration of Escherichia coli By Membrane Filtration Escherichia coli ≤100 cfu/100 ml 100 NW010 Nitrate-N Nitrate-N 2.90 (± 0.29) mg/l 0.01 NW195 pH (Tested beyond 15 minute APHA holding time) pH (5.7 (± 0.2) 0.1 NW011 Sulphate Sulphate 2.97 (± 0.30) mg/l 0.02 NW206 Suspended Solids Suspended So			<0.0005	mg/l	0.0005
NW117 Dissolved Potassium (k) 8.20 mg/l 0.001 NW118 Dissolved Reactive Phosphorus (soluble reactive) 0.161 mg/l 0.005 NW120 Dissolved Sodium (Na) 40.6 mg/l 0.001 NW125 Dissolved Zinc Zinc (Zn) 0.005 mg/l 0.002 ZM2GA Enumeration of Escherichia coli By Membrane Filtration Escherichia coli 100 cfu/100 ml 100 NW010 Nitrate-N (±0.29) mg/l 0.01 NW195 PH (Tested beyond 15 minute APHA holding time) Filtration (±0.29) mg/l 0.01 NW011 Sulphate Sulphate (±0.29) mg/l 0.01 NW195 PM (Tested beyond 15 minute APHA holding time) Filtration (±0.2) mg/l 0.01 NW011 Sulphate (±0.29) mg/l 0.01 0.02 NW206 Suspended Solids (±0.29) mg/l 0.02 NW207 Suspended Solids (±0.29) mg/l 0.02 NW208 Suspended Solids (±0.29) mg/l 0.001 Suspended Solids (±0.29) mg/l 0.0001 mg/l 0.0001 Acenaphthene (±0.000) mg/l 0.0001 mg/l 0.0001 <tr< td=""><td>NW116</td><td></td><td></td><td>J.</td><td>2.3000</td></tr<>	NW116			J .	2.3000
NW117 Dissolved Potassium Potassium (K) 8.20 mg/l 0.01			0.0006	ma/l	0 0005
Potassium (K) 8.20 mg/l 0.01	NW117			···ə/'	0.0003
NW193 Dissolved Reactive Phosphorus Phosphorus (soluble reactive) 0.161 mg/l 0.005	1444117		8.20	ma/l	0.01
NW120 Dissolved Sodium Sodium (Na) A0.6 mg/l 0.001	NIMAGO	• •		mg/i	0.01
NW120 Dissolved Sodium Sodium (Na) 40.6 mg/l 0.01	NVV193		. 0.404	ma/l	0.005
NW125 Dissolved Zinc Zinc (Zn) 0.005 mg/l 0.002	ADAMA O C)	mg/i	0.005
NW125 Dissolved Zinc Zinc (Zn) 0.005 mg/l 0.002	NVV120		40.6	ma a 0	2.24
Zinc (Zn) 0.005 mg/l 0.002	. n	, ,	.5.0	mg/I	0.01
ZM2GA Enumeration of Escherichia coli By Membrane Filtration Escherichia coli <100 cfu/100 ml 100	NW125		0.005		
NW010 Nitrate-N				· ·	0.002
NW010 Nitrate-N Nitrate-N Nitrate-N NW195 pH (Tested beyond 15 minute APHA holding time) pH 6.7 (± 0.29) mg/l 0.01 NW011 Sulphate Sulphate Sulphate Sulphate Suspended Solids Suspended Solids Suspended Solids Suspended Solids Acenaphthene Acenaphthylene Acenaphthylene Adipatic acid, bis-2-ethylhexyl ester (DEHA) Alachlor Aldicarb Aldrin Anthracene Acenaph Anthracene Acenaphthylene Acenaphthylene Acenaphthylene Aldrin Anthracene Acenaphthylene Acenaphth	ZM2GA				
NW195 pH (Tested beyond 15 minute APHA holding time) pH 6.7 (± 0.2) 0.1 NW011 Sulphate Sulphate 2.97 (± 0.30) mg/l 0.02 NW206 Suspended Solids Suspended Solids 5 mg/l 3 NW228 SVOC (GC-MSMS) 4 0.0001 mg/l 0.0001 Acenaphthylene <0.0001 mg/l 0.0001 Adipatic acid, bis-2-ethylhexyl ester (DEHA) <0.0001 mg/l 0.0001 Aldcarb <0.0001 mg/l 0.0001 Aldrin <0.001 mg/l 0.001 Aldrin <0.001 mg/l 0.001 Anthracene <0.001 mg/l 0.001			~100	cfu/100 ml	100
NW195 pH (Tested beyond 15 minute APHA holding time) pH 6.7 (± 0.2) 0.1	NW010		0.00		
pH 6.7 (± 0.2) 0.1 NW011 Sulphate 2.97 (± 0.30) mg/l 0.02 NW206 Suspended Solids <5 mg/l 3 NW228 SVOC (GC-MSMS) <0.0001 mg/l 0.0001 Acenaphthene <0.0001 mg/l 0.0001 Adipatic acid, bis-2-ethylhexyl ester (DEHA) <0.0001 mg/l 0.0001 Alachlor <0.0001 mg/l 0.0001 Aldrin <0.001 mg/l 0.001 Aldrin <0.001 mg/l 0.001 Anthracene <0.001 mg/l 0.001		Nitrate-N	2.90	(± 0.29) mg/l	0.01
NW011 Sulphate Sulphate 2.97 (± 0.30) mg/l 0.02 NW206 Suspended Solids Suspended Solids <5 mg/l 3 NW228 SVOC (GC-MSMS) Acenaphthene <0.0001 mg/l 0.0001 Acenaphthylene <0.0001 mg/l 0.001 Adipatic acid, bis-2-ethylhexyl ester (DEHA) Alachlor <0.0001 mg/l 0.0001 Aldicarb <0.0001 mg/l 0.0001 Aldrin <0.001 mg/l 0.0001 Aldrin <0.001 mg/l 0.0001 Anthracene <0.001 mg/l 0.0001	NW195	pH (Tested beyond 15 mi			
NW206 Suspended Solids <5 mg/l 3 NW228 SVOC (GC-MSMS) <0.0001 mg/l 0.0001 Acenaphthene <0.0001 mg/l 0.0001 Adipatic acid, bis-2-ethylhexyl ester (DEHA) <0.0001 mg/l 0.0001 Alachlor <0.0001 mg/l 0.0001 Aldicarb <0.1 mg/l 0.1 Aldrin <0.001 mg/l 0.001 Anthracene <0.001 mg/l 0.001		рН	6.7	(± 0.2)	0.1
NW206 Suspended Solids Suspended Solids	NW011	Sulphate			
NW228 SVOC (GC-MSMS) 3 Acenaphthene <0.0001		Sulphate	2.97	(± 0.30) mg/l	0.02
NW228 SVOC (GC-MSMS) 3 Acenaphthene <0.0001	NW206	Suspended Solids			
Acenaphthene <0.0001			<5	mg/l	3
Acenaphthene <0.0001	NW228	SVOC (GC-MSMS)			
Acenaphthylene <0.001			<0.0001	mg/l	0.0001
Adipatic acid, bis-2-ethylhexyl			<0.001		
ester (DEHA) Alachlor <0.0001 mg/l 0.0001 Aldicarb <0.1 mg/l 0.1 Aldrin <0.001 mg/l 0.001 Anthracene <0.001 mg/l 0.001			o.0001		
Aldicarb <0.1 mg/l 0.001 Aldrin <0.001 mg/l 0.001 Anthracene <0.001 mg/l 0.001					
Aldrin <0.001 mg/l 0.001 Anthracene <0.001 mg/l 0.001		Alachlor		mg/l	0.0001
Anthracene <0.001 mg/l 0.001		Aldicarb		mg/l	0.1
70 0004		Aldrin		mg/l	0.001
Atrazine <0.0001 mg/l 0.0001		Anthracene		mg/l	0.001
•		Atrazine	<0.0001	mg/l	0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			(UNCERTAINTY)	
		KESULIS	(UNCERTAINTY)	LOQ
NW228	` ,	-0.0004		
	Benz(a)anthracene	<0.0001	mg/l	0.0001
	Benzo(a)pyrene	<0.0001	mg/l	0.0001
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001
	Bromacil	<0.005	mg/l	0.005
	Carbofuran	<0.001	mg/l	0.001
	Chlordane	<0.0001	mg/l	0.0001
	Chlordane, gamma	<0.001	mg/l	0.001
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
	Chrysene	<0.0001	mg/l	0.0001
	Cyanazine	<0.005	mg/l	0.005
	d-BHC	<0.0001	mg/l	0.0001
	DDD, p,p'-	<0.0001	mg/l	0.0001
	DDE, p,p-	<0.0001	mg/l	0.0001
	DDT, p,p'-	<0.001	mg/l	0.0001
	Diazinon	<0.0001	mg/l	0.001
	Dibenz(a,h)anthracene	<0.0001	mg/l	
	Dieldrin	<0.0001		0.0001
	Dimethoate	<0.001	mg/l	0.0001
		<0.001	mg/l	0.001
	Diuron	<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.005	mg/l	0.001
	Endosulfan, beta-	<0.0001	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone		mg/l	0.0001
	Endrin-aldehyde	<0.001	mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene	<0.0001	mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001
	Metalaxyl and metalaxyl-M	<0.001	mg/l	0.001
	(metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))		g.	0.001
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001		
		<0.0001	mg/l	0.0001
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001	mg/l	0.0001
	PCB 101	<0.001	mg/l	0.0001
	DOD 400			
	PCB 138 PCB 183	<0.001	mg/l mg/l	0.001 0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			vvater restr		
		RESULT	S (UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)	_			
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k)	<0.001	mg/l	0.0001	
	fluoranthene		. .	0.001	
	Trifluralin	<0.0001	mg/l	0.0001	
NW003	Total Alkalinity		-		
	Alkalinity total	134	(± 13) mg	1	
	,		CaCO3/I	•	
NW030	Total Hardness				
	Hardness	166	mg CaCO3/I	1	
NW210	Total Non-Purgeable Orga	nic Carbon			
	Total Organic Carbon	4.4	(± 0.4) mg/l	0.1	
NW229	VOC (GC-MS)				
-	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005			
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropenzene	<0.0005	mg/l	0.0005	
		<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	< 0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0003	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dichlorobenzene (2)		mg/l	0.0005	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
	3-chloropropene	<0.0005	mg/l	0.0005	
	4-Chlorotoluene	<0.0005	mg/l	0.0005	
			∌″'	0.0000	

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			ator rootii	
		RESULTS (UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
①NWWG6	Volatile Fatty Acids (VFA)			
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5
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Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







RESULTS (UNCERTAINTY) LOQ

LIST O	FMETHODS		
NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210 B	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Signature

Marylou Cabral

mbecabool

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Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon Supervisor Eurofins ELS Limited

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Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE





NEW ZEALAND

Phone



Test is not accredited

②Test is subcontracted within Eurofins group and is accredited

3 Test is subcontracted within Eurofins group and is not accredited

 $\ensuremath{\mathfrak{A}}$ Test is subcontracted outside Eurofins group and is accredited

Test is subcontracted outside Eurofins group and is not accredited

© Test result is provided by the customer and is not accredited

Tested at the sampling point by Eurofins and is not accredited

Tested at the sampling point by Eurofins and is accredited

9 Test is RLP accredited

Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

x (Unsatisfactory) means does not meet the specification

✓ (Satisfactory) means meets the specification

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END OF REPORT







			water restr	
		KESULI	S (UNCERTAINTY)	LOQ
NW105	Dissolved Calcium	20.5		
	Calcium (Ca)	20.3	mg/l	0.1
NW106	Dissolved Chromium	<0.001	,	
	Chromium (Cr)	\ U.UU I	mg/l	0.001
NW108	Dissolved Copper	<0.000E		
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	Dissolved Iron	0.07	_	
	Iron (Fe)	0.07	mg/l	0.01
NW110	Dissolved Lead	<0.000F		
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium	0.40		
	Magnesium (Mg)	6.13	mg/l	0.01
NW113	Dissolved Manganese			
	Manganese (Mn)	0.251	mg/l	0.0005
NW114	Dissolved Mercury			
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel			
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	Dissolved Potassium		J	-
	Potassium (K)	5.71	mg/l	0.01
NW193	Dissolved Reactive Phosp	horus	J	5.01
	Phosphorus (soluble reactive)	0.233	mg/l	0.005
NW120			a/.i	0.003
1444120	Sodium (Na)	27.0	mg/l	0.04
NIVA/40E			mg/i	0.01
NW125	Dissolved Zinc	0.002	ma/l	0.000
784204	Zinc (Zn)		mg/l	0.002
ZWZGA	Enumeration of Escherich	ia coli By Mei		400
. n	Escherichia coli	100	cfu/100 ml	100
NW010	Nitrate-N	<0.01	(+ 0 00) "	
	Nitrate-N		(± 0.00) mg/l	0.01
NW195	pH (Tested beyond 15 min			
	рН	7.7	(± 0.2)	0.1
NW011	Sulphate			
	Sulphate	13.4	(± 1.34) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	16	mg/l	3
NW228	SVOC (GC-MSMS)			
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.001
	Adipatic acid, bis-2-ethylhexyl	<0.0001	mg/l	0.0001
	ester (DEHA)			
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.1
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.0001
	Benz(a)anthracene	<0.0001	mg/l	0.0001
	Benzo(a)pyrene	<0.0001	mg/l	0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			(IINCEPTAINTY)	
		KESULIS	(UNCERTAINTY)	LOQ
NW228	` '	<0.001	_	
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001
	Bromacil	<0.005	mg/l	0.005
	Carbofuran	<0.001	mg/l	0.001
	Chlordane	<0.0001	mg/l	0.0001
	Chlordane, gamma	<0.001	mg/l	0.001
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
	Chrysene	<0.0001	mg/l	0.0001
	Cyanazine	<0.005	mg/l	0.005
	d-BHC	<0.0001	mg/l	0.0001
	DDD, p,p'-	<0.0001	mg/l	0.0001
	DDE, p,p-	<0.0001	mg/l	0.0001
	DDT, p,p'-	<0.001	mg/l	0.001
	Diazinon	<0.0001	mg/l	0.0001
	Dibenz(a,h)anthracene	<0.0001	mg/l	0.0001
	Dieldrin	<0.0001	mg/l	0.0001
	Dimethoate	<0.001	mg/l	
	Dirietiloate	<0.001		0.001
		<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.005	mg/l	0.001
	Endosulfan, beta-	<0.0001	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone	<0.0001	mg/l	0.0001
	Endrin-aldehyde		mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene	<0.0001	mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001
	Metalaxyl and metalaxyl-M	<0.001	mg/l	0.0001
	(metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))		··· · ···	0.001
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001	mg/l	0.0001
		<0.0001		
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001	mg/l	0.0001
	PCB 101	<0.0001	mg/l	0.0001
	PCB 138		mg/l	0.001
	PCB 183	<0.0001	mg/l	0.0001
	PCB 28	<0.0001	mg/l	0.0001
	FGB 20	<0.0001	3	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







		RESULT	S (UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k) fluoranthene	<0.001	mg/l	0.001	
	Trifluralin	<0.0001	mg/l	0.0001	
NW003	Total Alkalinity		Ŭ		
	Alkalinity total	92	(± 9) mg CaCO3/I	1	
NW030	Total Hardness		343 35 7.		
	Hardness	76	mg CaCO3/I	1	
NW210			9 04000/1	1	
1444710	Total Organic Carbon	nic Garbon 2.1	(± 0.2) mg/l	0.4	
NAVOOO	Total Organic Carbon		(± 0.2) 1119/1	0.1	
NW229	VOC (GC-MS)	<0.0005	,,		
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane		mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
	3-chloropropene	<0.0020	mg/l	0.0005	
	4-Chlorotoluene	<0.0005	mg/l	0.0005	
			•		
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







		RESULTS (UNCERTAINTY)	LOQ
NIMOOO	.VOO (OO MO)			LOW
NW229	,	<0.0005	ma/l	0.0005
	Bromobenzene Bromochloromethane	<0.0012	mg/l	0.0005
	Bromocnioromethane Bromodichloromethane	<0.0005	mg/l	0.0012
		<0.0005	mg/l	0.0005
	Bromoform	<0.001	mg/l	0.0005
	Bromomethane (zone 2)	<0.0005	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0003	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.006	mg/l	0.0005
	Chloromethane		mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
NWWG6	Volatile Fatty Acids (VFA)			
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	
	Propionic acid	<5		5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5
	voiaule latty acids as acetic acid		mg/l	5

LIST OF METHODS

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND









NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210	NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.
ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition		

Signature

Marylou Cabral Laboratory Manager

mbecabra

Laboratory Manager Eurofins ELS Limited Jennifer Mont

Supervisor Eurofins ELS Limited

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Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE







Test is not accredited

②Test is subcontracted within Eurofins group and is accredited

3 Test is subcontracted within Eurofins group and is not accredited

 $\ensuremath{\mathfrak{A}}$ Test is subcontracted outside Eurofins group and is accredited

Test is subcontracted outside Eurofins group and is not accredited

Test result is provided by the customer and is not accredited

Tested at the sampling point by Eurofins and is not accredited

® Tested at the sampling point by Eurofins and is accredited

Test is RLP accredited

Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

x (Unsatisfactory) means does not meet the specification

✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

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END OF REPORT





19/04/2024



Food & Water Testing

AR-24-NW-023905-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

REPORT CODE

Gabriela Carvalhaes

Landfill

Copy to: Water and Waste Team

REPORT DATE

Order code:

(waterandwasteteam@horowhenua.govt.nz), McMillan

Purchase Order Number: Landfill

812-2024-00051383 SAMPLE CODE

Sample Name 349876-0 **Product:** Ground water

Sampling Point code: WIL-F2

08/04/2024 16:45 **Reception Date & Time:**

Analysis Started on: 08/04/2024

Product Type Ground water

Sampling Point name:

Analysis Ending Date:

Sampled Date & Time

19/04/2024

Levin F2

08/04/2024 10:35

EUNZWE-00177376

Sampler(s) Sampled by Eurofins Client nominated external sampler No

		RESULTS	(UNCERTAINTY)	LOQ
NW179	Ammonia Nitrogen			
	Ammoniacal nitrogen (N)	<0.01	(± 0.00) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo	us		
	BOD5	<1	mg/l	1
NW020	Chemical Oxygen Demand			
	Chemical oxygen demand (COD)	<15	(± 5) mg/l	15
NW007	Chloride			
	Chloride (CI)	23.3	(± 2.33) mg/l	0.02
NW00U	Chlorophenols			
	2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01
	2,4-Dichlorophenol	<0.01	mg/l	0.01
	2,6-Dichlorophenol	<0.2	mg/l	0.2
	2-Chlorophenol (o-chlorophenol)	<0.01	mg/l	0.01
	3,4,5-Trichlorophenol	<0.01	mg/l	0.01
	4-Chloro-3-cresol	<0.01	mg/l	0.01
	Pentachlorophenol	<0.005	mg/l	0.005
	Phenol	<0.01	mg/l	0.01
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02
NW023	Conductivity			
	Conductivity	22.2	(± 0.4) mS/m	0.1
NW098	Dissolved Aluminium			
	Aluminium	0.004	mg/l	0.002
NW583	Dissolved Arsenic			
	Arsenic (As)	0.002	mg/l	0.001
NW103	Dissolved Boron			
	Boron (B)	0.05	mg/l	0.03

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010

NEW ZEALAND

Phone www.eurofins.co.nz +64 4 576 5016





			vvaler rest	
		RESULT	S (UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium			
	Calcium (Ca)	6.5	mg/l	0.1
NW106	Dissolved Chromium			
	Chromium (Cr)	0.003	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	0.0071	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	0.03	mg/l	0.01
NW110	Dissolved Lead		,	
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112			···ສຸ· '	0.0003
1444112	Dissolved Magnesium	5.94	ma/l	0.04
N 11444	Magnesium (Mg)		mg/l	0.01
NW113	Dissolved Manganese	0.0120	,,	
	Manganese (Mn)	0.0120	mg/l	0.0005
NW114	Dissolved Mercury	10.0005		
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel			
	Nickel (Ni)	0.0006	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	5.12	mg/l	0.01
NW193	Dissolved Reactive Phos	phorus		
	Phosphorus (soluble reactive)		mg/l	0.005
NW120	Dissolved Sodium	,	5	0.000
144120	Sodium (Na)	25.0	mg/l	0.01
NIVAGE	, ,		1119/1	0.01
NW125	Dissolved Zinc	0.002	/l	•
	Zinc (Zn)		mg/l	0.002
ZM2GA	Enumeration of Escheric	-		
	Escherichia coli	<100	cfu/100 ml	100
NW010	Nitrate-N	0.00		
	Nitrate-N	0.38	(± 0.04) mg/l	0.01
NW195	pH (Tested beyond 15 mi		ding time)	
	рН	7.0	(± 0.2)	0.1
NW011	Sulphate			
	Sulphate	11.3	(± 1.14) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	7	mg/l	3
NMววอ	SVOC (GC-MSMS)		.	J
1444770	Acenaphthene	<0.0001	ma/l	0.0004
		<0.001	mg/l	0.0001
	Acenaphthylene	.0.0004	mg/l	0.001
	Adipatic acid, bis-2-ethylhexyl ester (DEHA)	1	mg/l	0.0001
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.0001
	Aldrin	<0.001	mg/l	0.1
	Anthracene	<0.001		
		<0.0001	mg/l	0.001
	Atrazine		mg/l	0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			(UNCERTAINTY)	
		KESULIS	(UNCERTAINTY)	LOQ
NW228	` ,	-0.0004		
	Benz(a)anthracene	<0.0001	mg/l	0.0001
	Benzo(a)pyrene	<0.0001	mg/l	0.0001
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001
	Bromacil	<0.005	mg/l	0.005
	Carbofuran	<0.001	mg/l	0.001
	Chlordane	<0.0001	mg/l	0.0001
	Chlordane, gamma	<0.001	mg/l	0.001
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
	Chrysene	<0.0001	mg/l	0.0001
	Cyanazine	<0.005	mg/l	0.005
	d-BHC	<0.0001	mg/l	0.0001
	DDD, p,p'-	<0.0001	mg/l	0.0001
	DDE, p,p-	<0.0001	mg/l	0.0001
	DDT, p,p'-	<0.001	mg/l	0.0001
	Diazinon	<0.0001	mg/l	0.001
	Dibenz(a,h)anthracene	<0.0001	mg/l	
	Dieldrin	<0.0001		0.0001
	Dimethoate	<0.001	mg/l	0.0001
		<0.001	mg/l	0.001
	Diuron	<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.005	mg/l	0.001
	Endosulfan, beta-	<0.0001	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone		mg/l	0.0001
	Endrin-aldehyde	<0.001	mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene	<0.0001	mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001
	Metalaxyl and metalaxyl-M	<0.001	mg/l	0.001
	(metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))		g.	0.001
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001		
		<0.0001	mg/l	0.0001
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001	mg/l	0.0001
	PCB 101	<0.001	mg/l	0.0001
	DOD 400			
	PCB 138 PCB 183	<0.001	mg/l mg/l	0.001 0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			vvaler restr		
		RESULT	S (UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k)	<0.001	mg/l	0.0001	
	fluoranthene		y,ı	0.001	
	Trifluralin	<0.0001	mg/l	0.0001	
NW003	Total Alkalinity		J		
	Alkalinity total	57	(± 6) mg	1	
			CaCO3/I	•	
NW030	Total Hardness				
	Hardness	41	mg CaCO3/I	1	
NW210	Total Non-Purgeable Orga	nic Carbon			
	Total Organic Carbon	1.5	(± 0.2) mg/l	0.1	
NW229	VOC (GC-MS)				
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005			
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.0005	
	1,2-Dibromoethane	<0.0002	mg/l	0.002	
		<0.0005	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	1,2-Dichloroethane	< 0.0005	mg/l	0.0005	
	1,2-Dichloropropane	< 0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane		mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
		<0.000E			
	3-chloropropene 4-Chlorotoluene	<0.0005 <0.0005	mg/l mg/l	0.0005 0.0005	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			ator rootii	
		RESULTS (UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
①NWWG6	Volatile Fatty Acids (VFA)			
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5
	,		J	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







RESULTS (UNCERTAINTY) LOQ

LIST O	METHODS		
NW003	Total Alkalinity, ADHA Online Edition 2220 P	NW007	Chloride: APHA Online Edition 4110 B
	Total Alkalinity: APHA Online Edition 2320 B		
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Signature

Marylou Cabral

mbecaboos

Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

Supervisor Eurofins ELS Limited

Ganesh Ilancko

Supervisor Eurofins ELS Limited

Arvinder Singh

Laboratory Supervisor Microbiology

Gabriela Carvalhaes Manager Food and Water **Testing Chemistry**

Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE





NEW ZEALAND



- Test is not accredited
- 2 Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- $\ensuremath{\mathfrak{Y}}$ Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- 9 Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

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END OF REPORT





EUNZWE-00177376

Levin F3

19/04/2024



Food & Water Testing

AR-24-NW-023907-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

REPORT CODE

Gabriela Carvalhaes

0.03

mg/l

Landfill

Copy to: Water and Waste Team

REPORT DATE

Order code:

(waterandwasteteam@horowhenua.govt.nz), McMillan

Purchase Order Number: Landfill

SAMPLE CODE 812-2024-00051385

349877-0 Sample Name **Product:** Ground water

Sampling Point code: WIL-F3

08/04/2024 16:45 Reception Date & Time:

Analysis Started on: 08/04/2024 Sampling Point name:

Analysis Ending Date: 19/04/2024 00/04/0004 44:00

Product	: Type Gi	round water		Sampled Date & Time	08/04/2024 11:03
Sampler(s)		ient nominated exte	rnal sampler	Sampled by Eurofins	No
		RESULT	S (UNCERTAINTY) LOQ	
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	<0.01	(± 0.00) mg/l	0.01	
NW341	BOD5 - Soluble Carbon BOD5	onaceous <1	mg/l	1	
NW020	Chemical Oxygen De Chemical oxygen deman		(± 5) mg/l	15	
NW007	Chloride Chloride (CI)	14.6	(± 1.46) mg/l	0.02	
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chloro 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol Phenol Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.01 <0.2	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.01 0.01 0.2 0.01 0.01 0.01 0.005 0.01 0.02	
NW023	•	17.8	(± 0.4) mS/m	0.1	
NW098	Dissolved Aluminium Aluminium	0.002	mg/l	0.002	
NW583	Dissolved Arsenic Arsenic (As)	0.002	mg/l	0.001	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 **NEW ZEALAND**

NW103 Dissolved Boron

Boron (B)

Phone www.eurofins.co.nz

0.03

+64 4 576 5016







			vvaler rest	
		RESULT	S (UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium			
	Calcium (Ca)	5.2	mg/l	0.1
NW106	Dissolved Chromium			
	Chromium (Cr)	0.003	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	0.0011	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	<0.01	mg/l	0.01
NW110	Dissolved Lead		ŭ	2.2.
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112			a/.t	0.0003
1444117	Dissolved Magnesium	5.17	ma!!	0.04
	Magnesium (Mg)	J. 1.	mg/l	0.01
NW113	Dissolved Manganese	<0.0005		
	Manganese (Mn)	\U.UUU3	mg/l	0.0005
NW114	Dissolved Mercury	.0.6335		
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel			
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	4.34	mg/l	0.01
NW193		sphorus	-	
	Phosphorus (soluble reactive)	. 0.454	mg/l	0.005
NW120	Dissolved Sodium	•	5	5.000
	Sodium (Na)	24.9	mg/l	0.01
NIVA/4 O.F.	` '		1119/1	0.01
NW125	Dissolved Zinc	0.003	/l	
	Zinc (Zn)		mg/l	0.002
ZM2GA	Enumeration of Escheric	-		
	Escherichia coli	<100	cfu/100 ml	100
NW010	Nitrate-N	4.00		
	Nitrate-N	1.62	(± 0.16) mg/l	0.01
NW195	pH (Tested beyond 15 mi		ding time)	
	рН	6.9	(± 0.2)	0.1
NW011	Sulphate			
	Sulphate	4.69	(± 0.47) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	<5	mg/l	3
NW228	SVOC (GC-MSMS)		Ŭ	~
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	
	· · ·	-0.0004		0.001
	Adipatic acid, bis-2-ethylhexyl ester (DEHA)	I	mg/l	0.0001
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.0001
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.001
	, M 42110		1119/1	0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







	1 1		(UNICEDTAINTY)	
		KESULIS	(UNCERTAINTY)	LOQ
NW228	SVOC (GC-MSMS)	40.0004		
	Benz(a)anthracene	<0.0001	mg/l	0.0001
	Benzo(a)pyrene	<0.0001	mg/l	0.0001
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001
	Bromacil	<0.005	mg/l	0.005
	Carbofuran	<0.001	mg/l	0.001
	Chlordane	<0.0001	mg/l	0.0001
	Chlordane, gamma	<0.001	mg/l	0.001
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
	Chrysene	<0.0001	mg/l	0.0001
	Cyanazine	<0.005	mg/l	0.005
	d-BHC	<0.0001	mg/l	0.0001
	DDD, p,p'-	<0.0001	mg/l	0.0001
	DDE, p,p-	<0.0001	mg/l	0.0001
	DDT, p,p'-	<0.001	mg/l	0.0001
	Diazinon	<0.0001	mg/l	0.001
	Dibenz(a,h)anthracene	<0.0001	mg/l	
	Dieldrin	<0.0001	mg/l	0.0001
	Dimethoate	<0.001		0.0001
		<0.001	mg/l	0.001
	Diuron	<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.005	mg/l	0.001
	Endosulfan, beta-	<0.0001	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone		mg/l	0.0001
	Endrin-aldehyde	<0.001	mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene	<0.0001	mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001
	Metalaxyl and metalaxyl-M	<0.001	mg/l	0.001
	(metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))		···g·	0.001
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001		
		<0.0001	mg/l	0.0001
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001	mg/l	0.0001
	PCB 101	<0.001	mg/l	0.0001
	PCB 138		mg/l	0.001
	PCB 183	<0.0001	mg/l	0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







	1 000 & vvater restr				
		RESULT	S (UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k)	<0.001	mg/l	0.0001	
	fluoranthene		9/1	0.001	
	Trifluralin	<0.0001	mg/l	0.0001	
NW003	Total Alkalinity		J		
.111000	Alkalinity total	52	(± 5) mg	1	
	ammy total		CaCO3/I	1	
NW030	Total Hardness				
	Hardness	34	mg CaCO3/I	1	
NW210	Total Non-Purgeable Orga	anic Carbon			
	Total Organic Carbon	1.1	(± 0.1) mg/l	0.1	
NW229	_			Ç. I	
	1,1,1,2-Tetrachloroethane	<0.0005	ma/l	0.0005	
	1,1,1,2-Tetrachioroethane	<0.0005	mg/l		
		<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	< 0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane		mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
	3-chloropropene	<0.0005	mg/l	0.0005	
	4-Chlorotoluene	<0.0005	mg/l	0.0005	
	T-OHIOIOIOIUGHE		ilig/i	0.0005	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)		•	
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
①NWWG6	S Volatile Fatty Acids (VFA)			
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







RESULTS (UNCERTAINTY) LOQ

LIST O	LIST OF METHODS								
NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B						
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B						
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D						
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B						
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.						
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.						
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.						
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.						
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.						
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.						
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.						
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H						
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B						
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B						
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS						
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210 B	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.						
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition						

Signature

Marylou Cabral

mbecabool

Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

Supervisor Eurofins ELS

Limited

Maria Norris

Laboratory Manager, Microbiology

Ganesh Ilancko

Supervisor Eurofins ELS Limited

Gabriela Carvalhaes Manager Food and Water **Testing Chemistry**

Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE







- Test is not accredited
- ②Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- $\ensuremath{\mathfrak{Y}}$ Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- 🗴 (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

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END OF REPORT





19/04/2024



Food & Water Testing

AR-24-NW-023903-01

ANALYTICAL REPORT

REPORT DATE

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

Contact for your orders:

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Landfill

Contract:

Gabriela Carvalhaes

EUNZWE-00177376 Order code:

(waterandwasteteam@horowhenua.govt.nz), McMillan

Purchase Order Number: Landfill

812-2024-00051381 SAMPLE CODE

Sample Name 349878-0 **Product:** Ground water

Sampling Point code: WIL-G1D

08/04/2024 16:45 **Reception Date & Time:**

Analysis Started on: 08/04/2024

Product Type Ground water Sampling Point name: Levin G1D

Copy to: Water and Waste Team

Sampled Date & Time

Analysis Ending Date: 19/04/2024 08/04/2024 06:55

0)			O	NI
Sample	r(s) Client nor	minated extern	ial sampler	Sampled by Eurofins	No
		RESULTS	(UNCERTAINTY) LOQ	
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	0.10	(± 0.01) mg/l	0.01	
NW341	BOD5 - Soluble Carbonaceo	u s <1	mg/l	1	
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	<15	(± 5) mg/l	15	
NW007	Chloride Chloride (Cl)	28.9	(± 2.89) mg/l	0.02	
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chlorophenol) 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol Phenol Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.01 <0.01 <0.2 <0.01 <0.01 <0.01 <0.005 <0.01 <0.02	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.01 0.01 0.2 0.01 0.01 0.01 0.005 0.01 0.02	
NW023	Conductivity Conductivity	26.1	(± 0.5) mS/m	0.1	
NW098	Dissolved Aluminium Aluminium	<0.002	mg/l	0.002	
NW583	Dissolved Arsenic				

mg/l

mg/l

0.002

0.05

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010

NEW ZEALAND

Arsenic (As)

NW103 Dissolved Boron

Boron (B)

Phone www.eurofins.co.nz

0.001

0.03

+64 4 576 5016





EUNZWE-00177376

19/04/2024



Food & Water Testing

AR-24-NW-023901-01

ANALYTICAL REPORT

REPORT DATE

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

Phone (06) 367 2705

Contact for your orders:

REPORT CODE

horowhenuaadmin@downer.co.nz **Email**

Landfill Contract:

Gabriela Carvalhaes

Order code:

Purchase Order Number: Landfill

(waterandwasteteam@horowhenua.govt.nz), McMillan

812-2024-00051379 SAMPLE CODE

349879-0 Sample Name Product: Ground water

Sampling Point code: WIL-G1S

08/04/2024 16:45 Reception Date & Time:

Analysis Started on: 08/04/2024

Levin G1S Sampling Point name:

Analysis Ending Date: 19/04/2024

Copy to: Water and Waste Team

Sampled Date & Time 08/04/2024 07:17 **Product Type** Ground water Sampler(s) Client nominated external sampler Sampled by Eurofins No RESULTS (UNCERTAINTY) LOQ NW179 Ammonia Nitrogen 0.04 (± 0.01) mg/l Ammoniacal nitrogen (N) 0.01 NW341 **BOD5 - Soluble Carbonaceous** BOD5 mg/l 1 NW020 Chemical Oxygen Demand Chemical oxygen demand (COD) ⁶⁴ (± 11) mg/l 15 NW007 Chloride 50.2 (± 5.02) mg/l Chloride (CI) 0.02 **NW00U Chlorophenois** <0.01 2,3,4,6-Tetrachlorophenol mg/l 0.01 <0.01 2,4-Dichlorophenol mg/l 0.01 < 0.2 2,6-Dichlorophenol mg/l 0.2 < 0.01 2-Chlorophenol (o-chlorophenol) mg/l 0.01 < 0.01 3,4,5-Trichlorophenol mg/l 0.01 <0.01 4-Chloro-3-cresol mg/l 0.01 < 0.005

mg/l

mg/l

mg/l

 (± 0.7) mS/m Conductivity 0.1 NW098 Dissolved Aluminium 0.106 Aluminium mg/l 0.002 NW583 Dissolved Arsenic 0.002 Arsenic (As) mg/l 0.001

< 0.01

< 0.02

33.4

NW103 Dissolved Boron

Pentachlorophenol

Total of 2,4,5 & 2,4,6

-Trichlorophenol

Phenol

NW023 Conductivity

0.03 Boron (B) mg/l 0.03

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0.005

0.01

0.02





85 Port Road Seaview

Eurofins ELS Limited

Lower Hutt Wellington 5010

NEW ZEALAND



			vvater rest	
		RESULT	S (UNCERTAINTY)	LOQ
NW104	Diocontou Guannani	10.0000		
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium	7.0		
	Calcium (Ca)	7.3	mg/l	0.1
NW106	Dissolved Chromium	0.000		
	Chromium (Cr)	0.002	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	0.0072	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	1.79	mg/l	0.01
NW110	Dissolved Lead			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium			
	Magnesium (Mg)	5.05	mg/l	0.01
NW113	Dissolved Manganese			
	Manganese (Mn)	0.0355	mg/l	0.0005
NW114	Dissolved Mercury			
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel		J	
	Nickel (Ni)	0.0014	mg/l	0.0005
NW117	Dissolved Potassium		5	3.0000
	Potassium (K)	3.50	mg/l	0.01
NW193	Dissolved Reactive Phos	nhorus	3	0.01
	Phosphorus (soluble reactive)		mg/l	0.005
NW120	Dissolved Sodium	,	···· g ··	0.000
144120	Sodium (Na)	55.3	mg/l	0.01
NIMAGE	, ,		mg/i	0.01
NW125	Dissolved Zinc	<0.002	ma/l	0.000
784004	Zinc (Zn)		mg/l	0.002
ZIVIZGA	Enumeration of Escheric	hia coli By Mer <100		400
ADAIC 15	Escherichia coli		cfu/100 ml	100
NW010	Nitrate-N	0.01	(± 0.00) mg/l	
	Nitrate-N			0.01
NW195	pH (Tested beyond 15 mi	nute APHA hol 6.5		
	pH	0.0	(± 0.2)	0.1
NW011	•	0.07	/· 0.04\	
	Sulphate	9.07	(± 0.91) mg/l	0.02
NW206	Suspended Solids	40		
	Suspended Solids	13	mg/l	3
NW228	SVOC (GC-MSMS)			
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.001
	Adipatic acid, bis-2-ethylhexy	l <0.0001	mg/l	0.0001
	ester (DEHA)	<0.0001		
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.001	mg/l	0.1
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine		mg/l	0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







	·	RESULTS (UNCERTAINTY)	LOQ
NIVAGOO	0//00 (00 110110)		J. 10 E. 17 (17 (17 (17 (17 (17 (17 (17 (17 (17	LUK
NW228	SVOC (GC-MSMS)	<0.0001	ma/l	0.0004
	Benz(a)anthracene	<0.0001	mg/l	0.0001
	Benzo(a)pyrene	<0.001	mg/l	0.0001
	Benzo(g,h,i)perylene	<0.005	mg/l	0.001
	Bromacil	<0.001	mg/l	0.005
	Carbofuran Chlordane	<0.0001	mg/l	0.001
		<0.001	mg/l	0.0001
	Chlordane, gamma Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.001
	Chrysene	<0.0001	mg/l	0.0001
	Cyanazine	<0.005	mg/l mg/l	0.0001
	d-BHC	<0.0001		0.005
	DDD, p,p'-	<0.0001	mg/l mg/l	0.0001
	DDE, p,p-	<0.0001	mg/l	0.0001 0.0001
	DDT, p,p'-	<0.001	mg/l	0.001
	Diazinon	<0.0001	mg/l	0.001
	Dibenz(a,h)anthracene	<0.0001	mg/l	0.0001
	Dieldrin	<0.0001	mg/l	0.0001
	Dimethoate	<0.001	mg/l	0.001
	Diuron	<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.001	mg/l	0.001
	Endosulfan, beta-	<0.005	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone	<0.0001	mg/l	0.0001
	Endrin-aldehyde	<0.001	mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene	<0.0001	mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001
	Metalaxyl and metalaxyl-M (metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))	<0.001	mg/l	0.001
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001	mg/l	0.0001
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001	mg/l	0.0001
	PCB 101	<0.0001	mg/l	0.0001
	PCB 138	<0.001	mg/l	0.001
	PCB 183	<0.0001	mg/l	0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







		iig			
		RESULT	S (UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k)	<0.001	mg/l	0.001	
	fluoranthene	<0.0001	n. /l	0.0001	
	Trifluralin	-0.0001	mg/l	0.0001	
NW003	Total Alkalinity	70	(1.7)		
	Alkalinity total	10	(± 7) mg CaCO3/I	1	
NW030	Total Hardness				
	Hardness	39	mg CaCO3/I	1	
NW210		nic Carbon	Č		
	Total Organic Carbon	25.7	(± 2.6) mg/l	0.1	
NW229	_		. , ,	0.1	
144423	1,1,1,2-Tetrachloroethane	<0.0005	ma/l	0.0005	
		<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane		mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
	3-chloropropene	<0.0005	mg/l	0.0005	
	4-Chlorotoluene	<0.0005	mg/l	0.0005	
			J		

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		RESULTS (UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	
	p-Isopropyltoluene	<0.0005	mg/l	0.0005 0.0005
	sec-Butylbenzene	<0.0005	mg/l	
	Styrene	<0.0005		0.0005
	·	<0.0005	mg/l	0.0005
	tert-Butylbenzene Tetrachloroethene	<0.0005	mg/l	0.0005
		<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0003	mg/l	0.0005
	Vinyl chloride	<0.0005	mg/l	0.0003
	Xylene (ortho-)	10.0000	mg/l	0.0005
NWWG6	Volatile Fatty Acids (VFA)	√ E		
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5

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RESULTS (UNCERTAINTY) LOQ

LIST O	LIST OF METHODS								
NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B						
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B						
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D						
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B						
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.						
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.						
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.						
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.						
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.						
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.						
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.						
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H						
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B						
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B						
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS						
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210 B	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.						
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition						

Signature

Marylou Cabral

mbecabool

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EXPLANATORY NOTE







- Test is not accredited
- 2 Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- 🗴 (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

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END OF REPORT







			water rest	
		RESULTS	S (UNCERTAINTY)	LOQ
NW104		~ 0.0000		
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	2.0001.000 00.000	0.0		
	Calcium (Ca)	8.9	mg/l	0.1
NW106		0.000		
	Chromium (Cr)	0.002	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	0.37	mg/l	0.01
NW110	Dissolved Lead			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium		<u> </u>	
	Magnesium (Mg)	8.66	mg/l	0.01
NW113			.	0.01
1444113	Dissolved Manganese Manganese (Mn)	0.0614	mg/l	0.0005
NIVA/44 4			mg/i	0.0005
NW114		<0.0005	B	
	Mercury (Hg)	-0.0000	mg/l	0.0005
NW116	Dissolved Nickel	<0.000F		
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	5.51	mg/l	0.01
NW193	Dissolved Reactive Phos			
	Phosphorus (soluble reactive) 0.035	mg/l	0.005
NW120	Dissolved Sodium			
	Sodium (Na)	33.6	mg/l	0.01
NW125			<u> </u>	
	Zinc (Zn)	<0.002	mg/l	0.002
ZMF1E	Enumeration of Escheric	hia coli Ry Mar	· ·	0.002
£1111 IL	Escherichia coli	1111 a CO 11 by We 1	cfu/100 ml	1
NIVA/O4 O			GIA/ TOO IIII	1
ULOAAN	Nitrate-N	<0.01	(± 0.00) mg/l	2.2:
ADA/465	Nitrate-N			0.01
NW195			• .	
	рН	7.0	(± 0.2)	0.1
NW011	•	40.0	, ,	
	Sulphate	18.3	(± 1.83) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	8	mg/l	3
NW228	SVOC (GC-MSMS)			
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.001
	Adipatic acid, bis-2-ethylhexy	<0.0001	mg/l	0.0001
	ester (DEHA)		-	
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.1
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.0001
			-	

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			(UNCERTAINTY)	
		KESULIS	(UNCERTAINTY)	LOQ
NW228	` ,	-0.0004		
	Benz(a)anthracene	<0.0001	mg/l	0.0001
	Benzo(a)pyrene	<0.0001	mg/l	0.0001
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001
	Bromacil	<0.005	mg/l	0.005
	Carbofuran	<0.001	mg/l	0.001
	Chlordane	<0.0001	mg/l	0.0001
	Chlordane, gamma	<0.001	mg/l	0.001
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
	Chrysene	<0.0001	mg/l	0.0001
	Cyanazine	<0.005	mg/l	0.005
	d-BHC	<0.0001	mg/l	0.0001
	DDD, p,p'-	<0.0001	mg/l	0.0001
	DDE, p,p-	<0.0001	mg/l	0.0001
	DDT, p,p'-	<0.001	mg/l	0.0001
	Diazinon	<0.0001	mg/l	0.001
	Dibenz(a,h)anthracene	<0.0001	mg/l	
	Dieldrin	<0.0001		0.0001
	Dimethoate	<0.001	mg/l	0.0001
		<0.001	mg/l	0.001
	Diuron	<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.005	mg/l	0.001
	Endosulfan, beta-	<0.0001	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone		mg/l	0.0001
	Endrin-aldehyde	<0.001	mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene	<0.0001	mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001
	Metalaxyl and metalaxyl-M	<0.001	mg/l	0.001
	(metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))		g.	0.001
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001		
		<0.0001	mg/l	0.0001
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001	mg/l	0.0001
	PCB 101	<0.001	mg/l	0.0001
	DOD 400			
	PCB 138 PCB 183	<0.001	mg/l mg/l	0.001 0.0001

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			vater resti	119	
		RESULTS	(UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k)	<0.001	mg/l	0.001	
	fluoranthene		J .		
	Trifluralin	<0.0001	mg/l	0.0001	
NW003	Total Alkalinity				
	Alkalinity total	61	(± 6) mg	1	
	•		CaCO3/I		
NW030	Total Hardness				
	Hardness	58	mg CaCO3/I	1	
NW210	Total Non-Purgeable Orga	anic Carbon			
	Total Organic Carbon	1.8	(± 0.2) mg/l	0.1	
NW229	VOC (GC-MS)				
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005			
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	•	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
	2 ablaranr				
	3-chloropropene4-Chlorotoluene	<0.0005	mg/l mg/l	0.0005 0.0005	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)		•	
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	Naphthalene	<0.0005	mg/l	0.0005
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
①NWWG6	S Volatile Fatty Acids (VFA)			
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







RESULTS (UNCERTAINTY) LOQ

LIST OF	LIST OF METHODS							
NW003	Total Alkalinity, ADLIA Online Edition 2220 D	NW007	Chloride: APHA Online Edition 4110 B					
	Total Alkalinity: APHA Online Edition 2320 B							
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B					
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D					
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B					
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.					
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.					
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.					
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.					
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.					
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.					
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.					
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H					
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B					
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B					
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS					
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.					
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZMF1E	Escherichia coli E (Water) [NZ] <1 >80 /100 ml (0) Ml Agar-F: SMEWW 9222K; APHA 24th Edition					

Signature

Marylou Cabral

imbecaboos

Laboratory Manager Eurofins ELS Limited Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon Supervisor Eurofins ELS Limited

Pathma Ranjanie

Senior Analyst Senior Analyst Ganesh Ilancko

Supervisor Eurofins ELS Limited

Gabriela Carvalhaes Manager Food and Water Testing Chemistry

Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE







- Test is not accredited
- 2 Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at 85 Port Road, Seaview, Lower Hutt, Wellington, NEW ZEALAND. The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.

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All samples become the property of Eurofins to the extent necessary for the performance of the Services.

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END OF REPORT





19/04/2024



Food & Water Testing

AR-24-NW-023902-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

Sampler(s)

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

Gabriela Carvalhaes

Landfill

Copy to: Water and Waste Team

REPORT DATE

Order code:

(waterandwasteteam@horowhenua.govt.nz), McMillan EUNZWE-00177376

Purchase Order Number: Landfill

SAMPLE CODE 812-2024-00051380

Sample Name 349880-0 **Product:** Ground water

Sampling Point code: WIL-G2

08/04/2024 16:45 Reception Date & Time:

Analysis Started on: 08/04/2024

Product Type Ground water

Client nominated external sampler

Sampling Point name:

Analysis Ending Date:

Sampled Date & Time

19/04/2024 08/04/2024 08:06

Sampled by Eurofins

No

Levin G2s

		RESULTS	(UNCERTAINTY)	LOQ
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	0.03	(± 0.00) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo	us <1	mg/l	1
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	41	(± 8) mg/l	15
NW007		140	(± 14.0) mg/l	0.02
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01
	2,4-Dichlorophenol 2,6-Dichlorophenol	<0.01 <0.2	mg/l mg/l	0.01 0.2
	2-Chlorophenol (o-chlorophenol) 3,4,5-Trichlorophenol	<0.01	mg/l mg/l	0.01 0.01
	4-Chloro-3-cresol Pentachlorophenol	<0.01 <0.005 <0.01	mg/l mg/l	0.01
	Phenol Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l mg/l	0.01 0.02
NW023		106	(± 2.1) mS/m	0.1
NW098	Dissolved Aluminium Aluminium	0.005	mg/l	0.002
NW583	Dissolved Arsenic Arsenic (As)	<0.001	mg/l	0.001
NW103	Dissolved Boron Boron (B)	0.79	mg/l	0.03

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 **NEW ZEALAND**

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DESULTS (INCEPTAINTY) 100					
		RESULT	S (UNCERTAINTY)	LOQ	
NW104	Dissolved Cadmium	<0.0000			
	Cadmium (Cd)	<0.0002	mg/l	0.0002	
NW105	Dissolved Calcium	40.5			
	Calcium (Ca)	40.5	mg/l	0.1	
NW106	Dissolved Chromium	40.004			
	Chromium (Cr)	<0.001	mg/l	0.001	
NW108	Dissolved Copper				
	Copper (Cu)	0.0073	mg/l	0.0005	
NW109	Dissolved Iron				
	Iron (Fe)	0.06	mg/l	0.01	
NW110	Dissolved Lead				
	Lead (Pb)	<0.0005	mg/l	0.0005	
NW112	Dissolved Magnesium		-		
	Magnesium (Mg)	30.0	mg/l	0.01	
NW113			···ສ [,] '	0.01	
1444113	Dissolved Manganese Manganese (Mn)	0.220	mg/l	0.0005	
NIVA/4.4.4			my/i	0.0005	
NW114	Dissolved Mercury	<0.0005			
	Mercury (Hg)	-0.0000	mg/l	0.0005	
NW116	Dissolved Nickel	0.0024			
	Nickel (Ni)	0.0031	mg/l	0.0005	
NW117	Dissolved Potassium	40 -			
	Potassium (K)	10.5	mg/l	0.01	
NW193	Dissolved Reactive Phos				
	Phosphorus (soluble reactive)	0.022	mg/l	0.005	
NW120	Dissolved Sodium				
	Sodium (Na)	156	mg/l	0.01	
NW125	Dissolved Zinc		J	'	
	Zinc (Zn)	0.009	mg/l	0.002	
7M2C ^	Enumeration of Escheric		_	0.002	
LIVIZGA		nia coli by wer <100	cfu/100 ml	100	
NIMO 40	Escherichia coli		Glu/ IOU IIII	100	
NWU10	Nitrate-N	<0.01	(± 0.00) mg/l		
	Nitrate-N		, , ,	0.01	
NW195	pH (Tested beyond 15 min				
	рН	6.7	(± 0.2)	0.1	
NW011	•	44.0	,		
	Sulphate	11.6	(± 1.16) mg/l	0.02	
NW206	Suspended Solids				
	Suspended Solids	11	mg/l	3	
NW228	SVOC (GC-MSMS)				
	Acenaphthene	<0.0001	mg/l	0.0001	
	Acenaphthylene	<0.001	mg/l	0.001	
	Adipatic acid, bis-2-ethylhexyl	<0.0001	mg/l	0.0001	
	ester (DEHA)		J	2.0001	
	Alachlor	<0.0001	mg/l	0.0001	
	Aldicarb	<0.1	mg/l	0.1	
	Aldrin	<0.001	mg/l	0.001	
	Anthracene	<0.001	mg/l	0.001	
	Atrazine	<0.0001	mg/l	0.0001	

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			(UNCERTAINTY)	
		KESULIS	(UNCERTAINTY)	LOQ
NW228	` ,	-0.0004		
	Benz(a)anthracene	<0.0001	mg/l	0.0001
	Benzo(a)pyrene	<0.0001	mg/l	0.0001
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001
	Bromacil	<0.005	mg/l	0.005
	Carbofuran	<0.001	mg/l	0.001
	Chlordane	<0.0001	mg/l	0.0001
	Chlordane, gamma	<0.001	mg/l	0.001
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
	Chrysene	<0.0001	mg/l	0.0001
	Cyanazine	<0.005	mg/l	0.005
	d-BHC	<0.0001	mg/l	0.0001
	DDD, p,p'-	<0.0001	mg/l	0.0001
	DDE, p,p-	<0.0001	mg/l	0.0001
	DDT, p,p'-	<0.001	mg/l	0.0001
	Diazinon	<0.0001	mg/l	0.001
	Dibenz(a,h)anthracene	<0.0001	mg/l	
	Dieldrin	<0.0001		0.0001
	Dimethoate	<0.001	mg/l	0.0001
		<0.001	mg/l	0.001
	Diuron	<0.001	mg/l	0.001
	Endosulfan, alpha-	<0.005	mg/l	0.001
	Endosulfan, beta-	<0.0001	mg/l	0.005
	Endosulfan-sulfate	<0.0001	mg/l	0.0001
	Endrin	<0.0001	mg/l	0.0001
	Endrin ketone		mg/l	0.0001
	Endrin-aldehyde	<0.001	mg/l	0.01
	Fluoranthene	<0.0001	mg/l	0.0001
	Fluorene	<0.0001	mg/l	0.0001
	HCH, alpha-	<0.0001	mg/l	0.0001
	HCH, beta-	<0.0001	mg/l	0.0001
	Heptachlor	<0.0001	mg/l	0.0001
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001
	Hexazinone	<0.001	mg/l	0.001
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001
	Metalaxyl and metalaxyl-M	<0.001	mg/l	0.001
	(metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))		g.	0.001
	Methoxychlor	<0.0001	mg/l	0.0001
	Metolachlor	<0.0001	mg/l	0.0001
	Metribuzin	<0.0001	mg/l	0.0001
	Molinate	<0.0001		
		<0.0001	mg/l	0.0001
	Naphthalene	<0.0001	mg/l	0.0001
	Oxadiazon	<0.0001	mg/l	0.0001
	PCB 101	<0.001	mg/l	0.0001
	DOD 400			
	PCB 138 PCB 183	<0.001	mg/l mg/l	0.001 0.0001

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	· -	000 & 1			
		RESULTS	S (UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k) fluoranthene	<0.001	mg/l	0.001	
	Trifluralin	<0.0001	mg/l	0.0001	
NW003	Total Alkalinity		Ü	-	
	Alkalinity total	324	(± 32) mg CaCO3/I	1	
NW030	Total Hardness				
	Hardness	224	mg CaCO3/I	1	
NW210		nia Carban	mg caccon	1	
1444210	Total Non-Purgeable Organic Carbon	9.7	(± 1.0) mg/l	0.1	
NUMBER	_		(=,g	0.1	
NW229	VOC (GC-MS)	<0.0005	/I	0.0005	
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0003	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane		mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
	3-chloropropene	<0.0005	mg/l	0.0005	
	4-Chlorotoluene	<0.0005	mg/l	0.0005	

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		RESULTS (I		
		NESULIS (DIACELLIMINI I)	LOQ
NW229	VOC (GC-MS)	<0.0005		
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0012	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.001	mg/l	0.0005
	Bromomethane (zone 2)	<0.0005	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.001	mg/l	0.0005
	Chloroethane	<0.0005	mg/l	0.001
	Chloroform Chloromethane	<0.006	mg/l	0.0005
		<0.0005	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromocniorometriane Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.0005
	Dichloromethane	<0.005	mg/l	0.001
	Hexachlorobutadiene	<0.0002	mg/l	0.005
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0002
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0005
	Naphthalene	<0.0005	mg/l mg/l	0.0015
	n-Butylbenzene	<0.0005	mg/l	0.0005 0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
①NWWG6	Volatile Fatty Acids (VFA)			
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5
	,		•	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







RESULTS (UNCERTAINTY) LOQ

LIST OF	LIST OF METHODS							
NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B					
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B					
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D					
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B					
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.					
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.					
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.					
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.					
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.					
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.					
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.					
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H					
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B					
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B					
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS					
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210 B	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.					
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition					

Signature

Marylou Cabral

mbecaboos

Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

Supervisor Eurofins ELS Limited

Ganesh Ilancko

Supervisor Eurofins ELS Limited

Arvinder Singh

Laboratory Supervisor Microbiology

Gabriela Carvalhaes Manager Food and Water **Testing Chemistry**

Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE





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- Test is not accredited
- ②Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- $\ensuremath{\mathfrak{Y}}$ Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- x (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

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The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

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If the Customer pays for storage of the samples Eurofins will take commercially reasonable steps to store the samples for the agreed period in terms of industry practice. The Eurofins water sampling service follows methodology based on AS/NZS 5667 and / or best practice to collect and transport samples that are fit for the purpose of analytical testing. The laboratory is not responsible for sampling activities unless explicitly indicated by the statement "Sampled by Eurofins" on the report for water samples. The Customer acknowledges that the Services are provided using the current state of technology and methods developed and generally applied by Eurofins and involve analysis, interpretations, consulting work and conclusions. Eurofins shall use commercially reasonable degree of care in providing the Services.

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END OF REPORT





EUNZWE-00178002

Landfill

19/04/2024



Food & Water Testing

ANALYTICAL REPORT

REPORT DATE

Order code:

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

Phone (06) 367 2705

REPORT CODE

horowhenuaadmin@downer.co.nz **Email**

Gabriela Carvalhaes Contact for your orders:

Landfill Contract:

0.002

0.07

mg/l

mg/l

AR-24-NW-023576-01

812-2024-00053650 SAMPLE CODE

349829-0 Sample Name Product: Ground water

Sampling Point code: WIL-HS1

11/04/2024 13:30 Reception Date & Time:

Analysis Started on: 11/04/2024

19/04/2024 **Product Type** Ground water

Levin HS1 Sampling Point name:

Analysis Ending Date:

Copy to: Water and Waste Team

Purchase Order Number:

Sampled Date & Time 11/04/2024 07:10

(waterandwasteteam@horowhenua.govt.nz), McMillan

Sampler(s) Client nominated external sampler Sampled by Eurofins No RESULTS (UNCERTAINTY) LOQ NW179 Ammonia Nitrogen 0.03 (± 0.00) mg/l Ammoniacal nitrogen (N) 0.01 NW341 **BOD5 - Soluble Carbonaceous** BOD5 mg/l 1 NW020 Chemical Oxygen Demand Chemical oxygen demand (COD) <15 (± 5) mg/l 15 NW007 Chloride 28.0 (± 2.80) mg/l Chloride (CI) 0.02 **NW00U Chlorophenois** <0.01 2,3,4,6-Tetrachlorophenol mg/l 0.01 <0.01 2,4-Dichlorophenol mg/l 0.01 < 0.02 2,6-Dichlorophenol mg/l 0.2 < 0.01 2-Chlorophenol (o-chlorophenol) mg/l 0.01 < 0.01 3,4,5-Trichlorophenol mg/l 0.01 <0.01 4-Chloro-3-cresol mg/l 0.01 < 0.005 Pentachlorophenol mg/l 0.005 < 0.01 Phenol mg/l 0.01 < 0.02 Total of 2,4,5 & 2,4,6 mg/l 0.02 -Trichlorophenol **NW023 Conductivity** 26.0 (± 0.5) mS/m Conductivity 0.1 NW098 Dissolved Aluminium 0.005 Aluminium mg/l 0.002 NW583 Dissolved Arsenic

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 **NEW ZEALAND**

Arsenic (As)

NW103 Dissolved Boron

Boron (B)

Phone www.eurofins.co.nz

0.001

0.03

+64 4 576 5016







	I		vater rest	
		RESULTS	(UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium	<0.0002		
NIMAGE	Cadmium (Cd)	-0.000Z	mg/l	0.0002
NVVTUS	Dissolved Calcium Calcium (Ca)	11.4	mg/l	0.1
NW106	Dissolved Chromium		J	V. I
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	0.0013	mg/l	0.0005
NW109	Dissolved Iron	0.07		
	Iron (Fe)	0.07	mg/l	0.01
NW110	Dissolved Lead	<0.0005		
NDA444	Lead (Pb)	~U.UUU	mg/l	0.0005
NW112	Dissolved Magnesium	8.29	ma/l	0.04
NW113	Magnesium (Mg)		mg/l	0.01
1444112	Dissolved Manganese Manganese (Mn)	0.0281	mg/l	0.0005
NW114	Dissolved Mercury		···ɔ/'	0.0000
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel		-	
	Nickel (Ni)	0.0006	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	3.20	mg/l	0.01
NW193	Dissolved Reactive Phos			
	Phosphorus (soluble reactive	0.139	mg/l	0.005
NW120	Dissolved Sodium	25.1		
LUA / 4 0 5	Sodium (Na)	ZJ. I	mg/l	0.01
NW125	Dissolved Zinc	0.003	ma/l	0.000
7M2G ∧	Zinc (Zn) Enumeration of Escheric		mg/l	0.002
LIVIZGA	Escherichia coli	200 200	cfu/100 ml	100
NW010	Nitrate-N		5.5, .50 111	100
	Nitrate-N	0.19	(± 0.02) mg/l	0.01
NW195	pH (Tested beyond 15 mi	inute APHA holo	ling time)	-
	pH	7.4	(± 0.2)	0.1
NW011	Sulphate			
	Sulphate	15.5	(± 1.55) mg/l	0.02
NW206	Suspended Solids	7		
	Suspended Solids	7	mg/l	3
NW003	Total Alkalinity	66	(+ 7) ma	
	Alkalinity total	00	(± 7) mg CaCO3/I	1
NW030	Total Hardness			
	Hardness	63	mg CaCO3/I	1
NW210	Total Non-Purgeable Org			
	Total Organic Carbon	6.6	(± 0.7) mg/l	0.1
①NWWG6	Volatile Fatty Acids (VFA	\) <5		
	Acetic acid	<5 <5	mg/l	5
	Butyric acid		mg/l	5

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		RESULTS	(UNCERTAIN	TY) į	_OQ				
①NWWG	①NWWG6 Volatile Fatty Acids (VFA)								
	Heptanoic acid	<5	mg/l		5				
	Hexanoic acid	<5	mg/l		5				
	Isobutyric acid	<5	mg/l		5				
	Isocaproic acid	<5	mg/l		5				
	Isovaleric acid	<5	mg/l		5				
	Propionic acid	< 5	mg/l		5				
	Valeric acid	<5	mg/l		5				
	Volatile fatty acids as acetic acid	<5	mg/l		5				
LIST O	F METHODS								
NW003	Total Alkalinity: APHA Online Edition 2320 B			NW007	Chloride: APHA Online Edition 4110 B				
NW00U	Chlorophenols: Internal Method,	LC-MS/MS		NW010	Nitrate-N: APHA Online Edition 4110 B				
NW011	Sulphate: APHA Online Edition 4	110 B		NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D				
NW023	Conductivity: APHA 24th Edition	2510 B		NW030	Total Hardness: APHA Online Edition 2340 B				
NW098	Dissolved Aluminium: APHA On	line Edition 312	5 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.				
NW104	Dissolved Cadmium: APHA Onlin	ne Edition 3125	B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.				
NW106	Dissolved Chromium: APHA Onl	line Edition 3125	5 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.				
NW109	Dissolved Iron: APHA Online Edi	tion 3125 B mod	d.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.				
NW112	Dissolved Magnesium: APHA Or	nline Edition 312	25 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.				
NW114	Dissolved Mercury: APHA Online	e Edition 3125 B	mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.				
NW117	Dissolved Potassium: APHA On	line Edition 3125	5 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.				
NW125	Dissolved Zinc: APHA Online Ed	ition 3125 B mo	d.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H				
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G			NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B				
NW206	Suspended Solids: APHA Online	Edition 2540 D		NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B				
NW341	BOD5 - Soluble Carbonaceous:	APHA Online E	dition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.				

Signature

mbecabro

Marylou Cabral Laboratory Manager **Eurofins ELS Limited**

NWWG6 Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.

Jennifer Mont

Supervisor Eurofins ELS Limited

Maria Norris

Laboratory Manager,

Divina Cunanan Lagazon

ZM2GA Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Supervisor Eurofins ELS

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Microbiology

Ganesh Ilancko

Supervisor Eurofins ELS

Limited



Lower Hutt Wellington 5010

NEW ZEALAND

Phone www.eurofins.co.nz +64 4 576 5016

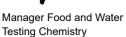














Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE

Test is not accredited

②Test is subcontracted within Eurofins group and is accredited

3 Test is subcontracted within Eurofins group and is not accredited

Test is subcontracted outside Eurofins group and is accredited

Test is subcontracted outside Eurofins group and is not accredited

Test result is provided by the customer and is not accredited

Tested at the sampling point by Eurofins and is not accredited

Tested at the sampling point by Eurofins and is accredited

9 Test is RLP accredited

Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

x (Unsatisfactory) means does not meet the specification

✓ (Satisfactory) means meets the specification

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The tests are identified by a five-digit code, their description is available on request.

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END OF REPORT





24/02/2024

Levin HS1



Food & Water Testing

ANALYTICAL REPORT

REPORT DATE

Copy to: Water and Waste Team

Sampling Point name:

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

(waterandwasteteam@horowhenua.govt.nz), McMillan **Email** horowhenuaadmin@downer.co.nz

AR-24-NW-010952-01

EUNZWE-00167675 Contact for your orders: Gabriela Carvalhaes Order code:

Contract: **Purchase Order Number:** Landfill

812-2024-00022463 SAMPLE CODE

Landfill

Client Reference: 327333-0 **Product:** Ground water

Sampling Point code: WIL-HS1

Reception Date & Time: 15/02/2024 10:02

Analysis Start Date & Time: 15/02/2024 10:10 **Analysis Ending Date:** 24/02/2024 **Product Type** Sampled Date & Time 12/02/2024 22:18 Ground water

No

Sampler(s) Sampled by Eurofins Client nominated external sampler

		RESULTS	(UNCERTAINTY)	LOQ
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	0.04	(± 0.01) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo			
	BOD5	<1	mg/l	1
NW020	Chemical Oxygen Demand			
	Chemical oxygen demand (COD)	19	(± 6) mg/l	15
NW007	Chloride			
	Chloride (CI)	25.9	(± 2.59) mg/l	0.02
NW00U	Chlorophenols			
	2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01
	2,4-Dichlorophenol	<0.01	mg/l	0.01
	2,6-Dichlorophenol	<0.02	mg/l	0.2
	2-Chlorophenol (o-chlorophenol)	<0.01	mg/l	0.01
	3,4,5-Trichlorophenol	<0.01	mg/l	0.01
	4-Chloro-3-cresol	<0.01	mg/l	0.01
	Pentachlorophenol	<0.005	mg/l	0.005
	Phenol	<0.01	mg/l	0.01
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02
NW023	Conductivity			
	Conductivity	23.5	(± 0.5) mS/m	0.1
NW098	Dissolved Aluminium			
	Aluminium	0.019	mg/l	0.002
NW583	Dissolved Arsenic			
	Arsenic (As)	0.002	mg/l	0.001
NW103	Dissolved Boron			
	Boron (B)	0.06	mg/l	0.03

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	FOUL & Water Testing				
		RESULTS	S (UNCERTAINTY)	LOQ	
NW104	Dissolved Cadmium	<0.0002	m/l	0.00	
NIMAGE	Cadmium (Cd)	0.0002	mg/l	0.0002	
IN WV I US	Dissolved Calcium Calcium (Ca)	10.9	mg/l	0.1	
NW106	Dissolved Chromium		J	V. 1	
	Chromium (Cr)	<0.001	mg/l	0.001	
NW108	Dissolved Copper				
	Copper (Cu)	0.0011	mg/l	0.0005	
NW109	Dissolved Iron	0.11	,,		
NIIA/440	Iron (Fe)	0.11	mg/l	0.01	
NW110	Dissolved Lead Lead (Pb)	<0.0005	mg/l	0.0005	
NW112	Dissolved Magnesium		1119/1	0.0005	
	Magnesium (Mg)	6.67	mg/l	0.01	
NW113	Dissolved Manganese		J	91 2 1	
	Manganese (Mn)	0.0067	mg/l	0.0005	
NW114	Dissolved Mercury				
	Mercury (Hg)	<0.0005	mg/l	0.0005	
NW116	Dissolved Nickel	<0.0005			
.	Nickel (Ni)	~U.UU.0	mg/l	0.0005	
NW117	Dissolved Potassium	1.52	ma/l	0.04	
NW193	Potassium (K)		mg/l	0.01	
1444.192	Dissolved Reactive Phos Phosphorus (soluble reactive)	. 0.455	(± 0.031) mg/l	0.005	
NW120	Dissolved Sodium	,	, , ,	0.000	
- •	Sodium (Na)	24.2	mg/l	0.01	
NW125	Dissolved Zinc		-		
	Zinc (Zn)	<0.002	mg/l	0.002	
ZM2GA	Enumeration of Escheric		nbrane Filtration		
	Escherichia coli	<100	cfu/100 ml	100	
NW010	Nitrate-N	0.19	(+ 0 00)"		
NIM 405	Nitrate-N		(± 0.02) mg/l	0.01	
NW195	pH (Tested beyond 15 mi	inute APHA hole	ding time) (± 0.2)	0.4	
NW011	Sulphate		\- 3· - /	0.1	
1444011	Sulphate	19.2	(± 1.92) mg/l	0.02	
NW206	Suspended Solids			J.UL	
	Suspended Solids	<5	mg/l	3	
NW003	Total Alkalinity				
	Alkalinity total	49	(± 5) mg CaCO3/I	1	
NW030	Total Hardness		GaGG3/I		
	Hardness	55	mg CaCO3/I	1	
NW210	Total Non-Purgeable Org	anic Carbon	-		
	Total Organic Carbon	7.3	(± 0.7) mg/l	0.1	
①NWWG6	Volatile Fatty Acids (VFA				
	Acetic acid	<5	mg/l	5	
	Butyric acid	<5	mg/l	5	

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		RESULTS	(UNCERTAIN	ITY)	LOQ
①NWWG	6 Volatile Fatty Acids (VFA)				
	Heptanoic acid	<5	mg/l		5
	Hexanoic acid	<5	mg/l		5
	Isobutyric acid	<5	mg/l		5
	Isocaproic acid	<5	mg/l		5
	Isovaleric acid	<5	mg/l		5
	Propionic acid	<5 -	mg/l		5
	Valeric acid	<5	mg/l		5
	Volatile fatty acids as acetic acid	<5	mg/l		5
LIST OF	METHODS				
NW003	Total Alkalinity: APHA Online Edi	tion 2320 B		NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method,	LC-MS/MS		NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 47	I10 B		NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition	2510 B		NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA On	ine Edition 312	5 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Onlin	ne Edition 3125	B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Onl	ine Edition 3125	5 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edi	tion 3125 B mod	d.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Or	nline Edition 312	25 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online	Edition 3125 B	8 mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Onl	ine Edition 312	5 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edi	tion 3125 B mo	d.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G			NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online	Edition 2540 D		NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW341	BOD5 - Soluble Carbonaceous: B	APHA Online E	dition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.

Signature

Jennifer Mont

Supervisor Eurofins ELS

NWWG6 Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.

Limited

Ganesh Ilancko Supervisor Eurofins ELS

Limited

Divina Cunanan Lagazon

Leo Cleave

Supervisor Eurofins ELS Limited

Senior Analyst Microbiology

ZM2GA Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Gordon McArthur Senior Laboratory Analyst

Eurofins ELS Limited

Gabriela Carvalhaes Manager Food and Water **Testing Chemistry**







Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 **NEW ZEALAND**

+64 4 576 5016

31/03/2024

Levin HS1



Food & Water Testing

AR-24-NW-019303-01

ANALYTICAL REPORT

REPORT DATE

Copy to: Water and Waste Team

Sampling Point name:

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

Phone (06) 367 2705

REPORT CODE

horowhenuaadmin@downer.co.nz (waterandwasteteam@horowhenua.govt.nz), McMillan **Email**

EUNZWE-00174502 Gabriela Carvalhaes Order code: Contact for your orders:

Landfill

Contract:

Purchase Order Number: Landfill

812-2024-00042718 SAMPLE CODE

342921-0 Sample Name Product: Ground water

Sampling Point code: WIL-HS1

21/03/2024 12:10 Reception Date & Time:

Analysis Started on: 21/03/2024 **Analysis Ending Date:** 31/03/2024

Sampled Date & Time 19/03/2024 08:45 **Product Type** Ground water Sampler(s) Client nominated external sampler Sampled by Eurofins No RESULTS (UNCERTAINTY) LOQ NW179 Ammonia Nitrogen 0.04 (± 0.01) mg/l Ammoniacal nitrogen (N) 0.01 NW341 **BOD5 - Soluble Carbonaceous** BOD5 mg/l 1 NW020 Chemical Oxygen Demand Chemical oxygen demand (COD) <15 (± 5) mg/l 15 NW007 Chloride 27.6 (± 2.76) mg/l Chloride (CI) 0.02 **NW00U Chlorophenois** <0.01 2,3,4,6-Tetrachlorophenol mg/l 0.01 <0.01 2,4-Dichlorophenol mg/l 0.01 < 0.02 2,6-Dichlorophenol mg/l 0.2 < 0.01 2-Chlorophenol (o-chlorophenol) mg/l 0.01 < 0.01 3,4,5-Trichlorophenol mg/l 0.01 <0.01 4-Chloro-3-cresol mg/l 0.01 < 0.005 Pentachlorophenol mg/l 0.005 < 0.01 Phenol mg/l 0.01 < 0.02 Total of 2,4,5 & 2,4,6 mg/l 0.02 -Trichlorophenol NW023 Conductivity 25.6 (± 0.5) mS/m Conductivity 0.1

Eurofins ELS Limited 85 Port Road Seaview

NW098 Dissolved Aluminium

Aluminium

NW583 Dissolved Arsenic

Arsenic (As)

NW103 Dissolved Boron

Boron (B)

0.018

0.003

0.08

mg/l

mg/l

mg/l

Lower Hutt Wellington 5010 **NEW ZEALAND** **Phone** www.eurofins.co.nz

0.002

0.001

0.03







RESULTS (UNCERTAINTY) LOQ								
		KESULI	5 (UNCERTAINTY)	LOQ				
NW104		<0.0002						
ND4/405	Cadmium (Cd)	~0.000∠	mg/l	0.0002				
NW105	2.00000	13.8	ma/l	0.4				
NW106	Calcium (Ca)	. 3.0	mg/l	0.1				
1444.100	Dissolved Chromium Chromium (Cr)	<0.001	mg/l	0.001				
NW108			1119/1	0.001				
1444 100	Copper (Cu)	0.0009	mg/l	0.0005				
NW109	Dissolved Iron		g/1	0.0003				
1444 103	Iron (Fe)	0.12	mg/l	0.01				
NW110	Dissolved Lead		g/1	0.01				
1444 110	Lead (Pb)	<0.0005	mg/l	0.0005				
NW112	Dissolved Magnesium		····y··	0.0000				
1444 112	Magnesium (Mg)	7.64	mg/l	0.01				
NW113	,		1119/1	0.01				
1444113	Manganese (Mn)	0.0156	mg/l	0.0005				
N\\//44			mg/I	0.0003				
NW114	Dissolved Mercury Mercury (Hg)	<0.0005	mg/l	0.0005				
NW116			1119/1	0.0005				
NVV116	Dissolved Nickel	<0.0005	ma/l	0.0005				
NI\A/447	Nickel (Ni)		mg/l	0.0005				
NW117	Dissolved Potassium	2.28	m a //	0.04				
NIMAGO	Potassium (K)		mg/l	0.01				
NW193			m e //	0.00-				
NNA/466	Phosphorus (soluble reactive)	3.1.0	mg/l	0.005				
NW120	Dissolved Sodium	25.1						
	Sodium (Na)	ZJ. I	mg/l	0.01				
NW125		<0.002						
	Zinc (Zn)		mg/l	0.002				
ZM2GA		erichia coli By Membrane Filtration						
	Escherichia coli	500	cfu/100 ml	100				
NW010	Nitrate-N	0.16	(· 0.00) "					
	Nitrate-N	0.16	(± 0.02) mg/l	0.01				
NW195								
	рН	7.5	(± 0.2)	0.1				
NW011	•	45.0						
	Sulphate	15.3	(± 1.53) mg/l	0.02				
NW206	Suspended Solids	_						
	Suspended Solids	<5	mg/l	3				
NW003	Total Alkalinity							
	Alkalinity total	60	(± 6) mg	1				
NIMAGOO	Tatalillandess		CaCO3/I					
NW030		66	mc CaCO2/	,				
ADAG 15	Hardness		mg CaCO3/I	1				
NW210	Total Organia Carban	anic Carbon 7.0	(+ 0.7) ma/l	•				
Total Organic Carbon (= 507, mg, = 0.1								
①NWWG6 Volatile Fatty Acids (VFA) Acetic acid <5 mg/l 5								
	Acetic acid	<5 <5	mg/l	5				
	Butyric acid	٠,٠	mg/l	5				

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







Food & Water resting									
		RESULTS (UNCER	TAINTY)	LOQ					
①NWWG	6 Volatile Fatty Acids (VFA)								
	Heptanoic acid	<5 mg/l		5					
	Hexanoic acid	<5 mg/l		5					
	Isobutyric acid	<5 mg/l		5					
	Isocaproic acid	<5 mg/l		5					
	Isovaleric acid	<5 mg/l		5					
	Propionic acid	<5 mg/l		5					
	Valeric acid	<5 mg/l		5					
	Volatile fatty acids as acetic acid	<5 mg/l		5					
LIST O	F METHODS								
NW003	Total Alkalinity: APHA Online Edition 2320 B			Chloride: APHA Online Edition 4110 B					
NW00U	Chlorophenols: Internal Method, LC-MS/MS			Nitrate-N: APHA Online Edition 4110 B					
NW011	Sulphate: APHA Online Edition 4110 B			Chemical Oxygen Demand: APHA Online Edition 5220 D					
NW023	•			Total Hardness: APHA Online Edition 2340 B					
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.			Dissolved Boron: APHA Online Edition 3125 B mod.					
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.			Dissolved Calcium: APHA Online Edition 3125 B mod.					
NW106	Dissolved Chromium: APHA Onl	line Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.					
NW109	Dissolved Iron: APHA Online Edi	tion 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.					
NW112	Dissolved Magnesium: APHA Or	nline Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.					
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.			Dissolved Nickel: APHA Online Edition 3125 B mod.					
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.			Dissolved Sodium: APHA Online Edition 3125 B mod.					
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.			Ammonia Nitrogen: APHA Online Edition 4500-NH3 H					
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G			pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B					
NW206	Suspended Solids: APHA Online Edition 2540 D			Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B					
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210			Dissolved Arsenic: APHA Online Edition 3125 B mod.					

Signature

mbecabro

Marylou Cabral Laboratory Manager **Eurofins ELS Limited**

NWWG6 Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.

Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

ZM2GA Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

> Supervisor Eurofins ELS Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Sunita Raju

Business Unit Manager

Ganesh Ilancko

Supervisor Eurofins ELS

Limited



Phone www.eurofins.co.nz +64 4 576 5016















Cody Forbes Laboratory Analyst Laboratory Analyst

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Tested at the sampling point by Eurofins and is accredited

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Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

x (Unsatisfactory) means does not meet the specification

✓ (Satisfactory) means meets the specification

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END OF REPORT









Cody Forbes

Laboratory Analyst Laboratory Analyst

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END OF REPORT





19/04/2024



Food & Water Testing

AR-24-NW-023574-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders: Gabriela Carvalhaes

Contract:

Landfill

SAMPLE CODE 812-2024-00053636

349849-0 Sample Name **Product:** Ground water

Sampling Point code: WIL-HS1A

Reception Date & Time: 11/04/2024 13:30

Analysis Started on: 11/04/2024

Product Type Ground water

Sampler(s) Client nominated external sampler Copy to: Water and Waste Team

REPORT DATE

(waterandwasteteam@horowhenua.govt.nz), McMillan

EUNZWE-00178002 Order code:

Purchase Order Number: Landfill

Sampling Point name: Levin HS1A

Analysis Ending Date:

Sampled Date & Time

19/04/2024 11/04/2024 06:40

Sampled by Eurofins

No

		RESULT	S (UNCERTAINTY)	LOQ
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	0.01	(± 0.00) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo			
	BOD5	<1	mg/l	1
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	30	(± 7) mg/l	15
NW007	Chloride Chloride (CI)	28.1	(± 2.81) mg/l	0.02
NW00U	Chlorophenols			
	2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01
	2,4-Dichlorophenol	<0.01	mg/l	0.01
	2,6-Dichlorophenol	<0.02	mg/l	0.2
	2-Chlorophenol (o-chlorophenol)	<0.01	mg/l	0.01
	3,4,5-Trichlorophenol	<0.01	mg/l	0.01
	4-Chloro-3-cresol	<0.01	mg/l	0.01
	Pentachlorophenol	<0.005	mg/l	0.005
	Phenol	<0.01	mg/l	0.01
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02
NW023	Conductivity			
	Conductivity	25.9	(± 0.5) mS/m	0.1
NW098	Dissolved Aluminium			
	Aluminium	0.007	mg/l	0.002
NW583	Dissolved Arsenic Arsenic (As)	0.002	mg/l	0.001
NW103	Dissolved Boron		··· ə ··	0.001
1444 103	Boron (B)	0.06	mg/l	0.03
	(D)		9,,	0.03

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NEW ZEALAND

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PESHITS (INCEPTAINTY) 100					
		RESULTS	(UNCERTAINTY)	LOQ	
NW104	Dissolved Cadmium	<0.0002			
NIMAGE	Cadmium (Cd)	-0.0002	mg/l	0.0002	
NWTU5	Dissolved Calcium Calcium (Ca)	11.3	mg/l	0.1	
NW106	Dissolved Chromium		9/.	U. I	
	Chromium (Cr)	<0.001	mg/l	0.001	
NW108	Dissolved Copper		J		
	Copper (Cu)	0.0015	mg/l	0.0005	
NW109	Dissolved Iron				
	Iron (Fe)	0.12	mg/l	0.01	
NW110	Dissolved Lead	-0.0005			
	Lead (Pb)	<0.0005	mg/l	0.0005	
NW112	Dissolved Magnesium	8.01			
ND4/440	Magnesium (Mg)	0.01	mg/l	0.01	
NW113	Dissolved Manganese Manganese (Mn)	0.0243	mg/l	0.0005	
NW114	Dissolved Mercury	-	mg/i	0.0005	
1444 1 14	Mercury (Hg)	<0.0005	mg/l	0.0005	
NW116	Dissolved Nickel		J	3.0000	
	Nickel (Ni)	0.0006	mg/l	0.0005	
NW117	Dissolved Potassium				
	Potassium (K)	3.39	mg/l	0.01	
NW193	Dissolved Reactive Phos				
	Phosphorus (soluble reactive	9) 0.145	mg/l	0.005	
NW120	Dissolved Sodium	24.0			
	Sodium (Na)	24.8	mg/l	0.01	
NW125	Dissolved Zinc	0.003			
7M00 A	Zinc (Zn)		mg/l	0.002	
ZIVIZGA	Enumeration of Escheric Escherichia coli	chia coli By Men 100	cfu/100 ml	100	
NW010	Nitrate-N		Ciu/ IOO IIII	100	
1444010	Nitrate-N	0.20	(± 0.02) mg/l	0.01	
NW195	pH (Tested beyond 15 m	inute APHA hold		0.01	
	рН	7.4	(± 0.2)	0.1	
NW011	Sulphate				
	Sulphate	15.7	(± 1.57) mg/l	0.02	
NW206	Suspended Solids				
	Suspended Solids	66	mg/l	3	
NW003	Total Alkalinity	66	(, 7)		
	Alkalinity total	66	(± 7) mg CaCO3/I	1	
NW030	Total Hardness				
	Hardness	61	mg CaCO3/I	1	
NW210	Total Non-Purgeable Org				
	Total Organic Carbon	7.0	(± 0.7) mg/l	0.1	
①NWWG6	Volatile Fatty Acids (VFA				
	Acetic acid	<5 <5	mg/l	5	
	Butyric acid		mg/l	5	

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		oou a	vvaler r	ezuni	
		RESUL	TS (UNCERTA	INTY)	LOQ
①NWWG	6 Volatile Fatty Acids (VFA)				
	Heptanoic acid	<5	mg/l		5
	Hexanoic acid	<5	mg/l		5
	Isobutyric acid	<5	mg/l		5
	Isocaproic acid	<5	mg/l		5
	Isovaleric acid	<5	mg/l		5
	Propionic acid	<5 _	mg/l		5
	Valeric acid	<5 .5	mg/l		5
	Volatile fatty acids as acetic acid	<5	mg/l		5
LIST O	FMETHODS				
NW003	Total Alkalinity: APHA Online Edi	ition 2320 B		NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method,	LC-MS/MS		NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4	110 B		NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition	2510 B		NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA On	line Edition 3	3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Onlin	ne Edition 31	125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Onl	ine Edition 3	125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edi	tion 3125 B	mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Or	nline Edition	3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online	e Edition 312	5 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA On	line Edition 3	3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Ed	ition 3125 B	mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus 4500-P G	: APHA Onli	ne Edition	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online	Edition 254	0 D	NW210	Total Non-Purgeable Organic Carbon : APHA Online Edition 5310 B
NW341	BOD5 - Soluble Carbonaceous:	APHA Onlin	e Edition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.

Signature

mbecabro

Marylou Cabral Laboratory Manager **Eurofins ELS Limited**

NWWG6 Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.

Jennifer Mont

Supervisor Eurofins ELS Limited

Maria Norris

Laboratory Manager, Microbiology

Divina Cunanan Lagazon

ZM2GA Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Supervisor Eurofins ELS

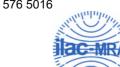
Ganesh Ilancko

Supervisor Eurofins ELS

Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

> **Phone** www.eurofins.co.nz





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Cody Forbes

Laboratory Analyst Laboratory Analyst

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24/02/2024



Food & Water Testing

AR-24-NW-010953-01

ANALYTICAL REPORT

REPORT DATE

Copy to: Water and Waste Team

Attention Downer NZ Ltd (EDI Levin)

Horowhenua Admin

P O Box 642 4741 Levin NEW ZEALAND

Phone (06) 367 2705

Contract:

REPORT CODE

Email horowhenuaadmin@downer.co.nz (waterandwasteteam@horowhenua.govt.nz), McMillan

Contact for your orders: Gabriela Carvalhaes Order code: EUNZWE-00167677

Purchase Order Number: Landfill

SAMPLE CODE 812-2024-00022469

Landfill

Client Reference: 342907-0

Product: Ground water

Sampling Point code: WIL-HS1A Sampling Point name: Levin HS1A

Reception Date & Time: 15/02/2024 10:05 **Analysis Start Date & Time:** 15/02/2024 10:10

Analysis Start Date & Time: 15/02/2024 10:10 Analysis Ending Date: 24/02/2024

Product TypeGround waterSampled Date & Time12/02/2024 22:00Sampler(s)Client nominated external samplerSampled by EurofinsNo

RESULTS (UNCERTAINTY) LOQ NW179 Ammonia Nitrogen 0.10 (± 0.03) mg/l Ammoniacal nitrogen (N) 0.01 NW341 **BOD5 - Soluble Carbonaceous** BOD5 mg/l 1 NW020 Chemical Oxygen Demand Chemical oxygen demand (COD) ²⁴ (± 6) mg/l 15 NW007 Chloride 26.1 (± 2.61) mg/l Chloride (CI) 0.02 **NW00U Chlorophenois** <0.01 2,3,4,6-Tetrachlorophenol mg/l 0.01 <0.01 2,4-Dichlorophenol mg/l 0.01 < 0.02 2,6-Dichlorophenol mg/l 0.2 < 0.01 2-Chlorophenol (o-chlorophenol) mg/l 0.01 < 0.01 3,4,5-Trichlorophenol mg/l 0.01 <0.01 4-Chloro-3-cresol mg/l 0.01 < 0.005 Pentachlorophenol mg/l 0.005 < 0.01 Phenol mg/l 0.01 < 0.02 Total of 2,4,5 & 2,4,6 mg/l 0.02 -Trichlorophenol NW023 Conductivity 23.3 (± 0.5) mS/m Conductivity 0.1 NW098 Dissolved Aluminium 0.022 Aluminium mg/l 0.002 NW583 Dissolved Arsenic 0.002 Arsenic (As) mg/l 0.001 NW103 Dissolved Boron 0.06 Boron (B) mg/l 0.03

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NEW ZEALAND

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		RESULTS	S (UNCERTAINTY)	LOQ	
NW104	Dissolved Cadmium	<0.0000			
	Cadmium (Cd)	<0.0002	mg/l	0.0002	
NW105	Dissolved Calcium	10.5	_		
	Calcium (Ca)	10.5	mg/l	0.1	
NW106	Dissolved Chromium	<0.001	_		
	Chromium (Cr)	~0.00 I	mg/l	0.001	
NW108	Dissolved Copper	0.0019	,,		
NN4/400	Copper (Cu)	0.0019	mg/l	0.0005	
NW109	Dissolved Iron	0.13	m a /l	0.04	
NN4/440	Iron (Fe)	00	mg/l	0.01	
NW110	Dissolved Lead	<0.0005	ma/l	0.0005	
NIMAAA	Lead (Pb)		mg/l	0.0005	
NW112	Dissolved Magnesium Magnesium (Mg)	6.57	ma/l	0.04	
MIMAAA		-	mg/l	0.01	
NW113	Dissolved Manganese Manganese (Mn)	0.0101	mg/l	0.0005	
NW114	, ,		mg/i	0.0005	
14 44 1714	Dissolved Mercury Mercury (Hg)	<0.0005	mg/l	0.0005	
NW116	Dissolved Nickel		mg/i	0.0003	
1444110	Nickel (Ni)	0.0011	mg/l	0.0005	
NW117	Dissolved Potassium		a/,	0.0003	
1444 117	Potassium (K)	1.73	mg/l	0.01	
NW193	Dissolved Reactive Phos	nhorus	····9/·	0.01	
1111 133	Phosphorus (soluble reactive)	. 0.405	(± 0.033) mg/l	0.005	
NW120	Dissolved Sodium	,	, , ,	0.000	
	Sodium (Na)	23.4	mg/l	0.01	
NW125	Dissolved Zinc		J. ·	3.01	
	Zinc (Zn)	0.012	mg/l	0.002	
ZM2GA	Enumeration of Escheric	hia coli Bv Men	_		
	Escherichia coli	500	cfu/100 ml	100	
NW010	Nitrate-N			-	
	Nitrate-N	0.18	(± 0.02) mg/l	0.01	
NW195	pH (Tested beyond 15 mi	nute APHA hole	ding time)	· -	
	pH	7.6	(± 0.2)	0.1	
NW011	Sulphate				
	Sulphate	19.1	(± 1.91) mg/l	0.02	
NW206	Suspended Solids				
	Suspended Solids	7	mg/l	3	
NW003	Total Alkalinity				
	Alkalinity total	50	(± 5) mg	1	
	•		CaCO3/I		
NW030	Total Hardness	53	0.000		
	Hardness		mg CaCO3/I	1	
NW210	Total Non-Purgeable Org	anic Carbon 8.1	(± 0.8) mg/l		
	Total Organic Carbon		(± 0.0) 1119/1	0.1	
WNWWG6	Volatile Fatty Acids (VFA)) <5	ma a: //	_	
	Acetic acid	<5	mg/l	5	
	Butyric acid	-	mg/l	5	

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	1 Toda & Water resting							
		RESULTS	(UNCERTAIN	TY)	LOQ			
①NWWG	6 Volatile Fatty Acids (VFA)							
	Heptanoic acid	<5 -	mg/l		5			
	Hexanoic acid	<5 .5	mg/l		5			
	Isobutyric acid	<5 <5	mg/l		5			
	Isocaproic acid	<5 <5	mg/l		5			
	Isovaleric acid	<5	mg/l		5			
	Propionic acid	<5	mg/l		5			
	Valeric acid	<5	mg/l		5			
	Volatile fatty acids as acetic acid	-	mg/l		5			
LIST O	F METHODS							
NW003	Total Alkalinity: APHA Online Ed	ition 2320 B		NW007	Chloride: APHA Online Edition 4110 B			
NW00U	Chlorophenols: Internal Method,	LC-MS/MS		NW010	Nitrate-N: APHA Online Edition 4110 B			
NW011	Sulphate: APHA Online Edition 4	110 B		NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D			
NW023	Conductivity: APHA 24th Edition	2510 B		NW030	Total Hardness: APHA Online Edition 2340 B			
NW098	Dissolved Aluminium: APHA On	line Edition 312	5 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.			
NW104	Dissolved Cadmium: APHA Onli	ne Edition 3125	B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.			
NW106	Dissolved Chromium: APHA On	line Edition 3125	5 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.			
NW109	Dissolved Iron: APHA Online Ed	ition 3125 B mod	d.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.			
NW112	Dissolved Magnesium: APHA O	nline Edition 312	25 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.			
NW114	Dissolved Mercury: APHA Online	e Edition 3125 B	mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.			
NW117	Dissolved Potassium: APHA On	line Edition 3125	5 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.			
NW125	Dissolved Zinc: APHA Online Ed	ition 3125 B mo	d.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H			
NW193	Dissolved Reactive Phosphorus 4500-P G	: APHA Online	Edition	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B			
NW206	Suspended Solids: APHA Online	Edition 2540 D		NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B			
NW341	BOD5 - Soluble Carbonaceous: B	APHA Online E	dition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.			

Signature

Jennifer Mont

Supervisor Eurofins ELS Limited

NWWG6 Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.

Divina Cunanan Lagazon

Supervisor Eurofins ELS Limited

ZM2GA Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

> Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Ganesh Ilancko

Supervisor Eurofins ELS

Limited

Leo Cleave

Senior Analyst Microbiology

Gabriela Carvalhaes Manager Food and Water **Testing Chemistry**

EXPLANATORY NOTE

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 **NEW ZEALAND**

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- Test is not accredited
- 2 Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

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AR-24-NW-019302-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

Contact for your orders:

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contract:

Landfill

Gabriela Carvalhaes Order code:

Purchase Order Number:

Copy to: Water and Waste Team

REPORT DATE

Landfill

(waterandwasteteam@horowhenua.govt.nz), McMillan

31/03/2024

812-2024-00042717 SAMPLE CODE

342908-0 Sample Name **Product:** Ground water

Sampling Point code: WIL-HS1A

21/03/2024 12:10 Reception Date & Time:

Analysis Started on: 21/03/2024

Product Type Ground water Sampler(s)

Client nominated external sampler

Sampling Point name: Levin HS1A

Analysis Ending Date:

Sampled Date & Time

31/03/2024 19/03/2024 08:30

EUNZWE-00174502

Sampled by Eurofins No

RESULTS (UNCERTAINTY) LOQ

			(0110=1111111111)	
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	0.08	(± 0.01) mg/l	0.01
NW341	• , ,		, , ,	0.01
1444341	BOD5 - Soluble Carbonaceo	ous <1	mg/l	1
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	64	(± 11) mg/l	15
NW007	Chloride Chloride (CI)	27.5	(± 2.75) mg/l	0.02
NW00U	Chlorophenols			
	2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01
	2,4-Dichlorophenol	<0.01	mg/l	0.01
	2,6-Dichlorophenol	<0.02	mg/l	0.2
	2-Chlorophenol (o-chlorophenol)	<0.01	mg/l	0.01
	3,4,5-Trichlorophenol	<0.01	mg/l	0.01
	4-Chloro-3-cresol	<0.01	mg/l	0.01
	Pentachlorophenol	<0.005	mg/l	0.005
	Phenol	<0.01	mg/l	0.01
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02
NW023	Conductivity			
	Conductivity	25.3	(± 0.5) mS/m	0.1
NW098	Dissolved Aluminium Aluminium	0.027	mg/l	0.002
NW583	Dissolved Arsenic Arsenic (As)	0.003	mg/l	0.001
NW103	Dissolved Boron			
	Boron (B)	0.08	mg/l	0.03

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	ı		water restr	
		RESULTS	S (UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium Cadmium (Cd)	<0.0002	ma/l	0.0000
NW105	Dissolved Calcium		mg/l	0.0002
	Calcium (Ca)	13.8	mg/l	0.1
NW106	Dissolved Chromium			
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper	0.0013		
NNA/400	Copper (Cu)	0.0013	mg/l	0.0005
NW109	Dissolved Iron Iron (Fe)	0.15	mg/l	0.01
NW110	Dissolved Lead		mg/i	0.01
1444110	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium		J	0.000
	Magnesium (Mg)	7.81	mg/l	0.01
NW113	Dissolved Manganese			
	Manganese (Mn)	0.0082	mg/l	0.0005
NW114	Dissolved Mercury	10 0005		
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel	0.0005		
NINA/447	Nickel (Ni)	0.0000	mg/l	0.0005
NW117	Dissolved Potassium Potassium (K)	2.57	mg/l	0.01
NW193	Dissolved Reactive Phos		mg/i	0.01
1177 133	Phosphorus (soluble reactive)	- 0000	mg/l	0.005
NW120	Dissolved Sodium		J	0.000
	Sodium (Na)	25.5	mg/l	0.01
NW125	Dissolved Zinc			
	Zinc (Zn)	0.002	mg/l	0.002
ZM2GA	Enumeration of Eschericl		nbrane Filtration	
	Escherichia coli	100	cfu/100 ml	100
NW010	Nitrate-N	0.26	(± 0.03) mg/l	
NIVA/405	Nitrate-N			0.01
NW195	pH (Tested beyond 15 min	nute APHA hole 7.6	(± 0.2)	0.1
NW011	Sulphate		·/	0.1
	Sulphate	15.3	(± 1.53) mg/l	0.02
NW206	Suspended Solids			5. 52
	Suspended Solids	21	mg/l	3
NW003	Total Alkalinity			
	Alkalinity total	60	(± 6) mg	1
NW030	Total Hardness		CaCO3/I	
1444030	Hardness	67	mg CaCO3/I	1
NW210	Total Non-Purgeable Orga	anic Carbon	3	•
	Total Organic Carbon	6.9	(± 0.7) mg/l	0.1
①NWWG6	Volatile Fatty Acids (VFA)			
	Acetic acid	<5 -	mg/l	5
	Butyric acid	<5	mg/l	5

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		oou a	vvaler r	ezuni	
		RESUL	TS (UNCERTA	INTY)	LOQ
①NWWG	6 Volatile Fatty Acids (VFA)				
	Heptanoic acid	<5	mg/l		5
	Hexanoic acid	<5	mg/l		5
	Isobutyric acid	<5	mg/l		5
	Isocaproic acid	<5	mg/l		5
	Isovaleric acid	<5	mg/l		5
	Propionic acid	<5 _	mg/l		5
	Valeric acid	<5 .5	mg/l		5
	Volatile fatty acids as acetic acid	<5	mg/l		5
LIST O	FMETHODS				
NW003	Total Alkalinity: APHA Online Edi	ition 2320 B		NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method,	LC-MS/MS		NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4	110 B		NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition	2510 B		NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA On	line Edition 3	3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Onlin	ne Edition 31	125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Onl	ine Edition 3	125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edi	tion 3125 B	mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Or	nline Edition	3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online	e Edition 312	5 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA On	line Edition 3	3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Ed	ition 3125 B	mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus 4500-P G	: APHA Onli	ne Edition	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online	Edition 254	0 D	NW210	Total Non-Purgeable Organic Carbon : APHA Online Edition 5310 B
NW341	BOD5 - Soluble Carbonaceous:	APHA Onlin	e Edition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.

Signature

mbecabro

Marylou Cabral Laboratory Manager **Eurofins ELS Limited**

NWWG6 Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.

Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

ZM2GA Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Supervisor Eurofins ELS

Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Ganesh Ilancko

Supervisor Eurofins ELS Limited

Arvinder Singh

Laboratory Supervisor Microbiology

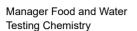














Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE

Test is not accredited

②Test is subcontracted within Eurofins group and is accredited

3 Test is subcontracted within Eurofins group and is not accredited

Test is subcontracted outside Eurofins group and is accredited

Test is subcontracted outside Eurofins group and is not accredited

Test result is provided by the customer and is not accredited

Tested at the sampling point by Eurofins and is not accredited

Tested at the sampling point by Eurofins and is accredited

9 Test is RLP accredited

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N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

✗ (Unsatisfactory) means does not meet the specification

✓ (Satisfactory) means meets the specification

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ANALYTICAL REPORT

Attention Downer NZ Ltd (EDI Levin)

Horowhenua Admin

P O Box 642 4741 Levin NEW ZEALAND

Phone (06) 367 2705

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders: Gabriela Car

Contract: Lar

Landfill

Gabriela Carvalhaes

AR-24-NW-023572-01

SAMPLE CODE **812-2024-00053631**

Sample Name 349851-0
Product: Ground water

Sampling Point code: WIL-HS2

Reception Date & Time: 11/04/2024 13:30

Analysis Started on: 11/04/2024

Product Type Ground water

Sampler(s) Client nominated external sampler

REPORT DATE 19/04/2024

Copy to: Water and Waste Team

(waterandwasteteam@horowhenua.govt.nz), McMillan

Order code: EUNZWE-00178002

Purchase Order Number: Landfill

Sampling Point name: Levin HS2

Analysis Ending Date: 19/04/2024

Sampled Date & Time 11/04/2024 07:30

Sampled by Eurofins No

Sample	oliciti ile	illillated exteri	ilai campioi Ci	ampled by Euromis	140	
		RESULTS	(UNCERTAINTY)	LOQ		
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	0.04	(± 0.00) mg/l	0.01		
NW341	BOD5 - Soluble Carbonace BOD5	ous <1	mg/l	1		
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD) ⁴⁹	(± 9) mg/l	15		
NW007	Chloride Chloride (CI)	29.0	(± 2.90) mg/l	0.02		
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chlorophenol 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol Phenol Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.01 <0.01 <0.02 <0.01 <0.01 <0.005 <0.01 <0.02	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.01 0.01 0.2 0.01 0.01 0.01 0.005 0.01 0.02		
NW023	Conductivity Conductivity	27.0	(± 0.5) mS/m	0.1		
NW098	Aluminium	0.008	mg/l	0.002		
NW583	Dissolved Arsenic Arsenic (As)	0.002	mg/l	0.001		
NW103	Dissolved Boron Boron (B)	0.07	mg/l	0.03		

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PESILITS (INCEPTAINTY) 100					
		RESULTS	S (UNCERTAINTY)	LOQ	
NW104	Dissolved Cadmium	<0.0002			
NIVA/A O E	Cadmium (Cd)	-0.0002	mg/l	0.0002	
INVV1U5	Dissolved Calcium Calcium (Ca)	11.0	mg/l	0.1	
NW106	Dissolved Chromium		··· · ∃/·	0.1	
	Chromium (Cr)	<0.001	mg/l	0.001	
NW108	Dissolved Copper		ŭ		
	Copper (Cu)	0.0010	mg/l	0.0005	
NW109	Dissolved Iron				
	Iron (Fe)	0.12	mg/l	0.01	
NW110	Dissolved Lead	40 000E			
	Lead (Pb)	<0.0005	mg/l	0.0005	
NW112	Dissolved Magnesium	8.00	_		
.	Magnesium (Mg)	0.00	mg/l	0.01	
NW113	Dissolved Manganese	0.0344	ma/l	0.000=	
KI\A <i>IAA A</i>	Manganese (Mn)	0.0011	mg/l	0.0005	
NW114	Dissolved Mercury Mercury (Hg)	<0.0005	mg/l	0.0005	
NW116	Dissolved Nickel		1119/1	0.0005	
	Nickel (Ni)	<0.0005	mg/l	0.0005	
NW117	Dissolved Potassium		Ŭ	1.0000	
	Potassium (K)	3.24	mg/l	0.01	
NW193	Dissolved Reactive Phos				
	Phosphorus (soluble reactive	0.126	mg/l	0.005	
NW120	Dissolved Sodium	<u></u>			
	Sodium (Na)	24.5	mg/l	0.01	
NW125	Dissolved Zinc	<0.002			
	Zinc (Zn)		mg/l	0.002	
ZM2GA	Enumeration of Escheric	chia coli By Men 100		400	
NIVA/040	Escherichia coli	100	cfu/100 ml	100	
NVVU1U	Nitrate-N Nitrate-N	0.30	(± 0.03) mg/l	0.01	
NW195	pH (Tested beyond 15 mi			0.01	
1444 133	pH (rested beyond 15 mi	7.4	(± 0.2)	0.1	
NW011	Sulphate			V. 1	
	Sulphate	15.4	(± 1.54) mg/l	0.02	
NW206	Suspended Solids				
	Suspended Solids	<5	mg/l	3	
NW003	Total Alkalinity				
	Alkalinity total	70	(± 7) mg CaCO3/I	1	
NW030	Total Hardness		J4505/1		
	Hardness	61	mg CaCO3/I	1	
NW210	Total Non-Purgeable Org	anic Carbon	-		
	Total Organic Carbon	6.4	(± 0.6) mg/l	0.1	
①NWWG6	Volatile Fatty Acids (VFA				
	Acetic acid	<5	mg/l	5	
	Butyric acid	<5	mg/l	5	

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	Food & water resting						
		RESULTS (UNC	CERTAINTY)	LOQ			
①NWWG	6 Volatile Fatty Acids (VFA)						
	Heptanoic acid	<5 mg	g/l	5			
	Hexanoic acid	<5 mg	g/l	5			
	Isobutyric acid	<5 mg	g/l	5			
	Isocaproic acid	<5 mg	g/l	5			
	Isovaleric acid	<5 mg	g/l	5			
	Propionic acid	<5 mg	g/l	5			
	Valeric acid	<5 mg	g/l	5			
	Volatile fatty acids as acetic acid	<5 mg	g/l	5			
LIST O	F METHODS						
Lioi oi	METHODO						
NW003	Total Alkalinity: APHA Online Edi	ition 2320 B	NW007	Chloride: APHA Online Edition 4110 B			
NW00U	Chlorophenols: Internal Method,	LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B			
NW011	Sulphate: APHA Online Edition 4	110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D			
NW023	Conductivity: APHA 24th Edition	2510 B	NW030	Total Hardness: APHA Online Edition 2340 B			
NW098	Dissolved Aluminium: APHA On	line Edition 3125 B mo	d. NW103	B Dissolved Boron: APHA Online Edition 3125 B mod.			
NW104	Dissolved Cadmium: APHA Onlin	ne Edition 3125 B mod	. NW10	Dissolved Calcium: APHA Online Edition 3125 B mod.			
NW106	Dissolved Chromium: APHA Onl	ine Edition 3125 B mo	d. NW108	B Dissolved Copper: APHA Online Edition 3125 B mod.			
NW109	Dissolved Iron: APHA Online Edi	tion 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.			
NW112	Dissolved Magnesium: APHA Or	nline Edition 3125 B m	od. NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.			
NW114	Dissolved Mercury: APHA Online	e Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.			
NW117	Dissolved Potassium: APHA On	line Edition 3125 B mo	d. NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.			
NW125	Dissolved Zinc: APHA Online Ed	ition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H			
NW193	Dissolved Reactive Phosphorus 4500-P G	: APHA Online Edition	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B			
NW206	Suspended Solids: APHA Online	Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B			
NW341	BOD5 - Soluble Carbonaceous:	APHA Online Edition 5	5210 NW583	B Dissolved Arsenic: APHA Online Edition 3125 B mod.			

Signature

Marylou Cabral Laboratory Manager **Eurofins ELS Limited**

NWWG6 Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.

Jennifer Mont

Supervisor Eurofins ELS Limited

mbecabro

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Maria Norris

Laboratory Manager, Microbiology

Divina Cunanan Lagazon

ZM2GA Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Supervisor Eurofins ELS

Ganesh Ilancko Supervisor Eurofins ELS

Limited















Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE

Test is not accredited

②Test is subcontracted within Eurofins group and is accredited

3 Test is subcontracted within Eurofins group and is not accredited

Test is subcontracted outside Eurofins group and is accredited

Test is subcontracted outside Eurofins group and is not accredited

Test result is provided by the customer and is not accredited

Tested at the sampling point by Eurofins and is not accredited

Tested at the sampling point by Eurofins and is accredited

9 Test is RLP accredited

Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

x (Unsatisfactory) means does not meet the specification

✓ (Satisfactory) means meets the specification

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24/02/2024



Food & Water Testing

AR-24-NW-010954-01

ANALYTICAL REPORT

REPORT DATE

Order code:

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Landfill Contract:

Gabriela Carvalhaes

0.002

0.06

mg/l

mg/l

Purchase Order Number: Landfill

(waterandwasteteam@horowhenua.govt.nz), McMillan

812-2024-00022470 SAMPLE CODE

342910-0 **Client Reference: Product:** Ground water

Sampling Point code: WIL-HS2

Reception Date & Time: 15/02/2024 10:06

Analysis Start Date & Time: 15/02/2024 10:10

Product Type Ground water

Sampling Point name:

Analysis Ending Date:

Copy to: Water and Waste Team

Sampled Date & Time

24/02/2024 12/02/2024 22:34

Levin HS2

EUNZWE-00167677

		0.04.14		Campica Pate a rime	, 0 _, _ 0		
Sampler(s)		lient nominated exte	ernal sampler	Sampled by Eurofins	No		
		RESULT	S (UNCERTAINT	Y) LOQ			
NW179	Ammonia Nitrogen						
	Ammoniacal nitrogen (N)	0.04	(± 0.01) mg/l	0.01			
NW341	BOD5 - Soluble Carb	onaceous					
	BOD5	3	mg/l	1			
W020	Chemical Oxygen De	mand					
	Chemical oxygen deman		(± 7) mg/l	15			
W007	Chloride						
	Chloride (CI)	28.0	(± 2.80) mg/l	0.02			
U00W	Chlorophenols						
	2,3,4,6-Tetrachloropheno	ol <0.01	mg/l	0.01			
	2,4-Dichlorophenol	<0.01	mg/l	0.01			
	2,6-Dichlorophenol	<0.02	mg/l	0.2			
	2-Chlorophenol (o-chloro		mg/l	0.01			
	3,4,5-Trichlorophenol	<0.01	mg/l	0.01			
	4-Chloro-3-cresol	<0.01	mg/l	0.01			
	Pentachlorophenol	<0.005	mg/l	0.005			
	Phenol	<0.01	mg/l	0.01			
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02			
NW023	Conductivity						
	Conductivity	25.2	(± 0.5) mS/m	0.1			
NW098	Dissolved Aluminium	1		0.1			
111000	Aluminium	0.019	mg/l	0.002			

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NW583 Dissolved Arsenic

NW103 Dissolved Boron

Boron (B)

Arsenic (As)

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0.001

0.03







	ı		valer resti	
		RESULTS	(UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105			.	3.0002
	Calcium (Ca)	11.2	mg/l	0.1
NW106	Dissolved Chromium Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper Copper (Cu)	0.0010	mg/l	0.0005
NW109	Dissolved Iron Iron (Fe)	0.14	mg/l	0.01
NW110	Dissolved Lead Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium Magnesium (Mg)	6.60	mg/l	0.0003
NW113	Dissolved Manganese		1119/1	0.01
	Manganese (Mn)	0.0110	mg/l	0.0005
NW114	Dissolved Mercury	<0.0005	ma ^{//}	0.0005
NW116	Mercury (Hg) Dissolved Nickel	0.0000	mg/l	0.0005
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	Dissolved Potassium Potassium (K)	1.80	mg/l	0.01
NW193	Dissolved Reactive Phos	. 0.400		
NN4400	Phosphorus (soluble reactive	9) 0.139	(± 0.028) mg/l	0.005
NW120	Dissolved Sodium Sodium (Na)	23.9	mg/l	0.01
NW125	Dissolved Zinc Zinc (Zn)	0.003	mg/l	0.002
ZM2GA	Enumeration of Escheric		nbrane Filtration	
NW010	Escherichia coli	<100	cfu/100 ml	100
INVVUTU	Nitrate-N Nitrate-N	0.34	(± 0.03) mg/l	0.01
NW195	pH (Tested beyond 15 m		-	
Albara	pH	7.7	(± 0.2)	0.1
NW011	Sulphate Sulphate	18.5	(± 1.85) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	6	mg/l	3
NW003	Total Alkalinity Alkalinity total	55	(± 6) mg CaCO3/I	1
NW030	Total Hardness Hardness	55	mg CaCO3/l	1
NW210	Total Non-Purgeable Org	ganic Carbon 7.7	(± 0.8) mg/l	0.1
①NWWG6	Volatile Fatty Acids (VFA	١)	. , ,	0.1
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5

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		ood a v	vater re-	Sung	
		RESULTS	(UNCERTAIN	TY) į	LOQ
①NWWG	6 Volatile Fatty Acids (VFA)				
	Heptanoic acid	<5	mg/l		5
	Hexanoic acid	<5	mg/l		5
	Isobutyric acid	<5	mg/l		5
	Isocaproic acid	<5 _	mg/l		5
	Isovaleric acid	<5 -	mg/l		5
	Propionic acid	<5 	mg/l		5
	Valeric acid	<5 45	mg/l		5
	Volatile fatty acids as acetic acid	<5	mg/l		5
LIST O	F METHODS				
NW003	Total Alkalinity: APHA Online Ed	lition 2320 B		NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method	LC-MS/MS		NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4	110 B		NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition	2510 B		NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Or	line Edition 312	5 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Onli	ne Edition 3125	B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA On	line Edition 312	5 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Ed	ition 3125 B mod	d.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA O	nline Edition 312	25 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Onlin	e Edition 3125 E	8 mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Or	lline Edition 312	5 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Ed	lition 3125 B mo	d.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus 4500-P G	s: APHA Online	Edition	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online	e Edition 2540 D		NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW341	BOD5 - Soluble Carbonaceous: B	APHA Online E	dition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.

Signature

Jennifer Mont

Supervisor Eurofins ELS Limited

Supervisor Eurofins ELS

NWWG6 Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.

Limited

Divina Cunanan Lagazon

Leo Cleave

Supervisor Eurofins ELS

Limited

Senior Analyst Microbiology

ZM2GA Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

> Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Gabriela Carvalhaes Manager Food and Water **Testing Chemistry**

EXPLANATORY NOTE

Ganesh Ilancko

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- Tested at the sampling point by Eurofins and is accredited
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- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

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EUNZWE-00174502

28/03/2024



Food & Water Testing

AR-24-NW-018689-01

ANALYTICAL REPORT

REPORT DATE

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

Landfill

Gabriela Carvalhaes Order code:

> **Purchase Order Number:** Landfill

(waterandwasteteam@horowhenua.govt.nz), McMillan

Copy to: Water and Waste Team

812-2024-00042720 SAMPLE CODE

342914-0 Sample Name **Product:** Ground water

Sampling Point code: WIL-HS2

21/03/2024 12:11 Reception Date & Time:

Analysis Started on: 21/03/2024 **Product Type** Ground water

Sampler(s) Client nominated external sampler Sampling Point name: Levin HS2

Analysis Ending Date: 28/03/2024

Sampled Date & Time 19/03/2024 09:10

Sampled by Eurofins No

Sample	i(s)	ieni nominaled exte	mai sampiei 3	impled by Euroniis	NO	
		RESULTS	S (UNCERTAINTY)	LOQ		
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	0.06	(± 0.01) mg/l	0.01		
NW341	BOD5 - Soluble Carbo BOD5	onaceous <1	mg/l	1		
NW020	Chemical Oxygen De Chemical oxygen demand		(± 7) mg/l	15		
NW007	Chloride Chloride (CI)	29.9	(± 2.99) mg/l	0.02		
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chloro 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol Phenol Total of 2,4,5 & 2,4,6	<0.01 <0.02	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.01 0.01 0.2 0.01 0.01 0.005 0.01 0.02		
NW023	-Trichlorophenol Conductivity Conductivity	27.2	(± 0.5) mS/m	0.1		
NW098	Dissolved Aluminium Aluminium	0.019	mg/l	0.002		
NW583	Dissolved Arsenic Arsenic (As)	0.003	mg/l	0.001		
NW103	Dissolved Boron Boron (B)	0.09	mg/l	0.03		

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 **NEW ZEALAND**

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	I		valer rest	
		RESULTS	(UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium	<0.0002		
NIMAGE	Cadmium (Cd)	-0.0002	mg/l	0.0002
NWTU5	Dissolved Calcium Calcium (Ca)	14.7	mg/l	0.1
NW106	Dissolved Chromium		9,.	0.1
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper		-	
	Copper (Cu)	0.0011	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	0.18	mg/l	0.01
NW110	Dissolved Lead	40,0005		
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium	7.87		
ADA44.	Magnesium (Mg)	1.01	mg/l	0.01
NW113	Dissolved Manganese	0.0288	ma/l	0.0005
NW114	Manganese (Mn)		mg/l	0.0005
1444 1 14	Dissolved Mercury Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel		···ə/'	0.0000
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	Dissolved Potassium		-	
	Potassium (K)	2.46	mg/l	0.01
NW193	Dissolved Reactive Phos			
	Phosphorus (soluble reactive) 0.149	mg/l	0.005
NW120	Dissolved Sodium	25.5		
	Sodium (Na)	25.5	mg/l	0.01
NW125	Dissolved Zinc	0.003	,,	
71400 4	Zinc (Zn)		mg/l	0.002
ZIVIZGA	Enumeration of Escheric	chia coli By Men 700	nbrane Filtration cfu/100 ml	100
NW010	Escherichia coli Nitrate-N		Ciu/ IOO IIII	100
1444010	Nitrate-N Nitrate-N	0.29	(± 0.03) mg/l	0.01
NW195	pH (Tested beyond 15 mi	inute APHA hold		0.01
	pH (rested beyond 15 mil	7.5	(± 0.2)	0.1
NW011	Sulphate			
	Sulphate	15.6	(± 1.56) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	<5	mg/l	3
NW003	Total Alkalinity	60	(, -)	
	Alkalinity total	66	(± 7) mg CaCO3/I	1
NW030	Total Hardness		 -	
	Hardness	69	mg CaCO3/I	1
NW210	Total Non-Purgeable Org			
	Total Organic Carbon	6.9	(± 0.7) mg/l	0.1
①NWWG6	Volatile Fatty Acids (VFA			
	Acetic acid	<5 <5	mg/l	5
	Butyric acid	<5	mg/l	5

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		oou & water	resum	9
		RESULTS (UNCER	RTAINTY)	LOQ
①NWWG	6 Volatile Fatty Acids (VFA)			
	Heptanoic acid	<5 mg/l		5
	Hexanoic acid	<5 mg/l		5
	Isobutyric acid	<5 mg/l		5
	Isocaproic acid	<5 mg/l		5
	Isovaleric acid	<5 mg/l		5
	Propionic acid	<5 mg/l		5
	Valeric acid	<5 mg/l		5
	Volatile fatty acids as acetic acid	<5 mg/l		5
LIST O	F METHODS			
NW003	Total Alkalinity: APHA Online Edi	ition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method,	LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4		NW020	
NW023	•		NW030	,,
NW098	Dissolved Aluminium: APHA On		NW103	
NW104	Dissolved Cadmium: APHA Onlin	ne Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Onl	line Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edi	tion 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Or	nline Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online	e Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA On	line Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Ed	ition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus 4500-P G	:: APHA Online Edition	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online	Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW341	BOD5 - Soluble Carbonaceous:	APHA Online Edition 5210	0 NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.

Signature

Marylou Cabral Laboratory Manager **Eurofins ELS Limited**

NWWG6 Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.

Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

ZM2GA Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

> Supervisor Eurofins ELS Limited

mbecabro

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Ganesh Ilancko

Supervisor Eurofins ELS Limited

Arvinder Singh

Laboratory Supervisor Microbiology



Phone www.eurofins.co.nz

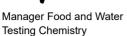














Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE

Test is not accredited

②Test is subcontracted within Eurofins group and is accredited

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Test is subcontracted outside Eurofins group and is accredited

Test is subcontracted outside Eurofins group and is not accredited

Test result is provided by the customer and is not accredited

Tested at the sampling point by Eurofins and is not accredited

Tested at the sampling point by Eurofins and is accredited

9 Test is RLP accredited

Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

x (Unsatisfactory) means does not meet the specification

√(Satisfactory) means meets the specification

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If the Customer pays for storage of the samples Eurofins will take commercially reasonable steps to store the samples for the agreed period in terms of industry practice. The Eurofins water sampling service follows methodology based on AS/NZS 5667 and / or best practice to collect and transport samples that are fit for the purpose of analytical testing. The laboratory is not responsible for sampling activities unless explicitly indicated by the statement "Sampled by Eurofins" on the report for water samples. The Customer acknowledges that the Services are provided using the current state of technology and methods developed and generally applied by Eurofins and involve analysis, interpretations, consulting work and conclusions. Eurofins shall use commercially reasonable degree of care in providing the Services.

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19/04/2024



Food & Water Testing

AR-24-NW-023573-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

Gabriela Carvalhaes

Landfill

Order code:

REPORT DATE

Copy to: Water and Waste Team

Purchase Order Number: Landfill

(waterandwasteteam@horowhenua.govt.nz), McMillan

812-2024-00053632 SAMPLE CODE

Sample Name 349853-0 **Product:** Ground water

Sampling Point code: WIL-HS3

11/04/2024 13:30 Reception Date & Time:

Analysis Started on: 11/04/2024

Product Type Ground water Sampler(s) Client nominated external sampler Sampling Point name:

Analysis Ending Date:

Sampled Date & Time

19/04/2024 11/04/2024 07:45

Levin HS3

EUNZWE-00178002

Sampled by Eurofins

No

		RESUL	TS (UNCERTAINTY)	LOQ
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	0.04	(± 0.00) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo			
	BOD5	<1	mg/l	1
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	<15	(± 5) mg/l	15
NW007	Chloride Chloride (CI)	29.6	(± 2.96) mg/l	0.02
NW00U	Chlorophenols			
	2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01
	2,4-Dichlorophenol	<0.01	mg/l	0.01
	2,6-Dichlorophenol	<0.02	mg/l	0.2
	2-Chlorophenol (o-chlorophenol)	<0.01	mg/l	0.01
	3,4,5-Trichlorophenol	<0.01	mg/l	0.01
	4-Chloro-3-cresol	<0.01	mg/l	0.01
	Pentachlorophenol	<0.005	mg/l	0.005
	Phenol	<0.01	mg/l	0.01
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02
NW023	Conductivity			
	Conductivity	27.6	(± 0.6) mS/m	0.1
NW098	Dissolved Aluminium Aluminium	0.005	mg/l	0.002
NW583	Dissolved Arsenic		mg/i	0.002
INVVOOS	Arsenic (As)	0.002	mg/l	0.001
NW103	Dissolved Boron Boron (B)	0.07	mg/l	0.03

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			vater rest	
		RESULTS	(UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium	<0.0002		
NIM/40E	Cadmium (Cd)	.J.0002	mg/l	0.0002
GULAAN	Dissolved Calcium Calcium (Ca)	11.4	mg/l	0.1
NW106	Dissolved Chromium		J	V. I
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	0.0011	mg/l	0.0005
NW109	Dissolved Iron	0.09		
NNA/440	Iron (Fe)	0.09	mg/l	0.01
NW110	Dissolved Lead Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium		mg/i	0.0005
	Magnesium (Mg)	8.10	mg/l	0.01
NW113	Dissolved Manganese		Ü	
	Manganese (Mn)	0.0326	mg/l	0.0005
NW114	Dissolved Mercury			
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel	<0.000F		
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	Dissolved Potassium	3.52	,,	
NI\A/400	Potassium (K)		mg/l	0.01
NW193	Dissolved Reactive Phos Phosphorus (soluble reactive	. 0.405	mg/l	0.005
NW120	Dissolved Sodium	1	mg/i	0.005
1444 120	Sodium (Na)	25.6	mg/l	0.01
NW125	Dissolved Zinc		<u>U</u>	2.0.
	Zinc (Zn)	0.002	mg/l	0.002
ZM2GA	Enumeration of Escheric	-	nbrane Filtration	
	Escherichia coli	100	cfu/100 ml	100
NW010	Nitrate-N	0.00	, , ,	
	Nitrate-N	0.36	(± 0.04) mg/l	0.01
NW195	pH (Tested beyond 15 mi	inute APHA holo 7.6	ding time) (± 0.2)	
NIMO44	pH	7.0	(± U.Z)	0.1
NW011	Sulphate Sulphate	15.1	(± 1.51) mg/l	0.02
NW206	Suspended Solids		(=)g//	0.02
1444200	Suspended Solids	76	mg/l	3
NW003	Total Alkalinity		Ü	Ť
	Alkalinity total	70	(± 7) mg	1
MMOSO	Total Hardness		CaCO3/I	
NW030	Total Hardness Hardness	62	mg CaCO3/I	1
NW210	Total Non-Purgeable Org		54000/1	ı
	Total Organic Carbon	6.9	(± 0.7) mg/l	0.1
①NWWG6	Volatile Fatty Acids (VFA)		
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5

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		1 1	oou a v	vater re	Sund	
			RESULTS	(UNCERTAIN	ITY) į	_oQ
(DNWWG	6 Volatile Fatty Acids (VFA)				
		Heptanoic acid	<5	mg/l		5
		Hexanoic acid	<5	mg/l		5
		Isobutyric acid	<5	mg/l		5
		Isocaproic acid	<5	mg/l		5
		Isovaleric acid	<5	mg/l		5
		Propionic acid	<5	mg/l		5
		Valeric acid	<5 -	mg/l		5
		Volatile fatty acids as acetic acid	<5	mg/l		5
Γ						
-	LIST OF	METHODS				
	NW003	Total Alkalinity: APHA Online Edi	ition 2320 B		NW007	Chloride: APHA Online Edition 4110 B
	NW00U	Chlorophenols: Internal Method,	LC-MS/MS		NW010	Nitrate-N: APHA Online Edition 4110 B
	NW011	Sulphate: APHA Online Edition 4	110 B		NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
	NW023	Conductivity: APHA 24th Edition	2510 B		NW030	Total Hardness: APHA Online Edition 2340 B
	NW098	Dissolved Aluminium: APHA On	line Edition 312	5 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
	NW104	Dissolved Cadmium: APHA Onlin	ne Edition 3125	B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
	NW106	Dissolved Chromium: APHA Onl	line Edition 3125	5 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
	NW109	Dissolved Iron: APHA Online Edi	tion 3125 B mod	d.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
	NW112	Dissolved Magnesium: APHA Or	nline Edition 312	25 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
	NW114	Dissolved Mercury: APHA Online	e Edition 3125 B	mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
	NW117	Dissolved Potassium: APHA On	line Edition 312	5 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
	NW125	Dissolved Zinc: APHA Online Ed	ition 3125 B mo	d.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
	NW193	Dissolved Reactive Phosphorus 4500-P G	: APHA Online	Edition	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
	NW206	Suspended Solids: APHA Online	Edition 2540 D		NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
	NW341	BOD5 - Soluble Carbonaceous:	APHA Online E	dition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.

Signature

mbecabro

Marylou Cabral Laboratory Manager **Eurofins ELS Limited**

NWWG6 Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.

Jennifer Mont

Supervisor Eurofins ELS Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Maria Norris

Laboratory Manager, Microbiology

Divina Cunanan Lagazon

ZM2GA Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Supervisor Eurofins ELS

Ganesh Ilancko

Supervisor Eurofins ELS

Limited















Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE

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Test is subcontracted outside Eurofins group and is not accredited

Test result is provided by the customer and is not accredited

Tested at the sampling point by Eurofins and is not accredited

Tested at the sampling point by Eurofins and is accredited

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N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

X (Unsatisfactory) means does not meet the specification

✓ (Satisfactory) means meets the specification

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24/02/2024



Food & Water Testing

AR-24-NW-010955-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Landfill Contract:

Gabriela Carvalhaes

REPORT DATE

EUNZWE-00167677 Order code:

(waterandwasteteam@horowhenua.govt.nz), McMillan

Purchase Order Number: Landfill

812-2024-00022471 SAMPLE CODE

342911-0 **Client Reference: Product:** Ground water

Sampling Point code: WIL-HS3

15/02/2024 10:07 Reception Date & Time:

Analysis Start Date & Time: 15/02/2024 10:10

Product Type Ground water

0.06

mg/l

Sampling Point name:

Copy to: Water and Waste Team

Analysis Ending Date:

24/02/2024 Sampled Date & Time 12/02/2024 22:50

Levin HS3

····	• •	nound water		Campica Date & Time	12/02/2024 22.00	
Sample	r(s) C	lient nominated exte	rnal sampler	Sampled by Eurofins	No	
		RESULT	S (UNCERTAINT	r) LOQ		
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N	0.03	(± 0.009) mg/l	0.01		
NW341	BOD5 - Soluble Carb BOD5	oonaceous <1	mg/l	1		
NW020	Chemical Oxygen De Chemical oxygen deman		(± 5) mg/l	15		
NW007	Chloride Chloride (CI)	28.7	(± 2.87) mg/l	0.02		
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chloro 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol Phenol Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.01 <0.02	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.01 0.01 0.2 0.01 0.01 0.001 0.005 0.01 0.002		
NW023	Conductivity Conductivity	25.8	(± 0.5) mS/m	0.1		
NW098	Dissolved Aluminium Aluminium	n 0.018	mg/l	0.002		
NW583	Dissolved Arsenic Arsenic (As)	0.002	mg/l	0.001		

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 **NEW ZEALAND**

NW103 Dissolved Boron

Boron (B)

Phone www.eurofins.co.nz

0.03







			water resti		
		RESULT	S (UNCERTAINTY)	LOQ	
NW104	Dissolved Cadmium	<0.0002	,		
NII 440 F	Cadmium (Cd)	>0.000∠	mg/l	0.0002	
NW105	Dissolved Calcium	12.3	ma/l	0.4	
NW106	Calcium (Ca)	· · 	mg/l	0.1	
14 44 100	Dissolved Chromium Chromium (Cr)	<0.001	mg/l	0.001	
NW108	Dissolved Copper		···ə/'	0.001	
	Copper (Cu)	0.0009	mg/l	0.0005	
NW109	Dissolved Iron		J	-:000	
	Iron (Fe)	0.14	mg/l	0.01	
NW110	Dissolved Lead				
	Lead (Pb)	<0.0005	mg/l	0.0005	
NW112	Dissolved Magnesium				
	Magnesium (Mg)	6.91	mg/l	0.01	
NW113	Dissolved Manganese	0.0435			
	Manganese (Mn)	0.0135	mg/l	0.0005	
NW114	Dissolved Mercury	<0.0005	,,		
ND4/440	Mercury (Hg)	٠٠.٥٥٥٥	mg/l	0.0005	
NW116	Dissolved Nickel	<0.0005	ma/l	0.0005	
NW117	Nickel (Ni)		mg/l	0.0005	
14441.11	Dissolved Potassium Potassium (K)	2.00	mg/l	0.01	
NW193	Dissolved Reactive Phos	nhorus	. 9/1	0.01	
	Phosphorus (soluble reactive)		(± 0.027) mg/l	0.005	
NW120	Dissolved Sodium				
	Sodium (Na)	24.8	mg/l	0.01	
NW125	Dissolved Zinc				
	Zinc (Zn)	0.006	mg/l	0.002	
ZM2GA	Enumeration of Escheric		mbrane Filtration		
	Escherichia coli	<100	cfu/100 ml	100	
NW010	Nitrate-N	0.39	(1.0.04)		
	Nitrate-N		(± 0.04) mg/l	0.01	
NW195	pH (Tested beyond 15 mi	nute APHA hol 7.5	ding time) (± 0.2)	•	
NIMO44	pH		(± 0.2)	0.1	
NW011	Sulphate Sulphate	18.2	(± 1.82) mg/l	0.00	
NW20E	Suspended Solids		(= <i>z</i> -) <i>g</i>	0.02	
1444700	Suspended Solids Suspended Solids	8	mg/l	3	
NW003	Total Alkalinity		··· <i>-</i>	J	
	Alkalinity total	57	(± 6) mg	1	
			CaCO3/I	•	
NW030	Total Hardness	59			
NIMOAC	Hardness		mg CaCO3/I	1	
NW210	Total Non-Purgeable Org Total Organic Carbon	anic Carbon 7.2	(± 0.7) mg/l	0.4	
WNMWGe	Volatile Fatty Acids (VFA)		(= > / y , i	0.1	
W1444400	Acetic acid) <5	mg/l	5	
	Butyric acid	<5	mg/l	5	
				<u> </u>	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







	1 1			3till(
		RESULTS	(UNCERTAIN	TY)	LOQ
①NWWG	6 Volatile Fatty Acids (VFA)				
	Heptanoic acid	<5 -	mg/l		5
	Hexanoic acid	<5 .5	mg/l		5
	Isobutyric acid	<5 <5	mg/l		5
	Isocaproic acid	<5 <5	mg/l		5
	Isovaleric acid	<5	mg/l		5
	Propionic acid	<5	mg/l		5
	Valeric acid	<5	mg/l		5
	Volatile fatty acids as acetic acid	-	mg/l		5
LIST O	F METHODS				
NW003	Total Alkalinity: APHA Online Ed	ition 2320 B		NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method,	LC-MS/MS		NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4	110 B		NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition	2510 B		NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA On	line Edition 312	5 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Onli	ne Edition 3125	B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA On	line Edition 3125	5 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Ed	ition 3125 B mod	d.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA O	nline Edition 312	25 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online	e Edition 3125 B	mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA On	line Edition 3125	5 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Ed	ition 3125 B mo	d.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus 4500-P G	: APHA Online	Edition	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online	Edition 2540 D		NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW341	BOD5 - Soluble Carbonaceous: B	APHA Online E	dition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.

Signature

Jennifer Mont

Supervisor Eurofins ELS Limited

Supervisor Eurofins ELS

Limited

NWWG6 Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.

Divina Cunanan Lagazon

Supervisor Eurofins ELS Limited

ZM2GA Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

> Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Leo Cleave

Senior Analyst Microbiology

Gabriela Carvalhaes Manager Food and Water **Testing Chemistry**

EXPLANATORY NOTE

Ganesh Ilancko

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 **NEW ZEALAND**

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N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

🗴 (Unsatisfactory) means does not meet the specification

✓ (Satisfactory) means meets the specification

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EUNZWE-00174502

31/03/2024



Food & Water Testing

AR-24-NW-019305-01

ANALYTICAL REPORT

REPORT DATE

Order code:

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Gabriela Carvalhaes Contact for your orders:

Landfill Contract:

(waterandwasteteam@horowhenua.govt.nz), McMillan

Purchase Order Number: Landfill

Copy to: Water and Waste Team

812-2024-00042721 SAMPLE CODE

342916-0 Sample Name **Product:** Ground water

Sampling Point code: WIL-HS3

21/03/2024 12:11 Reception Date & Time:

Analysis Started on: 21/03/2024

Product Type Ground water

Sampling Point name: Levin HS3

> **Analysis Ending Date:** 31/03/2024

Sampled Date & Time 19/03/2024 09:40

Sampler(s) Sampled by Eurofins Client nominated external sampler No

	RESULTS	(UNCERTAINTY)	LOQ
Ammonia Nitrogen	0.14	(+ 0 01) ma/l	0.04
		(± 0.0 1) mg/l	0.01
	us 1	ma/l	4
		mg/i	1
	<15	(± 5) mg/l	15
		(-7 3	13
	30.1	(+ 3 01) mg/l	0.02
		(± 0.0 1) mg/l	0.02
	<0.01	m a /l	0.04
•		•	0.01
•		_	0.01
·		•	0.2
. , , ,		•	0.01
·		•	0.01
			0.01
·		_	0.005
		•	0.01 0.02
		mg/i	0.02
Conductivity	27.7	(± 0.6) mS/m	0.1
Dissolved Aluminium			
Aluminium	0.018	mg/l	0.002
Dissolved Arsenic			
Arsenic (As)	0.003	mg/l	0.001
Dissolved Boron			
Boron (B)	0.09	mg/l	0.03
	Ammoniacal nitrogen (N) BOD5 - Soluble Carbonaceo BOD5 Chemical Oxygen Demand Chemical oxygen demand (COD) Chloride Chloride (CI) Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chlorophenol) 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol Phenol Total of 2,4,5 & 2,4,6 -Trichlorophenol Conductivity Conductivity Dissolved Aluminium Aluminium Dissolved Arsenic Arsenic (As) Dissolved Boron	Ammonia Nitrogen 0.14 BOD5 - Soluble Carbonaceous BOD5 BOD5 1 Chemical Oxygen Demand Chemical Oxygen demand (COD) Chloride 30.1 Chloride (Cl) 30.1 Chlorophenols 2,3,4,6-Tetrachlorophenol 2,3,4,6-Tetrachlorophenol <0.01	## Ammoniacal nitrogen (N)

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	I	FOUL & WATER TESTING		
		RESULTS	(UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium Cadmium (Cd)	<0.0002	mg/l	0.0000
NW105	Dissolved Calcium		mg/i	0.0002
	Calcium (Ca)	15.5	mg/l	0.1
NW106	Dissolved Chromium			
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper	0.0014		
MINAVAGO	Copper (Cu)	0.0014	mg/l	0.0005
NW109	Dissolved Iron Iron (Fe)	0.16	mg/l	0.01
NW110	Dissolved Lead		mg/i	0.01
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium			
	Magnesium (Mg)	8.41	mg/l	0.01
NW113	Dissolved Manganese	0.0464		
	Manganese (Mn)	0.0164	mg/l	0.0005
NW114	Dissolved Mercury	<0.0005	ma/l	0.0005
NW116	Mercury (Hg) Dissolved Nickel	3.0000	mg/l	0.0005
1444110	Nickel (Ni)	0.0008	mg/l	0.0005
NW117	Dissolved Potassium		Č	2.0000
	Potassium (K)	2.88	mg/l	0.01
NW193	Dissolved Reactive Phos	- 0.440		
	Phosphorus (soluble reactive) 0.149	mg/l	0.005
NW120	Dissolved Sodium	27.3		0.5:
NIMAGE	Sodium (Na)	21.0	mg/l	0.01
NW125	Dissolved Zinc Zinc (Zn)	0.007	mg/l	0.002
ZM2GA	Enumeration of Escheric	:hia coli Bv Men	•	0.002
	Escherichia coli	1400	cfu/100 ml	100
NW010	Nitrate-N			
	Nitrate-N	0.36	(± 0.04) mg/l	0.01
NW195	pH (Tested beyond 15 mi			
NN440 4 4	pH	7.4	(± 0.2)	0.1
NW011	Sulphate Sulphate	14.9	(± 1.49) mg/l	0.00
NW206	Suspended Solids		(= ····ə/···iə/·	0.02
	Suspended Solids	7	mg/l	3
NW003	Total Alkalinity		-	
	Alkalinity total	68	(± 7) mg	1
NW030	Total Hardness		CaCO3/I	
	Hardness	73	mg CaCO3/I	1
NW210	Total Non-Purgeable Org	anic Carbon	-	
	Total Organic Carbon	7.2	(± 0.7) mg/l	0.1
①NWWG6	Volatile Fatty Acids (VFA			
	Acetic acid	<5 <5	mg/l	5
	Butyric acid	-5	mg/l	5

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		RESULTS	(UNCERTAIN	TY) ı	LOQ			
①NWWG	6 Volatile Fatty Acids (VFA)							
	Heptanoic acid	<5	mg/l		5			
	Hexanoic acid	<5	mg/l		5			
	Isobutyric acid	<5	mg/l		5			
	Isocaproic acid	<5	mg/l		5			
	Isovaleric acid	<5	mg/l		5			
	Propionic acid	<5	mg/l		5			
	Valeric acid	<5 _	mg/l		5			
	Volatile fatty acids as acetic acid	<5	mg/l		5			
LIST OF METHODS								
NW003	Total Alkalinity: APHA Online Edition 2320 B			NW007	Chloride: APHA Online Edition 4110 B			
NW00U	Chlorophenols: Internal Method, LC-MS/MS			NW010	Nitrate-N: APHA Online Edition 4110 B			
NW011	Sulphate: APHA Online Edition 4110 B			NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D			
NW023	Conductivity: APHA 24th Edition 2510 B			NW030	Total Hardness: APHA Online Edition 2340 B			
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.			NW103	Dissolved Boron: APHA Online Edition 3125 B mod.			
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.			NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.			
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.			NW108	Dissolved Copper: APHA Online Edition 3125 B mod.			
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.			NW110	Dissolved Lead: APHA Online Edition 3125 B mod.			
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.			NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.			
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.			NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.			
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.			NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.			
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.			NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H			
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G			NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B			
NW206	Suspended Solids: APHA Online Edition 2540 D			NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B			
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210			NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.			

Signature

mbecabro

Marylou Cabral Laboratory Manager **Eurofins ELS Limited**

NWWG6 Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.

Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

ZM2GA Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

> Supervisor Eurofins ELS Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Ganesh Ilancko

Supervisor Eurofins ELS Limited

Phone

Arvinder Singh

Laboratory Supervisor Microbiology















Cody Forbes

Laboratory Analyst Laboratory Analyst

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N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

x (Unsatisfactory) means does not meet the specification

✓ (Satisfactory) means meets the specification

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28/02/2024



Food & Water Testing

AR-24-NW-011739-01

ANALYTICAL REPORT

REPORT DATE

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

Contact for your orders:

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Landfill **Contract:**

(waterandwasteteam@horowhenua.govt.nz), McMillan Gabriela Carvalhaes Order code:

> **Purchase Order Number:** Landfill

812-2024-00023445 SAMPLE CODE

Client Reference: 342912-0 **Product:** Ground water

Sampling Point code: WIL-LP

16/02/2024 13:15 **Reception Date & Time:**

Analysis Start Date & Time: 16/02/2024 13:23

Product Type Ground water

Sampling Point name:

Copy to: Water and Waste Team

Analysis Ending Date:

Sampled Date & Time

28/02/2024

No

12/02/2024 23:35

Levin Leachate Pond

EUNZWE-00167983

Sampler(s) Sampled by Eurofins Client nominated external sampler

		RESULTS	(UNCERTAINTY)	LOQ
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	1530	(± 150) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo	us 94	mg/l	1
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	3000	(± 150) mg/l	15
NW007	Chloride Chloride (Cl)	1280	(± 128) mg/l	0.02
NW023	Conductivity Conductivity	1.9	(± 0.05) mS/m	0.1
NW098	Dissolved Aluminium Aluminium	0.840	mg/l	0.002
NW583	Dissolved Arsenic Arsenic (As)	0.264	mg/l	0.001
NW103	Dissolved Boron Boron (B)	7.24	mg/l	0.03
NW104	Dissolved Cadmium Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium Calcium (Ca)	84.6	mg/l	0.1
NW106	Dissolved Chromium Chromium (Cr)	0.780	mg/l	0.001
NW108	Dissolved Copper Copper (Cu)	0.0096	mg/l	0.0005
NW109	Dissolved Iron Iron (Fe)	8.12	mg/l	0.01

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 **NEW ZEALAND**

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		ood & v	vater lestir	19	
		RESULTS	(UNCERTAINTY)	LOQ	
NW110	Dissolved Lead Lead (Pb)	0.0016	mg/l	0.0005	
NW112	Dissolved Magnesium Magnesium (Mg)	59.8	mg/l	0.01	
NW113	Dissolved Manganese Manganese (Mn)	1.04	mg/l	0.0005	
NW114	Dissolved Mercury Mercury (Hg)	<0.0005	mg/l	0.0005	
NW116	Dissolved Nickel Nickel (Ni)	0.119	mg/l	0.0005	
NW117	Dissolved Potassium Potassium (K)	714	mg/l	0.01	
NW193	Dissolved Reactive Phosph Phosphorus (soluble reactive)	15.2	(± 1.52) mg/l	0.005	
NW120	Dissolved Sodium Sodium (Na)	1120	mg/l	0.01	
NW125	Dissolved Zinc Zinc (Zn)	0.053	mg/l	0.002	
ZM2GA	Enumeration of Escherichia Escherichia coli	a coli By Memi <100	brane Filtration cfu/100 ml	100	
NW010	Nitrate-N Nitrate-N	<1	mg/l	0.01	
NW195	pH (Tested beyond 15 minu	te APHA holdi 7.8	ing time) (± 0.2)	0.1	
NW011	Sulphate Sulphate	27.2	(± 2.72) mg/l	0.02	
NW206	Suspended Solids Suspended Solids	89	mg/l	3	
NW003	Total Alkalinity Alkalinity total	7000	(± 700) mg CaCO3/I	1	
NW030	Total Hardness Hardness	458	mg CaCO3/I	1	
NW210	Total Non-Purgeable Organ Total Organic Carbon	ic Carbon 882	(± 88.2) mg/l	0.1	
NWWG	Volatile Fatty Acids (VFA)	_			
	Acetic acid	<5 .5	mg/l	5	
	Butyric acid	<5 -5	mg/l	5	
	Heptanoic acid	<5	mg/l	5	
	Hexanoic acid	<5	mg/l	5	
	Isobutyric acid	<5 <5	mg/l	5	
	Isocaproic acid	<5	mg/l	5	
	Isovaleric acid	<5 -5	mg/l	5	
	Propionic acid	<5 -5	mg/l	5	
	Valeric acid	<5	m a /I	E	
	valenc acid	<5	mg/l	5	

LIST OF METHODS





NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW010	Nitrate-N: APHA Online Edition 4110 B	NW011	Sulphate: APHA Online Edition 4110 B
NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D	NW023	Conductivity: APHA 24th Edition 2510 B
NW030	Total Hardness: APHA Online Edition 2340 B	NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.
NW103	Dissolved Boron: APHA Online Edition 3125 B mod.	NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.
NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.	NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.
NW108	Dissolved Copper: APHA Online Edition 3125 B mod.	NW109	Dissolved Iron: APHA Online Edition 3125 B mod.
NW110	Dissolved Lead: APHA Online Edition 3125 B mod.	NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.
NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.	NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.
NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.	NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.
NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.	NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.
NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H	NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G
NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B	NW206	Suspended Solids: APHA Online Edition 2540 D
NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B	NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210
NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.	NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.
ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition		

Signature

Marylou Cabral

mbecabre

Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

Supervisor Eurofins ELS Limited

Gordon McArthur Senior Laboratory Analyst Eurofins ELS Limited

Ganesh Ilancko

Supervisor Eurofins ELS Limited

Leo Cleave

Senior Analyst Microbiology

Cody Forbes

Laboratory Analyst Laboratory Analyst

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- Test result is provided by the customer and is not accredited
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- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

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The tests are identified by a five-digit code, their description is available on request.

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END OF REPORT





EUNZWE-00174502

30/03/2024



Food & Water Testing

AR-24-NW-019196-01

ANALYTICAL REPORT

REPORT DATE

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

SAMPLE CODE

Gabriela Carvalhaes

Landfill

(waterandwasteteam@horowhenua.govt.nz), McMillan Order code:

> **Purchase Order Number:** Landfill

812-2024-00042716

Sample Name 342920-0 **Product:** Ground water

Sampling Point code: WIL-LP

NW179 Ammonia Nitrogen

21/03/2024 12:09 Reception Date & Time:

Analysis Started on: 21/03/2024

Product Type Ground water

Sampler(s) Client nominated external sampler

Copy to: Water and Waste Team

Sampling Point name: Levin Leachate Pond

Analysis Ending Date:

Sampled Date & Time 18/03/2024 22:30

28/03/2024

Sampled by Eurofins No

RESULTS	(UNCERTAINTY)	LOQ
---------	---------------	-----

	Ammoniacal nitrogen (N)	1410	(± 141) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo BOD5	us 109	mg/l	1
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	3910	(± 200) mg/l	15
NW007	Chloride Chloride (CI)	1120	(± 112) mg/l	0.02
NW023	Conductivity Conductivity	1860	(± 40.0) mS/m	0.1
NW098	Dissolved Aluminium Aluminium	0.816	mg/l	0.002
NW583	Dissolved Arsenic Arsenic (As)	0.283	mg/l	0.001
NW103	Dissolved Boron Boron (B)	7.57	mg/l	0.03
NW104	Dissolved Cadmium Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium Calcium (Ca)	86.2	mg/l	0.1
NW106	Dissolved Chromium Chromium (Cr)	0.905	mg/l	0.001
NW108	Dissolved Copper Copper (Cu)	0.0082	mg/l	0.0005
NW109	Dissolved Iron Iron (Fe)	7.98	mg/l	0.01

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			vater lestir	19	
		RESULTS	(UNCERTAINTY)	LOQ	
NW110	Dissolved Lead Lead (Pb)	0.0022	mg/l	0.0005	
NW112	Dissolved Magnesium Magnesium (Mg)	57.2	mg/l	0.01	
NW113	Dissolved Manganese Manganese (Mn)	1.22	mg/l	0.0005	
NW114	Dissolved Mercury Mercury (Hg)	<0.0005	mg/l	0.0005	
NW116	Dissolved Nickel Nickel (Ni)	0.128	mg/l	0.0005	
NW117	Dissolved Potassium Potassium (K)	622	mg/l	0.01	
NW193	Dissolved Reactive Phosph Phosphorus (soluble reactive)	13.3	mg/l	0.005	
NW120	Dissolved Sodium Sodium (Na)	958	mg/l	0.01	
NW125	Dissolved Zinc Zinc (Zn)	0.079	mg/l	0.002	
	Enumeration of Escherichia Escherichia coli	a coli By Meml	brane Filtration cfu/100 ml	100	
NW010	Nitrate-N Nitrate-N	<0.1	mg/l	0.01	
NW195	pH (Tested beyond 15 minu pH	rte APHA holdi 7.9	ing time) (± 0.2)	0.1	
NW011	Sulphate Sulphate	81.8	(± 8.18) mg/l	0.02	
NW206	Suspended Solids Suspended Solids	91	mg/l	3	
NW003	Total Alkalinity Alkalinity total	6830	(± 680) mg CaCO3/I	1	
NW030	Total Hardness Hardness	451	mg CaCO3/I	1	
NW210	Total Non-Purgeable Organ Total Organic Carbon	ic Carbon 828	(± 82.8) mg/l	0.1	
DNWWG6	Volatile Fatty Acids (VFA)				
	Acetic acid	<5	mg/l	5	
	Butyric acid	0.0	0,1 ml/l	5	
	Heptanoic acid	<5	mg/l	5	
	Hexanoic acid	<5	mg/l	5	
	Isobutyric acid	<5 45	mg/l	5	
	Isocaproic acid	<5 <5	mg/l	5	
	Isovaleric acid	<5 <5	mg/l	5	
	Propionic acid	<5 <5	mg/l	5	
	Valeric acid	<5	mg/l	5	
	Volatile fatty acids as acetic acid	<5	mg/l	-	

LIST OF METHODS





NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW010	Nitrate-N: APHA Online Edition 4110 B	NW011	Sulphate: APHA Online Edition 4110 B
NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D	NW023	Conductivity: APHA 24th Edition 2510 B
NW030	Total Hardness: APHA Online Edition 2340 B	NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.
NW103	Dissolved Boron: APHA Online Edition 3125 B mod.	NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.
NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.	NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.
NW108	Dissolved Copper: APHA Online Edition 3125 B mod.	NW109	Dissolved Iron: APHA Online Edition 3125 B mod.
NW110	Dissolved Lead: APHA Online Edition 3125 B mod.	NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.
NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.	NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.
NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.	NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.
NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.	NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.
NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H	NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G
NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B	NW206	Suspended Solids: APHA Online Edition 2540 D
NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B	NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210
NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.	NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.
ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition		

Signature

Marylou Cabral

Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS

Divina Cunanan Lagazon

Supervisor Eurofins ELS Limited

mbecaloro

Sunita Raju

Business Unit Manager

Gabriela Carvalhaes Manager Food and Water **Testing Chemistry**

Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE

- Test is not accredited
- ②Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- Test is subcontracted outside Eurofins group and is accredited
- S Test is subcontracted outside Eurofins group and is not accredited
- **©** Test result is provided by the customer and is not accredited Tested at the sampling point by Eurofins and is not accredited
- ® Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

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LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

🗴 (Unsatisfactory) means does not meet the specification

√ (Satisfactory) means meets the specification





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END OF REPORT

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NEW ZEALAND

EUNZWE-00178002

Levin Leachate Pond

20/04/2024

24/04/2024



Food & Water Testing

AR-24-NW-024895-01

Gabriela Carvalhaes

ANALYTICAL REPORT

REPORT DATE

Copy to: Water and Waste Team

Sampling Point name:

Analysis Ending Date:

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

Contact for your orders:

REPORT CODE

(waterandwasteteam@horowhenua.govt.nz), McMillan **Email** horowhenuaadmin@downer.co.nz

Landfill

Contract:

Purchase Order Number: Landfill

Order code:

812-2024-00053651 SAMPLE CODE

Sample Name 349881-0 **Product:** Ground water

Sampling Point code: WIL-LP

11/04/2024 13:30 **Reception Date & Time:**

Analysis Started on: 11/04/2024

Product Type Sampled Date & Time 11/04/2024 08:15 Ground water

Sampler(s) Sampled by Eurofins Client nominated external sampler No

		RESULTS	(UNCERTAINTY)	LOQ
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	1520	(± 152) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo	us 119	mg/l	1
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	362	(± 37) mg/l	15
NW007	Chloride Chloride (CI)	1180	(± 118) mg/l	0.02
NW023	Conductivity Conductivity	1900	(± 40.0) mS/m	0.1
NW098	Dissolved Aluminium Aluminium	1.08	mg/l	0.002
NW583	Dissolved Arsenic Arsenic (As)	0.246	mg/l	0.001
NW103	Dissolved Boron Boron (B)	7.74	mg/l	0.03
NW104	Dissolved Cadmium Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium Calcium (Ca)	92.9	mg/l	0.1
NW106	Dissolved Chromium Chromium (Cr)	0.799	mg/l	0.001
NW108	Dissolved Copper Copper (Cu)	0.0078	mg/l	0.0005
NW109	Dissolved Iron Iron (Fe)	7.52	mg/l	0.01

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RESULTS (UNCERTAINTY) LOQ						
NINAGAAA						
NW110	Dissolved Lead Lead (Pb)	0.0024	mg/l	0.0005		
NW112	Dissolved Magnesium Magnesium (Mg)	57.9	mg/l	0.01		
NW113	Dissolved Manganese Manganese (Mn)	1.20	mg/l	0.0005		
NW114	Dissolved Mercury Mercury (Hg)	<0.0005	mg/l	0.0005		
NW116	Dissolved Nickel Nickel (Ni)	0.130	mg/l	0.0005		
NW117		747	mg/l	0.01		
NW193	, ,	horus 14.2	mg/l	0.005		
NW120			1119/1	0.003		
	Sodium (Na)	1090	mg/l	0.01		
NW125	Dissolved Zinc					
	Zinc (Zn)	0.100	mg/l	0.002		
ZM2GA	Enumeration of Escherich		mbrane Filtration			
	Escherichia coli	<100	cfu/100 ml	100		
NW010	Nitrate-N	.4				
	Nitrate-N	<1	mg/l	0.01		
NW195						
	pH	7.6	(± 0.2)	0.1		
NW011	Sulphate	40.7	/ / 0 =` "			
	Sulphate	43.7	(± 4.37) mg/l	0.02		
NW206	Suspended Solids	1 Q				
	Suspended Solids	48	mg/l	3		
NW228	,	<0.0001				
	Acenaphthene	<0.0001	mg/l	0.0001		
	Acenaphthylene	<0.001	mg/l	0.001		
	Adipatic acid, bis-2-ethylhexyl ester (DEHA)	3.0001	mg/l	0.0001		
	Alachlor	<0.0001	mg/l	0.0001		
	Aldicarb	<0.1	mg/l	0.1		
	Aldrin	<0.001	mg/l	0.001		
	Anthracene	<0.001	mg/l	0.001		
	Atrazine	<0.0001	mg/l	0.0001		
	Benz(a)anthracene	<0.0001	mg/l	0.0001		
	Benzo(a)pyrene	<0.0001	mg/l	0.0001		
	Benzo(g,h,i)perylene	<0.001	mg/l	0.0001		
	Bromacil	<0.005	mg/l	0.005		
	Carbofuran	0.006	mg/l	0.003		
	Chlordane	<0.0001	mg/l	0.001		
	Chlordane, gamma	<0.001	mg/l	0.0001		
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.001		
	Chrysene	<0.0001	mg/l			
	Cyanazine	<0.005	_	0.0001		
	Gyanazine		mg/l	0.005		

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		RESULTS (UNCERTAINTY)	LOQ		
NW228	SVOC (GC-MSMS)					
	d-BHC	<0.0001	mg/l	0.0001		
	DDD, p,p'-	<0.0001	mg/l	0.0001		
	DDE, p,p-	<0.0001	mg/l	0.0001		
	DDT, p,p'-	NotRecovered	mg/l	0.001		
	Diazinon	<0.0001	mg/l	0.0001		
	Dibenz(a,h)anthracene	<0.0001	mg/l	0.0001		
	Dieldrin	<0.0001	mg/l	0.0001		
	Dimethoate	<0.001	mg/l	0.001		
	Diuron	<0.001	mg/l	0.001		
	Endosulfan, alpha-	<0.001	mg/l	0.001		
	Endosulfan, beta-	<0.005	mg/l	0.005		
	Endosulfan-sulfate	<0.0001	mg/l	0.0001		
	Endrin	<0.0001	mg/l	0.0001		
	Endrin ketone	NotRecovered	mg/l	0.0001		
	Endrin-aldehyde	<0.001	mg/l	0.01		
	Fluoranthene	<0.0001	mg/l	0.0001		
	Fluorene	<0.0001	mg/l	0.0001		
	HCH, alpha-	<0.0001	mg/l	0.0001		
	HCH, beta-	<0.0001	mg/l	0.0001		
	Heptachlor	<0.0001	mg/l	0.0001		
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001		
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001		
	Hexazinone	<0.001	mg/l	0.001		
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001		
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001		
	Metalaxyl and metalaxyl-M (metalaxyl including other	<0.001	mg/l	0.001		
	mixtures of constituent isomers including metalaxyl-M (sum of					
	isomers))	<0.0001		0.0004		
	Methoxychlor	<0.0001	mg/l	0.0001		
	Metolachlor	<0.0001	mg/l	0.0001		
	Metribuzin	<0.0001	mg/l	0.0001		
	Molinate	0.0052	mg/l	0.0001		
	Naphthalene	<0.0001	mg/l	0.0001		
	Oxadiazon	<0.0001	mg/l	0.0001		
	PCB 101	<0.001	mg/l	0.0001		
	PCB 138	<0.001	mg/l	0.001		
	PCB 183	<0.0001	mg/l	0.0001		
	PCB 28	<0.0001	mg/l	0.0001		
	PCB 7	<0.0001	mg/l	0.0001		
	Pendimethalin	<0.002	mg/l	0.002		
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001		
	Phenanthrene	<0.0001	mg/l	0.0001		
	Pirimiphos-methyl		mg/l	0.0001		
	Procymidone	<0.0001	mg/l	0.0001		
	Propanil	<0.001	mg/l	0.001		
	Propazine	<0.0001 <0.0001	mg/l	0.0001		
	Pyrene		mg/l	0.0001		

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







		DECLUIT			
		KESULTS	(UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)	.0.000:			
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k) fluoranthene	<0.001	mg/l	0.001	
	Trifluralin	<0.0001	mg/l	0.0001	
NW003	Total Alkalinity				
	Alkalinity total	7680	(± 770) mg CaCO3/I	1	
NW030	Total Hardness				
	Hardness	471	mg CaCO3/I	1	
NW210	Total Non-Purgeable Organ	nic Carbon			
	Total Organic Carbon	823	(± 82.3) mg/l	0.1	
NW229	VOC (GC-MS)				
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	0.0014	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
	3-chloropropene	<0.0010	mg/l	0.0005	
	4-Chlorotoluene	<0.0005	mg/l	0.0005	
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005	
	Benzene	0.0033	mg/l	0.0005	
	Bromobenzene	<0.0005	mg/l	0.0005	
	Bromochloromethane	<0.0012	mg/l	0.0012	
	Bromodichloromethane	<0.0005	mg/l	0.0005	
	Bromoform	<0.0005	mg/l	0.0005	
	Bromomethane (zone 2)	<0.001	mg/l	0.0003	
	Carbon tetrachloride	<0.0005	mg/l	0.0005	
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005	
	Chlorobenzene	0.0009			
	CHIOLODELIZELIE		mg/l	0.0005	

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			(UNCERTAINTY)	LOQ			
NW229	VOC (GC-MS)						
	Chloroethane	<0.001	mg/l	0.001			
	Chloroform	<0.0005	mg/l	0.0005			
	Chloromethane	<0.006	mg/l	0.006			
	cis-1,2-Dichloroethene	0.0006	mg/l	0.0005			
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005			
	Dibromochloromethane	<0.0005	mg/l	0.0005			
	Dibromomethane	<0.0005	mg/l	0.0005			
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001			
	Dichloromethane	0.646	mg/l	0.005			
	Hexachlorobutadiene	<0.0002	mg/l	0.0002			
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005			
	m,p-Xylene, Ethylbenzene	0.03	mg/l	0.0015			
	Naphthalene	NotRecovered	mg/l	0.0005			
	n-Butylbenzene	<0.0005	mg/l	0.0005			
	n-Propylbenzene	<0.0005	mg/l	0.0005			
	p-Isopropyltoluene	<0.0005	mg/l	0.0005			
	sec-Butylbenzene	<0.0005	mg/l	0.0005			
	Styrene	<0.0005	mg/l	0.0005			
	tert-Butylbenzene	<0.0005	mg/l	0.0005			
	Tetrachloroethene	<0.0005	mg/l	0.0005			
	Toluene	0.0047	mg/l	0.0005			
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005			
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005			
	Trichloroethene	<0.0005	mg/l	0.0005			
	Trichlorofluoromethane	<0.0005	mg/l	0.0005			
	Vinyl chloride	<0.0003	mg/l	0.0003			
	Xylene (ortho-)	0.0107	mg/l	0.0005			
①NWWG6	Volatile Fatty Acids (VFA)						
	Acetic acid	<5	mg/l	5			
	Butyric acid	<5	mg/l	5			
	Heptanoic acid	<5	mg/l	5			
	Hexanoic acid	<5	mg/l	5			
	Isobutyric acid	<5	mg/l	5			
	Isocaproic acid	<5	mg/l	5			
	Isovaleric acid	<5	mg/l	5			
	Propionic acid	<5	mg/l	5			
	Valeric acid	<5	mg/l	5			
	Volatile fatty acids as acetic acid	<5	mg/l	5			
LIST OF	METHODS						
NW003	NW003 Total Alkalinity: APHA Online Edition 2320 B NW007 Chloride: APHA Online Edition 4110 B						

NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW010	Nitrate-N: APHA Online Edition 4110 B	NW011	Sulphate: APHA Online Edition 4110 B
NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D	NW023	Conductivity: APHA 24th Edition 2510 B
NW030	Total Hardness: APHA Online Edition 2340 B	NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.
NW103	Dissolved Boron: APHA Online Edition 3125 B mod.	NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.
NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.	NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.
NW108	Dissolved Copper: APHA Online Edition 3125 B mod.	NW109	Dissolved Iron: APHA Online Edition 3125 B mod.

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NW110	Dissolved Lead: APHA Online Edition 3125 B mod.	NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.
NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.	NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.
NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.	NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.
NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.	NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.
NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H	NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G
NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B	NW206	Suspended Solids: APHA Online Edition 2540 D
NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B	NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS
NW229	VOC (GC-MS): Internal Method, HS-GC-MS	NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210
NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.	NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.
ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition		

Signature

Marylou Cabral

phecabro

Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

Supervisor Eurofins ELS

Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Ganesh Ilancko

Supervisor Eurofins ELS Limited

Leo Cleave

Senior Analyst Microbiology

Gabriela Carvalhaes Manager Food and Water **Testing Chemistry**

Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE

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- Test is subcontracted outside Eurofins group and is not accredited
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- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- x (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification





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NEW ZEALAND



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NEW ZEALAND

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AR-24-NW-023575-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

Gabriela Carvalhaes

0.001

0.35

mg/l

mg/l

Landfill

Order code:

Copy to: Water and Waste Team

REPORT DATE

Purchase Order Number: Landfill

(waterandwasteteam@horowhenua.govt.nz), McMillan

19/04/2024

812-2024-00053642 SAMPLE CODE

349855-0 Sample Name **Product:** Ground water

Sampling Point code: WIL-TD1

11/04/2024 13:30 **Reception Date & Time:**

Analysis Started on: 11/04/2024

Product Type Ground water Sampling Point name:

Analysis Ending Date:

Sampled Date & Time

19/04/2024 11/04/2024 08:00

Levin TD1

EUNZWE-00178002

Sampler(s)		Client nominated external sampler Sampler RESULTS (UNCERTAINTY)		Sampled by Eurofins	No	
					140	
		RESUL	13 (UNCERTAINT	I) LOQ		
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	11.9	(± 1.19) mg/l	0.01		
NW341	BOD5 - Soluble Carbo	onaceous <1	mg/l	4		
NIMA			1119/1	1		
NW020	Chemical Oxygen De Chemical oxygen deman		(± 7) mg/l	15		
NW007	Chloride Chloride (CI)	87.2	(± 8.72) mg/l	0.02		
NW00U	Chlorophenols					
	2,3,4,6-Tetrachloropheno	<0.01	mg/l	0.01		
	2,4-Dichlorophenol	<0.01	mg/l	0.01		
	2,6-Dichlorophenol	<0.02	mg/l	0.2		
	2-Chlorophenol (o-chloro	phenol) <0.01	mg/l	0.01		
	3,4,5-Trichlorophenol	<0.01	mg/l	0.01		
	4-Chloro-3-cresol	<0.01	mg/l	0.01		
	Pentachlorophenol	<0.005	mg/l	0.005		
	Phenol	<0.01	mg/l	0.01		
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02		
NW023	Conductivity					
	Conductivity	82.5	(± 1.7) mS/m	0.1		
NW098	Dissolved Aluminium	0.009				
	Aluminium	0.009	mg/l	0.002		

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NW583 Dissolved Arsenic

NW103 Dissolved Boron

Boron (B)

Arsenic (As)

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0.001

0.03







PERMITS (INCEPTAINTY) 100				
		RESULTS	(UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium	<0.0002		
NIM/405	Cadmium (Cd)	~ 0.000∠	mg/l	0.0002
NW105	Dissolved Calcium Calcium (Ca)	51.1	mg/l	0.4
NW106			mg/i	0.1
1444 100	Dissolved Chromium Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper		··· · 9/·	0.001
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	Dissolved Iron		-	
	Iron (Fe)	0.38	mg/l	0.01
NW110	Dissolved Lead		-	
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium			
	Magnesium (Mg)	25.2	mg/l	0.01
NW113	Dissolved Manganese			
	Manganese (Mn)	0.411	mg/l	0.0005
NW114	Dissolved Mercury			
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel			
	Nickel (Ni)	0.0017	mg/l	0.0005
NW117	Dissolved Potassium	00.5		
	Potassium (K)	22.5	mg/l	0.01
NW193	Dissolved Reactive Phos			
	Phosphorus (soluble reactive	0.026	mg/l	0.005
NW120	Dissolved Sodium	59.7		
	Sodium (Na)	58.7	mg/l	0.01
NW125	Dissolved Zinc	0.005		
	Zinc (Zn)		mg/l	0.002
ZM2GA	Enumeration of Escheric	chia coli By Men 200		40-
AD4/6 / 6	Escherichia coli	200	cfu/100 ml	100
NW010	Nitrate-N	0.31	(± 0.03) mg/l	0.04
NIMAGE	Nitrate-N			0.01
NW195	pH (Tested beyond 15 mi	inute APHA hold 7.3	(± 0.2)	0.4
NIMO44		-	()	0.1
NW011	Sulphate Sulphate	1.66	(± 0.17) mg/l	0.02
NW206	Suspended Solids		() / ə	0.02
1444700	Suspended Solids Suspended Solids	173	mg/l	3
NWnn3	Total Alkalinity		⊎,'	J
	Alkalinity total	273	(± 27) mg	1
			CaCO3/I	ı
NW030	Total Hardness	004		
	Hardness	231	mg CaCO3/I	1
NW210	Total Non-Purgeable Org		(· 0.0\ "	
	Total Organic Carbon	22.8	(± 2.3) mg/l	0.1
①NWWG6	Volatile Fatty Acids (VFA	.) <5		
	Acetic acid	<5 <5	mg/l	5
	Butyric acid		mg/l	5

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		oou & water	resum	9
		RESULTS (UNCER	RTAINTY)	LOQ
①NWWG	6 Volatile Fatty Acids (VFA)			
	Heptanoic acid	<5 mg/l		5
	Hexanoic acid	<5 mg/l		5
	Isobutyric acid	<5 mg/l		5
	Isocaproic acid	<5 mg/l		5
	Isovaleric acid	<5 mg/l		5
	Propionic acid	<5 mg/l		5
	Valeric acid	<5 mg/l		5
	Volatile fatty acids as acetic acid	<5 mg/l		5
LIST O	F METHODS			
NW003	Total Alkalinity: APHA Online Edi	ition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method,	LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4		NW020	
NW023	•		NW030	,,
NW098	Dissolved Aluminium: APHA On		NW103	
NW104	Dissolved Cadmium: APHA Onlin	ne Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Onl	line Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edi	tion 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Or	nline Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online	e Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA On	line Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Ed	ition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus 4500-P G	:: APHA Online Edition	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online	Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW341	BOD5 - Soluble Carbonaceous:	APHA Online Edition 5210	0 NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.

Signature

mbecabro

Marylou Cabral Laboratory Manager **Eurofins ELS Limited**

NWWG6 Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.

Jennifer Mont

Supervisor Eurofins ELS Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Maria Norris

Laboratory Manager, Microbiology

Phone

Divina Cunanan Lagazon

ZM2GA Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Supervisor Eurofins ELS

Ganesh Ilancko

Supervisor Eurofins ELS Limited





Eurofins ELS Limited 85 Port Road

Seaview Lower Hutt Wellington 5010 **NEW ZEALAND**









Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE

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N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- **x** (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

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END OF REPORT





28/02/2024



Food & Water Testing

AR-24-NW-011738-01

ANALYTICAL REPORT

REPORT DATE

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

(waterandwasteteam@horowhenua.govt.nz), McMillan **Email** horowhenuaadmin@downer.co.nz

EUNZWE-00167983 Contact for your orders: Gabriela Carvalhaes Order code:

Contract: Purchase Order Number: Landfill

812-2024-00023441 SAMPLE CODE

342913-0 **Client Reference: Product:** Ground water

Sampling Point code: WIL-TD1

16/02/2024 13:10 Reception Date & Time: Analysis Start Date & Time: 16/02/2024 13:23

Product Type

Landfill

Ground water

Sampling Point name:

Copy to: Water and Waste Team

Analysis Ending Date:

Sampled Date & Time

12/02/2024 23:10

Levin TD1

28/02/2024

Sampler(s) Sampled by Eurofins Client nominated external sampler No

		RESULTS	(UNCERTAINTY)	LOQ
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	15.4	(± 1.54) mg/l	0.04
NIVA/O 44	- , ,		(± 1.0 t) mg/t	0.01
NW341	BOD5 - Soluble Carbonaceo BOD5	us 2	ma/l	4
NIMOOO			mg/l	1
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	196	(± 20) mg/l	15
NW007	Chloride			
	Chloride (CI)	81.5	(± 8.15) mg/l	0.02
NW00U	Chlorophenols			
	2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01
	2,4-Dichlorophenol	<0.01	mg/l	0.01
	2,6-Dichlorophenol	<0.02	mg/l	0.2
	2-Chlorophenol (o-chlorophenol)	<0.01	mg/l	0.01
	3,4,5-Trichlorophenol	<0.01	mg/l	0.01
	4-Chloro-3-cresol	<0.01	mg/l	0.01
	Pentachlorophenol	<0.005	mg/l	0.005
	Phenol	<0.01	mg/l	0.01
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02
NW023	Conductivity			
	Conductivity	92.8	(± 1.9) mS/m	0.1
NW098	Dissolved Aluminium			
	Aluminium	0.004	mg/l	0.002
NW583	Dissolved Arsenic			
	Arsenic (As)	<0.001	mg/l	0.001
NW103	Dissolved Boron			
	Boron (B)	0.33	mg/l	0.03

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 **NEW ZEALAND**

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FOOD & Water Testing				
		RESULTS	(UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium	<0.0002	(I	
NIM/40E	Cadmium (Cd)	-0.000Z	mg/l	0.0002
GOLAAN.	Dissolved Calcium Calcium (Ca)	39.1	mg/l	0.1
NW106	Dissolved Chromium		3 ·	V. I
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	Dissolved Iron	0.07		
	Iron (Fe)	0.07	mg/l	0.01
NW110	Dissolved Lead	<0.0005	ma/l	0.000=
NIMAAA	Lead (Pb)	3.0000	mg/l	0.0005
NW112	Dissolved Magnesium Magnesium (Mg)	20.7	mg/l	0.01
NW113	Dissolved Manganese		1119/1	0.01
1444113	Manganese (Mn)	0.0126	mg/l	0.0005
NW114	Dissolved Mercury		J	0.0000
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel			
	Nickel (Ni)	0.0014	mg/l	0.0005
NW117	Dissolved Potassium	00.4		
	Potassium (K)	26.4	mg/l	0.01
NW193	Dissolved Reactive Phos		(1.0.004)	
A III A II A	Phosphorus (soluble reactive) 0.019	(± 0.004) mg/l	0.005
NW120	Dissolved Sodium	48.2	ma/l	0.04
NW125	Sodium (Na)		mg/l	0.01
INVV IZO	Dissolved Zinc Zinc (Zn)	<0.002	mg/l	0.002
ZM2GA	Enumeration of Escheric	chia coli Bv Men	•	0.002
	Escherichia coli	<100	cfu/100 ml	100
NW010	Nitrate-N			
	Nitrate-N	0.82	(± 0.08) mg/l	0.01
NW195	pH (Tested beyond 15 mi		-	
	pH	7.4	(± 0.2)	0.1
NW011	Sulphate	1 20	(1.0.40) #	
.	Sulphate	1.29	(± 0.13) mg/l	0.02
NW206	Suspended Solids	594	ma/l	2
NIMAGOS	Suspended Solids	557	mg/l	3
1444002	Total Alkalinity Alkalinity total	345	(± 35) mg	1
	, maining total		CaCO3/I	I
NW030	Total Hardness	100		
	Hardness	183	mg CaCO3/I	1
NW210	Total Non-Purgeable Org	anic Carbon 32.1	(+ 3 2) ma/l	
@ NIVATIALOO	Total Organic Carbon		(± 3.2) mg/l	0.1
WMMMG6	Volatile Fatty Acids (VFA Acetic acid	A) <5	mg/l	E
	Butyric acid	<5	mg/l	5 5
	Butyno dola		mg/i	J

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







	1 Tood & Water Testing							
		RESULTS	(UNCERTAIN	ITY) I	LOQ			
①NWWG	6 Volatile Fatty Acids (VFA)							
	Heptanoic acid	<5	mg/l		5			
	Hexanoic acid	<5	mg/l		5			
	Isobutyric acid	<5	mg/l		5			
	Isocaproic acid	<5 -	mg/l		5			
	Isovaleric acid	<5	mg/l		5			
	Propionic acid	<5 	mg/l		5			
	Valeric acid	<5 -5	mg/l		5			
	Volatile fatty acids as acetic acid	<5	mg/l		5			
LIST O	F METHODS							
NW003	Total Alkalinity: APHA Online Ed	ition 2320 B		NW007	Chloride: APHA Online Edition 4110 B			
NW00U	Chlorophenols: Internal Method,	LC-MS/MS		NW010	Nitrate-N: APHA Online Edition 4110 B			
NW011	Sulphate: APHA Online Edition 4	110 B		NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D			
NW023	Conductivity: APHA 24th Edition	2510 B		NW030	Total Hardness: APHA Online Edition 2340 B			
NW098	Dissolved Aluminium: APHA Or	line Edition 312	5 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.			
NW104	Dissolved Cadmium: APHA Onli	ne Edition 3125	B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.			
NW106	Dissolved Chromium: APHA On	line Edition 312	5 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.			
NW109	Dissolved Iron: APHA Online Ed	tion 3125 B mod	d.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.			
NW112	Dissolved Magnesium: APHA O	nline Edition 312	25 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.			
NW114	Dissolved Mercury: APHA Online	e Edition 3125 E	3 mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.			
NW117	Dissolved Potassium: APHA On	line Edition 312	5 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.			
NW125	Dissolved Zinc: APHA Online Ed	ition 3125 B mo	d.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H			
NW193	Dissolved Reactive Phosphorus 4500-P G	: APHA Online	Edition	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B			
NW206	Suspended Solids: APHA Online	Edition 2540 D	•	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B			
NW341	BOD5 - Soluble Carbonaceous:	APHA Online E	dition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.			

Signature

mbecabro

Marylou Cabral Laboratory Manager **Eurofins ELS Limited**

NWWG6 Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.

Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

ZM2GA Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Supervisor Eurofins ELS

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Ganesh Ilancko

Supervisor Eurofins ELS Limited

Leo Cleave

Senior Analyst Microbiology



Phone www.eurofins.co.nz









Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE

- Test is not accredited
- 2 Test is subcontracted within Eurofins group and is accredited
- Test is subcontracted within Eurofins group and is not accredited
- Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- x (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

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Accreditation does not apply to comments or graphical representations.

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All samples become the property of Eurofins to the extent necessary for the performance of the Services.

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If the Customer pays for storage of the samples Eurofins will take commercially reasonable steps to store the samples for the agreed period in terms of industry practice. The Eurofins water sampling service follows methodology based on AS/NZS 5667 and / or best practice to collect and transport samples that are fit for the purpose of analytical testing. The laboratory is not responsible for sampling activities unless explicitly indicated by the statement "Sampled by Eurofins" on the report for water samples. The Customer acknowledges that the Services are provided using the current state of technology and methods developed and generally applied by Eurofins and involve analysis, interpretations, consulting work and conclusions. Eurofins shall use commercially reasonable degree of care in providing the Services.

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END OF REPORT





31/03/2024



Food & Water Testing

AR-24-NW-019304-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

Sampler(s)

Gabriela Carvalhaes

Landfill

Copy to: Water and Waste Team

REPORT DATE

Order code:

(waterandwasteteam@horowhenua.govt.nz), McMillan EUNZWE-00174502

Purchase Order Number: Landfill

812-2024-00042719 SAMPLE CODE

342918-0 Sample Name **Product:** Ground water

Sampling Point code: WIL-TD1

21/03/2024 12:10 Reception Date & Time:

Analysis Started on: 21/03/2024

Product Type

Ground water

Sampling Point name: Levin TD1

Analysis Ending Date: Sampled Date & Time

18/03/2024 22:10

31/03/2024

Sampled by Eurofins Client nominated external sampler No

		RESULTS	(UNCERTAINTY)	LOQ
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	24.9	(± 2.49) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo	o us <3	mg/l	1
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	255	(± 26) mg/l	15
NW007	Chloride Chloride (CI)	96.2	(± 9.62) mg/l	0.02
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol	<0.01 <0.01	mg/l	0.01
	2,6-Dichlorophenol 2-Chlorophenol (o-chlorophenol)	<0.02 <0.01	mg/l mg/l mg/l	0.01 0.2 0.01
	3,4,5-Trichlorophenol 4-Chloro-3-cresol	<0.01 <0.01	mg/l mg/l	0.01 0.01 0.01
	Pentachlorophenol Phenol	<0.005 <0.01	mg/l mg/l	0.005 0.01
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02
NW023	Conductivity Conductivity	136	(± 2.7) mS/m	0.1
NW098	Dissolved Aluminium Aluminium	0.008	mg/l	0.002
NW583	Dissolved Arsenic Arsenic (As)	0.001	mg/l	0.001
NW103	Dissolved Boron Boron (B)	0.52	mg/l	0.03

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	<u> </u>		vater resti	
		RESULTS	(UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium		9,1	0.0002
	Calcium (Ca)	72.8	mg/l	0.1
NW106	Dissolved Chromium	0.002	-	
NIVA 4 00	Chromium (Cr)	0.002	mg/l	0.001
NW108	Dissolved Copper Copper (Cu)	0.0009	mg/l	0.0005
NW109	Dissolved Iron		∌′ '	0.0003
	Iron (Fe)	0.19	mg/l	0.01
NW110	Dissolved Lead	-0 000 -		
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium	31.4	ma/l	0.04
NW113	Magnesium (Mg) Dissolved Manganese		mg/l	0.01
1444113	Manganese (Mn)	1.02	mg/l	0.0005
NW114	Dissolved Mercury		-	
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel	0.0000		
	Nickel (Ni)	0.0022	mg/l	0.0005
NW117	Dissolved Potassium	26.3	o //	0.04
NW193	Potassium (K)		mg/l	0.01
1444 199	Dissolved Reactive Phos Phosphorus (soluble reactive		mg/l	0.005
NW120	Dissolved Sodium	,	3	0.000
	Sodium (Na)	74.4	mg/l	0.01
NW125	Dissolved Zinc			
	Zinc (Zn)	0.003	mg/l	0.002
ZM2GA	Enumeration of Escheric	chia coli By Mem		
NI\A/040	Escherichia coli	500	cfu/100 ml	100
NW010	Nitrate-N Nitrate-N	2.00	(± 0.20) mg/l	0.01
NW195	pH (Tested beyond 15 m	inute APHA holo		J.U I
	pH	7.8	(± 0.2)	0.1
NW011	Sulphate	0.00		
	Sulphate	0.20	(± 0.02) mg/l	0.02
NW206	Suspended Solids	137	m a //	•
NW003	Suspended Solids	101	mg/l	3
1444002	Total Alkalinity Alkalinity total	528	(± 53) mg	1
	·		CaCO3/I	,
NW030	Total Hardness Hardness	311	ma CcCO2//	4
NW210			mg CaCO3/I	1
1444710	Total Organic Carbon	27.1	(± 2.7) mg/l	0.1
DNWWG6	Volatile Fatty Acids (VFA	A)		-
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







	1 Tood & Water Testing							
		RESULTS	(UNCERTAIN	ITY) I	LOQ			
①NWWG	6 Volatile Fatty Acids (VFA)							
	Heptanoic acid	<5	mg/l		5			
	Hexanoic acid	<5	mg/l		5			
	Isobutyric acid	<5	mg/l		5			
	Isocaproic acid	<5 -	mg/l		5			
	Isovaleric acid	<5	mg/l		5			
	Propionic acid	<5 	mg/l		5			
	Valeric acid	<5 -5	mg/l		5			
	Volatile fatty acids as acetic acid	<5	mg/l		5			
LIST O	F METHODS							
NW003	Total Alkalinity: APHA Online Ed	ition 2320 B		NW007	Chloride: APHA Online Edition 4110 B			
NW00U	Chlorophenols: Internal Method,	LC-MS/MS		NW010	Nitrate-N: APHA Online Edition 4110 B			
NW011	Sulphate: APHA Online Edition 4	110 B		NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D			
NW023	Conductivity: APHA 24th Edition	2510 B		NW030	Total Hardness: APHA Online Edition 2340 B			
NW098	Dissolved Aluminium: APHA Or	line Edition 312	5 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.			
NW104	Dissolved Cadmium: APHA Onli	ne Edition 3125	B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.			
NW106	Dissolved Chromium: APHA On	line Edition 312	5 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.			
NW109	Dissolved Iron: APHA Online Ed	tion 3125 B mod	d.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.			
NW112	Dissolved Magnesium: APHA O	nline Edition 312	25 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.			
NW114	Dissolved Mercury: APHA Online	e Edition 3125 E	3 mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.			
NW117	Dissolved Potassium: APHA On	line Edition 312	5 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.			
NW125	Dissolved Zinc: APHA Online Ed	ition 3125 B mo	d.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H			
NW193	Dissolved Reactive Phosphorus 4500-P G	: APHA Online	Edition	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B			
NW206	Suspended Solids: APHA Online	Edition 2540 D	•	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B			
NW341	BOD5 - Soluble Carbonaceous:	APHA Online E	dition 5210	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.			

Signature

mbecabro

Marylou Cabral Laboratory Manager **Eurofins ELS Limited**

NWWG6 Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.

Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

ZM2GA Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Supervisor Eurofins ELS

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Sunita Raju

Business Unit Manager

Ganesh Ilancko

Supervisor Eurofins ELS

Limited



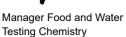
Phone www.eurofins.co.nz













Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE

Test is not accredited

②Test is subcontracted within Eurofins group and is accredited

3 Test is subcontracted within Eurofins group and is not accredited

Test is subcontracted outside Eurofins group and is accredited

Test is subcontracted outside Eurofins group and is not accredited

Test result is provided by the customer and is not accredited

Tested at the sampling point by Eurofins and is not accredited

Tested at the sampling point by Eurofins and is accredited

9 Test is RLP accredited

Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

x (Unsatisfactory) means does not meet the specification

✓ (Satisfactory) means meets the specification

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END OF REPORT







AR-24-NW-024100-01

ANALYTICAL REPORT

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders: Gabriela Carvalhaes

Contract:

Landfill

812-2024-00053354

< 0.001

0.07

mg/l

mg/l

SAMPLE CODE 349882-0 Sample Name

Product:

Sampling Point code: WIL-Xd1

11/04/2024 12:06 Reception Date & Time:

Analysis Started on: 11/04/2024

Product Type Ground water REPORT DATE

20/04/2024

Copy to: Water and Waste Team

(waterandwasteteam@horowhenua.govt.nz), McMillan

EUNZWE-00178002 Order code:

Purchase Order Number: Landfill

Ground water

Sampling Point name:

Analysis Ending Date:

Sampled Date & Time

20/04/2024

10/04/2024 01:42

Levin Xd1

Sampler(s)				Sampled by Eurofins	No
		RESULT	S (UNCERTAINT	Y) LOQ	
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	0.38	(± 0.04) mg/l	0.01	
NW341	BOD5 - Soluble Carb	onaceous <1	mg/l	1	
NW020	Chemical Oxygen De Chemical oxygen deman		(± 5) mg/l	15	
NW007	Chloride Chloride (Cl)	57.8	(± 5.78) mg/l	0.02	
NW00U	Chlorophenols 2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chloro 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol Phenol Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.01 <0.02	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.01 0.01 0.2 0.01 0.01 0.01 0.005 0.01 0.02	
NW023	•	53.4	(± 1.1) mS/m	0.1	
NW098	Dissolved Aluminium Aluminium	1 <0.002	mg/l	0.002	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010

NEW ZEALAND

NW583 Dissolved Arsenic

NW103 Dissolved Boron

Boron (B)

Arsenic (As)

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0.001

0.03







		KESULT	S (UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium	40,0000		
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium			
	Calcium (Ca)	31.0	mg/l	0.1
NW106	Dissolved Chromium	.0.007		
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	0.03	mg/l	0.01
NW110	Dissolved Lead		-	
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium		.	3.0000
1444112	Magnesium (Mg)	13.8	mg/l	0.01
NIVA/440	,		my/i	0.01
NW113	· ·	0.497		
	Manganese (Mn)	0.401	mg/l	0.0005
NW114	Dissolved Mercury	<0.0005		
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel			
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	5.06	mg/l	0.01
NW193	Dissolved Reactive Phosp	ohorus		
	Phosphorus (soluble reactive)	0.115	mg/l	0.005
NW120	Dissolved Sodium		-	
	Sodium (Na)	44.0	mg/l	0.01
NIVA/4 OF			mg/I	0.01
NW125	Dissolved Zinc	<0.002	100 c: //	0.00-
	Zinc (Zn)		mg/l	0.002
ZMF1E	Enumeration of Escherich	nia coli By Mer 3		
	Escherichia coli	J	cfu/100 ml	1
NW010	Nitrate-N	.0.04	,	
	Nitrate-N	<0.01	(± 0.00) mg/l	0.01
NW195	pH (Tested beyond 15 mir			
	рН	7.4	(± 0.2)	0.1
NW011	Sulphate			
	Sulphate	<0.02	(± 0.01) mg/l	0.02
NW206	Suspended Solids			-
	Suspended Solids	6	mg/l	3
NW228			. .	J
1444770	Acenaphthene	<0.0001	mg/l	0.0004
	Acenaphthylene	<0.001	•	0.0001
	· · · · · ·	<0.0001	mg/l	0.001
	Adipatic acid, bis-2-ethylhexyl ester (DEHA)		mg/l	0.0001
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.0001
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001		
	AUGENIC		mg/l	0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







1 •			
	KESULIS (UNCERTAINTY)	LOQ
SVOC (GC-MSMS)	<0.0004		
Benz(a)anthracene		mg/l	0.0001
Benzo(a)pyrene		mg/l	0.0001
Benzo(g,h,i)perylene		mg/l	0.001
Bromacil		mg/l	0.005
Carbofuran		mg/l	0.001
Chlordane	<0.0001	mg/l	0.0001
Chlordane, gamma	<0.001	mg/l	0.001
Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
Chrysene	<0.0001	mg/l	0.0001
Cyanazine	<0.005	mg/l	0.005
d-BHC	<0.0001		0.0001
	<0.0001		0.0001
	<0.0001		0.0001
	NotRecovered		0.0001
	<0.0001		
	<0.0001		0.0001
			0.0001
			0.0001
			0.001
			0.001
		mg/l	0.001
		mg/l	0.005
Endosulfan-sulfate		mg/l	0.0001
Endrin		mg/l	0.0001
Endrin ketone		mg/l	0.0001
Endrin-aldehyde	<0.001	mg/l	0.01
Fluoranthene	<0.0001	mg/l	0.0001
Fluorene	<0.0001	mg/l	0.0001
HCH, alpha-	<0.0001		0.0001
	<0.0001		0.0001
	<0.0001		0.0001
	<0.0001		0.0001
	<0.0001		0.0001
	<0.001		
			0.001
, , , , ,			0.0001
		•	0.0001
(metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of	\0.001	mg/l	0.001
	<0.0001	mg/l	0.0001
•	<0.0001		
			0.0001
			0.0001
			0.0001
		mg/l	0.0001
Oxadiazon		mg/l	0.0001
PCB 101	<0.0001	mg/l	0.0001
PCB 138	<0.001 <0.0001	mg/l	0.001
	SVOC (GC-MSMS) Benz(a)anthracene Benzo(a)pyrene Benzo(g,h,i)perylene Bromacil Carbofuran Chlordane Chlordane, gamma Chlorpyrifos (-ethyl) Chrysene Cyanazine d-BHC DDD, p,p'- DDE, p,p- DDT, p,p'- Diazinon Dibenz(a,h)anthracene Dieldrin Dimethoate Diuron Endosulfan, alpha- Endosulfan, beta- Endosulfan-sulfate Endrin Endrin ketone Endrin-aldehyde Fluoranthene Fluorene HCH, alpha- HCH, beta- Heptachlor Heptachlor epoxide, cis- Hexazinone Indeno(1,2,3-cd)pyrene Lindane (gamma-HCH) Metalaxyl and metalaxyl-M (metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers)) Methoxychlor Metolachlor Metribuzin Molinate Naphthalene Oxadiazon	RESULTS (SVOC (GC-MSMS) Benz(a)anthracene <0.0001	Benz(a)anthracene <0.0001

Eurofins ELS Limited

85 Port Road

Seaview Lower Hutt Wellington 5010 NEW ZEALAND







			valer restr		
		RESULTS	S (UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin	<0.002	mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k) fluoranthene	<0.001	mg/l	0.001	
	Trifluralin	<0.0001	mg/l	0.0001	
NW003	Total Alkalinity		Ŭ		
	Alkalinity total	184	(± 18) mg CaCO3/l	1	
NW030	Total Hardness		-		
	Hardness	134	mg CaCO3/l	1	
NW210	Total Non-Purgeable Organ	nic Carbon	9 04000	'	
1444210	Total Organic Carbon	4.3	(± 0.4) mg/l	0.1	
NW229	_		(' ' ' ' ' ' ' '	0.1	
1444223	VOC (GC-MS) 1,1,1,2-Tetrachloroethane	<0.0005	ma/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005	
		<0.0005	mg/l	0.0005	
	1,1,2-Trichloroethane 1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005 0.0005	
		<0.0005	mg/l		
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane 1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4 trimetriyiberizeri 1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.0005	
	1,2-Dibromoethane	<0.0002	mg/l	0.002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l mg/l	0.0002	
	1,2-Dichloropenzene (2)	<0.0005	•	0.0005	
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l mg/l	0.0005	
	1,3-Dichlorobenzene	<0.0005	•	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
		<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
		<0.0005	mg/l	0.0005	
	4-Chlorotoluene	<0.0005	mg/l	0.0005	
	4-methyl-2-pentanone	3.0000	mg/l	0.0005	

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







				-9
		RESULTS	(UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	•	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
		<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0003	mg/l	0.0005
	Vinyl chloride	<0.0005	mg/l	0.0003
	Xylene (ortho-)	-0.0000	mg/l	0.0005
NWWG6	Volatile Fatty Acids (VFA)	4 F		
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5

LIST OF METHODS

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND









NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210 B	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZMF1E	Escherichia coli E (Water) [NZ] <1 >80 /100 ml (0) Ml Agar-F: SMEWW 9222K; APHA 24th Edition

Signature

mbecabood

Marylou Cabral Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

Supervisor Eurofins ELS Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Sunita Raju

Business Unit Manager

Ganesh Ilancko

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Limited

Gabriela Carvalhaes Manager Food and Water Testing Chemistry

Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE







- Test is not accredited
- 2 Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

The tests are identified by a five-digit code, their description is available on request.

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END OF REPORT





20/04/2024



Food & Water Testing

AR-24-NW-024099-01

ANALYTICAL REPORT

REPORT DATE

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Contact for your orders:

Contract:

Landfill

Gabriela Carvalhaes Order code:

Purchase Order Number:

Copy to: Water and Waste Team

Landfill

(waterandwasteteam@horowhenua.govt.nz), McMillan

812-2024-00053353 SAMPLE CODE

Sample Name 349883-0 **Product:** Ground water

Sampling Point code: WIL-Xs1

11/04/2024 12:05 **Reception Date & Time:**

Analysis Started on: 11/04/2024

Product Type Ground water Sampler(s)

Client nominated external sampler

Sampling Point name:

Analysis Ending Date:

Sampled Date & Time

20/04/2024 11/04/2024 12:24

Levin Xs1

EUNZWE-00178002

Sampled by Eurofins

Nο

Sample	r(s) Clie	ent nominated exte	rnai sampier	Sampled by Eurofins	No	
		RESULT	S (UNCERTAINTY)	LOQ		
NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	14.0	(± 1.40) mg/l	0.01		
NW341	BOD5 - Soluble Carbo BOD5	naceous 2	mg/l	1		
NW020	Chemical Oxygen Den Chemical oxygen demand		(± 9) mg/l	15		
NW007	Chloride Chloride (Cl)	130	(± 13.0) mg/l	0.02		
NW00U	2,3,4,6-Tetrachlorophenol 2,4-Dichlorophenol 2,6-Dichlorophenol 2-Chlorophenol (o-chlorop 3,4,5-Trichlorophenol 4-Chloro-3-cresol Pentachlorophenol Phenol Total of 2,4,5 & 2,4,6	<0.01 <0.01 <0.02 ohenol) <0.01 <0.01 <0.005 <0.01 <0.02	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.01 0.01 0.2 0.01 0.01 0.01 0.005 0.01 0.02		
NW023	-Trichlorophenol Conductivity Conductivity	143	(± 2.9) mS/m	0.1		
NW098	Dissolved Aluminium Aluminium	0.003	mg/l	0.002		
NW583	Dissolved Arsenic Arsenic (As)	<0.001	mg/l	0.001		
NW103	Dissolved Boron Boron (B)	0.57	mg/l	0.03		

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			vvater resti	
		RESULT	S (UNCERTAINTY)	LOQ
NW104	Diocontou Guannann	.0.005		
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium			
	Calcium (Ca)	70.0	mg/l	0.1
NW106	Dissolved Chromium			
	Chromium (Cr)	0.001	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	4.39	mg/l	0.01
NW110	Dissolved Lead		-	
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	Dissolved Magnesium		··· ·9 ··	0.0000
1444 1 1 1 2	Magnesium (Mg)	49.6	mg/l	0.01
NIVA/440			1119/1	0.01
NW113	Dissolved Manganese	0.698	m e //	0.00==
	Manganese (Mn)	0.000	mg/l	0.0005
NW114	Dissolved Mercury	<0.000E		
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel	0.000=		
	Nickel (Ni)	0.0025	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	29.6	mg/l	0.01
NW193	Dissolved Reactive Phos	phorus		
	Phosphorus (soluble reactive)		mg/l	0.005
NW120	Dissolved Sodium			
	Sodium (Na)	92.1	mg/l	0.01
NW125	Dissolved Zinc		J .	0.01
1444 125	Zinc (Zn)	0.004	mg/l	0.002
7M2C 4			_	0.002
ZIVIZGA	Enumeration of Escheric	nia coli By Mei <100		400
ADAGE 1.5	Escherichia coli		cfu/100 ml	100
NW010	Nitrate-N	0.02	(± 0 00) ~~~//	
	Nitrate-N		(± 0.00) mg/l	0.01
NW195	pH (Tested beyond 15 mi			
	рН	6.8	(± 0.2)	0.1
NW011	•	0.04		
	Sulphate	0.04	(± 0.01) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	76	mg/l	3
NW228	SVOC (GC-MSMS)			
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.001
	Adipatic acid, bis-2-ethylhexyl	<0.0001	mg/l	0.0001
	ester (DEHA)		Ü	
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.1
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.0001
			•	

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	PEOULES (INCEPTAINTS)				
		RESULTS (I	UNCERTAINTY)	LOQ	
NW228	SVOC (GC-MSMS)				
	Benz(a)anthracene	<0.0001	mg/l	0.0001	
	Benzo(a)pyrene	<0.0001	mg/l	0.0001	
	Benzo(g,h,i)perylene	<0.001	mg/l	0.001	
	Bromacil	<0.005	mg/l	0.005	
	Carbofuran	<0.001	mg/l	0.001	
	Chlordane	<0.0001	mg/l	0.0001	
	Chlordane, gamma	<0.001	mg/l	0.001	
	Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001	
	Chrysene	<0.0001	mg/l	0.0001	
	Cyanazine	<0.005	mg/l	0.005	
	d-BHC	<0.0001	mg/l	0.0001	
	DDD, p,p'-	<0.0001	mg/l	0.0001	
	DDE, p,p-	<0.0001	mg/l	0.0001	
	DDT, p,p'-	NotRecovered	mg/l	0.001	
	Diazinon	<0.0001	mg/l	0.0001	
	Dibenz(a,h)anthracene	<0.0001	mg/l	0.0001	
	Dieldrin	<0.0001	mg/l	0.0001	
	Dimethoate	<0.001	mg/l	0.001	
	Diuron	<0.001	mg/l	0.001	
	Endosulfan, alpha-	<0.001	mg/l	0.001	
	Endosulfan, beta-	<0.005	mg/l	0.005	
	Endosulfan-sulfate	<0.0001	mg/l	0.0001	
	Endrin	<0.0001	mg/l	0.0001	
	Endrin ketone	NotRecovered	mg/l	0.0001	
	Endrin-aldehyde	<0.001	mg/l	0.01	
	Fluoranthene	<0.0001	mg/l	0.0001	
	Fluorene	<0.0001	mg/l	0.0001	
	HCH, alpha-	<0.0001	mg/l	0.0001	
	HCH, beta-	<0.0001	mg/l	0.0001	
	Heptachlor	<0.0001	mg/l	0.0001	
	Heptachlor epoxide, cis-	<0.0001	mg/l	0.0001	
	Hexachlorobenzene (HCB)	<0.0001	mg/l	0.0001	
	Hexazinone	<0.001	mg/l	0.001	
	Indeno(1,2,3-cd)pyrene	<0.0001	mg/l	0.0001	
	Lindane (gamma-HCH)	<0.0001	mg/l	0.0001	
	Metalaxyl and metalaxyl-M (metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers))	<0.001	mg/l	0.001	
	Methoxychlor	<0.0001	mg/l	0.0001	
	Metolachlor	<0.0001	mg/l	0.0001	
	Metribuzin	<0.0001	mg/l	0.0001	
	Molinate	<0.0001	mg/l	0.0001	
	Naphthalene	<0.0001	mg/l	0.0001	
	Oxadiazon	<0.0001	mg/l	0.0001	
	PCB 101	<0.0001	mg/l	0.0001	
	PCB 138	<0.001	mg/l	0.001	
	PCB 183	<0.0001	mg/l	0.0001	
			J		

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







	1 00d & Water Testing					
		RESULTS	S (UNCERTAINTY)	LOQ		
NW228	SVOC (GC-MSMS)					
	PCB 28	<0.0001	mg/l	0.0001		
	PCB 7	<0.0001	mg/l	0.0001		
	Pendimethalin	<0.002	mg/l	0.002		
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001		
	Phenanthrene	<0.0001	mg/l	0.0001		
	Pirimiphos-methyl	<0.0001	mg/l	0.0001		
	Procymidone	<0.0001	mg/l	0.0001		
	Propanil	<0.001	mg/l	0.001		
	Propazine	<0.0001	mg/l	0.0001		
	Pyrene	<0.0001	mg/l	0.0001		
	Pyriproxyfen	<0.0001	mg/l	0.0001		
	Simazine	<0.0001	mg/l	0.0001		
	Terbuthylazine	<0.0001	mg/l	0.0001		
	Total Benzo(b) and Benzo(k)	<0.001	mg/l	0.001		
	fluoranthene		J			
	Trifluralin	<0.0001	mg/l	0.0001		
NW003	Total Alkalinity					
	Alkalinity total	592	(± 59) mg	1		
	,		CaCO3/I	·		
NW030	Total Hardness					
	Hardness	379	mg CaCO3/I	1		
NW210	Total Non-Purgeable Orga	nic Carbon				
	Total Organic Carbon	27.0	(± 2.7) mg/l	0.1		
NW229	VOC (GC-MS)					
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005		
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005		
	1,1,2,2-tetrachloroethane	<0.0005	mg/l	0.0005		
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005		
	1,1-Dichloroethane	<0.0005	mg/l	0.0005		
	1,1-Dichloroethene	<0.0005	mg/l	0.0005		
	1,1-Dichloropropene	<0.0005	mg/l	0.0005		
	1,2,3-Trichlorobenzene	<0.0005				
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005		
	1,2,3-Trichloroproparie	<0.0005	mg/l	0.0005		
	1,2,4 trimethylbenzen 1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005		
	• •	<0.001	mg/l	0.0005		
	1,2-Dibromo-3-chloropropane	<0.0002	mg/l	0.002		
	1,2-Dibromoethane	<0.0005	mg/l	0.0002		
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0005		
	1,2-Dichloroethane	<0.0005	mg/l	0.0005		
	1,2-Dichloropropane	<0.0005	mg/l	0.0005		
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005		
	1,3,5-Trimethylbenzene		mg/l	0.0005		
	1,3-Dichlorobenzene	<0.0005	mg/l	0.0005		
	1,3-Dichloropropane	<0.0005	mg/l	0.0005		
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005		
	2,2-Dichloropropane	<0.0005	mg/l	0.0005		
	2-Chlorotoluene	<0.0005	mg/l	0.0005		
	4-Chlorotoluene	<0.0005	mg/l	0.0005		
		<0.0005				

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







				<u>.a</u>
		RESULTS	(UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	Benzene	0.0006	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
NWWG6	Volatile Fatty Acids (VFA)			
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	lsovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5
	-		-	

LIST OF METHODS

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND









NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210 B	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Signature

mbecabool

Marylou Cabral Laboratory Manager **Eurofins ELS Limited** Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon

Supervisor Eurofins ELS Limited

Gordon McArthur Senior Laboratory Analyst **Eurofins ELS Limited**

Ganesh Ilancko

Supervisor Eurofins ELS

Arvinder Singh

Laboratory Supervisor Microbiology

Gabriela Carvalhaes

Eurofins ELS Limited

85 Port Road

Seaview Lower Hutt Wellington 5010 **NEW ZEALAND** Manager Food and Water Testing Chemistry

Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE







Test is not accredited

②Test is subcontracted within Eurofins group and is accredited

3 Test is subcontracted within Eurofins group and is not accredited

 $\ensuremath{\mathfrak{A}}$ Test is subcontracted outside Eurofins group and is accredited

Test is subcontracted outside Eurofins group and is not accredited

Test result is provided by the customer and is not accredited

Tested at the sampling point by Eurofins and is not accredited

Tested at the sampling point by Eurofins and is accredited

Test is RLP accredited

Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

X (Unsatisfactory) means does not meet the specification

✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

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END OF REPORT





EUNZWE-00178002

20/04/2024



Food & Water Testing

AR-24-NW-024098-01

ANALYTICAL REPORT

REPORT DATE

Order code:

Downer NZ Ltd (EDI Levin) Attention

Horowhenua Admin

P O Box 642 4741 Levin **NEW ZEALAND**

(06) 367 2705 **Phone**

Contact for your orders:

REPORT CODE

Email horowhenuaadmin@downer.co.nz

Gabriela Carvalhaes

Landfill **Contract:**

(waterandwasteteam@horowhenua.govt.nz), McMillan

Purchase Order Number: Landfill

Copy to: Water and Waste Team

812-2024-00053206 SAMPLE CODE

349884-0 Sample Name **Product:** Ground water

Sampling Point code: WIL-Xs2

11/04/2024 9:40 **Reception Date & Time:**

Analysis Started on: 11/04/2024

Product Type Ground water

Sampler(s) Client nominated external sampler Sampling Point name: Levin Xs2

Analysis Ending Date:

20/04/2024 Sampled Date & Time 10/04/2024 12:49

Sampled by Eurofins No

RESULTS (UNCERTAINTY) L	OQ
-------------------------	----

NW179	Ammonia Nitrogen Ammoniacal nitrogen (N)	0.01	(± 0.00) mg/l	0.01
NW341	BOD5 - Soluble Carbonaceo	ous <1	mg/l	1
NW020	Chemical Oxygen Demand Chemical oxygen demand (COD)	<15	(± 5) mg/l	15
NW007	Chloride Chloride (CI)	21.3	(± 2.13) mg/l	0.02
NW00U	Chlorophenols			
	2,3,4,6-Tetrachlorophenol	<0.01	mg/l	0.01
	2,4-Dichlorophenol	<0.01	mg/l	0.01
	2,6-Dichlorophenol	<0.02	mg/l	0.2
	2-Chlorophenol (o-chlorophenol)	<0.01	mg/l	0.01
	3,4,5-Trichlorophenol	<0.01	mg/l	0.01
	4-Chloro-3-cresol	<0.01	mg/l	0.01
	Pentachlorophenol	<0.005	mg/l	0.005
	Phenol	<0.01	mg/l	0.01
	Total of 2,4,5 & 2,4,6 -Trichlorophenol	<0.02	mg/l	0.02
NW023	Conductivity			
	Conductivity	22.4	(± 0.4) mS/m	0.1
NW098	Dissolved Aluminium Aluminium	0.010	mg/l	0.002
NW583	Dissolved Arsenic			

< 0.001

0.04

mg/l

mg/l

Eurofins ELS Limited 85 Port Road

Arsenic (As)

NW103 Dissolved Boron

Boron (B)

Seaview Lower Hutt Wellington 5010

NEW ZEALAND

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0.001

0.03



FOOD & Water Testing				
		RESULTS	S (UNCERTAINTY)	LOQ
NW104	Dissolved Cadmium			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	Dissolved Calcium			
	Calcium (Ca)	11.1	mg/l	0.1
NW106	Dissolved Chromium			
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	Dissolved Copper			
	Copper (Cu)	0.0011	mg/l	0.0005
NW109	Dissolved Iron			
	Iron (Fe)	0.06	mg/l	0.01
NW110	Dissolved Lead		Ţ	
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112			9,.	0.0003
1444112	Dissolved Magnesium	7.25	ma/l	0.04
NIVA/446	Magnesium (Mg)		mg/l	0.01
NW113	Dissolved Manganese	0.126		
	Manganese (Mn)	0.120	mg/l	0.0005
NW114	Dissolved Mercury	<0.0005		
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW116	Dissolved Nickel			
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	Dissolved Potassium			
	Potassium (K)	5.44	mg/l	0.01
NW193	Dissolved Reactive Phos	phorus		
	Phosphorus (soluble reactive)		mg/l	0.005
NW120	Dissolved Sodium		-	
	Sodium (Na)	18.0	mg/l	0.01
NW125	, ,		···ᢖ	0.01
1444 179	Dissolved Zinc	0.016	mg/l	0.000
7M20 4	Zinc (Zn)		· ·	0.002
ZIVIZGA	Enumeration of Escheric	hia coli By Mer <100		,
	Escherichia coli	-100	cfu/100 ml	100
NW010	Nitrate-N	0.72	(· 0.0 7) "	
	Nitrate-N	0.73	(± 0.07) mg/l	0.01
NW195	pH (Tested beyond 15 mi			
	рН	6.6	(± 0.2)	0.1
NW011	Sulphate			
	Sulphate	7.61	(± 0.76) mg/l	0.02
NW206	Suspended Solids			
	Suspended Solids	19	mg/l	3
NW228	SVOC (GC-MSMS)		,	-
	Acenaphthene	<0.0001	mg/l	0.0001
	Acenaphthylene	<0.001	mg/l	0.0001
	Adipatic acid, bis-2-ethylhexyl	<0.0001	mg/l	0.001
	ester (DEHA)	•	a/,	0.0001
	Alachlor	<0.0001	mg/l	0.0001
	Aldicarb	<0.1	mg/l	0.1
	Aldrin	<0.001	mg/l	0.001
	Anthracene	<0.001	mg/l	0.001
	Atrazine	<0.0001	mg/l	0.001
			٠٠	3.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







1 •			
	KESULIS (UNCERTAINTY)	LOQ
SVOC (GC-MSMS)	<0.0004		
Benz(a)anthracene		mg/l	0.0001
Benzo(a)pyrene		mg/l	0.0001
Benzo(g,h,i)perylene		mg/l	0.001
Bromacil		mg/l	0.005
Carbofuran		mg/l	0.001
Chlordane	<0.0001	mg/l	0.0001
Chlordane, gamma	<0.001	mg/l	0.001
Chlorpyrifos (-ethyl)	<0.0001	mg/l	0.0001
Chrysene	<0.0001	mg/l	0.0001
Cyanazine	<0.005	mg/l	0.005
d-BHC	<0.0001		0.0001
	<0.0001		0.0001
	<0.0001		0.0001
	NotRecovered		0.0001
	<0.0001		
	<0.0001		0.0001
			0.0001
			0.0001
			0.001
			0.001
			0.001
		mg/l	0.005
Endosulfan-sulfate		mg/l	0.0001
Endrin		mg/l	0.0001
Endrin ketone		mg/l	0.0001
Endrin-aldehyde		mg/l	0.01
Fluoranthene	<0.0001	mg/l	0.0001
Fluorene	<0.0001	mg/l	0.0001
HCH, alpha-	<0.0001	mg/l	0.0001
HCH, beta-	<0.0001	mg/l	0.0001
Heptachlor	<0.0001		0.0001
	<0.0001		0.0001
	<0.0001		0.0001
	<0.001		0.0001
	<0.0001		0.001
, ,,,,	<0.0001		
		•	0.0001
(metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of	0.001	mg/I	0.001
	<0.0001	mg/l	0.0001
·	<0.0001		0.0001
			0.0001
			0.0001
			0.0001
Oxadiazon		mg/l	0.0001
PCB 101		mg/l	0.0001
PCB 138	<0.001 <0.0001	mg/l	0.001
	SVOC (GC-MSMS) Benz(a)anthracene Benzo(a)pyrene Benzo(g,h,i)perylene Bromacil Carbofuran Chlordane Chlordane, gamma Chlorpyrifos (-ethyl) Chrysene Cyanazine d-BHC DDD, p,p'- DDE, p,p- DDT, p,p'- Diazinon Dibenz(a,h)anthracene Dieldrin Dimethoate Diuron Endosulfan, alpha- Endosulfan, beta- Endosulfan-sulfate Endrin Endrin ketone Endrin-aldehyde Fluoranthene Fluorene HCH, alpha- HCH, beta- Heptachlor Heptachlor epoxide, cis- Hexazinone Indeno(1,2,3-cd)pyrene Lindane (gamma-HCH) Metalaxyl and metalaxyl-M (metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers)) Methoxychlor Metolachlor Metribuzin Molinate Naphthalene Oxadiazon	RESULTS (SVOC (GC-MSMS) Senz(a)anthracene < 0.0001	Benz(a)anthracene <0.0001

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







	· -		(UNCERTAINTY)	LOQ	
NUA/000		REGOLIO	(ONOLINIANTI)	LOQ	_
NW228	,	<0.0001	,,		
	PCB 28	<0.0001	mg/l	0.0001	
	PCB 7	<0.0001	mg/l	0.0001	
	Pendimethalin		mg/l	0.002	
	Permethrin (sum of isomers)	<0.0001	mg/l	0.0001	
	Phenanthrene	<0.0001	mg/l	0.0001	
	Pirimiphos-methyl	<0.0001	mg/l	0.0001	
	Procymidone	<0.0001	mg/l	0.0001	
	Propanil	<0.001	mg/l	0.001	
	Propazine	<0.0001	mg/l	0.0001	
	Pyrene	<0.0001	mg/l	0.0001	
	Pyriproxyfen	<0.0001	mg/l	0.0001	
	Simazine	<0.0001	mg/l	0.0001	
	Terbuthylazine	<0.0001	mg/l	0.0001	
	Total Benzo(b) and Benzo(k) fluoranthene	<0.001	mg/l	0.001	
	Trifluralin	<0.0001	mg/l	0.0001	
MWnna			1119/1	0.0001	
NW003	Total Alkalinity Alkalinity total	65	(± 7) mg CaCO3/I	1	
NW030	Total Hardness				
	Hardness	58	mg CaCO3/I	1	
NW210		nic Carbon		•	
1444210	Total Organic Carbon	2.5	(± 0.3) mg/l	0.4	
NIVAZOO	Total Organic Carbon		(= 0.0)	0.1	
NW229	VOC (GC-MS)	<0.0005	,,		
	1,1,1,2-Tetrachloroethane	<0.0005	mg/l	0.0005	
	1,1,1-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1,2,2-tetrachloroethane		mg/l	0.0005	
	1,1,2-Trichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethane	<0.0005	mg/l	0.0005	
	1,1-Dichloroethene	<0.0005	mg/l	0.0005	
	1,1-Dichloropropene	<0.0005	mg/l	0.0005	
	1,2,3-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2,3-Trichloropropane	<0.0005	mg/l	0.0005	
	1,2,4 trimethylbenzen	<0.0005	mg/l	0.0005	
	1,2,4-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,2-Dibromo-3-chloropropane	<0.001	mg/l	0.002	
	1,2-Dibromoethane	<0.0002	mg/l	0.0002	
	1,2-Dichlorobenzene (2)	<0.0005	mg/l	0.0002	
	1,2-Dichloroethane	<0.0005	mg/l	0.0005	
	•	<0.0005	•		
	1,2-Dichloropropane	<0.0005	mg/l	0.0005	
	1,3,5-Trichlorobenzene	<0.0005	mg/l	0.0005	
	1,3,5-Trimethylbenzene	<0.0005	mg/l	0.0005	
	1,3-Dichlorobenzene		mg/l	0.0005	
	1,3-Dichloropropane	<0.0005	mg/l	0.0005	
	1,4-dichlorobenzene	<0.0005	mg/l	0.0005	
	2,2-Dichloropropane	<0.0005	mg/l	0.0005	
	2-Chlorotoluene	<0.0005	mg/l	0.0005	
	4-Chlorotoluene	<0.0005	mg/l	0.0005	
	4-methyl-2-pentanone	<0.0005	mg/l	0.0005	
	•		<u> </u>		

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND







				<u>-9</u>
		RESULTS	(UNCERTAINTY)	LOQ
NW229	VOC (GC-MS)			
	Benzene	<0.0005	mg/l	0.0005
	Bromobenzene	<0.0005	mg/l	0.0005
	Bromochloromethane	<0.0012	mg/l	0.0012
	Bromodichloromethane	<0.0005	mg/l	0.0005
	Bromoform	<0.0005	mg/l	0.0005
	Bromomethane (zone 2)	<0.001	mg/l	0.001
	Carbon tetrachloride	<0.0005	mg/l	0.0005
	Carbondisulphide (CS2)	<0.0005	mg/l	0.0005
	Chlorobenzene	<0.0005	mg/l	0.0005
	Chloroethane	<0.001	mg/l	0.001
	Chloroform	<0.0005	mg/l	0.0005
	Chloromethane	<0.006	mg/l	0.006
	cis-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	cis-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Dibromochloromethane	<0.0005	mg/l	0.0005
	Dibromomethane	<0.0005	mg/l	0.0005
	Dichlorodifluoromethane	NotRecovered	mg/l	0.001
	Dichloromethane	<0.005	mg/l	0.005
	Hexachlorobutadiene	<0.0002	mg/l	0.0002
	Isopropylbenzene (Cumene)	<0.0005	mg/l	0.0005
	m,p-Xylene, Ethylbenzene	<0.0015	mg/l	0.0015
	n-Butylbenzene	<0.0005	mg/l	0.0005
	n-Propylbenzene	<0.0005	mg/l	0.0005
	p-Isopropyltoluene	<0.0005	mg/l	0.0005
	sec-Butylbenzene	<0.0005	mg/l	0.0005
	Styrene	<0.0005	mg/l	0.0005
	tert-Butylbenzene	<0.0005	mg/l	0.0005
	Tetrachloroethene	<0.0005	mg/l	0.0005
	Toluene	<0.0005	mg/l	0.0005
	trans-1,2-Dichloroethene	<0.0005	mg/l	0.0005
	trans-1,3-Dichloropropene	<0.0005	mg/l	0.0005
	Trichloroethene	<0.0005	mg/l	0.0005
	Trichlorofluoromethane	<0.0005	mg/l	0.0005
	Vinyl chloride	<0.0003	mg/l	0.0003
	Xylene (ortho-)	<0.0005	mg/l	0.0005
NWWG6	Volatile Fatty Acids (VFA)			
	Acetic acid	<5	mg/l	5
	Butyric acid	<5	mg/l	5
	Heptanoic acid	<5	mg/l	5
	Hexanoic acid	<5	mg/l	5
	Isobutyric acid	<5	mg/l	5
	Isocaproic acid	<5	mg/l	5
	Isovaleric acid	<5	mg/l	5
	Propionic acid	<5	mg/l	5
	Valeric acid	<5	mg/l	5
	Volatile fatty acids as acetic acid	<5	mg/l	5
	-		-	

LIST OF METHODS

Eurofins ELS Limited 85 Port Road Seaview Lower Hutt Wellington 5010 NEW ZEALAND









NW003	Total Alkalinity: APHA Online Edition 2320 B	NW007	Chloride: APHA Online Edition 4110 B
NW00U	Chlorophenols: Internal Method, LC-MS/MS	NW010	Nitrate-N: APHA Online Edition 4110 B
NW011	Sulphate: APHA Online Edition 4110 B	NW020	Chemical Oxygen Demand: APHA Online Edition 5220 D
NW023	Conductivity: APHA 24th Edition 2510 B	NW030	Total Hardness: APHA Online Edition 2340 B
NW098	Dissolved Aluminium: APHA Online Edition 3125 B mod.	NW103	Dissolved Boron: APHA Online Edition 3125 B mod.
NW104	Dissolved Cadmium: APHA Online Edition 3125 B mod.	NW105	Dissolved Calcium: APHA Online Edition 3125 B mod.
NW106	Dissolved Chromium: APHA Online Edition 3125 B mod.	NW108	Dissolved Copper: APHA Online Edition 3125 B mod.
NW109	Dissolved Iron: APHA Online Edition 3125 B mod.	NW110	Dissolved Lead: APHA Online Edition 3125 B mod.
NW112	Dissolved Magnesium: APHA Online Edition 3125 B mod.	NW113	Dissolved Manganese: APHA Online Edition 3125 B mod.
NW114	Dissolved Mercury: APHA Online Edition 3125 B mod.	NW116	Dissolved Nickel: APHA Online Edition 3125 B mod.
NW117	Dissolved Potassium: APHA Online Edition 3125 B mod.	NW120	Dissolved Sodium: APHA Online Edition 3125 B mod.
NW125	Dissolved Zinc: APHA Online Edition 3125 B mod.	NW179	Ammonia Nitrogen: APHA Online Edition 4500-NH3 H
NW193	Dissolved Reactive Phosphorus: APHA Online Edition 4500-P G	NW195	pH (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B
NW206	Suspended Solids: APHA Online Edition 2540 D	NW210	Total Non-Purgeable Organic Carbon: APHA Online Edition 5310 B
NW228	SVOC (GC-MSMS): Internal Method, GC-MS/MS	NW229	VOC (GC-MS): Internal Method, HS-GC-MS
NW341	BOD5 - Soluble Carbonaceous: APHA Online Edition 5210 B	NW583	Dissolved Arsenic: APHA Online Edition 3125 B mod.
NWWG6	Volatile Fatty Acids (VFA): APHA 24th Edition 5560 D mod.	ZM2GA	Escherichia coli E (Water) [NZ] <100 >6 000 000 /100 ml (0-3) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition

Signature

Marylou Cabral Laboratory Manager

mbecabood

Laboratory Manager Eurofins ELS Limited Jennifer Mont

Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon Supervisor Eurofins ELS Limited

Gordon McArthur Senior Laboratory Analyst

Eurofins ELS Limited

Ganesh Ilancko

Supervisor Eurofins ELS

Arvinder Singh

Laboratory Supervisor Microbiology

Gabriela Carvalhaes Manager Food and Water Testing Chemistry Cody Forbes

Laboratory Analyst Laboratory Analyst

EXPLANATORY NOTE







- Test is not accredited
- 2 Test is subcontracted within Eurofins group and is accredited
- 3 Test is subcontracted within Eurofins group and is not accredited
- Test is subcontracted outside Eurofins group and is accredited
- Test is subcontracted outside Eurofins group and is not accredited
- Test result is provided by the customer and is not accredited
- Tested at the sampling point by Eurofins and is not accredited
- Tested at the sampling point by Eurofins and is accredited
- 9 Test is RLP accredited
- Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

- X (Unsatisfactory) means does not meet the specification
- ✓ (Satisfactory) means meets the specification

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. This document can only be reproduced in full.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at 85 Port Road, Seaview, Lower Hutt, Wellington, NEW ZEALAND. The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.

Eurofins may subcontract the performance of part or all of the Services to a third party and the Customer authorises the release of all information necessary to the third party for the provision of the Services.

All samples become the property of Eurofins to the extent necessary for the performance of the Services.

Eurofins will not be required to store samples and may destroy or otherwise dispose of the samples or return the samples to the Customer (at the Customer's cost in all respects) immediately following analysis of the samples.

If the Customer pays for storage of the samples Eurofins will take commercially reasonable steps to store the samples for the agreed period in terms of industry practice. The Eurofins water sampling service follows methodology based on AS/NZS 5667 and / or best practice to collect and transport samples that are fit for the purpose of analytical testing. The laboratory is not responsible for sampling activities unless explicitly indicated by the statement "Sampled by Eurofins" on the report for water samples. The Customer acknowledges that the Services are provided using the current state of technology and methods developed and generally applied by Eurofins and involve analysis, interpretations, consulting work and conclusions. Eurofins shall use commercially reasonable degree of care in providing the Services.

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END OF REPORT

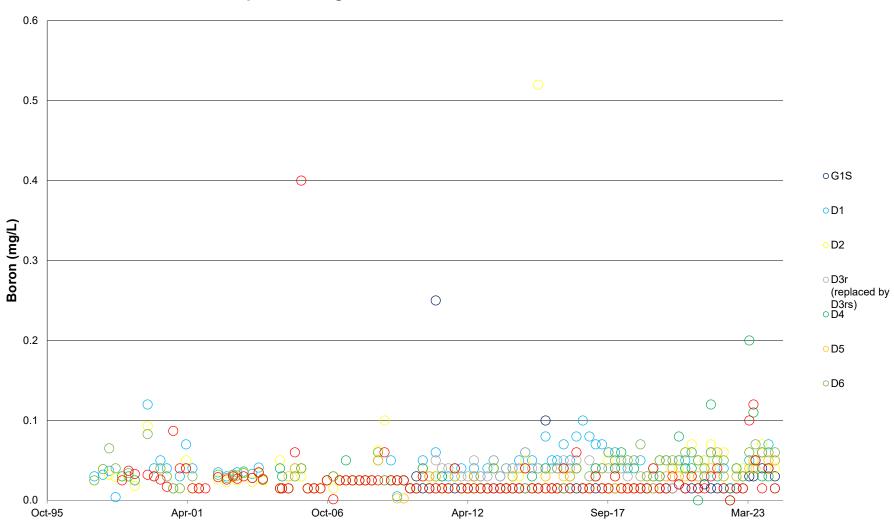




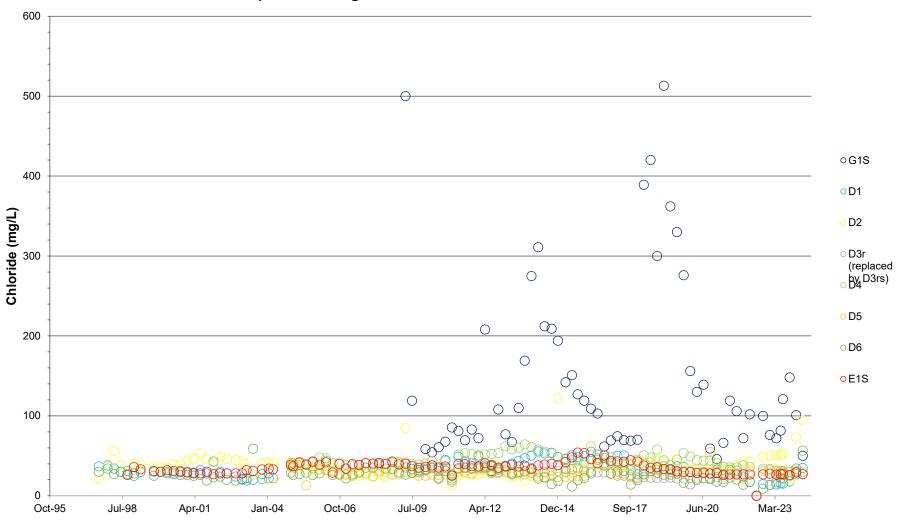
Appendix D Historical Results Graphs

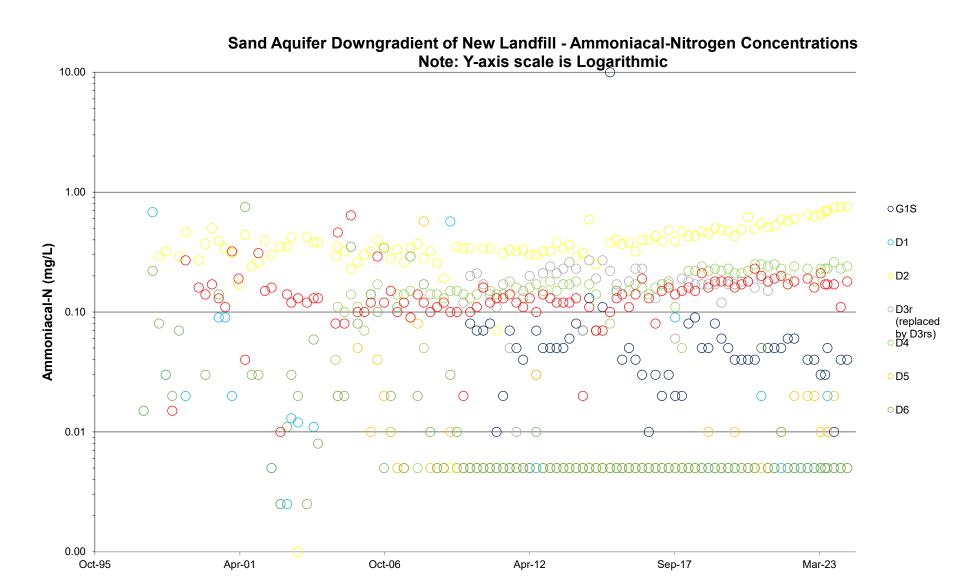


Sand Aquifer Downgradient of New Landfill - Boron Concentrations

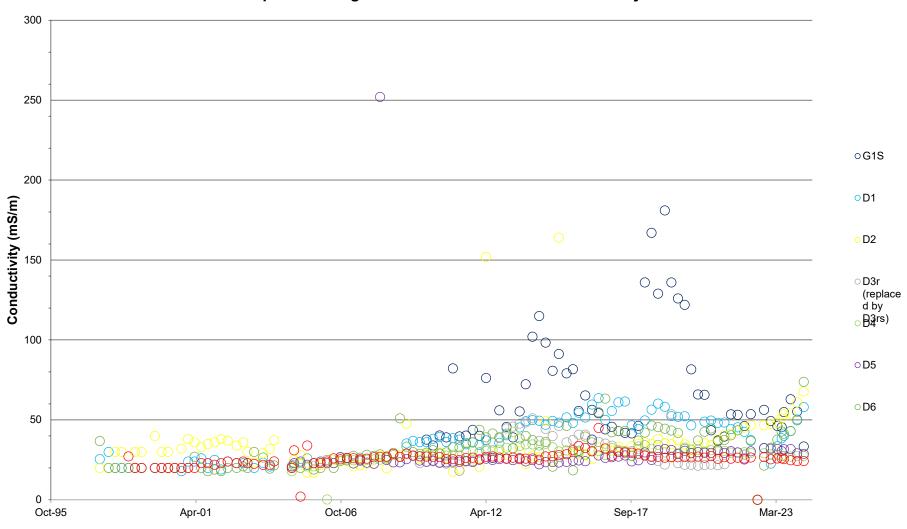


Sand Aquifer Downgradient of New Landfill - Chloride Concentrations

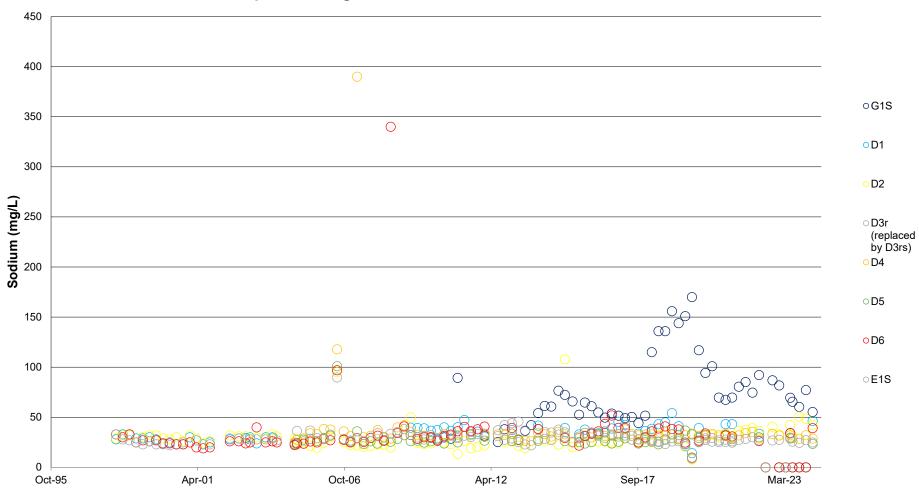




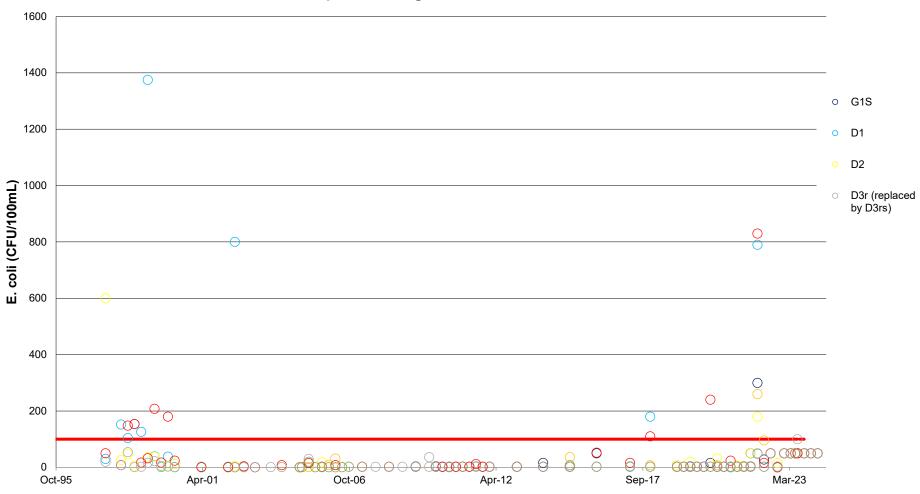
Sand Aquifer Downgradient of New Landfill - Conductivity Levels



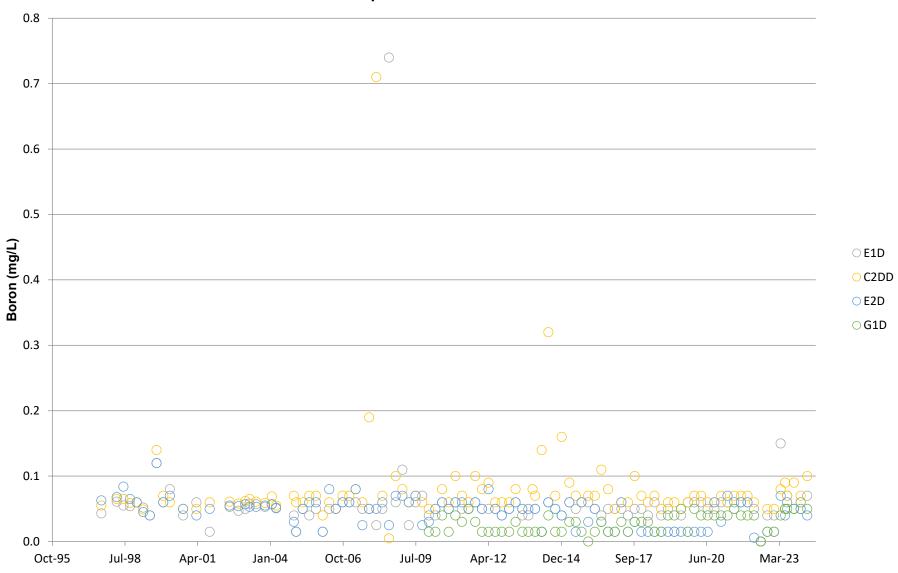
Sand Aquifer Downgradient of New Landfill - Sodium Concentrations



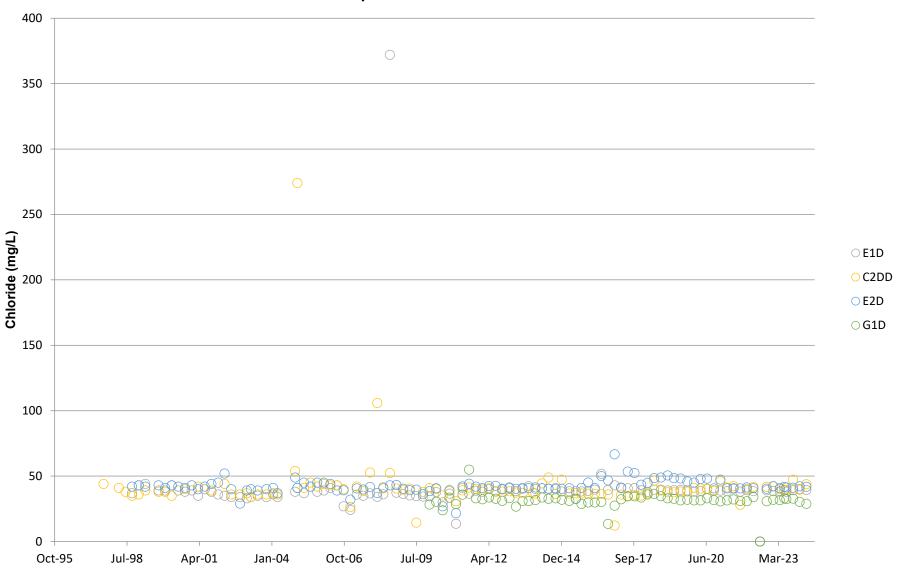
Sand Aquifer Downgradient of New Landfill - E. coli



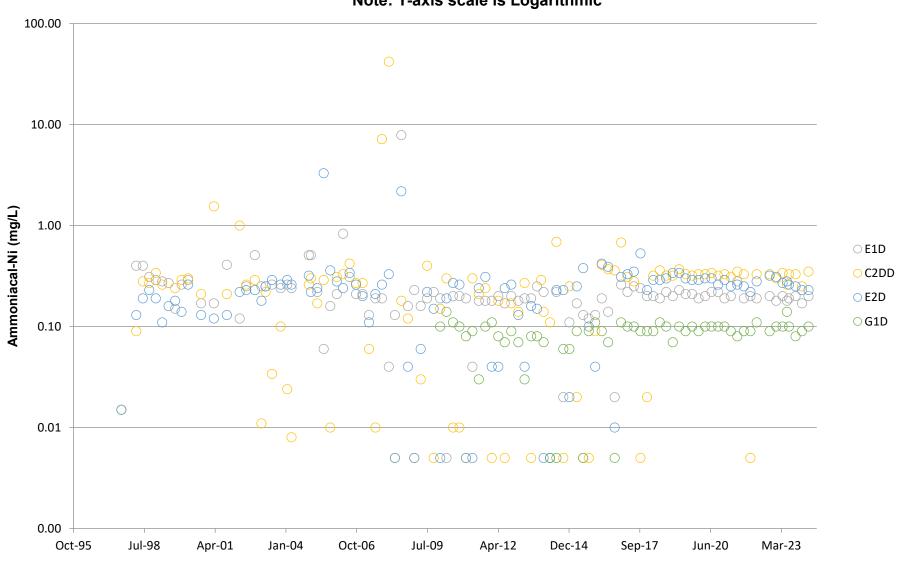
Gravel Aquifer - Boron Concentrations



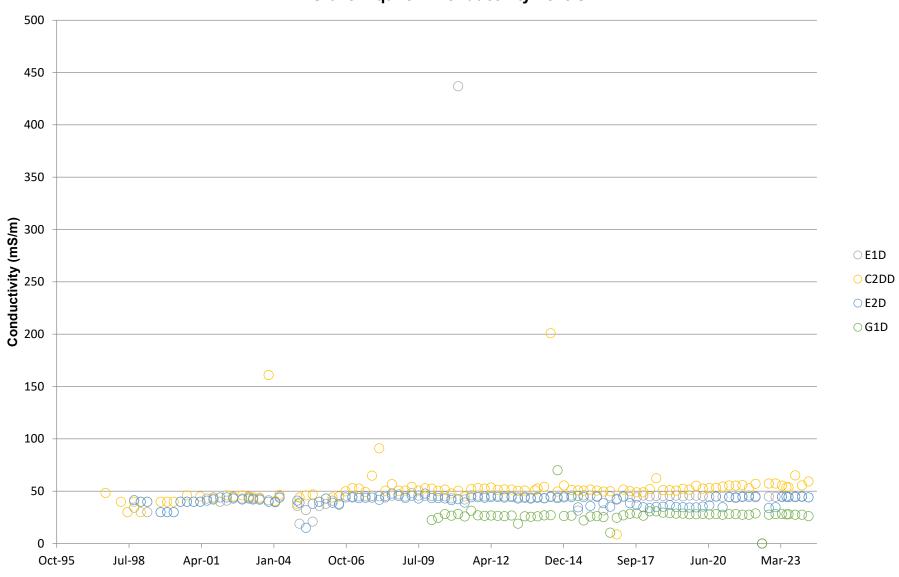
Gravel Aquifer - Chloride Concentrations



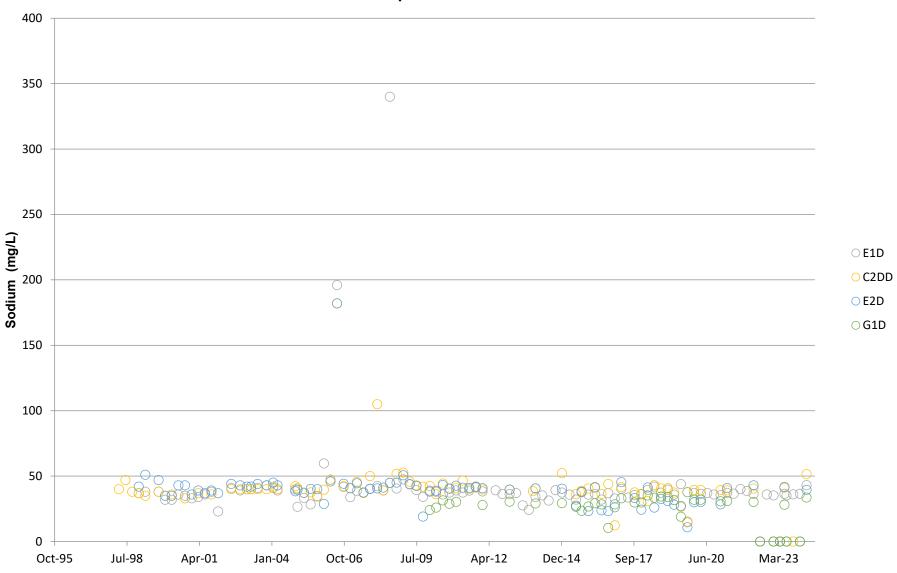
Gravel Aquifer - Ammoniacal-Nitrogen Concentrations Note: Y-axis scale is Logarithmic



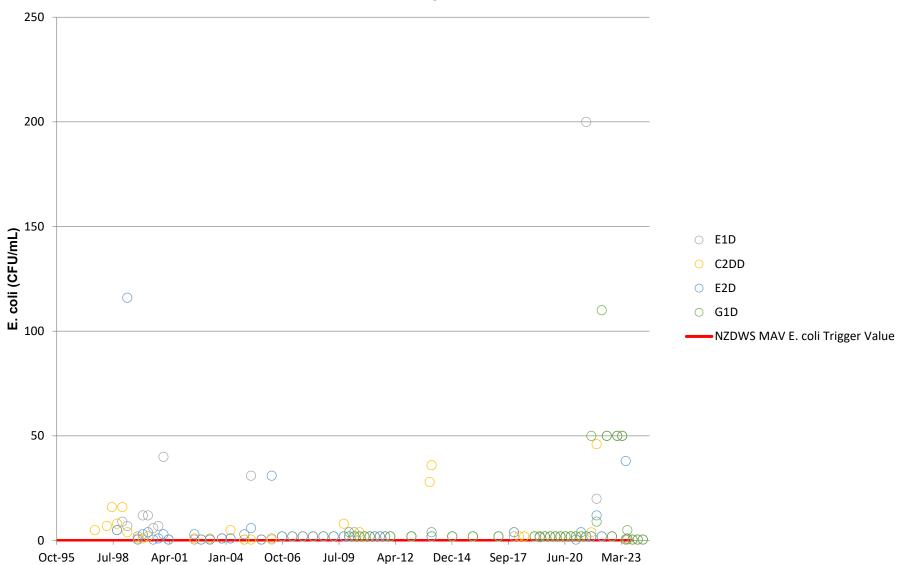
Gravel Aquifer - Conductivity Levels



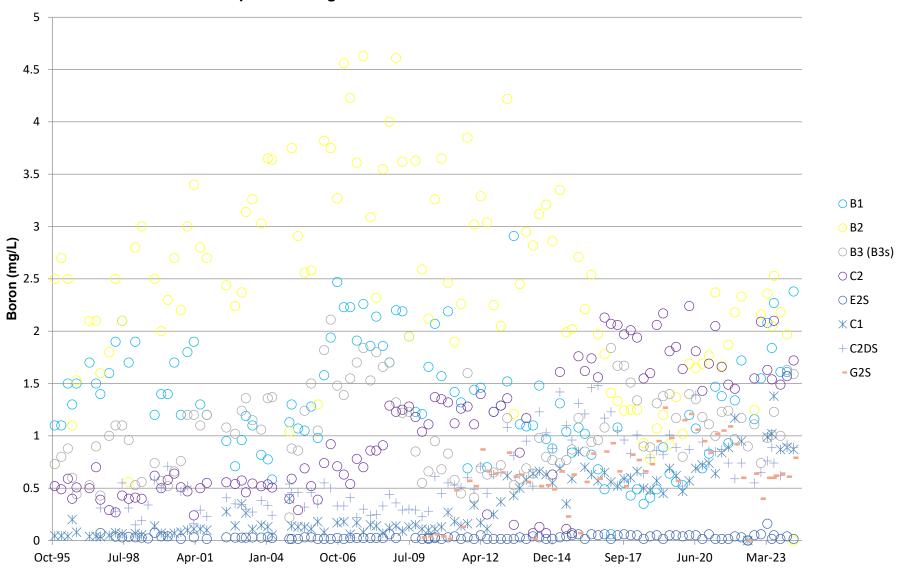
Gravel Aquifer - Sodium Levels



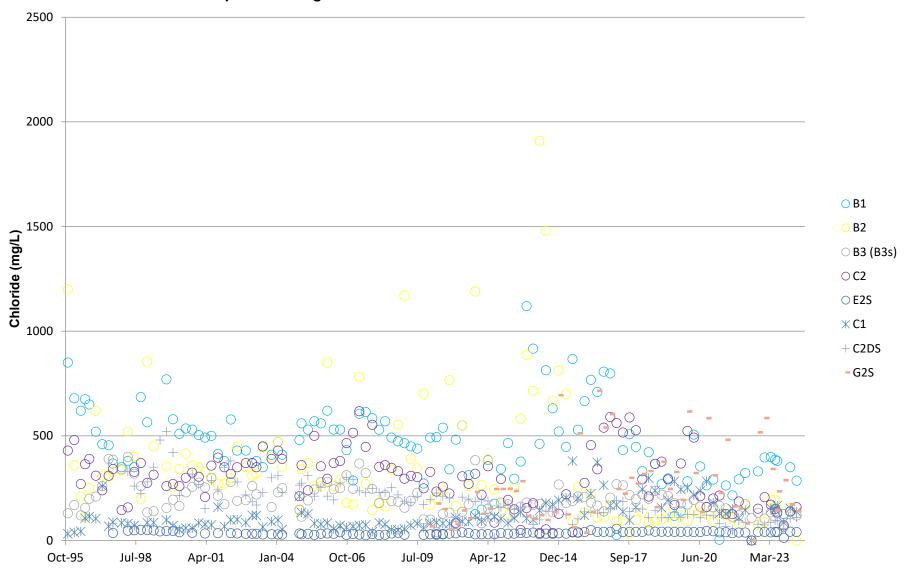




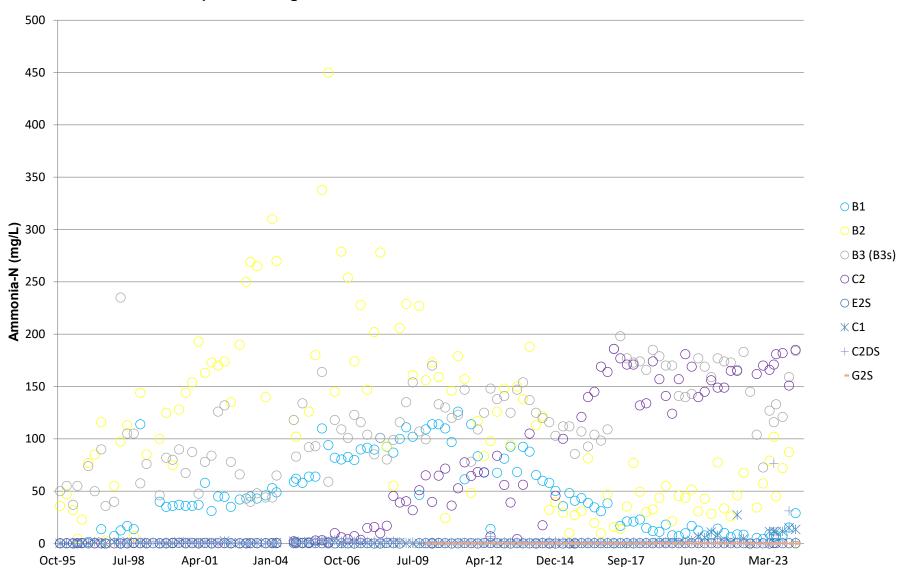
Sand Aquifer Downgradient of Old Landfill - Boron Concentrations



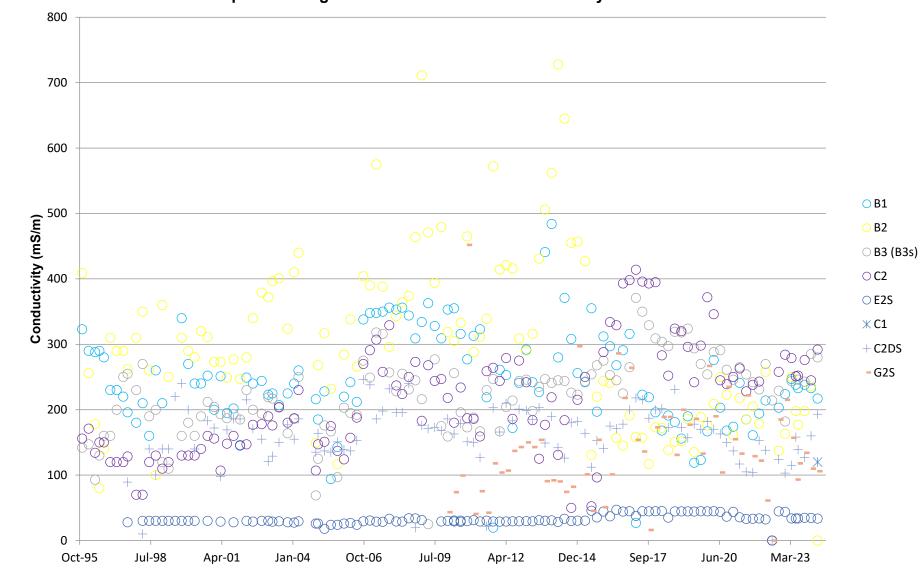
Sand Aquifer Downgradient of Old Landfill - Chloride Concentrations



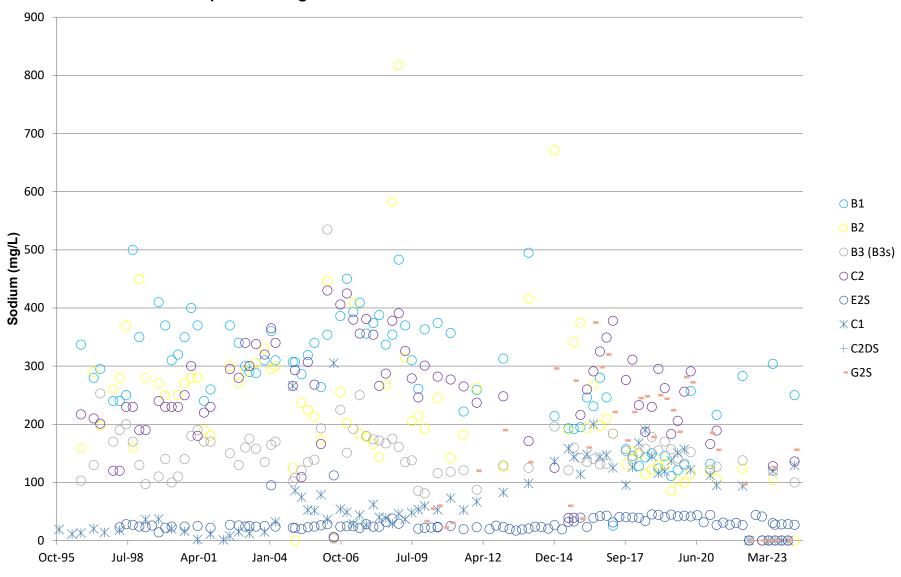
Sand Aquifer Downgradient of Old Landfill - Ammonia-N Concentrations



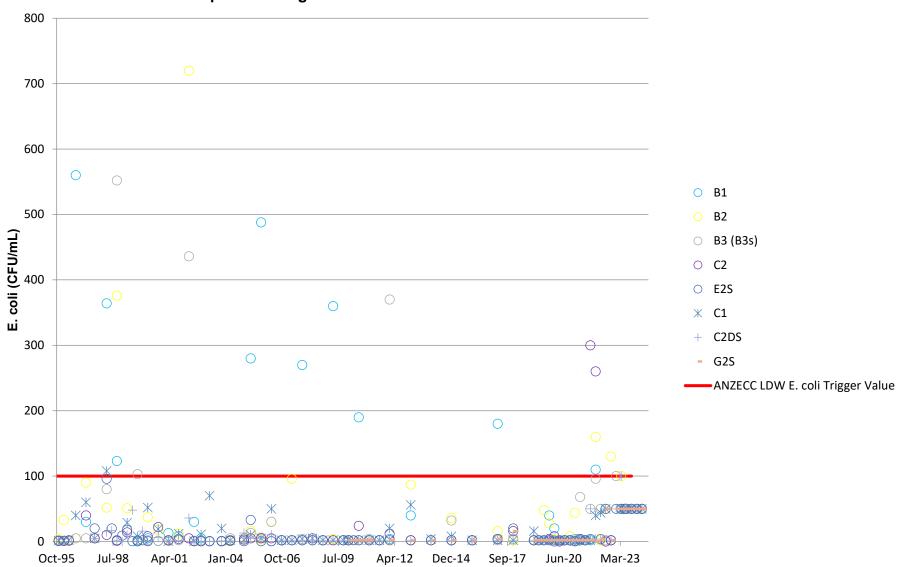
Sand Aquifer Downgradient of Old Landfill - Conductivity Levels



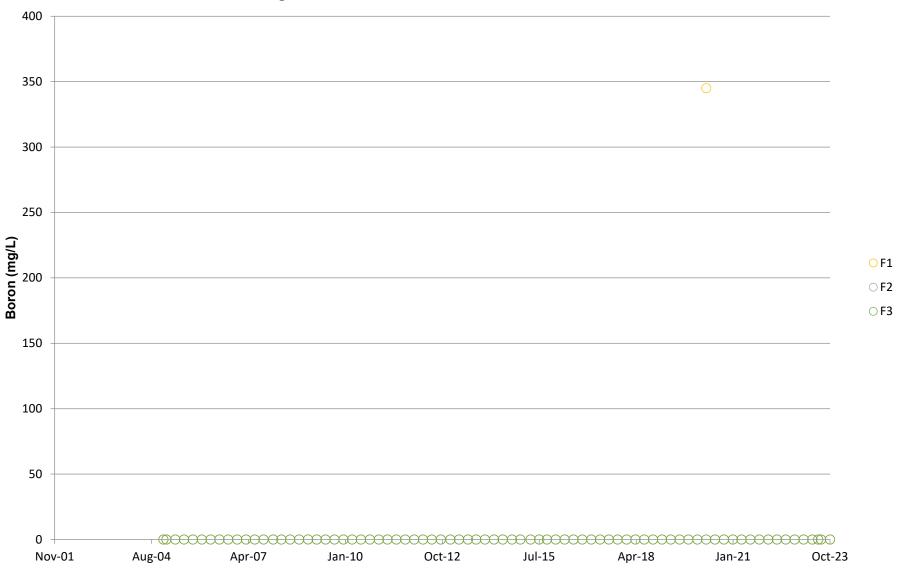
Sand Aquifer Downgradient of Old Landfill - Sodium Concentrations



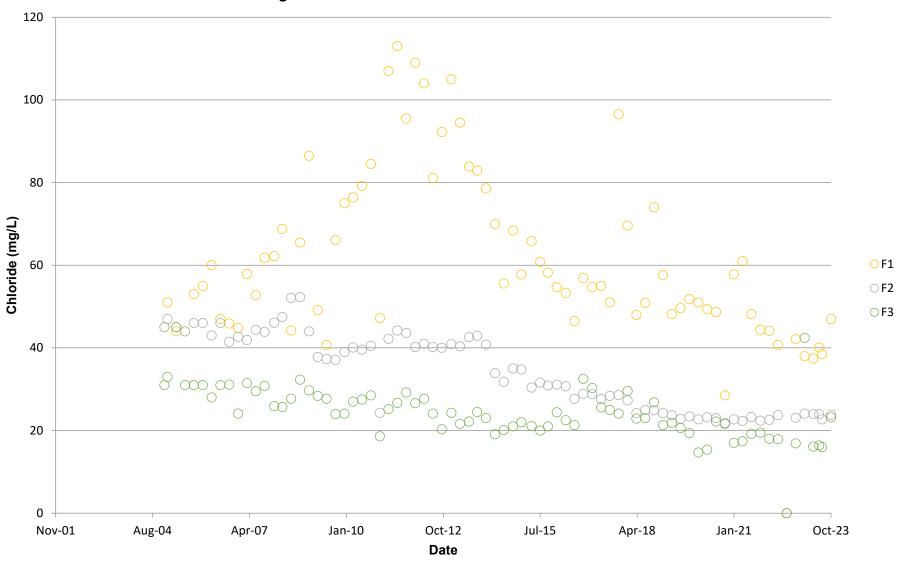
Sand Aquifer Downgradient of Old Landfill - E. coli



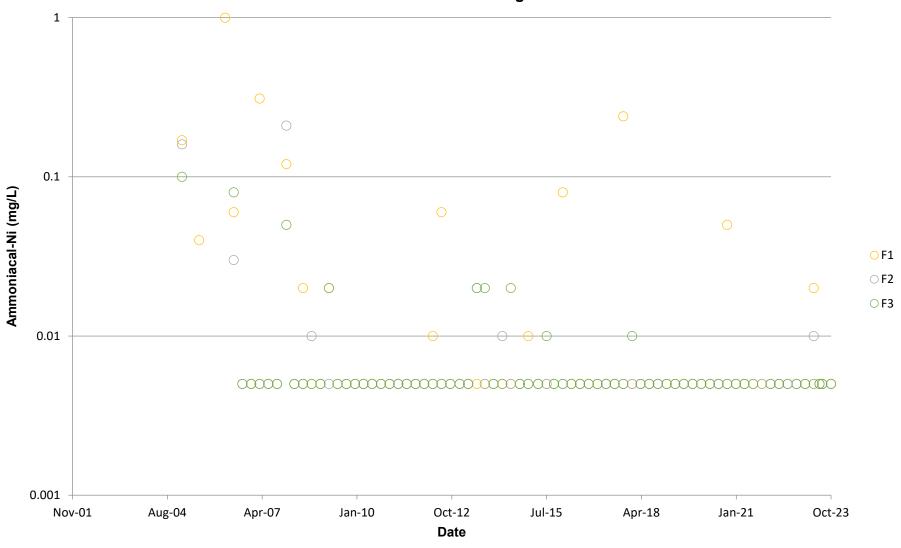
Irrigation Area - Boron Concentrations



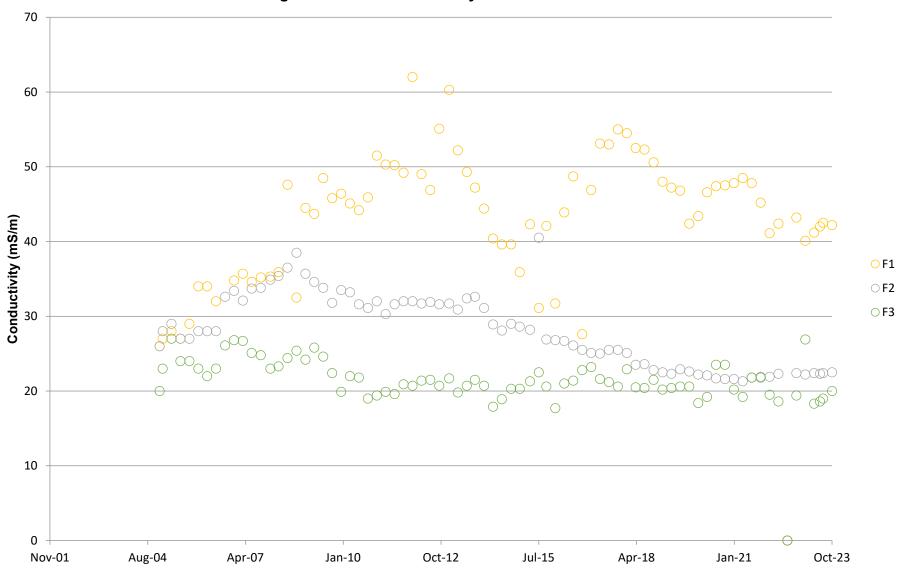
Irrigation Area - Chloride Concentrations



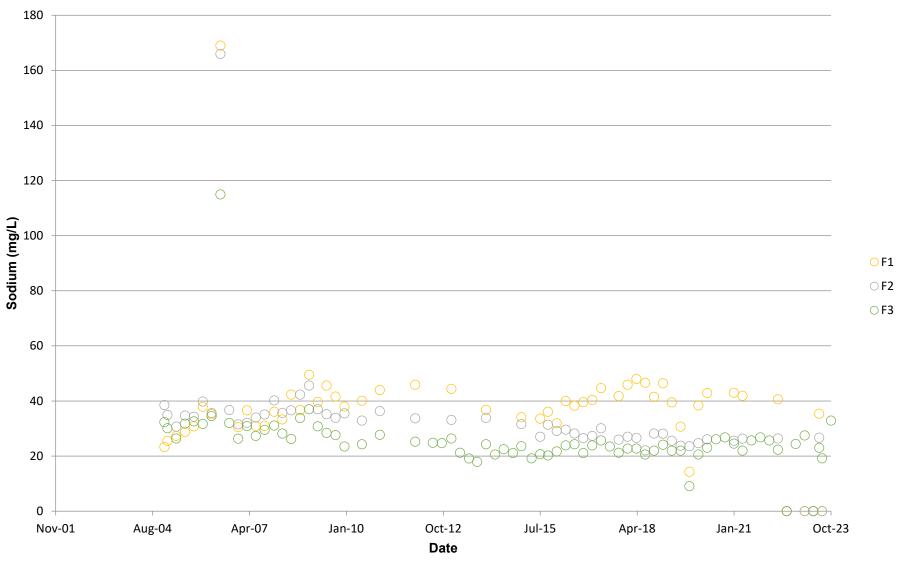
Irrigation Area - Ammoniacal-Nitrogen Concentrations Note: Y-axis scale is Logarithmic



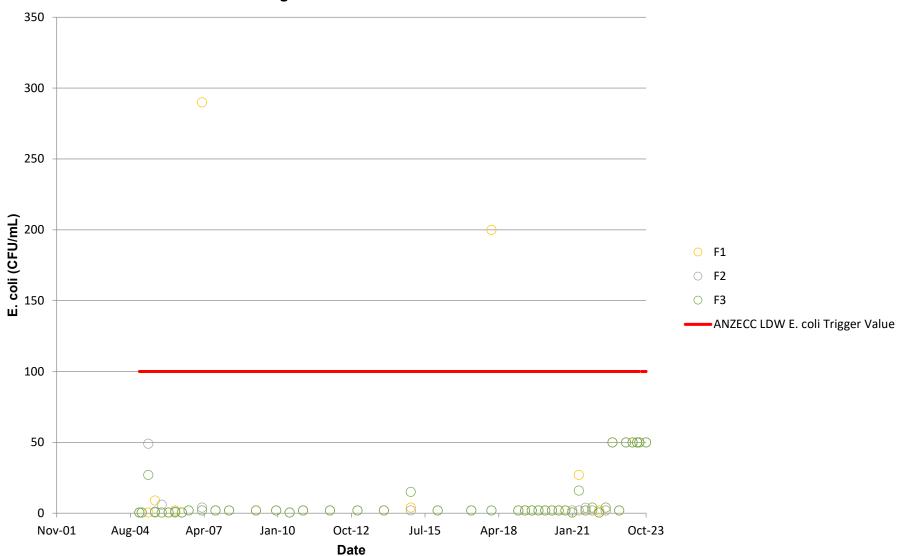
Irrigation Area - Conductivity Levels



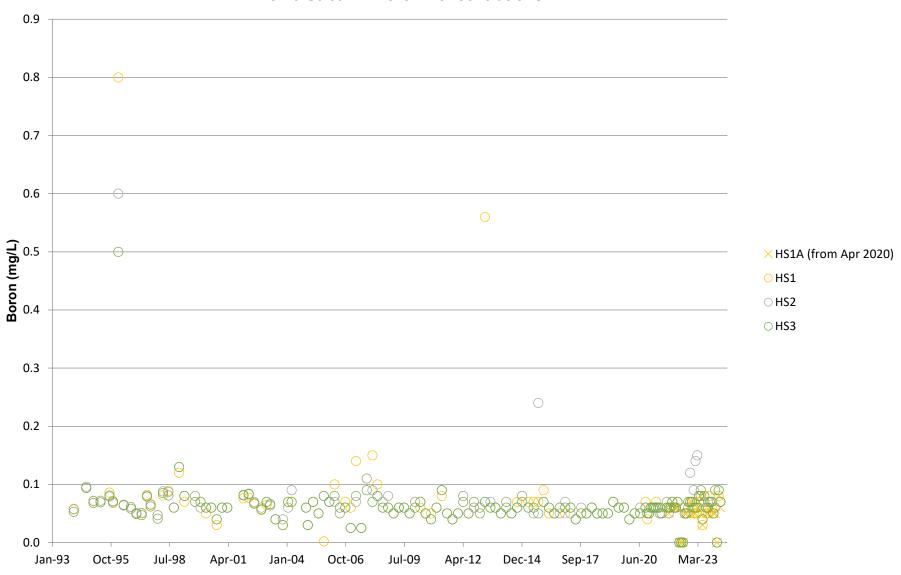
Irrigation Area - Sodium Concentrations



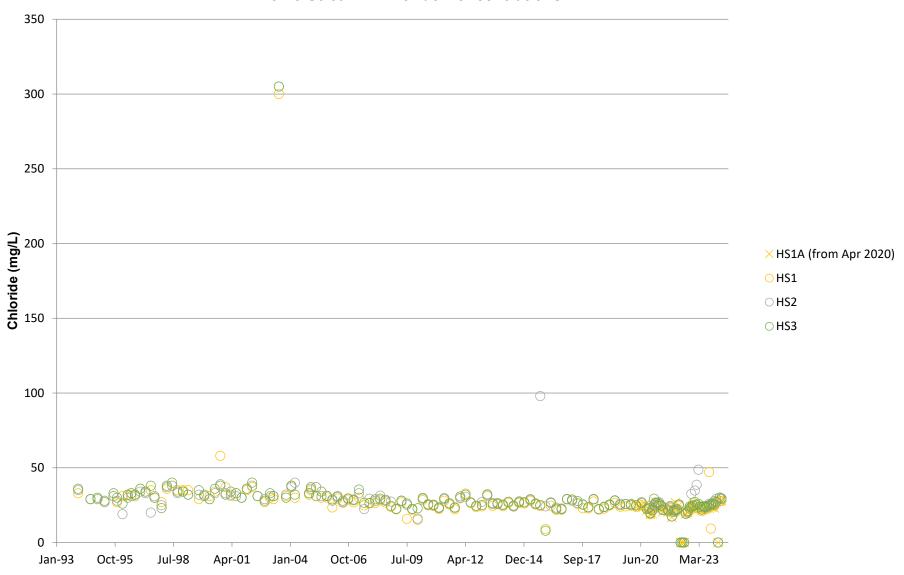




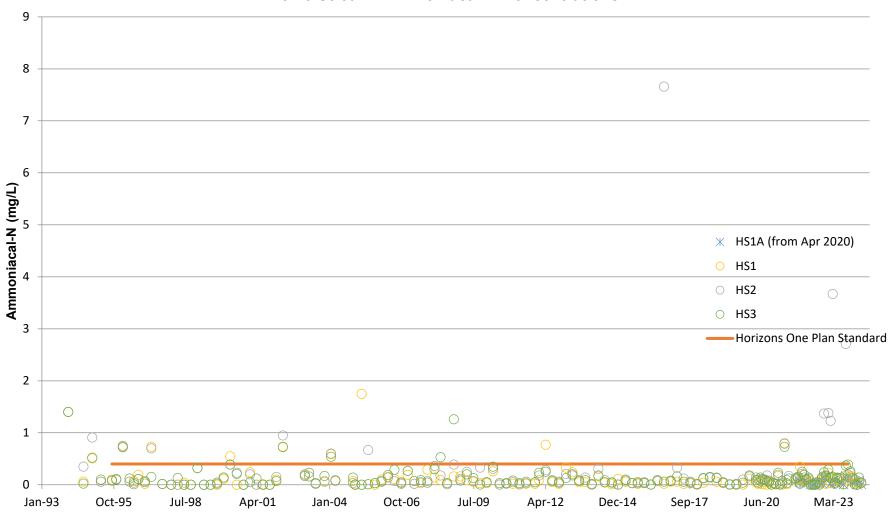
Hokio Stream - Boron Concentrations



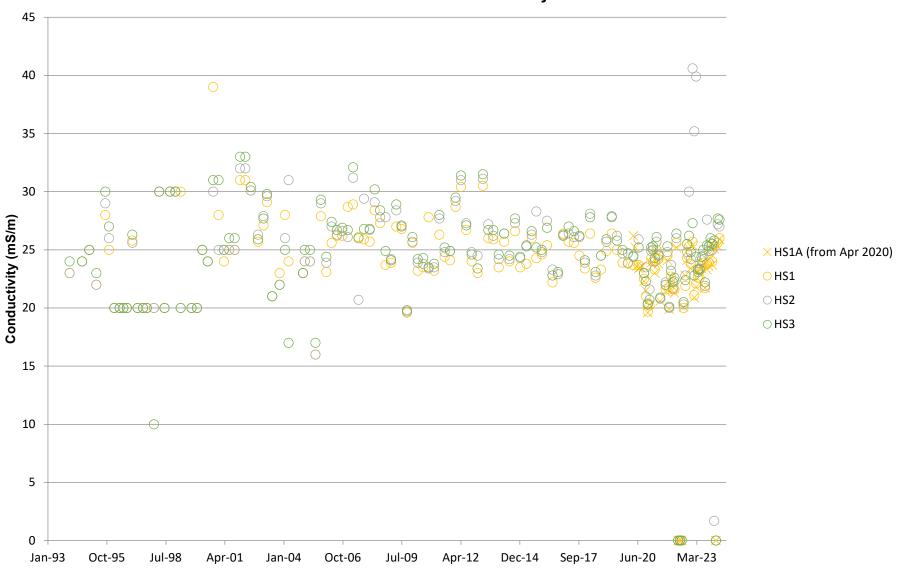
Hokio Stream - Chloride Concentrations



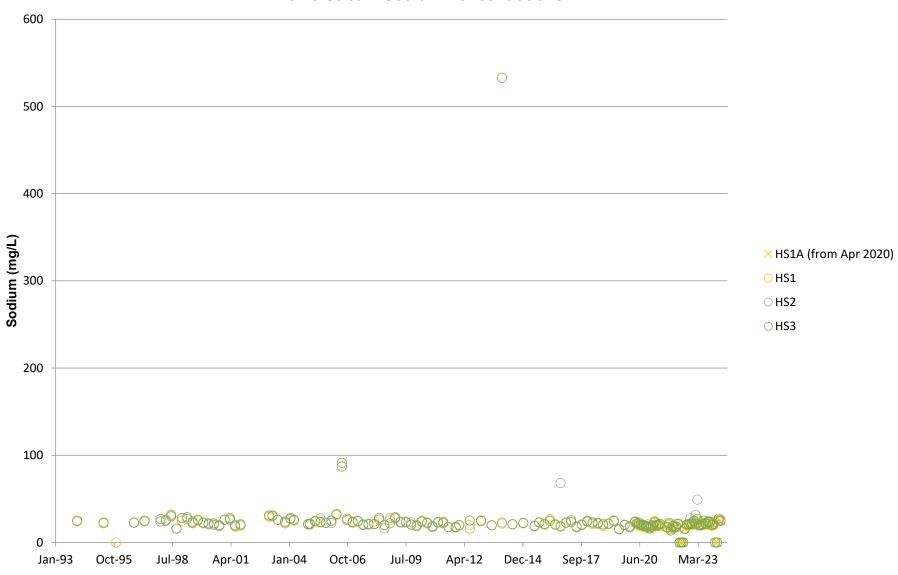
Hokio Stream - Ammoniacal-N Concentrations



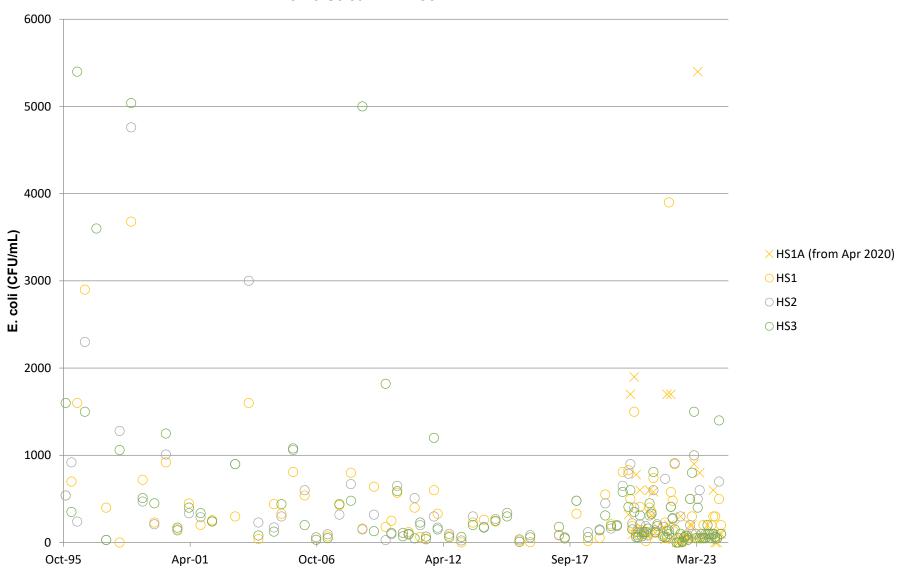
Hokio Stream - Conductivity



Hokio Stream Sodium Concentrations



Hokio Stream - E. coli



Appendix E Landfill Gas Monitoring Results at GW Bores for April 2024

Entry Date	Borehole	Methane (CH ₄) %	Carbon Dioxide (CO ₂) %	Hydrogen Sulphide (H₂S) ppm	Oxygen (O ₂) %
2024-04-05	Levin Landfill: Levin B3s	0	0.04	0	21.4
2024-04-05	Levin Landfill: Levin G1s	0.02	0.05	0	20.8
2024-04-05	Levin Landfill: Levin G1d	0	0.05	0	20.9
2024-04-05	Levin Landfill: Levin F1	0	0.04	0	20.9
2024-04-05	Levin Landfill: Levin D2	0	0.06	0	20.6
2024-04-05	Levin Landfill: Levin D1	0	0.05	0	20.9
2024-04-05	Levin Landfill: Levin D6	0.06	0.02	0	20.5
2024-04-05	Levin Landfill: Levin F2	0	0.04	0	20.8
2024-04-05	Levin Landfill: Levin F3	0	0.04	0	20.9
2024-04-05	Levin Landfill: Levin D3rs	0	0.03	0	20.4
2024-04-05	Levin Landfill: Levin D3rd	0	0.03	0	21
2024-04-05	Levin Landfill: Levin E1s	0	0.04	0	21.1
2024-04-05	Levin Landfill: Levin D4	0	0.04	0	21.5
2024-04-05	Levin Landfill: Levin D5	0.04	0.04	0	21.5
2024-04-05	Levin Landfill: Levin E1d	0	0.04	0	21.3
2024-04-05	Levin Landfill: Levin E2s	0.02	0.03	0	20.9
2024-04-05	Levin Landfill: Levin E2d	0.03	0.04	0	21
2024-04-05	Levin Landfill: Levin Xd1	0	0.05	0	21.4
2024-04-05	Levin Landfill: Levin C2	0	0.2	0	21
2024-04-05	Levin Landfill: Levin C2dd	0	0.03	0	21.1
2024-04-05	Levin Landfill: Levin C2ds	0	0.03	0	21.1
2024-04-05	Levin Landfill: BH103	0	0.04	0	20.9
2024-04-05	Levin Landfill: Levin B2	0	0.11	0	20.1
2024-04-05	Levin Landfill: Levin B1	0	0.08	0	20.2
2024-04-05	Levin Landfill: Levin G2s	0	0.07	0	20.2
2024-04-05	Levin Landfill: Levin C1	0.04	0.06	0	19
2024-04-05	Levin Landfill: Levin Xs2	0	0.05	0	20.7
2024-04-05	Levin Landfill: Levin Xs1	0.01	0.06	1	21.2



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