Levin Landfill January 2021 Quarterly Groundwater, Surface Water and Leachate Monitoring Report

PREPARED FOR Horowhenua District Council | March 2021

We design with community in mind

Stantec

Revision Schedule

Rev No.	Date	Description	Signature or Typed Name (documentation on file)			
			Prepared by	Checked by	Reviewed by	Approved by
0	24/02/2021	Draft for internal review	J. O'Brien	P. Landmark	P. Heveldt	R. Hulme
1	26/02/2021	Draft for Client	J. O'Brien	P. Landmark	P. Heveldt	R. Hulme
2	12/03/2021	Updated draft for client	J. O'Brien	P. Landmark	P. Heveldt	R. Hulme
3	25/03/2021	Final	J. O'Brien	P. Landmark	P. Heveldt	R. Hulme

Quality Statement

This document has been prepared for the benefit of Horowhenua District Council. No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other person.

This disclaimer shall apply notwithstanding that the report may be made available to Horowhenua District Council and other persons for an application for permission or approval to fulfil a legal requirement.

PROJECT MANAGER	PROJECT TECHNICAL LEAD
R. Hulme	P. Landmark

PREPARED BY		
J. O'Brien		24 / 02 / 2021
CHECKED BY		
P. Landmark		25 / 02 / 2021
REVIEWED BY		
P. Heveldt		26 / 02 / 2021
APPROVED FOR ISSUE BY		
R. Hulme		26 / 03 / 2021

PALMERSTON NORTH
118 Fitzherbert Avenue, Palmerston North 4410
PO Box 13-052, Armagh, Christchurch 8141
TEL +64 6 357 4034

STATUS Final | Project No 310101088

Table of Contents

LIST OF TABLES

LIST OF APPENDICES

Executive Summary

Horowhenua District Council (HDC) is required to carry out quarterly compliance monitoring of groundwater and monthly sampling of most of the surface water locations at the Levin Landfill, as part of the conditions on Resource Consents DP6009, DP6010, DP6011 and DP102259. This report summarises the findings for the monitoring events of the period from November 2020 to January 2021, including results for:

- Background (natural) groundwater
- Landfill leachate
- Groundwater bores within the new landfill and old irrigation area
- Shallow aquifers, down-gradient of the old landfill
- The deep aquifer, and
- The Hokio Stream.

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

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

Samples were collected from 26 groundwater bores, the landfill leachate at a manhole next to the leachate pond, and five surface water sites during the period from November 2020 to March 2021 from around and on the Levin Landfill, and were analysed for the parameters set out in Discharge Permit 6010.

The January 2021 samples were collected progressively over a 19-day period, which is a longer period than the normally accepted 7 days. Extending the sampling timeframe means that there is less confidence in comparing results from different parts of the site.

The resource consent for the landfill (namely discharge permit 6010) contains 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 2000 Aquatic Ecosystems (ANZECC AE) 95% trigger values, as provided under the revised Resource Consent Condition approved in December 2019.

The November 2020 to January 2021 monitoring results have been assessed against these limits, where they are applicable.

Twenty-six non-compliances with resource consent conditions were recorded at five individual monitoring locations, as follows:

- Exceedance of the DWSNZ MAV value for dissolved manganese (at bore C2DD) in the deep-water aquifer in January 2021.
- Exceedances of ANZECC AE 95% trigger values for scBOD5 (at HS1A (new), HS1, HS2, and HS3) in Hokio Stream between November 2020 and January 2021.
- Exceedances of ANZECC AE 95% trigger values for nitrate-n (at HS1A (new), HS1, HS2, and HS3) in Hokio Stream in December 2020.
- Exceedances of ANZECC AE 95% trigger values for dissolved copper (at HS1A (new), HS1, HS2, and HS3) in Hokio Stream in December 2020 and January 2021.
- Exceedance of ANZECC AE 95% trigger value for dissolved zinc (at HS3) in Hokio Stream in November 2020.
- Exceedance of ANZECC AE 95% trigger value for Nitrate-N at Tatana Drain in March 2021.

The November 2020 to January 2021 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 aluminium and iron concentrations in the same bore indicate that groundwater could be being impacted by up-gradient activities unrelated to the landfill operations.

Results from a sample of leachate, taken from a manhole next to the leachate pond, were within the range of data obtained from previous monitoring events at the leachate manhole and are generally well below those recorded at typical Class 1 landfills in New Zealand. Conductivity and mercury concentrations were observed at levels below the typical range, which is in keeping with previous results.

1.0 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 every three months at 27 locations, as required by the resource consent conditions (namely for discharge permit 6010). These sampling locations consist of 26 boreholes penetrating the sand and gravel aquifers, four surface water sampling locations within Hokio Stream, one surface sampling location along the Tatana Drain and a 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 and active landfill. The new landfill footprint is being developed in stages. The most recent stage is Stage 3C which was developed in 2017, though landfill operations are also now occurring over the top of Stages 1A, 2 and 3C.

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 advised 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.

The 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 is in the process of acting on all the changes. The sampling that was done in the January 2021 sampling round has been in line with what has been done previously, but different parameters have been applied to assess the surface water sampling results, as required by the new consent conditions.

This report presents the results for the January 2021 quarterly monitoring round.

Please note:

- The laboratory detection limit for e-coli is 1 cfu/100ml however in the results received, often they were note the result being below detection levels at 100 cfu/100ml or 4 cfu/100ml. This is assumed to be an error and has been noted in the report as not detected.
- The laboratory results for January 2021 were reported with a number followed by ± then a smaller number (e.g., 85.0 ± 8.50). It is assumed this is the concentration of the contaminant followed by the measurement variability). Accordingly, only the first number was used in this report.
- No laboratory results were received for the parameters phenol, and VFA for the majority of the January 2021 monitoring samples analysed. The reason for this is unknown.
- The consent requires the deep aquifer bore Xd1 to be sampled quarterly comprehensively for 1 year then annually comprehensively and with a quarterly indicator. No results have been received for this bore until March 2021. It is not known why this has not been sampled and/or analysed until now. The March 2021 result has been reported on in this quarterly report.
- The consent requires the shallow aquifer bores Xs1 and Xs2 to be sampled quarterly comprehensively for 2 years then annually comprehensively and with a quarterly indicator. No results have been received for these bores until March 2021. It is not known why these have not been sampled and/or analysed until now. The March 2021 result has been reported on in this quarterly report.

2.0 GROUNDWATER AND SURFACE WATER MONITORING

2.1 SAMPLE ANALYSIS

Samples were collected by Downer (a contractor to HDC) on 5 November 2020; 1, 3, and 24 December 2020; and 6, 7, 8, 11 January 2021. Samples were received by Eurofins ELS Ltd in Lower Hutt, Wellington on 6 November 2020; 4 and 22 December 2020; 7, 8, 9, and 12 January 2021; and 2 March 2021.

The sampling programme for April 2020 - January 2023 is summarised in the schedule in Appendix B. From July 2019, faecal coliform counts analyses have been included within the indicator and comprehensive analytical suites, as agreed

by HDC with the Horizons Regional Council (HRC). This means that faecal coliform counts will be assessed more frequently throughout each year, as compared to the past monitoring regime.

Groundwater samples taken from the boreholes were analysed for the comprehensive suite of parameters but have only been reported against the indicator suite of parameters which are outlined in Table 2-1, as required for the January 2021 sampling round. Surface water samples from Hokio Stream and samples of landfill leachate effluent were analysed for the comprehensive suite of parameters. Surface water samples collected from the Tatana Property drain were analysed based on a specific parameter list that has been included in the reviewed resource consent conditions. From the April 2020 monitoring round onwards, sampling of the Tatana Drain will follow the comprehensive and indicator suites of parameters used for other surface water sampling.

Note that, following the revision of the resource consent conditions which were approved in December 2019, soluble carbonaceous BOD_5 ($scBOD_5$) and soluble mercury (Hg) have each been added to the indicator and comprehensive suites of parameters, and E. coli 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 has commenced from the April 2020 sampling round.

Table 2-1: Indicator Parameters

Type	Parameters
Characteristics	pH Electrical Conductivity (EC)
Oxygen demand	Chemical Oxygen Demand (COD), scBOD5++
Nutrients*	Nitrate nitrogen (NO_3-N), Ammoniacal-nitrogen (NH_4-N)
Metals*	Aluminium, Iron**, Lead, Manganese, Nickel
Other elements	Boron, Chloride, Sodium**, Mercury++
Biological+	Faecal coliforms

Note:

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

**Selected bores as per stormwater consent 102559

+Faecal coliforms added from July 2019 onwards (see Appendix B)

++Soluble carbonaceous BOD5 (scBOD5) and Soluble Mercury added as per revised consent conditions for Discharge Permit 6010, December 2019

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, and a median calculated on this basis. This is standard practice when dealing with chemical concentrations in water. However, the same rule cannot be applied for E. coli in the context of the Levin Landfill.

The laboratory detection limit for E. coli is 4 CFU/100mL (4 Colony Forming Units/100mL). As the resource consent requires that groundwater results for E. coli be compared against the DWSNZ (for compliance), which sets a value of NIL (I.e. 0 CFU/100mL), we have chosen to indicate where E. coli organisms were <u>not</u> detected, rather than calculating a median as we would for chemical constituents (described above). This method has been applied in all instances where E. coli numbers are assessed for compliance with the DWSNZ.

2.2 BACKGROUND GROUNDWATER QUALITY

Water quality from the natural background 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 were 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 (bores G1S, G1D, and Xd1, Site Plan, Appendix A). These three bores were constructed in late 2009 to sample background water quality from the two main hydrogeological units.

The results are presented in Table 2-2.

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.

Table 2-2: Background Monitoring Results for January 2021 and March 2021

Determinant	Units	DWSNZ MAV	ANZECC LDW	January 2021			March 2021
				G1S	G1D	F3	Xd1
Water level	mBGL	-	-	14.35	14.5	5.07	2.85
pH	-	7 to 8.5*	6 to 9	**6.9**	7.2	7.3	7.7
Conductivity	mS/m	-	-	37.2	27.6	20.2	54.1
scBOD5	mg/L	-	-	*3*	*0.5*	*0.5*	*1*
COD	mg/L	-	-	125	19	*7.5*	36
Faecal coliforms	CFU/100ml	NIL	100	*ND*	ND	ND	ND
Chloride	mg/L	250*	-	46	30.7	17	59.7
Nitrate-N	mg/L	11.3	90.3	*0.005*	*0.005*	2.37	*0.005*
Ammoniacal-N	mg/L	1.17	-	0.05	0.1	*0.005*	0.09
Sodium	mg/L	200*	-	67.4	30.7	24.5	Not reported
Dissolved Aluminium	mg/L	0.1*	5	**0.194**	0.006	0.002	0.007
Dissolved Boron	mg/L	1.4	5	0.015	0.04	*0.015*	0.06
Dissolved Iron	mg/L	0.2*	-	**3.67**	**0.528**	*0.0025*	Not reported
Dissolved Lead	mg/L	0.01	0.1	*0.00025*	0.0009	*0.00025*	*0.00025*
Dissolved Manganese	mg/L	0.4	-	0.0609	0.0627	0.0007	**0.459**
Dissolved Mercury	mg/L	0.007	0.002	*0.00025*	*0.00025*	*0.00025*	*0.00025*
Dissolved Nickel	mg/L	0.08	1	0.002	*0.00025*	0.0005	0.0011

Notes:

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

Bold – denotes an exceedance of the relevant DWSNZ guidelines

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

'ND' indicates where E. coli were not detected

n/r – not required to be tested during this monitoring period

The results in Table 2-2 indicate that all background bores (G1S, G1D and F3) contain groundwater that has concentrations of all monitored parameters within the ANZECC LDW trigger values.

There were three exceedances of the DWSNZ limits during the January 2021 monitoring round, for dissolved iron and aluminium at G1S and dissolved iron at G1D. It is also noted that the pH level for GIS (6.9) is below the DWSNZ range of 7-8.5.

There was one exceedance of the DWSNZ limits during the March 2021 monitoring round for dissolved manganese at Xd1 where the contaminant concentration of 0.459 mg/L exceeds the DWSNZ limit of 0.4 mg/L.

It is noted that bores G1S, G1D, and Xd1 are background bores and therefore any exceedances of the DWSNZ in these bores do not constitute non-compliances with the consent conditions.

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 respectively.

2.3.1 Shallow Aquifer

Bores D1, D2, D3(r), D4, D5, D6, E1S, Xs1, and Xs2 (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 D4 is likely to show evidence of 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. It is unlikely that leachate from the new landfill will significantly affect groundwater quality due to the leachate collection system which is in place at the new landfill; however, these bores would still give early warning of any potential problems.

The results from the January 2021 monitoring round for these bores are presented in Table 2-3. 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.

There were no exceedances of the resource consent conditions during the January 2021 monitoring round.

Table 2-3: D-Series and E1S Monitoring Bore Results for January 2021

Determinant	Units	ANZECC LDW	D1	D2	D3(r)	D4	D5	D6	E1S	Xs1	Xs2
Water level	mBGL	-	16.895	21.4	4.55	7.83	9.49	16.49	11.35	0.97	2.54
pH	-	6 to 9	6.7	6.4	6.7	7.2	7.4	6.8	6.9	7.2	6.9
Conductivity	mS/m	-	48.2	37.7	21.7	30.3	31.2	36.6	25.7	135	21.4
scBOD5	mg/L	-	*0.5*	*3*	*0.5*	*0.5*	*0.5*	*0.5*	*1.5*	*3*	*1.5*
COD	mg/L	-	*7.5*	30	*7.5*	*7.5*	21	*7.5*	18	82	*7.5*
Faecal coliforms	CFU/100 ml	100	ND	ND	ND	ND	ND	24	ND	ND	ND
Chloride	mg/L	-	32.7	35.6	23.3	40.9	29.9	17.7	28.5	125	21.7
Nitrate-N	mg/L	90.3	9.98	*0.005*	0.16	*0.005*	0.84	16.7	*0.005*	*0.005*	0.58
Ammoniacal-N	mg/L	-	0.02	0.55	0.19	0.25	*0.005*	0.05	0.2	3.11	0.02
Sodium	mg/L	-	43.1	31.3	25.5	33.4	32.4	31.8	27.6	102	17.6
Dissolved Aluminium	mg/L	5	*0.001*	0.013	0.002	*0.001*	*0.001*	*0.001*	0.016	0.003	0.008
Dissolved Boron	mg/L	5	0.06	0.07	0.03	0.04	0.03	0.06	0.03	0.51	0.04
Dissolved Iron	mg/L	-	*0.0025*	17.2	2.35	1.59	0.086	0.007	4.77	1.63	0.219
Dissolved Lead	mg/L	0.1	*0.00025*	*0.00025*	*0.00025*	*0.00025*	*0.00025*	*0.00025*	0.007	*0.00025*	*0.00025*
Dissolved Manganese	mg/L	-	*0.00025*	0.314	0.179	0.202	0.0185	*0.00025*	0.236	0.884	0.131
Dissolved Mercury	mg/L	0.002	*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*	*0.00025*	*0.00025*	*0.00025*	*0.00025*	*0.00025*	*0.00025*	0.0025	0.0008

Notes:

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

'ND' indicates where E. coli were not detected

n/r – not required to be tested during this monitoring period

2.3.2 Deep Gravel Aquifer

Bores E1D, C2DD, E2D and G1D 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.

Results for the January 2021 compliance monitoring round are presented in Table 2-4. The results have been compared with the DWSNZ as per the requirements of discharge consent 6010. The full laboratory report is included in Appendix C.

Table 2-4: Results for Monitoring Bores within the Deep Aquifer for January 2021

Determinant	Units	DWSNZ MAV	E1D	C2DD	E2D
Water level	mBGL	-	Not reported	2.455	5.4
pH	-	7 to 8.5*	7.6	7.6	7.7
Conductivity	mS/m	-	44.7	54.4	34.7
scBOD5	mg/L	-	*0.5*	*1.5*	*0.5*
COD	mg/L	-	*7.5*	*7.5*	*7.5*
Faecal coliforms	CFU/100ml	NIL	ND	ND	ND
Chloride	mg/L	250*	38.9	46.0	47.3
Nitrate-N	mg/L	11.3	*0.005*	*0.005*	*0.005*
Ammonia-N	mg/L	1.17	0.19	0.33	0.29
Sodium	mg/L	200*	35.5	39.4	28.4
Dissolved Aluminium	mg/L	0.1*	0.002	0.003	*0.001*
Dissolved Boron	mg/L	1.4	0.06	0.07	0.03
Dissolved Iron	mg/L	0.2*	0.026	0.031	0.066
Dissolved Lead	mg/L	0.01	*0.00025*	*0.00025*	*0.00025*
Dissolved Manganese	mg/L	0.4	0.226	**0.662**	0.212
Dissolved Mercury	mg/L	0.007	*0.00025*	*0.00025*	*0.00025*
Dissolved Nickel	mg/L	0.08	*0.00025*	*0.00025*	*0.00025*

Notes:

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

Bold – denotes an exceedance of the relevant DWSNZ (2008) standard

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

n/r – not required to be tested during this monitoring period

'ND' indicates where E. coli were not detected

There was one exceedance of the resource consent conditions in samples from the deep gravel aquifer during the January 2021 sampling round. The dissolved manganese concentration in bore C2DD was above the DWSNZ MAV.

Please note, even though this exceedance is considered marginal, this Mn exceedance at bore C2DD is within the historical range of concentrations observed.

2.4 IMPACT OF OLD LANDFILL ON GROUNDWATER QUALITY

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 50 m 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. 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 (See Site Plan, Appendix A).

The results from the January 2021 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 discharge consent 6010. The full laboratory report is included in Appendix C.

There were no exceedances of the ANZECC LDW trigger values during the January 2021 monitoring round. Therefore, these results show full compliance with the resource consent conditions.

Table 2-5: Monitoring Results for Shallow Boreholes Down-Gradient from the Old Landfill for January 2021

Determinant	Units	ANZECC LDW	E2S	B1	B2	B3	C1	C2	C2DS	G2S
Water level	mBGL	-	4.515	0.863	1.07	0	0	0	2.547	1.87
pH	-	6 to 9	7.8	7.0	7.1	7.2	6.8	7.4	7.1	7.2
Conductivity	mS/m	-	43.8	174	161	246	114	250	137	155
scBOD5	mg/L	-	*0.5*	*0.5*	*0.5*	7	*3*	22	*3*	*0.5*
COD	mg/L	-	18	63	91	150	285	135	105	38
Faecal coliforms	CFU/100ml	100	ND	4	44	ND	ND	ND	ND	ND
Chloride	mg/L	-	44	291	88.1	159	181	201	118	311
Nitrate-N	mg/L	90.3	*0.005*	13.1	37.6	*0.05*	*0.005*	*0.05*	*0.005*	*0.005*
Ammoniacal-N	mg/L	-	0.28	8.58	28.4	159	10.8	156	1.27	0.02
Sodium	mg/L	-	44.2	132	119	122	112	166	105	185
Dissolved Aluminium	mg/L	5	*0.001*	0.004	0.02	0.006	0.008	0.016	*0.001*	0.003
Dissolved Boron	mg/L	5	0.06	0.830	1.77	1.11	0.74	1.69	0.86	0.84
Dissolved Iron	mg/L	-	0.019	0.056	0.083	0.853	0.711	1.95	16.3	0.034
Dissolved Lead	mg/L	0.1	*0.00025*	*0.00025*	*0.00025*	*0.00025*	0.00025	*0.00025*	*0.00025*	*0.00025*
Dissolved Manganese	mg/L	-	0.376	9.07	2.41	2.52	0.354	0.0516	2.05	0.119
Dissolved Mercury	mg/L	0.002	*0.00025*	*0.00025*	*0.00025*	*0.00025*	*0.00025*	*0.00025*	*0.00025*	*0.00025*
Dissolved Nickel	mg/L	1	*0.00025*	0.0023	0.0022	0.0072	0.0008	0.0035	0.0018	0.0031

Notes:

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

n/r – not required to be tested during this monitoring period

'ND' indicates where E. coli were not detected

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. F2 and F3 boreholes are in an area that was set aside for leachate irrigation but was never used as such. 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 the discharge consent 6010. The full laboratory report is included in Appendix C.

There were **no exceedances of the resource consent conditions** during the January 2021 monitoring round.

Table 2-6: Results from Monitoring Bores in the Irrigation Area for January 2021

Determinant	Units	ANZECC LDW	F1	F2	F3
Water level	mBGL	-	7.7	2.67	5.07
pH	-	6 to 9	7.2	7.3	7.3
Conductivity	mS/m	-	47.8	21.6	20.2
scBOD5	mg/L	-	*0.5*	*0.5*	*0.5*
COD	mg/L	-	28.0	19	*7.5*
Faecal coliforms	CFU/100ml	100	ND	ND	ND
Chloride	mg/L	-	57.8	22.7	17
Nitrate-N	mg/L	90.3	1.89	0.25	2.37
Ammoniacal-N	mg/L	-	*0.005*	*0.005*	*0.005*
Sodium	mg/L	-	43	25.6	24.5
Dissolved Aluminium	mg/L	5	*0.001*	*0.001*	0.002
Dissolved Boron	mg/L	5	0.015	0.03	*0.015*
Dissolved Iron	mg/L	-	*0.0025*	0.009	*0.0025*
Dissolved Lead	mg/L	0.1	*0.00025*	*0.00025*	*0.00025*
Dissolved Manganese	mg/L	-	0.0042	0.005	0.0007
Dissolved Mercury	mg/L	0.002	*0.00025*	*0.00025*	*0.00025*
Dissolved Nickel	mg/L	1	*0.00025*	*0.00025*	0.0005

Notes:

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

n/r – not required to be tested during this monitoring period

'ND' indicates where E. coli were not detected

2.6 LEACHATE EFFLUENT RESULTS

Leachate effluent from the landfill is not subject to any water quality consent conditions. However, for comparison purposes, typical leachate characteristics for landfills, as published by the Waste Management Institute New Zealand (*Technical Guidelines for Disposal to Land*, August 2018, WasteMINZ), have been compared against the leachate quality monitoring results (Table 2-7). The full laboratory report is included in Appendix C. Table 2-7 shows that the concentrations of monitored parameters for leachate effluent samples collected in November 2020, December 2020, and January 2021 were mostly within the typical ranges to be expected for this type of landfill. The results for conductivity (in December 2020) and mercury (November 2020, December 2020, and January 2021) were below the typical leachate ranges, however this is not considered an issue.

It is also noted that the leachate effluent is sent to Levin WWTP for treatment.

Table 2-7: Results from Leachate Effluent Monitoring for November 2020, December 2020, and January 2021

Determinant	Units	Typical Leachate Characteristics*	Leachate Effluent		
		(range)	November	December	January
pH		5.9 - 8.5	7.9	8.0	7.9
Suspended Solids	mg/l	-	48	100	57
Phenol	mg/L	-	*0.025*	*0.025*	Not reported
VFA	mg/L	-	9	*2.5*	Not reported
TOC	mg/L	-	683	503	582
Alkalinity	mg CaCO3/L	-	5890	4860	5680
Conductivity	mS/m	308 – 27,900	1470	1.1	1330
COD	mg/L	84 – 5,090	3560	2340	3880
scBOD5	mg/L	-	108	71	172
E-Coli	CFU/100mL	-	2100	110	45500
Chloride	mg/L	45 – 2,584	1050	816	1200
Nitrate-N	mg/L	-	0.58	9.3	*0.5*
Sulphate	mg/L	-	61.7	137	54.5
Ammonia-N	mg/L	3.4 – 1,440	1300	969	1120
Hardness	mg CaCO3/L	-	458	446	436
Calcium	mg/L	-	96.2	99.3	93.7
Magnesium	mg/L	-	52.9	47.9	48.9
Potassium	mg/L	-	639	546	645
Sodium	mg/L	50 – 4,000**	907	747	811
D.R. Phosphorus	mg/L	-	11.2	8.41	15.1
Dissolved Aluminium	mg/L	-	0.575	0.377	0.576
Dissolved Arsenic	mg/L	-	0.282	0.295	0.314
Dissolved Boron	mg/L	0.54 – 20.1	5.97	5.77	6.05
Dissolved Cadmium	mg/L	-	*0.0001*	*0.0001*	*0.0001*
Dissolved Chromium	mg/L	-	0.604	0.521	0.598
Dissolved Copper	mg/L	-	0.01	0.0187	0.012
Dissolved Iron	mg/L	1.6 – 220	4.21	3.27	4.21
Dissolved Lead	mg/L	0.001 - 0.42	0.0027	0.0025	0.0025
Dissolved Manganese	mg/L	0.3 - 45***	1	1.09	1.03
Dissolved Mercury	mg/L	0.2 - 50	*0.00025*	*0.00025*	*0.00025*
Dissolved Nickel	mg/L	0.02 – 2.05**	0.109	0.0947	0.109
Dissolved Zinc	mg/L	-	0.072	0.073	0.057

Notes:

* for Class 1-type landfills, Table 5-5, p82, Technical Guidelines for Disposal to Land, WasteMINZ August 2018 (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, p81 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, p81 of the same guideline, for parameters during the methanogenic phase

Bold – denotes a deviation from the typical leachate characteristics range

2.7 TATANA PROPERTY DRAIN

A drain is located on 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).

The revised consent conditions have now reduced the extent of sampling to one location. This is known as 'TD1' and is the same sampling location as for the previously denoted 'SW3'.

Results from the March 2021 sampling round are presented in Table 2-8 and have been compared with the ANZECC AE[1] 95% trigger values as per the revised resource consent conditions.

Table 2-8 Tatana Drain Monitoring Results for March 2021

Determinant	Units	ANZECC AE (95%)	TD1 (formerly SW3)
pH	-	-	7.6
Conductivity	mS/m	-	53.7
COD	mg/L	-	39
scBOD5	mg/L	2	*1.5*
E-Coli	CFU/100ml	-	24
Chloride	mg/L	-	57.4
Nitrate-N	mg/L	0.16	**0.54**
Ammoniacal-N	mg/L	2.1	0.01
Dissolved Aluminium	mg/L	0.055	0.009
Dissolved Boron	mg/L	0.370	0.22
Dissolved Lead	mg/L	0.0034	*0.00025*
Dissolved Manganese	mg/L	1.9	0.021
Dissolved Mercury	mg/L	0.0006	*0.00025*
Dissolved Nickel	mg/L	0.011	0.0015

Notes:
Bold – denotes an exceedance of the ANZECC AE 95% protection level trigger values
All `<' values have been reported as half the detection limit for statistical purposes and are expressed in italics

There was one exceedance of the resource consent conditions in a sample from the Tatana Drain property at TD1 during the March 2021 sampling round. The Nitrate-N concentration was above the ANZECC AE 95% trigger value, though in keeping with historical results. In the previous quarterly report, Ammoniacal-N was noted as exceeding the ANZECC AE (95%) limit and showing a sudden change compared to previous results. It is noted that the concentration in the March 2021 sampling round is below ANZECC AS (95) and significantly lower than historical ranges. The cause of these significant concentration fluctuations is unknown and should be monitored in subsequent reports.

2.8 HOKIO STREAM

Surface water grab samples are obtained 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 Tatana Property Drain discharge, and HS3 is located approximately 50m down-stream of the landfill site property boundary and the Tatana Property Drain discharge. Samples from these monitoring locations on Hokio Stream are analysed for comprehensive parameters every month (as shown in Appendix B).

Results from the November 2020, December 2020, and January 2021 sampling rounds are presented in Table 2-9 and have been compared with the ANZECC AE 95% trigger values, as per the revised resource consent conditions.

[1]Australian 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

Monitoring for scBOD5 and soluble mercury concentrations have now been added as per the revised Resource Consent conditions.

The revised conditions have been recently implemented and monitoring of these additional parameters and at the new location commenced during the April 2020 monitoring round.

Table 2-9: Hokio Stream Monitoring Results for November 2020, December 2020, and January 2021

Determinant	Units	ANZECC AE (95%)	Consent Trigger Values (Table C1)	HS1A (new)			HS1			HS2			HS3		
				Nov	Dec	Jan	Nov	Dec	Jan	Nov	Dec	Jan	Nov	Dec	Jan
pH	-	-	-	9.3	8.6	8.1	9.2	8.7	8.8	9.0	8.3	8.2	9.1	8.3	8.2
Suspended Solids	mg/l	-	-	246	104	160	64	33	57	118	69	87	43	47	49
Phenol	mg/L	0.320	-	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*	NR	*0.025*	*0.025*	NR	*0.025*	*0.025*	NR
VFA	mg/L	-	-	*2.5*	*2.5*	*2.5*	*2.5*	*2.5*	NR	*2.5*	*2.5*	NR	*2.5*	*2.5*	NR
TOC	mg/L	-	-	16.2	11.8	14.4	14.9	15.2	12.6	15.5	17.5	12.5	13.2	15.7	10.4
Alkalinity	mg CaCO3/L	-	-	51	47	44	48	48	48	60	46	54	53	49	47
Conductivity	mS/m	-	-	21.5	19.6	20.3	21.0	19.7	20.2	23.5	20.4	21.6	22.3	20.3	20.7
COD	mg/L	-	-	40	54	49	50	87	83	57	112	77	67	99	69
scBOD5	mg/L	2	Monthly Ave. 2	**3**	**3**	*1.5*	**3**	**6**	**11**	**3**	**3**	**10**	**2**	**2**	**7**
E-Coli	CFU/100ml	-	-	160	80	110	140	120	16	120	100	190	72	120	120
Chloride	mg/L	-	-	22.2	18.8	19.2	22.2	18.9	21.2	24.1	19.8	22.6	23.0	19.5	21.5
Nitrate-N	mg/L	0.16	0.16	*0.005*	**0.410**	0.02	*0.005*	**0.41**	0.01	0.02	**0.41**	0.11	*0.005*	**0.41**	0.07
Sulphate	mg/L	-	-	18.8	16.6	14.4	18.7	16.7	15.9	18.1	16.4	15.3	18.3	16.5	15.5
Ammoniacal-N	mg/L	2.1	Max. 2.1 Ave. 0.400	*0.005*	0.03	*0.005*	*0.005*	0.03	0.02	*0.005*	0.03	0.01	*0.005*	0.03	0.01
Hardness	mg CaCO3/L	-	-	55	50	52	57	51	54	62	52	58	56	52	55
Calcium	mg/L	-	-	11.9	10.4	11.6	12.1	10.6	11.8	13.4	10.9	12.6	12.0	10.9	11.9
Magnesium	mg/L	-	-	6.08	5.82	5.64	6.38	5.93	6.08	6.99	6.12	6.38	6.29	6.04	6.02
Potassium	mg/L	-	-	2.59	3.2	2.92	2.61	3.1	3.33	2.97	3.35	3.9	0.79	3.12	3.56
Sodium	mg/L	-	-	17.6	15.6	17	18.1	15.9	17.7	20.8	16.5	19.2	17.8	16.2	18
D.R. Phosphorus	mg/L	-	-	0.007	0.008	0.015	0.007	0.008	0.012	0.007	0.008	0.013	0.007	0.007	0.012
Dissolved Aluminium	mg/L	0.055	Med. 0.055	0.016	0.032	0.013	0.012	0.042	0.04	0.011	0.038	0.022	0.012	0.044	0.029
Dissolved Arsenic	mg/L	0.024	Med. 0.024	*0.0005*	0.001	0.001	*0.0005*	0.001	0.001	*0.0005*	0.001	0.001	*0.0005*	0.001	0.001

Determinant	Units	ANZECC AE (95%)	Consent Trigger Values (Table C1)	HS1A (new)			HS1			HS2			HS3		
				Nov	Dec	Jan	Nov	Dec	Jan	Nov	Dec	Jan	Nov	Dec	Jan
Dissolved Boron	mg/L	0.370	-	0.05	0.05	0.06	0.04	0.05	0.06	0.05	0.05	0.06	0.05	0.05	0.06
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	0.0013	**0.0019**	**0.0017**	0.0012	**0.0019**	**0.0014**	0.001	**0.0018**	**0.0016**	0.0011	**0.0018**	**0.0014**
Dissolved Iron	mg/L	-	-	0.028	0.057	0.058	0.027	0.057	0.035	0.036	0.113	0.056	0.031	0.078	0.06
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	-	0.0016	0.0062	0.0043	0.0020	0.0075	0.0040	0.0026	0.0321	0.0036	0.0050	0.0086	0.0032
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	*0.00025*	*0.00025*	*0.00025*	*0.00025*	*0.00025*	*0.00025*	*0.00025*	*0.00025*	*0.00025*	*0.00025*	*0.00025*	*0.00025*
Dissolved Zinc	mg/L	0.008	Med. 0.008	0.001	0.003	0.002	*0.001*	*0.001*	*0.001*	*0.001*	0.002	0.002	**0.008**	*0.001*	*0.001*

Notes:

NR = Not reported

Bold – denotes an exceedance of the ANZECC AE 95% protection level trigger values

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

There were **twenty-four exceedances** of the resource consent conditions in samples from the Hokio Stream during the November 2020, December 2020, and January 2021 sampling rounds; these are summarised as:

- For all sampling rounds (November 2020, December 2020, and January 2021), most of the results for scBOD5 exceeded the ANZECC AE (95%) trigger value for HS1A (new), HS1, HS2, and HS3. The only exception was in January 2021 for HS1A (new) which was below the trigger value.
- For December 2020, nitrate-n exceeded the ANZECC AE (95%) trigger value at HS1A (new), HS1, HS2, and HS3.
- For December 2020 and January 2021, dissolved copper exceeded the ANZECC AE (95%) trigger value at HS1A (new), HS1, HS2, and HS3.
- For November 2020, dissolved zinc exceeded the ANZECC AE (95%) trigger value at HS3.

The difference between the sites is marginal and shows little to no change in concentrations between upstream and downstream sites. For some parameters there may be an apparent decreasing trend downstream but this is not consistent over all parameters and may even increase slightly for some parameters. Therefore, this suggests that any influence found is likely the result of upstream sources and not the old (closed) landfill.

3.0 GAS DETECTION IN MONITORING WELLS

Condition 4 of Discharge Permit 6011 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, gas monitoring results were reported in the Annual Report. A recommendation of the 2019-2020 Annual Report is that this should be done every quarter so that if any results are unusually high, that appropriate action can be undertaken, including putting safeguards in place at bores.

Appendix E summarises the results of gas testing undertaken on 05 January 2021.

Methane was detected in various amounts in 20 of the 23 groundwater monitoring bores.

The highest recorded level was 0.94% in Bore D4, which is 9,400ppm and is 5 times below the lower explosive limit. Another nine bores also recorded levels above 5,000ppm.

These results are significantly higher than recorded in the past and it is important to determine the reasons for this. It may be that there is an accumulation of methane that disperses rapidly once the bore cover is removed. If the reading is taken immediately in removing the cover then it is also suggested that a further reading be taken at the end of the groundwater sampling procedure to determine if it has changed. It is also possible that a different instrument is being used compared to the past. This matter should be discussed with Downer.

The elevated methane results require that health and safety measures are adopted around the groundwater monitoring bores, as for the landfill gas extraction wells. No smoking should be permitted by personnel who undertake the groundwater sampling when in the vicinity of the groundwater wells, besides adhering to the landfill rules about no smoking at the site.

4.0 DISCUSSION

4.1 SAMPLING QUALITY CONTROL AND ASSURANCE

The landfill extends over a significant area and there are many sampling locations. However, it is important that the length of the sampling period is kept as brief as possible because a sampling period that is too long may make comparisons of results between rounds and individual monitoring locations less valid. This current monitoring round was carried out over a 19-day period between 24 December 2020 and 11 January 2021. This is a longer timespan than the previous monitoring round which was 15 days. This monitoring period is slightly longer than the recommended period (i.e. obtaining all samples within 7 days) and therefore the results must be interpreted with some caution.

4.2 BACKGROUND GROUNDWATER QUALITY

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

Results since 2010 from the background bores indicate that low pH values are representative of background water quality in the shallow sand aquifer (G1S) and, during the January 2021 monitoring round, the pH level (6.9) was slightly below the guideline level of 7 prescribed by DWSNZ MAV. The deeper gravel aquifer (G1D) had a pH that was slightly higher at 7.2.

Iron concentrations have fluctuated considerably at both the G1S and G1D bores since monitoring began and are occasionally above the DWSNZ GV. During the January 2021 sampling round, iron concentrations at G1S (3.67 mg/L) and G1D (0.528 mg/L) exceeded the DWSNZ GV of 0.2 mg/L but were within the historical results range recorded at these bores. Elevated iron concentrations in groundwater are likely to be related to hydrogeological conditions found at the site and this phenomenon is common in groundwater in this area.

During the January 2021 sampling round, aluminium concentrations were slightly elevated at G1S (0.194 mg/L), and marginally exceeded the DWSNZ GV of 0.1 mg/L.

During the March 2021 sampling round, the dissolved manganese concentration at Xd1 (0.459 mg/L) exceeded the DWSNZ GV of 0.4 mg/L. Due to this being the first result received for bore Xd1 it is unclear if this is in keeping with historical concentrations of dissolved manganese. It is recommended this is monitored in future reports to develop an understanding of typical concentrations.

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 and therefore may not be suitable to use as a yardstick of background water quality in the future.

4.3 SHALLOW AQUIFER GROUNDWATER QUALITY

4.3.1 Hydraulically Up-gradient from the Old Landfill

Sampling results from the January 2021 monitoring round show that water quality in the shallow monitoring bores hydraulically up-gradient from the old landfill complies with the discharge consent conditions.

Bores D1 and D6 are located down gradient of the new landfill, with bore D1 located hydraulically up-gradient of the leachate effluent pond and bore D6 located down gradient of the leachate pond. Other leachate indicators such as boron and chloride concentrations at D6 are all consistent with background concentrations and the historical record. The only exception is with ammoniacal nitrogen at D6, which is slightly elevated in concentration as compared with historical records although this is minor and is still within the ANZECC guidelines.

4.3.2 Irrigation Area

Sampling results from all shallow bores located hydraulically down-gradient of the irrigation area[2] (F series bores) are consistent with historical results and comply with the discharge consent conditions.

Historical trends with respect to the leachate indicators chloride, boron and ammoniacal nitrogen concentrations in the F-series bores are generally stable and do not show any indications of increasing trends. Boron concentrations at F1 have consistently been low and are sometimes below the laboratory detection limit.

4.3.3 Hydraulically Down-gradient from the Old Landfill

During the January 2021 sampling round there were no exceedances of the resource consent conditions.

[2] Irrigation of leachate within this area ceased in October 2008

4.4 DEEP AQUIFER GROUNDWATER QUALITY

The concentration of dissolved manganese exceeded the DWSNZ MAV at C2DD within the deep gravel aquifer in the January 2021 monitoring round. However, it is noted that the manganese concentration at C2DD (0.6 mg/L) was consistent with historical results and is representative of background groundwater quality in the area.

In the previous October 2020 monitoring round, E2D showed a manganese concentration of 0.402 mg/L which marginally exceeds the DWSNZ MAV limit of 0.4 mg/L. The E2D October 2020 manganese result was significantly higher than historical results and it was recommended that this be scrutinized during this monitoring round. In the January 2021 monitoring round, the E2D concentration was consistent with historical results and therefore, the October 2020 result can be treated as an anomaly.

4.5 LEACHATE EFFLUENT

Monitoring results from the leachate effluent samples are not required to meet either the ANZECC LDW trigger values or DWSNZ standards. Most of the results from the November 2020, December 2020, and January 2021 monitoring rounds were within the typical composition ranges for Class 1 landfills published in the WasteMINZ guidelines[3]. The only exception to this was for conductivity which was well below the typical range and therefore not of concern.

4.6 TATANA PROPERTY DRAIN

Under the revised resource consent conditions approved in December 2019, monitoring location 'SW3' is now re-designated as 'TD1', and sampling at locations 'SW2', 'SW3' and 'SW4' has been discontinued.

Under the revised conditions, the Tatana Property drain samples are now assessed against the ANZECC AE 95% trigger values.

There was one exceedance (for Nitrate-N) of the resource consent conditions in the March 2021 sampling round. Therefore, this does not meet the conditions of the consent as the ANZECC AE (95%) limit was exceeded.

4.7 HOKIO STREAM

Under the revised resource consent conditions, a new monitoring location (HS1A), upstream of HS1, was added to the Hokio Stream monitoring sites.

Under the revised conditions, the monitoring results for the Hokio Stream samples are now assessed against the ANZECC AE 95% trigger values.

During the November 2020, December 2020, and January 2021 monitoring rounds there were twenty-four exceedances of the resource consent conditions in samples from the Hokio Stream where:

- For all sampling rounds (November 2020, December 2020, and January 2021), measured scBOD5 mostly exceeded the ANZECC AE (95%) trigger value for HS1A (new), HS1, HS2, and HS3. The only exception was in January 2021 for HS1A (new) which was below the trigger value.
- For December 2020, the nitrate-n concentration exceeded the ANZECC AE (95%) trigger value at HS1A (new), HS1, HS2, and HS3.
- For December 2020 and January 2021, the dissolved copper concentration exceeded the ANZECC AE (95%) trigger value at HS1A (new), HS1, HS2, and HS3.
- For November 2020, the dissolved zinc concentration exceeded the ANZECC AE (95%) trigger value at HS3.

[3] Technical Guidelines for Disposal to Land, WasteMINZ, 2018

4.8 CONSENT COMPLIANCE

Discharge permit 6010 states that quarterly and annual monitoring results should comply with the ANZECC LDW trigger values in the shallow groundwater aquifer (sand aquifer) and surface water bodies. Samples from the deep groundwater (gravel aquifer) should comply with the DWSNZ. 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.

Shallow aquifer

There were no exceedances of the resource consent conditions during the January 2021 sampling round for samples obtained from the shallow aquifer.

Deeper gravel aquifer

There was one exceedance of the resource consent conditions in samples from the deep gravel aquifer during the January 2021 sampling round:

The dissolved manganese concentration in bore C2DD exceeded the DWSNZ MAV.

Irrigation area

There were no exceedances of the resource consent conditions during the January 2021 sampling round for samples obtained from the irrigation area.

Tatana Property drain

There was one exceedance of the resource consent conditions in samples from Tatana Drain during the March 2021 sampling round:

The Nitrate-N concentration exceeded ANZECC AE (95%).

Hokio Stream

During the November 2020, December 2020, and January 2021 monitoring rounds, there were twenty-four exceedances of the resource consent conditions in samples from the Hokio Stream where:

- For all sampling rounds (November 2020, December 2020, and January 2021), measured scBOD5 mostly exceeded the ANZECC AE (95%) trigger value for HS1A (new), HS1, HS2, and HS3. The only exception was in January 2021 for HS1A (new) which was below the trigger value.
- For December 2020, the nitrate-n concentration exceeded the ANZECC AE (95%) trigger value at HS1A (new), HS1, HS2, and HS3.
- For December 2020 and January 2021, the dissolved copper concentration exceeded the ANZECC AE (95%) trigger value at HS1A (new), HS1, HS2, and HS3.
- For November 2020, the dissolved zinc concentration exceeded the ANZECC AE (95%) trigger value at HS3.

5.0 CONCLUSIONS

Monitoring results obtained in the November 2020 to January 2021 sampling rounds suggest that the groundwater at the background monitoring sites is being impacted by local ground conditions and/or activities up-gradient of the landfill.

During the November 2020 – March 2021 monitoring period there were twenty-six exceedances of the resource consent conditions, as summarised in the following paragraphs.

In January 2021, the deep-water bore C2DD showed a dissolved manganese concentration above the DWSNZ MAV value.

There were twenty-four exceedances of consent limits found in samples from surface water monitoring at the Hokio Stream between November 2020 and January 2021; these were for measured scBOD5 at HS1A (new),

HS1, HS2, and HS3, nitrate-N concentrations at HS1A (new), HS1, HS2, and HS3 for December 2020, dissolved copper concentrations at HS1A (new), HS1, HS2, and HS3 for December 2020 and January 2021, and dissolved zinc concentrations at HS3 in November 2020, with these all showing results above the ANZECC AE 95% trigger values.

There was one exceedance of the resource consent conditions in the March 2021 monitoring round where the Nitrate-N concentration at TD1 exceeded the ANZECC AE (95%) limit.

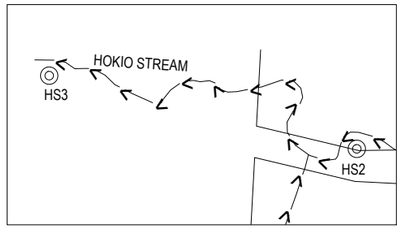
Appendices

We design with community in mind

APPENDIX A SITE PLAN

DO NOT SCALE - IF IN DOUBT, ASK

ORIGINAL SIZE A1



CONTINUATION

HS2
HOKIO STREAM
BHXS1
HOKIO BEACH ROAD
HS1
HS1A
BHXS2
TD1
TATANA DRAIN
TATANA'S PROPERTY
BHC2
UNNAMED BORE
BHC2D(D)
BHC2D(S)
BHG2
BHC1
BHXD1
BHE2(d)
BHE2(s)
INSIDE SAME STANDPIPE
BHB3(s)
BH3(n)
BHC3
BHB2
BHB1B (OLD STOCKWATER BORE)
BHB1
CONTROL POINT (ORM 3)
CONTROL POINT (ORM 2)
CONTROL POINT (ORM 1)
WEIGH BRIDGE
BHA5
IT 3 MWH
SEALED ACCESS ROAD
IT 2 MWH
ORM 4 (OP/WARATAH)
OLD CLOSED LANDFILL
HDC OWNED PROPERTY
BUILDING
NAIL 2 MWH
NAIL 1 MWH
IT 1 MWH
BHE1(d)
BHE1(s)
INSIDE SAME STANDPIPE
D4
BH4A
SW1
BHD6
LEACHATE POND
BHD1
BORROW AREA 1
PEG 2 MWH
FUTURE STAGE 5
PEG 1 MWH
SW4
SW5
BHA1
BHF1
IRI
BHD2
IRII (0.2m DWN)
EXISTING BORROW AREA
SW2
FUTURE STAGE 4
LANDFILL STAGE 3
LANDFILL STAGE 2
MAORI LEASE BLOCK HOROWHENUA 9A7 LEASE HELD BY PETER EVERTON
BHF2
BORROW AREA 2
BHD3(r)
IR
OIR (0.2m DWN)
LANDFILL STAGE 1A
BHF3
SW3
BHG1(d) AND BHG1(s)
BHD5
NOT FOR CONSTRUCTION

COORDINATES OF SURVEY CONTROL MARKS			
PT	NORTHING mN	EASTING mE	RL
ORM 1	659 498.38	276 412.21	38.94
ORM 2	659 510.09	276 422.72	34.98
ORM 3	659 505.14	276 612.86	21.10
ORM 4(OP/W)	659 380.16	276 511.94	30.92
MWH NAIL 1	659 272.67	276 656.87	27.61
MWH NAIL 2	659 278.98	276 695.22	28.40
MWH IT 1	659 267.33	276 576.02	30.03
MWH IT 2	659 361.94	276 627.00	33.70
MWH IT 3	659 428.24	276 593.00	32.74
MWH PEG 1	659 160.94	276 548.30	32.99
MWH PEG 2	659 227.86	276 479.35	30.49
IRII	659 075.85	276 698.70	30.04
OIR	658 903.62	276 579.37	30.35
IRI	659 121.09	276 679.47	40.00
IR	276 625.10	658 981.29	21.30
COORDINATES ARE IN TERMS OF NEW ZEALAND GEODETIC DATUM 1949: WANGANUI CIRCUIT			

SOIL MONITORING LOCATIONS	CO-ORDINATES		LEVEL (m)
	NORTHING mN	EASTING mE	
PEG A	658 938.80	276 882.30	39.2
PEG B	658 917.00	276 932.10	39.5
PEG C	658 862.70	276 899.00	46.1
PEG D	658 822.90	276 930.40	40.4
PEG E	658 965.50	276 294.00	36.6
PEG F	659 046.20	276 169.10	32.9
PEG G	658 878.00	276 520.20	32.6
PEG H	658 827.40	276 667.60	23.5

BORROW AREA 1 SET-OUT COORDINATES		
POINT NO.	NORTHINGS mN	EASTINGS mE
1	659 230.38	276 453.28
2	659 247.32	276 413.49
3	659 257.33	276 349.62
4	659 280.93	276 269.42
5	659 238.49	276 246.50
6	659 207.23	276 304.07

BORE LOCATIONS AND DETAILS						
BORE HOLE NO	NORTHING mN	EASTING mE	R.L. (m)	DEPTH OF WELL (m)	PIEZOMETER DIAMETER (mm)	FUNCTION
A1	659 060.15	276 944.89	12.95			SHALLOW AQUIFER
A2 (DESTROYED)						SHALLOW AQUIFER
A3 (DESTROYED)						SHALLOW AQUIFER
A4	659 271.67	276 354.72	10.10			SHALLOW AQUIFER
A5	659 530.47	276 185.91	9.62			SHALLOW AQUIFER
B1	659 561.81	276 797.35	9.04	4.3	40	SHALLOW AQUIFER
B1B (STOCK BORE)	659 530.08	276 799.91	9.28	10		
B2	659 576.32	276 683.50	9.42	3.5	50	SHALLOW AQUIFER
B3(s)	659 651.19	276 519.52	7.76	2.83	50	SHALLOW AQUIFER
B3(n)	659 654.26	276 524.38	7.49	2.33	32	DEEP AQUIFER
C1	659 649.64	276 777.83	7.47	3.60	50	SHALLOW AQUIFER
C2	659 680.80	276 631.22	7.50	2.81	32	SHALLOW AQUIFER
C2D(s)	659 671.19	276 641.63	10.13	12.88	32	SHALLOW AQUIFER
C2D(d)	659 671.19	276 641.63	10.11	18.85	32	DEEP AQUIFER
C3	659 704.29	276.246.89	7.22	2.8	32	SHALLOW AQUIFER
D1	659 134.97	276 771.65	27.46	23.69	50	EARLY DETECTION
D2	659 101.02	276 642.06	32.12	29.46	50	EARLY DETECTION
D3-DESTROYED						
D4	659 293.20	276 356.60	17.97	17.0		SHALLOW AQUIFER
D5	659 020.80	276 022.40	20.65	18		SHALLOW AQUIFER BACKGROUND
D6	659 200.31	276 761.08	26.41	16.07	50	EARLY DETECTION
E1(d)	659 349.54	276 329.48	20.91	37.80	32	SHALLOW AQUIFER
E1(s)	659 349.54	276 329.48	20.91	20.05	32	DEEP AQUIFER
E2(s)	659 667.30	276 354.69	13.15	15.24	32	SHALLOW AQUIFER
E2(d)	659 667.30	276 354.69	13.15	28.66	32	DEEP AQUIFER
F1	659 037.10	276 925.50	18.90	15.0	50	SHALLOW AQUIFER LEACHATE IRRIGATION
F2	659 105.00	276 218.00	13.50	10.2	50	SHALLOW AQUIFER LEACHATE IRRIGATION
F3	658 951.70	276 434.00	16.70	10.5	50	SHALLOW AQUIFER LEACHATE IRRIGATION
G1(s) [4]	658 786.00	277 046.00	24	15	50	SHALLOW AQUIFER BACKGROUND
G1(d) [4]	658 786.00	277 046.00	24	31.5	50	DEEP AQUIFER BACKGROUND
G2 [4]	659 673.00	276 835.00	8	4	50	SHALLOW AQUIFER
D3(r) REINSTATED [4]	658 953.00	276 552.00	18	10	50	EARLY DETECTION
COORDINATES FOR BORE HOLES BELOW ARE APPROXIMATE ONLY						
BHXS1	659 797.20	276 617.30	-	4	50	SHALLOW AQUIFER
BHXS2	659 620.80	276 984.30	-	4	50	SHALLOW AQUIFER
BHXD1	659 741.00	276 262.60	-	35	50	DEEP AQUIFER
COORDINATES ARE IN TERMS OF NEW ZEALAND GEODETIC DATUM 1949: WANGANUI CIRCUIT						

LEGEND

- MONITORING SAMPLING LOCATION
- MONITOR BORES CURRENTLY SAMPLED (FROM JAN 2010)
- BORES NOT SAMPLED
- SHALLOW HANDAUGER STANDPIPES NOT ABLE TO BE LOCATED
- SOIL SAMPLING LOCATION PEG - MONITORED
- SOIL SAMPLING LOCATION PEG - NOT MONITORED
- EXISTING STORMWATER SOAKAGE AREA
- PROPOSED STORMWATER SOAKAGE AREA
- PROPOSED BORROW AREAS

NOTES:

1. LEVELS ARE TOP OF STANDPIPE. WHERE THERE IS NO STANDPIPE, LEVELS ARE TOP OF PVC PIPE.
2. BHA2, BHA3 AND BHD3 HAVE BEEN LOST DUE TO SITE WORKS.
3. "A" SERIES BORE HOLES ARE AUGER HOLES ONLY AND MAY NOT BE ABLE TO BE LOCATED.
4. BORES INSTALLED IN AUG 2009. DETAILS ARE APPROXIMATE.
5. CONTOUR INTERVALS: 5m MAJOR, 1m MINOR

REV	REVISIONS	DRN	CHK	APP	DATE
C	FOR INFORMATION - BORROW AREA AND LANDFILL AREA UPDATES AND BORE HOLES AND SAMPLING LOCATIONS ADDED FOR HOKIO STREAM AND TATANA DRAIN	BCJ	PSL	PSL	24.03.21
B	FOR INFORMATION - BORROW AREA AND LANDFILL AREA UPDATES	BCJ	PSL	PSL	22.09.20
A	FOR INFORMATION	BCJ	PSL	PSL	26.08.19

SURVEYED	MWH	
DESIGNED	N/A	-
DRAWN	Brent James	08.2019
CAD REVIEW	Brent James	23.03.21
APPROVED	Phil Landmark	23.03.21
PROF REGISTRATION:		

Stantec

Client:

HOROWHENUA DISTRICT COUNCIL
LEVIN LANDFILL

MONITORING BORES, SOIL SAMPLING LOCATIONS & BORROW AREAS
SITE PLAN, LOCATION AND DETAILS

Status Stamp: FOR INFORMATION ONLY
Date Stamp: 24.03.21
Scales: 1:2000 (A1) 1:4000 (A3)
Drawing No.: 310101088-19-001-G001
Rev.: C

26/08/2019 9:35 a.m.

pw:\\stantec-ap-pw.bentley.com:stantec-ap-pw-01\Documents\New Zealand Clients\Horowhenua District Council\80500724 (310101088) - Levin Landfill Volumes\2019\General\310101088-19-001-G001

APPENDIX B SAMPLING SCHEDULE

LEVIN LANDFILL - SUMMARY OF SURFACE AND GROUNDWATER MONITORING REQUIREMENTS (April 2020 - January 2023).

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

Reports Due		Sampling Month	Table A (Condition 3, DP 6010)					Table B (Condition 3, DP 6010)																				Table C (Condition 3, DP 6010)						
			Deep Aquifer Bores					Shallow Aquifer Bores																				Irrigation Bores				Hokio Stream[4]				Tatana Drain	Leachate Pond[5]	
Annual	Quarterly		C2dd	E1d	E2d	G1d	Xd1[1]	C1	C2	C2ds	D4	B1	B2	B3s	E1s	E2s	D1[2]	D2[2]	D3r[2]	D6[2]	G1s	G2s	Xs1[1]	Xs2[1]	D5[3]	F1[3]	F2[3]	F3[3]	HS1	HS1A	HS2	HS3	TD1		
	May-20	Apr-20	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	Monthly Comprehensive for 2 Years	A
Sep-20	Aug-20	Jul-20	I	I + SW	I	I	C	I	I	I	I + SW	I	I	I	I + SW	I + SW	I	I + SW	I + SW	I	I + SW	I	C	C	I	I	I	I + SW					I		
	Nov-20	Oct-20	I	I + SW	I	I	C	I	I	I	I + SW	I	I	I	I + SW	I + SW	I	I + SW	I + SW	I	I + SW	I	C	C	I	I	I	I + SW					C		A
	Feb-21	Jan-21	I	I + SW	I	I	C	I	I	I	I + SW	I	I	I	I + SW	I + SW	I	I + SW	I + SW	I	I + SW	I	C	C	I	I	I	I + SW					I		
	May-21	Apr-21	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
Sep-21	Aug-21	Jul-21	I	I + SW	I	I	C	I	I	I	I + SW	I	I	I	I + SW	I + SW	I	I + SW	I + SW	I	I + SW	I	C	C	I	I	I	I + SW					I		
	Nov-21	Oct-21	I	I + SW	I	I	C	I	I	I	I + SW	I	I	I	I + SW	I + SW	I	I + SW	I + SW	I	I + SW	I	C	C	I	I	I	I + SW					C		A
	Feb-22	Jan-22	I	I + SW	I	I	C	I	I	I	I + SW	I	I	I	I + SW	I + SW	I	I + SW	I + SW	I	I + SW	I	C	C	I	I	I	I + SW					I		
	May-22	Apr-22	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	C	C	C	C + A	
Sep-22	Aug-22	Jul-22	I	I + SW	I	I	I	I	I	I	I + SW	I	I	I	I + SW	I + SW	I	I + SW	I + SW	I	I + SW	I	I	I	I	I	I	I + SW		I	I	I	I	I	
	Nov-22	Oct-22	I	I + SW	I	I	I	I	I	I	I + SW	I	I	I	I + SW	I + SW	I	I + SW	I + SW	I	I + SW	I	I	I	I	I	I	I + SW		C	C	C	C	C	
	Feb-23	Jan-23	I	I + SW	I	I	I	I	I	I	I + SW	I	I	I	I + SW	I + SW	I	I + SW	I + SW	I	I + SW	I	I	I	I	I	I	I + SW		I	I	I	I	I	

Measure groundwater level and sample all bores for CH_4, CO_2 and O_2 each time that groundwater is sampled (Condition 4a of DP 6011)

Notes:

(1) Bores to be developed by Consent Holder
(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
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.

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

(5) A reduction in sampling frequency at the **leachate pond outlet** 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)

Characterising parameters	pH
	electrical conductivity (EC)
	alkalinity
	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 parameters	pH
	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

Analytical Report

Downer EDI Levin - Potable
P O Box 642
LEVIN 4741
Attention: Bruce Marshall

Report Number: 20/68791
Issue: 18
23 January 2021

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-01	Levin B1		08/01/2021 08:37	09/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.0 ± 0.2		09/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	< 6 ± 2	g/m³	09/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	13.0 ± 1.3	g/m³	13/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	393 ± 39	g CaCO3/m³	11/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	174 ± 3.5	mS/m	09/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	63 ± 11	g/m³	11/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 1 ± 0.3	g/m³	08/01/2021	Marylou Cabral KTP
0602	Chloride	291 ± 14.5	g/m³	21/01/2021	Divina Lagazon KTP
0605	Nitrate - Nitrogen	13.1 ± 0.65	g/m³	19/01/2021	Divina Lagazon KTP
0607	Sulphate	4.52 ± 0.45	g/m³	19/01/2021	Divina Lagazon KTP
0760	Ammonia Nitrogen	8.58 ± 1.29	g/m³	13/01/2021	Divina Lagazon KTP
1642	Total Hardness	466 ± 47	g CaCO3/m³	12/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	85.0 ± 8.50	g/m³	12/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	0.056 ± 0.011	g/m³	12/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	61.5 ± 6.15	g/m³	12/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	132 ± 13.2	g/m³	12/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.099 ± 0.020	g/m³	13/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.004 ± 0.001	g/m³	13/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001 ± 0.0003	g/m³	13/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.83	g/m³	13/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	13/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	13/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	0.0046 ± 0.0009	g/m³	13/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	9.07 ± 0.907	g/m³	15/01/2021	Tracy Morrison KTP
6724	Nickel - Dissolved	0.0023 ± 0.0007	g/m³	13/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	17.1	g/m³	13/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	0.007 ± 0.0009	g/m³	13/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	4 ± 1	cfu/100ml	08/01/2021	Maria Norris KTP
P1859	Sample Filtration	Completed		09/01/2021	Harsimran Dhanoa .
P1871	Subcontracted Report	Attached		15/01/2021	Prashilla Singh Transcribed by
SVOC	**Semi Volatile Organic Compounds**				
SVOC-001	2,3-Diuron	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-002	a-BHC	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-003	a-chlordane	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-004	Aldrin	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-005	b-BHC	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-006	cis-Permethrin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-007	Dieldrin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-008	Endosulfan II	<0.005	mg/L	11/01/2021	Joanna Yang KTP
SVOC-009	Endosulfan Sulfate	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-010	Endrin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-011	Endrin Aldehyde	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-012	Endrin Ketone	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-013	Gamma-Chlordane	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-014	Heptachlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-015	Heptachlor Epoxide	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-016	Hexachlorobenzene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-017	Lindane (g-BHC)	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-018	Methoxychlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-019	p,p'-DDD	<0.0001	mg/L	11/01/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-01	Levin B1		08/01/2021 08:37	09/01/2021 09:00	0

Notes:

Test	Result	Units	Test Date	Signatory
SVOC-020 p,p'DDE	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-021 p,p'-DDT	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-022 Procymidone	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-023 Propanil	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-024 Endosulfan I	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-025 Alachlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-026 Aldicarb	<0.1	mg/L	11/01/2021	Joanna Yang KTP
SVOC-027 Atrazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-028 Bromacil	<0.005	mg/L	11/01/2021	Joanna Yang KTP
SVOC-029 Carbofuran	< 0.006	mg/L	11/01/2021	Joanna Yang KTP
SVOC-030 Cyanazine	<0.005	mg/L	11/01/2021	Joanna Yang KTP
SVOC-031 d-BHC	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-032 Metalaxyl-M	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-033 Metolachlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-034 Metribuzin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-035 Molinate	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-037 Oxadiazon	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-038 Pendimethalin	<0.002	mg/L	11/01/2021	Joanna Yang KTP
SVOC-039 Propazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-040 Pyriproxyfen	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-041 Simazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-042 Terbuthylazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-043 Trifluralin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-044 Hexazinone	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-045 Chlorpyrifos	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-046 Diazinon	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-047 Dimethoate	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-048 Pirimiphos methyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-049 Acenapthene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-050 Acenaphthylene	< 0.0010	mg/L	11/01/2021	Joanna Yang KTP
SVOC-051 Anthracene	< 0.0010	mg/L	11/01/2021	Joanna Yang KTP
SVOC-052 benz(a)anthracene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-053 Benzo(a)pyrene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-054 Total Benzo(b) and Benzo(k) fluoranthrene	< 0.0010	mg/L	11/01/2021	Joanna Yang KTP
SVOC-055 Benzo(g,h,i)perylene	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-057 Chrysene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-058 Dibenz(a,h)anthracene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-059 Fluoranthene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-060 Fluorene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-061 Indeno(1,2,3-cd)pyrene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-062 Naphthalene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-063 Phenanthrene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-064 Pyrene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-066 2,2',3,4,4',5'-Hexachlorobiphenyl	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-067 2,2',4,5,5'-Pentachlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-068 2,4,4'-Trichlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-069 2,4-Dichlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-070 2,2',3,4,4',5',6-Heptachlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-072 Bis(2-ethylhexyl)adipate	0.0001	mg/L	11/01/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-02	Levin B2		08/01/2021 09:19	09/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.1 ± 0.2		09/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	< 6 ± 2	g/m³	09/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	28.4 ± 2.8	g/m³	14/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	516 ± 52	g CaCO3/m³	11/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	161 ± 3.2	mS/m	09/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	91 ± 14	g/m³	11/01/2021	Marylou Cabral KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-02	Levin B2		08/01/2021 09:19	09/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0085	BOD5 - Total	< 1 ± 0.3	g/m³	08/01/2021	Marylou Cabral KTP
0602	Chloride	88.1 ± 4.41	g/m³	19/01/2021	Divina Lagazon KTP
0605	Nitrate - Nitrogen	37.6 ± 1.88	g/m³	19/01/2021	Divina Lagazon KTP
0607	Sulphate	13.0 ± 0.65	g/m³	19/01/2021	Divina Lagazon KTP
0760	Ammonia Nitrogen	28.4 ± 2.84	g/m³	13/01/2021	Divina Lagazon KTP
1642	Total Hardness	427 ± 43	g CaCO3/m³	12/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	93.6 ± 9.36	g/m³	12/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	0.083 ± 0.017	g/m³	12/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	46.9 ± 4.69	g/m³	12/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	119 ± 11.9	g/m³	12/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.041 ± 0.008	g/m³	13/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.020 ± 0.002	g/m³	13/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.001 ± 0.0004	g/m³	13/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	1.77	g/m³	15/01/2021	Tracy Morrison KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	13/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	13/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	0.0039 ± 0.0008	g/m³	13/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	2.41 ± 0.241	g/m³	15/01/2021	Tracy Morrison KTP
6724	Nickel - Dissolved	0.0022 ± 0.0007	g/m³	13/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	41.7	g/m³	15/01/2021	Tracy Morrison KTP
6738	Zinc - Dissolved	0.008 ± 0.001	g/m³	13/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	44 ± 9	cfu/100ml	08/01/2021	Maria Norris KTP
P1859	Sample Filtration	Completed		09/01/2021	Harsimran Dhanoa .
P1871	Subcontracted Report	Attached		15/01/2021	Prashilla Singh Transcribed by
SVOC	**Semi Volatile Organic Compounds**				
SVOC-001	2,3-Diuron	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-002	a-BHC	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-003	a-chlordane	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-004	Aldrin	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-005	b-BHC	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-006	cis-Permethrin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-007	Dieldrin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-008	Endosulfan II	<0.005	mg/L	11/01/2021	Joanna Yang KTP
SVOC-009	Endosulfan Sulfate	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-010	Endrin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-011	Endrin Aldehyde	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-012	Endrin Ketone	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-013	Gamma-Chlordane	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-014	Heptachlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-015	Heptachlor Epoxide	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-016	Hexachlorobenzene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-017	Lindane (g-BHC)	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-018	Methoxychlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-019	p,p'-DDD	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-020	p,p'DDE	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-021	p,p'-DDT	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-022	Procymidone	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-023	Propanil	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-024	Endosulfan I	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-025	Alachlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-026	Aldicarb	<0.1	mg/L	11/01/2021	Joanna Yang KTP
SVOC-027	Atrazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-028	Bromacil	<0.005	mg/L	11/01/2021	Joanna Yang KTP
SVOC-029	Carbofuran	< 0.006	mg/L	11/01/2021	Joanna Yang KTP
SVOC-030	Cyanazine	<0.005	mg/L	11/01/2021	Joanna Yang KTP
SVOC-031	d-BHC	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-032	Metalaxyl-M	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-033	Metolachlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-02	Levin B2		08/01/2021 09:19	09/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
SVOC-034	Metribuzin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-035	Molinate	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-037	Oxadiazon	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-038	Pendimethalin	<0.002	mg/L	11/01/2021	Joanna Yang KTP
SVOC-039	Propazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-040	Pyriproxyfen	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-041	Simazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-042	Terbuthylazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-043	Trifluralin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-044	Hexazinone	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-045	Chlorpyrifos	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-046	Diazinon	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-047	Dimethoate	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-048	Pirimiphos methyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-049	Acenapthene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-050	Acenaphthylene	< 0.0010	mg/L	11/01/2021	Joanna Yang KTP
SVOC-051	Anthracene	< 0.0010	mg/L	11/01/2021	Joanna Yang KTP
SVOC-052	benz(a)anthracene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-053	Benzo(a)pyrene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-054	Total Benzo(b) and Benzo(k) fluoranthrene	< 0.0010	mg/L	11/01/2021	Joanna Yang KTP
SVOC-055	Benzo(g,h,i)perylene	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-057	Chrysene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-058	Dibenz(a,h)anthracene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-059	Fluoranthene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-060	Fluorene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-061	Indeno(1,2,3-cd)pyrene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-062	Naphthalene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-063	Phenanthrene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-064	Pyrene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-066	2,2',3,4,4',5'-Hexachlorobiphenyl	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-067	2,2',4,5,5'-Pentachlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-068	2,4,4'-Trichlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-069	2,4-Dichlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-070	2,2',3,4,4',5',6-Heptachlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-072	Bis(2-ethylhexyl)adipate	0.0002	mg/L	11/01/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-03	Levin B3s		08/01/2021 09:59	09/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.2 ± 0.2		09/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	81 ± 19	g/m³	09/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	53.0 ± 5.3	g/m³	14/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	919 ± 92	g CaCO3/m³	11/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	246 ± 4.9	mS/m	09/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	150 ± 16	g/m³	11/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	7 ± 1	g/m³	08/01/2021	Marylou Cabral KTP
0602	Chloride	159 ± 7.96	g/m³	15/01/2021	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.10 ± 0.02	g/m³	15/01/2021	Amit Kumar KTP
0607	Sulphate	< 0.02 ± 0.01	g/m³	15/01/2021	Amit Kumar KTP
0760	Ammonia Nitrogen	159 ± 15.9	g/m³	13/01/2021	Divina Lagazon KTP
1642	Total Hardness	229 ± 23	g CaCO3/m³	12/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	45.0 ± 4.50	g/m³	12/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	0.853 ± 0.171	g/m³	12/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	28.2 ± 2.82	g/m³	12/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	122 ± 12.2	g/m³	12/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.031 ± 0.006	g/m³	13/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.006 ± 0.001	g/m³	13/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.031 ± 0.003	g/m³	13/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	1.11	g/m³	15/01/2021	Tracy Morrison KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-03	Levin B3s		08/01/2021 09:59	09/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	13/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	0.004 ± 0.0005	g/m³	13/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	0.0009 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	2.52 ± 0.252	g/m³	15/01/2021	Tracy Morrison KTP
6724	Nickel - Dissolved	0.0072 ± 0.0022	g/m³	13/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	107	g/m³	15/01/2021	Tracy Morrison KTP
6738	Zinc - Dissolved	0.002 ± 0.0007	g/m³	13/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 100 ± 20	cfu/100ml	08/01/2021	Maria Norris KTP
P1859	Sample Filtration	Completed		09/01/2021	Harsimran Dhanoa .
P1871	Subcontracted Report	Attached		15/01/2021	Prashilla Singh Transcribed by
SVOC	**Semi Volatile Organic Compounds**				
SVOC-001	2,3-Diuron	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-002	a-BHC	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-003	a-chlordane	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-004	Aldrin	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-005	b-BHC	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-006	cis-Permethrin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-007	Dieldrin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-008	Endosulfan II	<0.005	mg/L	11/01/2021	Joanna Yang KTP
SVOC-009	Endosulfan Sulfate	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-010	Endrin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-011	Endrin Aldehyde	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-012	Endrin Ketone	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-013	Gamma-Chlordane	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-014	Heptachlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-015	Heptachlor Epoxide	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-016	Hexachlorobenzene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-017	Lindane (g-BHC)	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-018	Methoxychlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-019	p,p'-DDD	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-020	p,p'DDE	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-021	p,p'-DDT	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-022	Procymidone	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-023	Propanil	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-024	Endosulfan I	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-025	Alachlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-026	Aldicarb	<0.1	mg/L	11/01/2021	Joanna Yang KTP
SVOC-027	Atrazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-028	Bromacil	<0.005	mg/L	11/01/2021	Joanna Yang KTP
SVOC-029	Carbofuran	< 0.006	mg/L	11/01/2021	Joanna Yang KTP
SVOC-030	Cyanazine	<0.005	mg/L	11/01/2021	Joanna Yang KTP
SVOC-031	d-BHC	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-032	Metalaxyl-M	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-033	Metolachlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-034	Metribuzin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-035	Molinate	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-037	Oxadiazon	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-038	Pendimethalin	<0.002	mg/L	11/01/2021	Joanna Yang KTP
SVOC-039	Propazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-040	Pyriproxyfen	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-041	Simazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-042	Terbuthylazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-043	Trifluralin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-044	Hexazinone	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-045	Chlorpyrifos	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-046	Diazinon	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-047	Dimethoate	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-048	Pirimiphos methyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-03	Levin B3s		08/01/2021 09:59	09/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
SVOC-049	Acenapthene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-050	Acenaphthylene	< 0.0010	mg/L	11/01/2021	Joanna Yang KTP
SVOC-051	Anthracene	< 0.0010	mg/L	11/01/2021	Joanna Yang KTP
SVOC-052	benz(a)anthracene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-053	Benzo(a)pyrene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-054	Total Benzo(b) and Benzo(k) fluoranthrene	< 0.0010	mg/L	11/01/2021	Joanna Yang KTP
SVOC-055	Benzo(g,h,i)perylene	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-057	Chrysene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-058	Dibenz(a,h)anthracene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-059	Fluoranthene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-060	Fluorene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-061	Indeno(1,2,3-cd)pyrene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-062	Naphthalene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-063	Phenanthrene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-064	Pyrene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-066	2,2',3,4,4',5'-Hexachlorobiphenyl	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-067	2,2',4,5,5'-Pentachlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-068	2,4,4'-Trichlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-069	2,4-Dichlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-070	2,2',3,4,4',5',6-Heptachlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-072	Bis(2-ethylhexyl)adipate	<0.0001	mg/L	11/01/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-04	Levin C1		07/01/2021 16:12	08/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	6.8 ± 0.2		09/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	395 ± 43	g/m³	09/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	14.4 ± 1.4	g/m³	12/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	287 ± 29	g CaCO3/m³	11/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	114 ± 2.3	mS/m	09/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	285 ± 29	g/m³	11/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 6 ± 0.8	g/m³	08/01/2021	Marylou Cabral KTP
0602	Chloride	181 ± 9.07	g/m³	15/01/2021	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01 ± 0.003	g/m³	15/01/2021	Amit Kumar KTP
0607	Sulphate	30.9 ± 1.54	g/m³	15/01/2021	Amit Kumar KTP
0760	Ammonia Nitrogen	10.8 ± 1.08	g/m³	13/01/2021	Divina Lagazon KTP
1642	Total Hardness	232 ± 23	g CaCO3/m³	12/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	44.3 ± 4.43	g/m³	12/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	0.711 ± 0.142	g/m³	12/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	29.5 ± 2.95	g/m³	12/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	112 ± 11.2	g/m³	12/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.013 ± 0.003	g/m³	13/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.008 ± 0.001	g/m³	13/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.004 ± 0.0005	g/m³	13/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.74	g/m³	13/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	13/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	13/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.354 ± 0.0354	g/m³	13/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	0.0008 ± 0.0003	g/m³	13/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	23.5	g/m³	13/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	13/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 100 ± 20	cfu/100ml	08/01/2021	Maria Norris KTP
P1859	Sample Filtration	Completed		09/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-05	Levin C2		08/01/2021 07:24	09/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.4 ± 0.2		09/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	332 ± 36	g/m³	09/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	39.0 ± 3.9	g/m³	14/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	899 ± 90	g CaCO3/m³	11/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	250 ± 5.0	mS/m	09/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	135 ± 14	g/m³	11/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	22 ± 3	g/m³	08/01/2021	Marylou Cabral KTP
0602	Chloride	201 ± 10.1	g/m³	19/01/2021	Divina Lagazon KTP
0605	Nitrate - Nitrogen	< 0.10 ± 0.02	g/m³	21/01/2021	Divina Lagazon KTP
0607	Sulphate	4.42 ± 0.44	g/m³	19/01/2021	Divina Lagazon KTP
0760	Ammonia Nitrogen	156 ± 15.6	g/m³	13/01/2021	Divina Lagazon KTP
1642	Total Hardness	223 ± 22	g CaCO3/m³	12/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	46.9 ± 4.69	g/m³	12/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	1.95 ± 0.195	g/m³	12/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	25.6 ± 2.56	g/m³	12/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	166 ± 16.6	g/m³	12/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.026 ± 0.005	g/m³	13/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.016 ± 0.002	g/m³	13/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.002 ± 0.0004	g/m³	13/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	1.69	g/m³	15/01/2021	Tracy Morrison KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	13/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	0.002 ± 0.0004	g/m³	13/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	0.0006 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.0516 ± 0.0103	g/m³	13/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	0.0035 ± 0.0011	g/m³	13/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	83.4	g/m³	15/01/2021	Tracy Morrison KTP
6738	Zinc - Dissolved	0.010 ± 0.001	g/m³	13/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 100 ± 20	cfu/100ml	08/01/2021	Maria Norris KTP
P1859	Sample Filtration	Completed		09/01/2021	Harsimran Dhanoa .
P1871	Subcontracted Report	Attached		15/01/2021	Prashilla Singh Transcribed by
SVOC	**Semi Volatile Organic Compounds**				
SVOC-001	2,3-Diuron	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-002	a-BHC	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-003	a-chlordane	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-004	Aldrin	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-005	b-BHC	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-006	cis-Permethrin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-007	Dieldrin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-008	Endosulfan II	<0.005	mg/L	11/01/2021	Joanna Yang KTP
SVOC-009	Endosulfan Sulfate	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-010	Endrin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-011	Endrin Aldehyde	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-012	Endrin Ketone	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-013	Gamma-Chlordane	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-014	Heptachlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-015	Heptachlor Epoxide	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-016	Hexachlorobenzene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-017	Lindane (g-BHC)	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-018	Methoxychlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-019	p,p'-DDD	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-020	p,p'DDE	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-021	p,p'-DDT	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-022	Procymidone	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-023	Propanil	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-024	Endosulfan I	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-025	Alachlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-026	Aldicarb	<0.1	mg/L	11/01/2021	Joanna Yang KTP
SVOC-027	Atrazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-05	Levin C2		08/01/2021 07:24	09/01/2021 09:00	0

Notes:

Test	Result	Units	Test Date	Signatory
SVOC-028 Bromacil	<0.005	mg/L	11/01/2021	Joanna Yang KTP
SVOC-029 Carbofuran	< 0.006	mg/L	11/01/2021	Joanna Yang KTP
SVOC-030 Cyanazine	<0.005	mg/L	11/01/2021	Joanna Yang KTP
SVOC-031 d-BHC	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-032 Metalaxyl-M	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-033 Metolachlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-034 Metribuzin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-035 Molinate	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-037 Oxadiazon	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-038 Pendimethalin	<0.002	mg/L	11/01/2021	Joanna Yang KTP
SVOC-039 Propazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-040 Pyriproxyfen	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-041 Simazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-042 Terbuthylazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-043 Trifluralin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-044 Hexazinone	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-045 Chlorpyrifos	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-046 Diazinon	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-047 Dimethoate	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-048 Pirimiphos methyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-049 Acenapthene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-050 Acenaphthylene	< 0.0010	mg/L	11/01/2021	Joanna Yang KTP
SVOC-051 Anthracene	< 0.0010	mg/L	11/01/2021	Joanna Yang KTP
SVOC-052 benz(a)anthracene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-053 Benzo(a)pyrene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-054 Total Benzo(b) and Benzo(k) fluoranthrene	< 0.0010	mg/L	11/01/2021	Joanna Yang KTP
SVOC-055 Benzo(g,h,i)perylene	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-057 Chrysene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-058 Dibenz(a,h)anthracene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-059 Fluoranthene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-060 Fluorene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-061 Indeno(1,2,3-cd)pyrene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-062 Naphthalene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-063 Phenanthrene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-064 Pyrene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-066 2,2',3,4,4',5'-Hexachlorobiphenyl	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-067 2,2',4,5,5'-Pentachlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-068 2,4,4'-Trichlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-069 2,4-Dichlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-070 2,2',3,4,4',5',6-Heptachlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-072 Bis(2-ethylhexyl)adipate	0.0001	mg/L	11/01/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-06	Levin C2dd		07/01/2021 07:40	08/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.6 ± 0.2		08/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	565 ± 62	g/m³	09/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	4.0 ± 0.4	g/m³	12/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	221 ± 22	g CaCO3/m³	11/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	54.4 ± 1.1	mS/m	08/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	< 15 ± 5	g/m³	08/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 3 ± 0.4	g/m³	07/01/2021	Marylou Cabral KTP
0602	Chloride	46.0 ± 2.30	g/m³	13/01/2021	Shanel Kumar KTP
0605	Nitrate - Nitrogen	< 0.01 ± 0.003	g/m³	13/01/2021	Shanel Kumar KTP
0607	Sulphate	< 0.02 ± 0.01	g/m³	13/01/2021	Shanel Kumar KTP
0760	Ammonia Nitrogen	0.33 ± 0.10	g/m³	11/01/2021	Divina Lagazon KTP
1642	Total Hardness	166 ± 17	g CaCO3/m³	12/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	42.1 ± 4.21	g/m³	12/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	0.031 ± 0.006	g/m³	12/01/2021	Shanel Kumar KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-06	Levin C2dd		07/01/2021 07:40	08/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
1822	Magnesium - Dissolved	14.7 ± 1.47	g/m³	12/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	39.4 ± 3.94	g/m³	12/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.641 ± 0.128	g/m³	11/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.003 ± 0.001	g/m³	13/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.004 ± 0.0005	g/m³	13/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.07	g/m³	13/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	13/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	13/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.662 ± 0.0662	g/m³	13/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	7.11	g/m³	13/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	13/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 4 ± 1	cfu/100ml	07/01/2021	Juana Tamayo KTP
P1859	Sample Filtration	Completed		08/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-07	Levin C2ds		08/01/2021 07:53	09/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.1 ± 0.2		09/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	102 ± 11	g/m³	09/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	24.7 ± 2.5	g/m³	13/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	531 ± 53	g CaCO3/m³	11/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	137 ± 2.7	mS/m	09/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	105 ± 12	g/m³	11/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 6 ± 0.8	g/m³	08/01/2021	Marylou Cabral KTP
0602	Chloride	118 ± 5.89	g/m³	19/01/2021	Divina Lagazon KTP
0605	Nitrate - Nitrogen	< 0.01 ± 0.003	g/m³	21/01/2021	Divina Lagazon KTP
0607	Sulphate	< 0.02 ± 0.01	g/m³	21/01/2021	Divina Lagazon KTP
0760	Ammonia Nitrogen	1.27 ± 0.19	g/m³	13/01/2021	Divina Lagazon KTP
1642	Total Hardness	465 ± 46	g CaCO3/m³	12/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	121 ± 12.1	g/m³	12/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	16.3 ± 1.63	g/m³	12/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	39.3 ± 3.93	g/m³	12/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	105 ± 10.5	g/m³	12/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.029 ± 0.006	g/m³	13/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	< 0.002 ± 0.001	g/m³	13/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.003 ± 0.0004	g/m³	13/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.86	g/m³	13/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	13/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	13/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	2.05 ± 0.205	g/m³	15/01/2021	Tracy Morrison KTP
6724	Nickel - Dissolved	0.0018 ± 0.0006	g/m³	13/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	13.1	g/m³	13/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	13/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 100 ± 20	cfu/100ml	08/01/2021	Maria Norris KTP
P1859	Sample Filtration	Completed		09/01/2021	Harsimran Dhanoa .
P1871	Subcontracted Report	Attached		15/01/2021	Prashilla Singh Transcribed by

SVOC	Semi Volatile Organic Compounds				
SVOC-001	2,3-Diuron	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-002	a-BHC	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-003	a-chlordane	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-004	Aldrin	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-005	b-BHC	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-006	cis-Permethrin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-07	Levin C2ds		08/01/2021 07:53	09/01/2021 09:00	0

Notes:

Test	Result	Units	Test Date	Signatory
SVOC-007 Dieldrin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-008 Endosulfan II	<0.005	mg/L	11/01/2021	Joanna Yang KTP
SVOC-009 Endosulfan Sulfate	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-010 Endrin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-011 Endrin Aldehyde	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-012 Endrin Ketone	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-013 Gamma-Chlordane	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-014 Heptachlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-015 Heptachlor Epoxide	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-016 Hexachlorobenzene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-017 Lindane (g-BHC)	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-018 Methoxychlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-019 p,p'-DDD	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-020 p,p'DDE	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-021 p,p'-DDT	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-022 Procymidone	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-023 Propanil	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-024 Endosulfan I	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-025 Alachlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-026 Aldicarb	<0.1	mg/L	11/01/2021	Joanna Yang KTP
SVOC-027 Atrazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-028 Bromacil	<0.005	mg/L	11/01/2021	Joanna Yang KTP
SVOC-029 Carbofuran	< 0.006	mg/L	11/01/2021	Joanna Yang KTP
SVOC-030 Cyanazine	<0.005	mg/L	11/01/2021	Joanna Yang KTP
SVOC-031 d-BHC	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-032 Metalaxyl-M	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-033 Metolachlor	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-034 Metribuzin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-035 Molinate	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-037 Oxadiazon	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-038 Pendimethalin	<0.002	mg/L	11/01/2021	Joanna Yang KTP
SVOC-039 Propazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-040 Pyriproxyfen	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-041 Simazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-042 Terbuthylazine	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-043 Trifluralin	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-044 Hexazinone	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-045 Chlorpyrifos	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-046 Diazinon	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-047 Dimethoate	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-048 Pirimiphos methyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-049 Acenapthene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-050 Acenaphthylene	< 0.0010	mg/L	11/01/2021	Joanna Yang KTP
SVOC-051 Anthracene	< 0.0010	mg/L	11/01/2021	Joanna Yang KTP
SVOC-052 benz(a)anthracene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-053 Benzo(a)pyrene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-054 Total Benzo(b) and Benzo(k) fluoranthrene	< 0.0010	mg/L	11/01/2021	Joanna Yang KTP
SVOC-055 Benzo(g,h,i)perylene	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-057 Chrysene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-058 Dibenz(a,h)anthracene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-059 Fluoranthene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-060 Fluorene	< 0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-061 Indeno(1,2,3-cd)pyrene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-062 Naphthalene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-063 Phenanthrene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-064 Pyrene	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-066 2,2',3,4,4',5'-Hexachlorobiphenyl	<0.001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-067 2,2',4,5,5'-Pentachlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-068 2,4,4'-Trichlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-069 2,4-Dichlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-07	Levin C2ds		08/01/2021 07:53	09/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
SVOC-070	2,2',3,4,4',5',6-Heptachlorobiphenyl	<0.0001	mg/L	11/01/2021	Joanna Yang KTP
SVOC-072	Bis(2-ethylhexyl)adipate	<0.0001	mg/L	11/01/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-08	Levin D2		07/01/2021 12:11	08/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	6.4 ± 0.2		08/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	< 6 ± 2	g/m³	08/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	11.9 ± 1.2	g/m³	12/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	127 ± 13	g CaCO3/m³	11/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	37.7 ± 0.8	mS/m	08/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	30 ± 7	g/m³	08/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 6 ± 0.8	g/m³	08/01/2021	Marylou Cabral KTP
0602	Chloride	35.6 ± 1.78	g/m³	15/01/2021	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01 ± 0.003	g/m³	15/01/2021	Amit Kumar KTP
0607	Sulphate	< 0.02 ± 0.01	g/m³	15/01/2021	Amit Kumar KTP
0760	Ammonia Nitrogen	0.55 ± 0.17	g/m³	13/01/2021	Divina Lagazon KTP
1642	Total Hardness	91 ± 9	g CaCO3/m³	13/01/2021	Amit Kumar KTP
1810	Calcium - Dissolved	16.4 ± 1.64	g/m³	13/01/2021	Amit Kumar KTP
1819	Iron - Dissolved	17.2 ± 1.72	g/m³	13/01/2021	Amit Kumar KTP
1822	Magnesium - Dissolved	12.1 ± 1.21	g/m³	13/01/2021	Amit Kumar KTP
1834	Sodium - Dissolved	31.3 ± 3.13	g/m³	13/01/2021	Amit Kumar KTP
2088	Dissolved Reactive Phosphorus	0.055 ± 0.011	g/m³	13/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.013 ± 0.001	g/m³	13/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.001 ± 0.0004	g/m³	13/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.07	g/m³	13/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	13/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	0.001 ± 0.0004	g/m³	13/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.314 ± 0.0314	g/m³	13/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	7.98	g/m³	13/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	13/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 4 ± 1	cfu/100ml	08/01/2021	Maria Norris KTP
P1859	Sample Filtration	Completed		09/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-09	Levin D6		07/01/2021 13:04	08/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	6.8 ± 0.2		08/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	< 6 ± 2	g/m³	08/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	0.9 ± 0.09	g/m³	12/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	81 ± 8	g CaCO3/m³	11/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	36.6 ± 0.7	mS/m	08/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	< 15 ± 5	g/m³	08/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 1 ± 0.3	g/m³	08/01/2021	Marylou Cabral KTP
0602	Chloride	17.7 ± 0.88	g/m³	15/01/2021	Amit Kumar KTP
0605	Nitrate - Nitrogen	16.7 ± 0.83	g/m³	15/01/2021	Amit Kumar KTP
0607	Sulphate	5.54 ± 0.55	g/m³	15/01/2021	Amit Kumar KTP
0760	Ammonia Nitrogen	0.05 ± 0.01	g/m³	13/01/2021	Divina Lagazon KTP
1642	Total Hardness	92 ± 9	g CaCO3/m³	13/01/2021	Amit Kumar KTP
1810	Calcium - Dissolved	17.5 ± 1.75	g/m³	13/01/2021	Amit Kumar KTP
1819	Iron - Dissolved	0.007 ± 0.002	g/m³	13/01/2021	Amit Kumar KTP
1822	Magnesium - Dissolved	11.7 ± 1.17	g/m³	13/01/2021	Amit Kumar KTP
1834	Sodium - Dissolved	31.8 ± 3.18	g/m³	13/01/2021	Amit Kumar KTP
2088	Dissolved Reactive Phosphorus	0.099 ± 0.020	g/m³	13/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	< 0.002 ± 0.001	g/m³	13/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.001 ± 0.0004	g/m³	13/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.06	g/m³	13/01/2021	Shanel Kumar KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-09	Levin D6		07/01/2021 13:04	08/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	13/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	13/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	8.00	g/m³	13/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	13/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	24 ± 5	cfu/100ml	08/01/2021	Maria Norris KTP
P1859	Sample Filtration	Completed		09/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-10	Levin D4		07/01/2021 15:44	08/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.2 ± 0.2		09/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	< 6 ± 2	g/m³	09/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	3.3 ± 0.3	g/m³	12/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	65 ± 7	g CaCO3/m³	11/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	30.3 ± 0.6	mS/m	09/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	< 15 ± 5	g/m³	11/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 1 ± 0.3	g/m³	08/01/2021	Marylou Cabral KTP
0602	Chloride	40.9 ± 2.04	g/m³	19/01/2021	Divina Lagazon KTP
0605	Nitrate - Nitrogen	< 0.01 ± 0.003	g/m³	19/01/2021	Divina Lagazon KTP
0607	Sulphate	13.7 ± 0.69	g/m³	19/01/2021	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.25 ± 0.07	g/m³	13/01/2021	Divina Lagazon KTP
1642	Total Hardness	59 ± 6	g CaCO3/m³	12/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	11.2 ± 1.12	g/m³	12/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	1.59 ± 0.159	g/m³	12/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	7.53 ± 0.75	g/m³	12/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	33.4 ± 3.34	g/m³	12/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.025 ± 0.005	g/m³	13/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	< 0.002 ± 0.001	g/m³	13/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.003 ± 0.0004	g/m³	13/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.04	g/m³	13/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	13/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	13/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.202 ± 0.0202	g/m³	13/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	6.47	g/m³	13/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	13/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 4 ± 1	cfu/100ml	08/01/2021	Maria Norris KTP
P1859	Sample Filtration	Completed		09/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-11	Levin D5		06/01/2021 11:55	07/01/2021 09:51	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.4 ± 0.2		07/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	< 6 ± 2	g/m³	08/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	2.0 ± 0.2	g/m³	07/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	68 ± 7	g CaCO3/m³	07/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	31.2 ± 0.6	mS/m	07/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	21 ± 6	g/m³	07/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 1 ± 0.3	g/m³	07/01/2021	Marylou Cabral KTP
0602	Chloride	29.9 ± 1.49	g/m³	11/01/2021	Shanel Kumar KTP
0605	Nitrate - Nitrogen	0.84 ± 0.21	g/m³	11/01/2021	Shanel Kumar KTP
0607	Sulphate	22.5 ± 1.12	g/m³	11/01/2021	Shanel Kumar KTP
0760	Ammonia Nitrogen	< 0.01 ± 0.004	g/m³	11/01/2021	Divina Lagazon KTP
1642	Total Hardness	69 ± 7	g CaCO3/m³	08/01/2021	Shanel Kumar KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-11	Levin D5		06/01/2021 11:55	07/01/2021 09:51	0

Notes:

	Test	Result	Units	Test Date	Signatory
1810	Calcium - Dissolved	12.4 ± 1.24	g/m³	08/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	0.086 ± 0.017	g/m³	08/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	9.34 ± 0.93	g/m³	08/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	32.4 ± 3.24	g/m³	08/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.093 ± 0.019	g/m³	11/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	< 0.002 ± 0.001	g/m³	08/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.001 ± 0.0004	g/m³	08/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.03	g/m³	08/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	08/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	08/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	0.0014 ± 0.0003	g/m³	08/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	08/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.0185 ± 0.0037	g/m³	08/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	08/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	7.83	g/m³	08/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	08/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 4 ± 1	cfu/100ml	07/01/2021	Juana Tamayo KTP
P1859	Sample Filtration	Completed		07/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-12	Levin E1d		07/01/2021 09:10	08/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.6 ± 0.2		08/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	50 ± 12	g/m³	09/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	2.9 ± 0.3	g/m³	12/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	153 ± 15	g CaCO3/m³	11/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	44.7 ± 0.9	mS/m	08/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	< 15 ± 5	g/m³	08/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 1 ± 0.3	g/m³	07/01/2021	Marylou Cabral KTP
0602	Chloride	38.9 ± 1.95	g/m³	11/01/2021	Shanel Kumar KTP
0605	Nitrate - Nitrogen	< 0.01 ± 0.003	g/m³	11/01/2021	Shanel Kumar KTP
0607	Sulphate	< 0.02 ± 0.01	g/m³	11/01/2021	Shanel Kumar KTP
0760	Ammonia Nitrogen	0.19 ± 0.06	g/m³	11/01/2021	Divina Lagazon KTP
1642	Total Hardness	128 ± 13	g CaCO3/m³	12/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	31.1 ± 3.11	g/m³	12/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	0.026 ± 0.005	g/m³	12/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	12.3 ± 1.23	g/m³	12/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	35.5 ± 3.55	g/m³	12/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.419 ± 0.084	g/m³	11/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.002 ± 0.001	g/m³	13/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.007 ± 0.0008	g/m³	13/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.06	g/m³	13/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	13/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	13/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.226 ± 0.0226	g/m³	13/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	5.06	g/m³	13/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	13/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 4 ± 1	cfu/100ml	07/01/2021	Juana Tamayo KTP
P1859	Sample Filtration	Completed		08/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-13	Levin E1s		07/01/2021 14:00	08/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	6.9 ± 0.2		08/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	58 ± 14	g/m³	08/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	6.6 ± 0.7	g/m³	12/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	77 ± 8	g CaCO3/m³	11/01/2021	Jennifer Mont KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-13	Levin E1s		07/01/2021 14:00	08/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0055	Conductivity at 25°C	25.7 ± 0.5	mS/m	08/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	18 ± 6	g/m³	08/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 3 ± 0.4	g/m³	08/01/2021	Marylou Cabral KTP
0602	Chloride	28.5 ± 1.43	g/m³	15/01/2021	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01 ± 0.003	g/m³	15/01/2021	Amit Kumar KTP
0607	Sulphate	5.26 ± 0.53	g/m³	15/01/2021	Amit Kumar KTP
0760	Ammonia Nitrogen	0.20 ± 0.06	g/m³	13/01/2021	Divina Lagazon KTP
1642	Total Hardness	55 ± 6	g CaCO3/m³	13/01/2021	Amit Kumar KTP
1810	Calcium - Dissolved	10.6 ± 1.06	g/m³	13/01/2021	Amit Kumar KTP
1819	Iron - Dissolved	4.77 ± 0.477	g/m³	13/01/2021	Amit Kumar KTP
1822	Magnesium - Dissolved	7.04 ± 0.70	g/m³	13/01/2021	Amit Kumar KTP
1834	Sodium - Dissolved	27.6 ± 2.76	g/m³	13/01/2021	Amit Kumar KTP
2088	Dissolved Reactive Phosphorus	0.068 ± 0.014	g/m³	13/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.016 ± 0.002	g/m³	13/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.003 ± 0.0004	g/m³	13/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.03	g/m³	13/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	13/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	13/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	0.0011 ± 0.0003	g/m³	13/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	0.0070 ± 0.0007	g/m³	13/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.236 ± 0.0236	g/m³	13/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	6.05	g/m³	13/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	0.002 ± 0.0007	g/m³	13/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 4 ± 1	cfu/100ml	08/01/2021	Maria Norris KTP
P1859	Sample Filtration	Completed		09/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-14	Levin E2d		07/01/2021 10:10	08/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.7 ± 0.2		08/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	8 ± 2	g/m³	09/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	2.0 ± 0.2	g/m³	12/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	81 ± 8	g CaCO3/m³	11/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	34.7 ± 0.7	mS/m	08/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	< 15 ± 5	g/m³	08/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 1 ± 0.3	g/m³	07/01/2021	Marylou Cabral KTP
0602	Chloride	47.3 ± 2.36	g/m³	13/01/2021	Shanel Kumar KTP
0605	Nitrate - Nitrogen	< 0.01 ± 0.003	g/m³	13/01/2021	Shanel Kumar KTP
0607	Sulphate	16.3 ± 0.82	g/m³	13/01/2021	Shanel Kumar KTP
0760	Ammonia Nitrogen	0.29 ± 0.09	g/m³	11/01/2021	Divina Lagazon KTP
1642	Total Hardness	81 ± 8	g CaCO3/m³	12/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	22.7 ± 2.27	g/m³	12/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	0.066 ± 0.013	g/m³	12/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	5.85 ± 0.58	g/m³	12/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	28.4 ± 2.84	g/m³	12/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.202 ± 0.040	g/m³	11/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	< 0.002 ± 0.001	g/m³	13/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.001 ± 0.0004	g/m³	13/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.03	g/m³	13/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	13/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	13/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.212 ± 0.0212	g/m³	13/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	5.34	g/m³	13/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	13/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 4 ± 1	cfu/100ml	07/01/2021	Juana Tamayo KTP
P1859	Sample Filtration	Completed		08/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-15	Levin E2s		07/01/2021 15:05	08/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.8 ± 0.2		09/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	< 6 ± 2	g/m³	09/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	2.9 ± 0.3	g/m³	12/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	145 ± 14	g CaCO3/m³	11/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	43.8 ± 0.9	mS/m	09/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	18 ± 6	g/m³	11/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 1 ± 0.3	g/m³	08/01/2021	Marylou Cabral KTP
0602	Chloride	44.3 ± 2.22	g/m³	15/01/2021	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01 ± 0.003	g/m³	15/01/2021	Amit Kumar KTP
0607	Sulphate	< 0.02 ± 0.01	g/m³	15/01/2021	Amit Kumar KTP
0760	Ammonia Nitrogen	0.28 ± 0.08	g/m³	13/01/2021	Divina Lagazon KTP
1642	Total Hardness	123 ± 12	g CaCO3/m³	12/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	27.9 ± 2.79	g/m³	12/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	0.019 ± 0.004	g/m³	12/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	13.0 ± 1.30	g/m³	12/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	44.2 ± 4.42	g/m³	12/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.610 ± 0.122	g/m³	13/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	< 0.002 ± 0.001	g/m³	13/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.001 ± 0.0004	g/m³	13/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.06	g/m³	13/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	13/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	13/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.376 ± 0.0376	g/m³	13/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	6.17	g/m³	13/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	13/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 4 ± 1	cfu/100ml	08/01/2021	Maria Norris KTP
P1859	Sample Filtration	Completed		09/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-16	Levin F1		06/01/2021 12:35	07/01/2021 09:51	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.2 ± 0.2		07/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	< 6 ± 2	g/m³	08/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	4.8 ± 0.5	g/m³	07/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	115 ± 12	g CaCO3/m³	07/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	47.8 ± 1.0	mS/m	07/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	28 ± 7	g/m³	07/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 1 ± 0.3	g/m³	07/01/2021	Marylou Cabral KTP
0602	Chloride	57.8 ± 2.89	g/m³	11/01/2021	Shanel Kumar KTP
0605	Nitrate - Nitrogen	1.89 ± 0.19	g/m³	11/01/2021	Shanel Kumar KTP
0607	Sulphate	6.94 ± 0.69	g/m³	11/01/2021	Shanel Kumar KTP
0760	Ammonia Nitrogen	< 0.01 ± 0.003	g/m³	11/01/2021	Divina Lagazon KTP
1642	Total Hardness	125 ± 13	g CaCO3/m³	08/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	18.6 ± 1.86	g/m³	08/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	< 0.005 ± 0.002	g/m³	08/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	19.1 ± 1.91	g/m³	08/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	43.0 ± 4.30	g/m³	08/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.169 ± 0.034	g/m³	11/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	< 0.002 ± 0.001	g/m³	08/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.002 ± 0.0004	g/m³	08/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	< 0.03	g/m³	08/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	08/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	08/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	0.0029 ± 0.0006	g/m³	08/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	08/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.0042 ± 0.0009	g/m³	08/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	08/01/2021	Shanel Kumar KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-16	Levin F1		06/01/2021 12:35	07/01/2021 09:51	0

Notes:

	Test	Result	Units	Test Date	Signatory
6726	Potassium - Dissolved	9.06	g/m³	08/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	08/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 4 ± 1	cfu/100ml	07/01/2021	Juana Tamayo KTP
P1859	Sample Filtration	Completed		07/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-17	Levin F2		06/01/2021 13:15	07/01/2021 09:51	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.3 ± 0.2		07/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	< 6 ± 2	g/m³	08/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	1.6 ± 0.2	g/m³	07/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	50 ± 5	g CaCO3/m³	07/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	21.6 ± 0.4	mS/m	07/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	19 ± 6	g/m³	07/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 1 ± 0.3	g/m³	07/01/2021	Marylou Cabral KTP
0602	Chloride	22.7 ± 1.14	g/m³	11/01/2021	Shanel Kumar KTP
0605	Nitrate - Nitrogen	0.25 ± 0.06	g/m³	11/01/2021	Shanel Kumar KTP
0607	Sulphate	9.07 ± 0.91	g/m³	11/01/2021	Shanel Kumar KTP
0760	Ammonia Nitrogen	< 0.01 ± 0.003	g/m³	11/01/2021	Divina Lagazon KTP
1642	Total Hardness	36 ± 4	g CaCO3/m³	08/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	5.74 ± 0.57	g/m³	08/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	0.009 ± 0.002	g/m³	08/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	5.17 ± 0.52	g/m³	08/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	25.6 ± 2.56	g/m³	08/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.136 ± 0.027	g/m³	11/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	< 0.002 ± 0.001	g/m³	08/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.001 ± 0.0004	g/m³	08/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.03	g/m³	08/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	08/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	08/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	0.0018 ± 0.0004	g/m³	08/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	08/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.0050 ± 0.0010	g/m³	08/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	08/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	5.28	g/m³	08/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	08/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 4 ± 1	cfu/100ml	07/01/2021	Juana Tamayo KTP
P1859	Sample Filtration	Completed		07/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-18	Levin F3		06/01/2021 13:45	07/01/2021 09:51	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.3 ± 0.2		07/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	40 ± 10	g/m³	08/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	1.4 ± 0.1	g/m³	07/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	46 ± 5	g CaCO3/m³	07/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	20.2 ± 0.4	mS/m	07/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	< 15 ± 5	g/m³	07/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 1 ± 0.3	g/m³	07/01/2021	Marylou Cabral KTP
0602	Chloride	17.0 ± 0.85	g/m³	11/01/2021	Shanel Kumar KTP
0605	Nitrate - Nitrogen	2.37 ± 0.24	g/m³	11/01/2021	Shanel Kumar KTP
0607	Sulphate	6.86 ± 0.69	g/m³	11/01/2021	Shanel Kumar KTP
0760	Ammonia Nitrogen	< 0.01 ± 0.003	g/m³	11/01/2021	Divina Lagazon KTP
1642	Total Hardness	35 ± 3	g CaCO3/m³	08/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	5.36 ± 0.54	g/m³	08/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	< 0.005 ± 0.002	g/m³	08/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	5.18 ± 0.52	g/m³	08/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	24.5 ± 2.45	g/m³	08/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.143 ± 0.029	g/m³	11/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.002 ± 0.001	g/m³	08/01/2021	Shanel Kumar KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-18	Levin F3		06/01/2021 13:45	07/01/2021 09:51	0

Notes:

	Test	Result	Units	Test Date	Signatory
6703	Arsenic - Dissolved	0.001 ± 0.0004	g/m³	08/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	< 0.03	g/m³	08/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	08/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	08/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	0.0014 ± 0.0003	g/m³	08/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	08/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.0007 ± 0.0002	g/m³	08/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	0.0005 ± 0.0002	g/m³	08/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	5.03	g/m³	08/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	08/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 4 ± 1	cfu/100ml	07/01/2021	Juana Tamayo KTP
P1859	Sample Filtration	Completed		07/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-19	Levin Leachate Pond		11/01/2021 14:00	12/01/2021 10:35	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.9 ± 0.2		12/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	57 ± 14	g/m³	12/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	582 ± 58.2	g/m³	14/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	5,680 ± 570	g CaCO3/m³	12/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	1,330 ± 30.0	mS/m	12/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	3,880 ± 190	g/m³	13/01/2021	Gordon McArthur KTP
0085	BOD5 - Total	172 ± 26	g/m³	13/01/2021	Marylou Cabral KTP
0602	Chloride	1,200 ± 60.0	g/m³	21/01/2021	Divina Lagazon KTP
0605	Nitrate - Nitrogen	< 1.00 ± 0.10	g/m³	22/01/2021	Divina Lagazon KTP
0607	Sulphate	54.5 ± 2.72	g/m³	22/01/2021	Divina Lagazon KTP
0760	Ammonia Nitrogen	1,120 ± 110	g/m³	15/01/2021	Divina Lagazon KTP
1642	Total Hardness	436 ± 44	g CaCO3/m³	16/01/2021	Shuyu Zhao KTP
1810	Calcium - Dissolved	93.7 ± 9.37	g/m³	16/01/2021	Shuyu Zhao KTP
1819	Iron - Dissolved	4.21 ± 0.421	g/m³	16/01/2021	Shuyu Zhao KTP
1822	Magnesium - Dissolved	48.9 ± 4.89	g/m³	16/01/2021	Shuyu Zhao KTP
1834	Sodium - Dissolved	811 ± 81.1	g/m³	16/01/2021	Shuyu Zhao KTP
2088	Dissolved Reactive Phosphorus	15.1 ± 1.51	g/m³	15/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.576 ± 0.058	g/m³	15/01/2021	Tracy Morrison KTP
6703	Arsenic - Dissolved	0.314 ± 0.031	g/m³	15/01/2021	Tracy Morrison KTP
6707	Boron - Dissolved	6.05	g/m³	15/01/2021	Tracy Morrison KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	15/01/2021	Tracy Morrison KTP
6711	Chromium - Dissolved	0.598 ± 0.060	g/m³	15/01/2021	Tracy Morrison KTP
6713	Copper - Dissolved	0.0120 ± 0.0024	g/m³	15/01/2021	Tracy Morrison KTP
6718	Lead - Dissolved	0.0025 ± 0.0003	g/m³	15/01/2021	Tracy Morrison KTP
6721	Manganese - Dissolved	1.03 ± 0.103	g/m³	15/01/2021	Tracy Morrison KTP
6724	Nickel - Dissolved	0.109 ± 0.0109	g/m³	15/01/2021	Tracy Morrison KTP
6726	Potassium - Dissolved	645	g/m³	19/01/2021	Shuyu Zhao KTP
6738	Zinc - Dissolved	0.057 ± 0.006	g/m³	15/01/2021	Tracy Morrison KTP
M0102	Faecal Coliforms	45,500 ± 9,100	cfu/100ml	12/01/2021	Juana Tamayo KTP
P1859	Sample Filtration	Completed		13/01/2021	Harsimran Dhanoa .
P1871	Subcontracted Report	Attached		21/01/2021	Prashilla Singh Transcribed by

SVOC	Semi Volatile Organic Compounds				
SVOC-001	2,3-Diuron	<0.001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-002	a-BHC	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-003	a-chlordane	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-004	Aldrin	<0.001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-005	b-BHC	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-006	cis-Permethrin	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-007	Dieldrin	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-008	Endosulfan II	<0.005	mg/L	14/01/2021	Joanna Yang KTP
SVOC-009	Endosulfan Sulfate	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-010	Endrin	<0.0001	mg/L	14/01/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-19	Levin Leachate Pond		11/01/2021 14:00	12/01/2021 10:35	0

Notes:

Test	Result	Units	Test Date	Signatory
SVOC-011 Endrin Aldehyde	<0.001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-012 Endrin Ketone	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-013 Gamma-Chlordane	<0.001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-014 Heptachlor	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-015 Heptachlor Epoxide	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-016 Hexachlorobenzene	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-017 Lindane (g-BHC)	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-018 Methoxychlor	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-019 p,p'-DDD	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-020 p,p'DDE	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-021 p,p'-DDT	<0.001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-022 Procymidone	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-023 Propanil	<0.001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-024 Endosulfan I	<0.001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-025 Alachlor	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-026 Aldicarb	<0.1	mg/L	14/01/2021	Joanna Yang KTP
SVOC-027 Atrazine	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-028 Bromacil	<0.005	mg/L	14/01/2021	Joanna Yang KTP
SVOC-030 Cyanazine	<0.005	mg/L	14/01/2021	Joanna Yang KTP
SVOC-031 d-BHC	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-032 Metalaxyl-M	<0.001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-033 Metolachlor	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-034 Metribuzin	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-035 Molinate	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-037 Oxadiazon	< 0.0010	mg/L	14/01/2021	Joanna Yang KTP
SVOC-038 Pendimethalin	<0.002	mg/L	14/01/2021	Joanna Yang KTP
SVOC-039 Propazine	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-040 Pyriproxyfen	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-041 Simazine	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-042 Terbuthylazine	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-043 Trifluralin	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-044 Hexazinone	<0.001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-045 Chlorpyrifos	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-046 Diazinon	< 0.0010	mg/L	14/01/2021	Joanna Yang KTP
SVOC-047 Dimethoate	<0.001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-048 Pirimiphos methyl	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-049 Acenapthene	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-050 Acenaphthylene	< 0.0010	mg/L	14/01/2021	Joanna Yang KTP
SVOC-051 Anthracene	< 0.0010	mg/L	14/01/2021	Joanna Yang KTP
SVOC-052 benz(a)anthracene	< 0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-053 Benzo(a)pyrene	< 0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-054 Total Benzo(b) and Benzo(k) fluoranthrene	< 0.0010	mg/L	14/01/2021	Joanna Yang KTP
SVOC-055 Benzo(g,h,i)perylene	<0.001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-057 Chrysene	< 0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-058 Dibenz(a,h)anthracene	< 0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-059 Fluoranthene	< 0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-060 Fluorene	< 0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-061 Indeno(1,2,3-cd)pyrene	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-062 Naphthalene	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-063 Phenanthrene	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-064 Pyrene	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-066 2,2',3,4,4',5'-Hexachlorobiphenyl	<0.001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-067 2,2',4,5,5'-Pentachlorobiphenyl	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-068 2,4,4'-Trichlorobiphenyl	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-069 2,4-Dichlorobiphenyl	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-070 2,2',3,4,4',5',6-Heptachlorobiphenyl	<0.0001	mg/L	14/01/2021	Joanna Yang KTP
SVOC-072 Bis(2-ethylhexyl)adipate	<0.0001	mg/L	14/01/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-20	Levin HS1		24/12/2020 00:00	22/12/2020 12:11	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	8.8 ± 0.2		12/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	57 ± 14	g/m³	12/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	12.6 ± 1.3	g/m³	13/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	48 ± 5	g CaCO3/m³	12/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	20.2 ± 0.4	mS/m	12/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	83 ± 13	g/m³	13/01/2021	Gordon McArthur KTP
0085	BOD5 - Total	11 ± 2	g/m³	13/01/2021	Gordon McArthur KTP
0602	Chloride	21.2 ± 1.06	g/m³	21/01/2021	Divina Lagazon KTP
0605	Nitrate - Nitrogen	0.01 ± 0.005	g/m³	21/01/2021	Divina Lagazon KTP
0607	Sulphate	15.9 ± 0.80	g/m³	21/01/2021	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.02 ± 0.007	g/m³	13/01/2021	Divina Lagazon KTP
1642	Total Hardness	54 ± 5	g CaCO3/m³	13/01/2021	Amit Kumar KTP
1810	Calcium - Dissolved	11.8 ± 1.18	g/m³	13/01/2021	Amit Kumar KTP
1819	Iron - Dissolved	0.035 ± 0.007	g/m³	13/01/2021	Amit Kumar KTP
1822	Magnesium - Dissolved	6.08 ± 0.61	g/m³	13/01/2021	Amit Kumar KTP
1834	Sodium - Dissolved	17.7 ± 1.77	g/m³	13/01/2021	Amit Kumar KTP
2088	Dissolved Reactive Phosphorus	0.012 ± 0.003	g/m³	13/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.040 ± 0.004	g/m³	14/01/2021	Shuyu Zhao KTP
6703	Arsenic - Dissolved	0.001 ± 0.0004	g/m³	14/01/2021	Shuyu Zhao KTP
6707	Boron - Dissolved	0.06	g/m³	14/01/2021	Shuyu Zhao KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	14/01/2021	Shuyu Zhao KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	14/01/2021	Shuyu Zhao KTP
6713	Copper - Dissolved	0.0014 ± 0.0003	g/m³	14/01/2021	Shuyu Zhao KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	14/01/2021	Shuyu Zhao KTP
6721	Manganese - Dissolved	0.0040 ± 0.0008	g/m³	14/01/2021	Shuyu Zhao KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	14/01/2021	Shuyu Zhao KTP
6726	Potassium - Dissolved	3.33	g/m³	14/01/2021	Shuyu Zhao KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	14/01/2021	Shuyu Zhao KTP
M0102	Faecal Coliforms	16 ± 3	cfu/100ml	12/01/2021	Juana Tamayo KTP
P1859	Sample Filtration	Completed		12/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-21	Levin HS2		24/12/2020 00:00	22/12/2020 12:11	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	8.2 ± 0.2		12/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	87 ± 21	g/m³	12/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	12.5 ± 1.3	g/m³	13/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	54 ± 5	g CaCO3/m³	12/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	21.6 ± 0.4	mS/m	12/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	77 ± 13	g/m³	13/01/2021	Gordon McArthur KTP
0085	BOD5 - Total	10 ± 2	g/m³	13/01/2021	Gordon McArthur KTP
0602	Chloride	22.6 ± 1.13	g/m³	21/01/2021	Divina Lagazon KTP
0605	Nitrate - Nitrogen	0.11 ± 0.03	g/m³	21/01/2021	Divina Lagazon KTP
0607	Sulphate	15.3 ± 0.77	g/m³	21/01/2021	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.01 ± 0.005	g/m³	13/01/2021	Divina Lagazon KTP
1642	Total Hardness	58 ± 6	g CaCO3/m³	13/01/2021	Amit Kumar KTP
1810	Calcium - Dissolved	12.6 ± 1.26	g/m³	13/01/2021	Amit Kumar KTP
1819	Iron - Dissolved	0.056 ± 0.011	g/m³	13/01/2021	Amit Kumar KTP
1822	Magnesium - Dissolved	6.38 ± 0.64	g/m³	13/01/2021	Amit Kumar KTP
1834	Sodium - Dissolved	19.2 ± 1.92	g/m³	13/01/2021	Amit Kumar KTP
2088	Dissolved Reactive Phosphorus	0.013 ± 0.003	g/m³	13/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.022 ± 0.002	g/m³	14/01/2021	Shuyu Zhao KTP
6703	Arsenic - Dissolved	0.001 ± 0.0004	g/m³	14/01/2021	Shuyu Zhao KTP
6707	Boron - Dissolved	0.06	g/m³	14/01/2021	Shuyu Zhao KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	14/01/2021	Shuyu Zhao KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	14/01/2021	Shuyu Zhao KTP
6713	Copper - Dissolved	0.0016 ± 0.0004	g/m³	14/01/2021	Shuyu Zhao KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	14/01/2021	Shuyu Zhao KTP
6721	Manganese - Dissolved	0.0036 ± 0.0007	g/m³	14/01/2021	Shuyu Zhao KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	14/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-21	Levin HS2		24/12/2020 00:00	22/12/2020 12:11	0

Notes:

	Test	Result	Units	Test Date	Signatory
6726	Potassium - Dissolved	3.90	g/m³	14/01/2021	Shuyu Zhao KTP
6738	Zinc - Dissolved	0.002 ± 0.0007	g/m³	14/01/2021	Shuyu Zhao KTP
M0102	Faecal Coliforms	190 ± 40	cfu/100ml	12/01/2021	Juana Tamayo KTP
P1859	Sample Filtration	Completed		12/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-22	Levin HS3		24/12/2020 00:00	22/12/2020 12:11	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	8.2 ± 0.2		12/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	49 ± 12	g/m³	12/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	10.4 ± 1.0	g/m³	13/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	47 ± 5	g CaCO3/m³	12/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	20.7 ± 0.4	mS/m	12/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	69 ± 11	g/m³	13/01/2021	Gordon McArthur KTP
0085	BOD5 - Total	7 ± 1	g/m³	13/01/2021	Gordon McArthur KTP
0602	Chloride	21.5 ± 1.07	g/m³	21/01/2021	Divina Lagazon KTP
0605	Nitrate - Nitrogen	0.07 ± 0.02	g/m³	21/01/2021	Divina Lagazon KTP
0607	Sulphate	15.5 ± 0.78	g/m³	21/01/2021	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.01 ± 0.005	g/m³	13/01/2021	Divina Lagazon KTP
1642	Total Hardness	55 ± 5	g CaCO3/m³	13/01/2021	Amit Kumar KTP
1810	Calcium - Dissolved	11.9 ± 1.19	g/m³	13/01/2021	Amit Kumar KTP
1819	Iron - Dissolved	0.060 ± 0.012	g/m³	13/01/2021	Amit Kumar KTP
1822	Magnesium - Dissolved	6.02 ± 0.60	g/m³	13/01/2021	Amit Kumar KTP
1834	Sodium - Dissolved	18.0 ± 1.80	g/m³	13/01/2021	Amit Kumar KTP
2088	Dissolved Reactive Phosphorus	0.012 ± 0.003	g/m³	13/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.029 ± 0.003	g/m³	14/01/2021	Shuyu Zhao KTP
6703	Arsenic - Dissolved	0.001 ± 0.0004	g/m³	14/01/2021	Shuyu Zhao KTP
6707	Boron - Dissolved	0.06	g/m³	14/01/2021	Shuyu Zhao KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	14/01/2021	Shuyu Zhao KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	14/01/2021	Shuyu Zhao KTP
6713	Copper - Dissolved	0.0014 ± 0.0003	g/m³	14/01/2021	Shuyu Zhao KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	14/01/2021	Shuyu Zhao KTP
6721	Manganese - Dissolved	0.0032 ± 0.0007	g/m³	14/01/2021	Shuyu Zhao KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	14/01/2021	Shuyu Zhao KTP
6726	Potassium - Dissolved	3.56	g/m³	14/01/2021	Shuyu Zhao KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	14/01/2021	Shuyu Zhao KTP
M0102	Faecal Coliforms	120 ± 20	cfu/100ml	12/01/2021	Juana Tamayo KTP
P1859	Sample Filtration	Completed		12/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-23	Levin G1D		06/01/2021 09:50	07/01/2021 09:51	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.2 ± 0.2		07/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	22 ± 5	g/m³	08/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	1.8 ± 0.2	g/m³	07/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	56 ± 6	g CaCO3/m³	07/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	27.6 ± 0.6	mS/m	07/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	19 ± 6	g/m³	07/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 1 ± 0.3	g/m³	07/01/2021	Marylou Cabral KTP
0602	Chloride	30.7 ± 1.54	g/m³	11/01/2021	Shanel Kumar KTP
0605	Nitrate - Nitrogen	< 0.01 ± 0.003	g/m³	11/01/2021	Shanel Kumar KTP
0607	Sulphate	18.2 ± 0.91	g/m³	11/01/2021	Shanel Kumar KTP
0760	Ammonia Nitrogen	0.10 ± 0.03	g/m³	11/01/2021	Divina Lagazon KTP
1642	Total Hardness	51 ± 5	g CaCO3/m³	08/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	8.05 ± 0.81	g/m³	08/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	0.528 ± 0.106	g/m³	08/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	7.45 ± 0.75	g/m³	08/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	30.7 ± 3.07	g/m³	08/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.047 ± 0.010	g/m³	11/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.006 ± 0.001	g/m³	08/01/2021	Shanel Kumar KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-23	Levin G1D		06/01/2021 09:50	07/01/2021 09:51	0

Notes:

	Test	Result	Units	Test Date	Signatory
6703	Arsenic - Dissolved	0.003 ± 0.0004	g/m³	08/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.04	g/m³	08/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	08/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	08/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	0.0008 ± 0.0002	g/m³	08/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	0.0009 ± 0.0002	g/m³	08/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.0627 ± 0.0125	g/m³	08/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	08/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	6.02	g/m³	08/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	08/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 4 ± 1	cfu/100ml	07/01/2021	Juana Tamayo KTP
P1859	Sample Filtration	Completed		07/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-24	Levin D1		07/01/2021 11:30	08/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	6.7 ± 0.2		08/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	< 6 ± 2	g/m³	08/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	1.2 ± 0.1	g/m³	12/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	143 ± 14	g CaCO3/m³	11/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	48.2 ± 1.0	mS/m	08/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	< 15 ± 5	g/m³	08/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 1 ± 0.3	g/m³	08/01/2021	Marylou Cabral KTP
0602	Chloride	32.7 ± 1.64	g/m³	15/01/2021	Amit Kumar KTP
0605	Nitrate - Nitrogen	9.98 ± 1.00	g/m³	15/01/2021	Amit Kumar KTP
0607	Sulphate	5.03 ± 0.50	g/m³	15/01/2021	Amit Kumar KTP
0760	Ammonia Nitrogen	0.02 ± 0.008	g/m³	13/01/2021	Divina Lagazon KTP
1642	Total Hardness	131 ± 13	g CaCO3/m³	13/01/2021	Amit Kumar KTP
1810	Calcium - Dissolved	24.4 ± 2.44	g/m³	13/01/2021	Amit Kumar KTP
1819	Iron - Dissolved	< 0.005 ± 0.002	g/m³	13/01/2021	Amit Kumar KTP
1822	Magnesium - Dissolved	17.0 ± 1.70	g/m³	13/01/2021	Amit Kumar KTP
1834	Sodium - Dissolved	43.1 ± 4.31	g/m³	13/01/2021	Amit Kumar KTP
2088	Dissolved Reactive Phosphorus	0.098 ± 0.020	g/m³	13/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	< 0.002 ± 0.001	g/m³	13/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.001 ± 0.0004	g/m³	13/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.06	g/m³	13/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	13/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	13/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	9.34	g/m³	13/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	13/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 4 ± 1	cfu/100ml	08/01/2021	Maria Norris KTP
P1859	Sample Filtration	Completed		09/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-25	Levin D3r		07/01/2021 12:39	08/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	6.7 ± 0.2		08/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	< 7 ± 2	g/m³	08/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	3.0 ± 0.3	g/m³	12/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	55 ± 6	g CaCO3/m³	11/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	21.7 ± 0.4	mS/m	08/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	< 15 ± 5	g/m³	08/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 1 ± 0.4	g/m³	08/01/2021	Marylou Cabral KTP
0602	Chloride	23.3 ± 1.17	g/m³	15/01/2021	Amit Kumar KTP
0605	Nitrate - Nitrogen	0.16 ± 0.04	g/m³	15/01/2021	Amit Kumar KTP
0607	Sulphate	7.54 ± 0.75	g/m³	15/01/2021	Amit Kumar KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-25	Levin D3r		07/01/2021 12:39	08/01/2021 09:00	0

Notes:

	Test	Result	Units	Test Date	Signatory
0760	Ammonia Nitrogen	0.19 ± 0.06	g/m³	13/01/2021	Divina Lagazon KTP
1642	Total Hardness	36 ± 4	g CaCO3/m³	13/01/2021	Amit Kumar KTP
1810	Calcium - Dissolved	6.98 ± 0.70	g/m³	13/01/2021	Amit Kumar KTP
1819	Iron - Dissolved	2.35 ± 0.235	g/m³	13/01/2021	Amit Kumar KTP
1822	Magnesium - Dissolved	4.44 ± 0.44	g/m³	13/01/2021	Amit Kumar KTP
1834	Sodium - Dissolved	25.5 ± 2.55	g/m³	13/01/2021	Amit Kumar KTP
2088	Dissolved Reactive Phosphorus	0.020 ± 0.004	g/m³	13/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.002 ± 0.001	g/m³	13/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.008 ± 0.0009	g/m³	13/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.03	g/m³	13/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	13/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	13/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.179 ± 0.0179	g/m³	13/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005 ± 0.0002	g/m³	13/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	5.57	g/m³	13/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	13/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 4 ± 1	cfu/100ml	08/01/2021	Maria Norris KTP
P1859	Sample Filtration	Completed		09/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-26	Levin G1S		06/01/2021 10:11	07/01/2021 09:51	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	6.9 ± 0.2		07/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	41 ± 10	g/m³	08/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	45.7 ± 4.6	g/m³	07/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	91 ± 9	g CaCO3/m³	07/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	37.2 ± 0.7	mS/m	07/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	125 ± 13	g/m³	07/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 6 ± 0.8	g/m³	07/01/2021	Marylou Cabral KTP
0602	Chloride	46.0 ± 2.30	g/m³	11/01/2021	Shanel Kumar KTP
0605	Nitrate - Nitrogen	< 0.01 ± 0.003	g/m³	11/01/2021	Shanel Kumar KTP
0607	Sulphate	3.30 ± 0.33	g/m³	11/01/2021	Shanel Kumar KTP
0760	Ammonia Nitrogen	0.05 ± 0.02	g/m³	11/01/2021	Divina Lagazon KTP
1642	Total Hardness	39 ± 4	g CaCO3/m³	08/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	7.57 ± 0.76	g/m³	08/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	3.67 ± 0.367	g/m³	08/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	4.89 ± 0.49	g/m³	08/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	67.4 ± 6.74	g/m³	08/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.072 ± 0.015	g/m³	11/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.194 ± 0.019	g/m³	08/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.002 ± 0.0004	g/m³	08/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	< 0.03	g/m³	08/01/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	08/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	0.003 ± 0.0004	g/m³	08/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	0.0113 ± 0.0023	g/m³	08/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	08/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.0609 ± 0.0122	g/m³	08/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	0.0020 ± 0.0006	g/m³	08/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	3.95	g/m³	08/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	0.002 ± 0.0007	g/m³	08/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 4 ± 1	cfu/100ml	07/01/2021	Juana Tamayo KTP
P1859	Sample Filtration	Completed		07/01/2021	Harsimran Dhanoa .

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-27	Levin G2s		06/01/2021 10:55	07/01/2021 09:51	0

Notes:

	Test	Result	Units	Test Date	Signatory
0001	pH	7.2 ± 0.2		08/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	< 7 ± 2	g/m³	08/01/2021	Jennifer Mont KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-27	Levin G2s		06/01/2021 10:55	07/01/2021 09:51	0

Notes:

	Test	Result	Units	Test Date	Signatory
0040	Total (NP) Organic Carbon	10.9 ± 1.1	g/m³	07/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	287 ± 29	g CaCO3/m³	08/01/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	155 ± 3.1	mS/m	08/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	38 ± 8	g/m³	07/01/2021	Marylou Cabral KTP
0085	BOD5 - Total	< 1 ± 0.3	g/m³	07/01/2021	Marylou Cabral KTP
0602	Chloride	311 ± 15.6	g/m³	13/01/2021	Shanel Kumar KTP
0605	Nitrate - Nitrogen	< 0.01 ± 0.003	g/m³	11/01/2021	Shanel Kumar KTP
0607	Sulphate	3.48 ± 0.35	g/m³	11/01/2021	Shanel Kumar KTP
0760	Ammonia Nitrogen	0.02 ± 0.006	g/m³	11/01/2021	Divina Lagazon KTP
1642	Total Hardness	260 ± 26	g CaCO3/m³	08/01/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	51.8 ± 5.18	g/m³	08/01/2021	Shanel Kumar KTP
1819	Iron - Dissolved	0.034 ± 0.007	g/m³	08/01/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	31.6 ± 3.16	g/m³	08/01/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	185 ± 18.5	g/m³	08/01/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.018 ± 0.004	g/m³	11/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.003 ± 0.001	g/m³	08/01/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001 ± 0.0003	g/m³	08/01/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.84	g/m³	14/01/2021	Shuyu Zhao KTP
6708	Cadmium - Dissolved	< 0.0002 ± 0.0001	g/m³	08/01/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001 ± 0.0003	g/m³	08/01/2021	Shanel Kumar KTP
6713	Copper - Dissolved	0.0039 ± 0.0008	g/m³	08/01/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005 ± 0.0002	g/m³	08/01/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.119 ± 0.0119	g/m³	08/01/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	0.0031 ± 0.0009	g/m³	08/01/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	23.5	g/m³	08/01/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002 ± 0.0007	g/m³	08/01/2021	Shanel Kumar KTP
M0102	Faecal Coliforms	< 4 ± 1	cfu/100ml	07/01/2021	Juana Tamayo KTP
P1859	Sample Filtration	Completed		07/01/2021	Harsimran Dhanoa .
P1871	Subcontracted Report	Attached		14/01/2021	Prashilla Singh Transcribed by

SVOC	Semi Volatile Organic Compounds				
SVOC-001	2,3-Diuron	<0.001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-002	a-BHC	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-003	a-chlordane	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-004	Aldrin	<0.001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-005	b-BHC	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-006	cis-Permethrin	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-007	Dieldrin	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-008	Endosulfan II	<0.005	mg/L	07/01/2021	Joanna Yang KTP
SVOC-009	Endosulfan Sulfate	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-010	Endrin	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-011	Endrin Aldehyde	<0.001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-012	Endrin Ketone	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-013	Gamma-Chlordane	<0.001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-014	Heptachlor	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-015	Heptachlor Epoxide	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-016	Hexachlorobenzene	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-017	Lindane (g-BHC)	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-018	Methoxychlor	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-019	p,p'-DDD	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-020	p,p'DDE	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-021	p,p'-DDT	<0.001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-022	Procymidone	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-023	Propanil	<0.001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-024	Endosulfan I	<0.001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-025	Alachlor	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-026	Aldicarb	<0.1	mg/L	07/01/2021	Joanna Yang KTP
SVOC-027	Atrazine	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-028	Bromacil	<0.005	mg/L	07/01/2021	Joanna Yang KTP
SVOC-029	Carbofuran	< 0.006	mg/L	07/01/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/68791-27	Levin G2s		06/01/2021 10:55	07/01/2021 09:51	0

Notes:

Test	Result	Units	Test Date	Signatory
SVOC-030 Cyanazine	<0.005	mg/L	07/01/2021	Joanna Yang KTP
SVOC-031 d-BHC	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-032 Metalaxyl-M	<0.001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-033 Metolachlor	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-034 Metribuzin	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-035 Molinate	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-037 Oxadiazon	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-038 Pendimethalin	<0.002	mg/L	07/01/2021	Joanna Yang KTP
SVOC-039 Propazine	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-040 Pyriproxyfen	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-041 Simazine	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-042 Terbuthylazine	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-043 Trifluralin	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-044 Hexazinone	<0.001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-045 Chlorpyrifos	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-046 Diazinon	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-047 Dimethoate	<0.001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-048 Pirimiphos methyl	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-049 Acenapthene	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-050 Acenaphthylene	< 0.0010	mg/L	07/01/2021	Joanna Yang KTP
SVOC-051 Anthracene	< 0.0010	mg/L	07/01/2021	Joanna Yang KTP
SVOC-052 benz(a)anthracene	< 0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-053 Benzo(a)pyrene	< 0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-054 Total Benzo(b) and Benzo(k) fluoranthrene	< 0.0010	mg/L	07/01/2021	Joanna Yang KTP
SVOC-055 Benzo(g,h,i)perylene	<0.001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-057 Chrysene	< 0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-058 Dibenz(a,h)anthracene	< 0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-059 Fluoranthene	< 0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-060 Fluorene	< 0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-061 Indeno(1,2,3-cd)pyrene	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-062 Naphthalene	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-063 Phenanthrene	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-064 Pyrene	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-066 2,2',3,4,4',5'-Hexachlorobiphenyl	<0.001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-067 2,2',4,5,5'-Pentachlorobiphenyl	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-068 2,4,4'-Trichlorobiphenyl	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-069 2,4-Dichlorobiphenyl	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-070 2,2',3,4,4',5',6-Heptachlorobiphenyl	<0.0001	mg/L	07/01/2021	Joanna Yang KTP
SVOC-072 Bis(2-ethylhexyl)adipate	<0.0001	mg/L	07/01/2021	Joanna Yang KTP

Comments:

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

This report cancels and replaces report 20/68791-17. Please dispose of all previous versions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500-H B.	0.1
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA Online Edition 5310 B.	0.1 g/m³
Alkalinity - Total	APHA Online Edition Method 2320 B	1 g CaCO3/m³
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Chemical Oxygen Demand	APHA Online Edition Method 5220 D.	15 g/m³
BOD5 - Total	APHA Online Edition Method 5210 B.	1 g/m³
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Sulphate	Ion Chromatography following APHA 4110B.	0.02 g/m³

Test	Methodology	Detection Limit
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Total Hardness	ICP-OES following APHA Online Edition Method 3120 B (modified).	1 g CaCO3/m³
Calcium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Iron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Magnesium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Sodium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.02 g/m³
Dissolved Reactive Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G.	0.005 g/m³
Aluminium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Arsenic - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Boron - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.03 g/m³
Cadmium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0002 g/m³
Chromium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Copper - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Manganese - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Potassium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified)	0.01 g/m³
Zinc - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Faecal Coliforms	APHA 9222D:Online Edition	1 cfu/100ml
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a
Subcontracted Report	Subcontracted Report Attached to Mailed Copy	n/a
Semi Volatile Organic Compounds	Semi-Volatile Organic Compound analysed by in-house method using GC-MSMS. Detection limit range is from 0.0001 mg/L to 0.1 mg/L.	

Unless otherwise stated, all tests are performed in Wellington.
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.
"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.
For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.
Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

eurofins | ELS

Eurofins ELS Limited

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 20/59242
Issue: 1
27 January 2021

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59242-01	Levin HS1A		11/01/2021 00:00	12/01/2021 10:39	0

Notes: 199624-0 Levin Landfill Sample

	Test	Result	Units	Test Date	Signatory
0001	pH	8.1		14/01/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	160	g/m³	14/01/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	14.4	g/m³	13/01/2021	Amit Kumar KTP
0052	Alkalinity - Total	44	g CaCO3/m³	15/01/2021	Gordon McArthur KTP
0055	Conductivity at 25°C	20.3	mS/m	14/01/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	49	g/m³	13/01/2021	Gordon McArthur KTP
0180	BOD5 - Soluble Carbonaceous	< 3	g/m³	14/01/2021	Gordon McArthur KTP
0602	Chloride	19.2	g/m³	21/01/2021	Divina Lagazon KTP
0605	Nitrate - Nitrogen	0.02	g/m³	21/01/2021	Divina Lagazon KTP
0607	Sulphate	14.4	g/m³	21/01/2021	Divina Lagazon KTP
0760	Ammonia Nitrogen	< 0.01	g/m³	15/01/2021	Divina Lagazon KTP
1642	Total Hardness	52	g CaCO3/m³	14/01/2021	Shuyu Zhao KTP
1810	Calcium - Dissolved	11.6	g/m³	14/01/2021	Shuyu Zhao KTP
1819	Iron - Dissolved	0.058	g/m³	14/01/2021	Shuyu Zhao KTP
1822	Magnesium - Dissolved	5.64	g/m³	14/01/2021	Shuyu Zhao KTP
1834	Sodium - Dissolved	17.0	g/m³	14/01/2021	Shuyu Zhao KTP
2088	Dissolved Reactive Phosphorus	0.015	g/m³	22/01/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.013	g/m³	15/01/2021	Tracy Morrison KTP
6703	Arsenic - Dissolved	0.001	g/m³	15/01/2021	Tracy Morrison KTP
6707	Boron - Dissolved	0.06	g/m³	15/01/2021	Tracy Morrison KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	15/01/2021	Tracy Morrison KTP
6711	Chromium - Dissolved	< 0.001	g/m³	15/01/2021	Tracy Morrison KTP
6713	Copper - Dissolved	0.0017	g/m³	15/01/2021	Tracy Morrison KTP
6718	Lead - Dissolved	< 0.0005	g/m³	15/01/2021	Tracy Morrison KTP
6721	Manganese - Dissolved	0.0043	g/m³	15/01/2021	Tracy Morrison KTP
6722	Mercury - Dissolved	< 0.0005	g/m³	15/01/2021	Shuyu Zhao KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	15/01/2021	Tracy Morrison KTP
6726	Potassium - Dissolved	2.92	g/m³	15/01/2021	Tracy Morrison KTP
6738	Zinc - Dissolved	0.002	g/m³	15/01/2021	Tracy Morrison KTP
M0104	E. coli	110	cfu/100mL	12/01/2021	Yuemei Yu KTP
MO-5001	Volatile Fatty Acids	< 5 *	g/m³		Lizzie Addis Transcribed by
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Lizzie Addis Transcribed by
P1859	Sample Filtration	Completed		13/01/2021	Harsimran Dhanoa .

Comments:

***** Not an accredited test.

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500-H B.	0.1
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA Online Edition 5310 B.	0.1 g/m³
Alkalinity - Total	APHA Online Edition Method 2320 B	1 g CaCO3/m³
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Chemical Oxygen Demand	APHA Online Edition Method 5220 D.	15 g/m³
BOD5 - Soluble Carbonaceous	APHA Online Edition Method 5210 B. The sample is filtered through Whatman GFC and treated with nitrification inhibitor.	1 g/m³
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³

Test	Methodology	Detection Limit
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Sulphate	Ion Chromatography following APHA 4110B.	0.02 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Total Hardness	ICP-OES following APHA Online Edition Method 3120 B (modified).	1 g CaCO3/m³
Calcium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Iron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Magnesium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Sodium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.02 g/m³
Dissolved Reactive Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G.	0.005 g/m³
Aluminium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Arsenic - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Boron - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.03 g/m³
Cadmium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0002 g/m³
Chromium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Copper - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Manganese - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Potassium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified)	0.01 g/m³
Zinc - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
E. coli	APHA 9222I:Online Edition	1 cfu/100mL
Volatile Fatty Acids	Performed by Eurofins Melbourne following APHA 22nd Edition Method 5560C. Results are reported as acetic acid equivalent.	5 g/m³
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a

Unless otherwise stated, all tests are performed in Wellington.

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.

"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.

For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.

Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

Eurofins - ELS
85 Port Rd
Seaview
Lower Hutt Wellington 5045

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **-ALL ASMs**

Report **762015-W_INT**
Project name
Project ID 20/53445
Received Date Dec 08, 2020

Client Sample ID			**20/53445 01**
Sample Matrix			**Water**
Eurofins Sample No.			**K20-De15483**
Date Sampled			**Dec 01, 2020**
Test/Reference	LOR	Unit	
Phenolics (total)	0.05	mg/L	< 0.05
Volatile Fatty Acids (as Acetic Acid)	5	mg/L	< 5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Phenolics (total)	Melbourne	Dec 10, 2020	7 Days
- Method: LTM-INO-4050 Total Phenolics in Waters and solids by CFA			
Volatile Fatty Acids (as Acetic Acid)	Melbourne	Dec 10, 2020	14 Days
- Method: APHA 5560C - Volatile Fatty Acids			

eurofins | Environment Testing

NZBN: 9429046024954 web: www.eurofins.com.au email: EnviroSales@eurofins.com

New Zealand

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Australia

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448

Company Name: Eurofins | ELS Limited
Address: 85 Port Rd
Seaview
Lower Hutt Wellington 5045

Project Name:
Project ID: 20/53445

Order No.:
Report #: 762015
Phone: +644 576 5016
Fax:

Received: Dec 8, 2020 8:00 AM
Due: Dec 15, 2020
Priority: 5 Day
Contact Name: -ALL ASMs

Eurofins Analytical Services Manager : Swati Shahaney

Sample Detail						Phenolics (total)	Volatile Fatty Acids (as Acetic Acid)
Auckland Laboratory - IANZ# 1327							
Christchurch Laboratory - IANZ# 1290							
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	20/53445 01	Dec 01, 2020		Water	K20-De15483	X	X
Test Counts						1	1

eurofins | Environment Testing

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram | **mg/L:** milligrams per litre | **ug/L:** micrograms per litre

ppm: Parts per million | **ppb:** Parts per billion | **%:** Percentage

org/100mL: Organisms per 100 millilitres | **NTU:** Nephelometric Turbidity Units | **MPN/100mL:** Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Phenolics (total)			mg/L	< 0.05			0.05	Pass	
Volatile Fatty Acids (as Acetic Acid)			mg/L	< 5			5	Pass	
LCS - % Recovery									
Phenolics (total)			%	73			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
				Result 1					
Phenolics (total)	M20-De21413	NCP	%	97			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
Phenolics (total)	M20-De21412	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Volatile Fatty Acids (as Acetic Acid)	M20-De26423	NCP	mg/L	18000	17000	9.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N16	Analysis performed by Eurofins Environment Testing Australia

Authorised By

Swati Shahaney	Analytical Services Manager
Scott Beddoes	Senior Analyst-Inorganic (VIC)

Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

eurofins | ELS

Eurofins ELS Limited

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 20/53445
Issue: 1
17 December 2020

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/53445-01	Levin HS1		01/12/2020 00:00	04/12/2020 09:58	0

Notes: 196902-0 Levin Landfill Sample

	Test	Result	Units	Test Date	Signatory
0001	pH	8.7		04/12/2020	Gordon McArthur KTP
0002	Suspended Solids - Total	33	g/m³	04/12/2020	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	15.2	g/m³	08/12/2020	Amit Kumar KTP
0052	Alkalinity - Total	48	g CaCO3/m³	04/12/2020	Gordon McArthur KTP
0055	Conductivity at 25°C	19.7	mS/m	04/12/2020	Gordon McArthur KTP
0081	Chemical Oxygen Demand	87	g/m³	04/12/2020	Gordon McArthur KTP
0180	BOD5 - Soluble Carbonaceous	6	g/m³	04/12/2020	Gordon McArthur KTP
0602	Chloride	18.9	g/m³	09/12/2020	Divina Lagazon KTP
0605	Nitrate - Nitrogen	0.41	g/m³	09/12/2020	Divina Lagazon KTP
0607	Sulphate	16.7	g/m³	09/12/2020	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.03	g/m³	10/12/2020	Divina Lagazon KTP
1642	Total Hardness	51	g CaCO3/m³	05/12/2020	Shuyu Zhao KTP
1810	Calcium - Dissolved	10.6	g/m³	05/12/2020	Shuyu Zhao KTP
1819	Iron - Dissolved	0.057	g/m³	05/12/2020	Shuyu Zhao KTP
1822	Magnesium - Dissolved	5.93	g/m³	05/12/2020	Shuyu Zhao KTP
1834	Sodium - Dissolved	15.9	g/m³	05/12/2020	Shuyu Zhao KTP
2088	Dissolved Reactive Phosphorus	0.008	g/m³	10/12/2020	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.042	g/m³	07/12/2020	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.001	g/m³	07/12/2020	Shanel Kumar KTP
6707	Boron - Dissolved	0.05	g/m³	07/12/2020	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	07/12/2020	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	07/12/2020	Shanel Kumar KTP
6713	Copper - Dissolved	0.0019	g/m³	07/12/2020	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	07/12/2020	Shanel Kumar KTP
6721	Manganese - Dissolved	0.0075	g/m³	07/12/2020	Shanel Kumar KTP
6722	Mercury - Dissolved	< 0.0005	g/m³	07/12/2020	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	07/12/2020	Shanel Kumar KTP
6726	Potassium - Dissolved	3.10	g/m³	07/12/2020	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002	g/m³	07/12/2020	Shanel Kumar KTP
M0104	E. coli	120	cfu/100mL	04/12/2020	Juana Tamayo KTP
MO-5001	Volatile Fatty Acids	< 5 *	g/m³		Prashilla Singh Transcribed by
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Prashilla Singh Transcribed by
P1859	Sample Filtration	Completed		04/12/2020	Harsimran Dhanoa .

Comments:

***** Not an accredited test.

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500-H B.	0.1
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA Online Edition 5310 B.	0.1 g/m³
Alkalinity - Total	APHA Online Edition Method 2320 B	1 g CaCO3/m³
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Chemical Oxygen Demand	APHA Online Edition Method 5220 D.	15 g/m³
BOD5 - Soluble Carbonaceous	APHA Online Edition Method 5210 B. The sample is filtered through Whatman GFC and treated with nitrification inhibitor.	1 g/m³

Test	Methodology	Detection Limit
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Sulphate	Ion Chromatography following APHA 4110B.	0.02 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Total Hardness	ICP-OES following APHA Online Edition Method 3120 B (modified).	1 g CaCO3/m³
Calcium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Iron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Magnesium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Sodium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.02 g/m³
Dissolved Reactive Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G.	0.005 g/m³
Aluminium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Arsenic - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Boron - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.03 g/m³
Cadmium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0002 g/m³
Chromium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Copper - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Manganese - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Potassium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified)	0.01 g/m³
Zinc - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
E. coli	APHA 9222I:Online Edition	1 cfu/100mL
Volatile Fatty Acids	Performed by Eurofins Melbourne following APHA 22nd Edition Method 5560C. Results are reported as acetic acid equivalent.	5 g/m³
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a

Unless otherwise stated, all tests are performed in Wellington.
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.
"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.
For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.
Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

eurofins | ELS

Eurofins ELS Limited

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 20/52678
Issue: 1
17 December 2020

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/52678-01	Levin HS1A		01/12/2020 00:00	04/12/2020 09:58	0

Notes: 196903-0 Levin Landfill Sample

	Test	Result	Units	Test Date	Signatory
0001	pH	8.6		04/12/2020	Gordon McArthur KTP
0002	Suspended Solids - Total	104	g/m³	04/12/2020	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	11.8	g/m³	08/12/2020	Amit Kumar KTP
0052	Alkalinity - Total	47	g CaCO3/m³	04/12/2020	Gordon McArthur KTP
0055	Conductivity at 25°C	19.6	mS/m	04/12/2020	Gordon McArthur KTP
0081	Chemical Oxygen Demand	54	g/m³	04/12/2020	Gordon McArthur KTP
0180	BOD5 - Soluble Carbonaceous	3	g/m³	04/12/2020	Gordon McArthur KTP
0602	Chloride	18.8	g/m³	09/12/2020	Divina Lagazon KTP
0605	Nitrate - Nitrogen	0.41	g/m³	09/12/2020	Divina Lagazon KTP
0607	Sulphate	16.6	g/m³	09/12/2020	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.03	g/m³	10/12/2020	Divina Lagazon KTP
1642	Total Hardness	50	g CaCO3/m³	05/12/2020	Shuyu Zhao KTP
1810	Calcium - Dissolved	10.4	g/m³	05/12/2020	Shuyu Zhao KTP
1819	Iron - Dissolved	0.057	g/m³	05/12/2020	Shuyu Zhao KTP
1822	Magnesium - Dissolved	5.82	g/m³	05/12/2020	Shuyu Zhao KTP
1834	Sodium - Dissolved	15.6	g/m³	05/12/2020	Shuyu Zhao KTP
2088	Dissolved Reactive Phosphorus	0.008	g/m³	10/12/2020	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.032	g/m³	07/12/2020	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.001	g/m³	07/12/2020	Shanel Kumar KTP
6707	Boron - Dissolved	0.05	g/m³	07/12/2020	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	07/12/2020	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	07/12/2020	Shanel Kumar KTP
6713	Copper - Dissolved	0.0019	g/m³	07/12/2020	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	07/12/2020	Shanel Kumar KTP
6721	Manganese - Dissolved	0.0062	g/m³	07/12/2020	Shanel Kumar KTP
6722	Mercury - Dissolved	< 0.0005	g/m³	07/12/2020	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	07/12/2020	Shanel Kumar KTP
6726	Potassium - Dissolved	3.20	g/m³	07/12/2020	Shanel Kumar KTP
6738	Zinc - Dissolved	0.003	g/m³	07/12/2020	Shanel Kumar KTP
M0104	E. coli	80	cfu/100mL	04/12/2020	Juana Tamayo KTP
MO-5001	Volatile Fatty Acids	< 5 *	g/m³		Prashilla Singh Transcribed by
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Prashilla Singh Transcribed by
P1859	Sample Filtration	Completed		04/12/2020	Harsimran Dhanoa .

Comments:

***** Not an accredited test.

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500-H B.	0.1
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA Online Edition 5310 B.	0.1 g/m³
Alkalinity - Total	APHA Online Edition Method 2320 B	1 g CaCO3/m³
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Chemical Oxygen Demand	APHA Online Edition Method 5220 D.	15 g/m³
BOD5 - Soluble Carbonaceous	APHA Online Edition Method 5210 B. The sample is filtered through Whatman GFC and treated with nitrification inhibitor.	1 g/m³

Test	Methodology	Detection Limit
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Sulphate	Ion Chromatography following APHA 4110B.	0.02 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Total Hardness	ICP-OES following APHA Online Edition Method 3120 B (modified).	1 g CaCO3/m³
Calcium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Iron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Magnesium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Sodium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.02 g/m³
Dissolved Reactive Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G.	0.005 g/m³
Aluminium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Arsenic - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Boron - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.03 g/m³
Cadmium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0002 g/m³
Chromium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Copper - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Manganese - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Potassium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified)	0.01 g/m³
Zinc - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
E. coli	APHA 9222I:Online Edition	1 cfu/100mL
Volatile Fatty Acids	Performed by Eurofins Melbourne following APHA 22nd Edition Method 5560C. Results are reported as acetic acid equivalent.	5 g/m³
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a

Unless otherwise stated, all tests are performed in Wellington.
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.
"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.
For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.
Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

eurofins | ELS

Eurofins ELS Limited

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 20/52679
Issue: 1
17 December 2020

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/52679-01	Levin HS2		01/12/2020 00:00	04/12/2020 10:06	0

Notes: 196904-0 Levin Landfill Sample

	Test	Result	Units	Test Date	Signatory
0001	pH	8.3		04/12/2020	Gordon McArthur KTP
0002	Suspended Solids - Total	69	g/m³	04/12/2020	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	17.5	g/m³	08/12/2020	Amit Kumar KTP
0052	Alkalinity - Total	46	g CaCO3/m³	04/12/2020	Gordon McArthur KTP
0055	Conductivity at 25°C	20.4	mS/m	04/12/2020	Gordon McArthur KTP
0081	Chemical Oxygen Demand	112	g/m³	04/12/2020	Gordon McArthur KTP
0180	BOD5 - Soluble Carbonaceous	3	g/m³	04/12/2020	Gordon McArthur KTP
0602	Chloride	19.8	g/m³	09/12/2020	Divina Lagazon KTP
0605	Nitrate - Nitrogen	0.41	g/m³	09/12/2020	Divina Lagazon KTP
0607	Sulphate	16.4	g/m³	09/12/2020	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.03	g/m³	10/12/2020	Divina Lagazon KTP
1642	Total Hardness	52	g CaCO3/m³	05/12/2020	Shuyu Zhao KTP
1810	Calcium - Dissolved	10.9	g/m³	05/12/2020	Shuyu Zhao KTP
1819	Iron - Dissolved	0.113	g/m³	05/12/2020	Shuyu Zhao KTP
1822	Magnesium - Dissolved	6.12	g/m³	05/12/2020	Shuyu Zhao KTP
1834	Sodium - Dissolved	16.5	g/m³	05/12/2020	Shuyu Zhao KTP
2088	Dissolved Reactive Phosphorus	0.008	g/m³	10/12/2020	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.038	g/m³	07/12/2020	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.001	g/m³	07/12/2020	Shanel Kumar KTP
6707	Boron - Dissolved	0.05	g/m³	07/12/2020	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	07/12/2020	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	07/12/2020	Shanel Kumar KTP
6713	Copper - Dissolved	0.0018	g/m³	07/12/2020	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	07/12/2020	Shanel Kumar KTP
6721	Manganese - Dissolved	0.0321	g/m³	07/12/2020	Shanel Kumar KTP
6722	Mercury - Dissolved	< 0.0005	g/m³	07/12/2020	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	07/12/2020	Shanel Kumar KTP
6726	Potassium - Dissolved	3.35	g/m³	07/12/2020	Shanel Kumar KTP
6738	Zinc - Dissolved	0.002	g/m³	07/12/2020	Shanel Kumar KTP
M0104	E. coli	100	cfu/100mL	04/12/2020	Juana Tamayo KTP
MO-5001	Volatile Fatty Acids	< 5 *	g/m³		Prashilla Singh Transcribed by
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Prashilla Singh Transcribed by
P1859	Sample Filtration	Completed		04/12/2020	Harsimran Dhanoa .

Comments:

***** Not an accredited test.

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500-H B.	0.1
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA Online Edition 5310 B.	0.1 g/m³
Alkalinity - Total	APHA Online Edition Method 2320 B	1 g CaCO3/m³
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Chemical Oxygen Demand	APHA Online Edition Method 5220 D.	15 g/m³
BOD5 - Soluble Carbonaceous	APHA Online Edition Method 5210 B. The sample is filtered through Whatman GFC and treated with nitrification inhibitor.	1 g/m³

Test	Methodology	Detection Limit
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Sulphate	Ion Chromatography following APHA 4110B.	0.02 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Total Hardness	ICP-OES following APHA Online Edition Method 3120 B (modified).	1 g CaCO3/m³
Calcium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Iron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Magnesium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Sodium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.02 g/m³
Dissolved Reactive Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G.	0.005 g/m³
Aluminium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Arsenic - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Boron - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.03 g/m³
Cadmium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0002 g/m³
Chromium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Copper - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Manganese - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Potassium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified)	0.01 g/m³
Zinc - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
E. coli	APHA 9222I:Online Edition	1 cfu/100mL
Volatile Fatty Acids	Performed by Eurofins Melbourne following APHA 22nd Edition Method 5560C. Results are reported as acetic acid equivalent.	5 g/m³
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a

Unless otherwise stated, all tests are performed in Wellington.
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.
"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.
For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.
Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

eurofins | ELS

Eurofins ELS Limited

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 20/52680
Issue: 1
17 December 2020

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/52680-01	Levin HS3		01/12/2020 00:00	04/12/2020 10:02	0

Notes: 196905-0 Levin Landfill Sample

	Test	Result	Units	Test Date	Signatory
0001	pH	8.3		04/12/2020	Gordon McArthur KTP
0002	Suspended Solids - Total	47	g/m³	04/12/2020	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	15.7	g/m³	08/12/2020	Amit Kumar KTP
0052	Alkalinity - Total	49	g CaCO3/m³	04/12/2020	Gordon McArthur KTP
0055	Conductivity at 25°C	20.3	mS/m	04/12/2020	Gordon McArthur KTP
0081	Chemical Oxygen Demand	99	g/m³	04/12/2020	Gordon McArthur KTP
0180	BOD5 - Soluble Carbonaceous	2	g/m³	04/12/2020	Gordon McArthur KTP
0602	Chloride	19.5	g/m³	09/12/2020	Divina Lagazon KTP
0605	Nitrate - Nitrogen	0.41	g/m³	09/12/2020	Divina Lagazon KTP
0607	Sulphate	16.5	g/m³	09/12/2020	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.03	g/m³	10/12/2020	Divina Lagazon KTP
1642	Total Hardness	52	g CaCO3/m³	05/12/2020	Shuyu Zhao KTP
1810	Calcium - Dissolved	10.9	g/m³	05/12/2020	Shuyu Zhao KTP
1819	Iron - Dissolved	0.078	g/m³	05/12/2020	Shuyu Zhao KTP
1822	Magnesium - Dissolved	6.04	g/m³	05/12/2020	Shuyu Zhao KTP
1834	Sodium - Dissolved	16.2	g/m³	05/12/2020	Shuyu Zhao KTP
2088	Dissolved Reactive Phosphorus	0.007	g/m³	10/12/2020	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.044	g/m³	07/12/2020	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.001	g/m³	07/12/2020	Shanel Kumar KTP
6707	Boron - Dissolved	0.05	g/m³	07/12/2020	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	07/12/2020	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	07/12/2020	Shanel Kumar KTP
6713	Copper - Dissolved	0.0018	g/m³	07/12/2020	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	07/12/2020	Shanel Kumar KTP
6721	Manganese - Dissolved	0.0086	g/m³	07/12/2020	Shanel Kumar KTP
6722	Mercury - Dissolved	< 0.0005	g/m³	07/12/2020	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	07/12/2020	Shanel Kumar KTP
6726	Potassium - Dissolved	3.12	g/m³	07/12/2020	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002	g/m³	07/12/2020	Shanel Kumar KTP
M0104	E. coli	120	cfu/100mL	04/12/2020	Juana Tamayo KTP
MO-5001	Volatile Fatty Acids	< 5 *	g/m³		Prashilla Singh Transcribed by
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Prashilla Singh Transcribed by
P1859	Sample Filtration	Completed		04/12/2020	Harsimran Dhanoa .

Comments:

***** Not an accredited test.

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500-H B.	0.1
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA Online Edition 5310 B.	0.1 g/m³
Alkalinity - Total	APHA Online Edition Method 2320 B	1 g CaCO3/m³
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Chemical Oxygen Demand	APHA Online Edition Method 5220 D.	15 g/m³
BOD5 - Soluble Carbonaceous	APHA Online Edition Method 5210 B. The sample is filtered through Whatman GFC and treated with nitrification inhibitor.	1 g/m³

Test	Methodology	Detection Limit
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Sulphate	Ion Chromatography following APHA 4110B.	0.02 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Total Hardness	ICP-OES following APHA Online Edition Method 3120 B (modified).	1 g CaCO3/m³
Calcium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Iron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Magnesium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Sodium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.02 g/m³
Dissolved Reactive Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G.	0.005 g/m³
Aluminium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Arsenic - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Boron - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.03 g/m³
Cadmium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0002 g/m³
Chromium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Copper - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Manganese - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Potassium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified)	0.01 g/m³
Zinc - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
E. coli	APHA 9222I:Online Edition	1 cfu/100mL
Volatile Fatty Acids	Performed by Eurofins Melbourne following APHA 22nd Edition Method 5560C. Results are reported as acetic acid equivalent.	5 g/m³
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a

Unless otherwise stated, all tests are performed in Wellington.
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.
"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.
For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.
Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

eurofins | ELS

Eurofins ELS Limited

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 20/53446
Issue: 1
18 December 2020

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/53446-01	Levin Leachate Pond		03/12/2020 00:00	04/12/2020 10:03	0

Notes: 196901-0 Levin Landfill Sample

	Test	Result	Units	Test Date	Signatory
0001	pH	8.0		04/12/2020	Gordon McArthur KTP
0002	Suspended Solids - Total	100	g/m³	04/12/2020	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	503	g/m³	11/12/2020	Sharon van Soest KTP
0052	Alkalinity - Total	4,860	g CaCO3/m³	05/12/2020	Gordon McArthur KTP
0055	Conductivity at 25°C	1.1	mS/m	04/12/2020	Gordon McArthur KTP
0081	Chemical Oxygen Demand	2,340	g/m³	04/12/2020	Gordon McArthur KTP
0180	BOD5 - Soluble Carbonaceous	71	g/m³	04/12/2020	Gordon McArthur KTP
0602	Chloride	816	g/m³	09/12/2020	Divina Lagazon KTP
0605	Nitrate - Nitrogen	9.30	g/m³	09/12/2020	Shanel Kumar KTP
0607	Sulphate	137	g/m³	09/12/2020	Divina Lagazon KTP
0760	Ammonia Nitrogen	969	g/m³	09/12/2020	Divina Lagazon KTP
1642	Total Hardness	446	g CaCO3/m³	09/12/2020	Shanel Kumar KTP
1810	Calcium - Dissolved	99.3	g/m³	09/12/2020	Shanel Kumar KTP
1819	Iron - Dissolved	3.27	g/m³	09/12/2020	Shanel Kumar KTP
1822	Magnesium - Dissolved	47.9	g/m³	09/12/2020	Shanel Kumar KTP
1834	Sodium - Dissolved	747	g/m³	09/12/2020	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	8.41	g/m³	09/12/2020	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.377	g/m³	07/12/2020	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.295	g/m³	07/12/2020	Shanel Kumar KTP
6707	Boron - Dissolved	5.77	g/m³	07/12/2020	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	07/12/2020	Shanel Kumar KTP
6711	Chromium - Dissolved	0.521	g/m³	07/12/2020	Shanel Kumar KTP
6713	Copper - Dissolved	0.0187	g/m³	07/12/2020	Shanel Kumar KTP
6718	Lead - Dissolved	0.0025	g/m³	07/12/2020	Shanel Kumar KTP
6721	Manganese - Dissolved	1.09	g/m³	07/12/2020	Shanel Kumar KTP
6722	Mercury - Dissolved	< 0.0005	g/m³	07/12/2020	Shanel Kumar KTP
6724	Nickel - Dissolved	0.0947	g/m³	07/12/2020	Shanel Kumar KTP
6726	Potassium - Dissolved	546	g/m³	07/12/2020	Shanel Kumar KTP
6738	Zinc - Dissolved	0.073	g/m³	07/12/2020	Shanel Kumar KTP
M0104	E. coli	110	cfu/100mL	04/12/2020	Juana Tamayo KTP
MO-5001	Volatile Fatty Acids	< 5 *	g/m³		Prashilla Singh Transcribed by
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Prashilla Singh Transcribed by
P1859	Sample Filtration	Completed		04/12/2020	Harsimran Dhanoa .

Comments:

***** Not an accredited test.

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500-H B.	0.1
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA Online Edition 5310 B.	0.1 g/m³
Alkalinity - Total	APHA Online Edition Method 2320 B	1 g CaCO3/m³
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Chemical Oxygen Demand	APHA Online Edition Method 5220 D.	15 g/m³
BOD5 - Soluble Carbonaceous	APHA Online Edition Method 5210 B. The sample is filtered through Whatman GFC and treated with nitrification inhibitor.	1 g/m³

Test	Methodology	Detection Limit
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Sulphate	Ion Chromatography following APHA 4110B.	0.02 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Total Hardness	ICP-OES following APHA Online Edition Method 3120 B (modified).	1 g CaCO3/m³
Calcium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Iron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Magnesium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Sodium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.02 g/m³
Dissolved Reactive Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G.	0.005 g/m³
Aluminium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Arsenic - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Boron - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.03 g/m³
Cadmium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0002 g/m³
Chromium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Copper - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Manganese - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Potassium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified)	0.01 g/m³
Zinc - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
E. coli	APHA 9222I:Online Edition	1 cfu/100mL
Volatile Fatty Acids	Performed by Eurofins Melbourne following APHA 22nd Edition Method 5560C. Results are reported as acetic acid equivalent.	5 g/m³
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a

Unless otherwise stated, all tests are performed in Wellington.
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.
"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.
For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.
Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

eurofins | ELS

Eurofins ELS Limited

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 20/46955
Issue: 1
16 November 2020

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/46955-01	Levin HS1		05/11/2020 00:00	06/11/2020 08:42	0

Notes: 193962-0 Levin Landfill Sample

	Test	Result	Units	Test Date	Signatory
0001	pH	9.2		06/11/2020	Jennifer Mont KTP
0002	Suspended Solids - Total	64	g/m³	06/11/2020	Gordon McArthur KTP
0040	Total (NP) Organic Carbon	14.9	g/m³	10/11/2020	Amit Kumar KTP
0052	Alkalinity - Total	48	g CaCO3/m³	06/11/2020	Jennifer Mont KTP
0055	Conductivity at 25°C	21.0	mS/m	06/11/2020	Jennifer Mont KTP
0081	Chemical Oxygen Demand	50	g/m³	06/11/2020	Gordon McArthur KTP
0180	BOD5 - Soluble Carbonaceous	3	g/m³	06/11/2020	Gordon McArthur KTP
0602	Chloride	22.2	g/m³	06/11/2020	Shanel Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	06/11/2020	Shanel Kumar KTP
0607	Sulphate	18.7	g/m³	06/11/2020	Shanel Kumar KTP
0760	Ammonia Nitrogen	< 0.01	g/m³	07/11/2020	Athena Cao KTP
1642	Total Hardness	57	g CaCO3/m³	07/11/2020	Shanel Kumar KTP
1810	Calcium - Dissolved	12.1	g/m³	07/11/2020	Shanel Kumar KTP
1819	Iron - Dissolved	0.027	g/m³	07/11/2020	Shanel Kumar KTP
1822	Magnesium - Dissolved	6.38	g/m³	07/11/2020	Shanel Kumar KTP
1834	Sodium - Dissolved	18.1	g/m³	07/11/2020	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.007	g/m³	07/11/2020	Athena Cao KTP
6701	Aluminium - Dissolved	0.012	g/m³	11/11/2020	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	11/11/2020	Shanel Kumar KTP
6707	Boron - Dissolved	0.04	g/m³	11/11/2020	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	11/11/2020	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	11/11/2020	Shanel Kumar KTP
6713	Copper - Dissolved	0.0012	g/m³	11/11/2020	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	11/11/2020	Shanel Kumar KTP
6721	Manganese - Dissolved	0.0020	g/m³	11/11/2020	Shanel Kumar KTP
6722	Mercury - Dissolved	< 0.0005	g/m³	11/11/2020	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	11/11/2020	Shanel Kumar KTP
6726	Potassium - Dissolved	2.61	g/m³	11/11/2020	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002	g/m³	11/11/2020	Shanel Kumar KTP
M0104	E. coli	140	cfu/100mL	06/11/2020	Maria Norris KTP
MO-5001	Volatile Fatty Acids	< 5 *	g/m³		Sunita Raju Transcribed by
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Sunita Raju Transcribed by
P1859	Sample Filtration	Completed		06/11/2020	Stephen Hutton .

Comments:

* Not an accredited test.

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500-H B.	0.1
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA Online Edition 5310 B.	0.1 g/m³
Alkalinity - Total	APHA Online Edition Method 2320 B	1 g CaCO3/m³
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Chemical Oxygen Demand	APHA Online Edition Method 5220 D.	15 g/m³
BOD5 - Soluble Carbonaceous	APHA Online Edition Method 5210 B. The sample is filtered through Whatman GFC and treated with nitrification inhibitor.	1 g/m³
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³

Test	Methodology	Detection Limit
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Sulphate	Ion Chromatography following APHA 4110B.	0.02 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Total Hardness	ICP-OES following APHA Online Edition Method 3120 B (modified).	1 g CaCO3/m³
Calcium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Iron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Magnesium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Sodium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.02 g/m³
Dissolved Reactive Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G.	0.005 g/m³
Aluminium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Arsenic - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Boron - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.03 g/m³
Cadmium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0002 g/m³
Chromium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Copper - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Manganese - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Potassium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified)	0.01 g/m³
Zinc - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
E. coli	APHA 9222I:Online Edition	1 cfu/100mL
Volatile Fatty Acids	Performed by Eurofins Melbourne following APHA 22nd Edition Method 5560C. Results are reported as acetic acid equivalent.	5 g/m³
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a

Unless otherwise stated, all tests are performed in Wellington.

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.

"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.

For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.

Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

eurofins | ELS

Eurofins ELS Limited

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 20/46954
Issue: 1
16 November 2020

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/46954-01	Levin HS1A		05/11/2020 00:00	06/11/2020 08:40	0

Notes: 193963-0 Levin Landfill Sample

	Test	Result	Units	Test Date	Signatory
0001	pH	9.3		06/11/2020	Jennifer Mont KTP
0002	Suspended Solids - Total	246	g/m³	06/11/2020	Gordon McArthur KTP
0040	Total (NP) Organic Carbon	16.2	g/m³	10/11/2020	Amit Kumar KTP
0052	Alkalinity - Total	51	g CaCO3/m³	06/11/2020	Jennifer Mont KTP
0055	Conductivity at 25°C	21.5	mS/m	06/11/2020	Jennifer Mont KTP
0081	Chemical Oxygen Demand	40	g/m³	06/11/2020	Gordon McArthur KTP
0180	BOD5 - Soluble Carbonaceous	3	g/m³	06/11/2020	Gordon McArthur KTP
0602	Chloride	22.2	g/m³	11/11/2020	Shanel Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	11/11/2020	Shanel Kumar KTP
0607	Sulphate	18.8	g/m³	11/11/2020	Shanel Kumar KTP
0760	Ammonia Nitrogen	< 0.01	g/m³	07/11/2020	Athena Cao KTP
1642	Total Hardness	55	g CaCO3/m³	07/11/2020	Shanel Kumar KTP
1810	Calcium - Dissolved	11.9	g/m³	07/11/2020	Shanel Kumar KTP
1819	Iron - Dissolved	0.028	g/m³	07/11/2020	Shanel Kumar KTP
1822	Magnesium - Dissolved	6.08	g/m³	07/11/2020	Shanel Kumar KTP
1834	Sodium - Dissolved	17.6	g/m³	07/11/2020	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.007	g/m³	07/11/2020	Athena Cao KTP
6701	Aluminium - Dissolved	0.016	g/m³	11/11/2020	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	11/11/2020	Shanel Kumar KTP
6707	Boron - Dissolved	0.05	g/m³	11/11/2020	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	11/11/2020	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	11/11/2020	Shanel Kumar KTP
6713	Copper - Dissolved	0.0013	g/m³	11/11/2020	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	11/11/2020	Shanel Kumar KTP
6721	Manganese - Dissolved	0.0016	g/m³	11/11/2020	Shanel Kumar KTP
6722	Mercury - Dissolved	< 0.0005	g/m³	11/11/2020	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	11/11/2020	Shanel Kumar KTP
6726	Potassium - Dissolved	2.59	g/m³	11/11/2020	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002	g/m³	11/11/2020	Shanel Kumar KTP
M0104	E. coli	160	cfu/100mL	06/11/2020	Maria Norris KTP
MO-5001	Volatile Fatty Acids	< 5 *	g/m³		Sunita Raju Transcribed by
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Sunita Raju Transcribed by
P1859	Sample Filtration	Completed		06/11/2020	Stephen Hutton .

Comments:

* Not an accredited test.

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500-H B.	0.1
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA Online Edition 5310 B.	0.1 g/m³
Alkalinity - Total	APHA Online Edition Method 2320 B	1 g CaCO3/m³
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Chemical Oxygen Demand	APHA Online Edition Method 5220 D.	15 g/m³
BOD5 - Soluble Carbonaceous	APHA Online Edition Method 5210 B. The sample is filtered through Whatman GFC and treated with nitrification inhibitor.	1 g/m³
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³

Test	Methodology	Detection Limit
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Sulphate	Ion Chromatography following APHA 4110B.	0.02 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Total Hardness	ICP-OES following APHA Online Edition Method 3120 B (modified).	1 g CaCO3/m³
Calcium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Iron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Magnesium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Sodium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.02 g/m³
Dissolved Reactive Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G.	0.005 g/m³
Aluminium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Arsenic - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Boron - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.03 g/m³
Cadmium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0002 g/m³
Chromium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Copper - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Manganese - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Potassium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified)	0.01 g/m³
Zinc - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
E. coli	APHA 9222I:Online Edition	1 cfu/100mL
Volatile Fatty Acids	Performed by Eurofins Melbourne following APHA 22nd Edition Method 5560C. Results are reported as acetic acid equivalent.	5 g/m³
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a

Unless otherwise stated, all tests are performed in Wellington.

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.

"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.

For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.

Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

eurofins | ELS

Eurofins ELS Limited

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 20/46953
Issue: 1
16 November 2020

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/46953-01	Levin HS2		05/11/2020 00:00	06/11/2020 08:43	0

Notes: 193964-0 Levin Landfill Sample

	Test	Result	Units	Test Date	Signatory
0001	pH	9.0		06/11/2020	Jennifer Mont KTP
0002	Suspended Solids - Total	118	g/m³	06/11/2020	Gordon McArthur KTP
0040	Total (NP) Organic Carbon	15.5	g/m³	10/11/2020	Amit Kumar KTP
0052	Alkalinity - Total	60	g CaCO3/m³	06/11/2020	Jennifer Mont KTP
0055	Conductivity at 25°C	23.5	mS/m	06/11/2020	Jennifer Mont KTP
0081	Chemical Oxygen Demand	57	g/m³	06/11/2020	Gordon McArthur KTP
0180	BOD5 - Soluble Carbonaceous	3	g/m³	06/11/2020	Gordon McArthur KTP
0602	Chloride	24.1	g/m³	06/11/2020	Shanel Kumar KTP
0605	Nitrate - Nitrogen	0.02	g/m³	06/11/2020	Shanel Kumar KTP
0607	Sulphate	18.1	g/m³	06/11/2020	Shanel Kumar KTP
0760	Ammonia Nitrogen	< 0.01	g/m³	07/11/2020	Athena Cao KTP
1642	Total Hardness	62	g CaCO3/m³	07/11/2020	Shanel Kumar KTP
1810	Calcium - Dissolved	13.4	g/m³	07/11/2020	Shanel Kumar KTP
1819	Iron - Dissolved	0.036	g/m³	07/11/2020	Shanel Kumar KTP
1822	Magnesium - Dissolved	6.99	g/m³	07/11/2020	Shanel Kumar KTP
1834	Sodium - Dissolved	20.8	g/m³	07/11/2020	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.007	g/m³	07/11/2020	Athena Cao KTP
6701	Aluminium - Dissolved	0.011	g/m³	11/11/2020	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	11/11/2020	Shanel Kumar KTP
6707	Boron - Dissolved	0.05	g/m³	11/11/2020	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	11/11/2020	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	11/11/2020	Shanel Kumar KTP
6713	Copper - Dissolved	0.0010	g/m³	11/11/2020	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	11/11/2020	Shanel Kumar KTP
6721	Manganese - Dissolved	0.0026	g/m³	11/11/2020	Shanel Kumar KTP
6722	Mercury - Dissolved	< 0.0005	g/m³	11/11/2020	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	11/11/2020	Shanel Kumar KTP
6726	Potassium - Dissolved	2.97	g/m³	11/11/2020	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002	g/m³	11/11/2020	Shanel Kumar KTP
M0104	E. coli	120	cfu/100mL	06/11/2020	Maria Norris KTP
MO-5001	Volatile Fatty Acids	< 5 *	g/m³		Sunita Raju Transcribed by
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Sunita Raju Transcribed by
P1859	Sample Filtration	Completed		06/11/2020	Stephen Hutton .

Comments:

* Not an accredited test.

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500-H B.	0.1
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA Online Edition 5310 B.	0.1 g/m³
Alkalinity - Total	APHA Online Edition Method 2320 B	1 g CaCO3/m³
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Chemical Oxygen Demand	APHA Online Edition Method 5220 D.	15 g/m³
BOD5 - Soluble Carbonaceous	APHA Online Edition Method 5210 B. The sample is filtered through Whatman GFC and treated with nitrification inhibitor.	1 g/m³
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³

Test	Methodology	Detection Limit
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Sulphate	Ion Chromatography following APHA 4110B.	0.02 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Total Hardness	ICP-OES following APHA Online Edition Method 3120 B (modified).	1 g CaCO3/m³
Calcium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Iron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Magnesium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Sodium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.02 g/m³
Dissolved Reactive Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G.	0.005 g/m³
Aluminium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Arsenic - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Boron - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.03 g/m³
Cadmium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0002 g/m³
Chromium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Copper - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Manganese - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Potassium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified)	0.01 g/m³
Zinc - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
E. coli	APHA 9222I:Online Edition	1 cfu/100mL
Volatile Fatty Acids	Performed by Eurofins Melbourne following APHA 22nd Edition Method 5560C. Results are reported as acetic acid equivalent.	5 g/m³
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a

Unless otherwise stated, all tests are performed in Wellington.

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.

"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.

For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.

Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

eurofins | ELS

Eurofins ELS Limited

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 20/46952
Issue: 1
16 November 2020

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/46952-01	Levin HS3		05/11/2020 00:00	06/11/2020 08:45	0

Notes: 193965-0 Levin Landfill Sample

	Test	Result	Units	Test Date	Signatory
0001	pH	9.1		06/11/2020	Jennifer Mont KTP
0002	Suspended Solids - Total	43	g/m³	06/11/2020	Gordon McArthur KTP
0040	Total (NP) Organic Carbon	13.2	g/m³	10/11/2020	Amit Kumar KTP
0052	Alkalinity - Total	53	g CaCO3/m³	06/11/2020	Jennifer Mont KTP
0055	Conductivity at 25°C	22.3	mS/m	06/11/2020	Jennifer Mont KTP
0081	Chemical Oxygen Demand	67	g/m³	06/11/2020	Gordon McArthur KTP
0180	BOD5 - Soluble Carbonaceous	2	g/m³	06/11/2020	Gordon McArthur KTP
0602	Chloride	23.0	g/m³	06/11/2020	Shanel Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	06/11/2020	Shanel Kumar KTP
0607	Sulphate	18.3	g/m³	06/11/2020	Shanel Kumar KTP
0760	Ammonia Nitrogen	< 0.01	g/m³	07/11/2020	Athena Cao KTP
1642	Total Hardness	56	g CaCO3/m³	07/11/2020	Shanel Kumar KTP
1810	Calcium - Dissolved	12.0	g/m³	07/11/2020	Shanel Kumar KTP
1819	Iron - Dissolved	0.031	g/m³	07/11/2020	Shanel Kumar KTP
1822	Magnesium - Dissolved	6.29	g/m³	07/11/2020	Shanel Kumar KTP
1834	Sodium - Dissolved	17.8	g/m³	07/11/2020	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.007	g/m³	07/11/2020	Athena Cao KTP
6701	Aluminium - Dissolved	0.012	g/m³	11/11/2020	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	11/11/2020	Shanel Kumar KTP
6707	Boron - Dissolved	0.05	g/m³	11/11/2020	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	11/11/2020	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	11/11/2020	Shanel Kumar KTP
6713	Copper - Dissolved	0.0011	g/m³	11/11/2020	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	11/11/2020	Shanel Kumar KTP
6721	Manganese - Dissolved	0.0050	g/m³	11/11/2020	Shanel Kumar KTP
6722	Mercury - Dissolved	< 0.0005	g/m³	11/11/2020	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	11/11/2020	Shanel Kumar KTP
6726	Potassium - Dissolved	0.79	g/m³	11/11/2020	Shanel Kumar KTP
6738	Zinc - Dissolved	0.008	g/m³	11/11/2020	Shanel Kumar KTP
M0104	E. coli	72	cfu/100mL	06/11/2020	Juana Tamayo KTP
MO-5001	Volatile Fatty Acids	< 5 *	g/m³		Sunita Raju Transcribed by
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Sunita Raju Transcribed by
P1859	Sample Filtration	Completed		06/11/2020	Stephen Hutton .

Comments:

* Not an accredited test.

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500-H B.	0.1
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA Online Edition 5310 B.	0.1 g/m³
Alkalinity - Total	APHA Online Edition Method 2320 B	1 g CaCO3/m³
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Chemical Oxygen Demand	APHA Online Edition Method 5220 D.	15 g/m³
BOD5 - Soluble Carbonaceous	APHA Online Edition Method 5210 B. The sample is filtered through Whatman GFC and treated with nitrification inhibitor.	1 g/m³
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³

Test	Methodology	Detection Limit
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Sulphate	Ion Chromatography following APHA 4110B.	0.02 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Total Hardness	ICP-OES following APHA Online Edition Method 3120 B (modified).	1 g CaCO3/m³
Calcium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Iron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Magnesium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Sodium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.02 g/m³
Dissolved Reactive Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G.	0.005 g/m³
Aluminium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Arsenic - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Boron - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.03 g/m³
Cadmium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0002 g/m³
Chromium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Copper - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Manganese - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Potassium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified)	0.01 g/m³
Zinc - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
E. coli	APHA 9222I:Online Edition	1 cfu/100mL
Volatile Fatty Acids	Performed by Eurofins Melbourne following APHA 22nd Edition Method 5560C. Results are reported as acetic acid equivalent.	5 g/m³
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a

Unless otherwise stated, all tests are performed in Wellington.

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.

"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.

For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.

Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

eurofins | ELS

Eurofins ELS Limited

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 20/46956
Issue: 1
16 November 2020

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/46956-01	Levin Leachate Pond		05/11/2020 00:00	06/11/2020 08:39	0

Notes: 193961-0 Levin Landfill Sample

	Test	Result	Units	Test Date	Signatory
0001	pH	7.9		06/11/2020	Jennifer Mont KTP
0002	Suspended Solids - Total	48	g/m³	06/11/2020	Gordon McArthur KTP
0040	Total (NP) Organic Carbon	683	g/m³	10/11/2020	Amit Kumar KTP
0052	Alkalinity - Total	5,890	g CaCO3/m³	10/11/2020	Gordon McArthur KTP
0055	Conductivity at 25°C	1,470	mS/m	06/11/2020	Jennifer Mont KTP
0081	Chemical Oxygen Demand	3,560	g/m³	06/11/2020	Gordon McArthur KTP
0180	BOD5 - Soluble Carbonaceous	108	g/m³	06/11/2020	Gordon McArthur KTP
0602	Chloride	1,050	g/m³	11/11/2020	Shanel Kumar KTP
0605	Nitrate - Nitrogen	0.58	g/m³	11/11/2020	Shanel Kumar KTP
0607	Sulphate	61.7	g/m³	11/11/2020	Shanel Kumar KTP
0760	Ammonia Nitrogen	1,300	g/m³	10/11/2020	Divina Lagazon KTP
1642	Total Hardness	458	g CaCO3/m³	07/11/2020	Shanel Kumar KTP
1810	Calcium - Dissolved	96.2	g/m³	07/11/2020	Shanel Kumar KTP
1819	Iron - Dissolved	4.21	g/m³	07/11/2020	Shanel Kumar KTP
1822	Magnesium - Dissolved	52.9	g/m³	07/11/2020	Shanel Kumar KTP
1834	Sodium - Dissolved	907	g/m³	07/11/2020	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	11.2	g/m³	10/11/2020	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.575	g/m³	11/11/2020	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.282	g/m³	11/11/2020	Shanel Kumar KTP
6707	Boron - Dissolved	5.97	g/m³	11/11/2020	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	11/11/2020	Shanel Kumar KTP
6711	Chromium - Dissolved	0.604	g/m³	11/11/2020	Shanel Kumar KTP
6713	Copper - Dissolved	0.0100	g/m³	11/11/2020	Shanel Kumar KTP
6718	Lead - Dissolved	0.0027	g/m³	11/11/2020	Shanel Kumar KTP
6721	Manganese - Dissolved	0.998	g/m³	11/11/2020	Shanel Kumar KTP
6722	Mercury - Dissolved	< 0.0005	g/m³	11/11/2020	Shanel Kumar KTP
6724	Nickel - Dissolved	0.109	g/m³	11/11/2020	Shanel Kumar KTP
6726	Potassium - Dissolved	639	g/m³	11/11/2020	Shanel Kumar KTP
6738	Zinc - Dissolved	0.072	g/m³	11/11/2020	Shanel Kumar KTP
M0104	E. coli	2,100	cfu/100mL	06/11/2020	Maria Norris KTP
MO-5001	Volatile Fatty Acids	9 *	g/m³		Sunita Raju Transcribed by
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Sunita Raju Transcribed by
P1859	Sample Filtration	Completed		06/11/2020	Stephen Hutton .

Comments:

* Not an accredited test.

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500-H B.	0.1
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA Online Edition 5310 B.	0.1 g/m³
Alkalinity - Total	APHA Online Edition Method 2320 B	1 g CaCO3/m³
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Chemical Oxygen Demand	APHA Online Edition Method 5220 D.	15 g/m³
BOD5 - Soluble Carbonaceous	APHA Online Edition Method 5210 B. The sample is filtered through Whatman GFC and treated with nitrification inhibitor.	1 g/m³
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³

Test	Methodology	Detection Limit
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Sulphate	Ion Chromatography following APHA 4110B.	0.02 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Total Hardness	ICP-OES following APHA Online Edition Method 3120 B (modified).	1 g CaCO3/m³
Calcium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Iron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Magnesium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Sodium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.02 g/m³
Dissolved Reactive Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G.	0.005 g/m³
Aluminium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Arsenic - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Boron - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.03 g/m³
Cadmium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0002 g/m³
Chromium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Copper - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Manganese - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Potassium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified)	0.01 g/m³
Zinc - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
E. coli	APHA 9222I:Online Edition	1 cfu/100mL
Volatile Fatty Acids	Performed by Eurofins Melbourne following APHA 22nd Edition Method 5560C. Results are reported as acetic acid equivalent.	5 g/m³
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a

Unless otherwise stated, all tests are performed in Wellington.

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.

"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.

For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.

Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

eurofins | ELS

Eurofins ELS Limited

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 21/9791
Issue: 1
08 March 2021

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
21/9791-01	Levin B1		08/01/2021 08:37	03/03/2021 11:00	0

Notes: 20/68791- added mercury test

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	08/03/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
21/9791-02	Levin B2		08/01/2021 09:19	03/03/2021 11:00	0

Notes: 20/68791- added mercury test

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	08/03/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
21/9791-03	Levin B3s		08/01/2021 09:59	03/03/2021 11:00	0

Notes: 20/68791- added mercury test

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	08/03/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
21/9791-04	Levin Leachate Pond		11/01/2021 00:00	03/03/2021 11:00	0

Notes: 20/68791- added mercury test

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	08/03/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		15/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
21/9791-05	Levin HS1		24/12/2020 00:00	03/03/2021 11:00	0

Notes: 20/68791- added mercury test

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	08/03/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		14/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
21/9791-06	Levin HS2		24/12/2020 00:00	03/03/2021 11:00	0

Notes: 20/68791- added mercury test

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	08/03/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		14/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
21/9791-07	Levin HS3		24/12/2020 00:00	03/03/2021 11:00	0

Notes: 20/68791- added mercury test

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	08/03/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		14/01/2021	Shuyu Zhao KTP

Comments:

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a

Unless otherwise stated, all tests are performed in Wellington.
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.
"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.
For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.
Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 20/59248
Issue: 1
10 March 2021

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-01	Levin F3		06/01/2021 00:00	09/03/2021 09:42	0

Notes: 199618-0 Levin Landfill

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	08/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		08/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-02	Levin F2		06/01/2021 00:00	09/03/2021 09:42	0

Notes: 199617-0 Levin Landfill

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	08/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		10/03/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-03	Levin F1		06/01/2021 00:00	09/03/2021 09:42	0

Notes: 199616-0 Levin Landfill

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	13/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-04	Levin D5		06/01/2021 00:00	09/03/2021 09:42	0

Notes: 199615-0 Levin Landfill

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	13/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-05	Levin G2s		06/01/2021 00:00	09/03/2021 09:42	0

Notes: 199614-0 Levin Landfill Sandy sediment observed

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	08/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		08/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-06	Levin G1S		06/01/2021 00:00	09/03/2021 09:42	0

Notes: 199613-0 Levin Landfill Colour: Brown Sandy sediment observed

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	13/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-07	Levin D6		07/01/2021 00:00	09/03/2021 09:42	0

Notes: 199612-0 Levin Landfill

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	13/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-08	Levin D3r		07/01/2021 00:00	09/03/2021 09:42	0

Notes: 199611-0 Levin Landfill

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	13/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-09	Levin D2		07/01/2021 00:00	09/03/2021 09:42	0

Notes: 199610-0 Levin Landfill

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	13/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-10	Levin D1		07/01/2021 00:00	09/03/2021 09:42	0

Notes: 199609-0 Levin Landfill

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	08/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		08/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-11	Levin E2s		07/01/2021 00:00	09/03/2021 09:42	0

Notes: 199608-0 Levin Landfill

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	13/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-12	Levin E1s		07/01/2021 00:00	09/03/2021 09:42	0

Notes: 199607-0 Levin Landfill Sandy sediment present

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	13/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-13	Levin D4		07/01/2021 00:00	09/03/2021 09:42	0

Notes: 199603-0 Levin Landfill

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	13/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-14	Levin C2ds		08/01/2021 00:00	09/03/2021 09:42	0

Notes: 199602-0 Levin Landfill

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	10/03/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-15	Levin C2		08/01/2021 00:00	09/03/2021 09:42	0

Notes: 199601-0 Levin Landfill Sand in samples

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	13/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-16	Levin C1		07/01/2021 00:00	09/03/2021 09:42	0

Notes: 199600-0 Levin Landfill Lots of sand present in samples

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	13/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-17	Levin G1D		06/01/2021 00:00	09/03/2021 09:42	0

Notes: 199598-0 Levin Landfill Sample was cloudy

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	14/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		14/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-18	Levin E2d		07/01/2021 00:00	09/03/2021 09:42	0

Notes: 199597-0 Levin Landfill

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	13/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-19	Levin E1d		07/01/2021 00:00	09/03/2021 09:42	0

Notes: 199596-0 Levin Landfill

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	08/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		08/01/2021	Shuyu Zhao KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
20/59248-20	Levin C2dd		07/01/2021 00:00	09/03/2021 09:42	0

Notes: 199595-0 Levin Landfill Lots of sandy sediment present in purges

	Test	Result	Units	Test Date	Signatory
6722	Mercury - Dissolved	< 0.0005	g/m³	13/01/2021	Shuyu Zhao KTP
P1859	Sample Filtration	Completed		13/01/2021	Shuyu Zhao KTP

Comments:

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a

Unless otherwise stated, all tests are performed in Wellington.
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.
"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.
For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.
Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

eurofins | ELS

Eurofins ELS Limited

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 21/8351
Issue: 1
11 March 2021

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
21/8351-01	Levin Xd1		02/03/2021 00:00	03/03/2021 10:07	0

Notes: 210513-0 Levin Landfill

	Test	Result	Units	Test Date	Signatory
0001	pH	7.7		04/03/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	54.1	mS/m	04/03/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	36	g/m³	06/03/2021	Gordon McArthur KTP
0180	BOD5 - Soluble Carbonaceous	< 1	g/m³	04/03/2021	Gordon McArthur KTP
0602	Chloride	59.7	g/m³	09/03/2021	Shanel Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	09/03/2021	Shanel Kumar KTP
0760	Ammonia Nitrogen	0.09	g/m³	08/03/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.007	g/m³	05/03/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.06	g/m³	05/03/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	05/03/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.459	g/m³	05/03/2021	Shanel Kumar KTP
6722	Mercury - Dissolved	< 0.0005	g/m³	05/03/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	0.0011	g/m³	05/03/2021	Shanel Kumar KTP
M0104	E. coli	< 4	cfu/100mL	03/03/2021	Sunita Raju KTP
P1859	Sample Filtration	Completed		04/03/2021	Harsimran Dhanoa .

Comments:

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500-H B.	0.1
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Chemical Oxygen Demand	APHA Online Edition Method 5220 D.	15 g/m³
BOD5 - Soluble Carbonaceous	APHA Online Edition Method 5210 B. The sample is filtered through Whatman GFC and treated with nitrification inhibitor.	1 g/m³
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Aluminium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Boron - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.03 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Manganese - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
E. coli	APHA 9222I:Online Edition	1 cfu/100mL
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a

Unless otherwise stated, all tests are performed in Wellington.
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.
"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.
For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.
Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

eurofins | ELS

Eurofins ELS Limited

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 21/8344
Issue: 1
11 March 2021

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
21/8344-01	Levin TD1		02/03/2021 00:00	03/03/2021 10:07	0

Notes: 210510-0 Levin Landfill

	Test	Result	Units	Test Date	Signatory
0001	pH	7.6		04/03/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	53.7	mS/m	04/03/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	39	g/m³	06/03/2021	Gordon McArthur KTP
0180	BOD5 - Soluble Carbonaceous	< 3	g/m³	04/03/2021	Gordon McArthur KTP
0602	Chloride	57.4	g/m³	08/03/2021	Amit Kumar KTP
0605	Nitrate - Nitrogen	0.54	g/m³	08/03/2021	Amit Kumar KTP
0760	Ammonia Nitrogen	0.01	g/m³	08/03/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.009	g/m³	05/03/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.22	g/m³	05/03/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	05/03/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.0210	g/m³	05/03/2021	Shanel Kumar KTP
6722	Mercury - Dissolved	< 0.0005	g/m³	05/03/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	0.0015	g/m³	05/03/2021	Shanel Kumar KTP
M0104	E. coli	24	cfu/100mL	03/03/2021	Sunita Raju KTP
P1859	Sample Filtration	Completed		04/03/2021	Harsimran Dhanoa .

Comments:

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500-H B.	0.1
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Chemical Oxygen Demand	APHA Online Edition Method 5220 D.	15 g/m³
BOD5 - Soluble Carbonaceous	APHA Online Edition Method 5210 B. The sample is filtered through Whatman GFC and treated with nitrification inhibitor.	1 g/m³
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Aluminium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Boron - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.03 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Manganese - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
E. coli	APHA 9222I:Online Edition	1 cfu/100mL
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a

Unless otherwise stated, all tests are performed in Wellington.
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.
"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.
For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.
Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

eurofins | ELS

Eurofins ELS Limited

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 21/8349
Issue: 1
17 March 2021

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
21/8349-01	Levin Xs1		02/03/2021 00:00	03/03/2021 10:07	0

Notes: 210511-0 Levin Landfill Sample

	Test	Result	Units	Test Date	Signatory
0001	pH	7.2		04/03/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	82	g/m³	03/03/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	2.4	g/m³	10/03/2021	Amit Kumar KTP
0052	Alkalinity - Total	551	g CaCO3/m³	06/03/2021	Jennifer Mont KTP
0055	Conductivity at 25°C	135	mS/m	04/03/2021	Jennifer Mont KTP
0081	Chemical Oxygen Demand	82	g/m³	06/03/2021	Gordon McArthur KTP
0180	BOD5 - Soluble Carbonaceous	< 6	g/m³	03/03/2021	Gordon McArthur KTP
0602	Chloride	125	g/m³	09/03/2021	Shanel Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	09/03/2021	Shanel Kumar KTP
0607	Sulphate	4.67	g/m³	09/03/2021	Shanel Kumar KTP
0760	Ammonia Nitrogen	3.11	g/m³	08/03/2021	Divina Lagazon KTP
1642	Total Hardness	457	g CaCO3/m³	04/03/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	93.5	g/m³	04/03/2021	Shanel Kumar KTP
1819	Iron - Dissolved	1.63	g/m³	04/03/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	54.2	g/m³	04/03/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	102	g/m³	04/03/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.023	g/m³	08/03/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.003	g/m³	05/03/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	05/03/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.51	g/m³	05/03/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	05/03/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	0.001	g/m³	05/03/2021	Shanel Kumar KTP
6713	Copper - Dissolved	0.0009	g/m³	05/03/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	05/03/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.884	g/m³	05/03/2021	Shanel Kumar KTP
6722	Mercury - Dissolved	< 0.0005	g/m³	05/03/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	0.0025	g/m³	05/03/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	19.1	g/m³	05/03/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	0.004	g/m³	05/03/2021	Shanel Kumar KTP
M0104	E. coli	< 4	cfu/100mL	09/03/2021	Yuemei Yu KTP
MO-5001	Volatile Fatty Acids	< 5 *	g/m³		Deb Bottrill Transcribed by
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Deb Bottrill Transcribed by
P1859	Sample Filtration	Completed		04/03/2021	Harsimran Dhanoa .
SVOC-001	2,3-Diuron	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-002	a-BHC	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-003	a-chlordane	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-004	Aldrin	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-005	b-BHC	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-006	cis-Permethrin	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-007	Dieldrin	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-008	Endosulfan II	<0.005	mg/L	03/03/2021	Joanna Yang KTP
SVOC-009	Endosulfan Sulfate	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-010	Endrin	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-011	Endrin Aldehyde	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-012	Endrin Ketone	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-013	Gamma-Chlordane	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-014	Heptachlor	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-015	Heptachlor Epoxide	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-016	Hexachlorobenzene	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-017	Lindane (g-BHC)	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-018	Methoxychlor	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-019	p,p'-DDD	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-020	p,p'DDE	<0.0001	mg/L	03/03/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
21/8349-01	Levin Xs1		02/03/2021 00:00	03/03/2021 10:07	0

Notes: 210511-0 Levin Landfill Sample

Test	Result	Units	Test Date	Signatory
SVOC-021 p,p'-DDT	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-022 Procymidone	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-023 Propanil	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-024 Endosulfan I	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-025 Alachlor	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-026 Aldicarb	<0.1	mg/L	03/03/2021	Joanna Yang KTP
SVOC-027 Atrazine	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-028 Bromacil	<0.005	mg/L	03/03/2021	Joanna Yang KTP
SVOC-029 Carbofuran	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-030 Cyanazine	<0.005	mg/L	03/03/2021	Joanna Yang KTP
SVOC-031 d-BHC	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-032 Metalaxyl-M	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-033 Metolachlor	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-034 Metribuzin	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-035 Molinate	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-037 Oxadiazon	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-038 Pendimethalin	<0.002	mg/L	03/03/2021	Joanna Yang KTP
SVOC-039 Propazine	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-040 Pyriproxyfen	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-041 Simazine	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-042 Terbuthylazine	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-043 Trifluralin	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-044 Hexazinone	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-045 Chlorpyrifos	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-046 Diazinon	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-047 Dimethoate	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-048 Pirimiphos methyl	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-049 Acenapthene	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-050 Acenaphthylene	< 0.0010	mg/L	03/03/2021	Joanna Yang KTP
SVOC-051 Anthracene	< 0.0010	mg/L	03/03/2021	Joanna Yang KTP
SVOC-052 benz(a)anthracene	< 0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-053 Benzo(a)pyrene	< 0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-054 Total Benzo(b) and Benzo(k) fluoranthrene	< 0.0010	mg/L	03/03/2021	Joanna Yang KTP
SVOC-055 Benzo(g,h,i)perylene	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-057 Chrysene	< 0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-058 Dibenz(a,h)anthracene	< 0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-059 Fluoranthene	< 0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-060 Fluorene	< 0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-061 Indeno(1,2,3-cd)pyrene	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-062 Naphthalene	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-063 Phenanthrene	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-064 Pyrene	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-066 2,2',3,4,4',5'-Hexachlorobiphenyl	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-067 2,2',4,5,5'-Pentachlorobiphenyl	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-068 2,4,4'-Trichlorobiphenyl	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-069 2,4-Dichlorobiphenyl	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-070 2,2',3,4,4',5',6-Heptachlorobiphenyl	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-072 Bis(2-ethylhexyl)adipate	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
VOC-001 1,2,4-Trimethylbenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-002 1,3,5-Trimethylbenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-003 Benzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-005 Isopropylbenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-007 Naphthalene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-008 n-Butylbenezene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-009 n-Propylbenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-010 o-Xylene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-011 p-Isopropyltoluene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-013 sec-Butylbenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-014 Styrene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-015 tert-Butylbenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
21/8349-01	Levin Xs1		02/03/2021 00:00	03/03/2021 10:07	0

Notes: 210511-0 Levin Landfill Sample

	Test	Result	Units	Test Date	Signatory
VOC-016	Toluene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-017	Total p,m Xylene, Ethylbenzene	<0.0015	mg/L	05/03/2021	Joanna Yang KTP
VOC-018	1,1,1,2-Tetrachloroethane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-019	1,1,1-Trichloroethane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-020	1,1,2,2-Tetrachloroethane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-021	1,1,2-Trichloroethane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-022	1,1-Dichloroethane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-023	1,1-Dichloroethene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-024	1,1-Dichloropropene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-025	1,2,3-Trichloropropane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-026	1,2-Dibromo-3-chloropropane	<0.001	mg/L	05/03/2021	Joanna Yang KTP
VOC-027	1,2-Dibromoethane	<0.0002	mg/L	05/03/2021	Joanna Yang KTP
VOC-028	1,2-Dichloroethane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-029	1,2-Dichloropropane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-030	1,3-Dichloropropane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-031	2,2-Dichloropropane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-032	Allyl chloride	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-033	Bromochloromethane	<0.0012	mg/L	05/03/2021	Joanna Yang KTP
VOC-035	Carbon tetrachloride	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-038	cis-1,2-Dichloroethene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-039	cis-1,3-Dichloropropene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-040	Dibromomethane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-042	Dichloromethane	<0.005	mg/L	05/03/2021	Joanna Yang KTP
VOC-043	Hexachlorobutadiene	<0.0002	mg/L	05/03/2021	Joanna Yang KTP
VOC-044	Tetrachloroethene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-045	trans-1,2-Dichloroethene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-046	trans-1,3-Dichloropropene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-047	Trichloroethene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-048	Trichlorofluoromethane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-049	Vinyl Chloride	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-050	1,2,3-Trichlorobenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-051	1,2,4-Trichlorobenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-052	1,2-Dichlorobenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-053	1,3-Dichlorobenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-054	1,4-Dichlorobenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-055	2-Chlorotoluene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-056	4-Chlorotoluene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-057	Bromobenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-058	Chlorobenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-059	1,3,5-Trichlorobenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-060	4-Methyl-2-Pentanone	< 0.0010	mg/L	05/03/2021	Joanna Yang KTP
VOC-061	Carbon disulphide	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-062	Bromodichloromethane	< 0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-063	Bromoform	< 0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-064	Chloroform	< 0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-065	Dibromochloromethane	< 0.0005	mg/L	05/03/2021	Joanna Yang KTP

Comments:

***** Not an accredited test.

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500-H B.	0.1
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA Online Edition 5310 B.	0.1 g/m³
Alkalinity - Total	APHA Online Edition Method 2320 B	1 g CaCO3/m³

Test	Methodology	Detection Limit
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Chemical Oxygen Demand	APHA Online Edition Method 5220 D.	15 g/m³
BOD5 - Soluble Carbonaceous	APHA Online Edition Method 5210 B. The sample is filtered through Whatman GFC and treated with nitrification inhibitor.	1 g/m³
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Sulphate	Ion Chromatography following APHA 4110B.	0.02 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Total Hardness	ICP-OES following APHA Online Edition Method 3120 B (modified).	1 g CaCO3/m³
Calcium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Iron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Magnesium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Sodium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.02 g/m³
Dissolved Reactive Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G.	0.005 g/m³
Aluminium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Arsenic - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Boron - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.03 g/m³
Cadmium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0002 g/m³
Chromium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Copper - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Manganese - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Potassium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified)	0.01 g/m³
Zinc - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
E. coli	APHA 9222I:Online Edition	1 cfu/100mL
Volatile Fatty Acids	Performed by Eurofins Melbourne following APHA 22nd Edition Method 5560C. Results are reported as acetic acid equivalent.	5 g/m³
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a
2,3-Diuron	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
a-BHC	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
a-chlordane	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Aldrin	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
b-BHC	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
cis-Permethrin	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Dieldrin	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Endosulfan II	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.005 mg/L
Endosulfan Sulfate	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Endrin	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Endrin Aldehyde	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Endrin Ketone	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Gamma-Chlordane	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Heptachlor	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Heptachlor Epoxide	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Hexachlorobenzene	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Lindane (g-BHC)	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Methoxychlor	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
p,p'-DDD	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
p,p'DDE	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
p,p'-DDT	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Procymidone	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Propanil	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Endosulfan I	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Alachlor	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Aldicarb	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.1 mg/L
Atrazine	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Bromacil	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.005 mg/L

Test	Methodology	Detection Limit
Carbofuran	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Cyanazine	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.005 mg/L
d-BHC	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Metalaxyl-M	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Metolachlor	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Metribuzin	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Molinate	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Oxadiazon	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Pendimethalin	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.002 mg/L
Propazine	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Pyriproxyfen	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Simazine	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Terbuthylazine	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Trifluralin	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Hexazinone	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Chlorpyrifos	Organophosphorous Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Diazinon	Organophosphorous Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Dimethoate	Organophosphorous Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Pirimiphos methyl	Organophosphorous Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Acenapthene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Acenaphthylene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.001 mg/L
Anthracene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.001 mg/L
benz(a)anthracene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Benzo(a)pyrene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Total Benzo(b) and Benzo(k) fluoranthrene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.001 mg/L
Benzo(g,h,i)perylene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.001 mg/L
Chrysene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Dibenz(a,h)anthracene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Fluoranthene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Fluorene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Indeno(1,2,3-cd)pyrene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Naphthalene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Phenanthrene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Pyrene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
2,2',3,4,4',5'-Hexachlorobiphenyl	Polychlorinated biphenyl compound analysed by in-house method using GC-MS. Also known as PCB 138.	0.001 mg/L
2,2',4,5,5'-Pentachlorobiphenyl	Polychlorinated biphenyl compound analysed by in-house method using GC-MS. Also known as PCB 101.	0.0001 mg/L
2,4,4'-Trichlorobiphenyl	Polychlorinated biphenyl compound analysed by in-house method using GC-MS. Also known as PCB 28.	0.0001 mg/L
2,4-Dichlorobiphenyl	Polychlorinated biphenyl compound analysed by in-house method using GC-MS. Also known as PCB 7.	0.0001 mg/L
2,2',3,4,4',5',6-Heptachlorobiphenyl	Polychlorinated biphenyl compound analysed by in-house method using GC-MS. Also known as PCB 183.	0.0001 mg/L
Bis(2-ethylhexyl)adipate	Phthalate Plasticiser compound analysed by in-house method using GC-MS	0.0001 mg/L
1,2,4-Trimethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3,5-Trimethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Benzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Isopropylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Naphthalene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
n-Butylbenezene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
n-Propylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
o-Xylene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
p-Isopropyltoluene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
sec-Butylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Styrene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
tert-Butylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Toluene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Total p,m Xylene, Ethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0015 mg/L
1,1,1,2-Tetrachloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1,1-Trichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1,2,2-Tetrachloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on	0.0005 mg/L

Test	Methodology	Detection Limit
	USEPA Method 8260.	
1,1,2-Trichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2,3-Trichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dibromo-3-chloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
1,2-Dibromoethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0002 mg/L
1,2-Dichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
2,2-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Allyl chloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromochloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0012 mg/L
Bromomethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Carbon tetrachloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260. Also known as Tetrachloromethane.	0.0005 mg/L
Chloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Chloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.006 mg/L
cis-1,2-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
cis-1,3-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dibromomethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dichlorodifluoromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Dichloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.005 mg/L
Hexachlorobutadiene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0002 mg/L
Tetrachloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
trans-1,2-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
trans-1,3-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Trichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Trichlorofluoromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Vinyl Chloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2,3-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L

Test	Methodology	Detection Limit
1,2,4-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,4-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
2-Chlorotoluene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
4-Chlorotoluene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Chlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3,5-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
4-Methyl-2-Pentanone	VOC Other Volatile Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Carbon disulphide	VOC Other Volatile Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromodichloromethane	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromoform	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260. Also known as Tribromomethane.	0.0005 mg/L
Chloroform	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dibromochloromethane	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L

Unless otherwise stated, all tests are performed in Wellington.

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.

"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.

For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.

Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

eurofins | ELS

Eurofins ELS Limited

Analytical Report

Downer EDI Levin - Landfill
P O Box 642
LEVIN 5540
Attention: Bruce Marshall

Report Number: 21/8350
Issue: 1
17 March 2021

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
21/8350-01	Levin Xs2		02/03/2021 00:00	03/03/2021 10:07	0

Notes: 210512-0 Levin Landfill Sample

	Test	Result	Units	Test Date	Signatory
0001	pH	6.9		03/03/2021	Jennifer Mont KTP
0002	Suspended Solids - Total	8	g/m³	03/03/2021	Jennifer Mont KTP
0040	Total (NP) Organic Carbon	24.7	g/m³	10/03/2021	Amit Kumar KTP
0052	Alkalinity - Total	8	g CaCO3/m³	03/03/2021	Gordon McArthur KTP
0055	Conductivity at 25°C	21.4	mS/m	03/03/2021	Gordon McArthur KTP
0081	Chemical Oxygen Demand	< 15	g/m³	06/03/2021	Gordon McArthur KTP
0180	BOD5 - Soluble Carbonaceous	< 3	g/m³	03/03/2021	Gordon McArthur KTP
0602	Chloride	21.7	g/m³	08/03/2021	Amit Kumar KTP
0605	Nitrate - Nitrogen	0.58	g/m³	08/03/2021	Amit Kumar KTP
0607	Sulphate	13.7	g/m³	08/03/2021	Amit Kumar KTP
0760	Ammonia Nitrogen	0.02	g/m³	08/03/2021	Divina Lagazon KTP
1642	Total Hardness	52	g CaCO3/m³	04/03/2021	Shanel Kumar KTP
1810	Calcium - Dissolved	10.8	g/m³	04/03/2021	Shanel Kumar KTP
1819	Iron - Dissolved	0.219	g/m³	04/03/2021	Shanel Kumar KTP
1822	Magnesium - Dissolved	6.08	g/m³	04/03/2021	Shanel Kumar KTP
1834	Sodium - Dissolved	17.6	g/m³	04/03/2021	Shanel Kumar KTP
2088	Dissolved Reactive Phosphorus	0.018	g/m³	08/03/2021	Divina Lagazon KTP
6701	Aluminium - Dissolved	0.008	g/m³	05/03/2021	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	05/03/2021	Shanel Kumar KTP
6707	Boron - Dissolved	0.04	g/m³	05/03/2021	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	05/03/2021	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	05/03/2021	Shanel Kumar KTP
6713	Copper - Dissolved	0.0015	g/m³	05/03/2021	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	05/03/2021	Shanel Kumar KTP
6721	Manganese - Dissolved	0.131	g/m³	05/03/2021	Shanel Kumar KTP
6722	Mercury - Dissolved	< 0.0005	g/m³	05/03/2021	Shanel Kumar KTP
6724	Nickel - Dissolved	0.0008	g/m³	05/03/2021	Shanel Kumar KTP
6726	Potassium - Dissolved	3.88	g/m³	05/03/2021	Shanel Kumar KTP
6738	Zinc - Dissolved	0.006	g/m³	05/03/2021	Shanel Kumar KTP
M0104	E. coli	< 4	cfu/100mL	03/03/2021	Sunita Raju KTP
MO-5001	Volatile Fatty Acids	< 5 *	g/m³		Deb Bottrill Transcribed by
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Deb Bottrill Transcribed by
P1859	Sample Filtration	Completed		04/03/2021	Harsimran Dhanoa .
SVOC-001	2,3-Diuron	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-002	a-BHC	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-003	a-chlordane	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-004	Aldrin	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-005	b-BHC	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-006	cis-Permethrin	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-007	Dieldrin	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-008	Endosulfan II	<0.005	mg/L	03/03/2021	Joanna Yang KTP
SVOC-009	Endosulfan Sulfate	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-010	Endrin	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-011	Endrin Aldehyde	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-012	Endrin Ketone	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-013	Gamma-Chlordane	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-014	Heptachlor	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-015	Heptachlor Epoxide	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-016	Hexachlorobenzene	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-017	Lindane (g-BHC)	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-018	Methoxychlor	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-019	p,p'-DDD	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-020	p,p'DDE	<0.0001	mg/L	03/03/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
21/8350-01	Levin Xs2		02/03/2021 00:00	03/03/2021 10:07	0

Notes: 210512-0 Levin Landfill Sample

Test	Result	Units	Test Date	Signatory
SVOC-021 p,p'-DDT	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-022 Procymidone	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-023 Propanil	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-024 Endosulfan I	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-025 Alachlor	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-026 Aldicarb	<0.1	mg/L	03/03/2021	Joanna Yang KTP
SVOC-027 Atrazine	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-028 Bromacil	<0.005	mg/L	03/03/2021	Joanna Yang KTP
SVOC-029 Carbofuran	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-030 Cyanazine	<0.005	mg/L	03/03/2021	Joanna Yang KTP
SVOC-031 d-BHC	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-032 Metalaxyl-M	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-033 Metolachlor	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-034 Metribuzin	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-035 Molinate	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-037 Oxadiazon	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-038 Pendimethalin	<0.002	mg/L	03/03/2021	Joanna Yang KTP
SVOC-039 Propazine	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-040 Pyriproxyfen	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-041 Simazine	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-042 Terbuthylazine	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-043 Trifluralin	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-044 Hexazinone	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-045 Chlorpyrifos	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-046 Diazinon	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-047 Dimethoate	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-048 Pirimiphos methyl	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-049 Acenapthene	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-050 Acenaphthylene	< 0.0010	mg/L	03/03/2021	Joanna Yang KTP
SVOC-051 Anthracene	< 0.0010	mg/L	03/03/2021	Joanna Yang KTP
SVOC-052 benz(a)anthracene	< 0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-053 Benzo(a)pyrene	< 0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-054 Total Benzo(b) and Benzo(k) fluoranthrene	< 0.0010	mg/L	03/03/2021	Joanna Yang KTP
SVOC-055 Benzo(g,h,i)perylene	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-057 Chrysene	< 0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-058 Dibenz(a,h)anthracene	< 0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-059 Fluoranthene	< 0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-060 Fluorene	< 0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-061 Indeno(1,2,3-cd)pyrene	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-062 Naphthalene	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-063 Phenanthrene	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-064 Pyrene	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-066 2,2',3,4,4',5'-Hexachlorobiphenyl	<0.001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-067 2,2',4,5,5'-Pentachlorobiphenyl	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-068 2,4,4'-Trichlorobiphenyl	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-069 2,4-Dichlorobiphenyl	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-070 2,2',3,4,4',5',6-Heptachlorobiphenyl	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
SVOC-072 Bis(2-ethylhexyl)adipate	<0.0001	mg/L	03/03/2021	Joanna Yang KTP
VOC-001 1,2,4-Trimethylbenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-002 1,3,5-Trimethylbenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-003 Benzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-005 Isopropylbenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-007 Naphthalene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-008 n-Butylbenezene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-009 n-Propylbenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-010 o-Xylene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-011 p-Isopropyltoluene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-013 sec-Butylbenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-014 Styrene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-015 tert-Butylbenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
21/8350-01	Levin Xs2		02/03/2021 00:00	03/03/2021 10:07	0

Notes: 210512-0 Levin Landfill Sample

	Test	Result	Units	Test Date	Signatory
VOC-016	Toluene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-017	Total p,m Xylene, Ethylbenzene	<0.0015	mg/L	05/03/2021	Joanna Yang KTP
VOC-018	1,1,1,2-Tetrachloroethane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-019	1,1,1-Trichloroethane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-020	1,1,2,2-Tetrachloroethane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-021	1,1,2-Trichloroethane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-022	1,1-Dichloroethane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-023	1,1-Dichloroethene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-024	1,1-Dichloropropene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-025	1,2,3-Trichloropropane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-026	1,2-Dibromo-3-chloropropane	<0.001	mg/L	05/03/2021	Joanna Yang KTP
VOC-027	1,2-Dibromoethane	<0.0002	mg/L	05/03/2021	Joanna Yang KTP
VOC-028	1,2-Dichloroethane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-029	1,2-Dichloropropane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-030	1,3-Dichloropropane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-031	2,2-Dichloropropane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-032	Allyl chloride	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-033	Bromochloromethane	<0.0012	mg/L	05/03/2021	Joanna Yang KTP
VOC-035	Carbon tetrachloride	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-038	cis-1,2-Dichloroethene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-039	cis-1,3-Dichloropropene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-040	Dibromomethane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-042	Dichloromethane	<0.005	mg/L	05/03/2021	Joanna Yang KTP
VOC-043	Hexachlorobutadiene	<0.0002	mg/L	05/03/2021	Joanna Yang KTP
VOC-044	Tetrachloroethene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-045	trans-1,2-Dichloroethene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-046	trans-1,3-Dichloropropene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-047	Trichloroethene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-048	Trichlorofluoromethane	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-049	Vinyl Chloride	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-050	1,2,3-Trichlorobenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-051	1,2,4-Trichlorobenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-052	1,2-Dichlorobenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-053	1,3-Dichlorobenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-054	1,4-Dichlorobenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-055	2-Chlorotoluene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-056	4-Chlorotoluene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-057	Bromobenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-058	Chlorobenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-059	1,3,5-Trichlorobenzene	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-060	4-Methyl-2-Pentanone	< 0.0010	mg/L	05/03/2021	Joanna Yang KTP
VOC-061	Carbon disulphide	<0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-062	Bromodichloromethane	< 0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-063	Bromoform	< 0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-064	Chloroform	< 0.0005	mg/L	05/03/2021	Joanna Yang KTP
VOC-065	Dibromochloromethane	< 0.0005	mg/L	05/03/2021	Joanna Yang KTP

Comments:

***** Not an accredited test.

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500-H B.	0.1
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA Online Edition 5310 B.	0.1 g/m³
Alkalinity - Total	APHA Online Edition Method 2320 B	1 g CaCO3/m³

Test	Methodology	Detection Limit
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Chemical Oxygen Demand	APHA Online Edition Method 5220 D.	15 g/m³
BOD5 - Soluble Carbonaceous	APHA Online Edition Method 5210 B. The sample is filtered through Whatman GFC and treated with nitrification inhibitor.	1 g/m³
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Sulphate	Ion Chromatography following APHA 4110B.	0.02 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Total Hardness	ICP-OES following APHA Online Edition Method 3120 B (modified).	1 g CaCO3/m³
Calcium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Iron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Magnesium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Sodium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.02 g/m³
Dissolved Reactive Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G.	0.005 g/m³
Aluminium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
Arsenic - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Boron - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.03 g/m³
Cadmium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0002 g/m³
Chromium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Copper - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Manganese - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Mercury - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Potassium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified)	0.01 g/m³
Zinc - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³
E. coli	APHA 9222I:Online Edition	1 cfu/100mL
Volatile Fatty Acids	Performed by Eurofins Melbourne following APHA 22nd Edition Method 5560C. Results are reported as acetic acid equivalent.	5 g/m³
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Sample Filtration	Sample filtered through 0.45 micron filter following APHA Online Edition Method 3030B.	n/a
2,3-Diuron	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
a-BHC	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
a-chlordane	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Aldrin	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
b-BHC	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
cis-Permethrin	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Dieldrin	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Endosulfan II	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.005 mg/L
Endosulfan Sulfate	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Endrin	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Endrin Aldehyde	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Endrin Ketone	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Gamma-Chlordane	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Heptachlor	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Heptachlor Epoxide	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Hexachlorobenzene	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Lindane (g-BHC)	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Methoxychlor	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
p,p'-DDD	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
p,p'DDE	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
p,p'-DDT	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Procymidone	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Propanil	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Endosulfan I	Organochlorine Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Alachlor	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Aldicarb	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.1 mg/L
Atrazine	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Bromacil	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.005 mg/L

Test	Methodology	Detection Limit
Carbofuran	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Cyanazine	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.005 mg/L
d-BHC	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Metalaxyl-M	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Metolachlor	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Metribuzin	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Molinate	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Oxadiazon	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Pendimethalin	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.002 mg/L
Propazine	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Pyriproxyfen	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Simazine	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Terbuthylazine	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Trifluralin	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Hexazinone	Organonitrogen Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Chlorpyrifos	Organophosphorous Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Diazinon	Organophosphorous Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Dimethoate	Organophosphorous Pesticide compound analysed by in-house method using GC-MS	0.001 mg/L
Pirimiphos methyl	Organophosphorous Pesticide compound analysed by in-house method using GC-MS	0.0001 mg/L
Acenapthene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Acenaphthylene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.001 mg/L
Anthracene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.001 mg/L
benz(a)anthracene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Benzo(a)pyrene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Total Benzo(b) and Benzo(k) fluoranthrene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.001 mg/L
Benzo(g,h,i)perylene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.001 mg/L
Chrysene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Dibenz(a,h)anthracene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Fluoranthene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Fluorene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Indeno(1,2,3-cd)pyrene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Naphthalene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Phenanthrene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
Pyrene	Polyaromatic Hydrocarbon compound analysed by in-house method using GC-MS	0.0001 mg/L
2,2',3,4,4',5'-Hexachlorobiphenyl	Polychlorinated biphenyl compound analysed by in-house method using GC-MS. Also known as PCB 138.	0.001 mg/L
2,2',4,5,5'-Pentachlorobiphenyl	Polychlorinated biphenyl compound analysed by in-house method using GC-MS. Also known as PCB 101.	0.0001 mg/L
2,4,4'-Trichlorobiphenyl	Polychlorinated biphenyl compound analysed by in-house method using GC-MS. Also known as PCB 28.	0.0001 mg/L
2,4-Dichlorobiphenyl	Polychlorinated biphenyl compound analysed by in-house method using GC-MS. Also known as PCB 7.	0.0001 mg/L
2,2',3,4,4',5',6-Heptachlorobiphenyl	Polychlorinated biphenyl compound analysed by in-house method using GC-MS. Also known as PCB 183.	0.0001 mg/L
Bis(2-ethylhexyl)adipate	Phthalate Plasticiser compound analysed by in-house method using GC-MS	0.0001 mg/L
1,2,4-Trimethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3,5-Trimethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Benzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Isopropylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Naphthalene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
n-Butylbenezene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
n-Propylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
o-Xylene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
p-Isopropyltoluene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
sec-Butylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Styrene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
tert-Butylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Toluene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Total p,m Xylene, Ethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0015 mg/L
1,1,1,2-Tetrachloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1,1-Trichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1,2,2-Tetrachloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on	0.0005 mg/L

Test	Methodology	Detection Limit
	USEPA Method 8260.	
1,1,2-Trichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2,3-Trichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dibromo-3-chloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
1,2-Dibromoethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0002 mg/L
1,2-Dichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
2,2-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Allyl chloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromochloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0012 mg/L
Bromomethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Carbon tetrachloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260. Also known as Tetrachloromethane.	0.0005 mg/L
Chloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Chloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.006 mg/L
cis-1,2-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
cis-1,3-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dibromomethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dichlorodifluoromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Dichloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.005 mg/L
Hexachlorobutadiene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0002 mg/L
Tetrachloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
trans-1,2-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
trans-1,3-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Trichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Trichlorofluoromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Vinyl Chloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2,3-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L

Test	Methodology	Detection Limit
1,2,4-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,4-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
2-Chlorotoluene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
4-Chlorotoluene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Chlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3,5-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
4-Methyl-2-Pentanone	VOC Other Volatile Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Carbon disulphide	VOC Other Volatile Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromodichloromethane	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromoform	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260. Also known as Tribromomethane.	0.0005 mg/L
Chloroform	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dibromochloromethane	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L

Unless otherwise stated, all tests are performed in Wellington.

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.

"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.

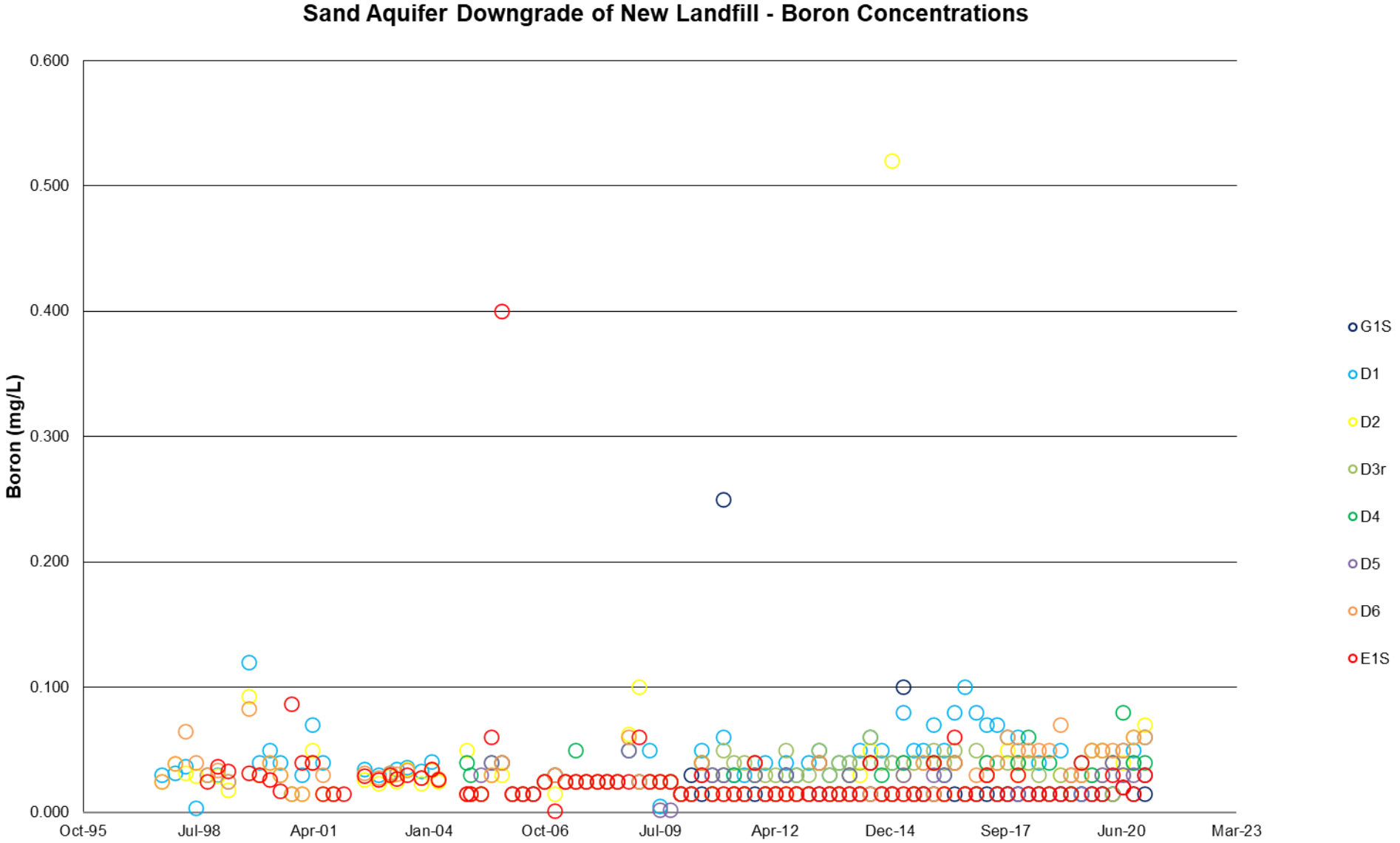
For liquid samples g/m3 is the equivalent to mg/L and ppm, solid samples are reported as mg/kg which is equivalent to ppm.

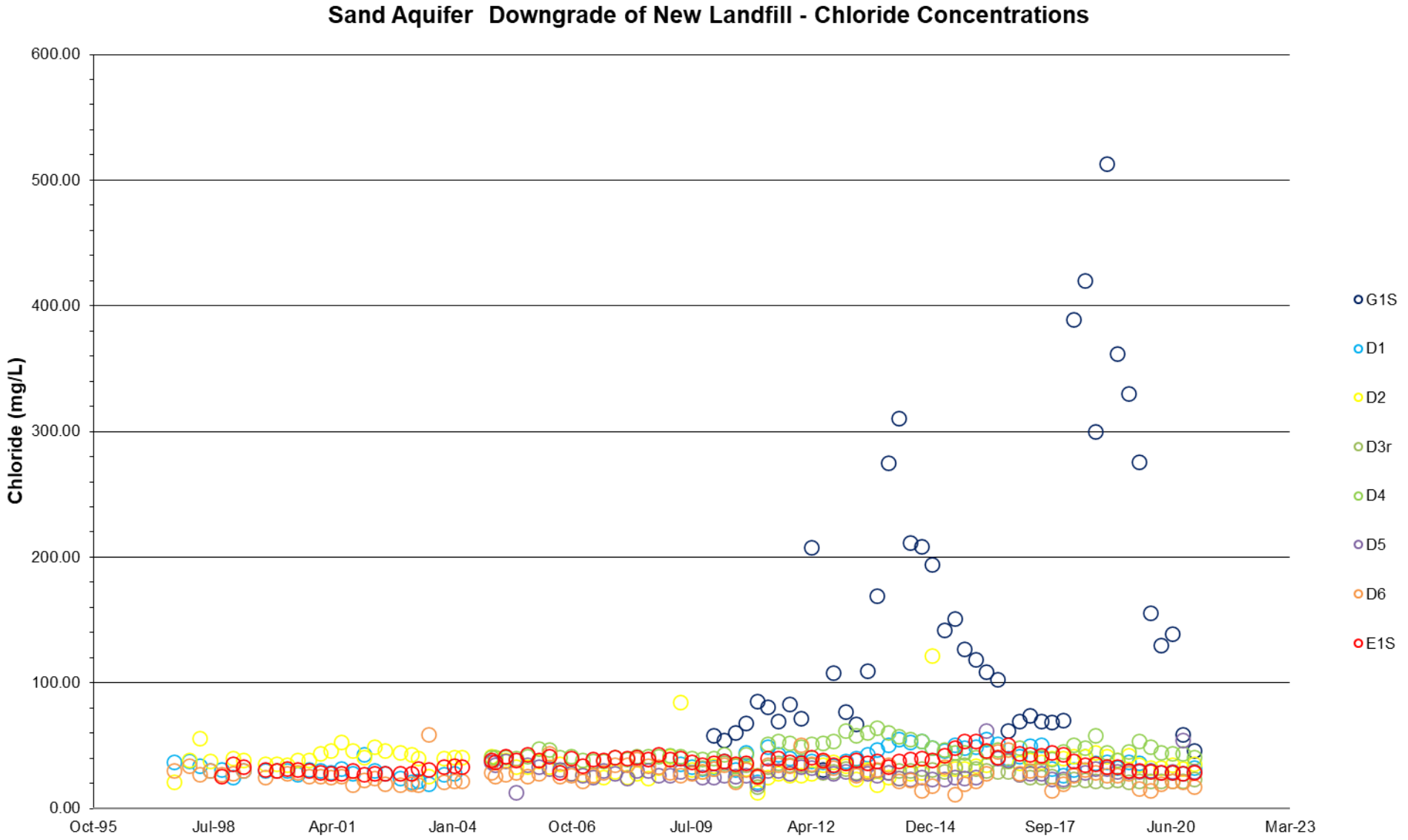
Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

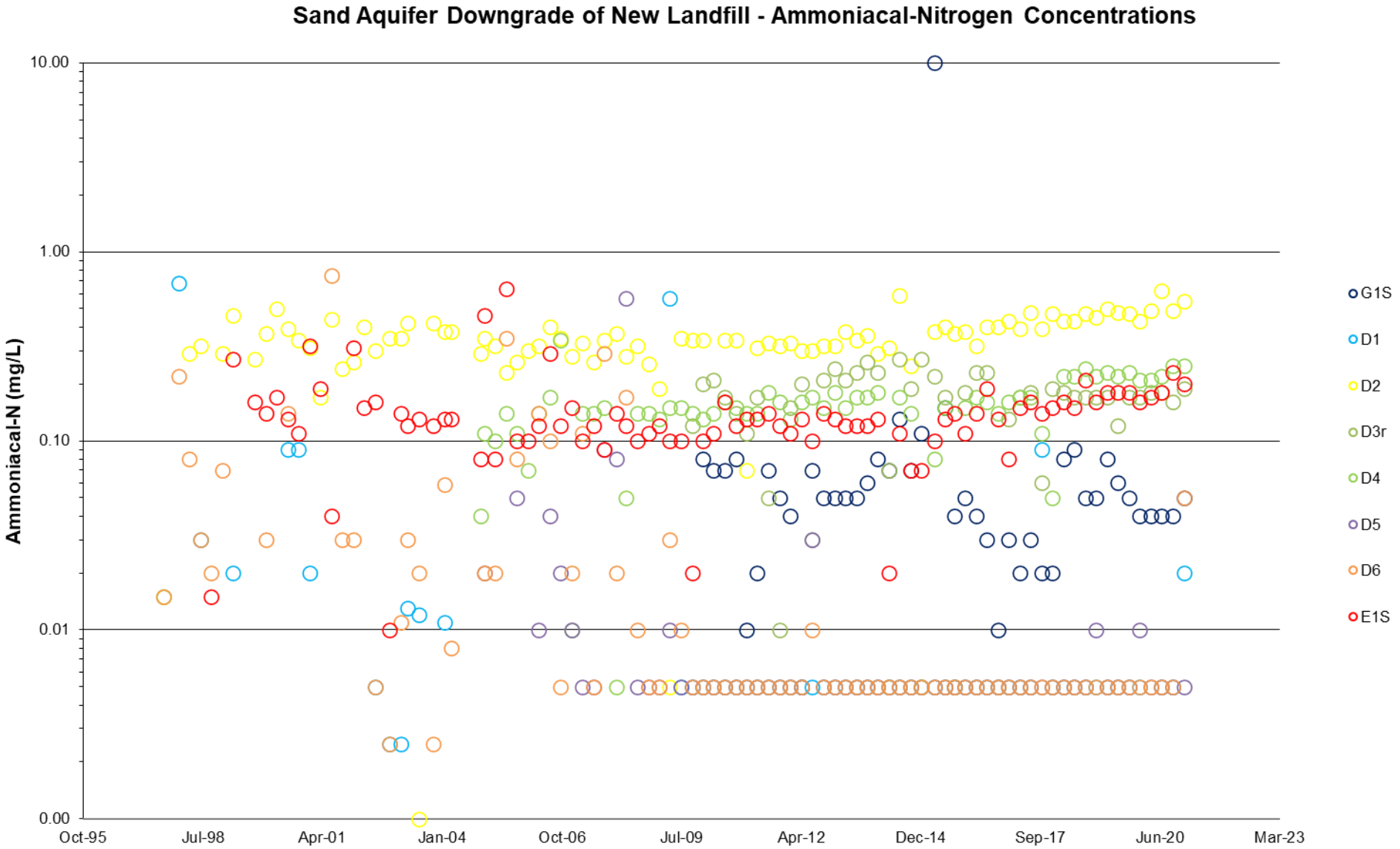
Report Released By
Rob Deacon

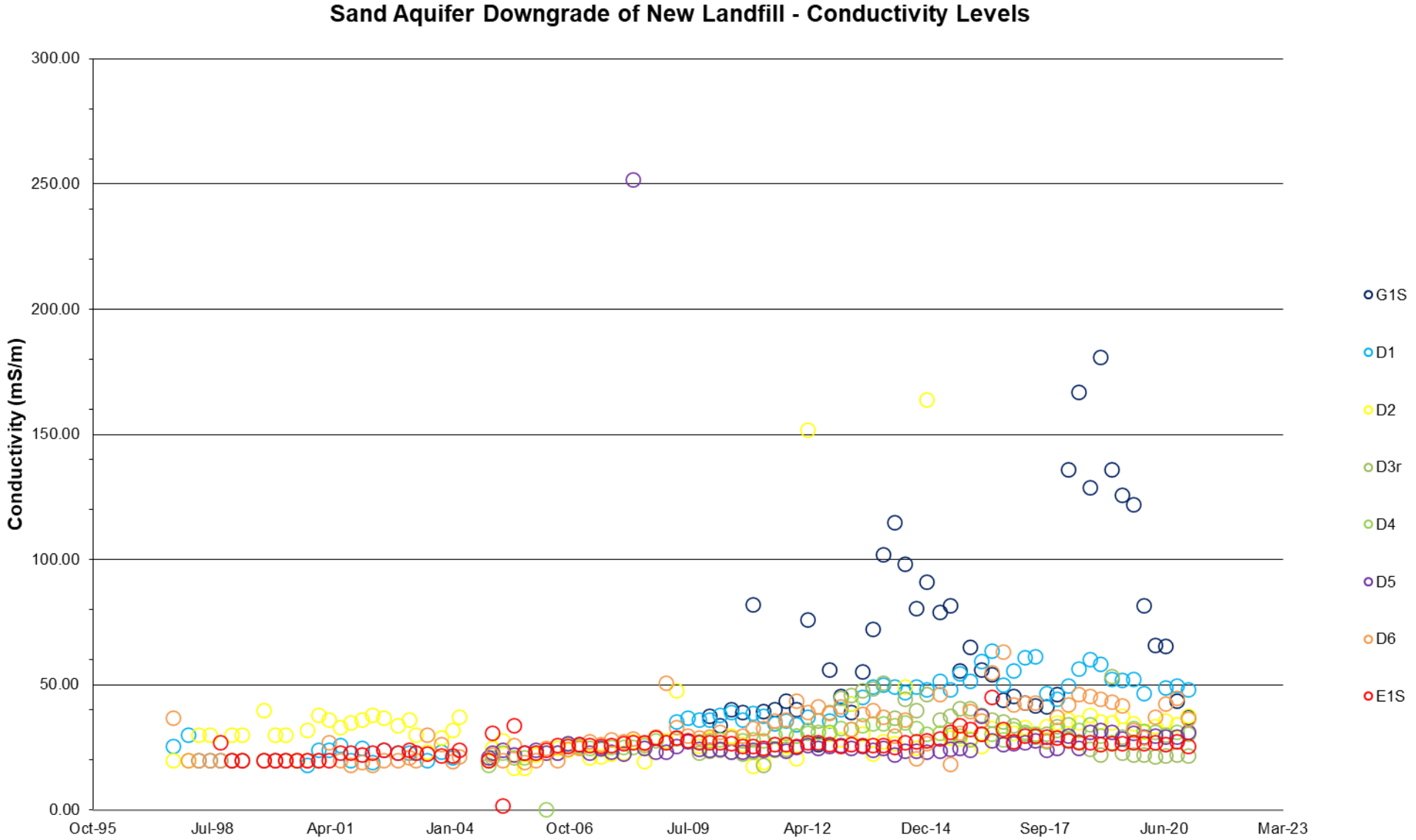
This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not an accredited test", which are outside the scope of this laboratory's accreditation.

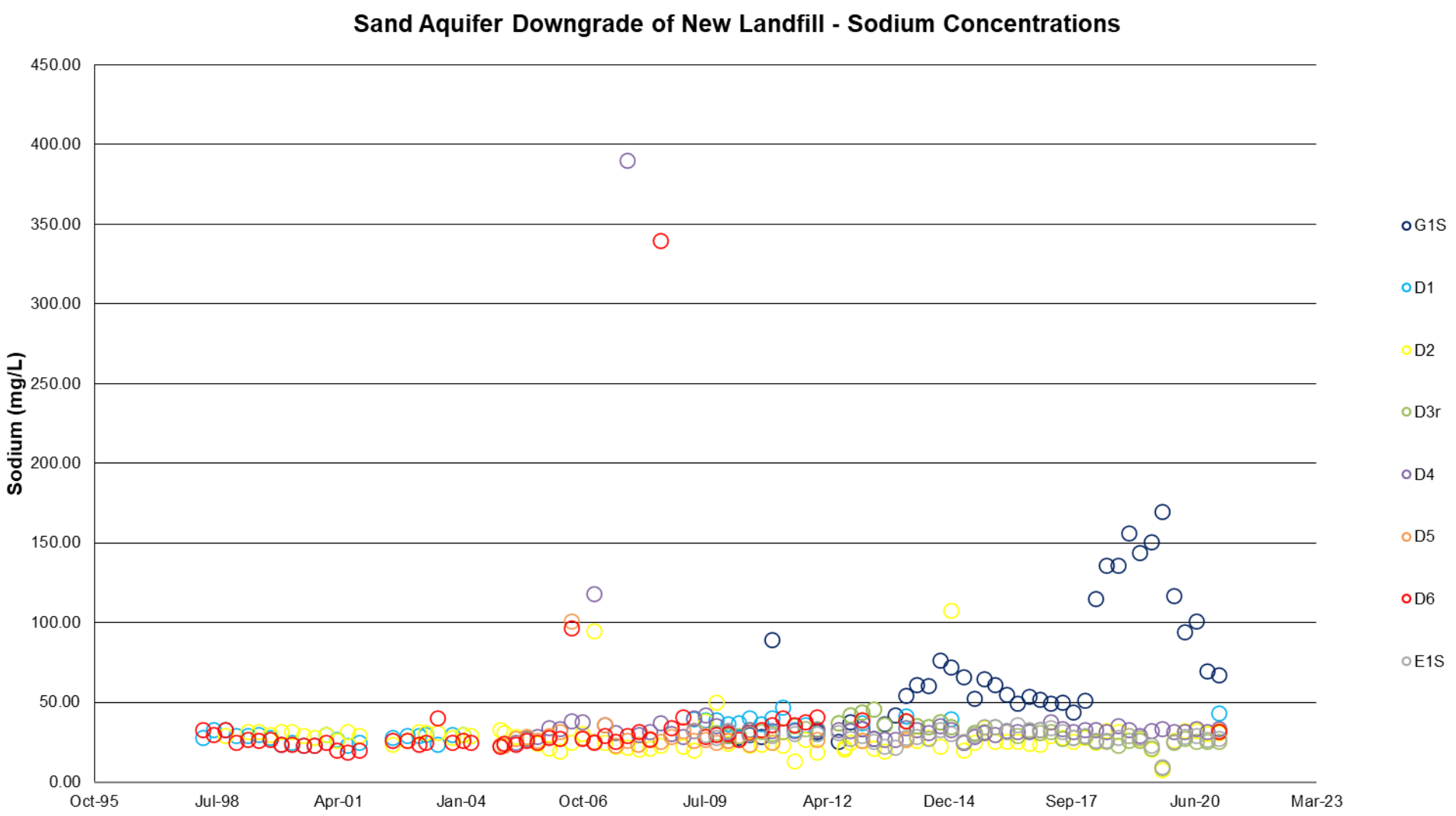
APPENDIX D HISTORICAL RESULT GRAPHS

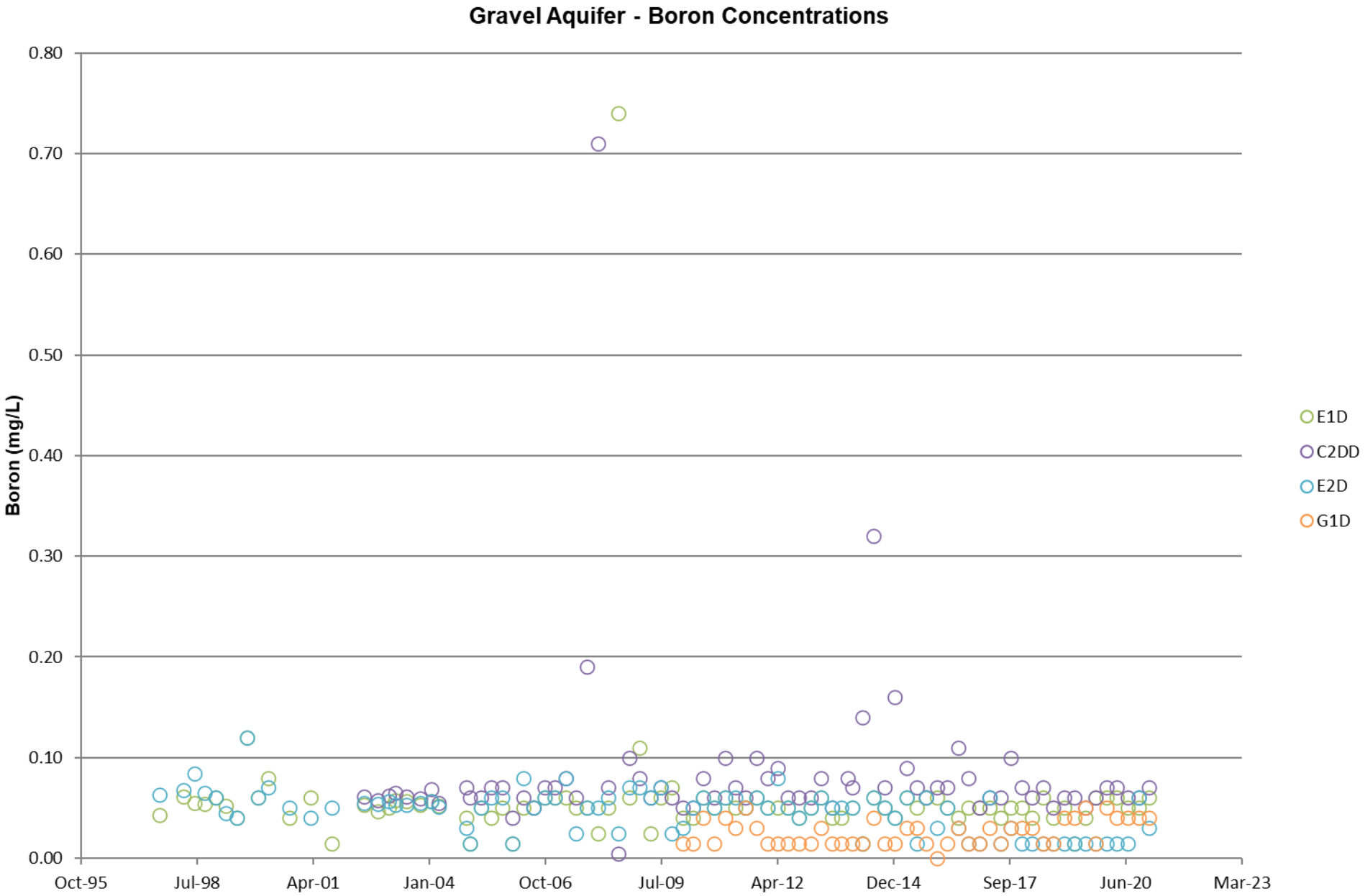

Sand Aquifer Downgrade of New Landfill - Boron Concentrations
Boron (mg/L)
0.600
0.500
0.400
0.300
0.200
0.100
0.000
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
G1S
D1
D2
D3r
D4
D5
D6
E1S

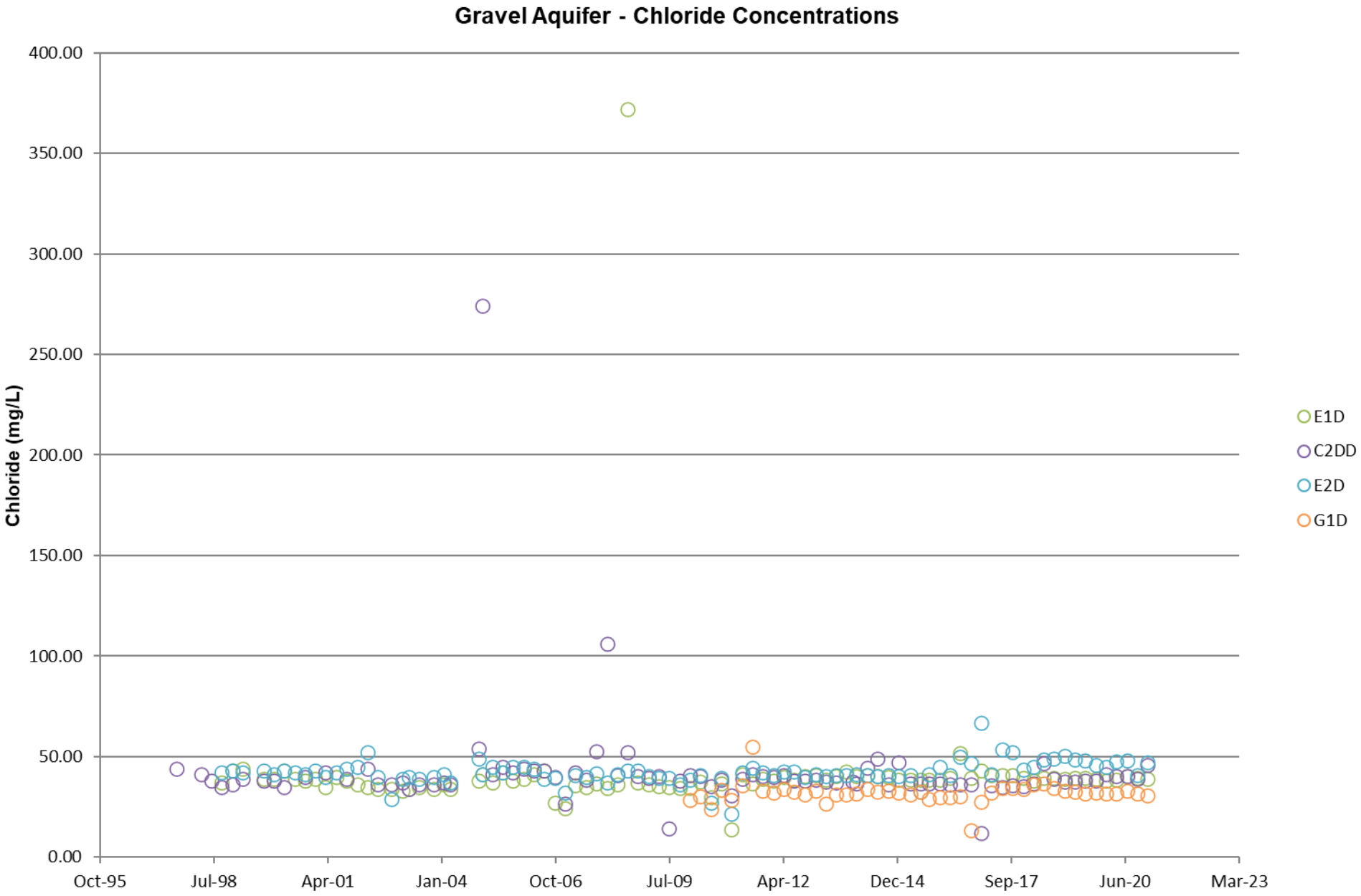

Sand Aquifer Downgrade of New Landfill - Chloride Concentrations
Chloride (mg/L)
600.00
500.00
400.00
300.00
200.00
100.00
0.00
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
G1S
D1
D2
D3r
D4
D5
D6
E1S

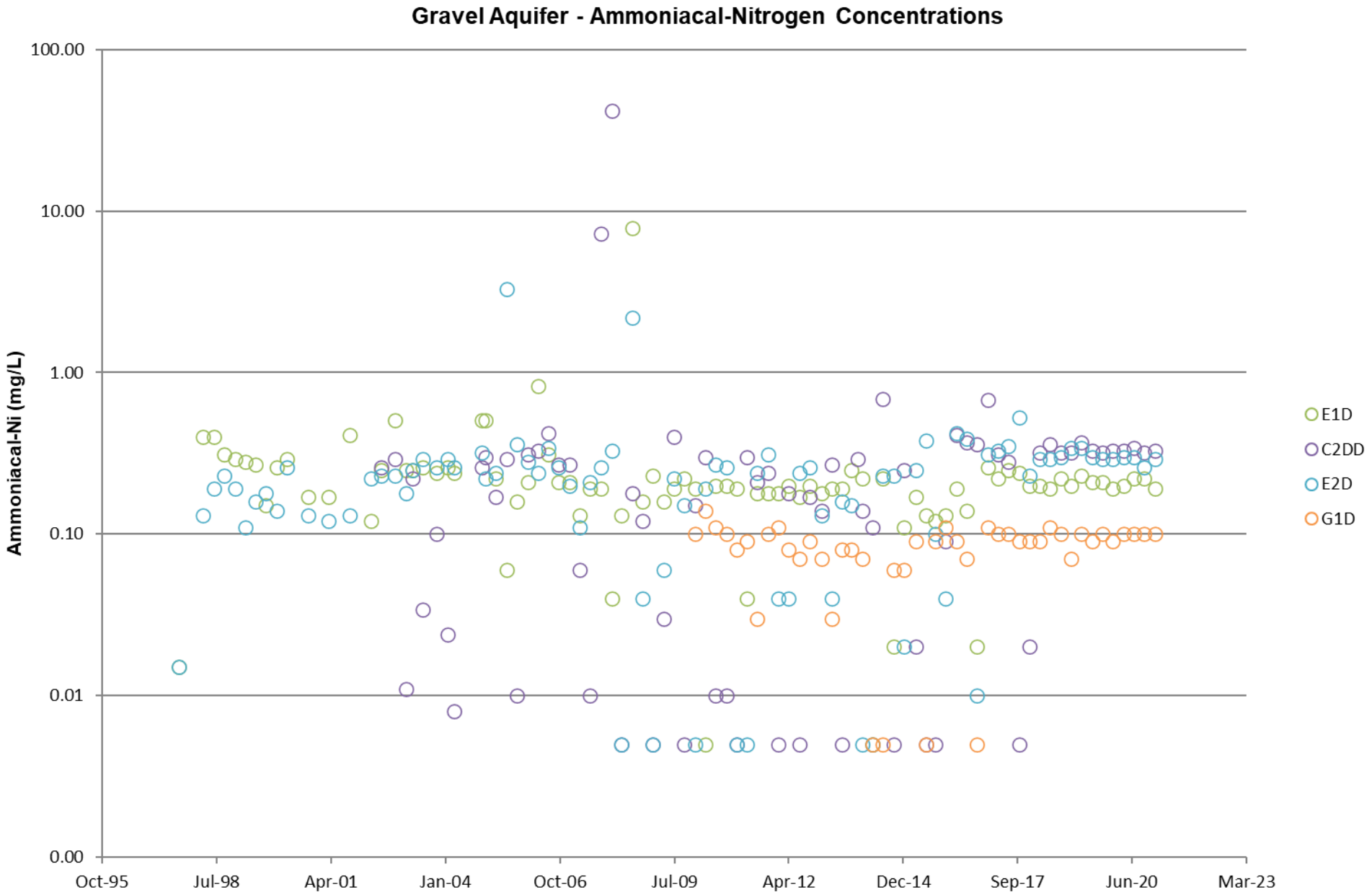

Sand Aquifer Downgrade of New Landfill - Ammoniacal-Nitrogen Concentrations
Ammoniacal-N (mg/L)
10.00
1.00
0.10
0.01
0.00
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
G1S
D1
D2
D3r
D4
D5
D6
E1S

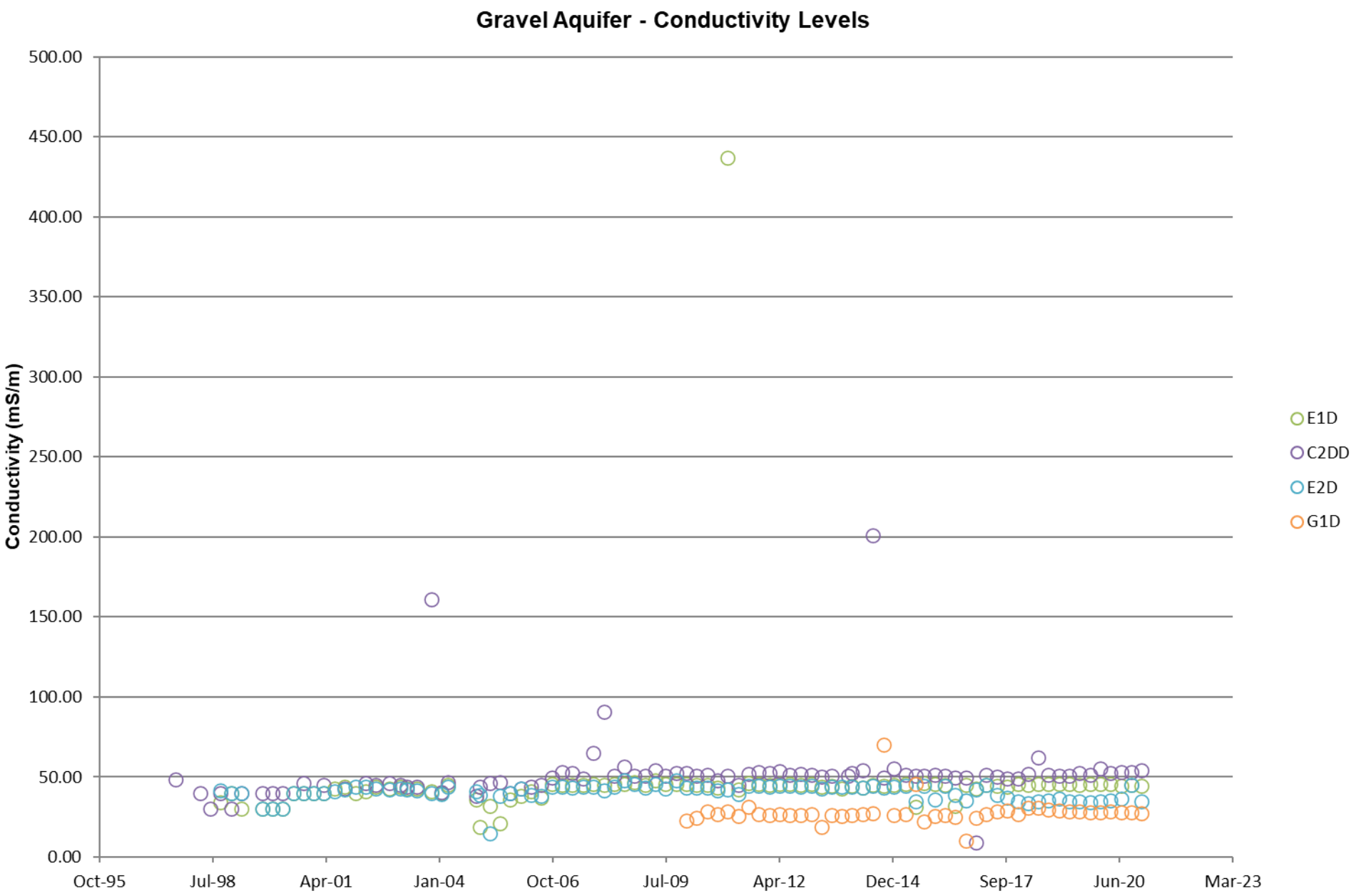

Sand Aquifer Downgrade of New Landfill - Conductivity Levels
Conductivity (mS/m)
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
G1S
D1
D2
D3r
D4
D5
D6
E1S

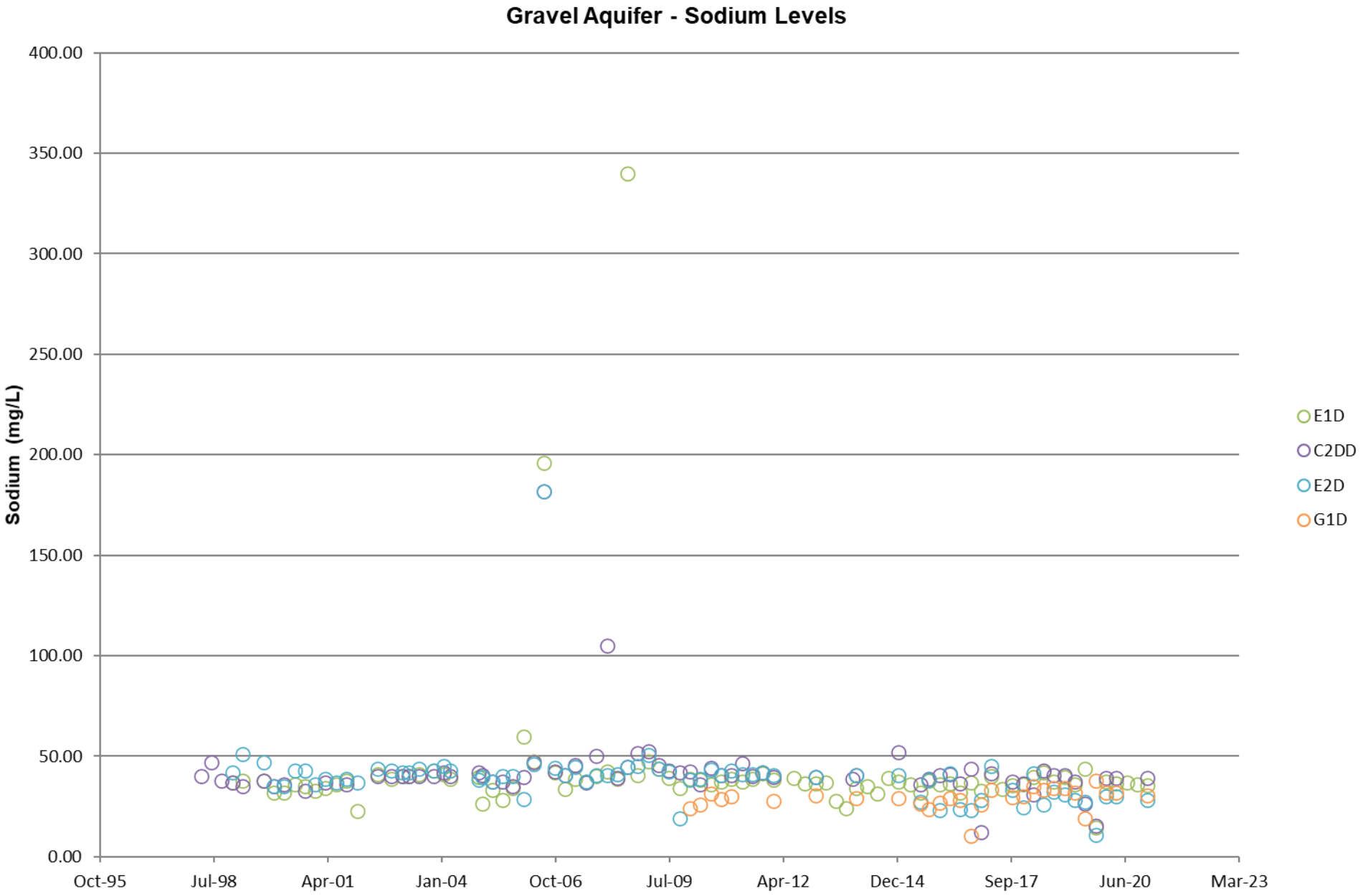

Sand Aquifer Downgrade of New Landfill - Sodium Concentrations
Sodium (mg/L)
450.00
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
G1S
D1
D2
D3r
D4
D5
D6
E1S

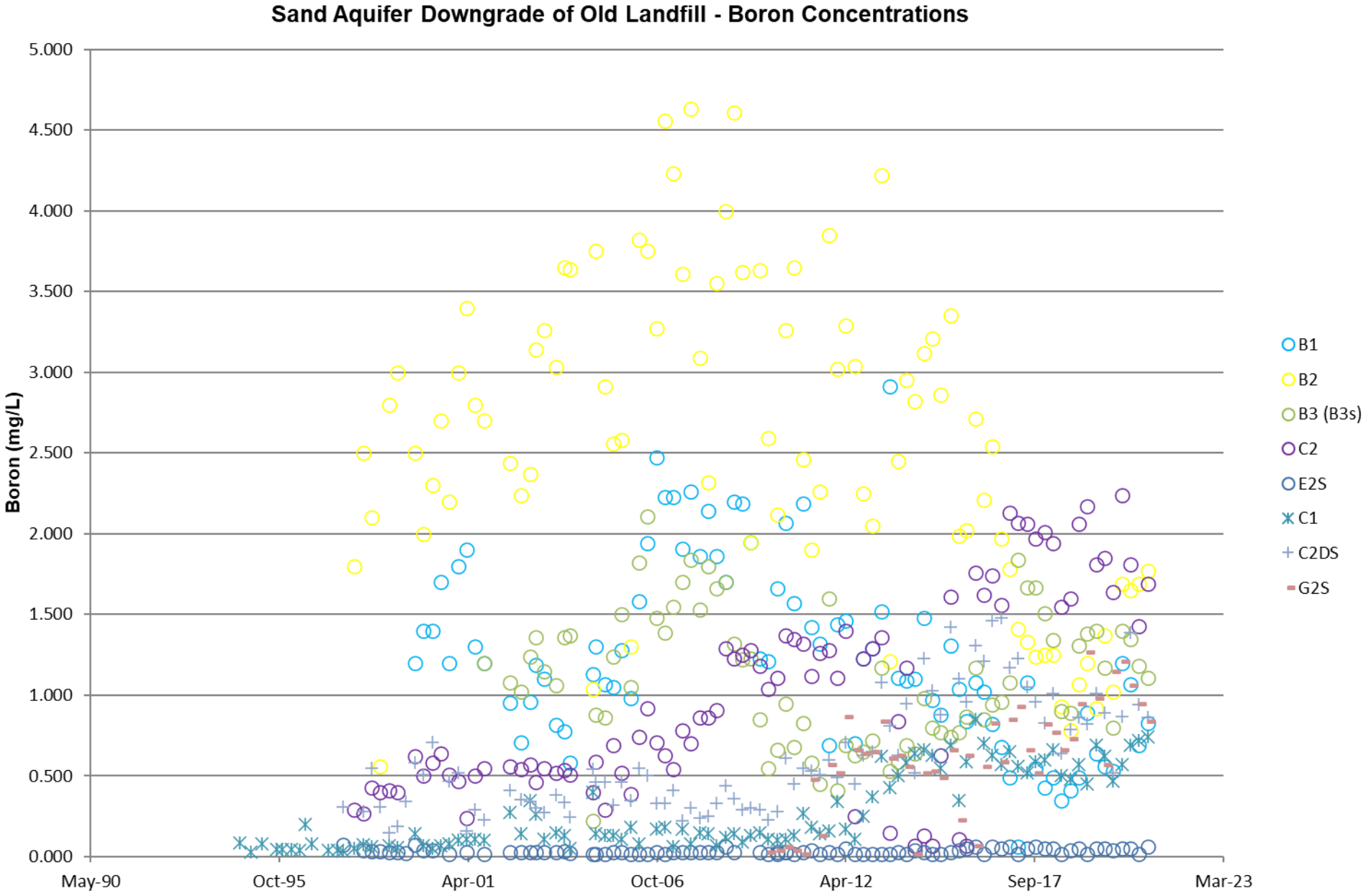

Gravel Aquifer - Boron Concentrations
Boron (mg/L)
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
E1D
C2DD
E2D
G1D

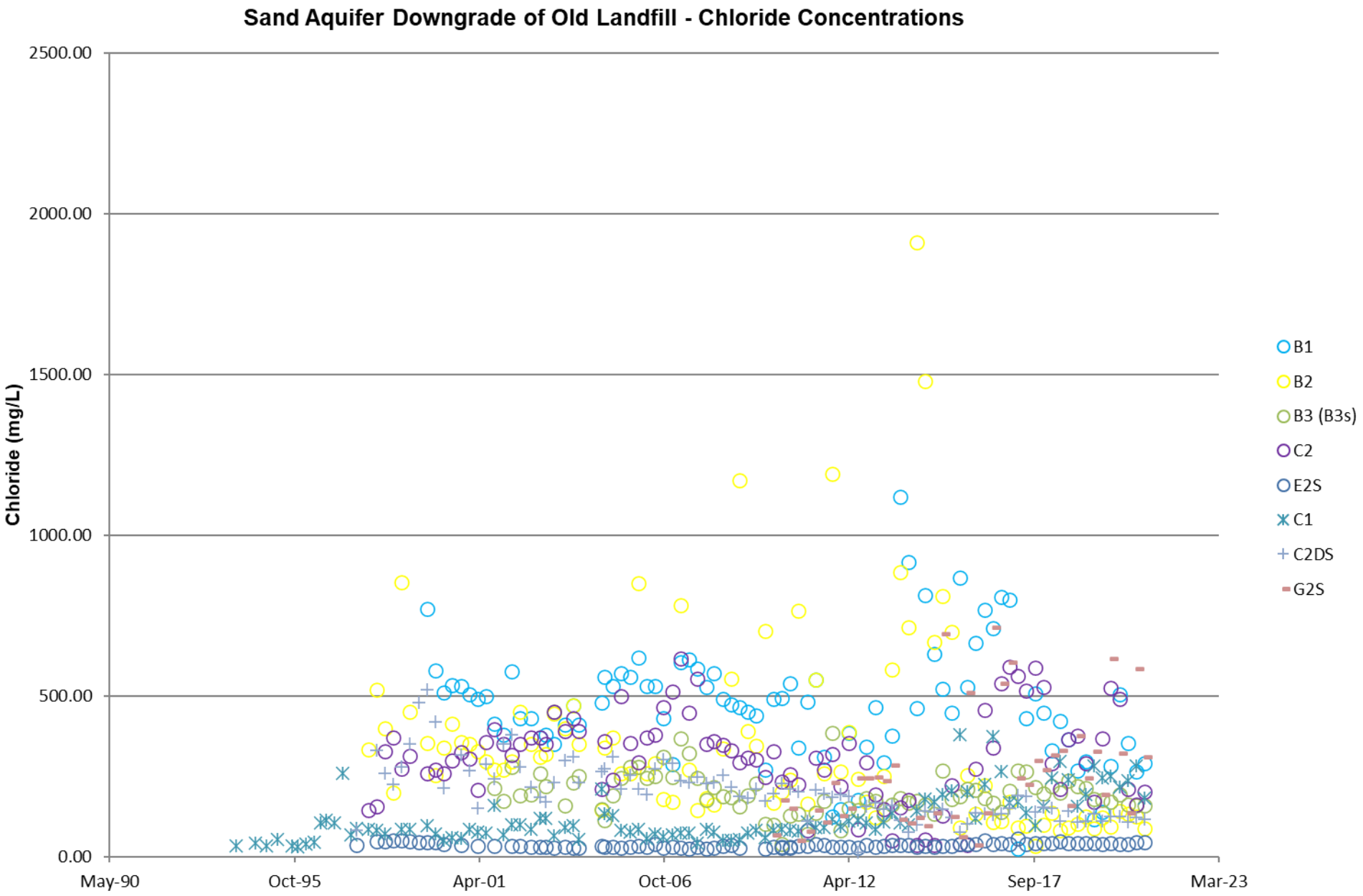

Gravel Aquifer - Chloride Concentrations
Chloride (mg/L)
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
E1D
C2DD
E2D
G1D

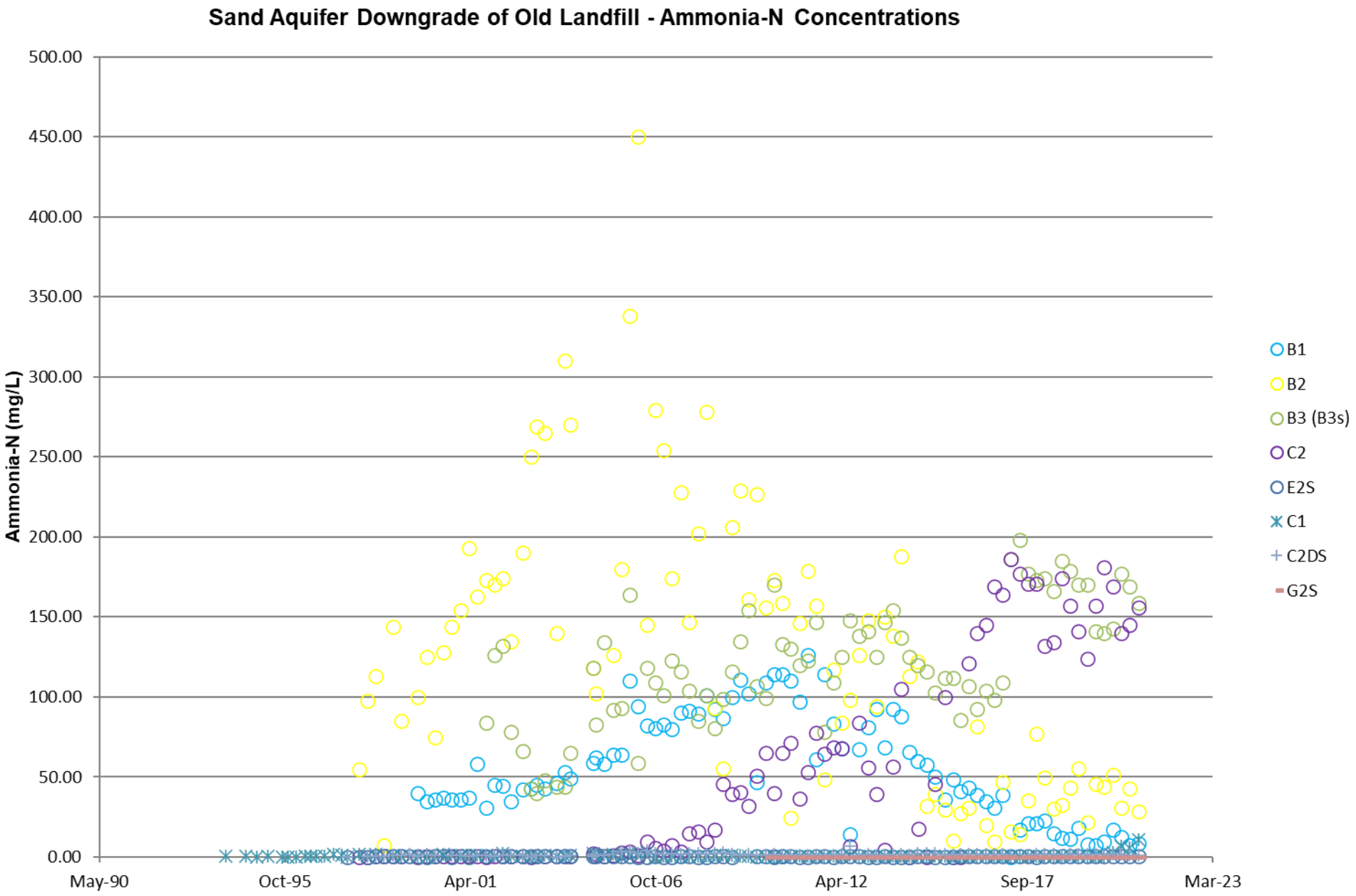

Gravel Aquifer - Ammoniacal-Nitrogen Concentrations
Ammoniacal-Ni (mg/L)
100.00
10.00
1.00
0.10
0.01
0.00
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
E1D
C2DD
E2D
G1D

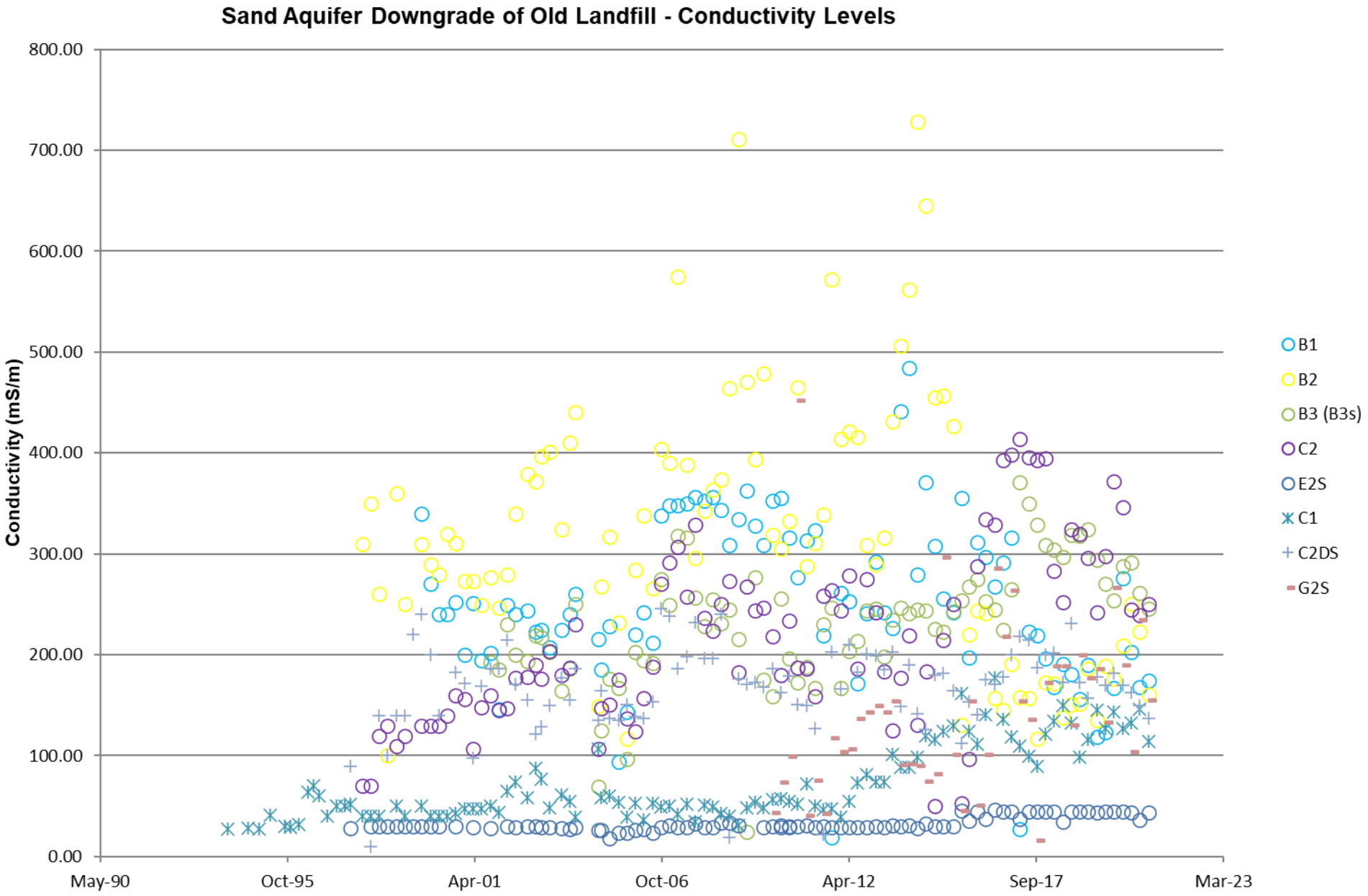

Gravel Aquifer - Conductivity Levels
Conductivity (mS/m)
500.00
450.00
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
E1D
C2DD
E2D
G1D

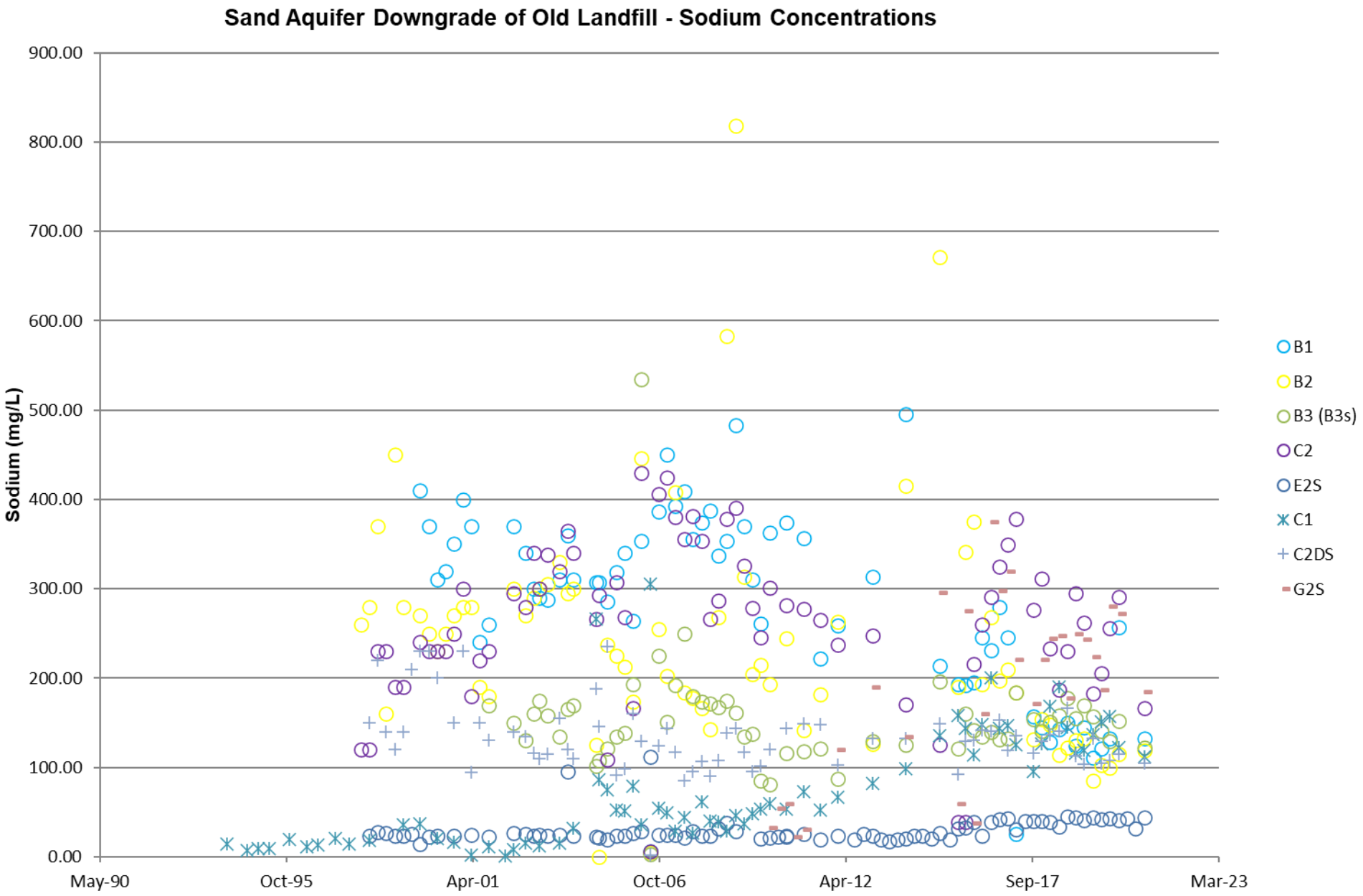

Gravel Aquifer - Sodium Levels
Sodium (mg/L)
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
E1D
C2DD
E2D
G1D

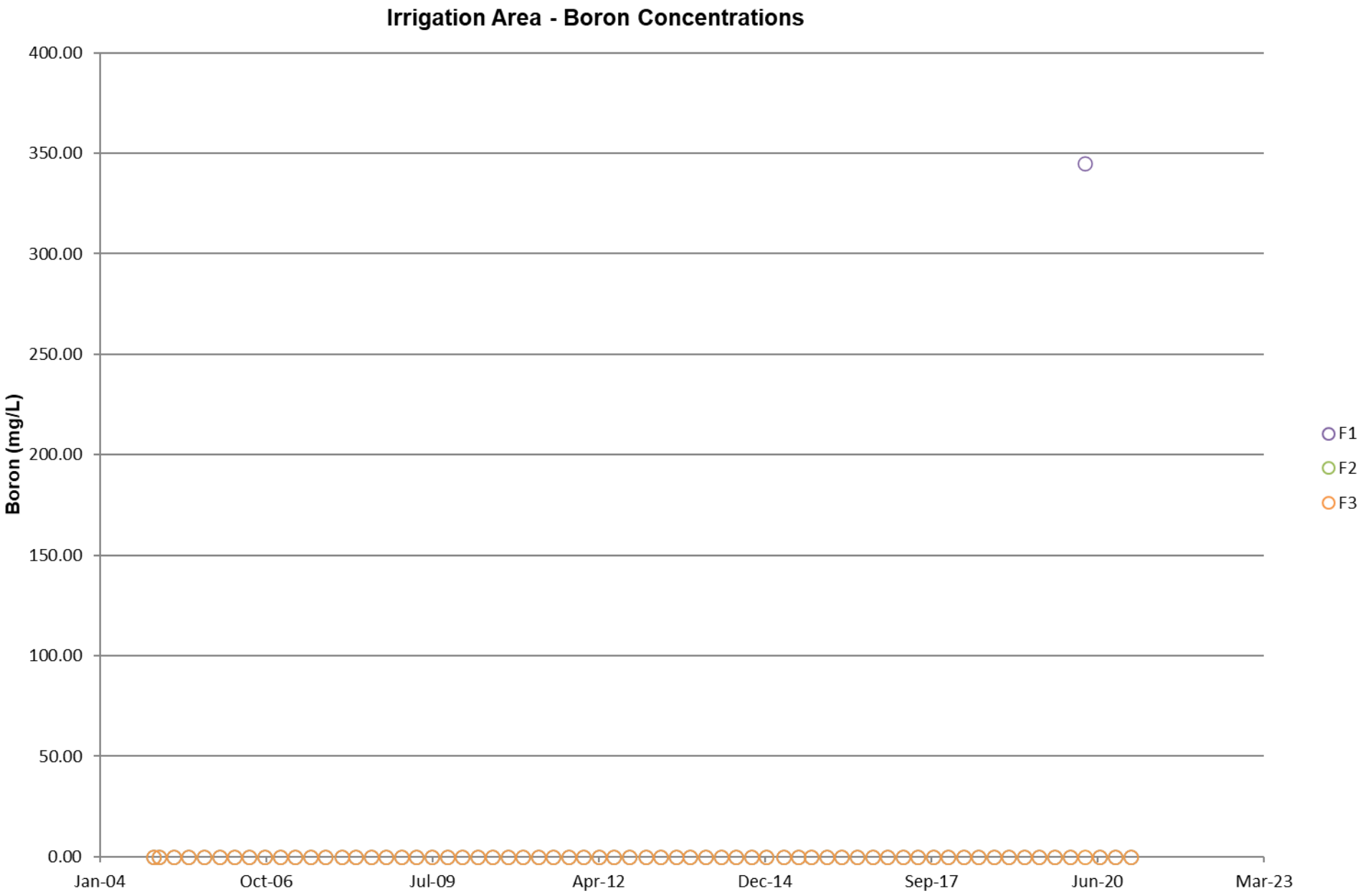

Sand Aquifer Downgrade of Old Landfill - Boron Concentrations
Boron (mg/L)
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
B1
B2
B3 (B3s)
C2
E2S
C1
C2DS
G2S

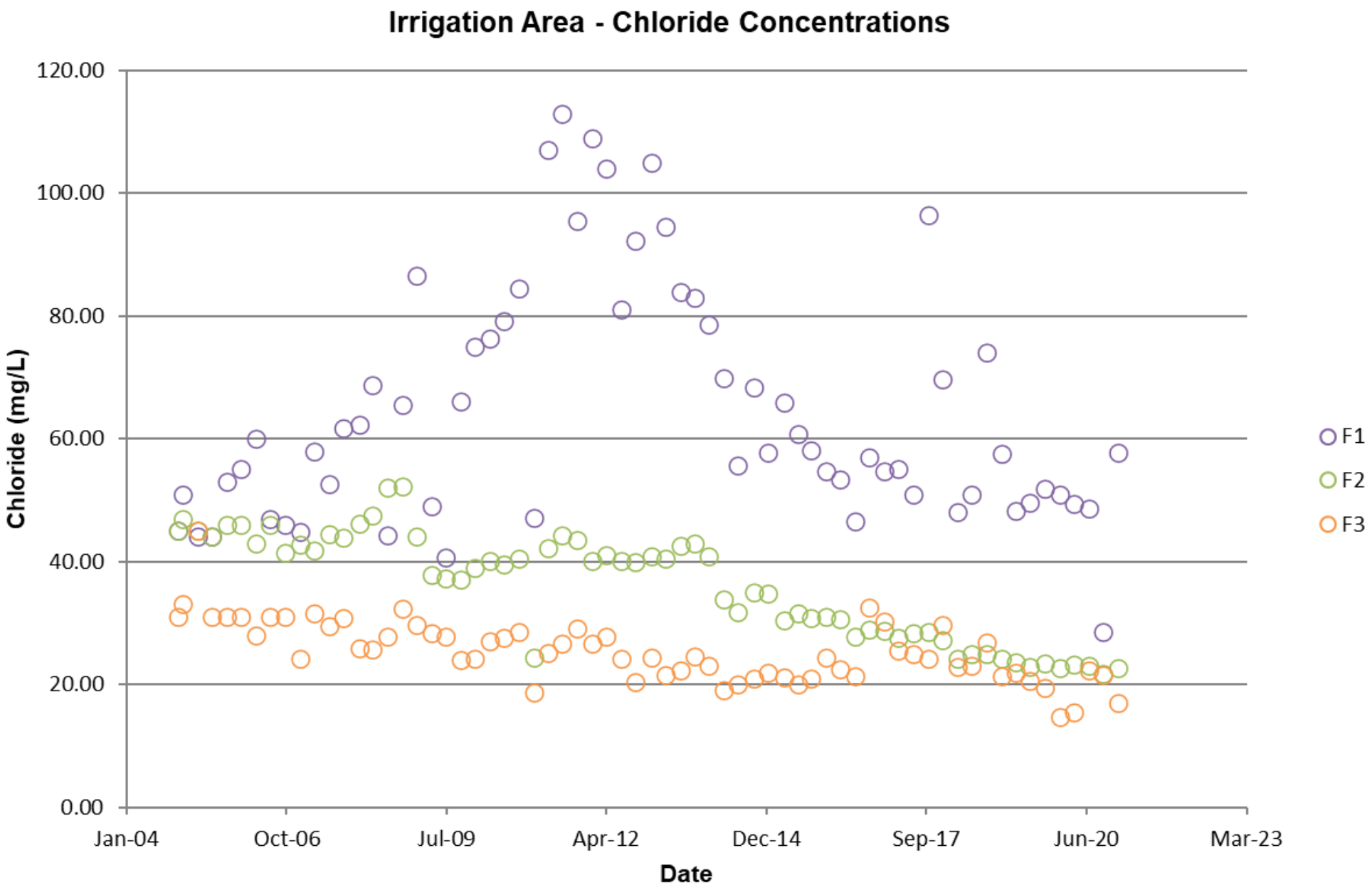

Sand Aquifer Downgrade of Old Landfill - Chloride Concentrations
Chloride (mg/L)
2500.00
2000.00
1500.00
1000.00
500.00
0.00
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
B1
B2
B3 (B3s)
C2
E2S
C1
C2DS
G2S

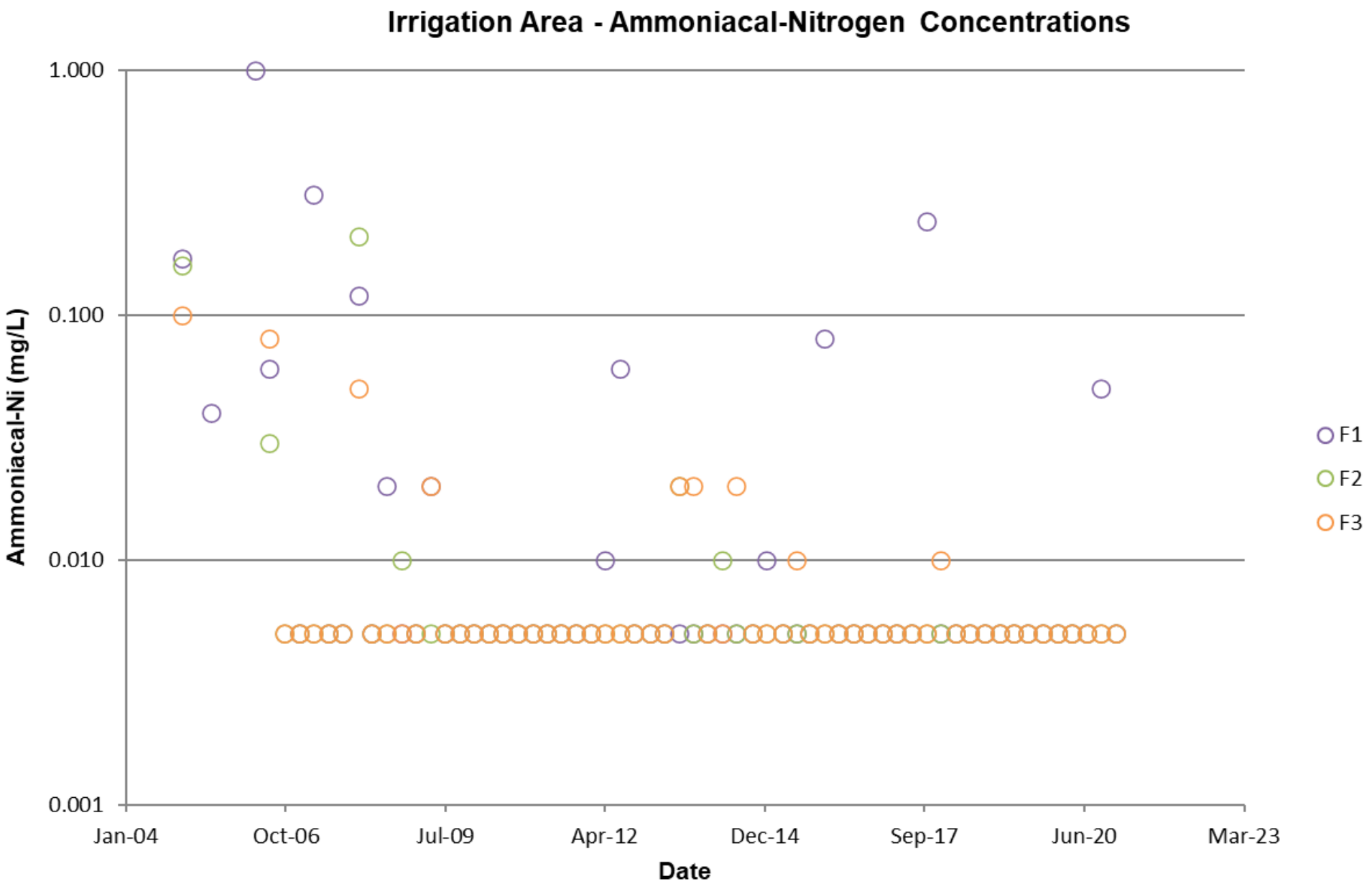

Sand Aquifer Downgrade of Old Landfill - Ammonia-N Concentrations
Ammonia-N (mg/L)
500.00
450.00
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
B1
B2
B3 (B3s)
C2
E2S
C1
C2DS
G2S

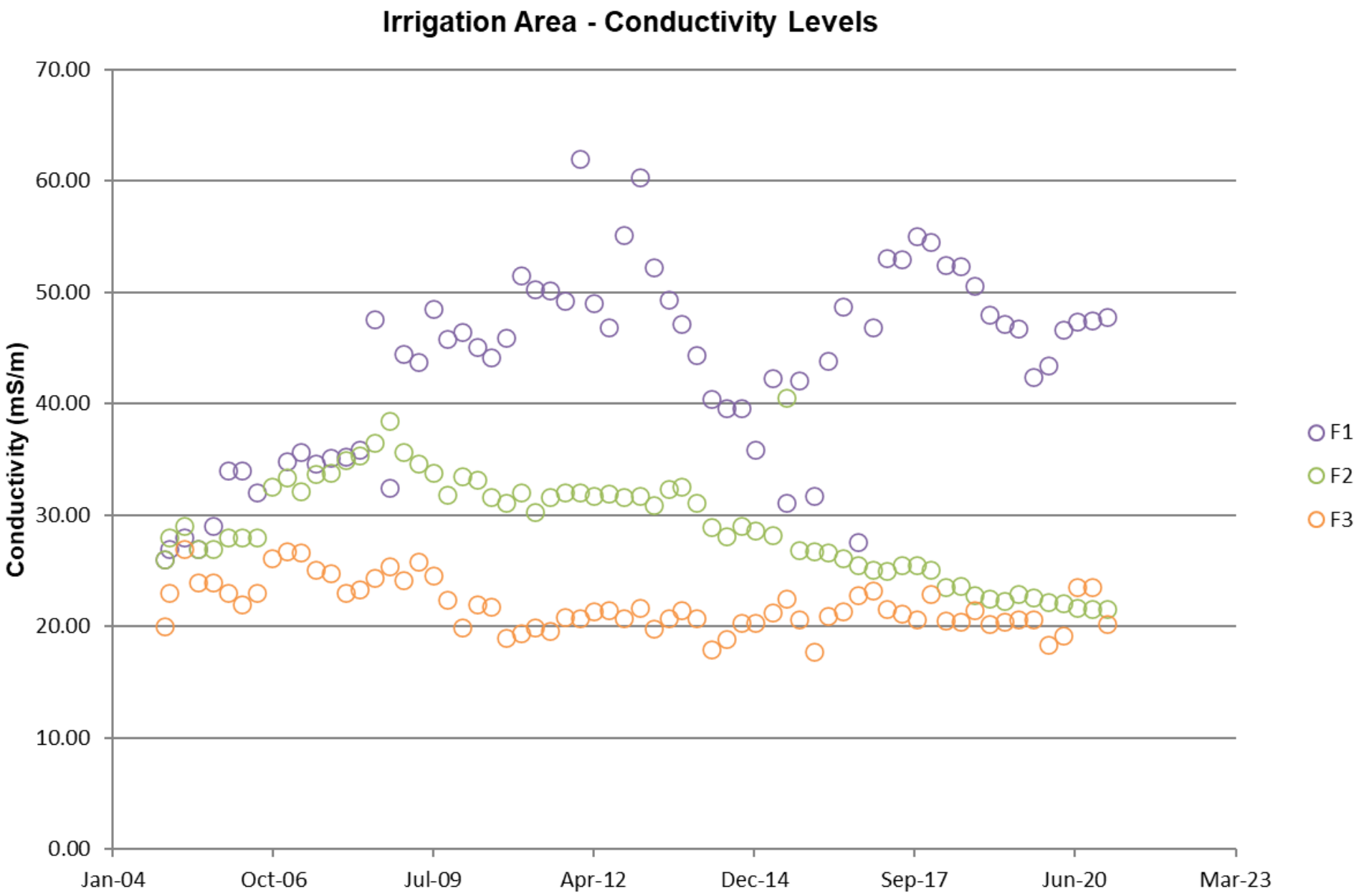

Sand Aquifer Downgrade of Old Landfill - Conductivity Levels
Conductivity (mS/m)
800.00
700.00
600.00
500.00
400.00
300.00
200.00
100.00
0.00
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
B1
B2
B3 (B3s)
C2
E2S
C1
C2DS
G2S

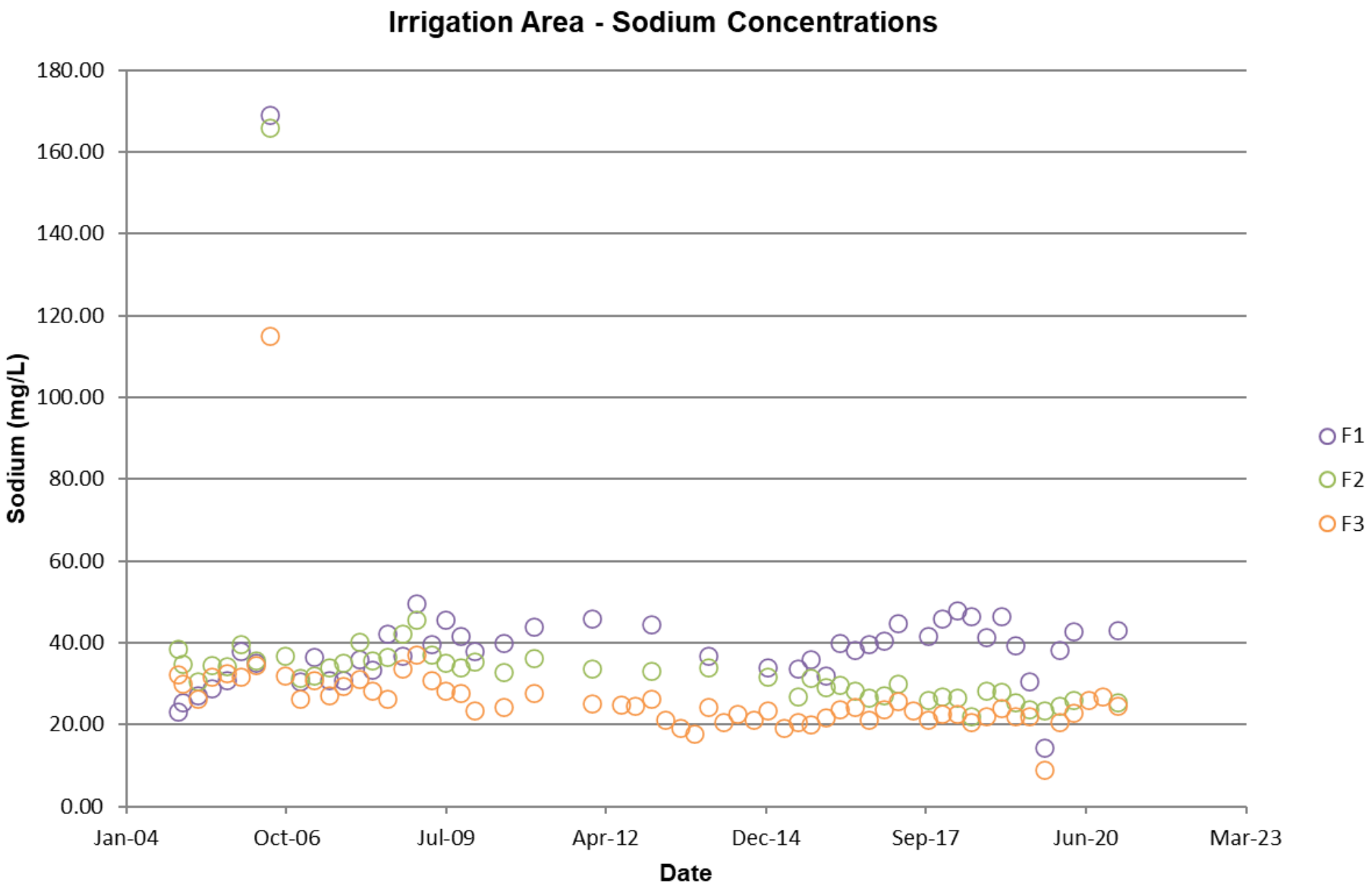

Sand Aquifer Downgrade of Old Landfill - Sodium Concentrations
Sodium (mg/L)
900.00
800.00
700.00
600.00
500.00
400.00
300.00
200.00
100.00
0.00
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
B1
B2
B3 (B3s)
C2
E2S
C1
C2DS
G2S

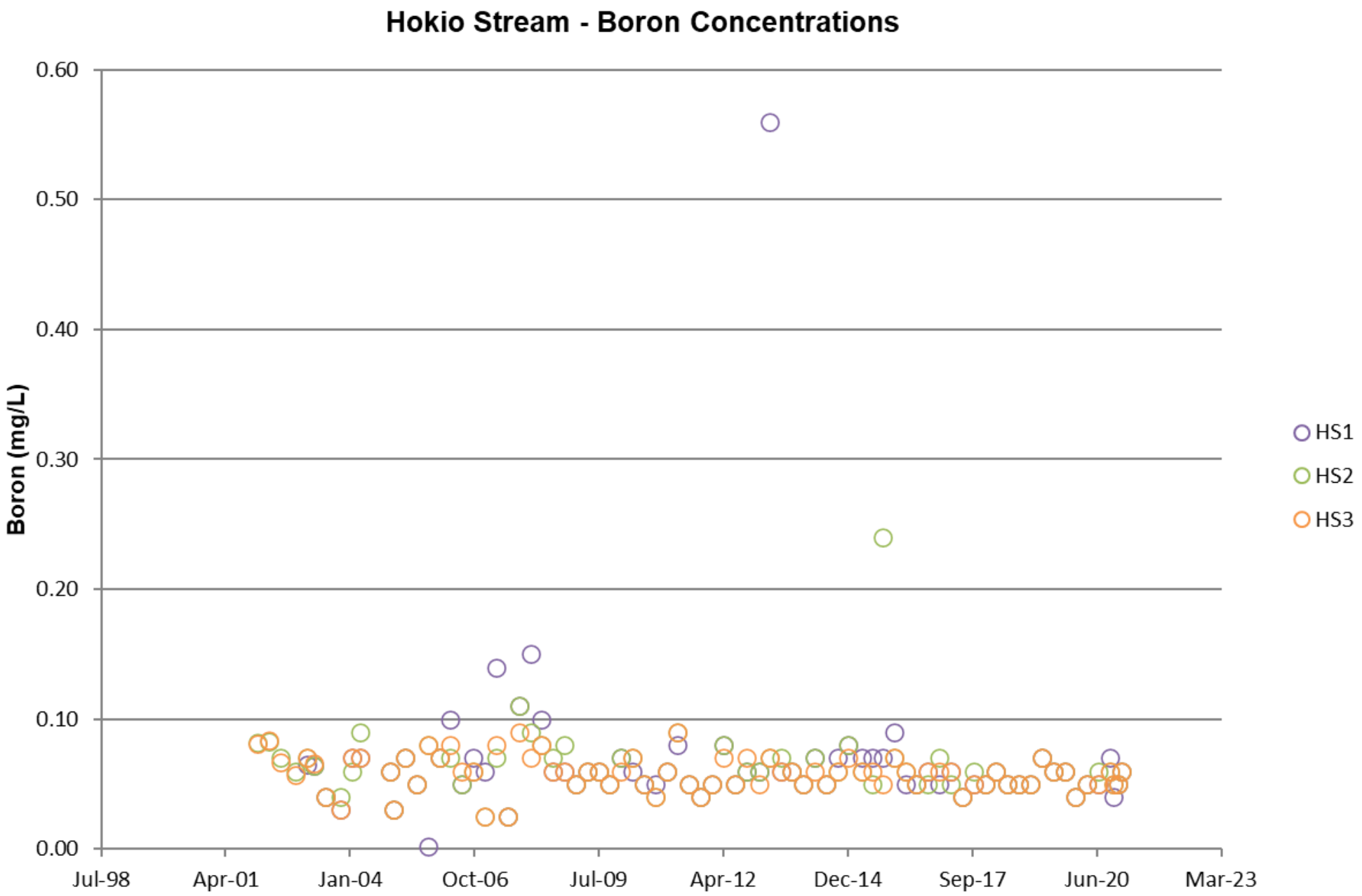

Irrigation Area - Boron Concentrations
Boron (mg/L)
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
F1
F2
F3

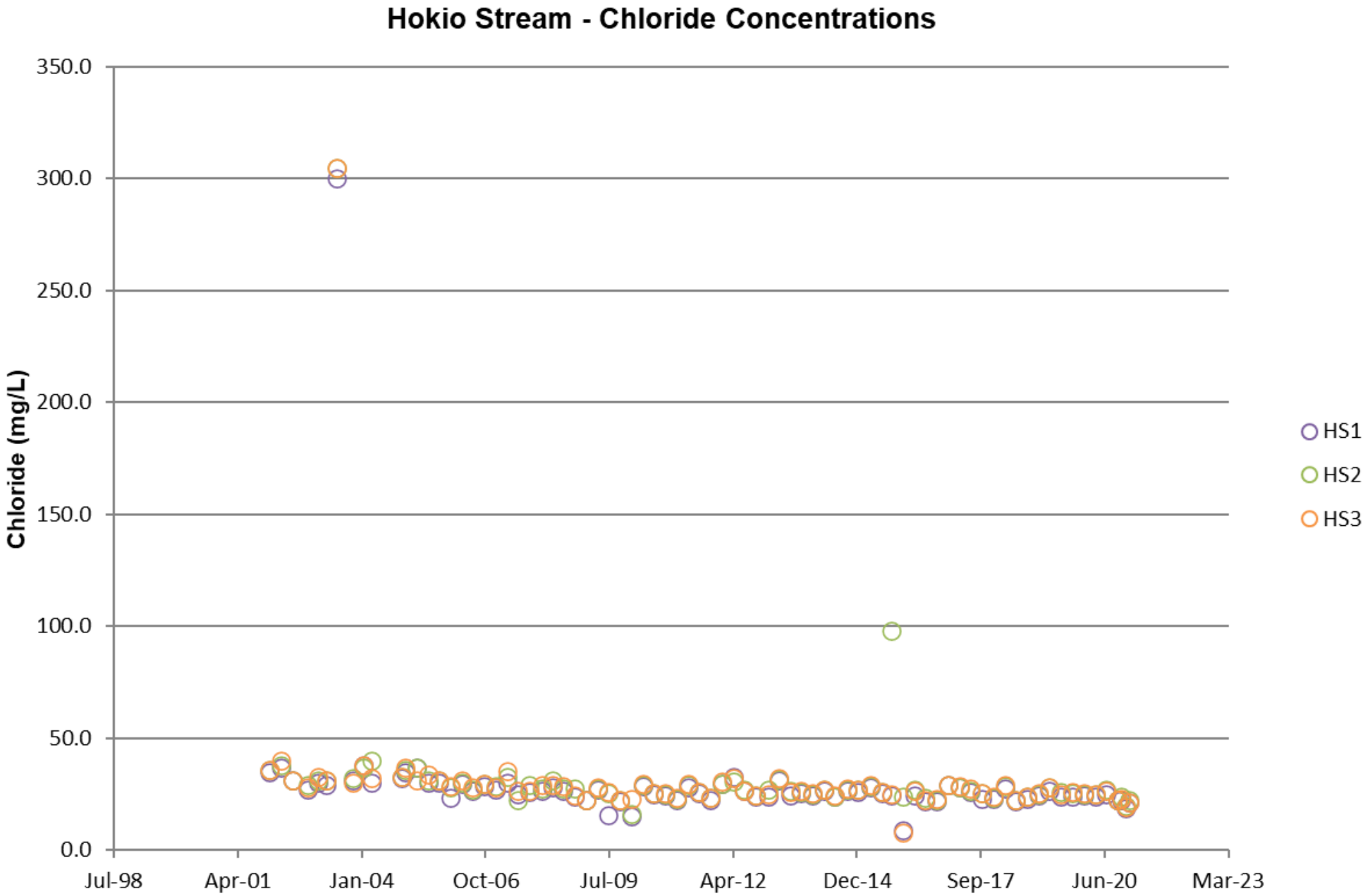

Irrigation Area - Chloride Concentrations
120.00
100.00
80.00
60.00
40.00
20.00
0.00
Chloride (mg/L)
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
Date
F1
F2
F3

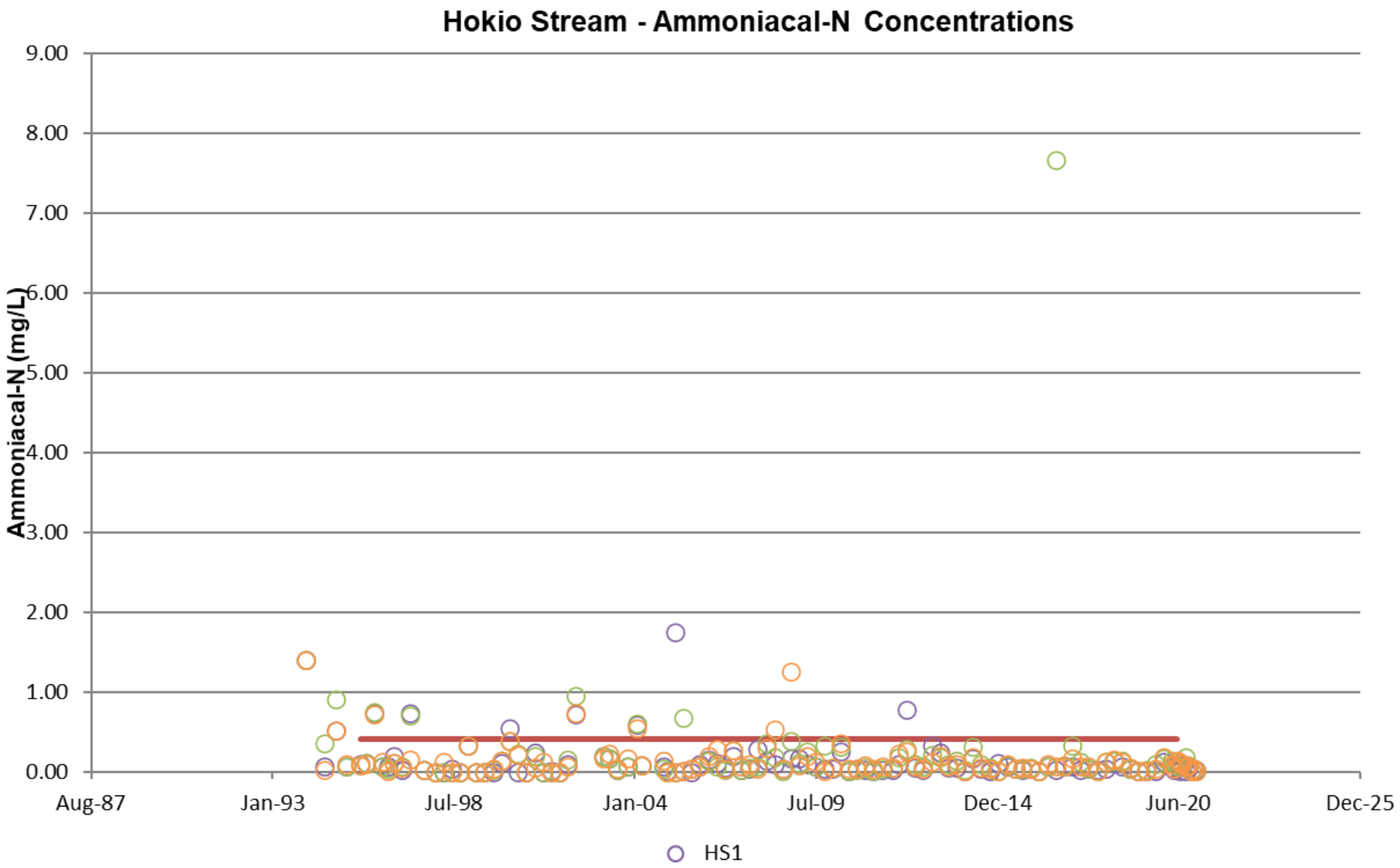

Irrigation Area - Ammoniacal-Nitrogen Concentrations
1.000
0.100
0.010
0.001
Ammoniacal-Ni (mg/L)
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
Date
F1
F2
F3

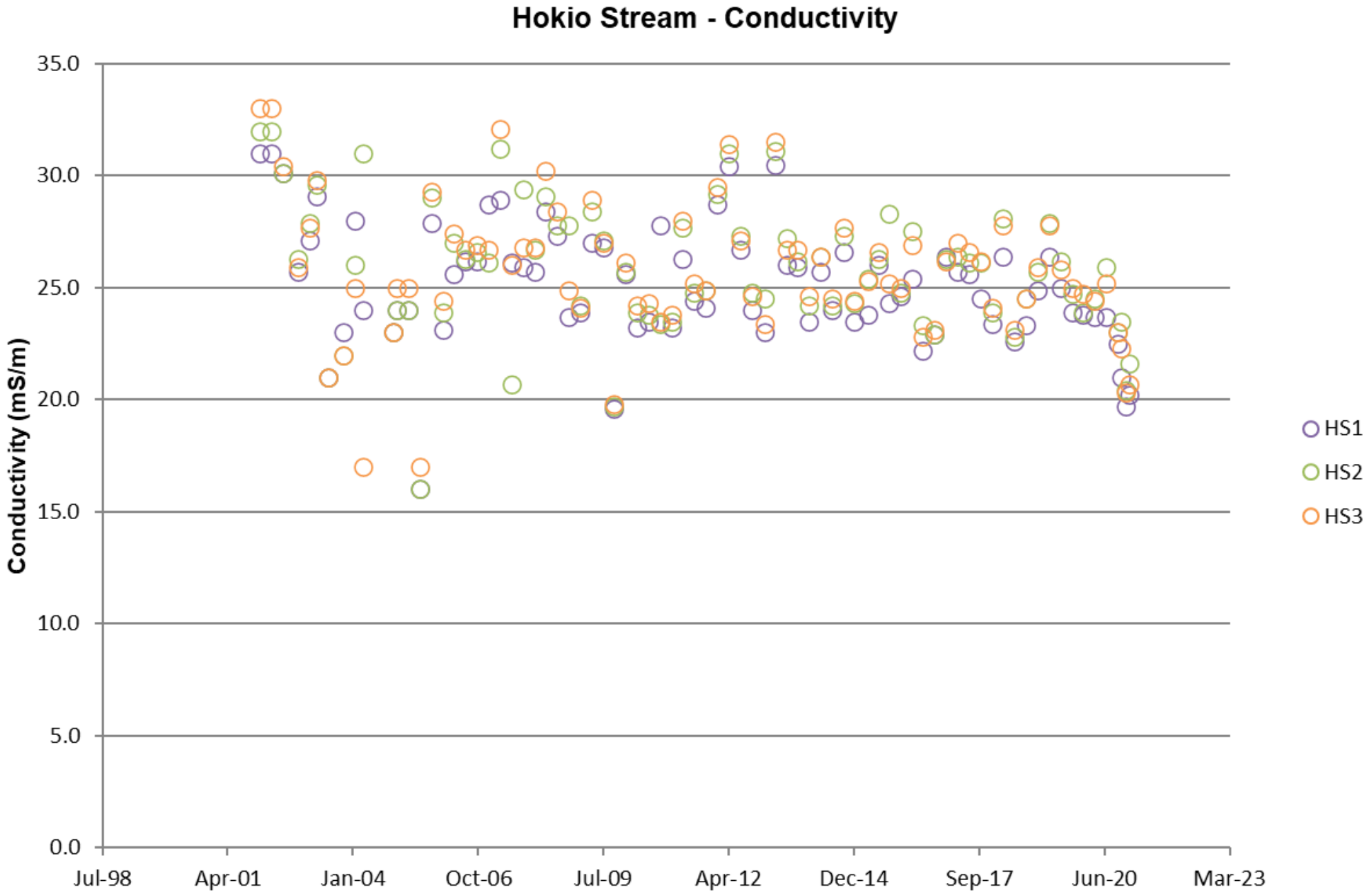

Irrigation Area - Conductivity Levels
Conductivity (mS/m)
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
F1
F2
F3

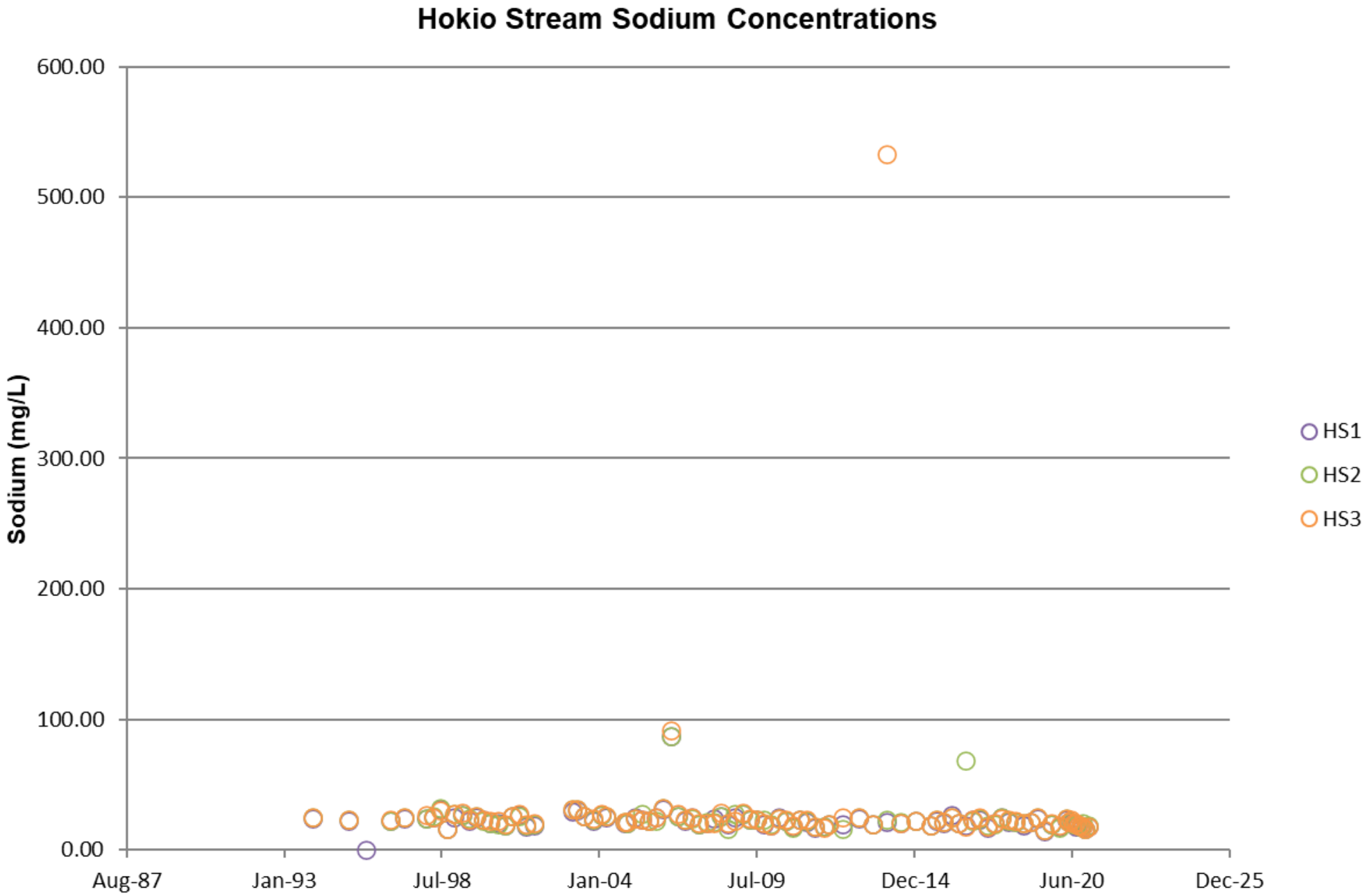

Irrigation Area - Sodium Concentrations
Sodium (mg/L)
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
Date
F1
F2
F3


Hokio Stream - Boron Concentrations
Boron (mg/L)
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
HS1
HS2
HS3


Hokio Stream - Chloride Concentrations
Chloride (mg/L)
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
HS1
HS2
HS3


Hokio Stream - Ammoniacal-N Concentrations
Ammoniacal-N (mg/L)
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
Jun-20
Dec-25
HS1


Hokio Stream - Conductivity
Conductivity (mS/m)
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
HS1
HS2
HS3


Hokio Stream Sodium Concentrations
Sodium (mg/L)
600.00
500.00
400.00
300.00
200.00
100.00
0.00
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
Jun-20
Dec-25
HS1
HS2
HS3

APPENDIX E GAS SAMPLING RESULTS AT GW BORES

Created	Entry Number	User	Borehole	Methane (CH4)	Carbon Dioxide (CO2)	Hydrogen Sulphide (H2S)	Oxygen (O2)	Weather conditions	Air temperature °C
05-01-21 19:46	113433	Elysia Kinross	Levin Landfill: Levin B1	0.62	0.13	0	20.6	Sunny	18
05-01-21 19:50	113434	Elysia Kinross	Levin Landfill: Levin B2	0.71	0.16	0	20.4	Sunny	18
05-01-21 19:51	113435	Elysia Kinross	Levin Landfill: Levin B3s	0.09	0.03	0	21	Sunny	18
05-01-21 19:52	113436	Elysia Kinross	Levin Landfill: Levin C1	0.08	0.23	0	20.8	Sunny	18
05-01-21 19:53	113437	Elysia Kinross	Levin Landfill: Levin C2	0.73	21.5	0	21.5	Sunny	18
05-01-21 19:54	113438	Elysia Kinross	Levin Landfill: Levin C2dd	0.16	0.1	0	21.3	Sunny	18
05-01-21 19:55	113439	Elysia Kinross	Levin Landfill: Levin C2ds	0.17	0.08	0	21.1	Sunny	18
05-01-21 19:56	113440	Elysia Kinross	Levin Landfill: Levin D1	0.65	0	0	20.5	Sunnny	21
05-01-21 19:57	113441	Elysia Kinross	Levin Landfill: Levin D2	0	0.28	0	21	Sunny	21
05-01-21 19:58	113442	Elysia Kinross	Levin Landfill: Levin D3	0.94	0.03	0	203	Sunny	21
05-01-21 19:59	113443	Elysia Kinross	Levin Landfill: Levin D4	0.95	0.04	0	20.9	Sunny	21
05-01-21 20:00	113444	Elysia Kinross	Levin Landfill: Levin D5	0.04	0.04	0	20.9	Sunny	21
05-01-21 20:01	113445	Elysia Kinross	Levin Landfill: Levin D6	0.7	0.6	0	21.1	Sunny	21
05-01-21 20:03	113446	Elysia Kinross	Levin Landfill: Levin E1d	0.69	0.04	0	21.1	Sunnny	21
05-01-21 20:04	113447	Elysia Kinross	Levin Landfill: Levin E1s	0.84	0.05	0	21.1	Sunny	21
05-01-21 20:05	113448	Elysia Kinross	Levin Landfill: Levin E2s	0	0.09	0	21	Sunny	18
05-01-21 20:06	113449	Elysia Kinross	Levin Landfill: Levin E2d	0	0.14	0	20.4	Sunny	18
05-01-21 20:07	113450	Elysia Kinross	Levin Landfill: Levin F1	0.75	0	0	20.7	Sunny	21
05-01-21 20:08	113451	Elysia Kinross	Levin Landfill: Levin F2	0.45	0.02	0	20.6	Sunny	21
05-01-21 20:09	113452	Elysia Kinross	Levin Landfill: Levin F3	0.91	0.02	0	20.5	Sunny	21
05-01-21 20:11	113453	Elysia Kinross	Levin Landfill: Levin G1d	0.24	0.07	0	20.9	Sunny	21
05-01-21 20:12	113454	Elysia Kinross	Levin Landfill: Levin G1s	0.49	0.07	0	20.9	Sunny	21
05-01-21 20:12	113455	Elysia Kinross	Levin Landfill: Levin G2s	0.09	0.6	0	20.7	Sunny	18

CREATING COMMUNITIES

Communities are fundamental. Whether around the corner or across the globe, they provide a foundation, a sense of belonging. That's why at Stantec, we always **design with community in mind**.

We care about the communities we serve—because they're our communities too. We're designers, engineers, scientists, and project managers, innovating together at the intersection of community, creativity, and client relationships. Balancing these priorities results in projects that advance the quality of life in communities across the globe.

New Zealand offices:
Alexandra, Auckland, Balclutha, Christchurch, Dunedin, Gisborne, Greymouth, Hamilton, Hastings, Napier, Nelson, Palmerston North, Queenstown, Tauranga, Wellington, Whangārei

Stantec
118 Fitzherbert Avenue, Palmerston North 4410
PO Box 13-052, Armagh, Christchurch, 8141
New Zealand: +64 6 357 4034 | www.stantec.com