# 2024/2025 ANNUAL MONITORING REPORT - CRESWICK LANDFILL

## Hepburn Shire Council
## 29/09/2025

**COMMERCIAL IN CONFIDENCE**

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# Table of Contents

Executive Summary ..... 1
Groundwater ..... 1
Surface Water ..... 1
Leachate ..... 1
Subsurface Landfill Gas ..... 2
Surface Emmisson Landfill Gas ..... 2
1. Introduction ..... 3
2. Monitoring Program Overview ..... 3
2.1. Site Context ..... 3
2.2. Scope of Works ..... 3
3. Sampling and Analysis Schedule ..... 6
3.1. Groundwater ..... 6
3.2. Leachate Sites ..... 6
3.3. Surface Water Sampling ..... 7
3.4. Subsurface Landfill Gas ..... 7
3.5. Surface Emission Landfill Gas ..... 7
4. Sampling Methodology ..... 8
4.1. Field Measurements ..... 8
4.2. Low Flow Sampling ..... 8
4.3. Grab Sampling ..... 8
4.4. Subsurface Landfill Gas Monitoring ..... 8
4.5. Surface Emission Landfill Gas Monitoring ..... 9
5. Reporting ..... 9
5.1. Assessment Criteria ..... 9
5.1.1. Groundwater and Surface Water Quality Objectives ..... 9
5.1.2. Landfill Gas Bore Action Levels ..... 10
5.1.3. Landfill Gas Surface Emission Action Levels ..... 10
6. Water Monitoring Results ..... 11
6.1. Groundwater Monitoring Results ..... 11
6.1.1 Groundwater Gauging ..... 11
6.1.2 Groundwater Quality ..... 12
6.1.3 Groundwater Trend Graphs ..... 16
6.2. Surface Water and Leachate Monitoring Results ..... 31
6.2.1 Surface Water Quality ..... 31
6.2.2 Surface Water Trend Graphs ..... 32

6.3. Leachate Monitoring Results ..... 42
7. Subsurface Gas Bore Monitoring Results ..... 43
8. Surface Emission Monitoring Results ..... 43
8.1. Buildings and Services ..... 43
8.2. Landfill Cap Walk Over ..... 43
9. Quality Control / Quality Assurance ..... 44
9.1. Program ..... 44
9.2. Results ..... 45
10. Conclusions ..... 47
10.1. Groundwater ..... 47
10.2. Surface Water ..... 47
10.3. Leachate ..... 47
10.4. Subsurface Landfill Gas ..... 47
10.5. Surface Emission Landfill Gas ..... 47
10.6. Data Uncertainty and Statement of Limitations ..... 48
11. Declaration ..... 49
12. References ..... 50
Appendices ..... 72
Appendix A – Field Record Sheets ..... 72
Appendix B – Laboratory Results ..... 106
Appendix C – QA QC Results ..... 122
Appendix D – Laboratory Reports ..... 123
Appendix E – All Historical Records ..... 220

# EXECUTIVE SUMMARY

Ventia Utility Services Pty Ltd has been engaged by the Hepburn Shire Council to undertake groundwater and landfill gas monitoring and reporting at the Creswick landfill site. This report summarises the major findings of the 2024/2025 monitoring program and provides further interpretation of results.

The monitoring program is required to satisfy specific Environmental Performance Conditions detailed in the Creswick Landfill, Aftercare Management Plan, Part 2: Environmental Risk Assessment and Monitoring Program, prepared by Mackenzie Environmental in 2015 for the Hepburn Shire Council.

The environmental monitoring program comprises of quarterly gas bore monitoring, groundwater and surface water monitoring and surface emissions and underground services monitoring, with an annual cap walk over. The monitoring network consists of ten groundwater monitoring locations, three leachate bores and five surface water sites and one leachate pond (three creek sites, one wetland, one dredge hole and the leachate pond), four subsurface gas bore monitoring locations, as well as landfill cap surface emissions, building and underground services monitoring.

## GROUNDWATER

All groundwater sites exceeded at least one of the adopted assessment criteria during each monitoring event (ANZECC 2000 guidelines for Fresh Water 95%, Irrigation and Livestock and the groundwater quality objectives as nominated by the Aftercare Management Plan). Results were in line with historic trends at the majority of monitoring bores.

Manganese was the most consistently recorded exceedance at five bore locations against the ANZECC 2000 Fresh Water 95% guideline, with nitrate (as N) also showing exceedances for this gudelines at two locations. Manganese exceedances against the ANZECC 2000 Irrigation guidelines were also detected at four locations, along with chloride at six bores and sodium at five bores. Zinc was excluded from the 2024/2025 monitoring program due to not being included within the laboratory quote. There were no detected exceedances against the ANZEC 2000 Livestock guidelines. All locations, with the exception of BH1 and BH6 were in breach of the groundwater quality objectives as nominated by the Aftercare Management Plan for iron and at five locations for chromium (III+VI).

## SURFACE WATER

During the 2024/2025 monitoring program, one site exceeded the surface water quality objectives adopted for assessment criteria (nominated by the Aftercare Management Plan). Ammonia was the only analyte to record above the objective level at Leachate Pond.

Four locations recorded exceedances for chloride against the ANZECC Irrigation 2000 Guidelines, with two sites also in exceedance of sodium concentrations. Zinc was excluded from the 2024/2025 monitoring program due to not being included within the laboratory quote. Results throughout 2024/2025 were generally consistent with historical data. It is difficult to determine the impact of the landfill in isolation of surrounding land uses.

## LEACHATE

Leachate bores LB1, LB2 and LB3 were monitored biannually. Leachate levels were only able to be calculated for LB3 in February 2024 as it was dry in February 2025. Both LB1 and LB2 were unable to be gauged due to being blocked or dry during both events. LB3 exceeded allowable leachate levels in July 2024 at 0.55 m.

# Table of Contents

Executive Summary ..... 1
Groundwater ..... 1
Surface Water ..... 1
Leachate ..... 1
Subsurface Landfill Gas ..... 2
Surface Emmisson Landfill Gas ..... 2
1. Introduction ..... 3
2. Monitoring Program Overview ..... 3
2.1. Site Context ..... 3
2.2. Scope of Works ..... 3
3. Sampling and Analysis Schedule ..... 6
3.1. Groundwater ..... 6
3.2. Leachate Sites ..... 6
3.3. Surface Water Sampling ..... 7
3.4. Subsurface Landfill Gas ..... 7
3.5. Surface Emission Landfill Gas ..... 7
4. Sampling Methodology ..... 8
4.1. Field Measurements ..... 8
4.2. Low Flow Sampling ..... 8
4.3. Grab Sampling ..... 8
4.4. Subsurface Landfill Gas Monitoring ..... 8
4.5. Surface Emission Landfill Gas Monitoring ..... 9
5. Reporting ..... 9
5.1. Assessment Criteria ..... 9
5.1.1. Groundwater and Surface Water Quality Objectives ..... 9
5.1.2. Landfill Gas Bore Action Levels ..... 10
5.1.3. Landfill Gas Surface Emission Action Levels ..... 10
6. Water Monitoring Results ..... 11
6.1. Groundwater Monitoring Results ..... 11
6.1.1 Groundwater Gauging ..... 11
6.1.2 Groundwater Quality ..... 12
6.1.3 Groundwater Trend Graphs ..... 16
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6.2.2 Surface Water Trend Graphs ..... 32

6.3. Leachate Monitoring Results ..... 42
7. Subsurface Gas Bore Monitoring Results ..... 43
8. Surface Emission Monitoring Results ..... 43
8.1. Buildings and Services ..... 43
8.2. Landfill Cap Walk Over ..... 43
9. Quality Control / Quality Assurance ..... 44
9.1. Program ..... 44
9.2. Results ..... 45
10. Conclusions ..... 47
10.1. Groundwater ..... 47
10.2. Surface Water ..... 47
10.3. Leachate ..... 47
10.4. Subsurface Landfill Gas ..... 47
10.5. Surface Emission Landfill Gas ..... 47
10.6. Data Uncertainty and Statement of Limitations ..... 48
11. Declaration ..... 49
12. References ..... 50
Appendices ..... 72
Appendix A – Field Record Sheets ..... 72
Appendix B – Laboratory Results ..... 106
Appendix C – QA QC Results ..... 122
Appendix D – Laboratory Reports ..... 123
Appendix E – All Historical Records ..... 220

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### Subsurface Landfill Gas

Subsurface landfill gas monitoring was performed in July 2024 and February 2025. There are four dedicated gas bores gauged, however BH12 landfill gas concentration results are not compared against the adopted action levels given its location within the waste mass. Peak methane concentrations exceeded the assessment criteria levels at BH11 during the July 2024 and February 2025 monitoring events. There were no peak carbon dioxide exceedances of assessment criteria levels at BH9, BH10 or BH11 during either monitoring event. BH12, (located within the waste mass), displays expected high levels of methane and carbon dioxide.

### Surface Emmisson Landfill Gas

All methane surface emission readings recorded for the capped landfill surface, buildings, structures and underground services during the 2024/2025 monitoring events were below the prescribed Landfill BPEM action levels indicating very low surface emission methane levels onsite.

# 1. INTRODUCTION

Ventia Utility Services Pty Ltd (Ventia) was engaged by Hepburn Shire Council to undertake groundwater and landfill gas monitoring and reporting at the former Creswick Landfill located at 32 Anne Street, Creswick, Victoria (the site) and current Creswick Transfer Station located on the Ring Road in Creswick, approximately 1.4 km north-west of the city centre.

The landfill operated from the 1960s and is believed to have closed in 2001. When licensed, the landfill could accept a range of wastes including municipal solid waste. It was in the void of a former gold mine and gravel quarry and after it closed, the landfill was capped in 2001. The site is now the location of a transfer station.

# 2. MONITORING PROGRAM OVERVIEW

## 2.1. SITE CONTEXT

Landfill monitoring is undertaken at this site in response to EPA Pollution Abatement Notices (PANs ID 9003558 and 9003559) issued in relation to the rehabilitation of the site. The original PANs were to prepare a hydrogeological assessment and the preparation of a landfill cap assessment. The *assessments* (Mackenzie Environmental, 2015a; 2015b; 2015c, and Senversa, 2016) were satisfied by EPA in 2016 (PAN ID 90006899). The monitoring program is a response to the assessments. The monitoring program is required to satisfy specific Environmental Performance Conditions detailed in the Creswick Landfill Aftercare Management Plan Part 2: Environmental Risk Assessment and Monitoring Program, prepared by Mackenzie Environmental in 2015 for the Hepburn Shire Council.

The landfill is in a former gold mine and gravel quarry and operated from the 1960s and closed in 2001. The landfill was capped in 2001 and now operates as a waste transfer station. The site is located approximately one kilometre from the Creswick town centre and is bounded by unoccupied land to the west and north-west which includes a flooded mine. Creswick Creek is 70 meters north of the site. There is privately owned semi-rural land to the south.

## 2.2. SCOPE OF WORKS

Ventia was engaged to undertake groundwater, surface water and landfill gas monitoring at the Creswick landfill comprising:

- Quarterly monitoring of the 10 groundwater bores;
- Quarterly monitoring of the 3 leachate bores and the leachate pond;
- Quarterly monitoring of the 3 creek sites, dredge hole and wetland;
- Quarterly monitoring of 4 landfill gas bores;
- Quarterly monitoring of the buildings and services; and
- Annual surface emissions monitoring of the landfill cap.

A map of the landfill gas bores, buildings and service locations, walk over grid, groundwater and surface Water sites is provided in Figure 1, Figure 2, Figure 3 and Figure 4.

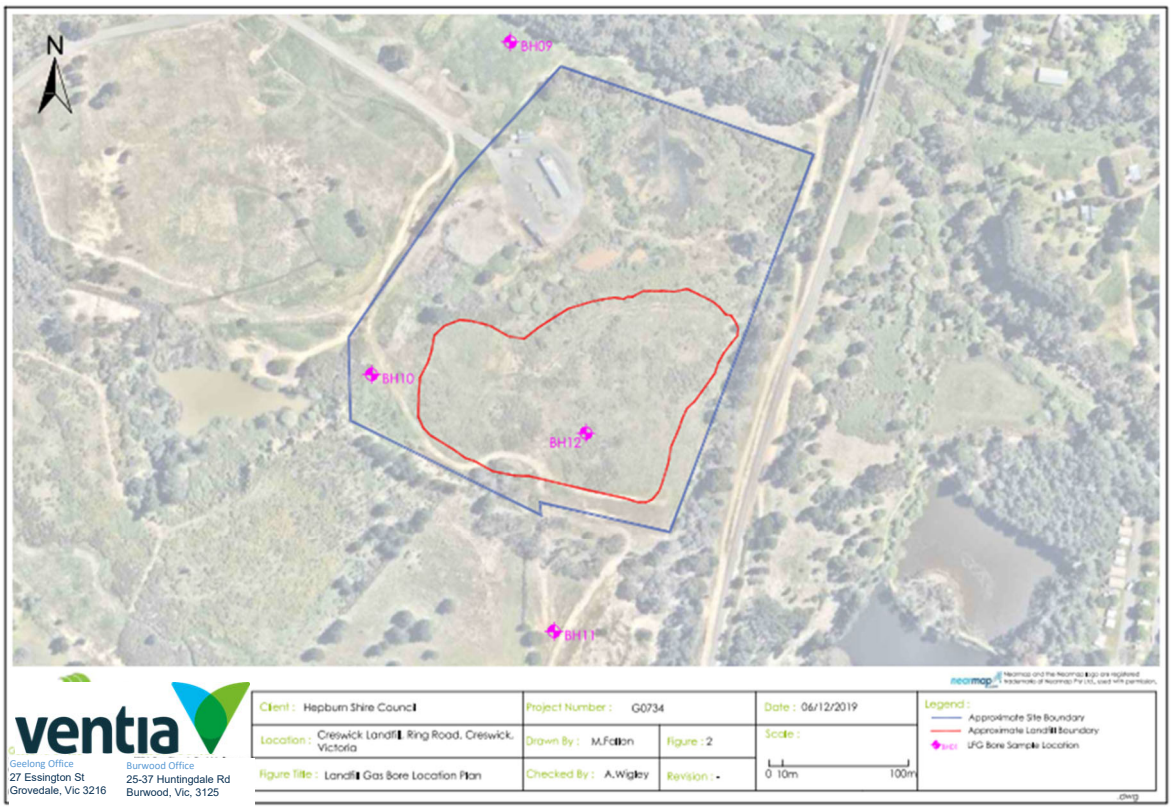



*Figure 1 Site location and Landfill Gas Bores*

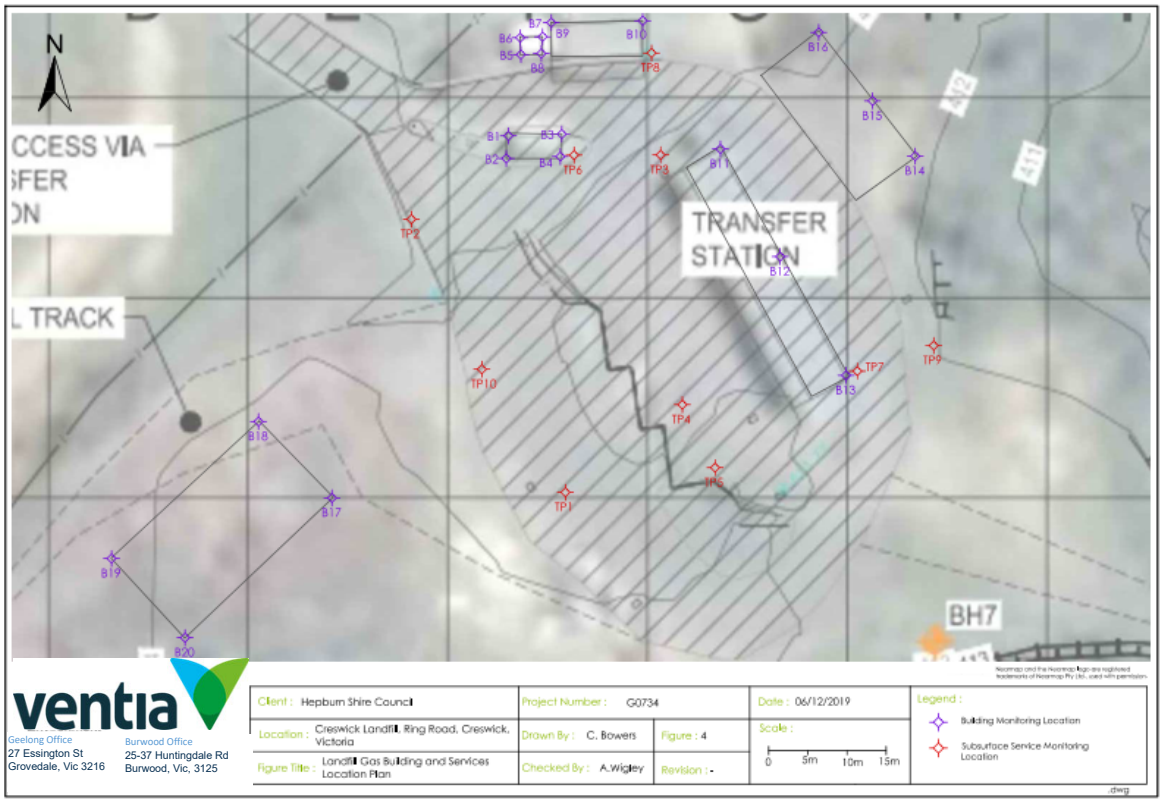



*Figure 2 Buildings and Service Pits Gas Monitoring Locations*

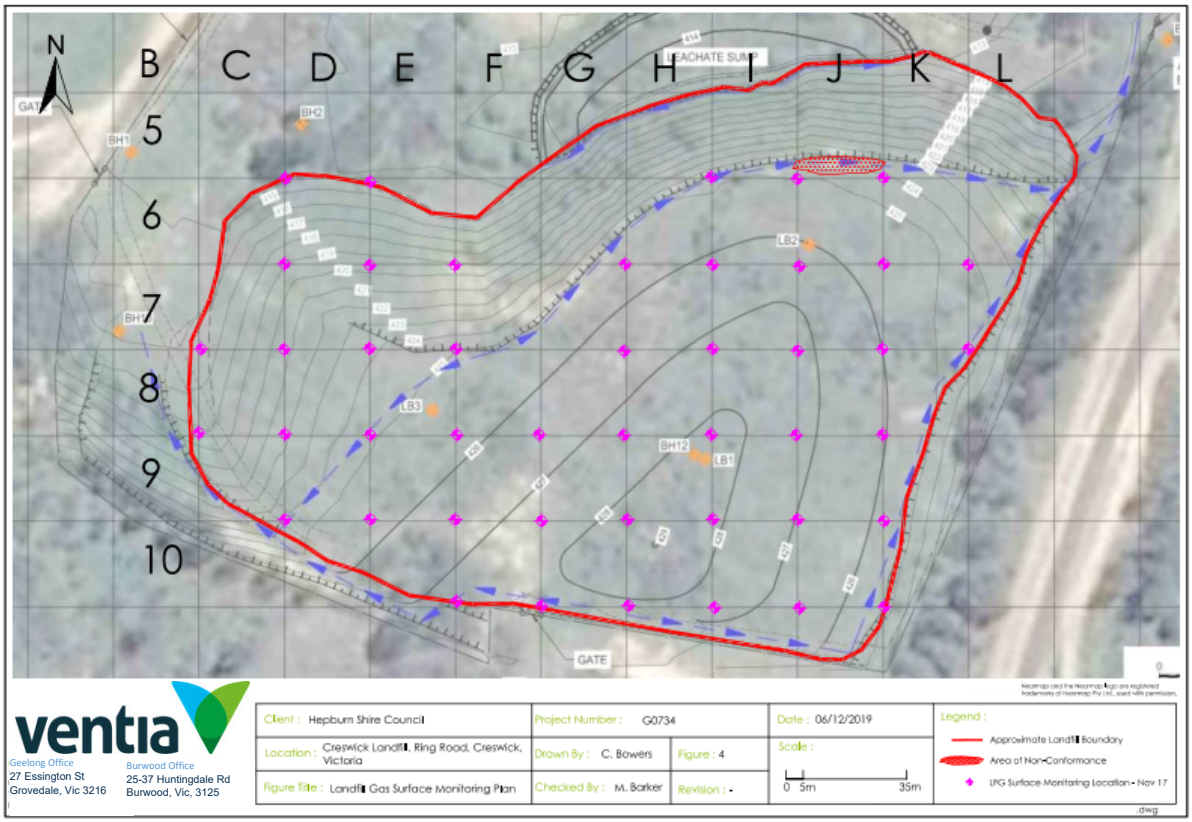



*Figure 3 Landfill Gas Walkover grid*

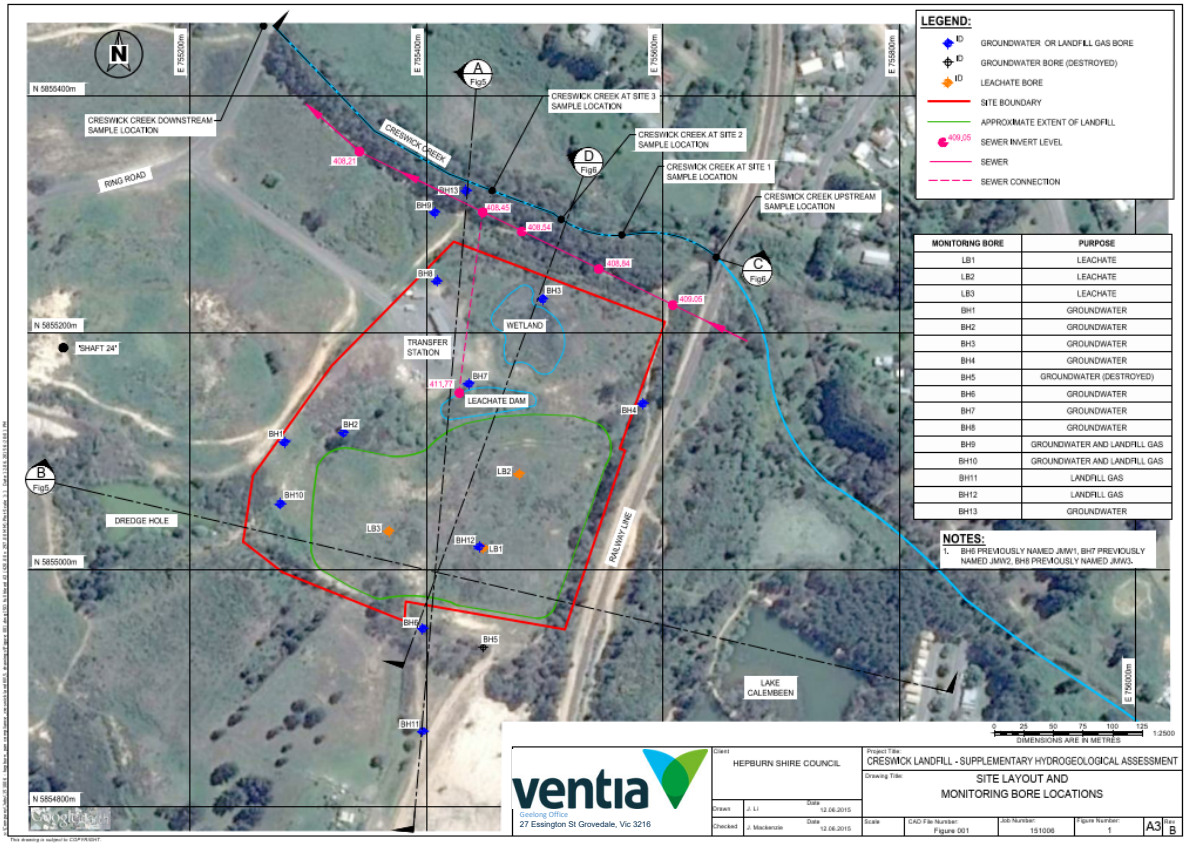



*Figure 4 Groundwater and Surface Water sites*

# 3. SAMPLING AND ANALYSIS SCHEDULE

## 3.1. GROUNDWATER

Ten groundwater bores were monitored in 2024/2025 monitoring program (Table 1). Biannual groundwater monitoring was undertaken during July 2024 and February 2025.

All bores, except the ones with limitations, were sampled via low flow techniques. BH2 which is usually bailed as there is restricted access to this bore and there is a bend in the bore casing. BH8 casing has broken away and this location must be sampled using a bailer. BH9 is usually dry and is sampled only if water is present.

BH1 was noted as destroyed since 2021 due to resurfacing works in the area. Prior to the February 2025 sampling event Hepburn Shire Council organised to have a new bore drilled at this location and have designated it BH1R.

*Table 1 Groundwater Bore Sites*

| NO | Bore | Installation Date | Northing (Zone 54) | Eastings (Zone 54) | Screen Depth (mBGL) | Installation Depth (mBGL) | Elevation, TOC (mAHD) |
|---|---|---|---|---|---|---|---|
| 1 | BH1R | - | - | - | - | - | 414.81 |
| 2 | BH2 | - | 5855119.969 | 755327.845 | - | 5.0 | 415.62 |
| 3 | BH3 | - | 5855234.647 | 755500.589 | 0.8-3.8 | 3.8 | 410.96 |
| 4 | BH4 | - | 5855143.450 | 755576.651 | - | 4.1 | 417.35 |
| 5 | BH6 | 21/10/2014 | 5854950.561 | 755397.535 | 10.8-13.8 | 14.6 | 429.16 |
| 6 | BH7 | 21/10/2014 | 5855157.901 | 755436.982 | 2.8-5.8 | 7.0 | 412.97 |
| 7 | BH8 | 22/10/2014 | 5855244.875 | 755409.825 | 3.0-6.0 | 7.0 | 414.12 |
| 8 | BH10 | 19/03/2015 | 5855055.470 | 755276.630 | 1.0-6.0 | 6.0 | 416.80 |
| 9 | BH12 | 19/03/2015 | 5855019.340 | 755444.920 | 1.0-4.0 | 4.0 | 427.06 |
| 10 | BH14 | 25/10/2017 | 5855322.800 | 755416.600 | 1.5-5.5 | 5.5 | 412.47 |
| * | BH1# | - | 5855118.996 | 755287.058 | - | 15.9 | 414.68 |
| * | BH5 | Destroyed | | | | | |
| * | BH9 | 19/03/2015 | 5855301.770 | 755407.130 | 1.0-6.4 | 6.4 | 414.80 |
| * | BH11 | 19/03/2015 | 5854863.420 | 755397.000 | 1.0-10.0 | 10.0 | 429.80 |
| * | BH13 | 25/03/2015 | 5855326.160 | 755433.950 | 1.0-2.25 | 2.25 | 409.26 |

Notes:
# Bore location was lost since February 2021 due to road resurfacing;
* Decommissioned bores.

## 3.2. LEACHATE SITES

Three leachate monitoring bores (LB1-LB3) were included in the in July 2024 and February 2025 events (see Table 2).

LB1 and LB2 were not able to be sampled during the 2024/2025 monitoring period as they were blocked or dry. LB3 was measured for standing water level only as per the Management Plan 2015. When possible, a sample is taken from the Leachate Pond when there is water present, during the 2024/2025 monitoring program the Leachate Pond was able to be sampled during both events.

*Table 2 Leachate Bore Sites*

| Bore | Easting | Northing | Bore Elevation* | Maximum Leachate Levels |
|---|---|---|---|---|
| | | | mAHD | mAHD |
| **LB1** | 755448.3 | 5855018.1 | 427.10 | 414.9 |
| **LB2** | 755478.6 | 5855081.2 | 426.57 | 412.3 |
| **LB3** | 755368.4 | 5855032.8 | 426.10 | 414.8 |

* Top of the PVC

## 3.3. Surface Water Sampling

Surface water sampling is undertaken at Creswick at five locations including upstream of BH03, at BH03, downstream of BH03, the dredge hole and the wetlands. The sampling occurs on a biannual basis. During the 2024/2025 monitoring program, surface water samples were able to be taken from the five dedicated points in July 2024 and at three locations in the February 2025 event (U/S BH3, D/S BH3 and the Dredge Hole).

## 3.4. Subsurface Landfill Gas

Dedicated subsurface landfill gas bores included within the monitoring program are detailed in Table 3. Landfill gas monitoring was undertaken during July 2024 and February 2025.

*Table 3 Landfill Gas Bore Details*

| Bore | Location | Bore Depth (m BGL) | Screened Interval (m BGL) |
|---|---|---|---|
| BH09 | Offsite, adjacent to northern corner boundary | 6.5 | 1.0-6.5 |
| BH10 | Adjacent to the west of the landfill, within site boundary | 6.0 | 1.0-6.0 |
| BH11 | Offsite, beyond the southern site boundary | 10.0 | 1.0-10.0 |
| BH12 | Within the landfill waste mass, towards centre of cap | 4.0 | 1.0-4.0 |

**Notes:** mBGL – metres Below Ground Level

## 3.5. Surface Emission Landfill Gas

Surface emission landfill gas monitoring includes quarterly monitoring of the buildings and structures and underground services on site in addition to an annual walkover of the capped surface. The biannual surface emission gas monitoring events of buildings and structures and the cap walkover were undertaken during July 2024 and February 2025.

Areas targeted during surface emission monitoring include:

- Surface cracking, fissures and / or depressions;
- Stressed vegetation;
- Landfill edges and side slopes;
- Gas wells and monitoring points; and
- Pathways where pipework may be buried in trenches.

# 4. SAMPLING METHODOLOGY

## 4.1. FIELD MEASUREMENTS

Groundwater quality parameters were recorded using a calibrated multi-parameter water quality instrument.

Field record sheets are included as **Appendix A.**

Groundwater quality measurements recorded include:

- Electrical Conductivity;
- pH;
- Temperature;
- Oxidation Reduction Potential (ORP, or Redox); and
- Dissolved Oxygen.

## 4.2. LOW FLOW SAMPLING

All bores, excluding BH2 and BH8, were sampled using low flow methods during the July 2024 and February 2025 monitoring events as per the Ventia low flow groundwater sampling procedures which are based on the *EPA's Groundwater Sampling Guidelines (Publication 669, April 2000)*. Sample tubing is left in the bore and replaced every year.

A flow through cell was utilised for field stabilisation measurements during the purging cycle. Measurements were taken at approximate five-minute intervals depending on the flow rate during the purging cycle and recorded on the Ventia Groundwater Sampling Field Sheet provided within the individual monitoring event reports.

Samples were considered stable after three successive measurements were recorded within a defined range as per Table 4.

*Table 4 Stabilisation Parameters*

| Parameter | Range |
|---|---|
| EC | +/- 3% |
| pH | +/- 0.05 |
| Redox | +/-10mV |
| Temperature | +/-10% |
| Dissolved Oxygen | +/-10% |

Signed chain of custodies and laboratory sample receipt records are included within **Appendix E**.

## 4.3. GRAB SAMPLING

BH2 has been sampled via bailer as there is a kink in the well which negates the use of low flow techniques. BH8 has recently been sampled via a bailer due to damage done to the casing of the bore.

## 4.4. SUBSURFACE LANDFILL GAS MONITORING

All landfill gas bore monitoring was conducted in accordance with Ventia's Landfill Gas Bore Monitoring procedures which are based on *EPA Landfill Gas Fugitive Emissions Monitoring Guidelines (Publication 1684,2018)* and Landfill BPEM guidelines. Landfill Gas Monitoring was conducted with the use of a factory calibrated gas analyser (GeoTech, GA5000). The gas analyser was calibrated against a known calibration standard, certificates can be found in the individual event monitoring reports. Field observations that were noted throughout the monitoring program include:

- Concentrations, peak and stabilised;
- Pressure, atmospheric and differential;
- Pump time;
- Stabilised flow; and
- Weather conditions.

Parameters utilised for reporting on landfill gas concentrations include: Methane ($CH_4$), Carbon Dioxide ($CO_2$); Carbon Monoxide (CO); Oxygen ($O_2$) and Hydrogen Sulfide ($H_2S$).

### 4.5. Surface Emission Landfill Gas Monitoring

All surface emissions methane monitoring was conducted in accordance with the Ventia Landfill Gas Walkover standard operating procedure which are based on the *EPA Landfill Gas Fugitive Emissions Monitoring Guidelines (Publication 1684,2018)*; and Landfill BPEM guidelines.

A calibrated Inspectra-Laser methane detector was used for the surface emissions walkover along a grid consisting of transects spaced at 25 m intervals, measurements were taken 50 mm above the surface. The active areas of the landfill were not sampled due to safety reasons.

Monitoring of buildings and enclosed structures focused on those areas where gas is likely to accumulate including, cupboards, water pipes, cracks in brickwork and gaps in flooring. The peak readings were recorded, please see **Appendix A**.

## 5. REPORTING

### 5.1. Assessment Criteria

#### 5.1.1. Groundwater and Surface Water Quality Objectives

Beneficial uses for the site were assessed against the Environmental Reference Standard (ERS, DELWP 2021, previously SEPP, Waters). Protected beneficial uses applicable to the site along with the screening criteria that have been adopted in relation to each of the identified potential beneficial uses, is supplied in Table 5.

*Table 5 Beneficial Uses and Adopted Assessment Criteria*

| Beneficial Use Classification | Adopted Assessment Criteria |
|---|---|
| Maintenance of ecosystems | ANZECC (2000) 95% protection for slightly to moderately modified freshwater aquatic ecosystems |
| Livestock | ANZECC (2000) Livestock |
| Irrigation | ANZECC (2000) Irrigation |
| Buildings and structures | Varied: No guideline applied |
| Primary contact recreation | Varied: No guideline applied |

Requirements outlined in the Creswick Landfill, Aftercare Management Plan, Part 2: Environmental Risk Assessment and Monitoring Program (Mackenzie Environmental, June 2015), are tabulated below (Table 6).

*Table 6 Water Quality Objectives from Aftercare Management Plan*

| Analytes | Detection Limit | Groundwater Quality Objectives | Surface Water Quality Objectives |
|---|---|---|---|
| pH | 0.01 pH units | 6.5 to 8.0 | 6.5 to 8.0 |
| Electrical conductivity (EC) | 1 µS/cm | - | - |
| Total dissolved solids (TDS) | 10 mg/L | 2,000 mg/L | 2,000 mg/L |
| Calcium (CA) | 1 mg/L | 1,000 mg/L | 1,000 mg/L |
| Magnesium (Mg) | 1 mg/L | 2,000 mg/L | 2,000 mg/L |
| Sodium (Na) | 1 mg/L | 115 mg/L | - |
| Potassium (K) | 1 mg/L | - | - |
| Chloride (Cl) | 1 mg/L | 25-700 mg/L | - |
| Sulphate (SO4) | 1 mg/L | 250 mg/L | 1,000 mg/L |
| Bicarbonate alkalinity (as CaCO3) | 1 mg/L | - | - |
| Total organic carbon (TOC) | 1 mg/L | - | - |
| Chemical oxygen demand (COD) | 10 mg/L | - | - |
| Ammonia (NH3) | 0.01 mg/L | 0.9 mg/L (as NH3) | 0.9 mg/L (as NH3) |
| Nitrate (NO3) | 0.01 mg/L | 0.16 mg/L (as N) | 0.7 mg/L (as N) |
| Total Kjeldahl nitrogen (TKN) | 0.1 mg/L | 25 mg/L | - |
| Volatile fatty acids (VFA) | 5 mg/L | - | - |
| Chromium (Cr) | 0.001 mg/L | 0.001 mg/L | 0.001 mg/L |
| Iron (Fe) | 0.05 mg/L | 0.3 mg/L | - |
| Zinc (Zn) | 0.005 mg/L | 0.008 mg/L | 0.008 mg/L |

### 5.1.2. Landfill Gas Bore Action Levels

Action levels for methane have been adopted from the Landfill BPEM guidelines and are set at 1% v/v within the subsurface geology at the landfill boundary. For carbon dioxide, the action level is set at 10% v/v, taken from the Mackenzie 2016 Creswick Landfill Monitoring Program report.

### 5.1.3. Landfill Gas Surface Emission Action Levels

The Landfill BPEM guidelines outline surface emission action levels for methane concentrations according to their location. Relevant action levels are provided in Table 7.

*Table 7 Surface Emission Action Levels*

| Location | Parameters | Action Level |
|---|---|---|
| Landfill surface final cap | Methane concentration in air[1] | 100 ppm |
| Within 50 mm of penetrations through the final cap | Methane concentration in air[2] | 100 ppm |
| Landfill surface intermediate cover areas[3] | Methane concentration in air[1] | 200 ppm |
| Within 50 mm of penetrations through the intermediate cover | Methane concentration in air[2] | 1,000 ppm |
| Building/structures on and adjacent to the landfill site | Methane concentration in air | 5,000 ppm |

**Notes:**

1 - Point of measurement is 50 mm above the landfill surface.
2 - Point of measurement is 50 mm from the point of discharge.
3 - Intermediate cover areas are those that do not have an engineered landfill cap and are not scheduled to receive waste during the next three months.

# 6. WATER MONITORING RESULTS

## 6.1. GROUNDWATER MONITORING RESULTS

### 6.1.1 Groundwater Gauging

Standing Water Levels (SWLs) were measured in all accessible groundwater monitoring bores during the July 2024 and February 2025 monitoring events. BH1 was noted as being previously lost due to resurfacing works, prior to the February 2025 sampling event Hepburn Shire Council organised to have an alternative bore drilled at this location and have designated it BH1R. Groundwater gauging data is presented in Table 8.

*Table 8 Groundwater Gauging Data*

| ID | Date | SWL (mBTOC) | SWL (mAHD) |
|---|---|---|---|
| **BH1R** | 30/07/2024 | Not drilled | |
| | 25/02/2025 | 3.83 | NA |
| **BH2** | 30/07/2024 | 3.01 | 413.70 |
| | 26/02/2025 | 3.28 | 412.90 |
| **BH3** | 30/07/2024 | 0.60 | 410.77 |
| | 26/02/2025 | 1.22 | 410.15 |
| **BH4** | 31/07/2024 | 5.35 | 412.57 |
| | 26/02/2025 | Bore Dry | |
| **BH6** | 31/07/2024 | 12.32 | 416.84 |
| | 25/02/2025 | 12.61 | 416.55 |
| **BH7** | 31/07/2024 | 2.50 | 410.47 |
| | 25/02/2025 | 2.88 | 410.09 |
| **BH8** | 31/07/2024 | 2.89 | 411.23 |
| | 26/02/2025 | 3.50 | 410.62 |
| **BH9** | 30/07/2025 | Bore dry | |
| | 26/02/2025 | Bore dry | |
| **BH10** | 30/07/2024 | 2.58 | 414.22 |
| | 27/02/2025 | 2.68 | 414.12 |
| **BH14** | 30/07/2024 | 2.80 | 409.67 |
| | 25/02/2025 | 3.77 | 408.70 |

**Notes:**

SWL – Standing Water Level
mBTOC – Metres Below Top of Casing
mAHD – Metres Australian Height Datum

### 6.1.2 Groundwater Quality

Table 9, below, provides a summary of groundwater exceedances against the adopted ANZECC 2000 Freshwater 95% Species Protection, ANZECC 2000 Irrigation and ANZECC 2000 Livestock guidelines. A complete results table is provided in **Appendix B,** while copies of the laboratory analysis certificates are provided in **Appendix D**.

*Table 9 Groundwater Exceedances*

| | Major Ions | | Nitrogen Forms | Metals |
|---|---|---|---|---|
| | Chloride | Sodium | Nitrate (as N) | Manganese |
| | mg/L | mg/L | mg/L | mg/L |
| EQL | 1 | 0.5 | 0.02 | 0.005 |
| ANZECC 2000 FW 95% | | | 7.2[#1] | 1.9 |
| ANZECC 2000 Irrigation | 175 | 115 | | 0.2 |
| ANZECC 2000 Livestock | | | | |

| Field ID | Location Code | Date | Lab Report Number | | | | |
|---|---|---|---|---|---|---|---|
| **BH1R** | **BH1** | **25 Feb 2025** | **1191963** | 66 | 60 | 2.7 | 2.5 |
| **BH2** | **BH2** | **31 Jul 2024** | **1124003** | 290 | 190 | 12 | 11 |
| **BH2** | **BH2** | **26 Feb 2025** | **1192599** | 340 | 190 | 23 | 9.8 |
| **BH3** | **BH3** | **31 Jul 2024** | **1124003** | 990 | 450 | 0.05 | 5.8 |
| **BH3** | **BH3** | **26 Feb 2025** | **1192599** | 710 | 340 | <0.02 | 3.6 |
| **BH4** | **BH4** | **31 Jul 2024** | **1123989** | 550 | 330 | 0.02 | 2.0 |
| **BH6** | **BH6** | **31 Jul 2024** | **1123989** | 140 | 90 | 2.9 | 0.54 |
| **BH6** | **BH6** | **25 Feb 2025** | **1191963** | 150 | 87 | 2.3 | 0.46 |
| **BH7** | **BH7** | **31 Jul 2024** | **1123989** | 200 | 110 | 0.07 | 1.4 |
| **BH7** | **BH7** | **25 Feb 2025** | **1191963** | 220 | 130 | <0.02 | 1.3 |
| **BH8** | **BH8** | **31 Jul 2024** | **1123989** | 97 | 110 | 5.6 | 1.4 |
| **BH8** | **BH8** | **26 Feb 2025** | **1192599** | 97 | 110 | 12 | 0.61 |
| **BH10** | **BH10** | **31 Jul 2024** | **1124003** | 190 | 110 | 0.81 | 5.8 |
| **BH10** | **BH10** | **27 Feb 2025** | **1193085** | 190 | 100 | 0.12 | 4.8 |
| **BH14** | **BH14** | **31 Jul 2024** | **1124003** | 240 | 150 | <0.2 | 1.7 |
| **BH14** | **BH14** | **25 Feb 2025** | **1191963** | 220 | 150 | <0.02 | 0.93 |

All groundwater sites exceeded at least one of the adopted assessment criteria (ANZECC 2000 Fresh Water 95% guideline, ANZECC 2000 Irrigation, ANZECC 2000 Livestock and groundwater quality objectives (as nominated by the Aftercare Management Plan)), during each monitoring event. Manganese was the most consistent exceedance, though sodium, nitrate and chloride also had multiple detects.

Manganese exceeded at BH1R, BH2, BH3, BH4 and BH10 against the ANZECC 2000 Fresh Water 95% guideline, while nitrate (as N) also detected exceedances at bore BH2 during both events and BH8 in February 2025. Sodium had at least one exceedance against the ANZECC 2000 Irrigation guideline at

all sites except BH1R, BH6, BH8 and BH10, while manganese exceeded the ANZECC 2000 Irrigation guideline at BH6, BH7, BH8 and BH14. There were no exceedances for ANZECC 2000 Livestock guidelines. All laboratory results from the 2024/2025 program are located in Appendix B.

Results were in line with historic concentrations at the majority of monitoring bores. However, there were several results for analytes that saw increased or decreased results which have been noted in section 6.1.3 Groundwater Trend Graphs.

A summary of the yearly exceedances against the ANZECC 2000 guidelines for the bores is presented in Table 10.

*Table 10 Summary of Exceedances for Groundwater Quality for the 2022/2023 Monitoring Period*

| Exceedances | Groundwater Bores | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | BH1 | BH2 | BH3 | BH4 | BH6 | BH7 | BH8 | BH10 | BH14 |
| TDS | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Chloride | ✓ | × | ✓ | × | ✓ | × | ✓ | × | × |
| Sodium | ✓ | × | × | × | ✓ | × | ✓ | ✓ | × |
| Ammonia as N | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Nitrate as N | ✓ | × | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ |
| Chromium (III+VI) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Manganese | × | × | × | × | × | × | × | × | × |
| Zinc | No zinc analysis was carred out during the 2024/2025 monitoring events. | | | | | | | | |

Notes: × indicates potential impact to the protected Beneficial Use
✓ indicates no identified impact to protected Beneficial Use

A summary of exceedances of groundwater samples collected from the 2024/2025 monitoring period against the guidelines nominated by the Aftercare Management Plan is given in Table 11. Exceedances against the site specific Water Quality Objectives are summarised in Table 12.

*Table 11 Groundwater Quality Objective Exceedances*

| | pH | Major Ions | | Nitrogen Forms | Metals | |
|---|---|---|---|---|---|---|
| | pH (Lab) | Chloride | Sodium | Nitrate (as N) | Chromium (III+VI) | Iron |
| | - | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | 0.01 | 1 | 0.5 | 0.01 | 0.001 | 0.05 |
| Groundwater Quality Objective | 6.5-8.5 | 25-700 | 115 | 0.16 | 0.001 | 0.3 |
| ANZECC 2000 FW 95% | | | | 7.2[#1] | | |
| ANZECC 2000 Irrigation | | 175 | 115 | | 0.1 | |
| ANZECC 2000 Livestock | | | | | 1 | |

| Field ID | Location Code | Date | Lab Report Number | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **BH1** | **BH1** | **25 Feb 2025** | **1191963** | 6.8 | 66 | 60 | 2.7 | <0.001 | <0.05 |
| **BH2** | **BH2** | **31 Jul 2024** | **1124003** | 6.5 | 290 | 190 | 12 | <0.001 | 4.9 |
| **BH2** | **BH2** | **26 Feb 2025** | **1192599** | 5.6 | 340 | 190 | 23 | <0.001 | <0.05 |
| **BH3** | **BH3** | **31 Jul 2024** | **1124003** | 6.6 | 990 | 450 | 0.05 | 0.001 | 91 |
| **BH3** | **BH3** | **26 Feb 2025** | **1192599** | 6.4 | 710 | 340 | <0.02 | <0.001 | 59 |
| **BH4** | **BH4** | **31 Jul 2024** | **1123989** | 6.5 | 550 | 330 | 0.02 | 0.007 | 160 |
| **BH6** | **BH6** | **31 Jul 2024** | **1123989** | 5.2 | 140 | 90 | 2.9 | <0.001 | 0.06 |
| **BH6** | **BH6** | **25 Feb 2025** | **1191963** | 5.7 | 150 | 87 | 2.3 | <0.001 | <0.05 |
| **BH7** | **BH7** | **31 Jul 2024** | **1123989** | 6.5 | 200 | 110 | 0.07 | 0.002 | 41 |
| **BH7** | **BH7** | **25 Feb 2025** | **1191963** | 6.5 | 220 | 130 | <0.02 | <0.001 | 40 |
| **BH8** | **BH8** | **31 Jul 2024** | **1123989** | 6.9 | 97 | 110 | 5.6 | 0.008 | 65 |
| **BH8** | **BH8** | **26 Feb 2025** | **1192599** | 6.8 | 97 | 110 | 12 | <0.001 | 23 |
| **BH10** | **BH10** | **31 Jul 2024** | **1124003** | 6.3 | 190 | 110 | 0.81 | 0.002 | 12 |
| **BH10** | **BH10** | **27 Feb 2025** | **1193085** | 6.4 | 190 | 100 | 0.12 | 0.009 | 12 |
| **BH14** | **BH14** | **31 Jul 2024** | **1124003** | 6.9 | 240 | 150 | <0.2 | 0.004 | 41 |
| **BH13** | **BH14** | **25 Feb 2025** | **1191963** | 6.7 | 220 | 150 | <0.02 | <0.001 | 22 |

*Table 12 Water Quality Objective Exceedances*

| Analytes | Groundwater Quality Exceedances |
|---|---|
| **pH** | Bores with detects outside of 6.5-8<br>07/2024 – BH6, BH10<br>02/2025 – BH2, BH3, BH6, BH10 |
| **Total dissolved solids (TDS)** | No bores |
| **Calcium (CA)** | No bores |
| **Magnesium (Mg)** | No bores |
| **Sodium (Na)** | 07/2024 – BH2, BH3, BH4, BH14<br>02/2025 – BH2, BH3, BH7, BH14 |
| **Chloride (Cl)** | Bores with detects outside of 25-700 mg/L<br>07/2024 – BH3<br>02/2025 – BH3 |
| **Sulphate (SO4)** | No bores |
| **Ammonia (NH3)** | No bores |
| **Nitrate (NO3)** | 07/2024 – BH6, BH8, BH10<br>02/2025 – BH1, BH6 |
| **Total Kjeldahl nitrogen (TKN)** | No bores |
| **Chromium (Cr)** | 07/2024 – BH4, BH7, BH8, BH10, BH14<br>02/2025 – BH10 |
| **Iron (Fe)** | 07/2024 – BH2, BH3, BH4, BH7, BH8, BH10, BH14<br>02/2025 – BH3, BH7, BH8, BH10, BH14 |
| **Zinc (Zn)** | No zinc analysis was carried out during the 2024/2025 monitoring events. |

### 6.1.3 Groundwater Trend Graphs

Groundwater historical trend graphs are provided below. The graphs indicate the groundwater results for the 2024/2025 monitoring program to be relatively consistent with historical data. The historical groundwater results table is provided in **Appendix E**.

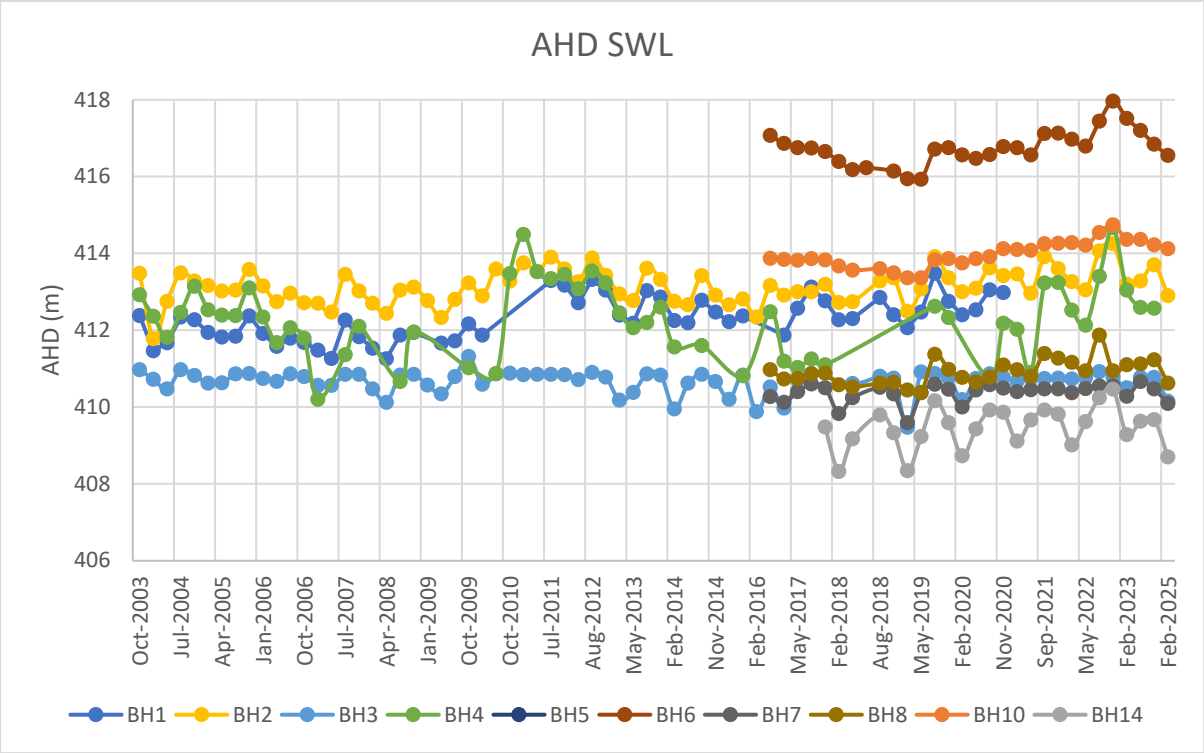



*Figure 5 Groundwater historical trend graph – Standing Water Level (SWL)*

Groundwater standing water levels (SWL) were mostly similar to historically recorded values. After a drop in SWL for BH6 in August and November 2022 this site has shown SWL to be increasing again.

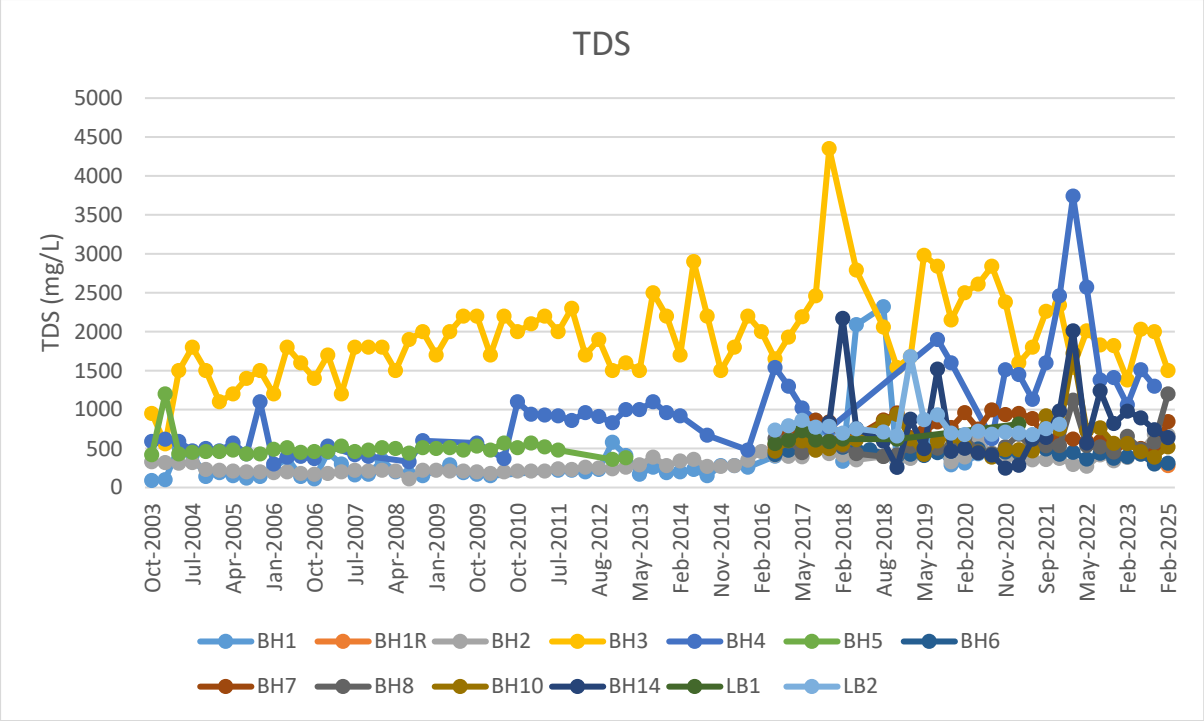



*Figure 6 Groundwater historical trend graph – Total Dissolved Solids (TDS)*

Groundwater total dissolved solids (TDS) were similar at most locations during the 2024/2025 sampling events. However, BH2 saw increasing TDS across this period with results higher than they have been at this site before (680 and 670 mg/L), BH8 also had a peak concentration of 1200 mg/L in February 2025. At the other end of the spectrum TDS was seen to be decreasing at BH6, which had the lowest concentrations seen at this bore during the 2024/2025 events (300 and 310 mg/L). BH3 consistently has the highest TDS results across the bore network, and this continued to be the case during the most recent sampling events.

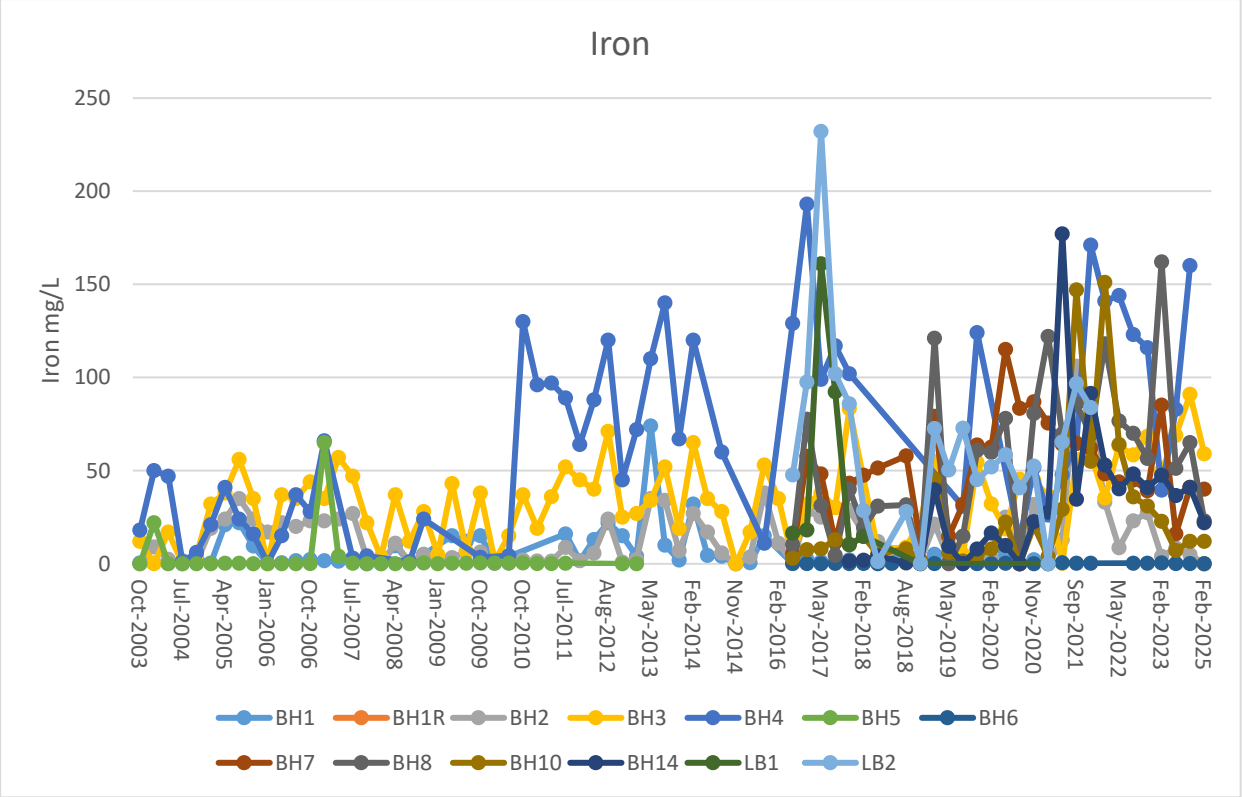



*Figure 7 Groundwater historical trend graph – Iron*

Iron results tend to be quite sporadic across all sampled groundwater bores and there doesn't appear to be any obvious trends. During the current events BH3 reached its highest concentration of 91 mg/L during the July 2024 monitoring event. BH6 consistently has the lowest iron levels of all groundwater locations, while BH3 tends to have the highest. Concentrations at all locations (besides the peak event at BH3) were in line with historic.

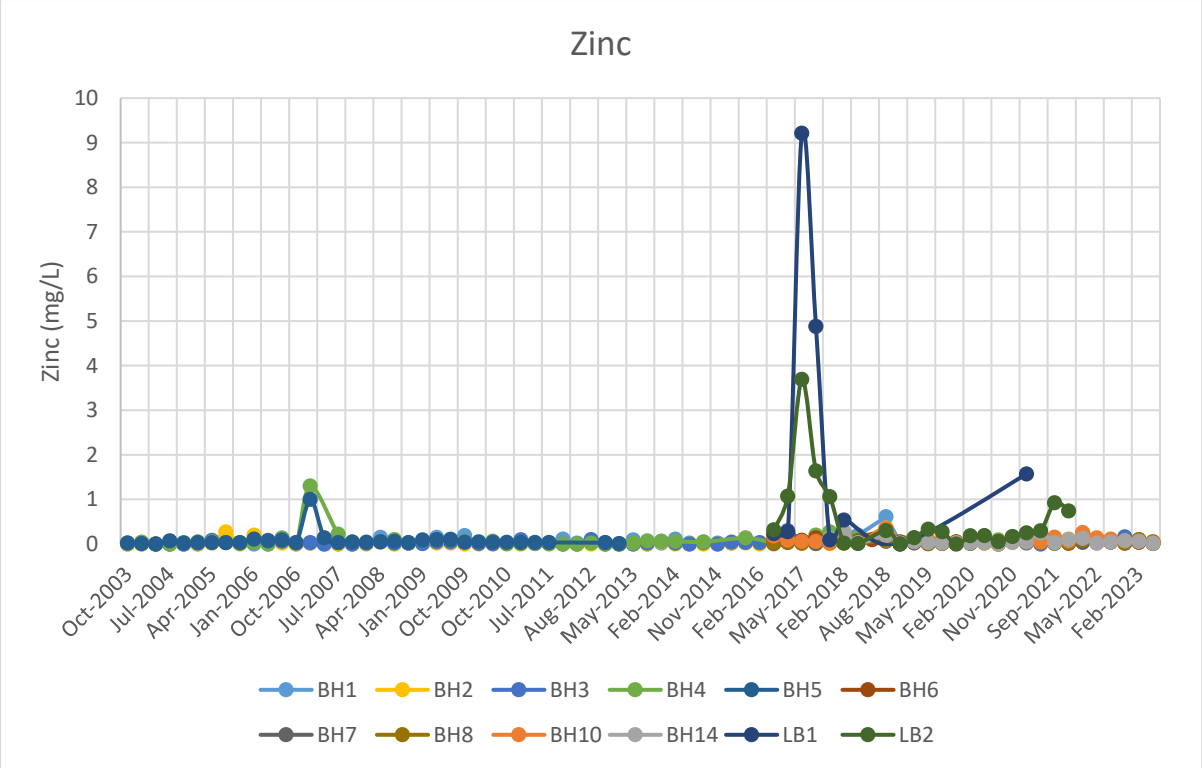



*Figure 8 Groundwater historical trend graph – Zinc*

Zinc analysis was not completed due to an error within the laboratory quote, this has since been rectified and will be included within future monitoring events. Previous zinc concentrations across the groundwater sites taken in 2023 were within historic ranges with no noticeable trends. Zinc concentrations in LB1 and LB2 peaked in May 2017 to maximum values seen at any sites (9.21 mg/L and 3.69 mg/L respectively), both locations became blocked (in May 2021 and February 2022 respectively) and no further results are available.

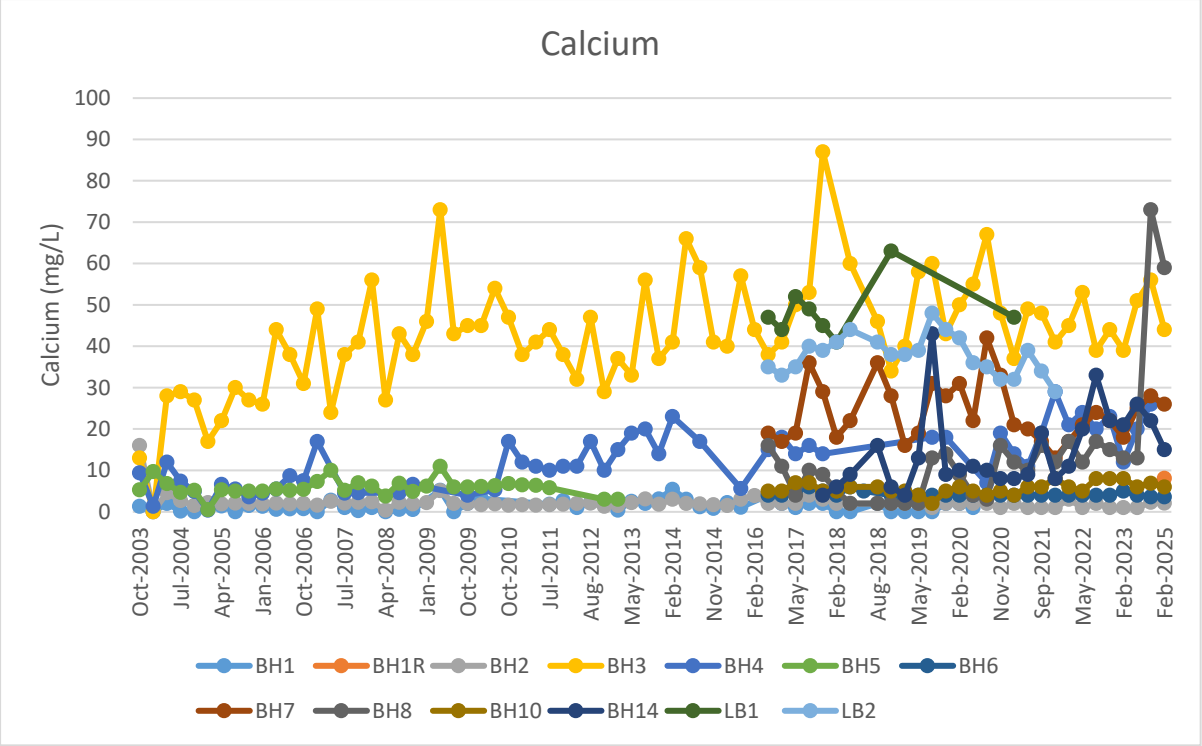



*Figure 9 Groundwater historical trend graph – Calcium*

During the 2024/2025 event BH8 calcium concentrations increased greatly, the bore historically has results under 20 mg/L, however in July 2024 they peaked at 73 mg/L and only dropped marginally to 59 mg/L in February 2025. This should be monitored closely during future events to see if there's a pattern or if these results are outliers, they have been checked with the laboratory and confirmed. The rest of sampled locations remained within historic parameters and patterns, with BH3 tending to have the highest concentrations and BH2 having the lowest.

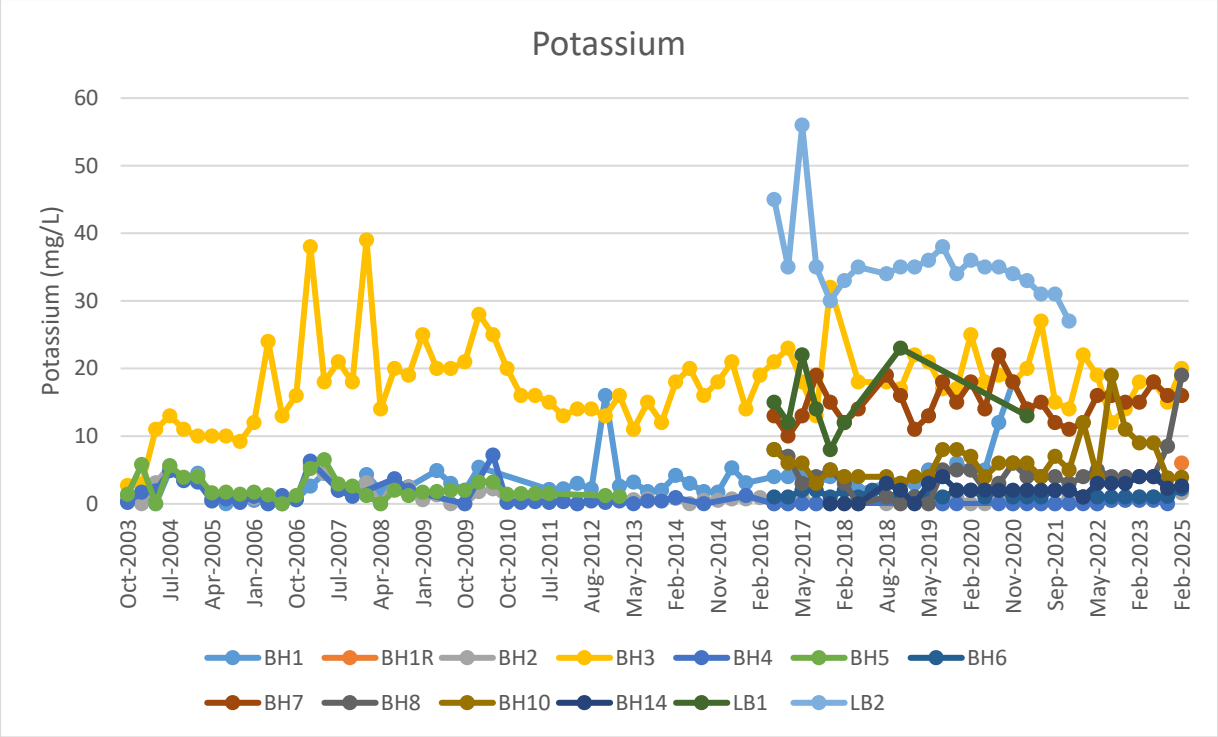



*Figure 10 Groundwater historical trend graph – Potassium*

As per several other graphed analytes BH8 again saw quite a significant increase in potassium concentrations which were higher in July 2024 and February 2025 then they have been across any of the other monitoring events (8.5 and 19 mg/L, respectively). BH10 saw the opposite and dropped to the lowest concentrations at this bore since 2018 (3.8 and 3.9 mg/L). All other locations remained stable and returned results that were similar in comparison to historic events. LB2 tended to have the highest concentrations until it was no longer able to be sampled. Of the groundwater locations BH4 often returns results close to or below the laboratory limit of reporting.

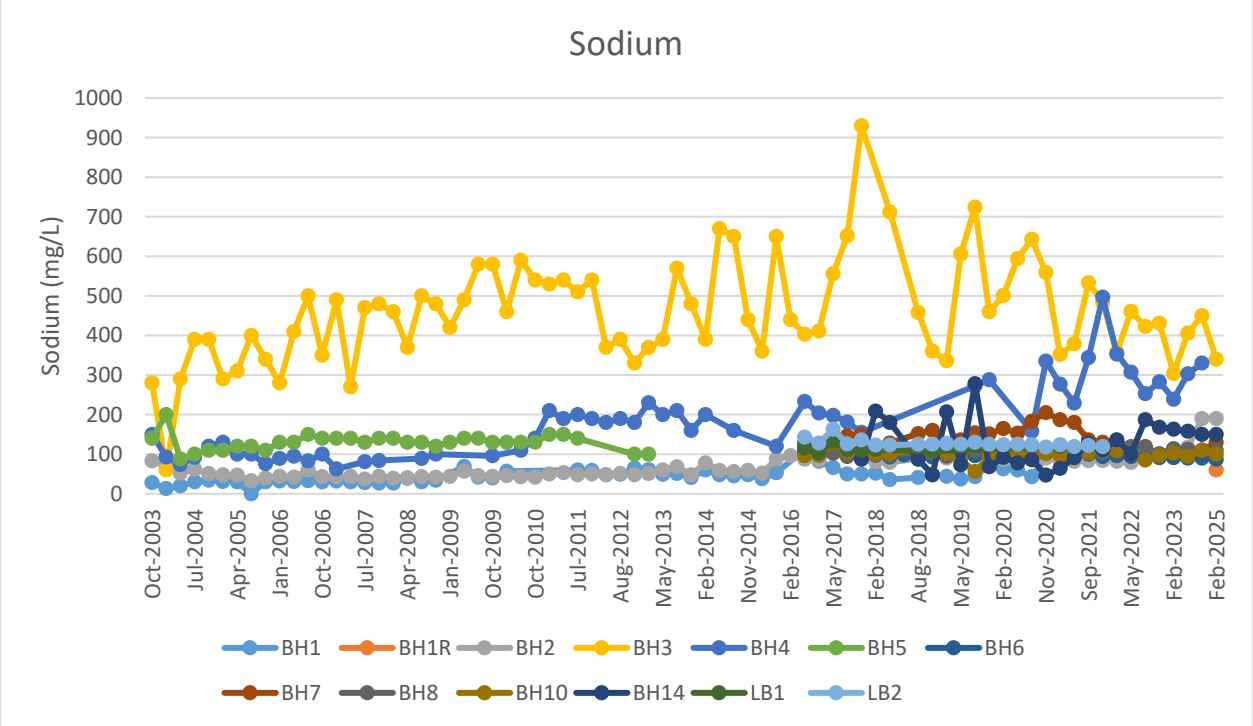



*Figure 11 Groundwater historical trend graph – Sodium*

Sodium concentrations remained fairly steady across most locations with some minor noticeable differences. BH2 concentrations increased during both events when compared with historic, results for this location tend to be 80 or 90 mg/L but have been progressively increasing over the past few years and during the latest 2024/2025 events had results of 190 mg/L in both July and February. BH6 had the lowest sodium concentrations at this site since sampling began (87 mg/L in February 2025). BH1 consistently had the lowest concentrations before it was destroyed during resurfacing in 2021, the replacement bore BH1R had results of 60 mg/L which remains consistent with results taken at BH1 historically. As per most other analytes BH3 shows the highest sodium concentrations.

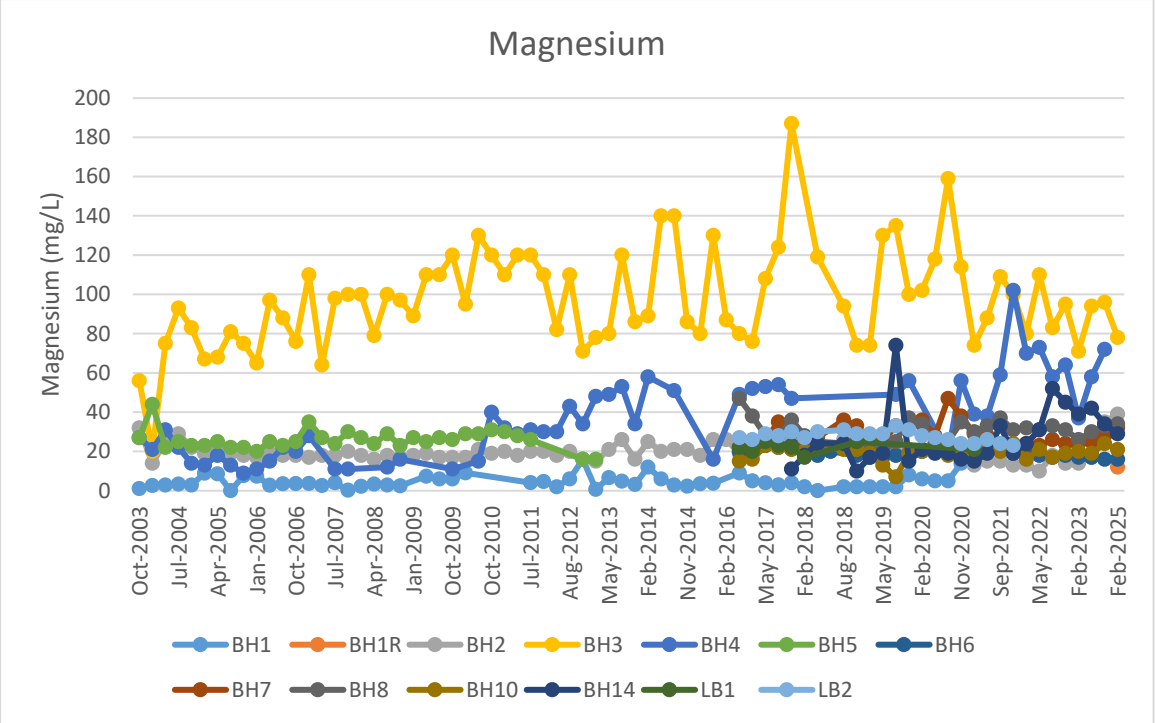



*Figure 12 Groundwater historical trend graph – Magnesium*

As with sodium, BH2 magnesium concentrations increased in both July 2024 and February 2025 (35 and 39 mg/L, respectively), while BH6 saw marginal decreases to magnesium concentrations (16 mg/L for both rounds). Most other groundwater bores showed stable magnesium concentration values during the 2024/2025 monitoring program. BH1R concentrations were similar to BH1 historic results and BH3 continued to have the highest concentrations.

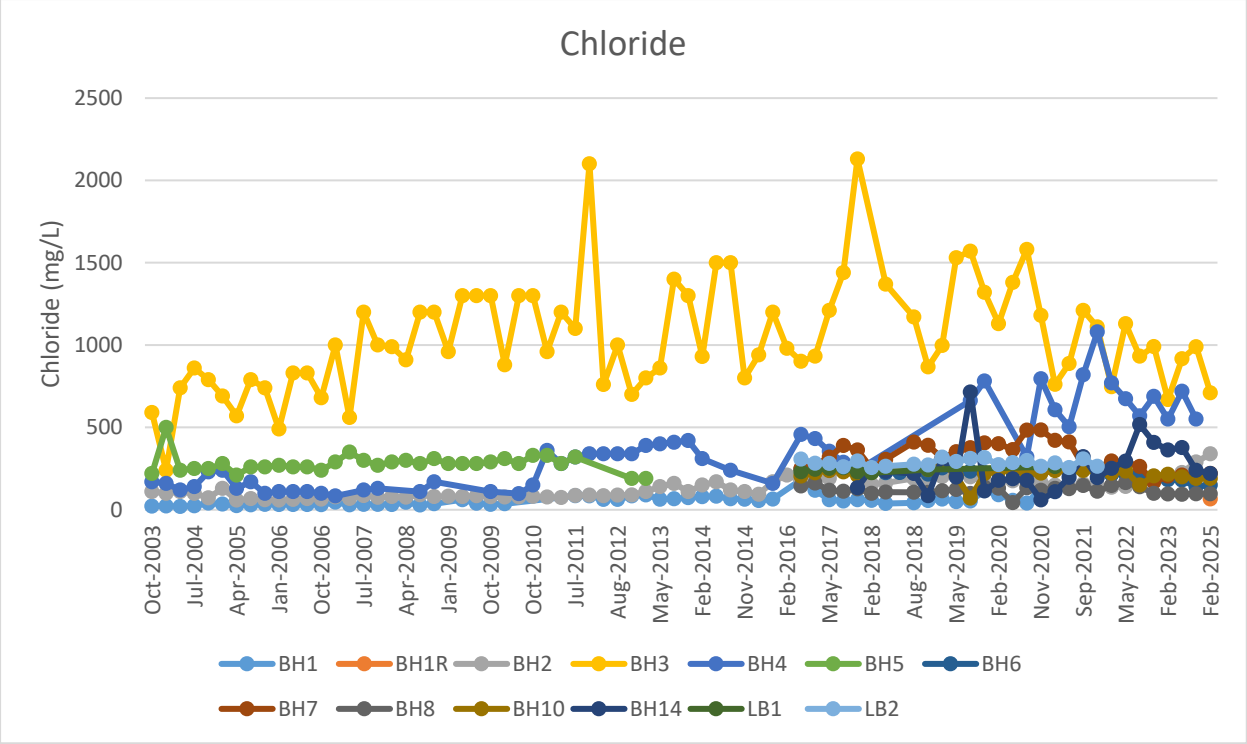



*Figure 13 Groundwater historical trend graph – Chloride*

BH2 and BH6 continued to follow the patterns seen across several other analytes during the 2024/2025 monitoring events with an increase of chloride concentrations at BH2 (290 and 340 mg/L) and a decrease at BH6 (140 and 150 mg/L). In general the majority of locations show a minor decreasing trend in chloride concentrations over the last several years. BH4 appeared to be increasing and reached a peak concentration of 1080 mg/L in November 2021 but has since been showing a decreasing trend. BH3 consistently has the highest chloride concentrations.

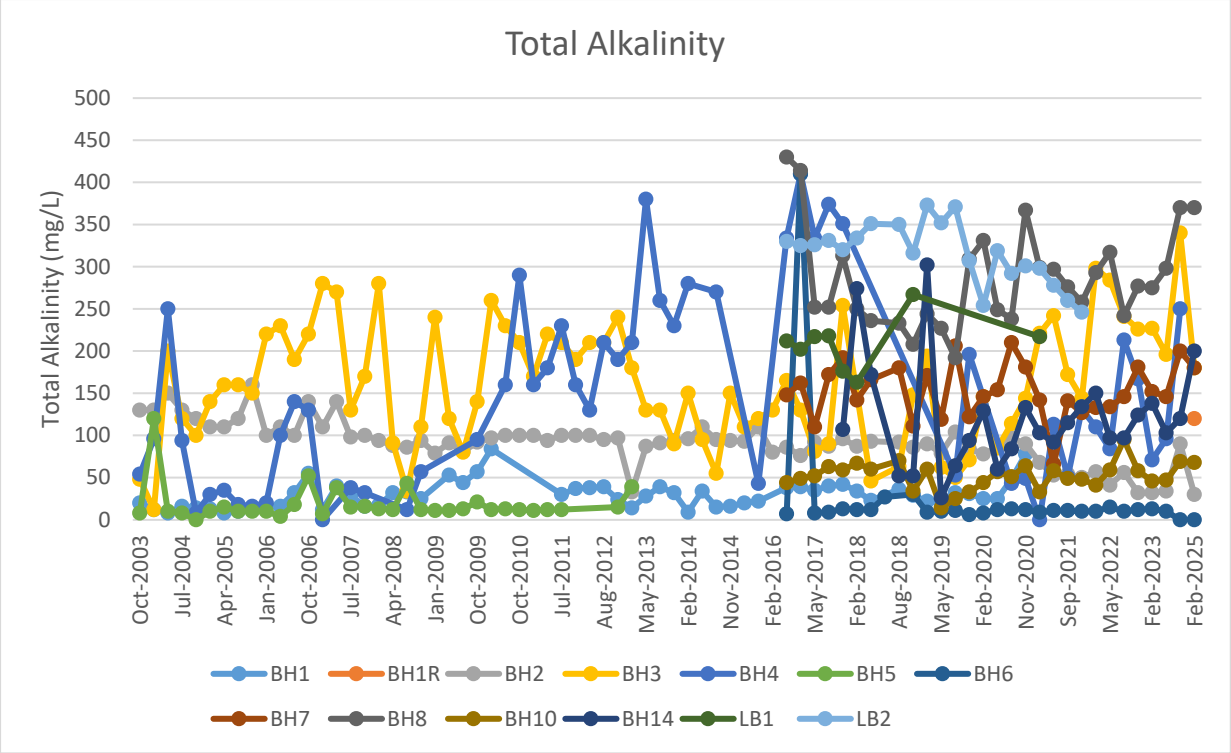



*Figure 14 Groundwater historical trend graph – Total Alkalinity*

Total alkalinity shows heavy fluctuations across all bores with no obvious patterns, except where certain bores consistently tend to have the highest (BH3 and BH8) or lowest (BH6) levels. BH6 had concentrations below the laboratory limit of reporting in both July 2024 and February 2025, BH8 remained the bore with the highest concentrations of 370 mg/L during both events and BH3 reached its peak concentration of 340 mg/L in July 2024. Newly drilled replacement bore BH1R returned results of 120 mg/L which were quite a bit higher than its predecessor which had an average of ~ 30 mg/L across all events.

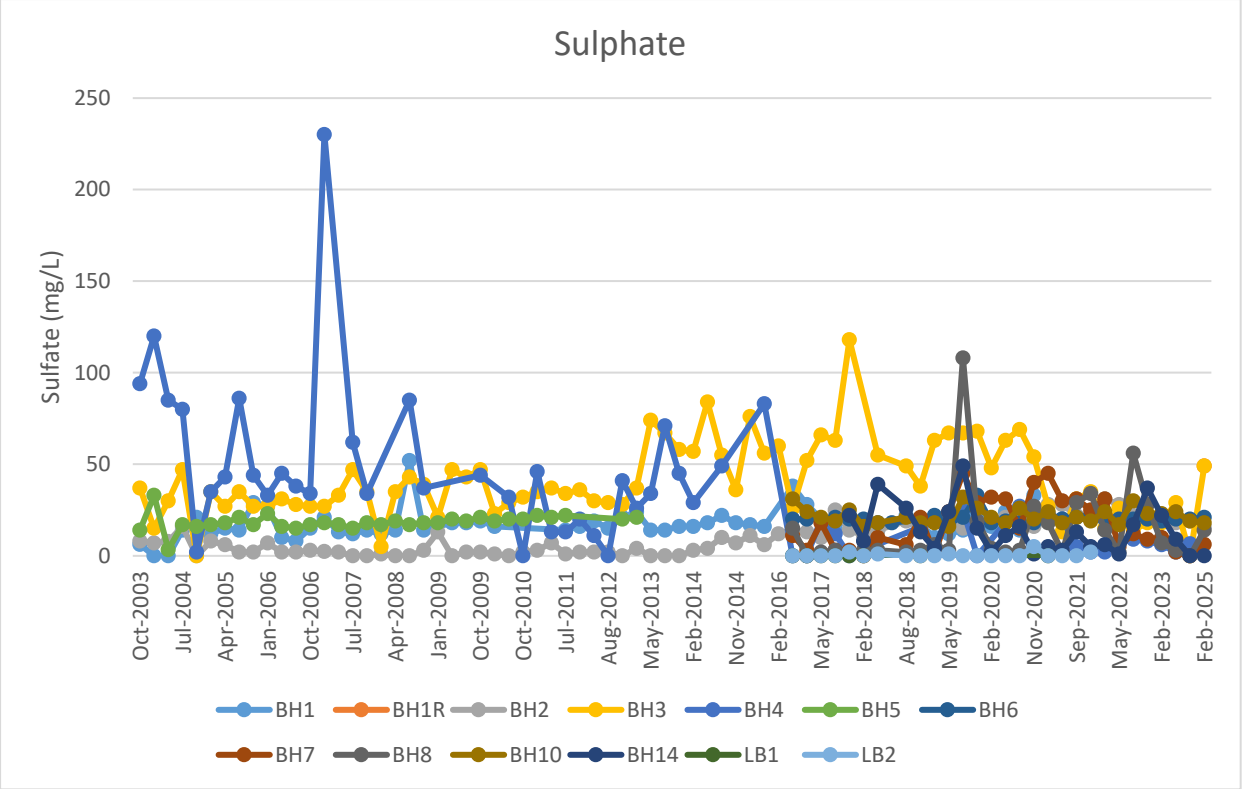



*Figure 15 Groundwater historical trend graph – Sulphate*

Sulphate concentrations over the past several years tend to not vary greatly with BH6 showing remarkably similar results across all sampled events. Four of the eight sampled bores had results below the laboratory limit of reporting in July 2024, this trend continued for BH14 in February 2025. Since 2021 BH4 tends to have the lowest sulphate concentrations across the network. BH1R and BH3 had the highest results of the 2024/2025 monitoring events at 49 mg/L each in February 2025. Results this high have not been seen at BH3 since November 2020, while this is the first time new bore BH1R has been sampled.

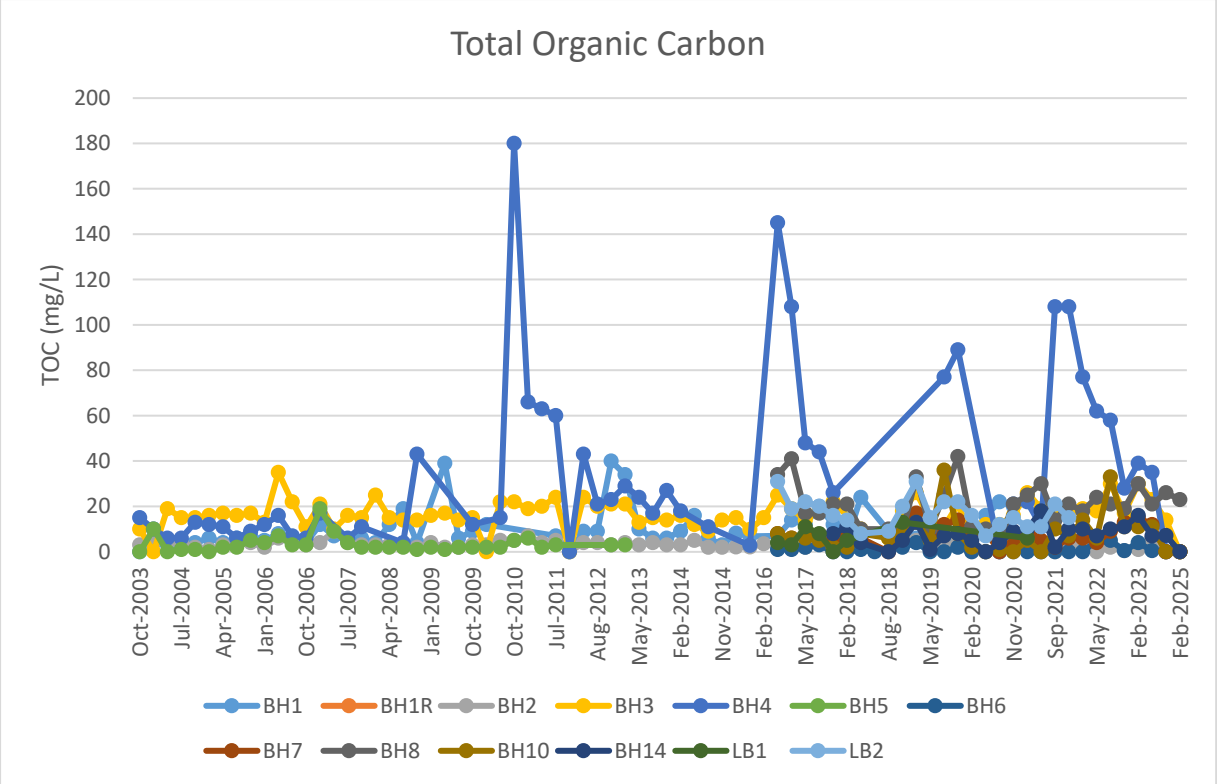



*Figure 16 Groundwater historical trend graph – Total Organic Carbon (TOC)*

No anomalous results were seen for total organic carbon concentrations (TOC) at any of the sampled locations, with concentrations all in line with historic results. The majority of sites had results that were below the limit of reporting. BH4 tends to show a fair amount of fluctuation and has had some significant historical peaks, however, no extreme values were seen during the 2024/2025 monitoring program.

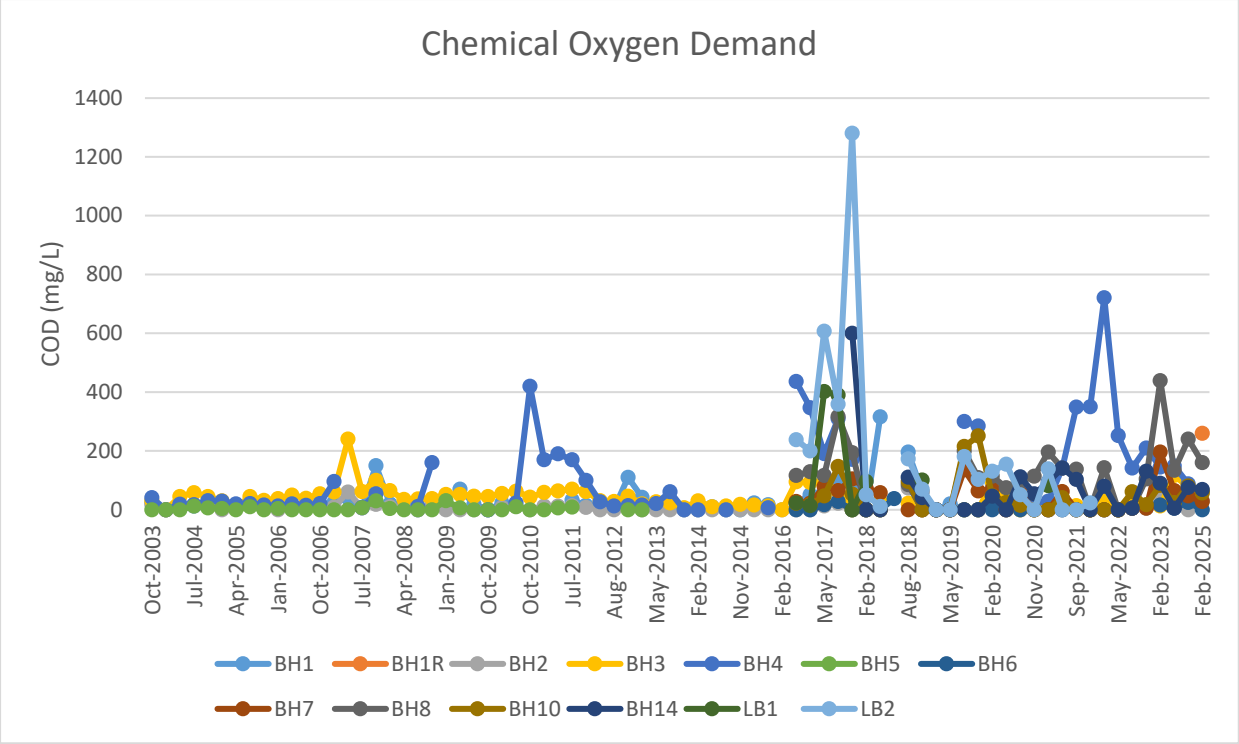



*Figure 17 Groundwater historical trend graph – Chemical Oxygen Demand (COD)*

Chemical oxygen demand (COD) results tend to fluctuate quite heavily across all locations and results from the current monitoring rounds were all within historic concentrations. The highest concentrations were seen at newly drilled bore BH1R in February 2025 (260 mg/L) and the lowest results were seen at BH2 in July 2024 and BH6 in February 2025 (both below the laboratory limit of reporting). The highest results across the network for COD were at LB2 in November 2017 (1280 mg/L) and BH4 in February 2022 (721 mg/L).

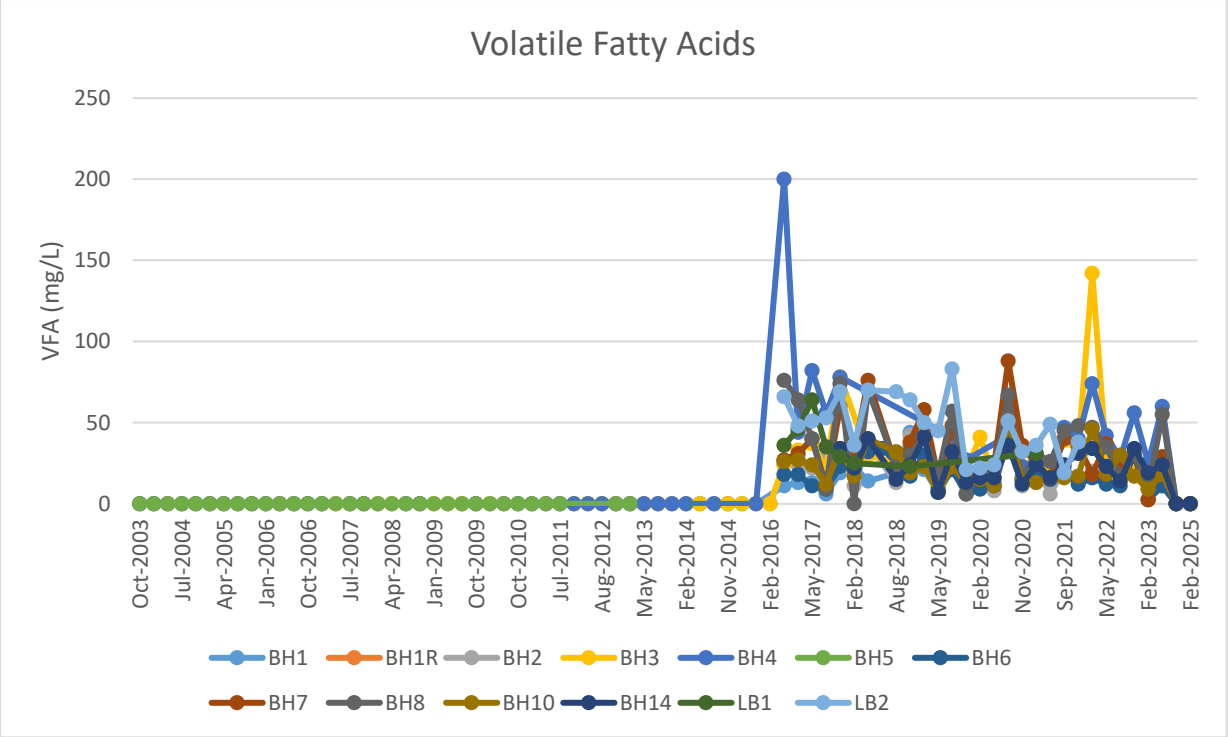



*Figure 18 Groundwater historical trend graph – Volatile Fatty Acids*

Volatile Fatty Acids has had significant peaks in historical records, however in 2024/2025, results for all groundwater monitoring bores were below the laboratory limit of reporting.

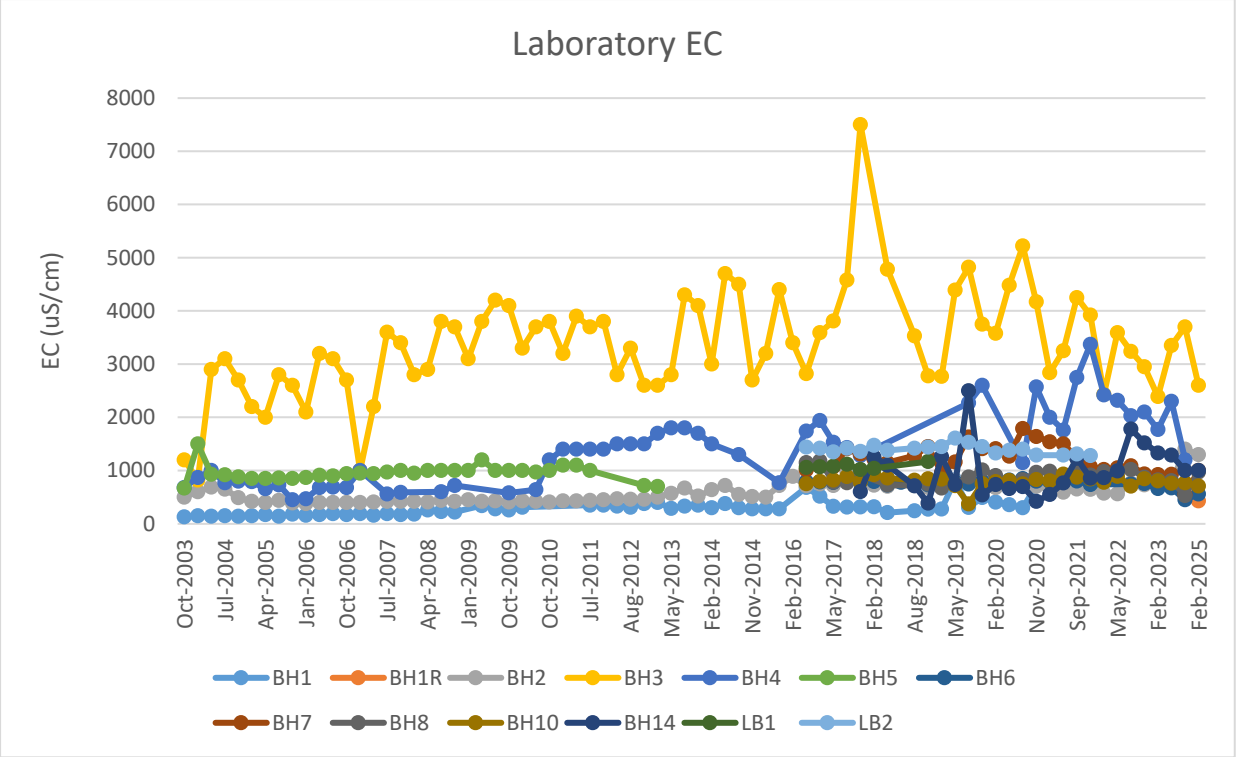



*Figure 19 Groundwater historical trend graph – Laboratory EC*

Groundwater EC was noted to be significantly different at several of the sampled locations during the 2024/2025 monitoring program. BH2 showed sharp increases for both events of 1400 and 1300 uS/cm, which shows an average of ~ 600 across all previous events. BH6 and BH7 EC were both lower than any of their historic concentrations (BH6 at 450 and 560 uS/cm and BH7 at 550 and 1000 uS/cm), BH8 also had its lowest results in July 2024 of 530 uS/cm. BH3 consistently has the highest EC, followed by BH4 while BH1 historically had the lowest.

## 6.2. Surface Water and Leachate Monitoring Results

### 6.2.1 Surface Water Quality

Table 13, below, provides a summary of surface water exceedances against the adopted ANZECC (2000) 95% Species Protection Freshwater Ecosystem Guideline, ANZECC (2000) Irrigation and ANZECC (2000) Livestock. Complete surface water results are provided in **Appendix B** while copies of the laboratory analysis certificates are provided in **Appendix D**.

*Table 13 Surface Water Exceedances*

| | | | Major Ions | | Metals |
|---|---|---|---|---|---|
| | | | Chloride | Sodium (filtered) | Zinc |
| | | | mg/L | mg/L | mg/L |
| EQL | | | 1 | 0.5 | 0.005 |
| ANZECC 2000 FW 95% | | | | | 0.008 |
| ANZECC 2000 Irrigation | | | 175 | 115 | 2 |
| ANZECC 2000 Livestock | | | | | 20 |
| **Field ID** | **Date** | **Lab Report Number** | | | |
| U/S BH3 | 31 Jul 2024 | 1124003 | 95 | 51 | -- |
| U/S BH3 | 26 Feb 2025 | 1192599 | 470 | 190 | -- |
| @ BH3 | 31 Jul 2024 | 1124003 | 95 | 57 | -- |
| @ BH3 | 25 Feb 2025 | -- | -- | -- | -- |
| D/S BH3 | 31 Jul 2024 | 1124003 | 93 | 54 | -- |
| D/S BH3 | 26 Feb 2025 | 1193085 | 120 | 61 | -- |
| Leachate | 31 Jul 2024 | 1123989 | 160 | 98 | -- |
| Leachate | 26 Feb 2025 | 1191963 | 260 | 150 | -- |
| Wetland | 31 Jul 2024 | 1124003 | 180 | 100 | -- |
| Wetland | 26 Feb 2025 | -- | -- | -- | -- |
| Dredge | 31 Jul 2024 | 1124003 | 180 | 110 | -- |
| Dredge | 25 Feb 2025 | 1191963 | 190 | 110 | -- |

There were exceedances for chloride and sodium for the surface water sites in the 2024/2025 monitoring period. Zinc was not included in the analysis for these rounds. There were no results recorded for @BH3 or Wetland in February 2025 as the sites were dry.

Exceedances of chloride concentrations against the ANZECC (2000) Irrigation guideline were recorded at four of the six monitoring sites during the 2024/2025 program, with the Dredge site exceeding the guideline in both sampling events. Sodium levels also exceeded the guideline at two locations, U/S BH3, and the Leachate Pond. Zinc was not included in the 2024/2025 monitoring period. A summary of the exceedances against the ANZECC 2000 guidelines is given in Table 14.

*Table 14 Summary of Exceedances for Surface Water Quality for the 2024/2025 Monitoring Period*

| Exceedances | Surface Water Sites | | | | | |
|---|---|---|---|---|---|---|
| | Leachate Pond | Creek U/S BH3 | Creek @ BH3 | Creek D/S BH3 | Wetland | Dredge Hole |
| **pH** | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **TDS** | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Chloride** | × | × | ✓ | ✓ | × | × |
| **Sodium** | × | × | ✓ | ✓ | ✓ | ✓ |
| **Ammonia as N** | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Nitrate (as N)** | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Chromium (III+VI)** | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Zinc** | N/A | N/A | N/A | N/A | N/A | N/A |

Notes: × indicates potential impact to the protected Beneficial Use
✓ indicates no identified impact to protected Beneficial Use

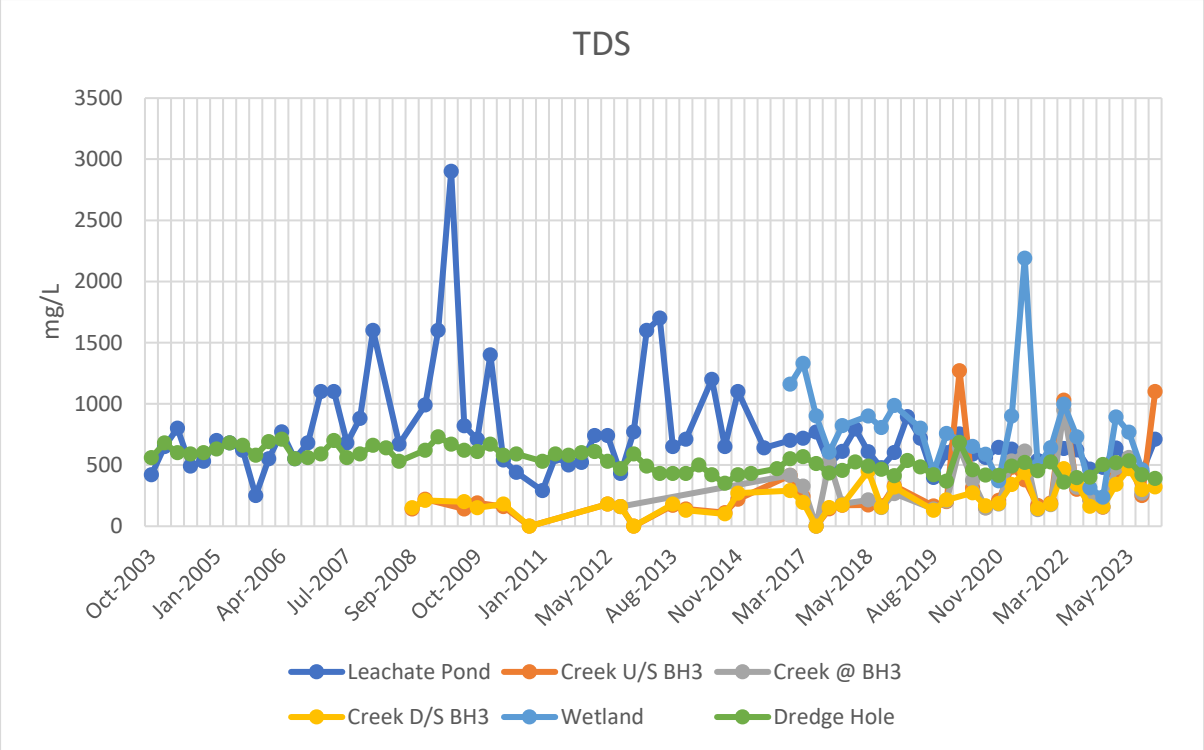
A summary of exceedances of surface water samples collected from the 2024/2025 monitoring period against the Water Quality Objectives nominated by the Aftercare Management Plan is given in Table 15.

*Table 15 Exceedances from nominated detect values*

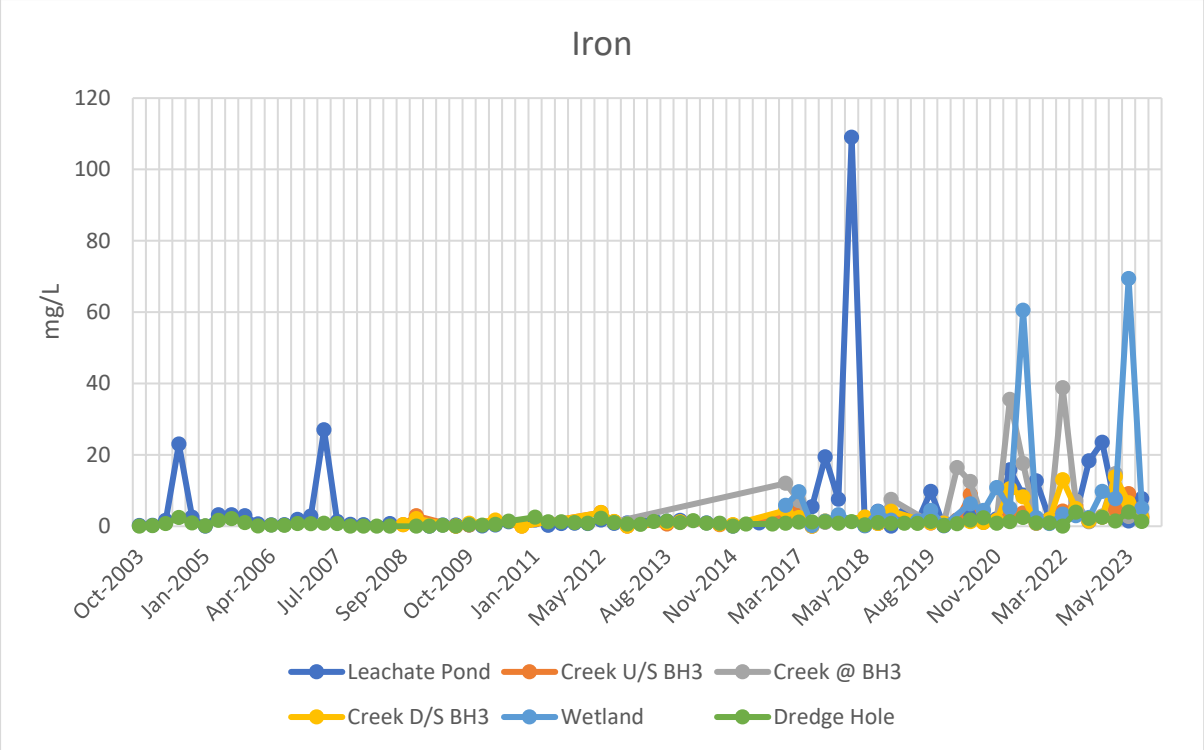
| Analytes | Surface Water Quality Objectives |
|---|---|
| **pH** | Surface Water Location with detects outside of 6.5-8<br>No detects in monitoring events |
| **Total dissolved solids (TDS)** | No detects in monitoring events |
| **Calcium (CA)** | No detects in monitoring events |
| **Magnesium (Mg)** | No detects in monitoring events |
| **Sodium (Na)** | No water quality objective |
| **Chloride (Cl)** | No water quality objective |
| **Sulphate (SO4)** | No detects in monitoring events |
| **Ammonia (NH3)** | 07/2024 – Leachate Pond 4.9 mg/L |
| **Nitrate (NO3)** | No detects in monitoring events |
| **Total Kjeldahl nitrogen (TKN)** | No water quality objective |
| **Chromium (Cr)** | No detects in monitoring events |
| **Iron (Fe)** | No water quality objective |
| **Zinc (Zn)** | N/A |

### 6.2.2 Surface Water Trend Graphs

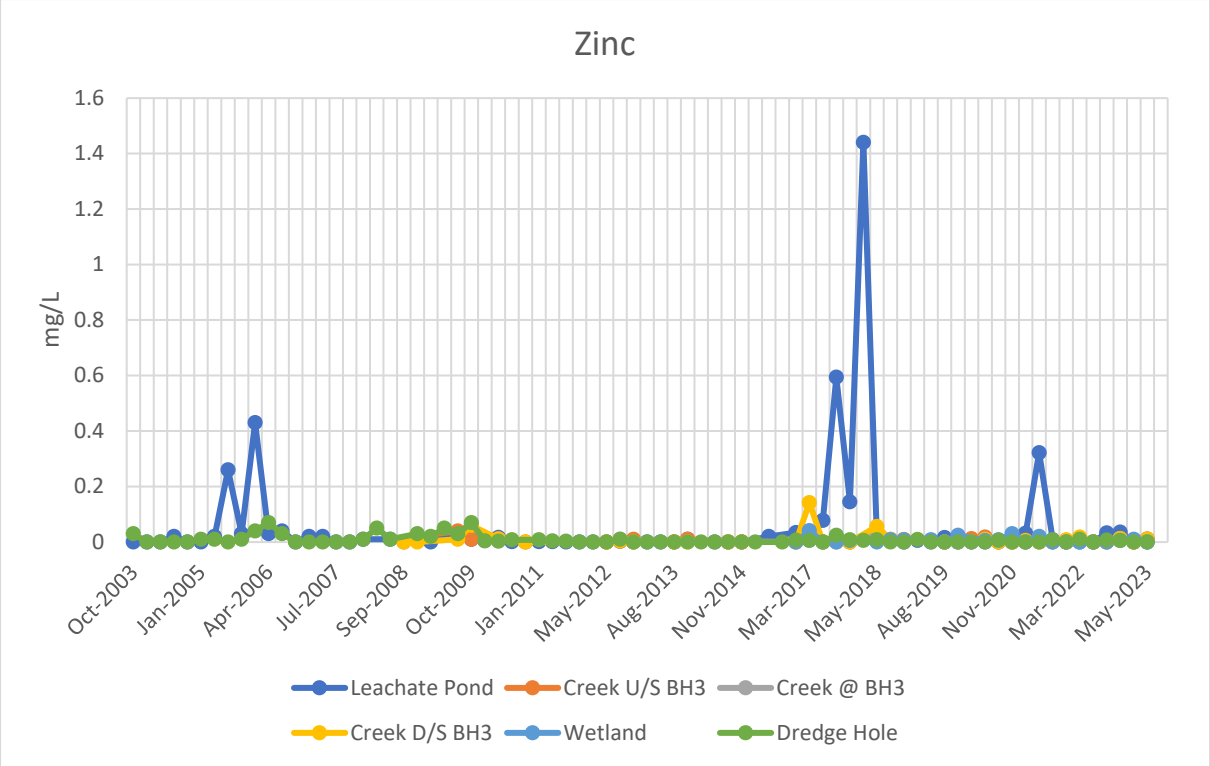
Surface historical trend graphs are provided below. The graphs indicate the surface water results for the 2024/2025 monitoring program to be relatively consistent with historical data. The historical groundwater results table is provided in **Appendix E**.



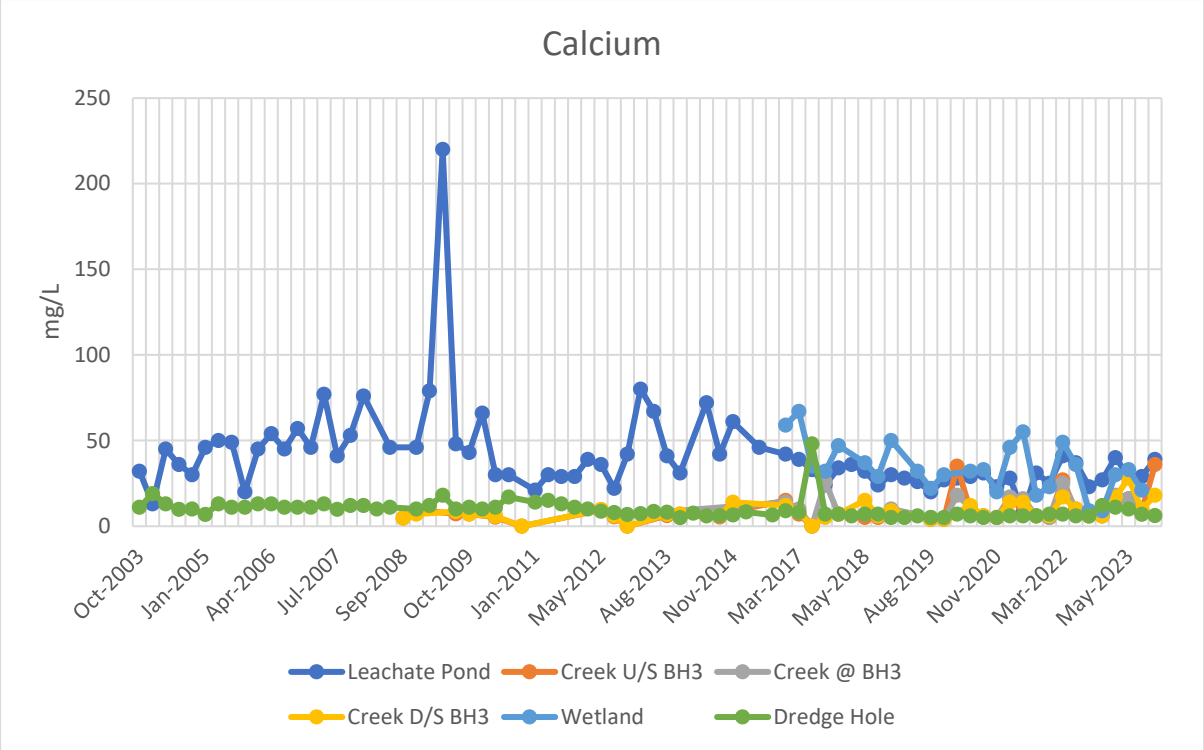

Surface water TDS corresponded to historic values. Over the course of sampling the three creek sites (D/S BH3, @ BH3 and U/S BH3) tend to have much lower TDS levels than the other three sites, however U/S BH3 has had three notable spikes during February 2020 (1270 mg/L), March 2022 (1,030 mg/L), and most recently February 2025, at 1,100 mg/L from 250 mg/L in July 2025. The Wetland has returned to lower concentrations of TDS in July 2024 at 460 mg/L, dropping from elevated levels during the two events undertaken in 2023 at 892 mg/L and 768 mg/L. Leachate Pond TDS has risen between July 2025 at 440 mg/L to 710 mg/L in February 2025 but remains within historical parameters. The Dredge Hole continues to have the most stable levels.



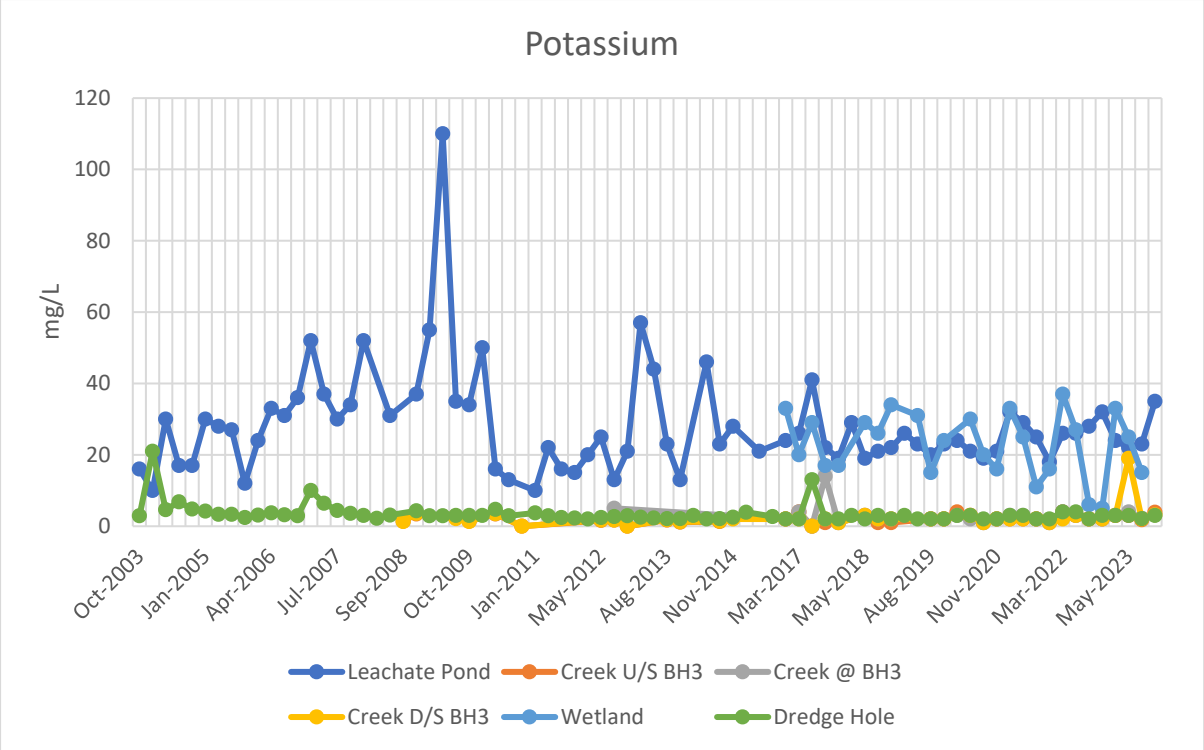

The Dredge hole tends to show the lowest and most stable iron levels across the surface water sites, with all other sites observing fluctuations. Notable spikes at the Wetland occurred in May 2021 reaching 60.5 mg/L and May 2023 reaching its highest peak to date at 69.4 mg/L. Iron levels at this location dropped in the most recent sampling event to 5 mg/L in July 2024 (location was dry in February 2025). The Leachate Pond shows several spikes throughout sampling history, most notably in February 2018 reaching the highest concentration across all sites at 109 mg/L. Smaller spikes were seen in September and November 2022 (18.3 and 23.5 mg/L respectively), before returning to more average values in recent events. Of the three creek sites, Creek @BH3 has shown the highest iron concentrations, with peaks in February 2021 (35.5 mg/L) and March 2022 (38.8 mg/L). All three creek sites have remained within historical trends during recent events. No comparable iron results are available for February 2025 due to the laboratory carrying out filtered metals analysis when total iron should have been analysed.



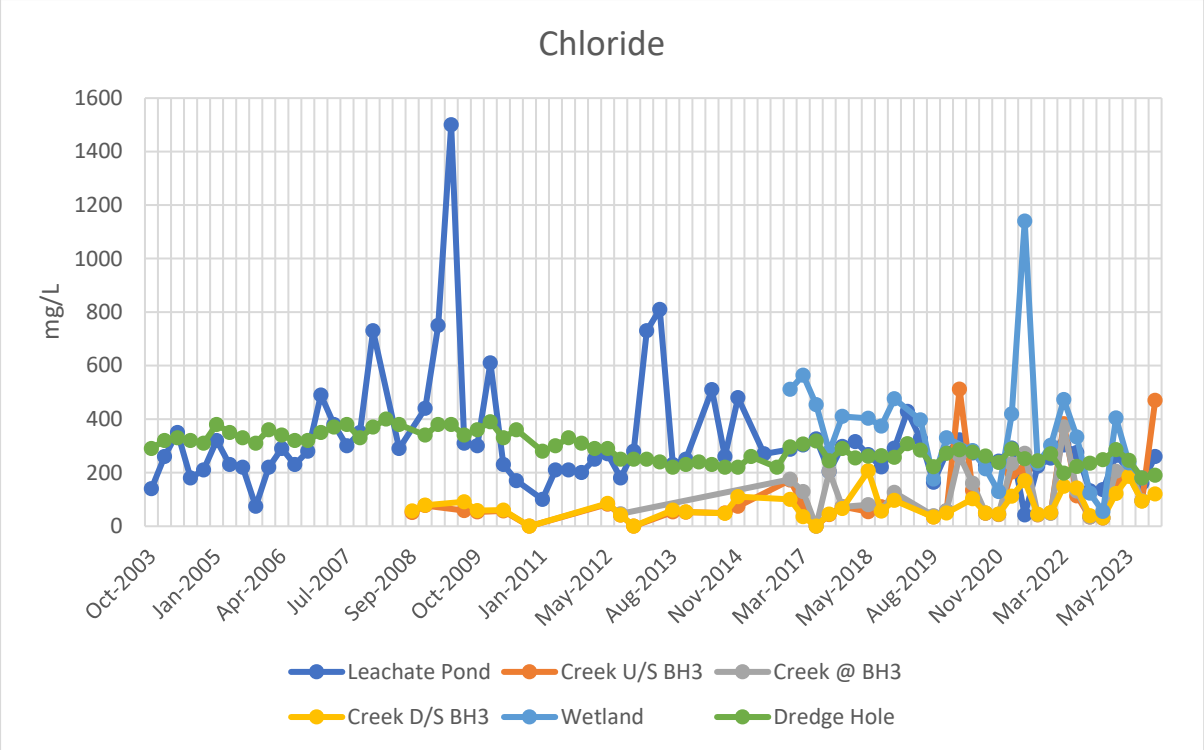

Zinc concentrations remain relatively low historically at most sites with the exception of Leachate pond experiencing several notable spikes and recording the highest zinc values noted at any of the surface water locations. During the 2017/2018 sampling program zinc at the Leachate Pond was 0.594 mg/L in August and 1.44 mg/L in February. Of the three creek sites, D/S BH3 has recorded the highest zinc concentrations, with a notable peak in March 2017 reaching 0.142 mg/L. Wetland and Dredge Hole remain consistently stable. No zinc results were obtained in the 2024/2025 monitoring event due to the laboratory not including this analyte in the supplied quote. Ventia have followed up and rectified this for future sampling events.



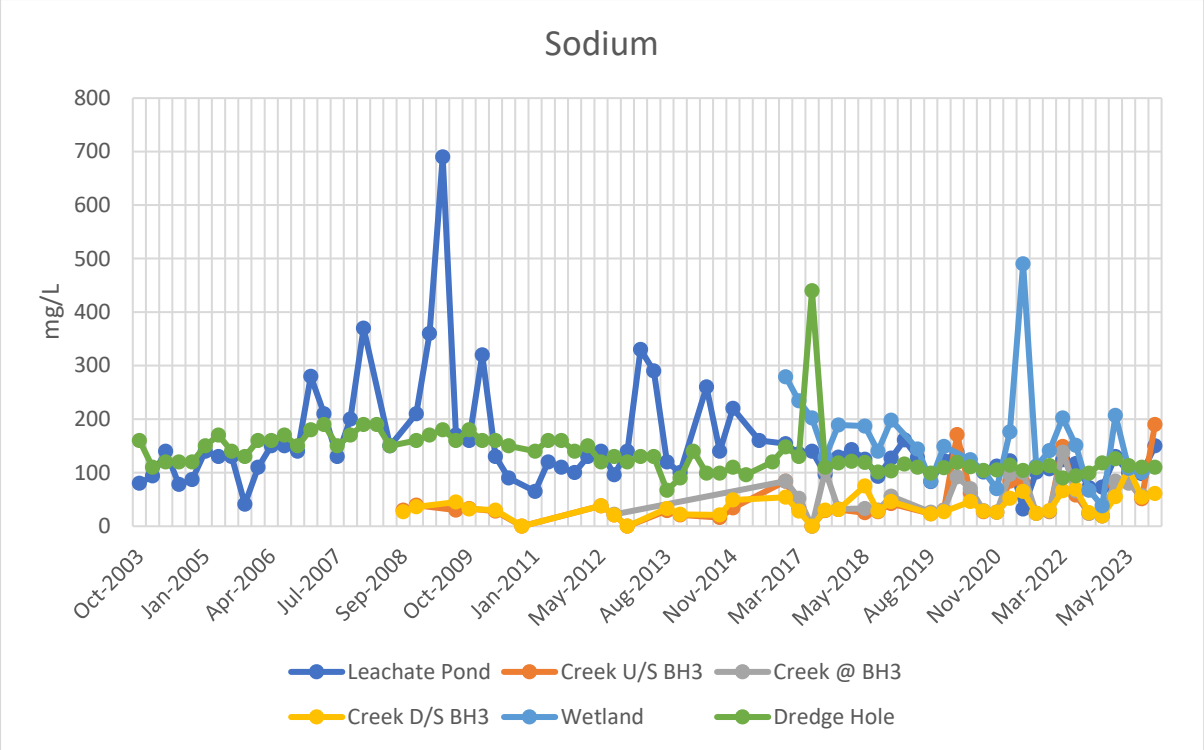

Surface water calcium levels remain within historical trends, with the Leachate Pond and the Wetland generally showing the highest concentrations across all sites. The Creek D/S of BH3 showed a spike in calcium concentration during the May 2023 sampling event, reaching 28 mg/L and is the highest level noted at this location since monitoring began in September 2008. Creek U/S BH3 reached its highest concentration in the most recent monitoring event reaching 36 mg/L in February 2025. Since August 2019 most sites tend to show some minor seasonal variance with most sites having higher calcium concentrations at the beginning of the year, which aligns with TDS levels.



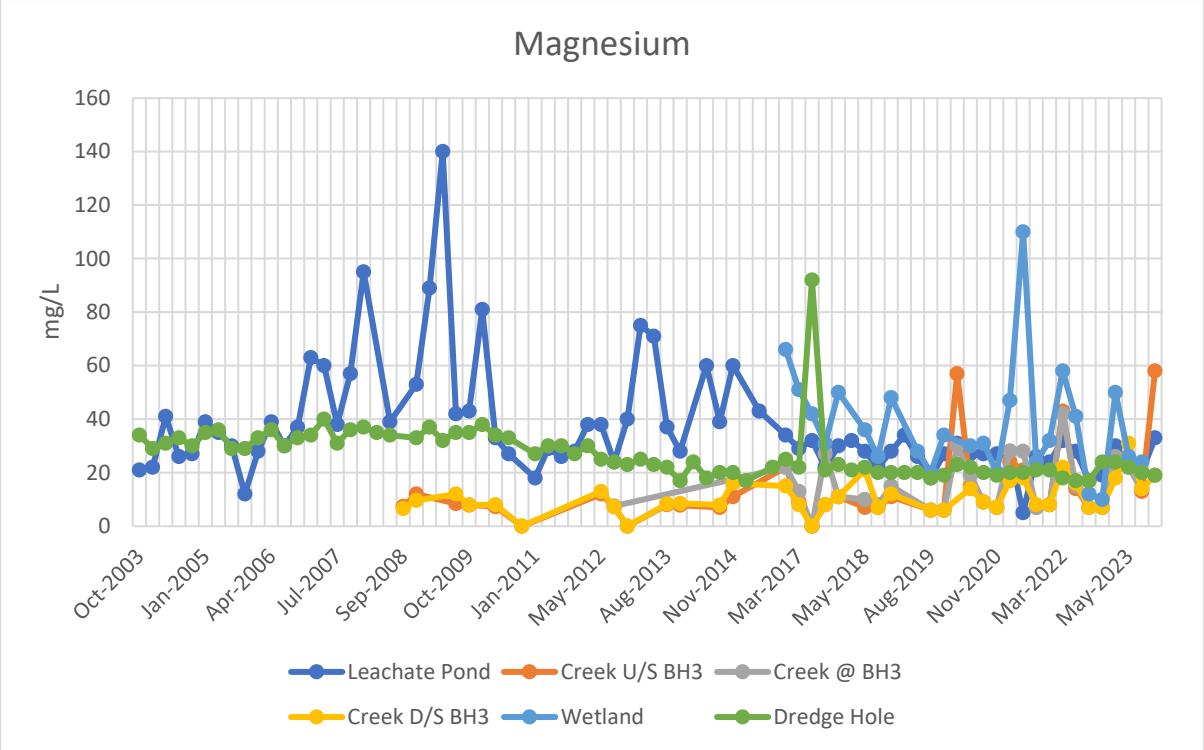

Historically the Leachate Pond and the Wetland have the highest potassium concentrations across the site and is typical of several measured analytes at these two sites. An exception was noted in September/November 2022 where uncharacteristically low potassium concentrations were recorded at the Wetland (6 and 5 mg/L respectively). These are the lowest results seen at this location since monitoring began in January 2017. The Creek D/S BH3 experienced peak levels of potassium in May 2023 of 19 mg/L, however returned to low values in July 2024 (2mg/L), and February 2025 (3.2 mg/L). All other sites have remained relatively low and within historical values.



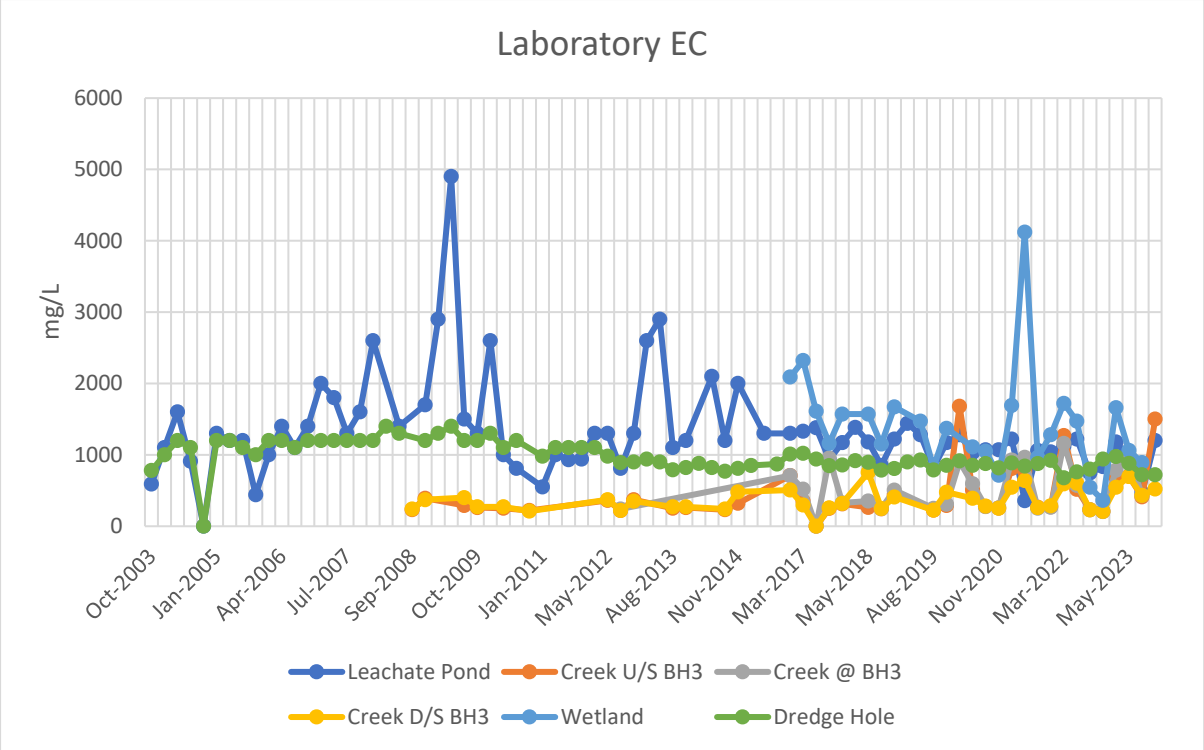

Leachate Pond and Wetland generally record the highest concentrations of chloride with two notable lows of 42 mg/L at Leachate in May 2021 and 55 mg/L at Wetland in November 2022. Across all sites these two sites have recorded the highest chloride concentrations of 1500 mg/L at Leachate Pond in April 2009, and 1140 mg/L at Wetland in May 2021. The three creek locations generally show the lowest chloride levels, however Creek U/S BH3 recorded its second highest concentration of 470 mg/L during February 2025. The Dredge Hole site remains the most static.




Sodium concentrations at all six sites remained in line with historical results during the 2024/2025 sampling event. Historically, Leachate Pond and the Wetland generally record the highest concentrations followed by Dredge Hole. The Wetland had a marked increase in results between the end of 2022 and the beginning of 2023, going from its lowest recorded concentration of 38 mg/L to 207 mg/L. In May 2023, Creek D/S BH3 reached its peak value, since sampling began at the site in September 2008, of 108 mg/L, whilst Creek U/S BH3 reached its highest recorded concentration of sodium in February 2025 reaching 190 mg/L. This site also recorded the highest and lowest concentrations of sodium across all sites in 2024/2025 (51 mg/L and 190 mg/L).




Magnesium concentrations at all surface water sites remained within historical levels during 2024/2025 sampling events, however Creek U/S BH3 reached its highest peak at 58 mg/L in February 2025. Typical of several other analytes, magnesium is showing some seasonality over the past several years of the sampling program with higher results recorded at the beginning of the year. Although the Dredge Hole site tends to remain relatively stable across sampling events there is one noticeable peak at this site in May 2017 of 92 mg/L. The Leachate Pond and the Wetland sites have historically had the highest values.




EC concentrations across the majority of surface water sites were within historical trends, with no notable results received during the 2024/2025 program, excpt at Creek U/S BH3. In general the Leachate Pond and Wetland record the highest EC results, however, during the 2024/2025 monitoring program, Creek U/S BH3 recorded the highest levels at 1,500 mg/L in February 2025 surpassing the Leachate Pond at 1,200 mg/L. This trend is noted across several analytes for this site during February 2025. A significant increase is also noted historically for EC at Wetland during 2022/2023 where EC recorded its lowest levels at 361 mg/L in November 2022 and rose to 1660 mg/L during March 2023. An increase of results at the Wetland at this time was also seen across several different analytes. The highest recorded EC concentrations across all sites historically was reached at the Leachate Pond, 4900 mg/L in April 2009, followed by 4120 mg/L at Wetland in May 2021.

## 6.3. LEACHATE MONITORING RESULTS

Three Leachate bores LB1, LB2 and LB3 were visited biannually during the 2024/2025 monitoring period. However, LB1 and LB2 were not sampled as the bores were blocked or dry. LB3 is only required to have SWL gauged and was found to be dry in February 2025. Therefore, leachate results were only able to be calculated for LB3 in the July 2024 monitoring program and is provided in Table 16. LB3 exceeded maximum allowable leachate levels by 0.55 m.

*Table 16 Leachate gauging results*

| ID | Date | SWL (mBTOC) | SWL (mAHD) | Maximum Leachate Levels (mAHD) | Exceedances (m) |
|---|---|---|---|---|---|
| **LB3** | 31/07/2024 | 10.75 | 415.35 | 414.80 | 0.55 |
| | 27/05/2025 | Bore dry | | | |

# 7. SUBSURFACE GAS BORE MONITORING RESULTS

There are four landfill gas monitoring bores, BH10 and BH12 are onsite and BH09 and BH11 are offsite. Of the onsite bores, one is directly into the waste mass (BH12) and is not used to monitor fugitive gas emissions. It is an indicator of the landfill gas source concentration. Results of landfill gas monitoring events in 2024/2025 is presented in Table 17. Peak methane and carbon dioxide results that are highlighted red exceed the allowable % v/v for these gases. Results at BH12 are not classed as site exceedances.

*Table 17 Landfill Gas Monitoring Bore Results*

| Site | Date | Peak Methane | Peak Carbon Dioxide |
|---|---|---|---|
| | | % v/v | % v/v |
| **Assessment Criteria** | | 1 | 10 |
| BH9 | 29/07/2024 | 0 | 4.3 |
| | 27/02/2025 | 0 | 3.8 |
| BH10 | 29/07/2024 | 0 | 6.6 |
| | 27/02/2025 | 0 | 4 |
| BH11 | 29/07/2024 | 2.3 | 1.7 |
| | 27/02/2025 | 1.3 | 1.6 |
| BH12* | 29/07/2024 | 40.6 | 16.3 |
| | 27/02/2025 | 34.3 | 16.1 |

* Bore is into the waste mass and is therefore not used to monitor fugitive emissions

# 8. SURFACE EMISSION MONITORING RESULTS

The buildings and services were monitored during July in 2024 and February in 2025. The landfill cap walkover was carried out during July 2024 and February 2025. Surface monitoring emission results are located within the field sheets in Appendix A of this report.

## 8.1. BUILDINGS AND SERVICES

According to the Landfill BPEM guidelines, for buildings and services on and adjacent to the landfill site, the acceptable methane concentration in the air is 5,000 ppm. No exceedances were recorded during the 2024-2025 monitoring program, the highest level recorded was 2.9 ppm at B19 in February 2025 which was located in the green waste mulch shed.

## 8.2. LANDFILL CAP WALK OVER

The landfill cap walk over was conducted in July 2024 and February 2025. According to the Landfill BPEM guidelines, assessment criteria is 100 ppm over a final cap, and 1000 ppm within 50mm of any penetrations through the final cap. All recorded values were below 4 ppm, indicating that the surface cap condition is acceptable as per the exceedance criteria. The highest methane concentration noted was 1.9 ppm in February 2025. Observation of the capped area of the landfill indicates minor cracking of the surface area.

# 9. QUALITY CONTROL / QUALITY ASSURANCE

## 9.1. PROGRAM

A summary of the QA/QC procedures adopted for the monitoring program are provided in Table 18.

*Table 18 Quality Assurance and Quality Control program*

| Item | Description |
|---|---|
| Laboratory accreditation | Groundwater samples were submitted to laboratories that are accredited by NATA for the analytes tested. All primary samples were submitted to ALS Springvale and secondary samples to Eurofins. |
| Sample collection and transport | All samples were collected by suitably qualified Ventia personnel trained in the relevant procedures. Samples were sealed into laboratory prepared containers then transferred to the laboratory using the correct sample preservation and chain of custody protocols. |
| Field and inter-lab duplicates | Blind and split duplicate samples were collected at greater than the nominated rate of 1 in 20 primary samples. One duplicate set was taken for each groundwater monitoring event in the 2024/2025 period. |
| Relative percentage difference (RPD) | The relative percentage difference (RPD) is assessed to evaluate the sampling methodology and the analytical techniques used. The RPD is calculated using the following formula:<br>$$RPD = \frac{(Result\ 1 - Result\ 2)}{(Result\ 1 + Result\ 2)/2}\ X\ 100\%$$<br>RPD's have been assessed under the following criteria:<br>1. RPDs have only been considered where a concentration is greater than 1 times the EQL<br>2. Acceptable RPDs for each EQL multiplier range are: 81 (1-10 x EQL); 50 (10-30 x EQL); 20 (> 30 x EQL)<br>3. The significance of RPD of results should be evaluated on the basis of sampling technique, sample variability, absolute concentration relative to criteria and laboratory performance<br>4. This variation can be expected to be higher for organic analysis than for inorganics, and for low concentration of analytes. |
| Sample blanks | Sample blanks were submitted to verify that no cross contamination had occurred during sampling or in the transfer of samples to the laboratory (Table I2):<br>• Equipment rinsate samples were collected at the nominated rate of 1 in 20 primary samples or one per sample type, which ever was greater.<br>The frequency of sample blanks was considered suitable to satisfy the data quality objectives of the program. One rinsate was taken for each groundwater monitoring event in the 2022/2023 period. |

| Item | Description |
|---|---|
| Laboratory quality control procedures | All analytical laboratories used by Ventia are required to adhere to NATA endorsed methodologies and conduct regular control checks on their analyses. Ventia requires these laboratories to regularly provide results of control method blanks, repeat blind replicates and recoveries. The following summarises pertinent acceptance limits for internal laboratory analysis:<br>• Surrogates: 75 - 125% recovery<br>• Matrix spikes: 70% - 130%<br>• Laboratory control samples: 75% - 125%<br>• Laboratory Duplicate Samples: Acceptable RPDs for each EQL multiplier range are: Not Applicable (1-10 x EQL); 50 (10-30 x EQL)*; 20 (> 30 x EQL)*.<br>• Method Blanks: 0 to <PQL<br>*Unless sample heterogeneity is established. |

## 9.2. RESULTS

The QA/QC program consisted of the collection of duplicate samples and rinsate samples. A summary of the QA/QC results is provided in **Appendix C**. All samples were collected by suitably qualified Ventia personnel and the sampling methods, including sample preservation, transport and decontamination, were consistent with Ventia procedures.

Across the sampling programs, 26 primary samples were collected during the 2024/2025 monitoring program. Two field and two inter-lab duplicate samples were collected (blinds and splits), in accordance with the data quality objective. This exceeds the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPM) recommended minimum rate of one per 20 samples.

A review of exceedances indicates that where RPDs were above the adopted criteria, differences can generally be attributed to two different categories. Table 19 (below) displays all high RPD's, results that are coloured yellow are those that are less than 10 times the Estimated Quantitation Limit (EQL). Results coloured green are where the primary samples were higher than the secondary value which provides a more conservative observation of the analyte. All others are coloured blue. During both events volatile fatty acids (as acetic acid) were incredibly different between the primary and the split sample. This has been noted across multiple projects and is likely due to the different way that the laboratories are carrying out this particular analysis. In February 2025, total organic carbon (TOC) in the inter-lab sample was higher than the primary sample, taken at BH8. There are no nominated exceedance values for the ANZECC guidelines or nominated water quality objectives, but for a more conservative observation the secondary sample results should be used.

The Relative Percentage Difference (RPD) for field duplicates and inter-lab duplicates were calculated for all results and are summarised in **Appendix C**.

*Table 19 RPD Exceedances*

| Site | Secondary Sample | Date | Primary Lab Report | Secondary Lab Report | Analyte | Units | EQL | Primary Result | Secondary Result | RPD |
|---|---|---|---|---|---|---|---|---|---|---|
| BH8 | Blind | 31/07/2025 | 1123989 | 1123989 | Electrical Conductivity | uS/cm | 1 | 450 | 290 | 43 |
| BH8 | Split | 31/07/2025 | 1123989 | EM2413023 | Volatile Fatty Acids (as Acetic Acid) | ug/L | 5,000 | <5000 | 24000 | 131 |
| | | | | | Kjeldahl Nitrogen Total | mg/L | 0.1 | 0.7 | 0.4 | 55 |
| BH8 | Split | 25/02/2025 | 1191963 | EM2503185 | Volatile Fatty Acids (as Acetic Acid) | ug/L | 5,000 | <5000 | 19000 | 117 |
| | | | | | Potassium | mg/L | 0.5 | 2.2 | 1 | 75 |
| | | | | | TOC | mg/L | 1 | <5 | 22 | 126 |

There were no detects in the rinsate samples across either visit in July 2024 or February 2025. The results are displayed in **Appendix C**.

Based on the QA/QC program, the analytical data is sufficient for the purposes of this monitoring program.

# 10. CONCLUSIONS

## 10.1. GROUNDWATER

All groundwater sites exceeded at least one of the adopted assessment criteria during each monitoring event (ANZECC 2000 guidelines for Fresh Water 95%, Irrigation and Livestock and the groundwater quality objectives as nominated by the Aftercare Management Plan). Results were in line with historic trends at the majority of monitoring bores.

Manganese was the most consistently recorded exceedance at five bore locations against the ANZECC 2000 Fresh Water 95% guideline, with nitrate (as N) also showing detections at two locations. Manganese exceedances against the ANZECC 2000 Irrigation guidelines were also detected at four locations, along with chloride at six bores, and sodium at five bores. There were no detected exceedances against the ANZEC 2000 Livestock guidelines. All locations, with the exception of BH1 and BH6 were in breach of the groundwater quality objectives as nominated by the Aftercare Management Plan for iron and at five locations for chromium (III+VI). Results were in line with historic trends at the majority of monitoring groundwater bores.

## 10.2. SURFACE WATER

One exceedance against the water quality objective, as specified in the Aftercare Management Plan, was recorded at a single surface water location. Additionally, exceedances of the ANZECC 2000 Irrigation guidelines were observed at four locations during the 2024/2025 monitoring program. Zinc was not included in this monitoring round.

The results from the 2024/2025 monitoring program were consistent with historical monitoring data. It is difficult to determine the impact of the landfill in isolation of surrounding land uses.

## 10.3. LEACHATE

Leachate bores LB1, LB2 and LB3 were monitored biannually. Leachate levels were only able to be calculated for LB3 in February 2024 as it was dry in February 2025. Both LB1 and LB2 were unable to be gauged due to being blocked or dry during both events. LB3 exceeded allowable leachate levels in July 2024 at 0.55 m.

## 10.4. SUBSURFACE LANDFILL GAS

Subsurface landfill gas monitoring performed in July 2024 and February 2025, identified exceedances of peak methane concentrations above the assessment criteria levels at BH11 during both monitoring events. No exceedances of peak carbon dioxide concentrations were recorded at BH9, BH10 or BH11 during either event. BH12 exhibited elevated levels of methane and carbon dioxide, consistent with its location within the mass. However, results from BH12 are not assessed against adopted action levels due to its location within the waste body.

## 10.5. SURFACE EMISSION LANDFILL GAS

The landfill cap walk over was completed in July 2024 and February 2025. All observed values were below 3 ppm, which is below the assessment criteria of 100 ppm.

All methane surface emission readings recorded for the landfill cap surface, buildings, structures and underground services during the 2024/2025 monitoring program were below the prescribed Landfill BPEM action levels indicating very low surface emission methane levels onsite.

## 10.6. Data Uncertainty and Statement of Limitations

Ventia has used a degree of skill and care ordinarily exercised by reputable members of our profession practising in the same or similar locality. The conclusions presented in this report are relevant to the condition of the site and the state of legislation currently enacted as at the date of this report. Ventia does not make any representation or warranty that the conclusions in this report will be applicable in the future as there may be changes in the condition of the site, applicable legislation or other factors that would affect the conclusions contained in this report.

# 11. DECLARATION

This declaration acknowledges that Ventia has been requested by Hepburn Shire Council to undertake an Environmental Monitoring Program in accordance with *Creswick Landfill Aftercare Management Plan, Part 2: Environmental Risk Assessment and Monitoring Program (2015).*

Ventia sampling procedures were adopted for all environmental monitoring undertaken. All groundwater and surface water monitoring was conducted in accordance with *EPA Victoria's Groundwater Sampling Guidelines (Publication 669; April 2000) and Sampling and Analysis of Waters, Wastewaters, Soils and Wastes (IWRG701; EPA, 2009)*. All landfill gas bore and surface emissions monitoring were conducted in accordance with the *EPA Landfill Gas Fugitive Emissions Monitoring Guidelines (Publication 1684,2018)*.

This report provides a summary of the analysis conducted under the monitoring program, an assessment of the likely offsite water quality and air quality impacts associated with the landfill as well as recommendations for improvements to the monitoring program.

Ventia is of the opinion that this report prepared on behalf of Hepburn Shire Council and titled '*2024/2025 Annual Monitoring Report – Creswick Landfill'* contains adequate information of suitable quality to enable the Hepburn Shire Council to fulfill its monitoring requirements.

## 12. REFERENCES

DELWP 2021. Environment Reference Standard 2021. Department of Environment, Land, Water and Planning, State Government of Victoria.

EPA 2000. A Guide to the Sampling and Analysis of Waters, Wastewaters, Soils and Wastes. Publication 441.7, Environmental Protection Authority, State Government of Victoria.

EPA 2000. Groundwater Sampling Guidelines. Publication 669. Environmental Protection Authority, State Government of Victoria.

EPA 2009. Industrial Waste Resource Guidelines: Sampling & Analysis of Waters, Wastewaters, Soils & Wastes. Publication IWRG701 – June 2009. Environmental Protection.

EPA 2016. Post-Closure Pollution Abatement Notice. Notice ID: 90006899

EPA 2018. Landfill Gas Fugitive Emissions Monitoring Guidelines. Publication 1684, February 2018. Authorised and published by EPA Victoria.

EPA 2015. Siting, Design, Operation and Rehabilitation of Landfills Publication 788.3, August 2015. Authorised and published by EPA Victoria.

Mackenzie Environmental 2015a, Creswick Landfill Aftercare Management Plan Part 1: Inspection and Maintenance Plan

Mackenzie Environmental 2015b, Creswick Landfill Aftercare Management Plan Part 2: Environmental Risk Assessment and Monitoring Program

Mackenzie Environmental 2015c, Creswick Landfill Supplementary Hydrogeological Assessment.

National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended in 2013)

Senversa 2016. Auditor Verification Report – Former Creswick Landfill, 32 Anne Street, Creswick, VIC.

SEPP 2018. State Environment Protection Policy (Waters). Victorian Government Gazette S 493. Environment Protection Act 1970, Act No. 8056/1970.

# APPENDICES

## APPENDIX A – FIELD RECORD SHEETS

Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH1 | Project Name | Hepburn Land Fill | Sampling Staff | PR |
| Project Area: | | Client | | WQ. Meter Model | YSI |
| Date | 30.07.2024 | Project No | | WQ. Meter Serial # | 23G103456 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time of SWL | | Total Depth (m) | | Mid-screen accessible? | | Depth pump set at (m) | |
| Static Water Level (m) | | Bore Diam (mm) | 50 | Open Screen Length(m) | | Depth of pump inlet (m) | |

| Well Purging Details | | | | Sampling Details | | | | Sample Bottles Required | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Purge Method | | Pump Type | | Sampling Method | | | | Bottle Type | Quantity | Bottle Type | Quantity |
| Time Pump in | | Pump in' WL | | Time Started | | WL m (start) | | | | | |
| Time Started | | WL m (start) | | Time Stopped | | WL m (end) | | | | | |
| Time Stopped | | WL m (end) | | Duplicate sample ID? | | | | | | | |
| Volume Removed (l) | | | | Triplicate sample ID? | | | | | | | |
| Discharge Rate (l/m) | | | | Rinsate sample ID? | | | | | | | |

## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | | WL m(post-removal) | | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | 20/10 | CPM | | Air/Gas Pressure (kPa) | |

**Comments** Destroyed

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | = vol required for 3V method (L) | | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
| | | | | | | | | | |
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Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH14 | Project Name | Hepburn Land Fill | Sampling Staff | PR |
| Project Area: | | Client | | WQ. Meter Model | YSI |
| Date | 30.07.2024 | Project No | | WQ. Meter Serial # | 23G103456 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | N | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | |
|---|---|---|---|---|---|
| Time of SWL | 10:12 | Total Depth (m) | | Mid-screen accessible? | Depth pump set at (m) |
| Static Water Level (m) | | Bore Diam (mm) | | Open Screen Length(m) | Depth of pump inlet (m) |

| Well Purging Details | | | | Sampling Details | | | | Sample Bottles Required | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Purge Method | GRAB | Pump Type | BAILER | Sampling Method | grab | | | Bottle Type | Quantity | Bottle Type | Quantity |
| Time Pump in | | Pump in' WL | | Time Started | 10:12 | WL m (start) | 3.01 | | | | |
| Time Started | | WL m (start) | | Time Stopped | 10:15 | WL m (end) | 3.01 | | | | |
| Time Stopped | | WL m (end) | | Duplicate sample ID? | | | | | | | |
| Volume Removed (l) | | | | Triplicate sample ID? | | | | | | | |
| Discharge Rate (l/m) | | | | Rinsate sample ID? | | | | | | | |

## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | | WL m(post-removal) | | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | | CPM | | Air/Gas Pressure (kPa) | |

**Comments** Grab sample

used bailer due to bend bore casing.

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | = vol required for 3V method (L) | | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
| 30.07.2024 | | 3.01 | Keep purging | 1158 | 5.63 | 13.60 | 15.3 | 3.00 | clear sample |
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Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH3 | Project Name | Hepburn Land Fill | Sampling Staff | PR |
| Project Area: | | Client | | WQ. Meter Model | YSI |
| Date | 30.07.2024 | Project No | | WQ. Meter Serial # | 23G103456 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time of SWL | 14:05 | Total Depth (m) | 4.00 | Mid-screen accessible? | Clear | Depth pump set at (m) | 3.50 |
| Static Water Level (m) | 0.60 | Bore Diam (mm) | 50 | Open Screen Length(m) | 0.00 | Depth of pump inlet (m) | 3.50 |

## Well Purging Details

| | | | |
|---|---|---|---|
| Purge Method | LF | Pump Type | MP |
| Time Pump in | 14:07 | Pump in' WL | 0.50 |
| Time Started | 14:10 | WL m (start) | 0.50 |
| Time Stopped | 14:28 | WL m (end) | 0.64 |
| Volume Removed (l) | 3.9 | | |
| Discharge Rate (l/m) | 0.22 | | |

## Sampling Details

| | | | |
|---|---|---|---|
| Sampling Method | LF | | |
| Time Started | 14:28 | WL m (start) | 0.64 |
| Time Stopped | 14:28 | WL m (end) | 0.64 |
| Duplicate sample ID? | | | |
| Triplicate sample ID? | | | |
| Rinsate sample ID? | | | |

## Sample Bottles Required

| Bottle Type | Quantity | Bottle Type | Quantity |
|---|---|---|---|
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## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | 14:40 | WL m(post-removal) | 0.63 | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | 11/9 | CPM | 25 | Air/Gas Pressure (kPa) | |

**Comments** clear,

good sample taken, well recharge

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | 20 | = vol required for 3V method (L) | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
| 14:10 | 0.1 | 0.50 | Keep purging | 3472 | 5.87 | 11.30 | 63.7 | 3.40 | clear, no odour |
| 14:13 | 0.9 | 0.65 | Keep purging | 3530 | 6.28 | 10.70 | -1.1 | 0.73 | |
| 14:16 | 1.5 | 0.64 | Keep purging | 3524 | 6.37 | 10.60 | -27.8 | 0.63 | |
| 14:19 | 2.2 | 0.64 | Keep purging | 3523 | 6.42 | 10.60 | -44.2 | 0.64 | |
| 14:22 | 2.8 | 0.64 | Keep purging | 3525 | 6.45 | 10.40 | -59.3 | 0.54 | |
| 14:25 | 3.1 | 0.64 | Keep purging | 3524 | 6.46 | 10.40 | -61.2 | 0.54 | |
| 14:28 | 3.9 | 0.64 | OK to sample | 3524 | 6.46 | 10.40 | -63.3 | 0.53 | SAMPLE TAKEN |
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Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH4 | Project Name | Hepburn Land Fill | Sampling Staff | PR |
| Project Area: | | Client | | WQ. Meter Model | YSI |
| Date | 31.7.2024 | Project No | | WQ. Meter Serial # | 23G103456 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | 50 | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time of SWL | 10:45 | Total Depth (m) | 7.15 | Mid-screen accessible? | Clear | Depth pump set at (m) | 6.50 |
| Static Water Level (m) | 5.35 | Bore Diam (mm) | 50 | Open Screen Length(m) | 0.00 | Depth of pump inlet (m) | 6.50 |

## Well Purging Details

| | | | |
|---|---|---|---|
| Purge Method | LF | Pump Type | MP |
| Time Pump in | 10:50 | Pump in' WL | 5.87 |
| Time Started | 10:53 | WL m (start) | 5.87 |
| Time Stopped | 11:14 | WL m (end) | 6.04 |
| Volume Removed (l) | 3.7 | | |
| Discharge Rate (l/m) | 0.18 | | |

## Sampling Details

| | | | |
|---|---|---|---|
| Sampling Method | LF | | |
| Time Started | 11:14 | WL m (start) | 6.04 |
| Time Stopped | 11:18 | WL m (end) | 6.04 |
| Duplicate sample ID? | | | |
| Triplicate sample ID? | | | |
| Rinsate sample ID? | | | |

## Sample Bottles Required

| Bottle Type | Quantity | Bottle Type | Quantity |
|---|---|---|---|
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## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | 11:25 | WL m(post-removal) | 6.04 | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | 11/9 | CPM | | Air/Gas Pressure (kPa) | 20 |

**Comments** dark grey in colour, no odour

poor recharge

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | 11 = vol required for 3V method (L) | | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
| 10:53 | | 5.87 | | | | | | | |
| 10:56 | 0.2 | 5.89 | Keep purging | 2335 | 5.86 | 12.10 | 44.3 | 2.30 | dark grey, no odour |
| 10:59 | 0.6 | 5.92 | #DIV/0! | 2363 | 6.08 | 13.20 | -14.5 | 0.74 | |
| 11:02 | 1.4 | 5.94 | Keep purging | 2374 | 6.12 | 13.20 | -31.7 | 0.57 | |
| 11:05 | 2 | 5.95 | Keep purging | 2381 | 6.15 | 13.30 | -46.4 | 0.43 | |
| 11:08 | 2.6 | 5.98 | Keep purging | 2380 | 6.18 | 13.30 | -61.0 | 0.32 | |
| 11:11 | 3.1 | 6.02 | Keep purging | 2384 | 6.19 | 13.30 | -68.0 | 0.28 | |
| 11:14 | 3.7 | 6.04 | Keep purging | 2385 | 6.20 | 13.20 | -69.0 | 0.26 | sample taken as the WQ parameters stable |
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Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH6 | Project Name | Hepburn Land Fill | Sampling Staff | PR |
| Project Area: | | Client | | WQ. Meter Model | YSI |
| Date | 31.07.2024 | Project No | | WQ. Meter Serial # | 23G103456 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | 50 | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time of SWL | 9:10 | Total Depth (m) | 15.50 | Mid-screen accessible? | Clear | Depth pump set at (m) | 15.00 |
| Static Water Level (m) | 12.32 | Bore Diam (mm) | 50 | Open Screen Length(m) | 0.00 | Depth of pump inlet (m) | 15.00 |

## Well Purging Details

| | | | |
|---|---|---|---|
| Purge Method | LF | Pump Type | MP |
| Time Pump in | 9:15 | Pump in' WL | 12.33 |
| Time Started | 9:25 | WL m (start) | 12.33 |
| Time Stopped | 9:52 | WL m (end) | 12.33 |
| Volume Removed (l) | 2.6 | | |
| Discharge Rate (l/m) | 0.10 | | |

## Sampling Details

| | | | |
|---|---|---|---|
| Sampling Method | LF | | |
| Time Started | 9:52 | WL m (start) | 12.33 |
| Time Stopped | 10:07 | WL m (end) | 12.32 |
| Duplicate sample ID? | | | |
| Triplicate sample ID? | | | |
| Rinsate sample ID? | | | |

## Sample Bottles Required

| Bottle Type | Quantity | Bottle Type | Quantity |
|---|---|---|---|
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## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | 10:10 | WL m(post-removal) | 12.32 | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | 11/9 | CPM | | Air/Gas Pressure (kPa) | 30 |

**Comments**

BLIND DUPLICATE TAKEN

SPLIT TAKEN

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | 19 | = vol required for 3V method (L) | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
| 9:25 | | 12.33 | | | | | | | |
| 9:28 | | 12.32 | | | | | | | |
| 9:31 | | 12.32 | | | | | | | |
| 9:34 | | 12.32 | | | | | | | |
| 9:37 | 0.1 | 12.32 | #DIV/0! | 557 | 4.92 | 12.90 | 119.1 | 3.56 | clear no odour |
| 9:40 | 0.4 | 12.33 | #DIV/0! | 554 | 4.87 | 13.70 | 120.2 | 2.16 | |
| 9:43 | 0.8 | 12.34 | Keep purging | 549 | 4.93 | 14.30 | 130.9 | 1.31 | |
| 9:46 | 1.5 | 12.34 | Keep purging | 548 | 4.95 | 14.30 | 142.7 | 1.20 | |
| 9:49 | 2.1 | 12.33 | Keep purging | 547 | 4.95 | 14.30 | 147.2 | 1.15 | |
| 9:52 | 2.6 | 12.33 | OK to sample | 546 | 4.95 | 14.30 | 150.0 | 1.10 | sample taken |
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Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH7 | Project Name | HEPBURN GW | Sampling Staff | PR |
| Project Area: | | Client | HEPBURN SHIRE | WQ. Meter Model | YSI |
| Date | 31.7.2024 | Project No | | WQ. Meter Serial # | 23G103456 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time of SWL | 11:55 | Total Depth (m) | 6.65 | Mid-screen accessible? | Clear | Depth pump set at (m) | 6.00 |
| Static Water Level (m) | 2.50 | Bore Diam (mm) | 50 | Open Screen Length(m) | 0.00 | Depth of pump inlet (m) | 6.00 |

## Well Purging Details

| | | | |
|---|---|---|---|
| Purge Method | LF | Pump Type | MP |
| Time Pump in | 11:58 | Pump in' WL | 2.50 |
| Time Started | 12:03 | WL m (start) | 2.50 |
| Time Stopped | | WL m (end) | 2.50 |
| Volume Removed (l) | 2.4 | | |
| Discharge Rate (l/m) | | | |

## Sampling Details

| | | | |
|---|---|---|---|
| Sampling Method | LF | | |
| Time Started | 12:18 | WL m (start) | 2.50 |
| Time Stopped | 12:25 | WL m (end) | 2.50 |
| Duplicate sample ID? | | | |
| Triplicate sample ID? | | | |
| Rinsate sample ID? | | | |

## Sample Bottles Required

| Bottle Type | Quantity | Bottle Type | Quantity |
|---|---|---|---|
| 1Ltr green | 1 | | |
| 0ml filtered meta | 1 | | |
| 60ml COD | 1 | | |
| 50ml glass | 1 | | |

## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | | WL m(post-removal) | | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | 11/9 | CPM | | Air/Gas Pressure (kPa) | 25 |

**Comments**

Near leachate pond.

murky.no odour

recharge well

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | 24 | = vol required for 3V method (L) | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
| 12:03 | | 2.50 | | | | | | | |
| 12:06 | 0.3 | 2.51 | | 1057 | 6.27 | 13.60 | -27.1 | 2.48 | MURKY |
| 12:09 | 0.8 | 2.50 | | 1064 | 6.30 | 13.90 | -33.7 | 1.97 | |
| 12:12 | 1.5 | 2.51 | | 1065 | 6.31 | 14.00 | -37.2 | 1.92 | |
| 12:15 | 1.9 | 2.50 | | 1066 | 6.32 | 14.10 | -41.6 | 1.82 | |
| 12:18 | 2.4 | 2.50 | | 1064 | 6.33 | 14.30 | -45.9 | 1.75 | sample taken |
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Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH8 | Project Name | HEPBURN SHIRE GW | Sampling Staff | PR |
| Project Area: | | Client | HEPBURN SHIRE | WQ. Meter Model | YSI |
| Date | 31.07.2024 | Project No | | WQ. Meter Serial # | 23G103456 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | |
|---|---|---|---|---|---|
| Time of SWL | 13:35 | Total Depth (m) | | Mid-screen accessible? | Depth pump set at (m) |
| Static Water Level (m) | ef comments | Bore Diam (mm) | | Open Screen Length(m) | Depth of pump inlet (m) |

| Well Purging Details | | | | Sampling Details | | | | Sample Bottles Required | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Purge Method | | Pump Type | | Sampling Method | | | | Bottle Type | Quantity | Bottle Type | Quantity |
| Time Pump in | | Pump in' WL | | Time Started | | WL m (start) | | 1ltr | 1 | | |
| Time Started | | WL m (start) | | Time Stopped | | WL m (end) | | 60ml METALS filtere | 1 | | |
| Time Stopped | 13:40 | WL m (end) | 2.89+/- 0.010 | Duplicate sample ID? | | | | 60ml COD | 1 | | |
| Volume Removed (l) | 2 | | | Triplicate sample ID? | | | | 50ml GLASS | 1 | | |
| Discharge Rate (l/m) | | | | Rinsate sample ID? | | | | | | | |

## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | | WL m(post-removal) | | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | | CPM | | Air/Gas Pressure (kPa) | |

**Comments** bore casing fully broken away.WL taken as approximate only

sample using bailer.top soil collapsing in to the bore.

high turbit water

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | #VALUE! | = vol required for 3V method (L) | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
| 13:40 | 2 | 2.89+/- 0.010 | Keep purging | 1043 | 6.51 | 14.00 | -58.7 | 0.87 | high turbit water |
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Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH9 | Project Name | Hepburn Land Fill | Sampling Staff | PR |
| Project Area: | | Client | | WQ. Meter Model | YSI |
| Date | 30.07.2024 | Project No | | WQ. Meter Serial # | 23G103456 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time of SWL | | Total Depth (m) | | Mid-screen accessible? | | Depth pump set at (m) | |
| Static Water Level (m) | | Bore Diam (mm) | | Open Screen Length(m) | | Depth of pump inlet (m) | |

| Well Purging Details | | | | Sampling Details | | | | Sample Bottles Required | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Purge Method | | Pump Type | | Sampling Method | | | | Bottle Type | Quantity | Bottle Type | Quantity |
| Time Pump in | | Pump in' WL | | Time Started | | WL m (start) | | | | | |
| Time Started | | WL m (start) | | Time Stopped | | WL m (end) | | | | | |
| Time Stopped | | WL m (end) | | Duplicate sample ID? | | | | | | | |
| Volume Removed (l) | | | | Triplicate sample ID? | | | | | | | |
| Discharge Rate (l/m) | | | | Rinsate sample ID? | | | | | | | |

## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | | WL m(post-removal) | | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | | CPM | | Air/Gas Pressure (kPa) | |

**Comments** DRY

ALSO A GAS BORE

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | = vol required for 3V method (L) | | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
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Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH10 | Project Name | Hepburn Land Fill | Sampling Staff | PR |
| Project Area: | | Client | | WQ. Meter Model | YSI |
| Date | 30.07.2024 | Project No | | WQ. Meter Serial # | 23G103456 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | N | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time of SWL | 13:05 | Total Depth (m) | 6.40 | Mid-screen accessible? | Clear | Depth pump set at (m) | 6.00 |
| Static Water Level (m) | 2.58 | Bore Diam (mm) | 50 | Open Screen Length(m) | 0.00 | Depth of pump inlet (m) | 6.00 |

## Well Purging Details

| | | | |
|---|---|---|---|
| Purge Method | LF | Pump Type | MP |
| Time Pump in | 13:10 | Pump in' WL | 2.58 |
| Time Started | 13:15 | WL m (start) | |
| Time Stopped | 13:30 | WL m (end) | 2.00 |
| Volume Removed (l) | 2.67 | | |
| Discharge Rate (l/m) | 0.18 | | |

## Sampling Details

| | | | |
|---|---|---|---|
| Sampling Method | LF | | |
| Time Started | 13:30 | WL m (start) | 2.67 |
| Time Stopped | 13:40 | WL m (end) | 2.67 |
| Duplicate sample ID? | | | |
| Triplicate sample ID? | | | |
| Rinsate sample ID? | | | |

## Sample Bottles Required

| Bottle Type | Quantity | Bottle Type | Quantity |
|---|---|---|---|
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## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | 13:40 | WL m(post-removal) | 2.71 | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | 11/9 | CPM | 25 | Air/Gas Pressure (kPa) | |

**Comments**

cloudy and yellow

wq stable. Slow recharge

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | 23 | = vol required for 3V method (L) | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
| 13:15 | 2.58 | | | | | | | | |
| 13:18 | 2.62 | 0.10 | Keep purging | 756 | 5.81 | 13.50 | 48.3 | 3.08 | DARK YELLOW, HIGH TURBIT |
| 13:21 | 2.64 | 0.30 | #DIV/0! | 754 | 5.80 | 13.50 | 49.9 | 2.84 | |
| 13:24 | 2.67 | 0.80 | Keep purging | 752 | 5.79 | 13.40 | 51.9 | 2.50 | |
| 13:27 | 2.69 | 1.40 | Keep purging | 749 | 5.79 | 13.50 | 52.7 | 2.31 | |
| 13:30 | 2.67 | 2.00 | OK to sample | 748 | 5.79 | 13.50 | 53.0 | 2.31 | sample taken |

Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH14 | Project Name | Hepburn Land Fill | Sampling Staff | PR |
| Project Area: | | Client | | WQ. Meter Model | YSI |
| Date | 30.07.2024 | Project No | | WQ. Meter Serial # | 23G103456 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time of SWL | 8:40 | Total Depth (m) | 6.00 | Mid-screen accessible? | Clear | Depth pump set at (m) | |
| Static Water Level (m) | 2.80 | Bore Diam (mm) | 50 | Open Screen Length(m) | 0.00 | Depth of pump inlet (m) | |

## Well Purging Details

| | | | |
|---|---|---|---|
| Purge Method | LF | Pump Type | MP |
| Time Pump in | 8:50 | Pump in' WL | 2.80 |
| Time Started | 8:55 | WL m (start) | 2.80 |
| Time Stopped | 9:23 | WL m (end) | 2.82 |
| Volume Removed (l) | 1.3 | | |
| Discharge Rate (l/m) | 0.05 | | |

## Sampling Details

| | | | |
|---|---|---|---|
| Sampling Method | LF | | |
| Time Started | 9:23 | WL m (start) | 2.80 |
| Time Stopped | 9:30 | WL m (end) | 2.80 |
| Duplicate sample ID? | | | |
| Triplicate sample ID? | | | |
| Rinsate sample ID? | | | |

## Sample Bottles Required

| Bottle Type | Quantity | Bottle Type | Quantity |
|---|---|---|---|
| | | | |
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## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | 9:35 | WL m(post-removal) | 2.79 | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | 20/10 | CPM | | Air/Gas Pressure (kPa) | 20 |

**Comments** brown, turbit, no odour

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | 19 = vol required for 3V method (L) | | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
| 8:55 | | 2.80 | | | | | | | |
| 8:58 | | 2.78 | | | | | | | |
| 9:01 | | 2.77 | | | | | | | |
| 9:05 | 0.1 | 2.75 | #DIV/0! | 1137 | 6.04 | 8.70 | 52.2 | 4.41 | |
| 9:08 | 0.2 | 2.72 | #DIV/0! | 1134 | 6.14 | 7.70 | 38.9 | 3.52 | turbity high, brown |
| 9:11 | 0.4 | 2.79 | Keep purging | 1034 | 6.39 | 8.70 | -1.1 | 1.08 | |
| 9:14 | 0.6 | 2.80 | Keep purging | 1020 | 6.42 | 9.50 | -7.1 | 0.75 | |
| 9:17 | 0.9 | 2.81 | Keep purging | 1024 | 6.45 | 10.00 | -13.4 | 0.70 | |
| 9:20 | 1.1 | 2.82 | OK to sample | 1027 | 6.45 | 10.01 | -16.1 | 0.69 | |
| 9:23 | 1.3 | 2.82 | Keep purging | 1024 | 6.47 | 10.08 | -20.0 | 0.60 | sample taken |
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Table 1: Subsurface Gas Bore Results (Jul 2024)

| ID | DATE and TIME | CH4 | CO2 | O2 | PEAKCH4 | PEAKCO2 | MIN O2 | BARO | REL.PRESSURE | TERNAL FLO | CO | H2S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | % | % | % | % | % | % | mb | mb | l/h | ppm | ppm |
| BH12* | 29/07/2024 16:12 | 39.2 | 15.9 | 0 | 40.6 | 16.3 | 0 | 980 | 0 | -0.04 | 2 | 1 |
| BH9 | 29/07/2024 15:50 | 0 | 4.3 | 16.1 | 0 | 4.3 | 16.1 | 980 | -0.32 | 0 | 0 | 1 |
| BH11 | 29/07/2024 16:28 | 0 | 1.4 | 19.1 | 2.3 | 1.7 | 15.7 | 980 | 0.04 | 0 | 0 | 1 |
| BH10 | 29/07/2024 16:01 | 0 | 6.6 | 14.6 | 0 | 6.6 | 14.6 | 981 | 0.04 | 0 | 0 | 1 |

Notes:

Exceedance of Adopted Assesment Criteria

Methane 1% v/v (EPA Victoria, Best Practice Environmental Management, Siting, design, operation and rehabilitation of landfills, 2015)

Carbon Dioxide 10% v/v (Mackenzie 2016)

* not applicable due to location within waste mass

# Ventia Landfill Subsurface Gas Monitoring - Field Sheet

| | |
|---|---|
| **Project** | **Creswick Landfill** |
| **Client** | **Hepburn Shire** |
| **Job Location** | **Creswick Landfill** |
| **Sampling Staff** | Robert Callander/Pandula R |
| **Instrument Type** | GA 5000 |
| **Instrument Serial Number** | MG-0235 |
| **Calibration Record Supplied (Y/N)** | Y |
| **Weather & Temperature** | cloudy condition. 11C |
| **Site Ground Conditions** | Wet |
| **Barometric Pressure** | 1031hpa |

| General Comments |
|---|
| **July 2024 Creswick** |

| LFG ID | Date | Time | Peak Flow (l/hr) | Stabilised Flow (l/hr) | SWL (mBTOC) | Depth (mBTOC) | Bore & Headworks Condition | Comments |
|---|---|---|---|---|---|---|---|---|
| BH12 | 29.07.2024 | 16:12 | -0.04 | -0.04 | 6.59 | 6.64 | GOOD condition | high gas readings |
| BH9 | 29.07.2024 | 15:50 | 0 | 0 | 6.62 | 6.63 | GOOD condition | no reportable issues noticed |
| BH11 | 29.07.2024 | 16:28 | 0 | 0 | Dry | 10.75 | GOOD condition | no reportable issues noticed |
| BH10 | 29.07.2024 | 16:01 | 0 | 0 | 6.27 | 6.27 | GOOD condition | no reportable issues noticed |
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*# Instrumentation Gas Readings recorded on instrument data export*

## SAMPLING RESULTS SUBMISSION SHEET (SAMPLING UNDERTAKEN BY VENTIA)

**Client:** Hepburn Shire Council
**Site:** Creswick Landfill
**Program:** Groundwater/Surface Water Sampling

**Samping Period:** JULY 2024
**Sampler:** PR, AC
**Phone:** 408405305

| Bore/Sample Point | Date | Time (EST) | Depth (mbmp) | SWL m (mbtoc) | Electrical Conductivity (us/cm @ 25°C) | pH | Temp. (°C) | Redox (mV) | DO (mg/L) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LB1 | | | | | | | | | | N/A |
| LB2 | | | | | | | | | | dry, odour from the bore |
| LB3 | 31.7.2024 | 14:00 | | 10.75 | | | | | | WL only,odour from the bore |
| Creek U/S BH3 | 30.7.2024 | 9:00 | | | 391 | 6.86 | 6.2 | -23.1 | 8.52 | creek flowing |
| Creek @ BH3 | 30.7.2024 | 8:45 | | | 413 | 6.77 | 6.3 | -22.0 | 8.10 | creek flowing |
| Creek D/S BH3 | 30.7.2024 | 9:15 | | | 403 | 6.88 | 6.6 | -24.9 | 8.27 | creek flowing |
| Leachate Pond | 31.7.2024 | 12:30 | | | 898 | 7.07 | 11.5 | 15.8 | 3.17 | high turbity |
| Wetland | 30.7.2024 | 14:45 | | | 831 | 7.76 | 13.5 | -17.5 | 11.02 | clear water,birds and natural habitat exicist |
| Dredge hole | 30.7.2024 | 9:55 | | | 678 | 6.84 | 9.1 | -13.5 | 8.22 | clear water,birds and natural habitat exicist |
| BH1 | | | | | | | | | | N/A |
| BH2 | 30.7.2024 | 10:12 | | 3.01 | 1158 | 5.63 | 13.6 | 15.3 | 3.00 | bend casing, possible grab sampling,cover exicist |
| BH3 | 30.7.2024 | 14:25 | | 0.63 | 3524 | 6.46 | 10.4 | -63.3 | 0.5 | near wetland |
| BH4 | 31.7.2024 | 11:14 | | 6.20 | 2385 | 6.20 | 13.2 | -69.0 | 0.3 | good |
| BH6 | 31.7.2024 | 9:52 | | 4.95 | 546 | 4.95 | 14.0 | 150.0 | 1.10 | good condition |
| BH7 | 31.7.2024 | 12:18 | | 6.36 | 1064 | 6.33 | 14.3 | -45.9 | 1.75 | good condition, near leachate pond |
| BH8 | 31.7.2024 | 13:40 | | 6.51 | 1043 | 6.51 | 14.0 | -58.7 | 0.87 | damged, broken casing,bore hole exicist but top soil collapsing to bore hole.grab sampling possible.WL approximate only |
| BH10 | 30.7.2024 | 13:30 | | 2.58 | 748 | 5.79 | 13.5 | 53.0 | 2.31 | gas bore and GW bore,good condition |
| BH13 | 30.7.2024 | 9:23 | | 2.80 | 1024 | 6.47 | 10.1 | -20 | 0.6 | near creek, good condition |

**NOTES:**
**1** Groundwater samples taken using the low-flow method (as per EPA Publication 669) unless otherwise noted
**2** All depths measured from the top of the PVC casing

# Ventia Landfill Surface Gas Monitoring - Field Sheet

| | |
|---|---|
| **Project** | **Creswick Landfill** |
| **Client** | **Hepburn Shire** |
| **Job Location** | **Landfill Cap Workover** |
| **Sampling Staff** | Robert Callander |
| **Instrument Type** | Inspectra laser |
| **Instrument Serial Number** | 349071 7 |
| **Calibration Record Supplied (Y/N)** | Y |
| **Date** | 30/7/24 |
| **Weather and Temperature** | Fine |
| **Site Ground Conditions** | |
| **Barometric Pressure** | 1035.1 hPa |

**General Comments**

Recent rain left latent water on cap in wheel ruts. Soft clay + grass over most of the caps surface

| Reading # | Time | $CH_4$ Concentration (ppm) | Comment i.e. batter / penetration / sump |
|---|---|---|---|
| B7 | 12:10 | 1.6 | Soft clay |
| B8 | 12:11 | 2.0 | " " |
| C5 | 12:12 | 1.9 | " " + gravel |
| C6 | 12:13 | 1.1 | " " " " |
| C7 | 12:14 | 2.3 | Soft Clay |
| C8 | 12:15 | 2.1 | " " + grass |
| C9 | 12:16 | 1.9 | Soft Clay + wheel ruts |
| D5 | 12:17 | 0.9 | firm soil + recently cut grass |
| D6 | 12:18 | 0.9 | " " |
| D7 | 12:19 | 1.1 | Soft clay + grass |
| D8 | 12:20 | 1.9 | " " |
| D9 | 12:21 | 1.7 | Soft clay + wheel ruts |
| E6 | 12:22 | 1.6 | firm soil + recent cut grass |
| E7 | 12:23 | 1.3 | Soft clay + grass |
| E8 | 12:24 | 1.2 | " " |
| E9 | 12:25 | 1.6 | " " |
| E10 | 12:26 | 1.8 | Soft clay + wheel ruts |
| F6 | 12:27 | 1.6 | firm soil + recently cut grass |
| F7 | 12:28 | 1.4 | Soft clay + grass |
| F8 | 12:29 | 1.3 | " " |
| F9 | 12:30 | 1.2 | " " |
| F10 | 12:31 | 1.1 | " " |
| G6 | 12:32 | 1.0 | firm soil + recent cut grass |
| G7 | 12:33 | 1.5 | " |
| G8 | 12:34 | 1.6 | Soft clay + grass |
| G9 | 12:35 | 1.7 | " " |
| G10 | 12:36 | 1.4 | Soft clay + wheel ruts |
| H5 | 12:37 | 1.2 | firm soil + recent cut grass |
| H6 | 12:38 | 1.0 | " " |
| H7 | 12:39 | 1.2 | " " |
| H8 | 12:40 | 1.4 | " " |
| H9 | 12:41 | 1.3 | Soft clay + grass |
| H10 | 12:42 | 1.8 | Soft clay + grass |
| I5 | 12:43 | 1.9 | firm soil + recently cut grss |
| I6 | 12:44 | 2.0 | " |
| I7 | 12:45 | 1.9 | " |
| I8 | 12:46 | 1.8 | " |
| I9 | 12:47 | 1.7 | Soft clay + grass |
| I10 | 12:48 | 1.8 | Soft clay + grass |
| J5 | 12:49 | 1.4 | firm soil + recently cut grass |
| J6 | 12:50 | 1.5 | " " |
| J7 | 12:51 | 1.7 | " " |
| J8 | 12:52 | 1.6 | " " |
| J9 | 12:53 | 1.8 | Soft clay + grass |
| J10 | 12:54 | 1.9 | Soft clay + grass |
| K5 | 12:55 | 1.3 | firm soil + recently cut |
| K6 | 12:56 | 1.6 | " " + gravel |
| K7 | 12:57 | 1.2 | " " + gravel |
| L6 | | 0.9 | Soft clay + grass |
| L7 | | 1.1 | " " |
| | | | |
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# Ventia Landfill Building Gas Monitoring - Field Sheet

ventia

| | |
|---|---|
| Project | Creswick Landfill |
| Client | Hepburn Shire |
| Job Location | Creswick Landfill |
| Sampling Staff | Robert Callander |
| Instrument Type | Laser Inspectra |
| Instrument Serial Number | |
| Calibration Record Supplied (Y/N) | Y |
| Weather and Temperature | |
| Site Ground Conditions | |
| Barometric Pressure | |

**General Comments**

| Location # | Date | Time | $CH_4$ Concentration (ppm) | Building and service condition | Sample Location Notes |
|---|---|---|---|---|---|
| B1 | 30/7/24 | 1425 | 1.6 | | |
| B2 | | 1426 | 2.0 | | |
| B3 | | 1426 | 1.7 | | |
| B4 | | 1427 | 1.8 | | |
| B5 | | 1415 | 1.9 | | |
| B6 | | 1418 | 1.9 | | |
| B7 | | 1419 | 2.1 | | |
| B8 | | 1420 | 1.5 | | |
| B9 | | 1425 | 1.9 | | |
| B10 | | 1428 | 2.1 | | |
| B11 | | 1423 | 1.8 | | |
| B12 | | 1423 | 1.7 | | |
| B13 | | 1424 | 1.8 | | |
| B14 | | 1420 | 1.6 | | |
| B15 | | 1430 | 1.4 | | |
| B16 | | 1430 | 1.6 | | |
| B17 | | 1414 | 2.0 | | gravel surface new |
| B18 | | 1415 | 1.6 | | " |
| B19 | | 1415 | 1.4 | | " |
| B20 | | 1417 | 1.7 | | " |
| TP1 | | 1432 | [redacted] | under water | |
| TP2 | | 1432 | 2.1 | | |
| TP3 | | 1432 | 2.2 | | |
| TP4 | | 1434 | 1.8 | | |
| TP5 | | 1434 | 1.7 | | |
| TP6 | | 1435 | 1.8 | | |
| TP7 | | 1436 | 1.4 | | |
| TP8 | | 1421 | 1.6 | | |
| TP9 | | 1422 | 1.8 | | |
| TP10 | | 1422 | [redacted] | under water | |

**Table 1 Cap Inspection Form (includes Remedial Management Actions)**

**Name: Robert Callander** **Signature: Robert Callander**

**Date: 5/8/24**

**Third party reviewer:**

**Name: _____ Signature: _____**

**Date:**

**General comments:**

**Landfill cap is in ok condition and was mown before the monitoring event so all areas were accessible.**

**Ponding was noted at several locations but was mainly due to machinery driven at site and not likely related directly to the Landfill cap itself.**

**Several small cracks were located but gas monitoring determined there was no excessive levels being emitted from the cap, so no remediation actions are required. No other issues were identified.**

| Report items | Condition (please tick most appropriate) | No | Yes | Remedial Management Actions and Notifications | Remedial Action Completed and Notification Undertaken | Third Party Review to complete<br>(provide comments actions as required) |
|---|---|---|---|---|---|---|
| **Landfill Cap:** | **Differential Subsidence:**<br>• Minor (less than 100mm deep)<br>• Medium (up to 250mm deep and less than 20m$^2$)<br>• Major (greater than 250mm deep and 20m$^2$) | N<br>N<br>N | | Minor subsidence (no action required)<br>If medium subsidence is experienced remedial action will include the application of further topsoil within 1 week of the identification of the issue.<br>If major subsidence has occurred, an investigation will be undertaken to determine the best course of action. This may include the removal of topsoil and the insertion of compacted clay back to finish heights, prior to topsoil being re-applied to the area and vegetation sown. Due to the equipment required these works will be completed within 2-4 weeks of identification. The EPA will be notified of the issue with 48 hours of detection. | N/A | |

| Report items | Condition (please tick most appropriate) | No | Yes | Remedial Management Actions and Notifications | Remedial Action Completed and Notification Undertaken | Third Party Review to complete<br>(provide comments actions as required) |
|---|---|---|---|---|---|---|
| | **Erosion:**<br>• Minor (less than 50mm deep)<br>• Medium (less than less than 150mm deep)<br>• Major (greater than 150mm deep) | N<br>N<br>N | | Minor Erosion (no action required)<br><br>If medium erosion is experienced remedial action will include the application of further topsoil within 1 week of the identification of the issue. Medium erosion may also require replacement of drainage material (although this is unlikely to erode).<br><br>If major erosion has occurred, an investigation will be undertaken to determine the best course of action. This may include the removal of topsoil and the insertion of compacted clay back to finish heights, prior to topsoil being re-applied to the area and vegetation sown. Due to the equipment required these works will be completed within 2-4 weeks of identification. The EPA will be notified of the issue with 48 hours of detection. | .N/A | |

| Report items | Condition (please tick most appropriate) | No | Yes | Remedial Management Actions and Notifications | Remedial Action Completed and Notification Undertaken | Third Party Review to complete<br>(provide comments actions as required) |
|---|---|---|---|---|---|---|
| | **Ponding of surface water.** | | Y | Identify if the ponding is on the landfill cap or external to the site.<br>If ponding is on the landfill cap refer to subsidence above for remedial actions.<br>If ponding is not on the landfill or in the soakage pit infrastructure investigate cause of ponding and determine if drainage infrastructure requires works.<br>**Note:** If the ponding water is identified as leachate, refer to leachate evident at the site remedial actions below. | Ponding only noticed in small areas on the cap. These were caused by wheel ruts in high trafficked areas. | |
| | **Surface Cracking:**<br>• Small (50mm wide and less than 150mm deep).<br>• Large (greater than 50mm wide or deeper than 150mm). | N | Y | Small Cracking (no action required unless Landfill gas has been detected from the cracks).<br>If large cracking has occurred topsoil will be applied to seal the cracks at the identification of the issue.<br>In cases where landfill gas is detected due to cracking a layer of 100mm of composted green organic material will be spread across the cracked area and | All cracks tested and no elevated levels were detected. | |

| Report items | Condition (please tick most appropriate) | No | Yes | Remedial Management Actions and Notifications | Remedial Action Completed and Notification Undertaken | Third Party Review to complete<br>(provide comments actions as required) |
|---|---|---|---|---|---|---|
| | | N | | 500mm either side within 72 hours of detection.<br><br>**Note:** If landfill gas is being emitted from the cracks testing is required following completion of the remedial works to confirm actions have been successful. | | |
| | **Gas/odour experienced.** | N | | If landfill gas or odour is experienced, it should be investigated to determine the most likely source of the gas. The issue must be reported to the officer's direct supervisor within 24hours. At this point landfill gas monitoring will be undertaken to identify the exact source and level of gas being emitted. If this testing is above activation levels the process identified in the gas action will be implemented including the notification of the EPA in accordance with the EPA Draft Fugitive Emissions Guidelines. | N/A | |

| Report items | Condition (please tick most appropriate) | No | Yes | Remedial Management Actions and Notifications | Remedial Action Completed and Notification Undertaken | Third Party Review to complete<br>(provide comments actions as required) |
|---|---|---|---|---|---|---|
| | **Vegetation:**<br>• Areas of dead vegetation less than $1m^2$.<br>• Areas of dead vegetation less than $5m^2$ .<br>• Areas of dead vegetation greater than $10m^2$.<br>**Note:** summer conditions or weed spraying may result in natural loss of vegetation. | | N<br>N<br>N | Areas of vegetation that appear to be dead due to landfill gas must be investigated in accordance with the landfill gas monitoring process.<br>Areas of naturally dead vegetation less than $1m^2$ will require no action.<br>Areas of dead vegetation more than $1m^2$ but less than $5m^2$ will be investigated for the cause of the vegetation loss and re-seeding undertaken when weather conditions are suitable.<br>Areas of dead vegetation greater than $5m^2$ will be investigated for a cause and consideration given to undertaking remedial action and works within 72hours to prevent erosion. This may involve the spreading of a thin green organics mulch layer prior to re-seeding when weather conditions allow. | N/A | |

| Report items | Condition (please tick most appropriate) | No | Yes | Remedial Management Actions and Notifications | Remedial Action Completed and Notification Undertaken | Third Party Review to complete<br>(provide comments actions as required) |
|---|---|---|---|---|---|---|
| | **Leachate evident at the site.** | N | | Report immediately to supervisor with clear instructions of the location, size and appearance of the leachate. Testing will be completed within 1 week to determine if the water has leachate characteristics. Sampling will also be undertaken at the groundwater bores including standing height. At this point a suitable qualified consultant will be engaged to analyse what has caused the leachate to exist above ground level and develop a treatment plan.<br><br>The EPA will be notified of the issue with 48 hours of detection. | N/A | |
| **Surrounding site features:** | Fences in good condition. | | Y | Repair small issues if possible. Report any damage or inoperable items to manager and record details below including repairs required. | N/A | |
| | Groundwater bore protective casings appear in good condition. | | Y | | | |
| | Stormwater drains in operational condition. | | Y | | | |

| Report items | Condition (please tick most appropriate) | No | Yes | Remedial Management Actions and Notifications | Remedial Action Completed and Notification Undertaken | Third Party Review to complete<br>(provide comments actions as required) |
|---|---|---|---|---|---|---|
| **Impacts** | Were issues identified at the site which may impact on the environment or sensitive receptors. | N | | If yes notify your supervisor immediately and provide details of the issue and potential remedial action. | N/A | |

ventia

# INSTRUMENTATION - INTERMEDIATE VERIFICATION AND CALIBRATION

| | |
|---|---|
| Serial no.: 23G103456 | Centre: Geelong |
| Model no.: YSI PRO Quatra | |
| Parameter: (EC, DO, TU, pH, Temperature, Redox) | |

| Date of verification /calibration | Results | | | | | | Comments | Staff initials |
|---|---|---|---|---|---|---|---|---|
| | Expected | Observed | Adjusted | Batch no. | Slope mV | Asy mV | | |
| 30/7/24 | 1413 | 1393 | Yes | 424461 | | | EC | PR |
| 30/7/24 | 4.01 | 3.97 | Yes | 013749 | | | pH4 | \| |
| 30/7/24 | 7 | 7.01 | Yes | 013749 | | | pH7 | \| |
| 30/7/24 | 10 | 9.99 | Yes | 420557 | | | pH10 | \| |
| 30/7/24 | 228 | 252 | yes | 426086 426087 | | | Redox | |
| 30/7/24 | 100 | 98.3 | NO | DO | | | DO | PR |
| 31/7/24 | 1413 | 1421 | Yes | 424461 | | | EC | PR |
| 31/7/24 | 4.01 | 4.13 | Yes | 013749 | | | pH4 | \| |
| 31/7/24 | 7 | 7.10 | Yes | 013749 | | | pH7 | \| |
| 31/7/24 | 228 | 254 | Yes | 426087 426086 | | | Redox | \| |
| 31/7/24 | 100 | 99.8 | NO | DO | | | DO | PR |
| 1/8/24 | 1413 | 1406 | Yes | 424461 | | | EC | PR |
| 1/8/24 | 4.01 | 4.02 | Yes | 013749 | | | pH4 | \| |
| 1/8/24 | 7 | 7.10 | Yes | 013749 | | | pH7 | \| |
| 1/8/24 | 228 | 250 | Yes | 420871/82 | | | Redox | \| |
| 1/8/24 | 100 | 98.9 | NO | | | | DO | PR |
| / / | | | | | | | | |
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***If standards are not used to calibrate instrument - explanation required under comments**

Water quality measurements where Q = 10 shall meet the following calibration limits

| EC | pH | Turbidity | DO | Temperature |
|---|---|---|---|---|
| Standard +/- 5% | Standard +/- 0.1 | Standard +/- 3% | <+/-2% FS (0-20mg/l) | +/-0.2°C (When a temperature stabilised environment can be created) |
| +/- 10 µS/cm < 1,000 | 4 3.9 - 4.1 | 0 - 10 = 0.10 NTU | | |
| +/- 100 µS/cm > 1,000 | 7 6.9 - 7.1 | 0 - 100 = 1.00 NTU | <+/- 0.4 mg/l (0-20mg/l) | |
| | 10 9.9 - 10.1 | 0 - 1000 = 10.00 NTU | | |

WQ Instruments that require continual calibration from initial values outside the above tolerance ranges using the specified solutions will need to be returned to the manufacturer for assessment or repair.

# EQUIPMENT QUALITY REPORT

## Inspectra Laser

**Equipment Code: MIL-0717 Serial Number: 34090717**

☑ Equipment is clean ☑ Pump and battery voltage check ☑ Clear Data

| **Calibration Results** | | | | **Calibration Gas Expiry Date** |
|---|---|---|---|---|
| **Parameter** | **Standard** | **Result** | **Error Range** | |
| CH4 | Methane by 500ppm | 505 ppm | ± 25 ppm | 96 - WO398764-2 Exp 03/05/2028 |

Date: 25/07/2024

Calibrated by: Dougal Bland

*For quality control purposes HydroTerra can supply gas calibration data

Please check that the following items are received and all items are returned. Please clean equipment before retuning. **A minimum $20 service/repair charge applies to any unclean or damaged items.**

| Photo Ref. | Checklist Item (See photo at the back of the form) | HT id No. | Sent? | Return? | Comments |
|---|---|---|---|---|---|
| 1 | Carry Case | N/A | ✓ | | |
| 2 | Inspectra Laser | MIL-0717 | ✓ | | |
| 3 | Sampling Probe joint | N/A | ✓ | | |
| 4 | Sampling Probe 600mm | N/A | ✓ | | |
| 5 | Telescopic rod with Suction cup | N/A | ✓ | | |
| 6 | Spare Battery & charger 240/110V to 12V 500mA | N/A | ✓ | | |
| 7 | Spare filter | N/A | ✓ | | |
| 8 | Tools – Screw driver | N/A | ✓ | | |
| - | Test & Tag | N/A | ✓ | | |

☑ Equipment voltage ☑ Pre-delivery Calibration Test Complete

Date: 25/07/2024

Calibrated by: Dougal Bland

HT JOB NO: 22893 CLIENTS REF: P/O No: 4700977718

| RETURN DATE: / / | TIME: | CONDITION ON RETURN: |
|---|---|---|

# EQUIPMENT QUALITY REPORT

## GA5000

**Equipment Code: MLG-0235** **Serial Number: G510235**

The equipment has been issued as follows:

☑ Equipment is clean ☑ Pump and battery voltage check ☑ Clear Data

| Calibration Results | | | | Calibration Gas (Expiry Date) |
|---|---|---|---|---|
| Parameter | Standard | Result | Error Range | |
| CH4 | Methane by Volume 60% | 60.0% | ± 2% | 101 – 6131-1-2 Exp.21/03/27 |
| CO2 | Carbon Dioxide by volume 40% | 40.0% | ± 2% | 101 – 6131-1-2 Exp.21/03/27 |
| H2S | Hydrogen Sulphide 25 ppm | 25ppm | ± 2 ppm | 102-WO443530-9 Exp.05/03/2026 |
| O2 | Oxygen 18% | 18.0% | ± 0.2% | 102-WO443530-9 Exp.05/03/2026 |
| CO | Carbon Monoxide 50 ppm | 50ppm | ± 2ppm | 99 – WO336583-2 Exp.02/02/27 |

Date: 25/07/2024

Calibrated by: Dougal Bland

Please check that the following items are received, and all items are returned. Please clean equipment before returning. **A minimum $20 service/repair charge applies to any unclean or damaged items.**

| Photo Ref. | Checklist Item (See photo at the back of this form) | HT Id No. | Sent? | Returned? | Comments |
|---|---|---|---|---|---|
| 1 | Blue tubing with an inlet barb fitting | N/A | ✓ | | |
| 2 | Clear tubing with an inlet Brass Ex-cap Female Fitting (filter attached) | N/A | ✓ | | |
| 3 | Spare water trap filter(s) Qty 1 | N/A | ✓ | | |
| 4 | Yellow tubing with an inlet barb fitting | N/A | ✓ | | |
| 5 | Clear tubing | N/A | ✓ | | |
| 6 | Charger 240/110V to 12V 500mA | N/A | ✓ | | |
| 7 | GA5000 with a carry bag | **MLG-0235** | ✓ | | |
| 8 | Hard case | N/A | ✓ | | |
| 9 | Instruction Manual | N/A | ✓ | | |
| 10 | Well cap fitting | N/A | ✓ | | |
| - | Test & Tag | N/A | | | |

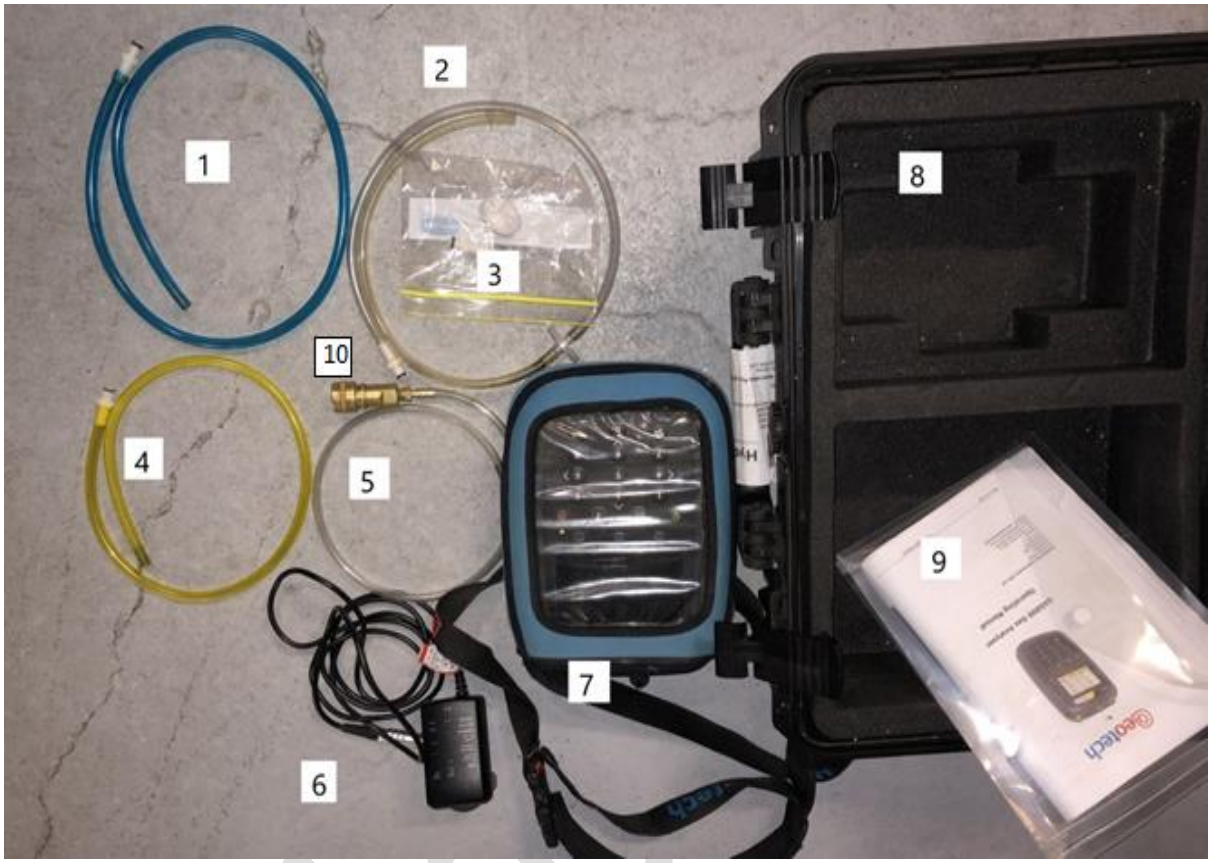
☑ Equipment voltage ☑ Pre-delivery Calibration Test Complete

Date: 25/07/2024

Checked by: Dougal Bland

HT JOB NO: 22893 CLIENTS REF: P/O No: 4700977718

| RETURN DATE: / / | TIME: | CONDITION ON RETURN: |
|---|---|---|



Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH1 | Project Name | Hepburn Land Fill | Sampling Staff | PR |
| Project Area: | | Client | | WQ. Meter Model | YSI PRO |
| Date | 25.02.2025 | Project No | | WQ. Meter Serial # | 12J101715 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | n | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time of SWL | 13:15 | Total Depth (m) | 7.00 | Mid-screen accessible? | Clear | Depth pump set at (m) | 4.00 |
| Static Water Level (m) | 3.83 | Bore Diam (mm) | | Open Screen Length(m) | 0.00 | Depth of pump inlet (m) | 4.00 |

## Well Purging Details

| | | | |
|---|---|---|---|
| Purge Method | LF | Pump Type | MP |
| Time Pump in | 13:20 | Pump in' WL | 3.04 |
| Time Started | 13:25 | WL m (start) | 3.04 |
| Time Stopped | | WL m (end) | |
| Volume Removed (l) | | | |
| Discharge Rate (l/m) | | | |

## Sampling Details

| | | | |
|---|---|---|---|
| Sampling Method | LF | | |
| Time Started | | WL m (start) | |
| Time Stopped | | WL m (end) | |
| Duplicate sample ID? | | | |
| Triplicate sample ID? | | | |
| Rinsate sample ID? | | | |

## Sample Bottles Required

| Bottle Type | Quantity | Bottle Type | Quantity |
|---|---|---|---|
| | | | |
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## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | | WL m(post-removal) | | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | 20/10 | CPM | | Air/Gas Pressure (kPa) | 25 |

**Comments**

Newly drilled bore

turbidity high, yellowish

poor recharge

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | 0 | = vol required for 3V method (L) | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
| 13:25 | | 3.09 | | | | | | | |
| 13:28 | | 3.13 | | | | | | | |
| 13:31 | 0.1 | 3.24 | #DIV/0! | 459 | 6.68 | 21.90 | 9.3 | 4.63 | DARK yellow, no odour |
| 13:34 | 0.4 | 3.36 | #DIV/0! | 445 | 6.67 | 21.80 | 8.1 | 3.64 | |
| 13:37 | 0.8 | 3.50 | Keep purging | 444 | 6.66 | 21.30 | 8.5 | 3.09 | |
| 13:40 | 1.4 | 3.60 | | 445 | 6.59 | 21.50 | 7.6 | 2.98 | |
| 13:43 | 1.8 | 3.64 | | 448 | 6.47 | 21.30 | 6.1 | 2.91 | |
| 13:46 | 2.3 | 3.64 | | 446 | 6.47 | 21.60 | 4.9 | 2.80 | |
| 13:49 | 2.8 | 3.64 | | 443 | 6.47 | 21.50 | 4.6 | 2.87 | sample taken |
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Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH2 | Project Name | Hepburn Land Fill | Sampling Staff | PR |
| Project Area: | | Client | | WQ. Meter Model | YSI PRO |
| Date | 26.2.2025 | Project No | | WQ. Meter Serial # | 12J101715 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | N | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time of SWL | 10:50 | Total Depth (m) | | Mid-screen accessible? | | Depth pump set at (m) | |
| Static Water Level (m) | 3.28 | Bore Diam (mm) | 50 | Open Screen Length(m) | | Depth of pump inlet (m) | |

## Well Purging Details

| | | | |
|---|---|---|---|
| Purge Method | Grab | Pump Type | HS |
| Time Pump in | | Pump in' WL | |
| Time Started | | WL m (start) | |
| Time Stopped | 10:55 | WL m (end) | 3.28 |
| Volume Removed (l) | 3 | | |
| Discharge Rate (l/m) | | | |

## Sampling Details

| | | | |
|---|---|---|---|
| Sampling Method | GRAB | | |
| Time Started | 10:55 | WL m (start) | 3.28 |
| Time Stopped | 11:10 | WL m (end) | 3.28 |
| Duplicate sample ID? | | | |
| Triplicate sample ID? | | | |
| Rinsate sample ID? | | | |

## Sample Bottles Required

| Bottle Type | Quantity | Bottle Type | Quantity |
|---|---|---|---|
| | | | |
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## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | | WL m(post-removal) | | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | | CPM | | Air/Gas Pressure (kPa) | |

**Comments** bore casing bend, grab sample only

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| -19 = vol required for 3V method (L) | | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|
| **Time** | **Cumulative Volume Removed (l)** | **Water Level (m below MP)** | **Stability of Field Params** | **Specific Conductance EC (uS/cm) @25°C** | **pH** | **Temp. (°C)** | **Redox ORP (mV)** | **DO (mg/L)** | **Comments (colour, turbidity, odours, other)** |
| 10:55 | 3 | 3.28 | Keep purging | 1382 | 5.27 | 22.20 | 44.4 | 1.66 | turbit water, clear |
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Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH3 | Project Name | Hepburn Land Fill | Sampling Staff | PR |
| Project Area: | | Client | | WQ. Meter Model | YSI PRO |
| Date | 26.03.2025 | Project No | | WQ. Meter Serial # | 12J101715 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | n | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time of SWL | 9:50 | Total Depth (m) | 4.00 | Mid-screen accessible? | Clear | Depth pump set at (m) | 4.00 |
| Static Water Level (m) | 1.22 | Bore Diam (mm) | 50 | Open Screen Length(m) | 0.00 | Depth of pump inlet (m) | 4.00 |

## Well Purging Details

| | | | |
|---|---|---|---|
| Purge Method | LF | Pump Type | MP |
| Time Pump in | 9:58 | Pump in' WL | 1.22 |
| Time Started | 10:08 | WL m (start) | 1.22 |
| Time Stopped | 10:23 | WL m (end) | 1.22 |
| Volume Removed (l) | 3 | | |
| Discharge Rate (l/m) | 0.20 | | |

## Sampling Details

| | | | |
|---|---|---|---|
| Sampling Method | LF | | |
| Time Started | 10:23 | WL m (start) | 1.22 |
| Time Stopped | 10:33 | WL m (end) | 1.22 |
| Duplicate sample ID? | | | |
| Triplicate sample ID? | | | |
| Rinsate sample ID? | | | |

## Sample Bottles Required

| Bottle Type | Quantity | Bottle Type | Quantity |
|---|---|---|---|
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## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | 10:35 | WL m(post-removal) | 1.22 | Bore Depth at end (m) | 4.00 |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | 20/10 | CPM | | Air/Gas Pressure (kPa) | 20 |

**Comments**

well recharged

clear, no odour

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | 16 = vol required for 3V method (L) | | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
| 10:08 | | 1.22 | | | | | | | CLEAR NO ODOUR |
| 10:11 | 0.3 | 1.22 | Keep purging | 2830 | 6.13 | 19.10 | -3.2 | 0.62 | SLIGHLTY cloudy, |
| 10:14 | 1 | 1.22 | #DIV/0! | 2819 | 6.16 | 19.00 | -13.7 | 0.21 | |
| 10:17 | 1.8 | 1.22 | Keep purging | 2788 | 6.19 | 19.20 | -26.8 | 0.17 | |
| 10:20 | 2.4 | 1.22 | Keep purging | 2784 | 6.20 | 19.20 | -29.9 | 0.16 | |
| 10:23 | 3 | 1.22 | OK to sample | 2781 | 6.20 | 19.20 | -31.5 | 0.17 | |
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Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH4 | Project Name | Hepburn Land Fill | Sampling Staff | |
| Project Area: | | Client | | WQ. Meter Model | |
| Date | 26.2.2025 | Project No | | WQ. Meter Serial # | |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time of SWL | | Total Depth (m) | | Mid-screen accessible? | | Depth pump set at (m) | |
| Static Water Level (m) | | Bore Diam (mm) | | Open Screen Length(m) | | Depth of pump inlet (m) | |

| Well Purging Details | | | | Sampling Details | | | |
|---|---|---|---|---|---|---|---|
| Purge Method | | Pump Type | | Sampling Method | | | |
| Time Pump in | | Pump in' WL | | Time Started | | WL m (start) | |
| Time Started | | WL m (start) | | Time Stopped | | WL m (end) | |
| Time Stopped | | WL m (end) | | Duplicate sample ID? | | | |
| Volume Removed (l) | | | | Triplicate sample ID? | | | |
| Discharge Rate (l/m) | | | | Rinsate sample ID? | | | |

| Pump Removal | | | | | |
|---|---|---|---|---|---|
| Time of removal | | WL m(post-removal) | | Bore Depth at end (m) | |

| Pump Settings | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | | CPM | | Air/Gas Pressure (kPa) | |

| Sample Bottles Required | | | |
|---|---|---|---|
| Bottle Type | Quantity | Bottle Type | Quantity |
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**Comments** DRY

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | = vol required for 3V method (L) | | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
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Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

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|---|---|---|---|---|---|
| Bore ID No | BH6 | Project Name | Hepburn Land Fill | Sampling Staff | PR |
| Project Area: | | Client | | WQ. Meter Model | YSI PRO |
| Date | 25.02.2025 | Project No | | WQ. Meter Serial # | 12J101715 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | n | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time of SWL | 15:19 | Total Depth (m) | 15.50 | Mid-screen accessible? | Clear | Depth pump set at (m) | 15.00 |
| Static Water Level (m) | 12.61 | Bore Diam (mm) | 50 | Open Screen Length(m) | 0.00 | Depth of pump inlet (m) | 15.00 |

## Well Purging Details

| | | | |
|---|---|---|---|
| Purge Method | LF | Pump Type | MP |
| Time Pump in | 11:25 | Pump in' WL | 12.61 |
| Time Started | 11:30 | WL m (start) | 12.61 |
| Time Stopped | 11:55 | WL m (end) | 0.00 |
| Volume Removed (l) | 0 | | |
| Discharge Rate (l/m) | 0.00 | | |

## Sampling Details

| | | | |
|---|---|---|---|
| Sampling Method | LF | | |
| Time Started | 11:52 | WL m (start) | 12.62 |
| Time Stopped | 12:15 | WL m (end) | 12.61 |
| Duplicate sample ID? | | | |
| Triplicate sample ID? | | | |
| Rinsate sample ID? | | | |

## Sample Bottles Required

| Bottle Type | Quantity | Bottle Type | Quantity |
|---|---|---|---|
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## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | 12:00 | WL m(post-removal) | 12.60 | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | 11/9 | CPM | | Air/Gas Pressure (kPa) | 30 |

**Comments** clear, no odour

qc taken

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| 17 | = vol required for 3V method (L) | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
| 11:30 | | 12.61 | | | | | | | |
| 11:33 | | 12.61 | | | | | | | |
| 11:36 | | 12.61 | | | | | | | |
| 11:39 | 0.1 | 12.61 | #DIV/0! | 585 | 4.85 | 17.30 | 13.9 | 1.60 | |
| 11:42 | 0.5 | 12.62 | #DIV/0! | 583 | 4.84 | 17.00 | 12.3 | 0.58 | |
| 11;45 | 0.9 | 12.62 | Keep purging | 583 | 4.84 | 17.00 | 9.2 | 0.22 | |
| 11:48 | 1.3 | 12.62 | Keep purging | 584 | 4.84 | 17.00 | 7.0 | 0.15 | |
| 11:52 | 1.6 | 12.62 | Keep purging | 583 | 4.84 | 17.20 | 2.5 | 0.12 | SAMPLE taken |
| 11:55 | | | | | | | | | |
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Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH7 | Project Name | HEPBURN GW | Sampling Staff | PR |
| Project Area: | | Client | HEPBURN SHIRE | WQ. Meter Model | YSI PRO |
| Date | 25.02.2025 | Project No | | WQ. Meter Serial # | 12J101715 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | n | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time of SWL | 14:20 | Total Depth (m) | 6.80 | Mid-screen accessible? | Clear | Depth pump set at (m) | 5.80 |
| Static Water Level (m) | 2.88 | Bore Diam (mm) | 50 | Open Screen Length(m) | 0.00 | Depth of pump inlet (m) | 5.80 |

## Well Purging Details

| | | | |
|---|---|---|---|
| Purge Method | LF | Pump Type | MP |
| Time Pump in | 14:25 | Pump in' WL | 2.84 |
| Time Started | 14:30 | WL m (start) | 2.84 |
| Time Stopped | | WL m (end) | 2.84 |
| Volume Removed (l) | 3 | | |
| Discharge Rate (l/m) | | | |

## Sampling Details

| | | | |
|---|---|---|---|
| Sampling Method | LF | | |
| Time Started | 14:45 | WL m (start) | 2.84 |
| Time Stopped | 15:00 | WL m (end) | 2.84 |
| Duplicate sample ID? | | | |
| Triplicate sample ID? | | | |
| Rinsate sample ID? | | | |

## Sample Bottles Required

| Bottle Type | Quantity | Bottle Type | Quantity |
|---|---|---|---|
| 1Ltr green | 1 | | |
| 0ml filtered meto | 1 | | |
| 60ml COD | 1 | | |
| 50ml glass | 1 | | |

## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | 14:47 | WL m(post-removal) | 2.84 | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | 11/9 | CPM | | Air/Gas Pressure (kPa) | 25 |

**Comments** clear no odour

good recharge, next to the leachate pond

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | 23 = vol required for 3V method (L) | | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
| 14:30 | | 2.82 | | | | | | | |
| 14:33 | 0.3 | 2.84 | | 1161 | 6.17 | 17.90 | 20.0 | 0.43 | CLEAR, NO ODOUR |
| 14:36 | 1 | 2.84 | | 1161 | 6.19 | 17.50 | 12.3 | 0.17 | |
| 14:39 | 1.8 | 2.83 | | 1157 | 6.21 | 17.30 | 6.7 | 0.10 | |
| 14:42 | 2.3 | 2.83 | | 1156 | 6.22 | 17.60 | 1.9 | 0.10 | |
| 14:45 | 3 | 2.84 | | 1156 | 6.24 | 17.60 | 1.0 | 0.10 | Sample aken |
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Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH8 | Project Name | HEPBURN SHIRE GW | Sampling Staff | PR |
| Project Area: | | Client | HEPBURN SHIRE | WQ. Meter Model | YSI PRO |
| Date | 26.02.2025 | Project No | | WQ. Meter Serial # | 12J101715 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | N | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | |
|---|---|---|---|---|---|
| Time of SWL | 9:20 | Total Depth (m) | | Mid-screen accessible? | | Depth pump set at (m) | |
| Static Water Level (m) | 3.50 | Bore Diam (mm) | | Open Screen Length(m) | | Depth of pump inlet (m) | |

## Well Purging Details

| | | | |
|---|---|---|---|
| Purge Method | grab | Pump Type | bailer |
| Time Pump in | | Pump in' WL | |
| Time Started | | WL m (start) | |
| Time Stopped | 9:20 | WL m (end) | 3.50 |
| Volume Removed (l) | 3 | | |
| Discharge Rate (l/m) | | | |

## Sampling Details

| | | | |
|---|---|---|---|
| Sampling Method | grab | | |
| Time Started | 9:20 | WL m (start) | 3.50 |
| Time Stopped | 9:20 | WL m (end) | 3.50 |
| Duplicate sample ID? | | | |
| Triplicate sample ID? | | | |
| Rinsate sample ID? | | | |

## Sample Bottles Required

| Bottle Type | Quantity | Bottle Type | Quantity |
|---|---|---|---|
| 1ltr | 1 | | |
| )ml METALS filtere | 1 | | |
| 60ml COD | 1 | | |
| 50ml GLASS | 1 | | |

## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | | WL m(post-removal) | | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | | CPM | | Air/Gas Pressure (kPa) | |

**Comments** bore head works damages. Casin broken.

approximate WL,photoes taken.

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | 0 | = vol required for 3V method (L) | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
| 9:20 | 3 | 3.50 | Keep purging | 1046 | 6.53 | 19.00 | -23.2 | 4.27 | |

Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH9 | Project Name | Hepburn Land Fill | Sampling Staff | |
| Project Area: | | Client | | WQ. Meter Model | |
| Date | 27.02.2025 | Project No | | WQ. Meter Serial # | |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | |
|---|---|---|---|---|---|
| Time of SWL | | Total Depth (m) | | Mid-screen accessible? | Depth pump set at (m) |
| Static Water Level (m) | | Bore Diam (mm) | | Open Screen Length(m) | Depth of pump inlet (m) |

## Well Purging Details

| | | | |
|---|---|---|---|
| Purge Method | | Pump Type | |
| Time Pump in | | Pump in' WL | |
| Time Started | | WL m (start) | |
| Time Stopped | | WL m (end) | |
| Volume Removed (l) | | | |
| Discharge Rate (l/m) | | | |

## Sampling Details

| | | | |
|---|---|---|---|
| Sampling Method | | | |
| Time Started | | WL m (start) | |
| Time Stopped | | WL m (end) | |
| Duplicate sample ID? | | | |
| Triplicate sample ID? | | | |
| Rinsate sample ID? | | | |

## Sample Bottles Required

| Bottle Type | Quantity | Bottle Type | Quantity |
|---|---|---|---|
| | | | |
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## Pump Removal

| | | | |
|---|---|---|---|
| Time of removal | | WL m(post-removal) | |
| Bore Depth at end (m) | | | |

## Pump Settings

| | | | |
|---|---|---|---|
| Fill / Discharge used | | CPM | |
| Air/Gas Pressure (kPa) | | | |

**Comments** DRY

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | = vol required for 3V method (L) | | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
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Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH10 | Project Name | Hepburn Land Fill | Sampling Staff | PR |
| Project Area: | | Client | | WQ. Meter Model | YSI PRO |
| Date | 27.02.2025 | Project No | | WQ. Meter Serial # | 12J101715 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | n | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time of SWL | 11:50 | Total Depth (m) | 6.40 | Mid-screen accessible? | Clear | Depth pump set at (m) | 5.40 |
| Static Water Level (m) | 2.68 | Bore Diam (mm) | 50 | Open Screen Length(m) | 0.00 | Depth of pump inlet (m) | 5.40 |

## Well Purging Details

| | | | |
|---|---|---|---|
| Purge Method | LF | Pump Type | MP |
| Time Pump in | 11:52 | Pump in' WL | 2.65 |
| Time Started | 11:55 | WL m (start) | 2.65 |
| Time Stopped | 12:10 | WL m (end) | 2.71 |
| Volume Removed (l) | 2.4 | | |
| Discharge Rate (l/m) | 0.16 | | |

## Sampling Details

| | | | |
|---|---|---|---|
| Sampling Method | LF | | |
| Time Started | 12:10 | WL m (start) | 2.71 |
| Time Stopped | 12:16 | WL m (end) | 2.71 |
| Duplicate sample ID? | | | |
| Triplicate sample ID? | | | |
| Rinsate sample ID? | | | |

## Sample Bottles Required

| Bottle Type | Quantity | Bottle Type | Quantity |
|---|---|---|---|
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## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | | WL m(post-removal) | 2.70 | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | 20/10 | CPM | | Air/Gas Pressure (kPa) | 20 PSI |

**Comments** good sample taken

light yellowish

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| 22 | = vol required for 3V method (L) | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
| 11:55 | | 2.68 | | | | | | | |
| 11:58 | 0.3 | 2.71 | Keep purging | 814 | 5.81 | 19.20 | 8.4 | 0.91 | LIGHT yellowish, no odour. |
| 12:01 | 0.9 | 2.72 | #DIV/0! | 812 | 5.85 | 19.10 | 4.8 | 0.33 | |
| 12:04 | 1.5 | 2.71 | Keep purging | 809 | 5.86 | 19.00 | 3.6 | 0.24 | |
| 12:07 | 2 | 2.71 | Keep purging | 807 | 5.87 | 19.00 | 2.2 | 0.23 | |
| 12:10 | 2.4 | 2.71 | OK to sample | 804 | 5.88 | 19.00 | 1.1 | 0.22 | sample taken |
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Notes: All bore measurements are referenced to the marked measurement point. All Coordinates in GDA94.

# TS Groundwater sampling field sheet - Env Monitoring

| | | | | | |
|---|---|---|---|---|---|
| Bore ID No | BH14 | Project Name | Hepburn Land Fill | Sampling Staff | PR |
| Project Area: | | Client | | WQ. Meter Model | YSI PRO |
| Date | 25.02.2025 | Project No | | WQ. Meter Serial # | 12J101715 |

## Expected Bore Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Internal Diameter (mm) | | Easting | | Total Depth (m) | | Screen Depth From (m) | |
| Drop Tube already in bore? (Y/N) | n | Northing | | Water Level (m) | | Screen Depth To (m) | |
| Drop Tube Length (m) | | Zone | | Set Pump inlet at (m) | | Set Pump at (m) | |

Additional Information

## Bore Field Measurements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time of SWL | 8:45 | Total Depth (m) | 6.00 | Mid-screen accessible? | Clear | Depth pump set at (m) | |
| Static Water Level (m) | 3.77 | Bore Diam (mm) | 50 | Open Screen Length(m) | 0.00 | Depth of pump inlet (m) | |

## Well Purging Details

| | | | |
|---|---|---|---|
| Purge Method | LF | Pump Type | MP |
| Time Pump in | 8:50 | Pump in' WL | 3.78 |
| Time Started | 9:00 | WL m (start) | 3.80 |
| Time Stopped | 9:15 | WL m (end) | 3.80 |
| Volume Removed (l) | 1.8 | | |
| Discharge Rate (l/m) | 0.12 | | |

## Sampling Details

| | | | |
|---|---|---|---|
| Sampling Method | LF | | |
| Time Started | 9:15 | WL m (start) | 3.80 |
| Time Stopped | 9:30 | WL m (end) | 3.80 |
| Duplicate sample ID? | | | |
| Triplicate sample ID? | | | |
| Rinsate sample ID? | | | |

## Sample Bottles Required

| Bottle Type | Quantity | Bottle Type | Quantity |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

## Pump Removal

| | | | | | |
|---|---|---|---|---|---|
| Time of removal | 9:35 | WL m(post-removal) | 3.80 | Bore Depth at end (m) | |

## Pump Settings

| | | | | | |
|---|---|---|---|---|---|
| Fill / Discharge used | 20/10 | CPM | | Air/Gas Pressure (kPa) | 20 |

**Comments** good sample taken. Light yellow

Field Parameters are considered stable when within the EPA limits for 3 consecutive measurements

| | 13 = vol required for 3V method (L) | | | +/- 3% | +/- 0.05 pH | +/- 10% | +/- 10mV | +/- 10% | |
|---|---|---|---|---|---|---|---|---|---|
| Time | Cumulative Volume Removed (l) | Water Level (m below MP) | Stability of Field Params | Specific Conductance EC (uS/cm) @25°C | pH | Temp. (°C) | Redox ORP (mV) | DO (mg/L) | Comments (colour, turbidity, odours, other) |
| 9:00 | | 3.80 | | | | | | | |
| 9:03 | 0.2 | 3.79 | Keep purging | 1195 | 6.13 | 15.10 | -25.4 | 3.06 | LIGHT YELLOW , |
| 9:06 | 0.5 | 3.81 | #DIV/0! | 1233 | 6.35 | 15.00 | -26.8 | 0.45 | |
| 9:09 | 0.9 | 3.81 | Keep purging | 1214 | 6.37 | 15.00 | -30.3 | 0.36 | |
| 9:12 | 1.4 | 3.81 | Keep purging | 1198 | 6.37 | 15.00 | -31.0 | 0.37 | |
| 9:15 | 1.8 | 3.80 | Keep purging | 1169 | 6.37 | 15.10 | -31.8 | 0.34 | sample taken |

# Ventia Landfill Surface Gas Monitoring - Field Sheet

| | |
|---|---|
| Project | Creswick Landfill |
| Client | Hepburn Shire |
| Job Location | Landfill Cap Workover |
| Sampling Staff | Pandula R |
| Instrument Type | Inspectra laser |
| Instrument Serial Number | 3490717 |
| Calibration Record Supplied (Y | Y |
| Date | 27.02.2025 |
| Weather and Temperature | 16C deg,14km/h wind spe |
| Site Ground Conditions | dry grounds |
| Barometric Pressure | 1017hpa |

**General Comments**

Dry land surface all over the landfill cap. Some minor cracks presents due to dry weather condition. 95% of grass covered. No soil erosions presents. Mainataining Vehicular tracks has exposed clay/loam soil surfaces. Overall cap is cleared from large debris. minimum amount of debris/ plastic waste material presents.

| Reading # | Time | $CH_4$ Concentration (ppm) | Comment i.e. batter / penetration / sump |
|---|---|---|---|
| B7 | 8:00 | 1.2 | Starting point , west end, un even, grass slashed. Coverd ground |
| B8 | 8:01 | 1.4 | Starting point , west end, un even, grass slashed. Coverd ground |
| C5 | 8:02 | 1.6 | north west to south west, cleared land, minor cracks, dry surface |
| C6 | 8:03 | 1.4 | north west to south west, cleared land, minor cracks, dry surface |
| C7 | 8:04 | 1.5 | north west to south west, cleared land, minor cracks, dry surface |
| C8 | 8:05 | 1.5 | north west to south west, cleared land, minor cracks, dry surface |
| C9 | 8:06 | 1.2 | north west to south west, cleared land, minor cracks, dry surface |
| D5 | 8:07 | 1.2 | along mid north west to mid south west , coverd surfeace with slashed grass |
| D6 | 8:08 | 1.2 | along mid north west to mid south west , coverd surfeace with slashed grass |
| D7 | 8:09 | 1.2 | along mid north west to mid south west , coverd surfeace with slashed grass |
| D8 | 8:10 | 1.4 | along mid north west to mid south west , coverd surfeace with slashed grass |
| D9 | 8:11 | 1.3 | along mid north west to mid south west , coverd surfeace with slashed grass |
| E6 | 8:12 | 1.5 | along mid north west to mid south west , uneven ground,clay/loam soils |
| E7 | 8:13 | 1.2 | along mid north west to mid south west , uneven ground,clay/loam soils |
| E8 | 8:14 | 1.6 | along mid north west to mid south west , uneven ground,clay/loam soils |
| E9 | 8:15 | 1.6 | along mid north west to mid south west , uneven ground,clay/loam soils |
| E10 | 8:16 | 1.5 | along mid north west to mid south west , uneven ground,clay/loam soils |
| F6 | 8:17 | 1.8 | along north to south GW dry clay mix with loam, minor cracks along the surface. |
| F7 | 8:18 | 1.5 | along north to south GW dry clay mix with loam, minor cracks along the surface. |
| F8 | 8:19 | 1.6 | along north to south GW dry clay mix with loam, minor cracks along the surface. |
| F9 | 8:20 | 1.3 | along north to south GW dry clay mix with loam, minor cracks along the surface. |
| F10 | 8:21 | 1.2 | along north to south GW dry clay mix with loam, minor cracks along the surface. |
| G6 | 8:22 | 1.3 | along the top middle line of the cap, minor dry cracks presents. |
| G7 | 8:23 | 1.5 | along the top middle line of the cap, minor dry cracks presents. |
| G8 | 8:24 | 1.6 | along the top middle line of the cap, minor dry cracks presents. |
| G9 | 8:25 | 1.6 | along the top middle line of the cap, minor dry cracks presents. |
| G10 | 8:26 | 1 | along the top middle line of the cap, minor dry cracks presents. |
| H5 | 8:27 | 0.9 | heavely coverd with recent slashed grass covered surfaces. |
| H6 | 8:28 | 0.9 | heavely coverd with recent slashed grass covered surfaces. |
| H7 | 8:29 | 0.8 | heavely coverd with recent slashed grass covered surfaces. |
| H8 | 8:30 | 1 | heavely coverd with recent slashed grass covered surfaces. |
| H9 | 8:31 | 1.1 | heavely coverd with recent slashed grass covered surfaces. |
| H10 | 8:32 | 1.1 | heavely coverd with recent slashed grass covered surfaces. |
| I5 | 8:33 | 1.2 | heavely coverd with recent slashed grass covered surfaces. |
| I6 | 8:34 | 1.3 | heavely coverd with recent slashed grass covered surfaces. |
| I7 | 8:35 | 1.8 | heavely coverd with recent slashed grass covered surfaces. |
| I8 | 8:36 | 1.6 | heavely coverd with recent slashed grass covered surfaces. |
| I9 | 8:37 | 1.7 | heavely coverd with recent slashed grass covered surfaces. |
| I10 | 8:38 | 1.9 | heavely coverd with recent slashed grass covered surfaces. |
| J5 | 8:39 | 1.4 | dry surfaces, uneven grounds, covered with grass cover. |
| J6 | 8:40 | 1.5 | dry surfaces, uneven grounds, covered with grass cover. |
| J7 | 8:41 | 1.5 | dry surfaces, uneven grounds, covered with grass cover. |
| J8 | 8:42 | 1.7 | clay surfaces , minor dry cracks. |
| J9 | 8:43 | 1.7 | along the north east to south east line, grass coverd,few open surfaces with loam. |
| J10 | 8:44 | 1.8 | along the north east to south east line, grass coverd,few open surfaces with loam. |
| K5 | 8:45 | 1.7 | along the north east to south east line, grass coverd,few open surfaces with loam. |
| K6 | 8:46 | 1.7 | along the north east to south east line, grass coverd,few open surfaces with loam. |
| K7 | 8:47 | 1.8 | along the north east to south east line, grass coverd,few open surfaces with loam. |
| L6 | 8:48 | 1.7 | along the north east to south east line, grass coverd,few open surfaces with loam. |
| L7 | 8:49 | 1.8 | along the north east to south east line, grass coverd,few open surfaces with loam. |
| | | | |
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| | | | |

# Ventia Landfill Subsurface Gas Monitoring - Field Sheet

| | |
|---|---|
| Project | Creswick Landfill |
| Client | Hepburn Shire |
| Job Location | Creswick Landfill |
| Sampling Staff | Pandula R |
| Instrument Type | GA 5000 |
| Instrument Serial Number | G500274 |
| Calibration Record Supplied (Y/N) | Y |
| Weather & Temperature | fine 26C , 14-18km/h wind, |
| Site Ground Conditions | dry condition |
| Barometric Pressure | 1017hpa |

| General Comments |
|---|
| BH10 & BH11 are attached with ongoing gas monitoring units.cap removed before sample. |

| LFG ID | Date | Time | Peak Flow (l/hr) | Stabilised Flow (l/hr) | SWL (mBTOC) | Depth (mBTOC) | Bore & Headworks Condition | Comments |
|---|---|---|---|---|---|---|---|---|
| BH12 | 27.02.2025 | 10:16 | 0.1 | 0 | 6.6 | 6.7 | average | require new valve cap |
| BH9 | 27.02.2025 | 12:52 | 0 | 0 | dry | 6.8 | good | |
| BH11 | 27.02.2025 | 10:43 | 0.1 | 0 | 9.72 | 9.8 | good | |
| BH10 | 27.02.2025 | 11:13 | 0 | 0 | 2.68 | 6.4 | good | |
| | | | | | | | | |
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| | | | | | | | | |

# Instrumentation Gas Readings recorded on instrument data export

Table 1: Subsurface Gas Bore Results (feb 2025)

| ID | DATE and TIME | CH4 | CO2 | O2 | PEAKCH4 | PEAKCO2 | MIN O2 | BARO | REL.PRESSURE | TERNAL FLO | CO | H2S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | % | % | % | % | % | % | mb | mb | l/h | ppm | ppm |
| BH12* | 27.02.2025, 10:16 | 34.2 | 15.9 | 0.0 | 34.3 | 16.1 | 0.0 | 969.0 | 0.11 | 0.1 | 2.0 | 0.0 |
| BH9 | 27.02.2025,12:52 | 0.0 | 3.8 | 17.6 | 0.0 | 3.8 | 17.6 | 969.0 | -0.21 | 0.0 | 0.0 | 1.0 |
| BH11 | 27.02.2025,10:43 | 0.0 | 1.1 | 19.5 | 1.3 | 1.6 | 17.6 | 968.0 | 0.00 | 0.1 | 0.0 | 1.0 |
| BH10 | 27.02.2025,11:14 | 0.0 | 3.9 | 15.7 | 0.0 | 4.0 | 15.7 | 969.0 | 0.04 | 0.0 | 4.0 | 1.0 |

Notes: Exceedance of Adopted Assesment Criteria

Methane 1% v/v (EPA Victoria, Best Practice Environmental Management, Siting, design, operation and rehabilitation of landfills, 2015)

Carbon Dioxide 10% v/v (Mackenzie 2016)

* not applicable due to location within waste mass

# Ventia Landfill Building Gas Monitoring - Field Sheet

| | |
|---|---|
| Project | Creswick Landfill |
| Client | Hepburn Shire |
| Job Location | Creswick Landfill |
| Sampling Staff | PandulaR |
| Instrument Type | Laser Inspectra |
| Instrument Serial Number | 34907017 |
| Calibration Record Supplied (Y/N) | Y |
| Weather and Temperature | 17C -20C |
| Site Ground Conditions | dry , fine , 14km/h wind speed |
| Barometric Pressure | 1017hpa |

| General Comments |
|---|
| Overall building/services are well maintained. Green waste piles are catogorised., io composter from "Gaia" environment on site next to large green waste shed. No exceedence monitored within the green waste or large bins. Bins are covered when not in use. |

| Location # | Date | Time | $CH_4$ Concentration (ppm) | Building and service condition | Sample Location Notes |
|---|---|---|---|---|---|
| B1 | 27.02.2025 | 9:15 | 1.6 | near office building, clean tidy, good condition | near office building, clean tidy, good condition |
| B2 | 27.02.2025 | 9:16 | 1.5 | near office building, clean tidy, good condition | near office building, clean tidy, good condition |
| B3 | 27.02.2025 | 9:17 | 1.4 | near office building, clean tidy, good condition | near office building, clean tidy, good condition |
| B4 | 27.02.2025 | 9:17 | 1.5 | near office building, clean tidy, good condition | near office building, clean tidy, good condition |
| B5 | 27.02.2025 | 9:17 | 1.4 | good condition | shop corner front staff shed |
| B6 | 27.02.2025 | 9:18 | 1.2 | good condition | shop corner front staff shed |
| B7 | 27.02.2025 | 9:19 | 1.1 | good condition | shop corner front staff shed |
| B8 | 27.02.2025 | 9:19 | 1.5 | good | shop corners |
| B9 | 27.02.2025 | 9:19 | 1.6 | good | shop corners |
| B10 | 27.02.2025 | 9:23 | 1.7 | good condition | recycle skip bin line |
| B11 | 27.02.2025 | 9:23 | 1.8 | good condition | recycle skip bin line |
| B12 | 27.02.2025 | 9:22 | 1.3 | good condition | recycle skip bin line |
| B13 | 27.02.2025 | 9:22 | 1.5 | good condition | recycle skip bin line |
| B14 | 27.02.2025 | 9:22 | 1.3 | good | large warehouse surroundings |
| B15 | 27.02.2025 | 9:22 | 1.3 | good | large warehouse surroundings |
| B16 | 27.02.2025 | 9:22 | 1.4 | good | large warehouse surroundings |
| B17 | 27.02.2025 | 9:00 | 1.9 | green waste pile contain within the building , good | corners of compost / green waste mulch shed |
| B18 | 27.02.2025 | 8:59 | 1.8 | green waste pile contain within the building , good | corners of compost / green waste mulch shed |
| B19 | 27.02.2025 | 8:55 | 2.9 | green waste pile contain within the building , good | corners of compost / green waste mulch shed |
| B20 | 27.02.2025 | 8:56 | 2.6 | green waste pile contain within the building , good | corners of compost / green waste mulch shed |
| TP1 | 27.02.2025 | 9:10 | 1.6 | average | between hard rubbish pile & green waste |
| TP2 | 27.02.2025 | 9:10 | 2 | good condition | station entry side ways |
| TP3 | 27.02.2025 | 9:11 | 1.7 | | corner of recycle skip bins |
| TP4 | 27.02.2025 | 9:23 | 2 | good conditon , cap on when not in used. | main bins |
| TP5 | 27.02.2025 | 9:23 | 1.7 | good conditon , cap on when not in used. | main bins |
| TP6 | 27.02.2025 | 9:17 | 1.8 | good | corner reception , garden patch |
| TP7 | 27.02.2025 | 9:18 | 1.4 | good condition | corner recylcle skip bins |
| TP8 | 27.02.2025 | 9:18 | 1.3 | good condition | corner recylcle skip bins |
| TP9 | 27.02.2025 | 9:20 | 1.2 | good condition | gravel , bitumen mix area |
| TP10 | 27.02.2025 | 9:11 | 1.3 | organised. Good | green waste pile |

## SAMPLING RESULTS SUBMISSION SHEET (SAMPLING UNDERTAKEN BY VENTIA)

**Client:** Hepburn Shire Council
**Site:** Creswick Landfill
**Program:** Groundwater/Surface Water Sampling

**Samling Period:** February 2025
**Sampler:** Pandula Ranasinghe
**Phone:** 0408 405 305

| Bore/Sample Point | Date | Time (EST) | Depth (mbmp) | SWL m (mbtoc) | Electrical Conductivity (us/cm @ 25°C) | pH | Temp. (°C) | Redox (mV) | DO (mg/L) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| **LB1** | | | | | | | | | | Blocked |
| **LB2** | | | | | | | | | | Blocked |
| **LB3** | | | | | | | | | | DRY |
| **Creek U/S BH3** | | | | | | | | | | Gathered water under bridge |
| **Creek @ BH3** | 25.02.2025 | 8:00 | dry | dry | dry | dry | dry | dry | dry | DRY |
| **Creek D/S BH3** | 27.02.2025 | 13:30 | | | 554 | 6.83 | 27.7 | 6.8 | 3.07 | Gathered water hole , no flow |
| **Leachate Pond** | 25.02.2025 | 15:10 | | | 1256 | 7.26 | 23.2 | 32.8 | 4.58 | |
| **Wetland** | 26.2.2025 | 9:00 | dry | dry | dry | dry | dry | dry | dry | DRY |
| **Dredge hole** | 25.2.2025 | 10:00 | | | 733 | 6.49 | 18.5 | -18.4 | 4.28 | |
| **BH1** | 25/02/2025 | 13:49 | 7.00 | 3.83 | 443 | 6.47 | 21.5 | 4.6 | 2.87 | Newly drilled bore. Dark yellow, high turbidity, nil odour |
| **BH2** | 26/02/2025 | 10:55 | -- | 3.28 | 1382 | 5.57 | 22.2 | 44.0 | 1.66 | Bend in casing, sampled with bailer. Clear |
| **BH3** | 26/02/2025 | 10:23 | 4.00 | 1.22 | 2781 | 6.20 | 19.2 | -31.5 | 0.2 | Clear, nil odour |
| **BH4** | 26.2.2025 | 8:15 | dry | dry | dry | dry | dry | dry | dry | DRY |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **BH6** | 25/02/2025 | 11:52 | 15.50 | 12.61 | 583 | 4.84 | 17.2 | 2.5 | 0.12 | Clear, nil odour |
| **BH7** | 25/02/2025 | 14:45 | 6.80 | 2.88 | 1156 | 6.24 | 17.6 | 1.0 | 0.10 | Clear, nil odour |
| **BH8** | 26/02/2025 | 9:20 | -- | 3.50 | 1046 | 6.53 | 19.0 | -23.2 | 4.27 | Bore headwork damaged, bailer used |
| **BH9** | 27/02/2025 | -- | -- | -- | -- | -- | -- | -- | -- | DRY |
| **BH10** | 27/02/2025 | 12:10 | 6.40 | 2.68 | 804 | 5.88 | 19.0 | 1.1 | 0.22 | Light yellowish, nil odour |
| **BH13** | 25/02/2025 | 9:15 | 6.00 | 3.77 | 1169 | 6.37 | 15.1 | -31.8 | 0.34 | Light yellow |

**NOTES:**
**1** Groundwater samples taken using the low-flow method (as per EPA Publication 669) unless otherwise noted
**2** All depths measured from the top of the PVC casing

# EQUIPMENT QUALITY REPORT

## Inspectra Laser

**Equipment Code: MIL-0717 Serial Number: 34090717**

☑ Equipment is clean ☑ Pump and battery voltage check ☑ Clear Data

| **Calibration Results** | | | | **Calibration Gas Expiry Date** |
|---|---|---|---|---|
| **Parameter** | **Standard** | **Result** | **Error Range** | |
| CH4 | Methane by 500ppm | 497ppm | ± 25 ppm | 96 - WO398764-2 Exp 03/05/2028 |

Date: 25/02/2025

Calibrated by: George Froomes-Houseman

*For quality control purposes HydroTerra can supply gas calibration data

Please check that the following items are received and all items are returned. Please clean equipment before retuning. **A minimum $20 service/repair charge applies to any unclean or damaged items.**

| Photo Ref. | Checklist Item (See photo at the back of the form) | HT id No. | Sent? | Return? | Comments |
|---|---|---|---|---|---|
| 1 | Carry Case | N/A | ✓ | | |
| 2 | Inspectra Laser | **MIL-0717** | ✓ | | |
| 3 | Sampling Probe joint | N/A | ✓ | | |
| 4 | Sampling Probe 600mm | N/A | ✓ | | |
| 5 | Telescopic rod with Suction cup | N/A | ✓ | | |
| 6 | Spare Battery & charger 240/110V to 12V 500mA | N/A | ✓ | | |
| 7 | Spare filter | N/A | ✓ | | |
| 8 | Tools – Screw driver | N/A | ✓ | | |
| - | Test & Tag | N/A | ✓ | | |

☑ Equipment voltage ☑ Pre-delivery Calibration Test Complete

Date: 25/02/2025

Calibrated by: George Froomes-Houseman

HT JOB NO: 23825 CLIENTS REF: P/O No: 4701076787

| RETURN DATE: / / | TIME: | CONDITION ON RETURN: |
|---|---|---|

# EQUIPMENT QUALITY REPORT

## GA5000

**Equipment Code: MLG-274** **Serial Number: 9500274**

The equipment has been issued as follows:

☑ Equipment is clean ☑ Pump and battery voltage check ☑ Clear Data

| Calibration Results | | | | Calibration Gas (Expiry Date) |
|---|---|---|---|---|
| Parameter | Standard | Result | Error Range | |
| CH4 | Methane by Volume 60% | 60% | ± 2% | 106-WO327147-10 Exp.14/12/2026 |
| CO2 | Carbon Dioxide by volume 40% | 40.1% | ± 2% | 106-WO327147-10 Exp.14/12/2026 |
| H2S | Hydrogen Sulphide 25 ppm | 25 ppm | ± 2 ppm | 102-WO443530-9 Exp.05/03/2026 |
| O2 | Oxygen 18% | 18% | ± 0.2% | 102-WO443530-9 Exp.05/03/2026 |
| CO | Carbon Monoxide 50 ppm | 50 ppm | ± 2ppm | 107-A01409 Exp.08/12/2028 |

Date: 25/02/2025

Calibrated by: George Froomes-Houseman

Please check that the following items are received, and all items are returned. Please clean equipment before returning. **A minimum $20 service/repair charge applies to any unclean or damaged items.**

| Photo Ref. | Checklist Item (See photo at the back of this form) | HT Id No. | Sent? | Returned? | Comments |
|---|---|---|---|---|---|
| 1 | Blue tubing with an inlet barb fitting | N/A | ✓ | | |
| 2 | Clear tubing with an inlet Brass Ex-cap Female Fitting (filter attached) | N/A | ✓ | | |
| 3 | Spare water trap filter(s) Qty 1 | N/A | ✓ | | |
| 4 | Yellow tubing with an inlet barb fitting | N/A | ✓ | | |
| 5 | Clear tubing | N/A | ✓ | | |
| 6 | Charger 240/110V to 12V 500mA | N/A | ✓ | | |
| 7 | GA5000 with a carry bag | MLG-274 | ✓ | | |
| 8 | Hard case | N/A | ✓ | | |
| 9 | Instruction Manual | N/A | ✓ | | |
| 10 | Well cap fitting | N/A | ✓ | | |
| - | Test & Tag | N/A | | | |

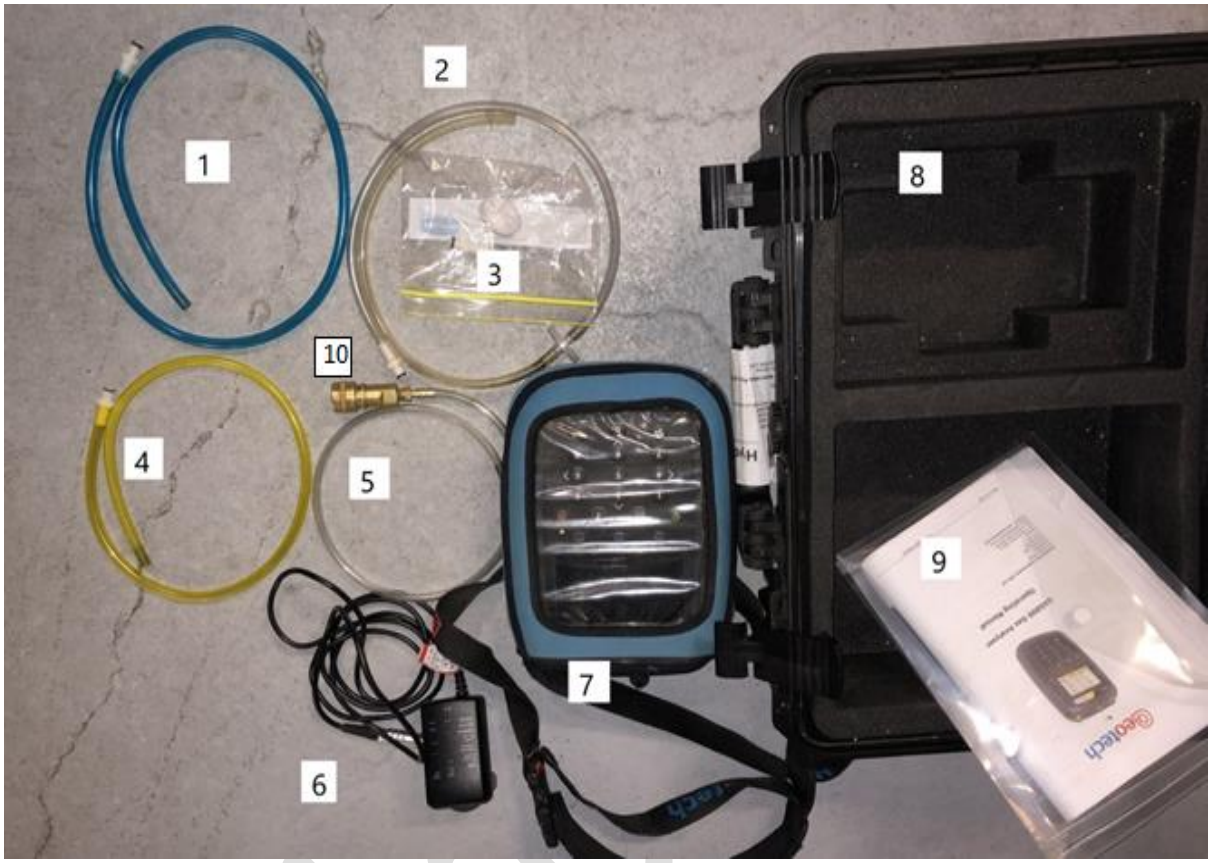
☑ Equipment voltage ☑ Pre-delivery Calibration Test Complete

Date: 25/02/2025

Checked by: George Froomes-Houseman

HT JOB NO: 23825 CLIENTS REF: P/O No: 4701076787

RETURN DATE: / / TIME: CONDITION ON RETURN:



# INTERMEDIATE VERIFICATION AND CALIBRATION

| | |
|---|---|
| Serial no.: 12J10716 | Centre: Geelong |
| Model no. YSI PRO Plus | |
| Parameter: Multi-probe | |
| (EC, DO, TU, pH, Temperature, Redox) | |

| Date of verification /calibration | Results | | | | | | Comments | Staff initials |
|---|---|---|---|---|---|---|---|---|
| | Expected | Observed | Adjusted | Batch no. | Slope mV | Asy mV | | |
| 24/2/2025 | 1413 | 1496 | Yes | 428738 | | | EC | PD |
| 24/2/2025 | 4.01 | 4.03 | Yes | 422643 | | | pH4 | PD |
| 24/2/2025 | 7 | 7.00 | No | 426181 | | | pH7 | PD |
| 24/2/2025 | 10 | 9.88 | Yes | 428124 | | | pH10 | PD |
| 24/2/2025 | 228 | 205.7 | Yes | 426086 426087 | | | Redox | PD |
| 24/2/2025 | 100 | 96.9 | NA | DI | | | DO | PD |
| 25/2/2025 | 1413 | 1400 | Yes | 428738 | | | EC | PD |
| 25/2/2025 | 4.01 | 4.15 | Yes | 422643 | | | pH4 | PD |
| 25/2/2025 | 7 | 7.15 | Yes | 426181 | | | pH7 | PD |
| 25/2/2025 | 228 | 236.7 | Yes | 426086 426087 | | | Redox | PD |
| 25/2/2025 | 100 | 100.7 | N/A | DI | | | DO | PD |
| 26/2/2025 | 1413 | 1395 | Yes | 428738 | | | EC | PD |
| 26/2/2025 | 4.01 | 3.92 | Yes | 422643 | | | pH4 | PD |
| 26/2/2025 | 7 | 6.99 | Yes | 426181 | | | pH7 | PD |
| 26/2/2025 | 228 | 242. | Yes | 426086 426087 | | | Redox | PD |
| 26/2/2025 | 100 | 96.9 | N | ~~428738~~ DI | | | DO | PD |
| / / | | | | ~~422643~~ | | | | |
| / / | | | | ~~426181~~ | | | | |
| / / | | | | ~~426086 426087~~ | | | | |
| / / | | | | ~~DI~~ | | | | |
| / / | | | | | | | | |
| / / | | | | | | | | |
| / / | | | | | | | | |

***If standards are not used to calibrate instrument – explanation required under comments**

Water quality measurements where Q = 10 shall meet the following calibration limits

| EC | pH | Turbidity | DO | Temperature |
|---|---|---|---|---|
| Standard +/- 5% | Standard +/- 0.1 to 0.2 | Standard +/- 5% | Verify/Calibrate to solution | Verify/ Calibrate as per procedure |
| **146.9** 139.6 - 154.3 | **4** 3.9 – 4.1 | **20** 19 - 21 | | |
| **1413** 1342 - 1484 | **7** 6.9 – 7.1 | **100** 95 – 105 | | |
| **12880** 12236 - 13524 | **10** 9.8 – 10.2 | **800** 760 - 840 | | |

WQ Instruments that require continual calibration from initial values outside the above tolerance ranges using the specified solutions will need to be returned to the manufacturer for assessment or repair.

ventia

# INSTRUMENTATION - INTERMEDIATE VERIFICATION AND CALIBRATION

| | |
|---|---|
| Serial no.: 12J10716 | Centre: Geelong |
| Model no.: YSI PRO PLUS | |
| Parameter: | |
| (EC, DO, TU, pH, Temperature, Redox) | |

| Date of verification /calibration | Results | | | | | | Comments | Staff initials |
|---|---|---|---|---|---|---|---|---|
| | Expected | Observed | Adjusted | Batch no. | Slope mV | Asy mV | | |
| 27/2/25 | 1413 | 1440 | Yes | 428738 | | | EC | PD |
| 27/2/25 | 4.01 | 4.03 | Y | 422643 | | | pH4 | PD |
| 27/2/25 | 7.00 | 6.89 | Y | 426181 | | | pH7 | PD |
| 27/2/25 | 228 | 237.1 | Y | 426086 426087 | | | Redox | PD |
| 27/2/25 | 100 | 98.3 | N | DI | | | DO | PD |
| 28/2/25 | 1413 | 1398 | Yes | 428738 | | | EC | PD |
| 28/2/25 | 4.01 | 4.00 | Yes added | 422643 | | | pH4 | PD |
| 28/2/25 | 7.00 | 6.86 | Yes | 426181 | | | pH7 | PD |
| 28/2/25 | 228 | 242 | Yes | 426086 426087 | | | Redox | PD |
| 28/2/25 | 100 | 95.8 | NO | DI | | | DO | PD |
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| / / | | | | | | | | |

*If standards are not used to calibrate instrument - explanation required under comments

Water quality measurements where Q = 10 shall meet the following calibration limits

| EC | pH | Turbidity | DO | Temperature |
|---|---|---|---|---|
| Standard +/- 5% | Standard +/- 0.1 | Standard +/- 3% | <+/-2% FS (0-20mg/l) | +/-0.2°C (When a temperature stabilised environment can be created) |
| +/- 10 µS/cm < 1,000 | 4 3.9 - 4.1 | 0 - 10 = 0.10 NTU | | |
| +/- 100 µS/cm > 1,000 | 7 6.9 - 7.1 | 0 - 100 = 1.00 NTU | <+/- 0.4 mg/l (0-20mg/l) | |
| | 10 9.9 - 10.1 | 0 - 1000 = 10.00 NTU | | |

WQ Instruments that require continual calibration from initial values outside the above tolerance ranges using the specified solutions will need to be returned to the manufacturer for assessment or repair.

## APPENDIX B – LABORATORY RESULTS

| | | EC | NA | | | | | | | pH | Solids | Alkalinity | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Electrical conductivity * (lab) | Acetic Acid | Heptanoic Acid | Isobutyric Acid | Isocaproic Acid | Isovaleric Acid | Valeric Acid | Volatile Fatty Acids (as Acetic Acid) | pH (Lab) | TDS | Alkalinity (Carbonate as CaCO3) | Alkalinity (Bicarbonate as CaCO3) | Alkalinity (Hydroxide) as CaCO3 | Alkalinity (total) as CaCO3 |
| | | uS/cm | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | ug/L | - | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | | 1 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 0.01 | 10 | 1 | 1 | 1 | 1 |
| Groundwater Quality Objective | | | | | | | | | | 6.5-8.5 | 2,000 | | | | |
| ANZECC 2000 FW 95% | | | | | | | | | | | | | | | |
| ANZECC 2000 Irrigation | | | | | | | | | | | | | | | |
| ANZECC 2000 Livestock | | | | | | | | | | | 2,000 | | | | |
| **Field ID** | **Location Code** | **Date** | **Lab Report Number** | | | | | | | | | | | | |
| **BH1** | **BH1** | **25 Feb 2025** | **1191963** | 430 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.8 | 280 | <10 | 120 | <20 | 120 |
| **BH2** | **BH2** | **31 Jul 2024** | **1124003** | 1,400 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.5 | 680 | <10 | 90 | <20 | 90 |
| **BH2** | **BH2** | **26 Feb 2025** | **1192599** | 1,300 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 5.6 | 670 | <10 | 30 | <20 | 30 |
| **BH3** | **BH3** | **31 Jul 2024** | **1124003** | 3,700 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.6 | 2,000 | <10 | 340 | <20 | 340 |
| **BH3** | **BH3** | **26 Feb 2025** | **1192599** | 2,600 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.4 | 1,500 | <10 | 180 | <20 | 180 |
| **BH4** | **BH4** | **31 Jul 2024** | **1123989** | 1,200 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.5 | 1,300 | <10 | 250 | <20 | 250 |
| **BH6** | **BH6** | **31 Jul 2024** | **1123989** | 450 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 5.2 | 300 | <10 | <20 | <20 | <20 |
| **BH6** | **BH6** | **25 Feb 2025** | **1191963** | 560 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 5.7 | 310 | <10 | <20 | <20 | <20 |
| **BH7** | **BH7** | **31 Jul 2024** | **1123989** | 550 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.5 | 490 | <10 | 200 | <20 | 200 |
| **BH7** | **BH7** | **25 Feb 2025** | **1191963** | 1,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.5 | 840 | <10 | 180 | <20 | 180 |
| **BH8** | **BH8** | **31 Jul 2024** | **1123989** | 530 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.9 | 580 | <10 | 370 | <20 | 370 |
| **BH8** | **BH8** | **26 Feb 2025** | **1192599** | 970 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.8 | 1,200 | <10 | 370 | <20 | 370 |
| **BH10** | **BH10** | **31 Jul 2024** | **1124003** | 770 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.3 | 390 | <10 | 69 | <20 | 69 |
| **BH10** | **BH10** | **27 Feb 2025** | **1193085** | 710 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.4 | 520 | <10 | 68 | <20 | 68 |
| **BH14** | **BH14** | **31 Jul 2024** | **1124003** | 1,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.9 | 740 | <10 | 120 | <20 | 120 |
| **BH14** | **BH14** | **25 Feb 2025** | **1191963** | 1,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.7 | 640 | <10 | 200 | <20 | 200 |

Groundwater Primary Results_Creswick Landfill_2024 and 2025

| | | | | Major Ions | | | | | Nitrogen Forms | | | | | | | Inorganics | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Calcium | Chloride | Magnesium | Potassium | Sodium | Ammonia as N | Nitrate (as N) | Nitrite (as N) | Nitrite + Nitrate as N | Kjeldahl Nitrogen Total | Nitrogen (Total) | Nitrogen (Organic) | COD | Sulphate |
| | | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | | | | 0.5 | 1 | 0.5 | 0.5 | 0.5 | 0.01 | 0.01 | 0.01 | 0.01 | 0.1 | 0.2 | 0.2 | 10 | 5 |
| Groundwater Quality Objective | | | | 1,000 | 25-700 | 2,000 | | 115 | 0.9 | 0.16 | | | 25 | | | | |
| ANZECC 2000 FW 95% | | | | | | | | | | 7.2[#1] | | | | | | | |
| ANZECC 2000 Irrigation | | | | | 175 | | | 115 | | | | | | | | | |
| ANZECC 2000 Livestock | | | | 1,000 | | | | | | | | | | | | | |
| **Field ID** | **Location Code** | **Date** | **Lab Report Number** | | | | | | | | | | | | | | |
| **BH1** | **BH1** | **25 Feb 2025** | **1191963** | 8.1 | 66 | 12 | 6.0 | 60 | -- | 2.7 | 0.11 | 2.9 | 4.7 | 7.6 | -- | 260 | 49 |
| **BH2** | **BH2** | **31 Jul 2024** | **1124003** | 2.3 | 290 | 35 | 1.5 | 190 | <0.01 | 12 | -- | -- | 5.4 | -- | 5.4 | <25 | 19 |
| **BH2** | **BH2** | **26 Feb 2025** | **1192599** | 2.1 | 340 | 39 | 1.6 | 190 | 0.60 | 23 | -- | -- | 2.7 | -- | 2.1 | 30 | 16 |
| **BH3** | **BH3** | **31 Jul 2024** | **1124003** | 56 | 990 | 96 | 15 | 450 | <0.01 | 0.05 | -- | -- | 1.2 | -- | 1.2 | 76 | <5 |
| **BH3** | **BH3** | **26 Feb 2025** | **1192599** | 44 | 710 | 78 | 20 | 340 | 0.21 | <0.02 | -- | -- | 1.1 | -- | 0.89 | 64 | 49 |
| **BH4** | **BH4** | **31 Jul 2024** | **1123989** | 26 | 550 | 72 | <0.5 | 330 | <0.01 | 0.02 | -- | -- | 1.0 | -- | 1 | 88 | 6.6 |
| **BH6** | **BH6** | **31 Jul 2024** | **1123989** | 3.6 | 140 | 16 | 1.1 | 90 | <0.01 | 2.9 | -- | -- | 0.7 | -- | 0.7 | <25 | 20 |
| **BH6** | **BH6** | **25 Feb 2025** | **1191963** | 3.6 | 150 | 16 | 2.2 | 87 | -- | 2.3 | <0.02 | 2.3 | 0.5 | 2.8 | -- | <25 | 21 |
| **BH7** | **BH7** | **31 Jul 2024** | **1123989** | 28 | 200 | 28 | 16 | 110 | 0.83 | 0.07 | -- | -- | 1.1 | -- | 0.27 | 47 | <5 |
| **BH7** | **BH7** | **25 Feb 2025** | **1191963** | 26 | 220 | 32 | 16 | 130 | -- | <0.02 | <0.02 | <0.05 | 1.3 | 1.3 | -- | 28 | 6.2 |
| **BH8** | **BH8** | **31 Jul 2024** | **1123989** | 73 | 97 | 33 | 8.5 | 110 | 4.7 | 5.6 | -- | -- | 8.0 | -- | 3.3 | 240 | <5 |
| **BH8** | **BH8** | **26 Feb 2025** | **1192599** | 59 | 97 | 34 | 19 | 110 | 5.2 | 12 | -- | -- | 12 | -- | 6.8 | 160 | 14 |
| **BH10** | **BH10** | **31 Jul 2024** | **1124003** | 6.9 | 190 | 24 | 3.8 | 110 | 0.38 | 0.81 | -- | -- | 2.7 | -- | 2.32 | 81 | 19 |
| **BH10** | **BH10** | **27 Feb 2025** | **1193085** | 6.0 | 190 | 21 | 3.9 | 100 | 1.8 | 0.12 | -- | -- | 3.7 | -- | 1.9 | 57 | 18 |
| **BH14** | **BH14** | **31 Jul 2024** | **1124003** | 22 | 240 | 34 | 2.3 | 150 | <0.1 | <0.2 | -- | -- | 3.0 | -- | 3 | 76 | <5 |
| **BH14** | **BH14** | **25 Feb 2025** | **1191963** | 15 | 220 | 29 | 2.6 | 150 | -- | <0.02 | <0.02 | <0.05 | <0.2 | <0.2 | -- | 69 | <5 |

| | | | | | Metals | | | Herbicides | Other | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TOC | Chromium (III+VI) | Iron | Manganese | 2,4,5-Trichlorophenoxy-propanoic acid | Butyric Acid | Hexanoic Acid |
| | | | | mg/L | mg/L | mg/L | mg/L | ug/L | ug/L | ug/L |
| EQL | | | | 1 | 0.001 | 0.05 | 0.005 | 5,000 | 5,000 | 5,000 |
| Groundwater Quality Objective | | | | | 0.001 | 0.3 | 0.008 | | | |
| ANZECC 2000 FW 95% | | | | | | | 1.9 | | | |
| ANZECC 2000 Irrigation | | | | | 0.1 | | 0.2 | | | |
| ANZECC 2000 Livestock | | | | | 1 | | | | | |
| **Field ID** | **Location Code** | **Date** | **Lab Report Number** | | | | | | | |
| **BH1** | **BH1** | **25 Feb 2025** | **1191963** | <5 | <0.001 | <0.05 | 2.5 | <5,000 | <5,000 | <5,000 |
| **BH2** | **BH2** | **31 Jul 2024** | **1124003** | <5 | <0.001 | 4.9 | 11 | <5,000 | <5,000 | <5,000 |
| **BH2** | **BH2** | **26 Feb 2025** | **1192599** | <5 | <0.001 | <0.05 | 9.8 | <5,000 | <5,000 | <5,000 |
| **BH3** | **BH3** | **31 Jul 2024** | **1124003** | 14 | 0.001 | 91 | 5.8 | <5,000 | <5,000 | <5,000 |
| **BH3** | **BH3** | **26 Feb 2025** | **1192599** | <5 | <0.001 | 59 | 3.6 | <5,000 | <5,000 | <5,000 |
| **BH4** | **BH4** | **31 Jul 2024** | **1123989** | <5 | 0.007 | 160 | 2.0 | <5,000 | <5,000 | <5,000 |
| **BH6** | **BH6** | **31 Jul 2024** | **1123989** | <5 | <0.001 | 0.06 | 0.54 | <5,000 | <5,000 | <5,000 |
| **BH6** | **BH6** | **25 Feb 2025** | **1191963** | <5 | <0.001 | <0.05 | 0.46 | <5,000 | <5,000 | <5,000 |
| **BH7** | **BH7** | **31 Jul 2024** | **1123989** | <5 | 0.002 | 41 | 1.4 | <5,000 | <5,000 | <5,000 |
| **BH7** | **BH7** | **25 Feb 2025** | **1191963** | <5 | <0.001 | 40 | 1.3 | <5,000 | <5,000 | <5,000 |
| **BH8** | **BH8** | **31 Jul 2024** | **1123989** | 26 | 0.008 | 65 | 1.4 | <5,000 | <5,000 | <5,000 |
| **BH8** | **BH8** | **26 Feb 2025** | **1192599** | 23 | <0.001 | 23 | 0.61 | <5,000 | <5,000 | <5,000 |
| **BH10** | **BH10** | **31 Jul 2024** | **1124003** | <5 | 0.002 | 12 | 5.8 | <5,000 | <5,000 | <5,000 |
| **BH10** | **BH10** | **27 Feb 2025** | **1193085** | <25 | 0.009 | 12 | 4.8 | <5,000 | <5,000 | <5,000 |
| **BH14** | **BH14** | **31 Jul 2024** | **1124003** | 7.2 | 0.004 | 41 | 1.7 | <5,000 | <5,000 | <5,000 |
| **BH14** | **BH14** | **25 Feb 2025** | **1191963** | <5 | <0.001 | 22 | 0.93 | <5,000 | <5,000 | <5,000 |

| | | | | EC | NA | | | | | | | pH | Solids | Alkalinity | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Electrical conductivity * (lab) | Acetic Acid | Heptanoic Acid | Isobutyric Acid | Isocaproic Acid | Isovaleric Acid | Valeric Acid | Volatile Fatty Acids (as Acetic Acid) | pH (Lab) | TDS | Alkalinity (Carbonate as CaCO3) | Alkalinity (Bicarbonate as CaCO3) | Alkalinity (Hydroxide) as CaCO3 | Alkalinity (total) as CaCO3 |
| | | | | uS/cm | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | ug/L | - | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | | | | 1 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 0.01 | 10 | 1 | 1 | 1 | 1 |
| Surface Water Quality Objective | | | | | | | | | | | | 6.5-8 | 2000 | | | | |
| ANZECC 2000 FW 95% | | | | | | | | | | | | | | | | | |
| ANZECC 2000 Irrigation | | | | | | | | | | | | | | | | | |
| ANZECC 2000 Livestock | | | | | | | | | | | | | 2,000 | | | | |
| **Field ID** | **Location Code** | **Date** | **Lab Report Number** | | | | | | | | | | | | | | |
| **CREEK @ BH3** | **CREEK @ BH3** | **31 Jul 2024** | **1124003** | 430 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.9 | 270 | <10 | 45 | <20 | 45 |
| **D/S BH3** | **D/S BH3** | **31 Jul 2024** | **1124003** | 430 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.9 | 300 | <10 | 38 | <20 | 38 |
| **D/S BH3** | **D/S BH3** | **27 Feb 2025** | **1193085** | 520 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.9 | 320 | <10 | 91 | <20 | 91 |
| **DREDGE** | **DREDGE** | **31 Jul 2024** | **1124003** | 720 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.8 | 420 | <10 | 40 | <20 | 40 |
| **DREDGE** | **DREDGE** | **25 Feb 2025** | **1191963** | 720 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.6 | 390 | <10 | 45 | <20 | 45 |
| **LEACHATE** | **LEACHATE** | **31 Jul 2024** | **1123989** | 470 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 7.1 | 440 | <10 | 170 | <20 | 170 |
| **LEACHATE** | **LEACHATE** | **25 Feb 2025** | **1191963** | 1,200 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 7.8 | 710 | <10 | 220 | <20 | 220 |
| **U/S BH3** | **U/S BH3** | **31 Jul 2024** | **1124003** | 410 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.9 | 250 | <10 | 40 | <20 | 40 |
| **U/S BH3** | **U/S BH3** | **26 Feb 2025** | **1192599** | 1,500 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 6.8 | 1,100 | <10 | 99 | <20 | 99 |
| **WETLAND** | **WETLAND** | **31 Jul 2024** | **1124003** | 890 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | <5,000 | 7.9 | 460 | <10 | 170 | <20 | 170 |

Surface Water Primary Results_Creswick Landfill_2024 and 2025

| | | | | Major Ions | | | | | Nitrogen Forms | | | | | | | Inorganics | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Calcium | Chloride | Magnesium | Potassium | Sodium | Ammonia as N | Nitrate (as N) | Nitrite (as N) | Nitrite + Nitrate as N | Kjeldahl Nitrogen Total | Nitrogen (Total) | Nitrogen (Organic) | COD | Sulphate |
| | | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | | | | 0.5 | 1 | 0.5 | 0.5 | 0.5 | 0.01 | 0.01 | 0.01 | 0.01 | 0.1 | 0.2 | 0.2 | 10 | 5 |
| Surface Water Quality Objective | | | | 1000 | | 2000 | | | 0.9 | 0.7 | | | | | | | 1,000,000 |
| ANZECC 2000 FW 95% | | | | | | | | | | 7.2[#1] | | | | | | | |
| ANZECC 2000 Irrigation | | | | | 175 | | | 115 | | | | | | | | | |
| ANZECC 2000 Livestock | | | | 1,000 | | | | | | | | | | | | | |
| **Field ID** | **Location Code** | **Date** | **Lab Report Number** | | | | | | | | | | | | | | |
| **CREEK @ BH3** | **CREEK @ BH3** | **31 Jul 2024** | **1124003** | 9.8 | 95 | 14 | 2.2 | 57 | <0.01 | 0.06 | -- | -- | 0.9 | -- | 0.9 | <25 | 6.1 |
| **D/S BH3** | **D/S BH3** | **31 Jul 2024** | **1124003** | 9.8 | 93 | 14 | 2.0 | 54 | <0.01 | 0.10 | -- | -- | 0.4 | -- | 0.4 | <25 | 7.6 |
| **D/S BH3** | **D/S BH3** | **27 Feb 2025** | **1193085** | 18 | 120 | 19 | 3.2 | 61 | 0.05 | 0.05 | -- | -- | 0.5 | -- | 0.45 | <25 | <5 |
| **DREDGE** | **DREDGE** | **31 Jul 2024** | **1124003** | 6.9 | 180 | 20 | 2.1 | 110 | 0.02 | 0.16 | -- | -- | 0.7 | -- | 0.68 | <25 | 13 |
| **DREDGE** | **DREDGE** | **25 Feb 2025** | **1191963** | 6.2 | 190 | 19 | 3.0 | 110 | -- | <0.02 | <0.02 | <0.05 | 0.6 | 0.6 | -- | <25 | 15 |
| **LEACHATE** | **LEACHATE** | **31 Jul 2024** | **1123989** | 29 | 160 | 20 | 23 | 98 | 4.9 | 0.06 | -- | -- | 6.8 | -- | 1.9 | 32 | 22 |
| **LEACHATE** | **LEACHATE** | **25 Feb 2025** | **1191963** | 39 | 260 | 33 | 35 | 150 | -- | 0.13 | 0.05 | 0.18 | 2.3 | 2.5 | -- | 62 | <5 |
| **U/S BH3** | **U/S BH3** | **31 Jul 2024** | **1124003** | 8.8 | 95 | 13 | 1.8 | 51 | <0.01 | 0.06 | -- | -- | 0.3 | -- | 0.3 | <25 | 7.9 |
| **U/S BH3** | **U/S BH3** | **26 Feb 2025** | **1192599** | 36 | 470 | 58 | 3.9 | 190 | 0.06 | 0.02 | -- | -- | 0.5 | -- | 0.44 | 25 | 5.7 |
| **WETLAND** | **WETLAND** | **31 Jul 2024** | **1124003** | 21 | 180 | 24 | 15 | 100 | <0.01 | <0.02 | -- | -- | 0.9 | -- | 0.9 | 49 | <5 |

| | | | | Metals | | | | | | | Herbicides | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TOC | Chromium (III+VI) | Chromium (III+VI) (filtered) | Iron | Iron (filtered) | Manganese | Manganese (filtered) | 2,4,5-Trichlorophenoxy-propanoic acid | Butyric Acid | Hexanoic Acid |
| | | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | ug/L | ug/L | ug/L |
| EQL | | | | 1 | 0.001 | 0.001 | 0.05 | 0.05 | 0.005 | 0.005 | 5,000 | 5,000 | 5,000 |
| Surface Water Quality Objective | | | | | 0.001 | | | | | | | | |
| ANZECC 2000 FW 95% | | | | | | | | | 1.9 | 1.9 | | | |
| ANZECC 2000 Irrigation | | | | | 0.1 | 0.1 | | | 0.2 | 0.2 | | | |
| ANZECC 2000 Livestock | | | | | 1 | 1 | | | | | | | |
| **Field ID** | **Location Code** | **Date** | **Lab Report Number** | | | | | | | | | | |
| **CREEK @ BH3** | **CREEK @ BH3** | **31 Jul 2024** | **1124003** | 6.2 | <0.001 | -- | 2.8 | -- | 0.11 | -- | <5,000 | <5,000 | <5,000 |
| **D/S BH3** | **D/S BH3** | **31 Jul 2024** | **1124003** | 7.3 | <0.001 | -- | 2.4 | -- | 0.11 | -- | <5,000 | <5,000 | <5,000 |
| **D/S BH3** | **D/S BH3** | **27 Feb 2025** | **1193085** | 5.1 | -- | <0.001 | -- | 0.08 | -- | 0.33 | <5,000 | <5,000 | <5,000 |
| **DREDGE** | **DREDGE** | **31 Jul 2024** | **1124003** | 6.0 | <0.001 | -- | 1.3 | -- | 0.63 | -- | <5,000 | <5,000 | <5,000 |
| **DREDGE** | **DREDGE** | **25 Feb 2025** | **1191963** | <5 | -- | <0.001 | -- | 0.13 | -- | 0.77 | <5,000 | <5,000 | <5,000 |
| **LEACHATE** | **LEACHATE** | **31 Jul 2024** | **1123989** | 12 | <0.001 | -- | 7.7 | -- | 0.80 | -- | <5,000 | <5,000 | <5,000 |
| **LEACHATE** | **LEACHATE** | **25 Feb 2025** | **1191963** | 9.8 | -- | <0.001 | -- | 0.11 | -- | 0.20 | <5,000 | <5,000 | <5,000 |
| **U/S BH3** | **U/S BH3** | **31 Jul 2024** | **1124003** | <5 | <0.001 | -- | 2.3 | -- | 0.083 | -- | <5,000 | <5,000 | <5,000 |
| **U/S BH3** | **U/S BH3** | **26 Feb 2025** | **1192599** | <5 | -- | <0.001 | -- | 0.06 | -- | 0.78 | <5,000 | <5,000 | <5,000 |
| **WETLAND** | **WETLAND** | **31 Jul 2024** | **1124003** | 19 | <0.001 | -- | 5.0 | -- | 0.25 | -- | <5,000 | <5,000 | <5,000 |

## APPENDIX C – QA QC RESULTS

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Field ID | BH6 | BLIND | | BH6 | Creswick SPLIT@BH6 | | BH6 GROUNDWATER BORE | BLIND DUPLICATE | | BH6 GROUNDWATER BORE | Creskwick SPLIT | |
| | | Matrix Type | Water | Water | | Water | Water | | Water | Water | | Water | Water | |
| | | Date | 31 Jul 2024 | 31 Jul 2024 | | 31 Jul 2024 | 31 Jul 2024 | | 25 Feb 2025 | 25 Feb 2025 | | 25 Feb 2025 | 25 Feb 2025 | |
| | | Lab Report Number | 1123989 | 1123989 | RPD | 1123989 | EM2413023 | RPD | 1191963 | 1191963 | RPD | 1191963 | EM2503185 | RPD |
| | Unit | EQL | | | | | | | | | | | | |
| **EC** | | | | | | | | | | | | | | |
| **Electrical conductivity *(lab)** | uS/cm | 1 | 450 | 290 | 43 | 450 | 565 | 23 | 560 | 560 | 0 | 560 | 579 | 3 |
| **NA** | | | | | | | | | | | | | | |
| **Acetic Acid** | µg/L | 5,000 | <5,000 | <5,000 | 0 | <5,000 | | | <5,000 | <5,000 | 0 | <5,000 | | |
| **Heptanoic Acid** | µg/L | 5,000 | <5,000 | <5,000 | 0 | <5,000 | | | <5,000 | <5,000 | 0 | <5,000 | | |
| **Isobutyric Acid** | µg/L | 5,000 | <5,000 | <5,000 | 0 | <5,000 | | | <5,000 | <5,000 | 0 | <5,000 | | |
| **Isocaproic Acid** | µg/L | 5,000 | <5,000 | <5,000 | 0 | <5,000 | | | <5,000 | <5,000 | 0 | <5,000 | | |
| **Isovaleric Acid** | µg/L | 5,000 | <5,000 | <5,000 | 0 | <5,000 | | | <5,000 | <5,000 | 0 | <5,000 | | |
| **Valeric Acid** | µg/L | 5,000 | <5,000 | <5,000 | 0 | <5,000 | | | <5,000 | <5,000 | 0 | <5,000 | | |
| **Volatile Fatty Acids (as Acetic Acid)** | ug/L | 5,000 | <5,000 | <5,000 | 0 | <5,000 | 24,000 | 131 | <5,000 | <5,000 | 0 | <5,000 | 19,000 | 117 |
| **pH** | | | | | | | | | | | | | | |
| **pH (Lab)** | - | 0.01 | 5.2 | 5.2 | 0 | 5.2 | 5.80 | 11 | 5.7 | 5.7 | 0 | 5.7 | 6.84 | 18 |
| **Solids** | | | | | | | | | | | | | | |
| **TDS** | mg/L | 10 | 300 | 310 | 3 | 300 | 388 | 26 | 310 | 260 | 18 | 310 | 314 | 1 |
| **Alkalinity** | | | | | | | | | | | | | | |
| **Alkalinity (Carbonate as CaCO3)** | mg/L | 1 | <10 | <10 | 0 | <10 | <1 | 0 | <10 | <10 | 0 | <10 | <1 | 0 |
| **Alkalinity (Bicarbonate as CaCO3)** | mg/L | 1 | <20 | <20 | 0 | <20 | 19 | 0 | <20 | <20 | 0 | <20 | 12 | 0 |
| **Alkalinity (Hydroxide) as CaCO3** | mg/L | 1 | <20 | <20 | 0 | <20 | <1 | 0 | <20 | <20 | 0 | <20 | <1 | 0 |
| **Alkalinity (total) as CaCO3** | mg/L | 1 | <20 | <20 | 0 | <20 | 19 | 0 | <20 | <20 | 0 | <20 | 12 | 0 |
| **Major Ions** | | | | | | | | | | | | | | |
| **Calcium** | mg/L | 0.5 | 3.6 | 3.6 | 0 | 3.6 | 3 | 18 | 3.6 | 3.6 | 0 | 3.6 | 4 | 11 |
| **Chloride** | mg/L | 1 | 140 | 130 | 7 | 140 | 152 | 8 | 150 | 150 | 0 | 150 | 157 | 5 |
| **Magnesium** | mg/L | 0.5 | 16 | 16 | 0 | 16 | 14 | 13 | 16 | 16 | 0 | 16 | 15 | 6 |
| **Potassium** | mg/L | 0.5 | 1.1 | 1.1 | 0 | 1.1 | 1 | 10 | 2.2 | 2.1 | 5 | 2.2 | 1 | 75 |
| **Sodium** | mg/L | 0.5 | 90 | 93 | 3 | 90 | 79 | 13 | 87 | 87 | 0 | 87 | 91 | 11 |
| **Sodium (filtered)** | mg/L | 0.5 | | | | | 79 | | | | | | 91 | |
| **Cations Total** | meq/L | 0.01 | | | | | 4.76 | | | | | | 5.42 | |
| **Anions Total** | meq/L | 0.01 | | | | | 5.08 | | | | | | 5.13 | |
| **Ionic Balance** | % | 0.01 | | | | | 3.25 | | | | | | 2.76 | |
| **Nitrogen Forms** | | | | | | | | | | | | | | |
| **Ammonia as N** | mg/L | 0.01 | <0.01 | <0.01 | 0 | <0.01 | <0.01 | 0 | | | | | <0.01 | |
| **Nitrate (as N)** | mg/L | 0.01 | 2.9 | 3.2 | 10 | 2.9 | 2.66 | 9 | 2.3 | 2.4 | 4 | 2.3 | 2.29 | 0 |
| **Nitrite (as N)** | mg/L | 0.01 | | | | | <0.01 | | <0.02 | <0.02 | 0 | <0.02 | <0.01 | 0 |
| **Nitrite + Nitrate as N** | mg/L | 0.01 | | | | | 2.66 | | 2.3 | 2.4 | 4 | 2.3 | 2.29 | 0 |
| **Kjeldahl Nitrogen Total** | mg/L | 0.1 | 0.7 | 0.7 | 0 | 0.7 | 0.4 | 55 | 0.5 | 0.6 | 18 | 0.5 | 0.4 | 22 |
| **Nitrogen (Total)** | mg/L | 0.2 | | | | | | | 2.8 | 3.0 | 7 | 2.8 | | |
| **Nitrogen (Organic)** | mg/L | 0.2 | 0.7 | 0.7 | 0 | 0.7 | | | | | | | | |
| **Inorganics** | | | | | | | | | | | | | | |
| **COD** | mg/L | 10 | <25 | <25 | 0 | <25 | <10 | 0 | <25 | <25 | 0 | <25 | <10 | 0 |
| **Sulphate** | mg/L | 5 | 20 | 19 | 5 | 20 | 20 | 0 | 21 | 23 | 9 | 21 | 22 | 5 |
| **TOC** | mg/L | 1 | <5 | <5 | 0 | <5 | 3 | 0 | <5 | <5 | 0 | <5 | 22 | 126 |
| **Metals** | | | | | | | | | | | | | | |
| **Chromium (III+VI)** | mg/L | 0.001 | <0.001 | <0.001 | 0 | <0.001 | <0.001 | 0 | <0.001 | <0.001 | 0 | <0.001 | <0.001 | 0 |
| **Iron** | mg/L | 0.05 | 0.06 | 0.07 | 15 | 0.06 | | | | | | | | |
| **Iron (filtered)** | mg/L | 0.05 | | | | | <0.05 | | <0.05 | <0.05 | 0 | <0.05 | <0.05 | 0 |
| **Manganese** | mg/L | 0.005 | 0.54 | 0.54 | 0 | 0.54 | | | | | | | | |
| **Manganese (filtered)** | mg/L | 0.005 | | | | | | | 0.46 | 0.44 | 4 | 0.46 | | |
| **Zinc (filtered)** | mg/L | 0.005 | | | | | 0.047 | | | | | | 0.048 | |
| **Herbicides** | | | | | | | | | | | | | | |
| **2,4,5-Trichlorophenoxy-propanoic acid** | ug/L | 5,000 | <5,000 | <5,000 | 0 | <5,000 | | | <5,000 | <5,000 | 0 | <5,000 | | |
| **Other** | | | | | | | | | | | | | | |
| **Butyric Acid** | ug/L | 5,000 | <5,000 | <5,000 | 0 | <5,000 | | | <5,000 | <5,000 | 0 | <5,000 | | |
| **Hexanoic Acid** | ug/L | 5,000 | <5,000 | <5,000 | 0 | <5,000 | | | <5,000 | <5,000 | 0 | <5,000 | | |

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 81 (1 - 10 x EQL); 50 (10 - 30 x EQL); 30 ( > 30 x EQL) )**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

| | | | | |
|---|---|---|---|---|
| | | **Matrix Type** | **Water** | **Water** |
| | | **Date** | **31 Jul 2024** | **25 Feb 2025** |
| | | **Lab Report Number** | **1123989** | **1191963** |
| | **Unit** | EQL | | |
| **EC** | | | | |
| **Electrical conductivity *(lab)** | **uS/cm** | 10 | <10 | <10 |
| **NA** | | | | |
| **Acetic Acid** | **µg/L** | 5,000 | <5,000 | <5,000 |
| **Heptanoic Acid** | **µg/L** | 5,000 | <5,000 | <5,000 |
| **Isobutyric Acid** | **µg/L** | 5,000 | <5,000 | <5,000 |
| **Isocaproic Acid** | **µg/L** | 5,000 | <5,000 | <5,000 |
| **Isovaleric Acid** | **µg/L** | 5,000 | <5,000 | <5,000 |
| **Valeric Acid** | **µg/L** | 5,000 | <5,000 | <5,000 |
| **Volatile Fatty Acids (as Acetic Acid)** | **ug/L** | 5,000 | <5,000 | <5,000 |
| **Solids** | | | | |
| **TDS** | **mg/L** | 10 | <10 | <10 |
| **Alkalinity** | | | | |
| **Alkalinity (Carbonate as CaCO3)** | **mg/L** | 10 | <10 | <10 |
| **Alkalinity (Bicarbonate as CaCO3)** | **mg/L** | 20 | <20 | <20 |
| **Alkalinity (Hydroxide) as CaCO3** | **mg/L** | 20 | <20 | <20 |
| **Alkalinity (total) as CaCO3** | **mg/L** | 20 | <20 | <20 |
| **Major Ions** | | | | |
| **Calcium** | **mg/L** | 0.5 | <0.5 | <0.5 |
| **Chloride** | **mg/L** | 1 | <1 | <1 |
| **Magnesium** | **mg/L** | 0.5 | <0.5 | <0.5 |
| **Potassium** | **mg/L** | 0.5 | <0.5 | <0.5 |
| **Sodium** | **mg/L** | 0.5 | <0.5 | <0.5 |
| **Nitrogen Forms** | | | | |
| **Ammonia as N** | **mg/L** | 0.01 | <0.01 | |
| **Nitrate (as N)** | **mg/L** | 0.02 | <0.02 | <0.02 |
| **Nitrite (as N)** | **mg/L** | 0.02 | | <0.02 |
| **Nitrite + Nitrate as N** | **mg/L** | 0.05 | | <0.05 |
| **Kjeldahl Nitrogen Total** | **mg/L** | 0.2 | <0.2 | <0.2 |
| **Nitrogen (Total)** | **mg/L** | 0.2 | | <0.2 |
| **Nitrogen (Organic)** | **mg/L** | 0.2 | <0.2 | |
| **Inorganics** | | | | |
| **COD** | **mg/L** | 25 | <25 | <25 |
| **Sulphate** | **mg/L** | 5 | <5 | <5 |
| **TOC** | **mg/L** | 5 | <5 | <5 |
| **Metals** | | | | |
| **Chromium (III+VI)** | **mg/L** | 0.001 | <0.001 | <0.001 |
| **Iron** | **mg/L** | 0.05 | <0.05 | <0.05 |
| **Manganese** | **mg/L** | 0.005 | <0.005 | <0.005 |
| **Herbicides** | | | | |
| **2,4,5-Trichlorophenoxy-propanoic acid** | **ug/L** | 5,000 | <5,000 | <5,000 |
| **Other** | | | | |
| **Butyric Acid** | **ug/L** | 5,000 | <5,000 | <5,000 |
| **Hexanoic Acid** | **ug/L** | 5,000 | <5,000 | <5,000 |

## APPENDIX D – LABORATORY REPORTS

eurofins mgt

# CHAIN OF CUSTODY

6 Monterey Road,
Dandenong South,
Vic 3175

#1123987
168124

| | |
|---|---|
| **Client:** | **Ventia** |
| Contact Ventia: | Tarin Cummings 0428091782 |
| Contact Eurofins: | Savini Suduweli 03 385 645 051 |
| **Email Results to:** | Tarin.cummings@ventia.com<br>Ping.Yao@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Robert.callander@ventia.com |

**Purchase Order Number: 4700979689**

**Job Ref:** Creswick Landfill 1 of 3

**TESTS REQUIRED AS PER QUOTE # 230926VENVP**

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | PH | EC | DO | TEMP | ORP | SWL |
|---|---|---|---|---|---|---|---|---|---|---|
| ~~BH1~~ | ~~Groundwater Bore~~ | | | | | | | | | |
| ~~BH2~~ | ~~Groundwater Bore~~ | | | | | | | | | |
| ~~BH3~~ | ~~Groundwater Bore~~ | | | | | | | | | |
| BH4 | Groundwater Bore | 4 | 31.7.24 | 11:14 | 6.20 | 2385 | 0.26 | 13.2 | -69 | 5.35 |
| BH6 | Groundwater Bore | 4 | 31.7.24 | 9:52 | 4.95 | 546 | 1.10 | 14.3 | 150.0 | 12.32 |
| BH7 | Groundwater Bore | 4 | 31.7.24 | 12:18 | 6.33 | 1064 | 1.75 | 14.3 | -45.9 | 2.50 |
| BH8 | Groundwater Bore | 4 | 31.7.24 | 13:40 | 6.51 | 1043 | 0.87 | 14.0 | -58.7 | 2.89 |
| ~~BH9~~ | ~~Groundwater Bore~~ | | | | | | | | | Dry |
| | | | | | | | | | | |

**Special Instructions:** Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com

| Relinquished By: | Company: | Date: | Time: | Received By: | Company: | Date: | Time: |
|---|---|---|---|---|---|---|---|
| | Ventia | 31.7.24 | 14:40 | | Eurofins | 1/8/24 | 10:27 |

ice.
1.2°C.

eurofins mgt

# CHAIN OF CUSTODY

6 Monterey Road,
Dandenong South,
Vic 3175

| | | | |
|---|---|---|---|
| **Client:** | **Ventia** | **Job Ref:** | **Creswick Landfill 2 of 3** |
| Contact Ventia: | Tarin Cummings 0428091782 | **TESTS REQUIRED AS PER QUOTE # 230926VENVP** | |
| Contact Eurofins: | Savini Suduweli 03 385 645 051 | | |
| **Email Results to:** | Tarin.cummings@ventia.com<br>Ping.Yao@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Robert.callander@ventia.com | | |
| **Purchase Order Number: 4700979689** | | | |

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | PH | EC | DO | TEMP | ORP | SWL | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~BH10~~ | ~~Groundwater bore~~ | | | | | | | | | | | | | |
| ~~BH13~~ | ~~Groundwater bore~~ | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| ~~LB1~~ | ~~Leachate bore~~ | | | | | | | | | | | | | |
| ~~LB2~~ | ~~Leachate bore~~ | | | | | | | | | | | | | |
| LB3 | Leachate bore | — | — | — | 31·7·24, 13:15 NO SAMPLE - SWL ONLY (10·75m) | | | | | | | | | |
| | | | | | | | | | | | | | | |
| BLIND | Blind duplicate @ BH6 | 4 | 31·7·24 | | X | X | X | X | X | X | | | | |
| RINSATE | Rinsate blank @ BH6 | 4 | 31·7·24 | | — | — | — | — | — | — | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Special Instructions:** | Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com | | | | | | |
| **Relinquished By:** | **Company:** | **Date:** | **Time:** | **Received By:** | **Company:** | **Date:** | **Time:** |
| | Ventia | 31·7·24 | 14:40 | | | | |

eurofins mgt

# CHAIN OF CUSTODY

6 Monterey Road,
Dandenong South,
Vic 3175

| | |
|---|---|
| **Client:** | **Ventia** |
| Contact Ventia: | Tarin Cummings 0428091782 |
| Contact Eurofins: | Savini Suduweli 03 385 645 051 |
| **Email Results to:** | Tarin.cummings@ventia.com<br>Ping.Yao@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Robert.callander@ventia.com |
| **Purchase Order Number: 4700979689** | |

| **Job Ref:** | **Creswick Landfill 3 of 3** |
|---|---|
| **TESTS REQUIRED AS PER QUOTE # 230926VENVP** | |

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | PH | EC | DO | TEMP | ORP | SWL |
|---|---|---|---|---|---|---|---|---|---|---|
| ~~U/S BH3~~ | ~~Creek Sample~~ | | | | | | | | | |
| ~~@ BH3~~ | ~~Creek Sample~~ | | | | | | | | | |
| ~~D/S BH3~~ | ~~Creek Sample~~ | | | | | | | | | |
| | | | | | | | | | | |
| Leachate | Surface water sample | 4 | 31·7·24 | 12:30 | 7·07 | 898 | 3·17 | 11·5 | 15·8 | — |
| ~~Wetland~~ | ~~Surface water sample~~ | | | | | | | | | |
| ~~Dredge~~ | ~~Surface water sample~~ | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**Special Instructions:** Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com
Sample by PandulaR (PR)

| Relinquished By: | Company: | Date: | Time: | Received By: | Company: | Date: | Time: |
|---|---|---|---|---|---|---|---|
| | Ventia | 31·7·24 | 14:40 | | | | |

This form is for recording of sample data after prior consultation with an analyst regarding sampling procedures and does not over-ride pricing agreements, OHS requirements and our terms and conditions.

As an Occupational Health and Safety consideration, it is a requirement of Ecowise Environmental (Victoria), that all samples received be undamaged and prior advice given in writing of any potential health risks.

***LAB USE ONLY***

Sample conditions: Samples received undamaged [Yes/No]
Samples transported at appropriate temperatures [Yes/No]
Samples received within recommended holding times: [Yes/No]

ALS Group

SPLIT

# CHAIN OF CUSTODY

2-4 Westall Rd,
Springvale VIC 3171

| | | | |
|---|---|---|---|
| **Client:** | **Ventia** | **Job Ref:** | **Creswick Landfill CoC 1 of 1** |
| Contact Ventia: | Tarin Cummings 0428091782 | | Please forward to ALS for analysis |
| Contact ALS: | Graeme Jablonskas 03 8549 9609 | | |
| **Email:** | Tarin.cummings@ventia.com<br>Ping.Yao@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Robert.callander@ventia.com | | |
| | **Lab Quote #: EM23THISER0010** | | |
| | **Purchase Order Number: 4700979690** | | |

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | Matrix | PH | EC | DO | TEMP | ORP | SWL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Creswick SPLIT** | **Groundwater** | 4 | 31.7.24 | | | 4.95 | 546 | 1.10 | 14.3 | 150.0 | 12.32 |
| (a) BH6 | | | | | | | | | | | |

(3) ALS 1.0

COPY

| **Special Instructions:** | Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com<br>Samples by Pandula R | | | | | | |
|---|---|---|---|---|---|---|---|
| **Relinquished By:** | **Company:** | **Date:** | **Time:** | **Received By:** | **Company:** | **Date:** | **Time:** |
| | Ventia | 31.7.24 | 1440 | Lyn | Eurofins | 1/8/24 | 10:27 Ice 1.2°C |
| **Relinquished By:** | **Company:** | **Date:** | **Time:** | **Received By:** | **Company:** | **Date:** | **Time:** |
| | | | | | | | |

This form is for recording of sample data after prior consultation with an analyst regarding sampling procedures and does not over-ride pricing agreements, OHS requirements and our terms and conditions.

As an Occupational Health and Safety consideration, it is a requirement of Ecowise Environmental (Victoria), that all samples received be undamaged and prior advice given in writing of any potential health risks.

***LAB USE ONLY***

Sample conditions:
Samples received undamaged [Yes/No]
Samples adequately preserved [Yes/No]
Samples within recommended holding times: [Yes/No]
Samples transported at appropriate temperature [Yes/No]

eurofins | Environment Testing

www.eurofins.com.au EnviroSales@eurofins.com

**Eurofins Environment Testing Australia Pty Ltd**

ABN: 50 005 085 521

| Melbourne | Geelong | Sydney | Canberra | Brisbane | Newcastle |
|---|---|---|---|---|---|
| 6 Monterey Road | 19/8 Lewalan Street | 179 Magowar Road | Unit 1,2 Dacre Street | 1/21 Smallwood Place | 1/2 Frost Drive |
| Dandenong South | Grovedale | Girraween | Mitchell | Murarrie | Mayfield West |
| VIC 3175 | VIC 3216 | NSW 2145 | ACT 2911 | QLD 4172 | NSW 2304 |
| +61 3 8564 5000 | +61 3 8564 5000 | +61 2 9900 8400 | +61 2 6113 8091 | T: +61 7 3902 4600 | +61 2 4968 8448 |
| NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 |
| Site# 1254 | Site# 25403 | Site# 18217 | Site# 25466 | Site# 20794 & 2780 | Site# 25079 |

**Eurofins ARL Pty Ltd**

ABN: 91 05 0159 898

| Perth |
|---|
| 46-48 Banksia Road |
| Welshpool |
| WA 6106 |
| +61 8 6253 4444 |
| NATA# 2377 |
| Site# 2370 |

**Eurofins ProMicro Pty Ltd**

ABN: 47 009 120 549

| Perth ProMicro |
|---|
| 46-48 Banksia Road |
| Welshpool |
| WA 6106 |
| +61 8 6253 4444 |
| NATA# 2561 |
| Site# 2554 |

**Eurofins Environment Testing NZ Ltd**

NZBN: 9429046024954

| Auckland | Auckland (Focus) | Christchurch | Tauranga |
|---|---|---|---|
| 35 O'Rorke Road | Unit C1/4 Pacific Rise, | 43 Detroit Drive | 1277 Cameron Road, |
| Penrose, | Mount Wellington, | Rolleston, | Gate Pa, |
| Auckland 1061 | Auckland 1061 | Christchurch 7675 | Tauranga 3112 |
| +64 9 526 4551 | +64 9 525 0568 | +64 3 343 5201 | +64 9 525 0568 |
| IANZ# 1327 | IANZ# 1308 | IANZ# 1290 | IANZ# 1402 |

# Sample Receipt Advice

**Company name:** Ventia Utility Services P/L (Grovedale)
**Contact name:** Tarin Cummings
**Project name:** Creswick Landfill
**Project ID:** Not provided
**Turnaround time:** 5 Day
**Date/Time received** Aug 1, 2024 10:27 AM
**Eurofins reference** 1123989

## Sample Information

✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

✓ All samples have been received as described on the above COC.

✓ COC has been completed correctly.

✓ Attempt to chill was evident.

✓ Appropriately preserved sample containers have been used.

✓ All samples were received in good condition.

✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

✓ Appropriate sample containers have been used.

✓ Sample containers for volatile analysis received with zero headspace.

✓ Split sample sent to requested external lab.

✗ Some samples have been subcontracted.

**N/A** Custody Seals intact (if used).

## Notes

## Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

**Savini Suduweli on phone : +61 3 8564 5051 or by email: SaviniSuduweli@eurofins.com**

Results will be delivered electronically via email to Tarin Cummings - Tarin.Cummings@ventia.com.au.

*Note: A copy of these results will also be delivered to the general Ventia Utility Services P/L (Grovedale) email address.*

Global Leader - Results you can trust

**Ventia Utility Services P/L (Grovedale)**
**27 Essington St**
**Grovedale**
**VIC 3216**



**Attention:** **Tarin Cummings**

**Report** **1123989-W**
Project name Creswick Landfill
Received Date Aug 01, 2024

| **Client Sample ID** | | | **BH4** | **BH6** | **BH7** | **BH8** |
|---|---|---|---|---|---|---|
| **Sample Matrix** | | | **Water** | **Water** | **Water** | **Water** |
| **Eurofins Sample No.** | | | **M24-Au0002675** | **M24-Au0002676** | **M24-Au0002677** | **M24-Au0002678** |
| **Date Sampled** | | | **Jul 31, 2024** | **Jul 31, 2024** | **Jul 31, 2024** | **Jul 31, 2024** |
| Test/Reference | LOR | Unit | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | |
| Acetic Acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Propionic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Isobutyric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Butyric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Isovaleric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Valeric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| 4-Methylvaleric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Hexanoic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Heptanoic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Total VFA as Acetic Acid Equivalents | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| | | | | | | |
| Ammonia (as N) | 0.01 | mg/L | < 0.01 | < 0.01 | 0.83 | 4.7 |
| Chemical Oxygen Demand (COD) | 25 | mg/L | 88 | < 25 | 47 | 240 |
| Chloride | 1 | mg/L | 550 | 140 | 200 | 97 |
| Conductivity (at 25 °C) | 10 | uS/cm | 1200 | 450 | 550 | 530 |
| Nitrate (as N) | 0.02 | mg/L | 0.02 | 2.9 | 0.07 | 5.6 |
| Organic Nitrogen (as N)* | 0.2 | mg/L | 1 | 0.7 | 0.27 | 3.3 |
| pH (at 25 °C) | 0.1 | pH Units | 6.5 | 5.2 | 6.5 | 6.9 |
| Sulphate (as SO4) | 5 | mg/L | 6.6 | 20 | < 5 | < 5 |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | 10 | mg/L | 1300 | 300 | 490 | 580 |
| Total Kjeldahl Nitrogen (as N) | 0.2 | mg/L | 1.0 | 0.7 | 1.1 | 8.0 |
| Total Organic Carbon | 5 | mg/L | < 5 | < 5 | < 5 | 26 |
| **Alkalinity (speciated)** | | | | | | |
| Bicarbonate Alkalinity (as CaCO3) | 20 | mg/L | 250 | < 20 | 200 | 370 |
| Carbonate Alkalinity (as CaCO3) | 10 | mg/L | < 10 | < 10 | < 10 | < 10 |
| Hydroxide Alkalinity (as CaCO3) | 20 | mg/L | < 20 | < 20 | < 20 | < 20 |
| Total Alkalinity (as CaCO3) | 20 | mg/L | 250 | < 20 | 200 | 370 |
| **Heavy Metals** | | | | | | |
| Chromium | 0.001 | mg/L | 0.007 | < 0.001 | 0.002 | 0.008 |
| Iron | 0.05 | mg/L | 160 | 0.06 | 41 | 65 |
| Manganese | 0.005 | mg/L | 2.0 | 0.54 | 1.4 | 1.4 |
| **Alkali Metals** | | | | | | |
| Calcium | 0.5 | mg/L | 26 | 3.6 | 28 | 73 |
| Magnesium | 0.5 | mg/L | 72 | 16 | 28 | 33 |
| Potassium | 0.5 | mg/L | < 0.5 | 1.1 | 16 | 8.5 |
| Sodium | 0.5 | mg/L | 330 | 90 | 110 | 110 |

| Client Sample ID | | | BLIND | RINSATE | LEACHATE |
|---|---|---|---|---|---|
| Sample Matrix | | | Water | Water | Water |
| Eurofins Sample No. | | | M24-Au0003655 | M24-Au0003656 | M24-Au0003657 |
| Date Sampled | | | Jul 31, 2024 | Jul 31, 2024 | Jul 31, 2024 |
| Test/Reference | LOR | Unit | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | |
| Acetic Acid | 5 | mg/L | < 5 | < 5 | < 5 |
| Propionic acid | 5 | mg/L | < 5 | < 5 | < 5 |
| Isobutyric acid | 5 | mg/L | < 5 | < 5 | < 5 |
| Butyric acid | 5 | mg/L | < 5 | < 5 | < 5 |
| Isovaleric acid | 5 | mg/L | < 5 | < 5 | < 5 |
| Valeric acid | 5 | mg/L | < 5 | < 5 | < 5 |
| 4-Methylvaleric acid | 5 | mg/L | < 5 | < 5 | < 5 |
| Hexanoic acid | 5 | mg/L | < 5 | < 5 | < 5 |
| Heptanoic acid | 5 | mg/L | < 5 | < 5 | < 5 |
| Total VFA as Acetic Acid Equivalents | 5 | mg/L | < 5 | < 5 | < 5 |
| | | | | | |
| Ammonia (as N) | 0.01 | mg/L | < 0.01 | < 0.01 | 4.9 |
| Chemical Oxygen Demand (COD) | 25 | mg/L | < 25 | < 25 | 32 |
| Chloride | 1 | mg/L | 130 | < 1 | 160 |
| Conductivity (at 25 °C) | 10 | uS/cm | 290 | < 10 | 470 |
| Nitrate (as N) | 0.02 | mg/L | 3.2 | < 0.02 | 0.06 |
| Organic Nitrogen (as N)* | 0.2 | mg/L | 0.7 | < 0.2 | 1.9 |
| pH (at 25 °C) | 0.1 | pH Units | 5.2 | 4.8 | 7.1 |
| Sulphate (as SO4) | 5 | mg/L | 19 | < 5 | 22 |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | 10 | mg/L | 310 | < 10 | 440 |
| Total Kjeldahl Nitrogen (as N) | 0.2 | mg/L | 0.7 | < 0.2 | 6.8 |
| Total Organic Carbon | 5 | mg/L | < 5 | < 5 | 12 |
| **Alkalinity (speciated)** | | | | | |
| Bicarbonate Alkalinity (as CaCO3) | 20 | mg/L | < 20 | < 20 | 170 |
| Carbonate Alkalinity (as CaCO3) | 10 | mg/L | < 10 | < 10 | < 10 |
| Hydroxide Alkalinity (as CaCO3) | 20 | mg/L | < 20 | < 20 | < 20 |
| Total Alkalinity (as CaCO3) | 20 | mg/L | < 20 | < 20 | 170 |
| **Heavy Metals** | | | | | |
| Chromium | 0.001 | mg/L | < 0.001 | < 0.001 | < 0.001 |
| Iron | 0.05 | mg/L | 0.07 | < 0.05 | 7.7 |
| Manganese | 0.005 | mg/L | 0.54 | < 0.005 | 0.80 |
| **Alkali Metals** | | | | | |
| Calcium | 0.5 | mg/L | 3.6 | < 0.5 | 29 |
| Magnesium | 0.5 | mg/L | 16 | < 0.5 | 20 |
| Potassium | 0.5 | mg/L | 1.1 | < 0.5 | 23 |
| Sodium | 0.5 | mg/L | 93 | < 0.5 | 98 |

## Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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 |
|---|---|---|---|
| Volatile Fatty Acids (VFA) by GC-MS | Melbourne | Aug 01, 2024 | 28 Day |
| - Method: LTM-ORG-2360 Determination of Volatile Fatty Acids in Water by GC-MS | | | |
| Chemical Oxygen Demand (COD) | Melbourne | Aug 01, 2024 | 28 Days |
| - Method: LTM-INO-4220 Determination of COD in Water | | | |
| Conductivity (at 25 °C) | Melbourne | Aug 01, 2024 | 28 Days |
| - Method: LTM-INO-4030 Conductivity | | | |
| Nitrate (as N) | Melbourne | Aug 01, 2024 | 28 Days |
| - Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser | | | |
| pH (at 25 °C) | Melbourne | Aug 01, 2024 | 6 Hours |
| - Method: LTM-GEN-7090 pH in water by ISE | | | |
| Total Organic Carbon | Melbourne | Aug 01, 2024 | 28 Days |
| - Method: LTM-INO-4060 Total Organic Carbon in water and soil | | | |
| Heavy Metals | Melbourne | Aug 01, 2024 | 28 Days |
| - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS | | | |
| Eurofins Suite B11C: Na/K/Ca/Mg | Melbourne | Aug 01, 2024 | 180 Days |
| - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS | | | |
| Ammonia (as N) | Melbourne | Aug 01, 2024 | 28 Days |
| - Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser | | | |
| Organic Nitrogen (as N)* | Melbourne | Aug 01, 2024 | 7 Days |
| - Method: APHA 4500 Organic Nitrogen (N) | | | |
| Total Kjeldahl Nitrogen (as N) | Melbourne | Aug 01, 2024 | 28 Days |
| - Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA | | | |
| Eurofins Suite B11E: Cl/SO4/Alkalinity | | | |
| Chloride | Melbourne | Aug 01, 2024 | 28 Days |
| - Method: LTM-INO-4090 Chloride by Discrete Analyser | | | |
| Sulphate (as SO4) | Melbourne | Aug 01, 2024 | 28 Days |
| - Method: LTM-INO-4110 Sulfate by Discrete Analyser | | | |
| Alkalinity (speciated) | Melbourne | Aug 01, 2024 | 14 Days |
| - Method: LTM-INO-4250 Alkalinity by Electrometric Titration | | | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | Melbourne | Aug 01, 2024 | 28 Days |
| - Method: LTM-INO-4170 Total Dissolved Solids in Water | | | |

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**Eurofins Environment Testing Australia Pty Ltd**
ABN: 50 005 085 521

| Melbourne | Geelong | Sydney | Canberra | Brisbane | Newcastle |
|---|---|---|---|---|---|
| 6 Monterey Road | 19/8 Lewalan Street | 179 Magowar Road | Unit 1,2 Dacre Street | 1/21 Smallwood Place | 1/2 Frost Drive |
| Dandenong South | Grovedale | Girraween | Mitchell | Murarrie | Mayfield West |
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| NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 |
| Site# 1254 | Site# 25403 | Site# 18217 | Site# 25466 | Site# 20794 & 2780 | Site# 25079 |

**Eurofins ARL Pty Ltd**
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| Perth |
|---|
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| WA 6106 |
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| Site# 2370 |

**Eurofins ProMicro Pty Ltd**
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|---|
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| Welshpool |
| WA 6106 |
| +61 8 6253 4444 |
| NATA# 2561 |
| Site# 2554 |

**Eurofins Environment Testing NZ Ltd**
NZBN: 9429046024954

| Auckland | Auckland (Focus) | Christchurch | Tauranga |
|---|---|---|---|
| 35 O'Rorke Road | Unit C1/4 Pacific Rise, | 43 Detroit Drive | 1277 Cameron Road, |
| Penrose, | Mount Wellington, | Rolleston, | Gate Pa, |
| Auckland 1061 | Auckland 1061 | Christchurch 7675 | Tauranga 3112 |
| +64 9 526 4551 | +64 9 525 0568 | +64 3 343 5201 | +64 9 525 0568 |
| IANZ# 1327 | IANZ# 1308 | IANZ# 1290 | IANZ# 1402 |

**Company Name:** Ventia Utility Services P/L (Grovedale)
**Address:** 27 Essington St
Grovedale
VIC 3216

**Project Name:** Creswick Landfill

**Order No.:** 4700979689
**Report #:** 1123989
**Phone:** 03 5247 3710
**Fax:**

**Received:** Aug 1, 2024 10:27 AM
**Due:** Aug 8, 2024
**Priority:** 5 Day
**Contact Name:** Tarin Cummings

**Eurofins Analytical Services Manager : Savini Suduweli**

| Sample Detail | | | | | | Chemical Oxygen Demand (COD) | Chromium | Conductivity (at 25 °C) | Iron | Manganese | Nitrate (as N) | pH (at 25 °C) | Total Organic Carbon | Organic Nitrogen Set (as N) | Eurofins Suite B11E: Cl/SO4/Alkalinity | Eurofins Suite B11C: Na/K/Ca/Mg | Total Dissolved Solids Dried at 180 °C ± 2 °C | Volatile Fatty Acids (VFA) by GC-MS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Melbourne Laboratory - NATA # 1261 Site # 1254** | | | | | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **External Laboratory** | | | | | | | | | | | | | | | | | | |
| **No** | **Sample ID** | **Sample Date** | **Sampling Time** | **Matrix** | **LAB ID** | | | | | | | | | | | | | |
| 1 | BH4 | Jul 31, 2024 | | Water | M24-Au0002675 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 2 | BH6 | Jul 31, 2024 | | Water | M24-Au0002676 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 3 | BH7 | Jul 31, 2024 | | Water | M24-Au0002677 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 4 | BH8 | Jul 31, 2024 | | Water | M24-Au0002678 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 5 | BLIND | Jul 31, 2024 | | Water | M24-Au0003655 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 6 | RINSATE | Jul 31, 2024 | | Water | M24-Au0003656 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 7 | LEACHATE | Jul 31, 2024 | | Water | M24-Au0003657 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Test Counts** | | | | | | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |

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## Internal Quality Control Review and Glossary

### General

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

### Holding Times

Please refer to the '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 before sample receipt deadlines as stated on the SRA.

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

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

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

### Units

| | | |
|---|---|---|
| **mg/kg:** milligrams per kilogram | **mg/L:** milligrams per litre | **ppm:** parts per million |
| **µg/L:** micrograms per litre | **ppb:** parts per billion | **%:** Percentage |
| **org/100 mL:** Organisms per 100 millilitres | **NTU:** Nephelometric Turbidity Units | **MPN/100 mL:** Most Probable Number of organisms per 100 millilitres |
| **CFU:** Colony Forming Unit | **Colour:** Pt-Co Units (CU) | |

### Terms

| | |
|---|---|
| **APHA** | American Public Health Association |
| **CEC** | Cation Exchange Capacity |
| **COC** | Chain of Custody |
| **CP** | Client Parent - QC was performed on samples pertaining to this report |
| **CRM** | Certified Reference Material (ISO17034) - reported as percent recovery. |
| **Dry** | Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis. |
| **Duplicate** | A second piece of analysis from the same sample and reported in the same units as the result to show comparison. |
| **LOR** | Limit of Reporting. |
| **LCS** | Laboratory Control Sample - 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. |
| **NCP** | Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within. |
| **RPD** | Relative Percent Difference between two Duplicate pieces of analysis. |
| **SPIKE** | Addition of the analyte to the sample and reported as percentage recovery. |
| **SRA** | Sample Receipt Advice |
| **Surr - Surrogate** | The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria. |
| **TBTO** | Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits. |
| **TCLP** | Toxicity Characteristic Leaching Procedure |
| **TEQ** | Toxic Equivalency Quotient or Total Equivalence |
| **QSM** | US Department of Defense Quality Systems Manual Version 6.0 |
| **US EPA** | United States Environmental Protection Agency |
| **WA DWER** | Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA |

### QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

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% |

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

### QC Data General Comments

1. Where a result is reported as 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 are not data from your samples.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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** | | | | | | | |
| Ammonia (as N) | mg/L | < 0.01 | | | 0.01 | Pass | |
| Chemical Oxygen Demand (COD) | mg/L | < 25 | | | 25 | Pass | |
| Chloride | mg/L | < 1 | | | 1 | Pass | |
| Sulphate (as SO4) | mg/L | < 5 | | | 5 | Pass | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | mg/L | < 10 | | | 10 | Pass | |
| Total Kjeldahl Nitrogen (as N) | mg/L | < 0.2 | | | 0.2 | Pass | |
| Total Organic Carbon | mg/L | < 5 | | | 5 | Pass | |
| **Method Blank** | | | | | | | |
| **Heavy Metals** | | | | | | | |
| Chromium | mg/L | < 0.001 | | | 0.001 | Pass | |
| Iron | mg/L | < 0.05 | | | 0.05 | Pass | |
| Manganese | mg/L | < 0.005 | | | 0.005 | Pass | |
| **Method Blank** | | | | | | | |
| **Alkali Metals** | | | | | | | |
| Calcium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Magnesium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Potassium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Sodium | mg/L | < 0.5 | | | 0.5 | Pass | |
| **Method Blank** | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | | |
| Acetic Acid | mg/L | < 5 | | | 5 | Pass | |
| Propionic acid | mg/L | < 5 | | | 5 | Pass | |
| Isobutyric acid | mg/L | < 5 | | | 5 | Pass | |
| Butyric acid | mg/L | < 5 | | | 5 | Pass | |
| Isovaleric acid | mg/L | < 5 | | | 5 | Pass | |
| Valeric acid | mg/L | < 5 | | | 5 | Pass | |
| 4-Methylvaleric acid | mg/L | < 5 | | | 5 | Pass | |
| Hexanoic acid | mg/L | < 5 | | | 5 | Pass | |
| Heptanoic acid | mg/L | < 5 | | | 5 | Pass | |
| Total VFA as Acetic Acid Equivalents | mg/L | < 5 | | | 5 | Pass | |
| **Method Blank** | | | | | | | |
| **Alkali Metals** | | | | | | | |
| Calcium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Magnesium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Potassium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Sodium | mg/L | < 0.5 | | | 0.5 | Pass | |
| **Method Blank** | | | | | | | |
| **Alkali Metals** | | | | | | | |
| Calcium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Magnesium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Potassium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Sodium | mg/L | < 0.5 | | | 0.5 | Pass | |
| **Method Blank** | | | | | | | |
| **Alkali Metals** | | | | | | | |
| Calcium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Magnesium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Potassium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Sodium | mg/L | < 0.5 | | | 0.5 | Pass | |
| **Method Blank** | | | | | | | |
| Conductivity (at 25 °C) | uS/cm | < 10 | | | 10 | Pass | |
| **LCS - % Recovery** | | | | | | | |

| Test | Units | Result 1 | | | Acceptance Limits | Pass Limits | Qualifying Code |
|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand (COD) | % | 86 | | | 70-130 | Pass | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | % | 96 | | | 70-130 | Pass | |
| Total Kjeldahl Nitrogen (as N) | % | 107 | | | 70-130 | Pass | |
| Total Organic Carbon | % | 112 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Heavy Metals** | | | | | | | |
| Chromium | % | 96 | | | 80-120 | Pass | |
| Iron | % | 102 | | | 80-120 | Pass | |
| Manganese | % | 100 | | | 80-120 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | | |
| Acetic Acid | % | 129 | | | 70-130 | Pass | |
| Propionic acid | % | 108 | | | 70-130 | Pass | |
| Isobutyric acid | % | 108 | | | 70-130 | Pass | |
| Butyric acid | % | 114 | | | 70-130 | Pass | |
| Isovaleric acid | % | 100 | | | 70-130 | Pass | |
| Valeric acid | % | 105 | | | 70-130 | Pass | |
| 4-Methylvaleric acid | % | 122 | | | 70-130 | Pass | |
| Hexanoic acid | % | 105 | | | 70-130 | Pass | |
| Heptanoic acid | % | 96 | | | 70-130 | Pass | |
| Total VFA as Acetic Acid Equivalents | % | 108 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| Ammonia (as N) | % | 90 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| Chloride | % | 86 | | | 70-130 | Pass | |
| Sulphate (as SO4) | % | 100 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Alkali Metals** | | | | | | | |
| Calcium | % | 95 | | | 80-120 | Pass | |
| Magnesium | % | 94 | | | 80-120 | Pass | |
| Potassium | % | 94 | | | 80-120 | Pass | |
| Sodium | % | 97 | | | 80-120 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Alkali Metals** | | | | | | | |
| Calcium | % | 95 | | | 80-120 | Pass | |
| Magnesium | % | 94 | | | 80-120 | Pass | |
| Potassium | % | 92 | | | 80-120 | Pass | |
| Sodium | % | 96 | | | 80-120 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Alkalinity (speciated)** | | | | | | | |
| Carbonate Alkalinity (as CaCO3) | % | 95 | | | 70-130 | Pass | |
| Total Alkalinity (as CaCO3) | % | 100 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| Conductivity (at 25 °C) | % | 97 | | | 70-130 | Pass | |

| Test | Lab Sample ID | QA Source | Units | Result 1 | | | Acceptance Limits | Pass Limits | Qualifying Code |
|---|---|---|---|---|---|---|---|---|---|
| **Spike - % Recovery** | | | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | Result 1 | | | | | |
| Isobutyric acid | M24-Au0000554 | NCP | % | 102 | | | 70-130 | Pass | |
| Isovaleric acid | M24-Au0000554 | NCP | % | 78 | | | 70-130 | Pass | |
| Valeric acid | M24-Au0000554 | NCP | % | 86 | | | 70-130 | Pass | |
| 4-Methylvaleric acid | M24-Au0000554 | NCP | % | 76 | | | 70-130 | Pass | |
| Hexanoic acid | M24-Au0000554 | NCP | % | 82 | | | 70-130 | Pass | |
| Heptanoic acid | M24-Au0000554 | NCP | % | 96 | | | 70-130 | Pass | |

| Test | Lab Sample ID | QA Source | Units | Result 1 | | | Acceptance Limits | Pass Limits | Qualifying Code |
|---|---|---|---|---|---|---|---|---|---|
| Total VFA as Acetic Acid Equivalents | M24-Au0000554 | NCP | % | 93 | | | 70-130 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| | | | | Result 1 | | | | | |
| Total Kjeldahl Nitrogen (as N) | B24-Jl0077671 | NCP | % | 97 | | | 70-130 | Pass | |
| Total Organic Carbon | M24-Au0000554 | NCP | % | 100 | | | 70-130 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| **Heavy Metals** | | | | Result 1 | | | | | |
| Chromium | M24-Au0002675 | CP | % | 100 | | | 75-125 | Pass | |
| Iron | M24-Au0005769 | NCP | % | 75 | | | 75-125 | Pass | |
| Manganese | B24-Jl0070318 | NCP | % | 99 | | | 75-125 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| **Alkali Metals** | | | | Result 1 | | | | | |
| Calcium | M24-Au0002675 | CP | % | 95 | | | 75-125 | Pass | |
| Magnesium | M24-Au0002675 | CP | % | 99 | | | 75-125 | Pass | |
| Potassium | M24-Jl0076363 | NCP | % | 99 | | | 75-125 | Pass | |
| Sodium | M24-Au0002675 | CP | % | 96 | | | 75-125 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| | | | | Result 1 | | | | | |
| Ammonia (as N) | M24-Au0002676 | CP | % | 84 | | | 70-130 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| | | | | Result 1 | | | | | |
| Chloride | M24-Au0003656 | CP | % | 95 | | | 70-130 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| | | | | Result 1 | | | | | |
| Chemical Oxygen Demand (COD) | M24-Au0003657 | CP | % | 100 | | | 70-130 | Pass | |
| **Test** | **Lab Sample ID** | **QA Source** | **Units** | **Result 1** | | | **Acceptance Limits** | **Pass Limits** | **Qualifying Code** |
| **Duplicate** | | | | | | | | | |
| | | | | Result 1 | Result 2 | RPD | | | |
| Chemical Oxygen Demand (COD) | M24-Au0001953 | NCP | mg/L | 3300 | 3800 | 14 | 30% | Pass | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | M24-Au0002990 | NCP | mg/L | 3400 | 3400 | <1 | 30% | Pass | |
| Total Kjeldahl Nitrogen (as N) | M24-Au0001953 | NCP | mg/L | 41 | 47 | 13 | 30% | Pass | |
| Total Organic Carbon | M24-Au0000553 | NCP | mg/L | 6.4 | 6.2 | 3.6 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Heavy Metals** | | | | Result 1 | Result 2 | RPD | | | |
| Chromium | M24-Au0002675 | CP | mg/L | 0.007 | 0.007 | <1 | 30% | Pass | |
| Iron | M24-Au0002675 | CP | mg/L | 160 | 160 | <1 | 30% | Pass | |
| Manganese | M24-Au0002675 | CP | mg/L | 2.0 | 2.0 | <1 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Alkali Metals** | | | | Result 1 | Result 2 | RPD | | | |
| Calcium | M24-Au0002414 | NCP | mg/L | 71 | 70 | <1 | 30% | Pass | |
| Magnesium | M24-Au0002414 | NCP | mg/L | 42 | 41 | <1 | 30% | Pass | |
| Potassium | M24-Au0002414 | NCP | mg/L | 4.4 | 4.5 | <1 | 30% | Pass | |
| Sodium | M24-Au0002414 | NCP | mg/L | 150 | 160 | <1 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | Result 1 | Result 2 | RPD | | | |
| Acetic Acid | M24-Au0002676 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Propionic acid | M24-Au0002676 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Isobutyric acid | M24-Au0002676 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Butyric acid | M24-Au0002676 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Isovaleric acid | M24-Au0002676 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Valeric acid | M24-Au0002676 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| 4-Methylvaleric acid | M24-Au0002676 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Duplicate** | | | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | Result 1 | Result 2 | RPD | | | |
| Hexanoic acid | M24-Au0002676 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Heptanoic acid | M24-Au0002676 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| | | | | Result 1 | Result 2 | RPD | | | |
| Conductivity (at 25 °C) | M24-Au0002677 | CP | uS/cm | 550 | 550 | <1 | 30% | Pass | |
| pH (at 25 °C) | M24-Au0002677 | CP | pH Units | 6.5 | 6.5 | pass | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Alkalinity (speciated)** | | | | Result 1 | Result 2 | RPD | | | |
| Bicarbonate Alkalinity (as CaCO3) | M24-Au0002677 | CP | mg/L | 200 | 190 | 2.1 | 30% | Pass | |
| Carbonate Alkalinity (as CaCO3) | M24-Au0002677 | CP | mg/L | < 10 | < 10 | <1 | 30% | Pass | |
| Hydroxide Alkalinity (as CaCO3) | M24-Au0002677 | CP | mg/L | < 20 | < 20 | <1 | 30% | Pass | |
| Total Alkalinity (as CaCO3) | M24-Au0002677 | CP | mg/L | 200 | 190 | 2.1 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| | | | | Result 1 | Result 2 | RPD | | | |
| Chloride | M24-Au0003655 | CP | mg/L | 130 | 130 | <1 | 30% | Pass | |
| Sulphate (as SO4) | M24-Au0003655 | CP | mg/L | 19 | 19 | 1.6 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| | | | | Result 1 | Result 2 | RPD | | | |
| Ammonia (as N) | M24-Au0003656 | CP | mg/L | < 0.01 | < 0.01 | <1 | 30% | Pass | |

## Comments

### Sample Integrity

| | |
|---|---|
| Custody Seals Intact (if used) | N/A |
| Attempt to Chill was evident | Yes |
| 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 |

## Authorised by:

| | |
|---|---|
| Catherine Wilson | Analytical Services Manager |
| Caitlin Breeze | Senior Analyst-Inorganic |
| Caitlin Breeze | Senior Analyst-Metal |
| Emily Rosenberg | Senior Analyst-Metal |
| Joseph Edouard | Senior Analyst-Organic |

**Glenn Jackson**
**Managing Director**

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.

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# CHAIN OF CUSTODY

# 124003 1/8/24

6 Monterey Road,
Dandenong South,
Vic 3175

| Client: | Ventia | Job Ref: | Creswick Landfill 1 of 3 |
|---|---|---|---|
| Contact Ventia: | Tarin Cummings 0428091782 | | TESTS REQUIRED AS PER QUOTE # 230926VENVP |
| Contact Eurofins: | Savini Suduweli 03 385 645 051 | | |
| Email Results to: | Tarin.cummings@ventia.com<br>Ping.Yao@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Robert.callander@ventia.com | | |
| | Purchase Order Number: 4700979689 (2052) PO no | | |

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | | PH | EC | DO | TEMP | ORP | SWL | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~BH1~~ | ~~Groundwater Bore~~ | | | | | | | | | | | | | | |
| BH2 | Groundwater Bore | 4 | 30/7/24 | 1012 | W | 5.63 | 1158 | 3.00 | 13.6 | 15.3 | 3.01 | | | | |
| BH3 | Groundwater Bore | 4 | 30.7.24 | 1428 | W | 6.46 | 3524 | 0.53 | 10.4 | -63.3 | 0.63 | | | | |
| ~~BH4~~ | ~~Groundwater Bore~~ | | | | | | | | | | | | | | |
| ~~BH6~~ | ~~Groundwater Bore~~ | | | | | | | | | | | | | | |
| ~~BH7~~ | ~~Groundwater Bore~~ | | | | | | | | | | | | | | |
| ~~BH8~~ | ~~Groundwater Bore~~ | | | | | | | | | | | | | | |
| ~~BH9~~ | ~~Groundwater Bore~~ | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

| Special Instructions: | Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com | Sample by Pandula R, Andrew C |
|---|---|---|

| Relinquished By: | Company: | Date: | Time: | Received By: | Company: | Date: | Time: |
|---|---|---|---|---|---|---|---|
| | Ventia | | | Lyk | Eurofins | 31/7/24 | 10:27am |

ice
2.6°C

eurofins | mgt

# CHAIN OF CUSTODY

6 Monterey Road,
Dandenong South,
Vic 3175

| | | | |
|---|---|---|---|
| **Client:** | **Ventia** | **Job Ref:** | **Creswick Landfill 2 of 3** |
| Contact Ventia: | Tarin Cummings 0428091782 | **TESTS REQUIRED AS PER QUOTE # 230926VENVP** | |
| Contact Eurofins: | Savini Suduweli 03 385 645 051 | | |
| **Email Results to:** | Tarin.cummings@ventia.com<br>Ping.Yao@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Robert.callander@ventia.com | | |
| **Purchase Order Number: 4700979689** | | | |

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | PH | EC | DO | TEMP | ORP | SWL |
|---|---|---|---|---|---|---|---|---|---|---|
| **BH10** | **Groundwater bore** | 4 | 30.7.24 | 13:30 | 5.79 | 748 | 2.31 | 13.5 | 53.0 | 2.58 |
| **BH13** | **Groundwater bore** | 4 | 30.7.24 | 9:23 | 6.47 | 1024 | 0.6 | 10.08 | -20 | 2.80 |
| | | | | | | | | | | |
| ~~LB1~~ | ~~Leachate bore~~ | | | | | | | | | |
| ~~LB2~~ | ~~Leachate bore~~ | | | | | | | | | |
| ~~LB3~~ | ~~Leachate bore~~ | | | | NO SAMPLE - SWL ONLY | | | | | |
| | | | | | | | | | | |
| ~~BLIND~~ | ~~Blind duplicate~~ | | | | | | | | | |
| ~~RINSATE~~ | ~~Rinsate blank~~ | | | | | | | | | |

| | |
|---|---|
| **Special Instructions:** | Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com |

| Relinquished By: | Company: | Date: | Time: | Received By: | Company: | Date: | Time: |
|---|---|---|---|---|---|---|---|
| | Ventia | | | | | | |

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# CHAIN OF CUSTODY

6 Monterey Road,
Dandenong South,
Vic 3175

| | | | |
|---|---|---|---|
| **Client:** | **Ventia** | **Job Ref:** | **Creswick Landfill 3 of 3** |
| Contact Ventia: | Tarin Cummings 0428091782 | **TESTS REQUIRED AS PER QUOTE # 230926VENVP** | |
| Contact Eurofins: | Savini Suduweli 03 385 645 051 | | |
| **Email Results to:** | Tarin.cummings@ventia.com<br>Ping.Yao@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Robert.callander@ventia.com | | |
| | **Purchase Order Number: 4700979689** | | |

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | | PH | EC | DO | TEMP | ORP | SWL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| U/S BH3 | Creek Sample | 4 | 30/7/24 | 900 | U | 6.86 | 391 | 8.52 | 6.2 | -23.1 | — |
| @ BH3 | Creek Sample | 4 | 30/7/24 | 845 | U | 6.77 | 413 | 8.10 | 6.3 | -22.1 | — |
| D/S BH3 | Creek Sample | 4 | 30/7/24 | 915 | U | 6.88 | 403 | 8.27 | 6.6 | -24.9 | — |
| Dredge | | | | | | | | | | | |
| ~~Leachate~~ | Surface water sample | 4 | 30/7/24 | 09:55 | | 6.84 | 678 | 8.22 | 9.1 | -13.5 | — |
| Wetland | Surface water sample | 4 | 30/7/24 | 14:45 | | 7.76 | 831 | 11.02 | ~~13.5~~ 13.5 | -17.5 | — |
| ~~Dredge~~ | ~~Surface water sample~~ | | | | | | | | | | |
| ~~Leachate~~ | | | | | | | | | | | |
| | | | | | | | | | | | |

| | |
|---|---|
| **Special Instructions:** | Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com |

| Relinquished By: | Company: | Date: | Time: | Received By: | Company: | Date: | Time: |
|---|---|---|---|---|---|---|---|
| | Ventia | 30.7.2024 | | | | | |

This form is for recording of sample data after prior consultation with an analyst regarding sampling procedures and does not over-ride pricing agreements, OHS requirements and our terms and conditions.

As an Occupational Health and Safety consideration, it is a requirement of Ecowise Environmental (Victoria), that all samples received be undamaged and prior advice given in writing of any potential health risks.

***LAB USE ONLY***

Sample conditions: Samples received undamaged [Yes/No]
Samples transported at appropriate temperatures [Yes/No]
Samples received within recommended holding times: [Yes/No]

eurofins | Environment Testing

www.eurofins.com.au EnviroSales@eurofins.com

**Eurofins Environment Testing Australia Pty Ltd**

ABN: 50 005 085 521

| Melbourne | Geelong | Sydney | Canberra | Brisbane | Newcastle |
|---|---|---|---|---|---|
| 6 Monterey Road | 19/8 Lewalan Street | 179 Magowar Road | Unit 1,2 Dacre Street | 1/21 Smallwood Place | 1/2 Frost Drive |
| Dandenong South | Grovedale | Girraween | Mitchell | Murarrie | Mayfield West |
| VIC 3175 | VIC 3216 | NSW 2145 | ACT 2911 | QLD 4172 | NSW 2304 |
| +61 3 8564 5000 | +61 3 8564 5000 | +61 2 9900 8400 | +61 2 6113 8091 | T: +61 7 3902 4600 | +61 2 4968 8448 |
| NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 |
| Site# 1254 | Site# 25403 | Site# 18217 | Site# 25466 | Site# 20794 & 2780 | Site# 25079 |

**Eurofins ARL Pty Ltd**

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| Perth |
|---|
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**Eurofins ProMicro Pty Ltd**

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| Perth ProMicro |
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| Welshpool |
| WA 6106 |
| +61 8 6253 4444 |
| NATA# 2561 |
| Site# 2554 |

**Eurofins Environment Testing NZ Ltd**

NZBN: 9429046024954

| Auckland | Auckland (Focus) | Christchurch | Tauranga |
|---|---|---|---|
| 35 O'Rorke Road | Unit C1/4 Pacific Rise, | 43 Detroit Drive | 1277 Cameron Road, |
| Penrose, | Mount Wellington, | Rolleston, | Gate Pa, |
| Auckland 1061 | Auckland 1061 | Christchurch 7675 | Tauranga 3112 |
| +64 9 526 4551 | +64 9 525 0568 | +64 3 343 5201 | +64 9 525 0568 |
| IANZ# 1327 | IANZ# 1308 | IANZ# 1290 | IANZ# 1402 |

# Sample Receipt Advice

**Company name:** Ventia Utility Services P/L (Grovedale)
**Contact name:** Tarin Cummings
**Project name:** Creswick landfill
**Project ID:** Not provided
**Turnaround time:** 5 Day
**Date/Time received** Aug 1, 2024 10:27 AM
**Eurofins reference** 1124003

## Sample Information

| | |
|---|---|
| ✓ | A detailed list of analytes logged into our LIMS, is included in the attached summary table. |
| ✓ | All samples have been received as described on the above COC. |
| ✓ | COC has been completed correctly. |
| ✓ | Attempt to chill was evident. |
| ✓ | Appropriately preserved sample containers have been used. |
| ✓ | All samples were received in good condition. |
| ✓ | Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times. |
| ✓ | Appropriate sample containers have been used. |
| ✓ | Sample containers for volatile analysis received with zero headspace. |
| X | Split sample sent to requested external lab. |
| X | Some samples have been subcontracted. |
| N/A | Custody Seals intact (if used). |

## Notes

## Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

**Savini Suduweli on phone : +61 3 8564 5051 or by email: SaviniSuduweli@eurofins.com**

Results will be delivered electronically via email to Tarin Cummings - Tarin.Cummings@ventia.com.au.

*Note: A copy of these results will also be delivered to the general Ventia Utility Services P/L (Grovedale) email address.*

**Ventia Utility Services P/L (Grovedale)**
**27 Essington St**
**Grovedale**
**VIC 3216**



**Attention:** **Tarin Cummings**

**Report** **1124003-W**
Project name Creswick landfill
Received Date Aug 01, 2024

| **Client Sample ID** | | | **BH2** | **BH3** | **BH10** | **BH13** |
|---|---|---|---|---|---|---|
| **Sample Matrix** | | | **Water** | **Water** | **Water** | **Water** |
| **Eurofins Sample No.** | | | **M24-Au0002770** | **M24-Au0002771** | **M24-Au0002772** | **M24-Au0002773** |
| **Date Sampled** | | | **Jul 31, 2024** | **Jul 31, 2024** | **Jul 31, 2024** | **Jul 31, 2024** |
| Test/Reference | LOR | Unit | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | |
| Acetic Acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Propionic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Isobutyric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Butyric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Isovaleric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Valeric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| 4-Methylvaleric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Hexanoic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Heptanoic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Total VFA as Acetic Acid Equivalents | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| | | | | | | |
| Ammonia (as N) | 0.01 | mg/L | < 0.01 | < 0.01 | 0.38 | < 0.1 |
| Chemical Oxygen Demand (COD) | 25 | mg/L | < 25 | 76 | 81 | 76 |
| Chloride | 1 | mg/L | 290 | 990 | 190 | 240 |
| Conductivity (at 25 °C) | 10 | uS/cm | 1400 | 3700 | 770 | 1000 |
| Nitrate (as N) | 0.02 | mg/L | 12 | 0.05 | 0.81 | < 0.2 |
| Organic Nitrogen (as N)* | 0.2 | mg/L | 5.4 | 1.2 | 2.32 | 3 |
| pH (at 25 °C) | 0.1 | pH Units | 6.5 | 6.6 | 6.3 | 6.9 |
| Sulphate (as SO4) | 5 | mg/L | 19 | < 5 | 19 | < 5 |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | 10 | mg/L | 680 | 2000 | 390 | 740 |
| Total Kjeldahl Nitrogen (as N) | 0.2 | mg/L | 5.4 | 1.2 | 2.7 | 3.0 |
| Total Organic Carbon | 5 | mg/L | < 5 | 14 | < 5 | 7.2 |
| **Alkalinity (speciated)** | | | | | | |
| Bicarbonate Alkalinity (as CaCO3) | 20 | mg/L | 90 | 340 | 69 | 120 |
| Carbonate Alkalinity (as CaCO3) | 10 | mg/L | < 10 | < 10 | < 10 | < 10 |
| Hydroxide Alkalinity (as CaCO3) | 20 | mg/L | < 20 | < 20 | < 20 | < 20 |
| Total Alkalinity (as CaCO3) | 20 | mg/L | 90 | 340 | 69 | 120 |
| **Heavy Metals** | | | | | | |
| Chromium | 0.001 | mg/L | < 0.001 | 0.001 | 0.002 | 0.004 |
| Iron | 0.05 | mg/L | 4.9 | 91 | 12 | 41 |
| Manganese | 0.005 | mg/L | 11 | 5.8 | 5.8 | 1.7 |
| **Alkali Metals** | | | | | | |
| Calcium | 0.5 | mg/L | 2.3 | 56 | 6.9 | 22 |
| Magnesium | 0.5 | mg/L | 35 | 96 | 24 | 34 |
| Potassium | 0.5 | mg/L | 1.5 | 15 | 3.8 | 2.3 |
| Sodium | 0.5 | mg/L | 190 | 450 | 110 | 150 |

| Client Sample ID | | | U/S BH3 | CREEK @ BH3 | D/S BH3 | DREDGE |
|---|---|---|---|---|---|---|
| Sample Matrix | | | Water | Water | Water | Water |
| Eurofins Sample No. | | | M24-Au0002774 | M24-Au0002775 | M24-Au0002776 | M24-Au0002777 |
| Date Sampled | | | Jul 31, 2024 | Jul 31, 2024 | Jul 31, 2024 | Jul 31, 2024 |
| Test/Reference | LOR | Unit | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | |
| Acetic Acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Propionic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Isobutyric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Butyric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Isovaleric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Valeric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| 4-Methylvaleric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Hexanoic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Heptanoic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Total VFA as Acetic Acid Equivalents | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| | | | | | | |
| Ammonia (as N) | 0.01 | mg/L | < 0.01 | < 0.01 | < 0.01 | 0.02 |
| Chemical Oxygen Demand (COD) | 25 | mg/L | < 25 | < 25 | < 25 | < 25 |
| Chloride | 1 | mg/L | 95 | 95 | 93 | 180 |
| Conductivity (at 25 °C) | 10 | uS/cm | 410 | 430 | 430 | 720 |
| Nitrate (as N) | 0.02 | mg/L | 0.06 | 0.06 | 0.10 | 0.16 |
| Organic Nitrogen (as N)* | 0.2 | mg/L | 0.3 | 0.9 | 0.4 | 0.68 |
| pH (at 25 °C) | 0.1 | pH Units | 6.9 | 6.9 | 6.9 | 6.8 |
| Sulphate (as SO4) | 5 | mg/L | 7.9 | 6.1 | 7.6 | 13 |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | 10 | mg/L | 250 | 270 | 300 | 420 |
| Total Kjeldahl Nitrogen (as N) | 0.2 | mg/L | 0.3 | 0.9 | 0.4 | 0.7 |
| Total Organic Carbon | 5 | mg/L | < 5 | 6.2 | 7.3 | 6.0 |
| **Alkalinity (speciated)** | | | | | | |
| Bicarbonate Alkalinity (as CaCO3) | 20 | mg/L | 40 | 45 | 38 | 40 |
| Carbonate Alkalinity (as CaCO3) | 10 | mg/L | < 10 | < 10 | < 10 | < 10 |
| Hydroxide Alkalinity (as CaCO3) | 20 | mg/L | < 20 | < 20 | < 20 | < 20 |
| Total Alkalinity (as CaCO3) | 20 | mg/L | 40 | 45 | 38 | 40 |
| **Heavy Metals** | | | | | | |
| Chromium | 0.001 | mg/L | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Iron | 0.05 | mg/L | 2.3 | 2.8 | 2.4 | 1.3 |
| Manganese | 0.005 | mg/L | 0.083 | 0.11 | 0.11 | 0.63 |
| **Alkali Metals** | | | | | | |
| Calcium | 0.5 | mg/L | 8.8 | 9.8 | 9.8 | 6.9 |
| Magnesium | 0.5 | mg/L | 13 | 14 | 14 | 20 |
| Potassium | 0.5 | mg/L | 1.8 | 2.2 | 2.0 | 2.1 |
| Sodium | 0.5 | mg/L | 51 | 57 | 54 | 110 |

| Client Sample ID | | | WETLAND |
|---|---|---|---|
| **Sample Matrix** | | | **Water** |
| **Eurofins Sample No.** | | | **M24-Au0002778** |
| **Date Sampled** | | | **Jul 31, 2024** |
| Test/Reference | LOR | Unit | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | |
| Acetic Acid | 5 | mg/L | < 5 |
| Propionic acid | 5 | mg/L | < 5 |
| Isobutyric acid | 5 | mg/L | < 5 |
| Butyric acid | 5 | mg/L | < 5 |
| Isovaleric acid | 5 | mg/L | < 5 |
| Valeric acid | 5 | mg/L | < 5 |
| 4-Methylvaleric acid | 5 | mg/L | < 5 |
| Hexanoic acid | 5 | mg/L | < 5 |
| Heptanoic acid | 5 | mg/L | < 5 |
| Total VFA as Acetic Acid Equivalents | 5 | mg/L | < 5 |
| | | | |
| Ammonia (as N) | 0.01 | mg/L | < 0.01 |
| Chemical Oxygen Demand (COD) | 25 | mg/L | 49 |
| Chloride | 1 | mg/L | 180 |
| Conductivity (at 25 °C) | 10 | uS/cm | 890 |
| Nitrate (as N) | 0.02 | mg/L | < 0.02 |
| Organic Nitrogen (as N)* | 0.2 | mg/L | 0.9 |
| pH (at 25 °C) | 0.1 | pH Units | 7.9 |
| Sulphate (as SO4) | 5 | mg/L | < 5 |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | 10 | mg/L | 460 |
| Total Kjeldahl Nitrogen (as N) | 0.2 | mg/L | 0.9 |
| Total Organic Carbon | 5 | mg/L | 19 |
| **Alkalinity (speciated)** | | | |
| Bicarbonate Alkalinity (as CaCO3) | 20 | mg/L | 170 |
| Carbonate Alkalinity (as CaCO3) | 10 | mg/L | < 10 |
| Hydroxide Alkalinity (as CaCO3) | 20 | mg/L | < 20 |
| Total Alkalinity (as CaCO3) | 20 | mg/L | 170 |
| **Heavy Metals** | | | |
| Chromium | 0.001 | mg/L | < 0.001 |
| Iron | 0.05 | mg/L | 5.0 |
| Manganese | 0.005 | mg/L | 0.25 |
| **Alkali Metals** | | | |
| Calcium | 0.5 | mg/L | 21 |
| Magnesium | 0.5 | mg/L | 24 |
| Potassium | 0.5 | mg/L | 15 |
| Sodium | 0.5 | mg/L | 100 |

## Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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 |
|---|---|---|---|
| Volatile Fatty Acids (VFA) by GC-MS | Melbourne | Aug 02, 2024 | 28 Day |
| - Method: LTM-ORG-2360 Determination of Volatile Fatty Acids in Water by GC-MS | | | |
| Chemical Oxygen Demand (COD) | Melbourne | Aug 02, 2024 | 28 Days |
| - Method: LTM-INO-4220 Determination of COD in Water | | | |
| Conductivity (at 25 °C) | Melbourne | Aug 02, 2024 | 28 Days |
| - Method: LTM-INO-4030 Conductivity | | | |
| Nitrate (as N) | Melbourne | Aug 02, 2024 | 28 Days |
| - Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser | | | |
| pH (at 25 °C) | Melbourne | Aug 02, 2024 | 6 Hours |
| - Method: LTM-GEN-7090 pH in water by ISE | | | |
| Total Organic Carbon | Melbourne | Aug 02, 2024 | 28 Days |
| - Method: LTM-INO-4060 Total Organic Carbon in water and soil | | | |
| Heavy Metals | Melbourne | Aug 02, 2024 | 28 Days |
| - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS | | | |
| Eurofins Suite B11C: Na/K/Ca/Mg | Melbourne | Aug 02, 2024 | 180 Days |
| - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS | | | |
| Ammonia (as N) | Melbourne | Aug 02, 2024 | 28 Days |
| - Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser | | | |
| Organic Nitrogen (as N)* | Melbourne | Aug 01, 2024 | 7 Days |
| - Method: APHA 4500 Organic Nitrogen (N) | | | |
| Total Kjeldahl Nitrogen (as N) | Melbourne | Aug 02, 2024 | 28 Days |
| - Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA | | | |
| Eurofins Suite B11E: Cl/SO4/Alkalinity | | | |
| Chloride | Melbourne | Aug 02, 2024 | 28 Days |
| - Method: LTM-INO-4090 Chloride by Discrete Analyser | | | |
| Sulphate (as SO4) | Melbourne | Aug 02, 2024 | 28 Days |
| - Method: LTM-INO-4110 Sulfate by Discrete Analyser | | | |
| Alkalinity (speciated) | Melbourne | Aug 02, 2024 | 14 Days |
| - Method: LTM-INO-4250 Alkalinity by Electrometric Titration | | | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | Melbourne | Aug 02, 2024 | 28 Days |
| - Method: LTM-INO-4170 Total Dissolved Solids in Water | | | |

eurofins

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**Eurofins Environment Testing Australia Pty Ltd**
ABN: 50 005 085 521

| Melbourne | Geelong | Sydney | Canberra | Brisbane | Newcastle |
|---|---|---|---|---|---|
| 6 Monterey Road | 19/8 Lewalan Street | 179 Magowar Road | Unit 1,2 Dacre Street | 1/21 Smallwood Place | 1/2 Frost Drive |
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| +61 3 8564 5000 | +61 3 8564 5000 | +61 2 9900 8400 | +61 2 6113 8091 | T: +61 7 3902 4600 | +61 2 4968 8448 |
| NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 |
| Site# 1254 | Site# 25403 | Site# 18217 | Site# 25466 | Site# 20794 & 2780 | Site# 25079 |

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| +61 8 6253 4444 |
| NATA# 2561 |
| Site# 2554 |

**Eurofins Environment Testing NZ Ltd**
NZBN: 9429046024954

| Auckland | Auckland (Focus) | Christchurch | Tauranga |
|---|---|---|---|
| 35 O'Rorke Road | Unit C1/4 Pacific Rise, | 43 Detroit Drive | 1277 Cameron Road, |
| Penrose, | Mount Wellington, | Rolleston, | Gate Pa, |
| Auckland 1061 | Auckland 1061 | Christchurch 7675 | Tauranga 3112 |
| +64 9 526 4551 | +64 9 525 0568 | +64 3 343 5201 | +64 9 525 0568 |
| IANZ# 1327 | IANZ# 1308 | IANZ# 1290 | IANZ# 1402 |

**Company Name:** Ventia Utility Services P/L (Grovedale)
**Address:** 27 Essington St
Grovedale
VIC 3216

**Project Name:** Creswick landfill

**Order No.:** 4700979689
**Report #:** 1124003
**Phone:** 03 5247 3710
**Fax:**

**Received:** Aug 1, 2024 10:27 AM
**Due:** Aug 8, 2024
**Priority:** 5 Day
**Contact Name:** Tarin Cummings

**Eurofins Analytical Services Manager : Savini Suduweli**

| Sample Detail | Chemical Oxygen Demand (COD) | Chromium | Conductivity (at 25 °C) | Iron | Manganese | Nitrate (as N) | pH (at 25 °C) | Total Organic Carbon | Organic Nitrogen Set (as N) | Eurofins Suite B11E: Cl/SO4/Alkalinity | Eurofins Suite B11C: Na/K/Ca/Mg | Total Dissolved Solids Dried at 180 °C ± 2 °C | Volatile Fatty Acids (VFA) by GC-MS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Melbourne Laboratory - NATA # 1261 Site # 1254** | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **External Laboratory** | | | | | | | | | | | | | |

| No | Sample ID | Sample Date | Sampling Time | Matrix | LAB ID | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BH2 | Jul 31, 2024 | | Water | M24-Au0002770 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 2 | BH3 | Jul 31, 2024 | | Water | M24-Au0002771 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 3 | BH10 | Jul 31, 2024 | | Water | M24-Au0002772 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 4 | BH13 | Jul 31, 2024 | | Water | M24-Au0002773 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 5 | U/S BH3 | Jul 31, 2024 | | Water | M24-Au0002774 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 6 | CREEK @ BH3 | Jul 31, 2024 | | Water | M24-Au0002775 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 7 | D/S BH3 | Jul 31, 2024 | | Water | M24-Au0002776 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 8 | DREDGE | Jul 31, 2024 | | Water | M24-Au0002777 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 9 | WETLAND | Jul 31, 2024 | | Water | M24-Au0002778 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Test Counts** | | | | | | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |

## Internal Quality Control Review and Glossary

### General

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

### Holding Times

Please refer to the '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 before sample receipt deadlines as stated on the SRA.

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

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

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

### Units

| | | |
|---|---|---|
| **mg/kg:** milligrams per kilogram | **mg/L:** milligrams per litre | **ppm:** parts per million |
| **µg/L:** micrograms per litre | **ppb:** parts per billion | **%:** Percentage |
| **org/100 mL:** Organisms per 100 millilitres | **NTU:** Nephelometric Turbidity Units | **MPN/100 mL:** Most Probable Number of organisms per 100 millilitres |
| **CFU:** Colony Forming Unit | **Colour:** Pt-Co Units (CU) | |

### Terms

| | |
|---|---|
| **APHA** | American Public Health Association |
| **CEC** | Cation Exchange Capacity |
| **COC** | Chain of Custody |
| **CP** | Client Parent - QC was performed on samples pertaining to this report |
| **CRM** | Certified Reference Material (ISO17034) - reported as percent recovery. |
| **Dry** | Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis. |
| **Duplicate** | A second piece of analysis from the same sample and reported in the same units as the result to show comparison. |
| **LOR** | Limit of Reporting. |
| **LCS** | Laboratory Control Sample - 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. |
| **NCP** | Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within. |
| **RPD** | Relative Percent Difference between two Duplicate pieces of analysis. |
| **SPIKE** | Addition of the analyte to the sample and reported as percentage recovery. |
| **SRA** | Sample Receipt Advice |
| **Surr - Surrogate** | The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria. |
| **TBTO** | Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits. |
| **TCLP** | Toxicity Characteristic Leaching Procedure |
| **TEQ** | Toxic Equivalency Quotient or Total Equivalence |
| **QSM** | US Department of Defense Quality Systems Manual Version 6.0 |
| **US EPA** | United States Environmental Protection Agency |
| **WA DWER** | Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA |

### QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

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% |

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

### QC Data General Comments

1. Where a result is reported as 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 are not data from your samples.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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** | | | | | | | |
| Ammonia (as N) | mg/L | < 0.01 | | | 0.01 | Pass | |
| Chemical Oxygen Demand (COD) | mg/L | < 25 | | | 25 | Pass | |
| Conductivity (at 25 °C) | uS/cm | < 10 | | | 10 | Pass | |
| Nitrate (as N) | mg/L | < 0.02 | | | 0.02 | Pass | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | mg/L | < 10 | | | 10 | Pass | |
| Total Organic Carbon | mg/L | < 5 | | | 5 | Pass | |
| **Method Blank** | | | | | | | |
| **Alkali Metals** | | | | | | | |
| Calcium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Magnesium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Potassium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Sodium | mg/L | < 0.5 | | | 0.5 | Pass | |
| **Method Blank** | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | | |
| Acetic Acid | mg/L | < 5 | | | 5 | Pass | |
| Propionic acid | mg/L | < 5 | | | 5 | Pass | |
| Isobutyric acid | mg/L | < 5 | | | 5 | Pass | |
| Butyric acid | mg/L | < 5 | | | 5 | Pass | |
| Isovaleric acid | mg/L | < 5 | | | 5 | Pass | |
| Valeric acid | mg/L | < 5 | | | 5 | Pass | |
| 4-Methylvaleric acid | mg/L | < 5 | | | 5 | Pass | |
| Hexanoic acid | mg/L | < 5 | | | 5 | Pass | |
| Heptanoic acid | mg/L | < 5 | | | 5 | Pass | |
| Total VFA as Acetic Acid Equivalents | mg/L | < 5 | | | 5 | Pass | |
| **Method Blank** | | | | | | | |
| Chloride | mg/L | < 1 | | | 1 | Pass | |
| Sulphate (as SO4) | mg/L | < 5 | | | 5 | Pass | |
| **Method Blank** | | | | | | | |
| **Alkali Metals** | | | | | | | |
| Calcium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Magnesium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Potassium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Sodium | mg/L | < 0.5 | | | 0.5 | Pass | |
| **Method Blank** | | | | | | | |
| Ammonia (as N) | mg/L | < 0.01 | | | 0.01 | Pass | |
| **Method Blank** | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | | |
| Acetic Acid | mg/L | < 5 | | | 5 | Pass | |
| Propionic acid | mg/L | < 5 | | | 5 | Pass | |
| Isobutyric acid | mg/L | < 5 | | | 5 | Pass | |
| Butyric acid | mg/L | < 5 | | | 5 | Pass | |
| Isovaleric acid | mg/L | < 5 | | | 5 | Pass | |
| Valeric acid | mg/L | < 5 | | | 5 | Pass | |
| 4-Methylvaleric acid | mg/L | < 5 | | | 5 | Pass | |
| Hexanoic acid | mg/L | < 5 | | | 5 | Pass | |
| Heptanoic acid | mg/L | < 5 | | | 5 | Pass | |
| Total VFA as Acetic Acid Equivalents | mg/L | < 5 | | | 5 | Pass | |
| **Method Blank** | | | | | | | |
| Chloride | mg/L | < 1 | | | 1 | Pass | |
| Sulphate (as SO4) | mg/L | < 5 | | | 5 | Pass | |
| **Method Blank** | | | | | | | |

| Test | Units | Result 1 | | | Acceptance Limits | Pass Limits | Qualifying Code |
|---|---|---|---|---|---|---|---|
| Ammonia (as N) | mg/L | < 0.01 | | | 0.01 | Pass | |
| Total Kjeldahl Nitrogen (as N) | mg/L | < 0.2 | | | 0.2 | Pass | |
| **Method Blank** | | | | | | | |
| Ammonia (as N) | mg/L | < 0.01 | | | 0.01 | Pass | |
| **Method Blank** | | | | | | | |
| **Heavy Metals** | | | | | | | |
| Chromium | mg/L | < 0.001 | | | 0.001 | Pass | |
| Iron | mg/L | < 0.05 | | | 0.05 | Pass | |
| Manganese | mg/L | < 0.005 | | | 0.005 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| Chemical Oxygen Demand (COD) | % | 98 | | | 70-130 | Pass | |
| Conductivity (at 25 °C) | % | 107 | | | 70-130 | Pass | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | % | 96 | | | 70-130 | Pass | |
| Total Organic Carbon | % | 100 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Alkali Metals** | | | | | | | |
| Calcium | % | 102 | | | 80-120 | Pass | |
| Magnesium | % | 106 | | | 80-120 | Pass | |
| Potassium | % | 105 | | | 80-120 | Pass | |
| Sodium | % | 109 | | | 80-120 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | | |
| Acetic Acid | % | 112 | | | 70-130 | Pass | |
| Propionic acid | % | 111 | | | 70-130 | Pass | |
| Isobutyric acid | % | 116 | | | 70-130 | Pass | |
| Butyric acid | % | 111 | | | 70-130 | Pass | |
| Isovaleric acid | % | 95 | | | 70-130 | Pass | |
| Valeric acid | % | 95 | | | 70-130 | Pass | |
| 4-Methylvaleric acid | % | 100 | | | 70-130 | Pass | |
| Hexanoic acid | % | 108 | | | 70-130 | Pass | |
| Heptanoic acid | % | 111 | | | 70-130 | Pass | |
| Total VFA as Acetic Acid Equivalents | % | 105 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| Ammonia (as N) | % | 83 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Alkalinity (speciated)** | | | | | | | |
| Carbonate Alkalinity (as CaCO3) | % | 82 | | | 70-130 | Pass | |
| Total Alkalinity (as CaCO3) | % | 91 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Alkali Metals** | | | | | | | |
| Calcium | % | 94 | | | 80-120 | Pass | |
| Magnesium | % | 92 | | | 80-120 | Pass | |
| Potassium | % | 93 | | | 80-120 | Pass | |
| Sodium | % | 95 | | | 80-120 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | | |
| Acetic Acid | % | 129 | | | 70-130 | Pass | |
| Propionic acid | % | 108 | | | 70-130 | Pass | |
| Isobutyric acid | % | 108 | | | 70-130 | Pass | |
| Butyric acid | % | 114 | | | 70-130 | Pass | |
| Isovaleric acid | % | 100 | | | 70-130 | Pass | |
| Valeric acid | % | 105 | | | 70-130 | Pass | |
| 4-Methylvaleric acid | % | 120 | | | 70-130 | Pass | |
| Hexanoic acid | % | 108 | | | 70-130 | Pass | |

| Test | | | Units | Result 1 | | | Acceptance Limits | Pass Limits | Qualifying Code |
|---|---|---|---|---|---|---|---|---|---|
| Heptanoic acid | | | % | 113 | | | 70-130 | Pass | |
| Total VFA as Acetic Acid Equivalents | | | % | 110 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | | | |
| Ammonia (as N) | | | % | 86 | | | 70-130 | Pass | |
| Total Kjeldahl Nitrogen (as N) | | | % | 93 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | | | |
| Ammonia (as N) | | | % | 87 | | | 70-130 | Pass | |
| Chloride | | | % | 95 | | | 70-130 | Pass | |
| Sulphate (as SO4) | | | % | 97 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | | | |
| **Heavy Metals** | | | | | | | | | |
| Chromium | | | % | 96 | | | 80-120 | Pass | |
| Iron | | | % | 97 | | | 80-120 | Pass | |
| Manganese | | | % | 100 | | | 80-120 | Pass | |
| **Test** | **Lab Sample ID** | **QA Source** | **Units** | **Result 1** | | | **Acceptance Limits** | **Pass Limits** | **Qualifying Code** |
| **Spike - % Recovery** | | | | | | | | | |
| | | | | Result 1 | | | | | |
| Chemical Oxygen Demand (COD) | M24-Au0002043 | NCP | % | 92 | | | 70-130 | Pass | |
| Chloride | M24-Au0003656 | NCP | % | 95 | | | 70-130 | Pass | |
| Total Kjeldahl Nitrogen (as N) | M24-Au0002770 | CP | % | 82 | | | 70-130 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| **Heavy Metals** | | | | Result 1 | | | | | |
| Chromium | M24-Au0002770 | CP | % | 104 | | | 75-125 | Pass | |
| Iron | B24-Jl0070318 | NCP | % | 87 | | | 75-125 | Pass | |
| Manganese | M24-Au0005769 | NCP | % | 93 | | | 75-125 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | Result 1 | | | | | |
| Isobutyric acid | M24-Au0002771 | CP | % | 96 | | | 70-130 | Pass | |
| Isovaleric acid | M24-Au0002771 | CP | % | 100 | | | 70-130 | Pass | |
| Valeric acid | M24-Au0002771 | CP | % | 103 | | | 70-130 | Pass | |
| 4-Methylvaleric acid | M24-Au0002771 | CP | % | 113 | | | 70-130 | Pass | |
| Hexanoic acid | M24-Au0002771 | CP | % | 101 | | | 70-130 | Pass | |
| Heptanoic acid | M24-Au0002771 | CP | % | 115 | | | 70-130 | Pass | |
| Total VFA as Acetic Acid Equivalents | M24-Au0002771 | CP | % | 106 | | | 70-130 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| **Alkali Metals** | | | | Result 1 | | | | | |
| Calcium | M24-Au0002771 | CP | % | 95 | | | 75-125 | Pass | |
| Magnesium | M24-Au0002771 | CP | % | 102 | | | 75-125 | Pass | |
| Potassium | M24-Au0002771 | CP | % | 99 | | | 75-125 | Pass | |
| Sodium | M24-Au0002771 | CP | % | 101 | | | 75-125 | Pass | |
| **Test** | **Lab Sample ID** | **QA Source** | **Units** | **Result 1** | | | **Acceptance Limits** | **Pass Limits** | **Qualifying Code** |
| **Duplicate** | | | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | Result 1 | Result 2 | RPD | | | |
| Acetic Acid | M24-Au0002770 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Propionic acid | M24-Au0002770 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Isobutyric acid | M24-Au0002770 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Butyric acid | M24-Au0002770 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Isovaleric acid | M24-Au0002770 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Valeric acid | M24-Au0002770 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| 4-Methylvaleric acid | M24-Au0002770 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Hexanoic acid | M24-Au0002770 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Heptanoic acid | M24-Au0002770 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Duplicate** | | | | | | | | | |
| | | | | Result 1 | Result 2 | RPD | | | |
| Ammonia (as N) | M24-Au0002770 | CP | mg/L | < 0.01 | < 0.01 | <1 | 30% | Pass | |
| Chemical Oxygen Demand (COD) | M24-Au0002770 | CP | mg/L | < 25 | < 25 | <1 | 30% | Pass | |
| Chloride | M24-Au0003645 | NCP | mg/L | 1000 | 1000 | <1 | 30% | Pass | |
| Conductivity (at 25 °C) | M24-Au0002770 | CP | uS/cm | 1400 | 1400 | <1 | 30% | Pass | |
| pH (at 25 °C) | M24-Au0002770 | CP | pH Units | 6.5 | 6.5 | pass | 30% | Pass | |
| Sulphate (as SO4) | M24-Au0003645 | NCP | mg/L | 170 | 160 | 3.8 | 30% | Pass | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | M24-Au0002770 | CP | mg/L | 680 | 640 | 6.2 | 30% | Pass | |
| Total Kjeldahl Nitrogen (as N) | M24-Au0002123 | NCP | mg/L | 170 | 140 | 18 | 30% | Pass | |
| Total Organic Carbon | M24-Au0002770 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Alkalinity (speciated)** | | | | Result 1 | Result 2 | RPD | | | |
| Bicarbonate Alkalinity (as CaCO3) | M24-Au0002770 | CP | mg/L | 90 | 100 | 11 | 30% | Pass | |
| Carbonate Alkalinity (as CaCO3) | M24-Au0002770 | CP | mg/L | < 10 | < 10 | <1 | 30% | Pass | |
| Hydroxide Alkalinity (as CaCO3) | M24-Au0002770 | CP | mg/L | < 20 | < 20 | <1 | 30% | Pass | |
| Total Alkalinity (as CaCO3) | M24-Au0002770 | CP | mg/L | 90 | 100 | 11 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Heavy Metals** | | | | Result 1 | Result 2 | RPD | | | |
| Chromium | M24-Au0002770 | CP | mg/L | < 0.001 | < 0.001 | <1 | 30% | Pass | |
| Iron | M24-Au0002770 | CP | mg/L | 4.9 | 4.8 | <1 | 30% | Pass | |
| Manganese | M24-Au0002770 | CP | mg/L | 11 | 11 | <1 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| | | | | Result 1 | Result 2 | RPD | | | |
| Conductivity (at 25 °C) | M24-Au0002771 | CP | uS/cm | 3700 | 3700 | <1 | 30% | Pass | |
| pH (at 25 °C) | M24-Au0002771 | CP | pH Units | 6.6 | 6.6 | pass | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Alkalinity (speciated)** | | | | Result 1 | Result 2 | RPD | | | |
| Bicarbonate Alkalinity (as CaCO3) | M24-Au0002771 | CP | mg/L | 340 | 310 | 9.0 | 30% | Pass | |
| Carbonate Alkalinity (as CaCO3) | M24-Au0002771 | CP | mg/L | < 10 | < 10 | <1 | 30% | Pass | |
| Hydroxide Alkalinity (as CaCO3) | M24-Au0002771 | CP | mg/L | < 20 | < 20 | <1 | 30% | Pass | |
| Total Alkalinity (as CaCO3) | M24-Au0002771 | CP | mg/L | 340 | 310 | 9.0 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Alkali Metals** | | | | Result 1 | Result 2 | RPD | | | |
| Calcium | M24-Au0002771 | CP | mg/L | 56 | 56 | <1 | 30% | Pass | |
| Magnesium | M24-Au0002771 | CP | mg/L | 96 | 100 | 3.7 | 30% | Pass | |
| Potassium | M24-Au0002771 | CP | mg/L | 15 | 15 | <1 | 30% | Pass | |
| Sodium | M24-Au0002771 | CP | mg/L | 450 | 460 | 1.7 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| | | | | Result 1 | Result 2 | RPD | | | |
| Ammonia (as N) | M24-Au0002774 | CP | mg/L | < 0.01 | < 0.01 | <1 | 30% | Pass | |

## Comments

### Sample Integrity

| | |
|---|---|
| Custody Seals Intact (if used) | N/A |
| Attempt to Chill was evident | Yes |
| 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 |

## Authorised by:

| | |
|---|---|
| Catherine Wilson | Analytical Services Manager |
| Caitlin Breeze | Senior Analyst-Inorganic |
| Caitlin Breeze | Senior Analyst-Metal |
| Emily Rosenberg | Senior Analyst-Metal |
| Joseph Edouard | Senior Analyst-Organic |

**Glenn Jackson**
**Managing Director**

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 | mgt

# CHAIN OF CUSTODY

DATE 26/02/25
TIME 10:25am
COOLER
TEMPERATURE: 15.1
ARTICIPTO CHILL: YES

OH

6 Monterey Road,
Dandenong South,
Vic 3175

| | |
|---|---|
| **Client:** | Ventia |
| Contact Ventia: | Tarin Cummings 0428091782 |
| Contact Eurofins: | Savini Suduweli 03 385 645 051 |
| **Email Results to:** | Tarin.cummings@ventia.com<br>Ping.Yao@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Robert.callander@ventia.com |

**Purchase Order Number: 4701075276**

**Job Ref:** Creswick Landfill 1 of 3

**TESTS REQUIRED AS PER QUOTE # 230926VENVP**

Arnav 26/02/25 1191965

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | PH | EC | DO | TEMP | ORP | SWL |
|---|---|---|---|---|---|---|---|---|---|---|
| BH1 | Groundwater Bore | 5 | 25.2.25 | 13:49 | 6.47 | 443 | 2.87 | 21.5 | 4.6 | 3.64 |
| BH2 | ~~Groundwater Bore~~ | | | | | | | | | |
| BH3 | ~~Groundwater Bore~~ | | | | | | | | | |
| BH4 | ~~Groundwater Bore~~ | | | | | | | | | |
| BH6 | Groundwater Bore | 5 | 25.2.25 | 11:52 | 4.84 | 583 | 0.12 | 17.2 | 2.5 | 12.62 |
| BH7 | Groundwater Bore | 5 | 25.2.25 | 14:45 | 6.24 | 1156 | 0.1 | 1.0 | 17.6 | 2.84 |
| BH8 | ~~Groundwater Bore~~ | | | | | | | | | |
| BH9 | ~~Groundwater Bore~~ | | | | | | | | | |
| | | | | | | | | | | |

**Special Instructions:** Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com

| Relinquished By: | Company: | Date: | Time: | Received By: | Company: | Date: | Time: |
|---|---|---|---|---|---|---|---|
| | Ventia | 25.2.25 | 16:00 | | | | |

eurofins mgt

# CHAIN OF CUSTODY

6 Monterey Road,
Dandenong South,
Vic 3175

| | | | |
|---|---|---|---|
| **Client:** | **Ventia** | **Job Ref:** | **Creswick Landfill 2 of 3** |
| Contact Ventia: | Tarin Cummings 0428091782 | **TESTS REQUIRED AS PER QUOTE # 230926VENVP** | |
| Contact Eurofins: | Savini Suduweli 03 385 645 051 | | |
| **Email Results to:** | Tarin.cummings@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Anastasia.wiltshire@ventia.com<br>Selina.yang@ventia.com | | |
| | **Purchase Order Number:** | | |

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | PH | EC | DO | TEMP | ORP | SWL |
|---|---|---|---|---|---|---|---|---|---|---|
| BH10 | ~~Groundwater bore~~ | | | | | | | | | |
| BH13 | Groundwater bore | 5 | 25.2.25 | 9:15 | 6.37 | 1169 | 0.34 | 15.1 | -31.8 | 3.80 |
| | | | | | | | | | | |
| LB1 | ~~Leachate bore~~ | | | | | | | | | |
| LB2 | ~~Leachate bore~~ | | | | | | | | | |
| LB3 | ~~Leachate bore~~ | | | | NO SAMPLE - SWL ONLY | | | | | |
| | | | | | | | | | | |
| BLIND | Blind duplicate | 5 | 25.2.25 | 11:52 | | | | | | |
| RINSATE | Rinsate blank | 5 | 25.2.25 | 1300 | | | | | | |

**Special Instructions:** Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com

| Relinquished By: | Company: | Date: | Time: | Received By: | Company: | Date: | Time: |
|---|---|---|---|---|---|---|---|
| | Ventia | ~~16.00~~ 25.2.2025 | 16:00 | | | | |

eurofins mgt

# CHAIN OF CUSTODY

6 Monterey Road,
Dandenong South,
Vic 3175

| | |
|---|---|
| **Client:** | **Ventia** |
| Contact Ventia: | Tarin Cummings 0428091782 |
| Contact Eurofins: | Savini Suduweli 03 385 645 051 |
| **Email Results to:** | Tarin.cummings@ventia.com<br>Ping.Yao@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Robert.callander@ventia.com |

**Purchase Order Number: 4700979689**

**Job Ref:** Creswick Landfill 3 of 3

**TESTS REQUIRED AS PER QUOTE # 230926VENVP**

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | | PH | EC | DO | TEMP | ORP | SWL | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~U/S BH3~~ | ~~Creek Sample~~ | | | | | | | | | | | | | | |
| ~~@ BH3~~ | ~~Creek Sample~~ | | | | | | | | | | | | | | |
| ~~D/S BH3~~ | ~~Creek Sample~~ | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Leachate * | Surface water sample | 5 | 25.2.25 | 15:10 | | 7.26 | 1256 | 4.58 | 23.2 | 32.8 | — | | | | |
| ~~Wetland~~ | ~~Surface water sample~~ | | | | | | | | | | | | | | |
| Dredge * | Surface water sample | 5 | 25.2.25 | 10:00 | | 6.49 | 733 | 4.28 | 18.5 | -18.4 | — | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

**Special Instructions:** Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com

| Relinquished By: | Company: | Date: | Time: | Received By: | Company: | Date: | Time: |
|---|---|---|---|---|---|---|---|
| | Ventia | 25.2.25 | 16:00 | | | | |

This form is for recording of sample data after prior consultation with an analyst regarding sampling procedures and does not over-ride pricing agreements, OHS requirements and our terms and conditions.

As an Occupational Health and Safety consideration, it is a requirement of Ecowise Environmental (Victoria), that all samples received be undamaged and prior advice given in writing of any potential health risks.

***LAB USE ONLY***

Sample conditions: Samples received undamaged [Yes/No]
Samples transported at appropriate temperatures [Yes/No]
Samples received within recommended holding times: [Yes/No]

eurofins | Environment Testing

www.eurofins.com.au EnviroSales@eurofinsanz.com

**Eurofins Environment Testing Australia Pty Ltd**

ABN: 50 005 085 521

| Melbourne | Geelong | Sydney | Canberra | Brisbane | Newcastle |
|---|---|---|---|---|---|
| 6 Monterey Road | 19/8 Lewalan Street | 179 Magowar Road | Unit 1,2 Dacre Street | 1/21 Smallwood Place | 1/2 Frost Drive |
| Dandenong South | Grovedale | Girraween | Mitchell | Murarrie | Mayfield West |
| VIC 3175 | VIC 3216 | NSW 2145 | ACT 2911 | QLD 4172 | NSW 2304 |
| +61 3 8564 5000 | +61 3 8564 5000 | +61 2 9900 8400 | +61 2 6113 8091 | +61 7 3902 4600 | +61 2 4968 8448 |
| NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 |
| Site# 1254 | Site# 25403 | Site# 18217 | Site# 25466 | Site# 20794 & 2780 | Site# 25079 |

**Eurofins ARL Pty Ltd**

ABN: 91 05 0159 898

| Perth |
|---|
| 46-48 Banksia Road |
| Welshpool |
| WA 6106 |
| +61 8 6253 4444 |
| NATA# 2377 |
| Site# 2370 & 2554 |

**Eurofins Environment Testing NZ Ltd**

NZBN: 9429046024954

| Auckland | Auckland (Focus) | Christchurch | Tauranga |
|---|---|---|---|
| 35 O'Rorke Road | Unit C1/4 Pacific Rise | 43 Detroit Drive | 1277 Cameron Road |
| Penrose | Mount Wellington | Rolleston | Gate Pa |
| Auckland 1061 | Auckland 1061 | Christchurch 7675 | Tauranga 3112 |
| +64 9 526 4551 | +64 9 525 0568 | +64 3 343 5201 | +64 9 525 0568 |
| IANZ# 1327 | IANZ# 1308 | IANZ# 1290 | IANZ# 1402 |

# Sample Receipt Advice

**Company name:** Ventia Utility Services P/L (Grovedale)
**Contact name:** Tarin Cummings
**Project name:** CRESWICK LANDFILL
**Project ID:** Not provided
**Turnaround time:** 5 Day
**Date/Time received** Feb 26, 2025 10:25 AM
**Eurofins reference** 1191963

## Sample Information

✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

✓ All samples have been received as described on the above COC.

✓ COC has been completed correctly.

✓ Attempt to chill was evident.

✓ Appropriately preserved sample containers have been used.

✓ All samples were received in good condition.

✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

✓ Appropriate sample containers have been used.

✓ Sample containers for volatile analysis received with zero headspace.

✗ Split sample sent to requested external lab.

✗ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

## Notes

## Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

**Savini Suduweli on phone : +61 3 8564 5051 or by email: Savini.Suduwelikondage@eurofinsanz.com**

Results will be delivered electronically via email to Tarin Cummings - Tarin.Cummings@ventia.com.

*Note: A copy of these results will also be delivered to the general Ventia Utility Services P/L (Grovedale) email address.*

**Ventia Utility Services P/L (Grovedale)**
**27 Essington St**
**Grovedale**
**VIC 3216**



**Attention:** **Tarin Cummings**

**Report** **1191963-W**
Project name CRESWICK LANDFILL
Received Date Feb 26, 2025

| **Client Sample ID** | | | **BH1 GROUNDWATER BORE** | **BH6 GROUNDWATER BORE** | **BH7 GROUNDWATER BORE** | **BH13 GROUNDWATER BORE** |
|---|---|---|---|---|---|---|
| **Sample Matrix** | | | **Water** | **Water** | **Water** | **Water** |
| **Eurofins Sample No.** | | | **M25-Fe0065471** | **M25-Fe0065472** | **M25-Fe0065473** | **M25-Fe0065474** |
| **Date Sampled** | | | **Feb 25, 2025** | **Feb 25, 2025** | **Feb 25, 2025** | **Feb 25, 2025** |
| Test/Reference | LOR | Unit | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | |
| Acetic Acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Propionic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Isobutyric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Butyric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Isovaleric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Valeric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| 4-Methylvaleric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Hexanoic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Heptanoic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Total VFA as Acetic Acid Equivalents | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| | | | | | | |
| Chemical Oxygen Demand (COD) | 25 | mg/L | 260 | < 25 | 28 | 69 |
| Chloride | 1 | mg/L | 66 | 150 | 220 | 220 |
| Conductivity (at 25 °C) | 10 | uS/cm | 430 | 560 | 1000 | 1000 |
| Nitrate & Nitrite (as N) | 0.05 | mg/L | 2.9 | 2.3 | < 0.05 | < 0.05 |
| Nitrate (as N) | 0.02 | mg/L | 2.7 | 2.3 | < 0.02 | < 0.02 |
| Nitrite (as N) | 0.02 | mg/L | 0.11 | < 0.02 | < 0.02 | < 0.02 |
| pH (at 25 °C) | 0.1 | pH Units | 6.8 | 5.7 | 6.5 | 6.7 |
| Sulphate (as SO4) | 5 | mg/L | 49 | 21 | 6.2 | < 5 |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | 10 | mg/L | 280 | 310 | 840 | 640 |
| Total Kjeldahl Nitrogen (as N) | 0.2 | mg/L | 4.7 | 0.5 | 1.3 | < 0.2 |
| Total Nitrogen (as N)* | 0.2 | mg/L | 7.6 | 2.8 | 1.3 | < 0.2 |
| Total Organic Carbon | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| **Alkalinity (speciated)** | | | | | | |
| Bicarbonate Alkalinity (as CaCO3) | 20 | mg/L | 120 | < 20 | 180 | 200 |
| Carbonate Alkalinity (as CaCO3) | 10 | mg/L | < 10 | < 10 | < 10 | < 10 |
| Hydroxide Alkalinity (as CaCO3) | 20 | mg/L | < 20 | < 20 | < 20 | < 20 |
| Total Alkalinity (as CaCO3) | 20 | mg/L | 120 | < 20 | 180 | 200 |
| **Heavy Metals** | | | | | | |
| Chromium | 0.001 | mg/L | < 0.001 | - | - | - |
| Chromium (filtered) | 0.001 | mg/L | - | < 0.001 | < 0.001 | < 0.001 |
| Iron | 0.05 | mg/L | < 0.05 | - | - | - |
| Iron (filtered) | 0.05 | mg/L | - | < 0.05 | 40 | 22 |
| Manganese | 0.005 | mg/L | 2.5 | - | - | - |
| Manganese (filtered) | 0.005 | mg/L | - | 0.46 | 1.3 | 0.93 |

| Client Sample ID | | | BH1 GROUNDWATER BORE | BH6 GROUNDWATER BORE | BH7 GROUNDWATER BORE | BH13 GROUNDWATER BORE |
|---|---|---|---|---|---|---|
| **Sample Matrix** | | | **Water** | **Water** | **Water** | **Water** |
| **Eurofins Sample No.** | | | **M25-Fe0065471** | **M25-Fe0065472** | **M25-Fe0065473** | **M25-Fe0065474** |
| **Date Sampled** | | | **Feb 25, 2025** | **Feb 25, 2025** | **Feb 25, 2025** | **Feb 25, 2025** |
| Test/Reference | LOR | Unit | | | | |
| **Alkali Metals** | | | | | | |
| Calcium | 0.5 | mg/L | 8.1 | 3.6 | 26 | 15 |
| Magnesium | 0.5 | mg/L | 12 | 16 | 32 | 29 |
| Potassium | 0.5 | mg/L | 6.0 | 2.2 | 16 | 2.6 |
| Sodium | 0.5 | mg/L | 60 | 87 | 130 | 150 |

| Client Sample ID | | | BLIND DUPLICATE | RINSATE | LEACHATE SURFACE WATER SAMPLE | DREDGE SURFACE WATER SAMPLE |
|---|---|---|---|---|---|---|
| **Sample Matrix** | | | **Water** | **Water** | **Water** | **Water** |
| **Eurofins Sample No.** | | | **M25-Fe0065475** | **M25-Fe0065476** | **M25-Fe0065477** | **M25-Fe0065478** |
| **Date Sampled** | | | **Feb 25, 2025** | **Feb 25, 2025** | **Feb 25, 2025** | **Feb 25, 2025** |
| Test/Reference | LOR | Unit | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | |
| Acetic Acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Propionic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Isobutyric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Butyric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Isovaleric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Valeric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| 4-Methylvaleric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Hexanoic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Heptanoic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Total VFA as Acetic Acid Equivalents | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| | | | | | | |
| Chemical Oxygen Demand (COD) | 25 | mg/L | < 25 | < 25 | 62 | < 25 |
| Chloride | 1 | mg/L | 150 | < 1 | 260 | 190 |
| Conductivity (at 25 °C) | 10 | uS/cm | 560 | < 10 | 1200 | 720 |
| Nitrate & Nitrite (as N) | 0.05 | mg/L | 2.4 | < 0.05 | 0.18 | < 0.05 |
| Nitrate (as N) | 0.02 | mg/L | 2.4 | < 0.02 | 0.13 | < 0.02 |
| Nitrite (as N) | 0.02 | mg/L | < 0.02 | < 0.02 | 0.05 | < 0.02 |
| pH (at 25 °C) | 0.1 | pH Units | 5.7 | 6.4 | 7.8 | 6.6 |
| Sulphate (as SO4) | 5 | mg/L | 23 | < 5 | < 5 | 15 |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | 10 | mg/L | 260 | < 10 | 710 | 390 |
| Total Kjeldahl Nitrogen (as N) | 0.2 | mg/L | 0.6 | < 0.2 | 2.3 | 0.6 |
| Total Nitrogen (as N)* | 0.2 | mg/L | 3.0 | < 0.2 | 2.5 | 0.6 |
| Total Organic Carbon | 5 | mg/L | < 5 | < 5 | 9.8 | < 5 |
| **Alkalinity (speciated)** | | | | | | |
| Bicarbonate Alkalinity (as CaCO3) | 20 | mg/L | < 20 | < 20 | 220 | 45 |
| Carbonate Alkalinity (as CaCO3) | 10 | mg/L | < 10 | < 10 | < 10 | < 10 |
| Hydroxide Alkalinity (as CaCO3) | 20 | mg/L | < 20 | < 20 | < 20 | < 20 |
| Total Alkalinity (as CaCO3) | 20 | mg/L | < 20 | < 20 | 220 | 45 |
| **Heavy Metals** | | | | | | |
| Chromium | 0.001 | mg/L | - | < 0.001 | - | - |
| Chromium (filtered) | 0.001 | mg/L | < 0.001 | - | < 0.001 | < 0.001 |
| Iron | 0.05 | mg/L | - | < 0.05 | - | - |
| Iron (filtered) | 0.05 | mg/L | < 0.05 | - | 0.11 | 0.13 |

| Client Sample ID | | | BLIND DUPLICATE | RINSATE | LEACHATE SURFACE WATER SAMPLE | DREDGE SURFACE WATER SAMPLE |
|---|---|---|---|---|---|---|
| **Sample Matrix** | | | **Water** | **Water** | **Water** | **Water** |
| **Eurofins Sample No.** | | | **M25-Fe0065475** | **M25-Fe0065476** | **M25-Fe0065477** | **M25-Fe0065478** |
| **Date Sampled** | | | **Feb 25, 2025** | **Feb 25, 2025** | **Feb 25, 2025** | **Feb 25, 2025** |
| Test/Reference | LOR | Unit | | | | |
| **Heavy Metals** | | | | | | |
| Manganese | 0.005 | mg/L | - | < 0.005 | - | - |
| Manganese (filtered) | 0.005 | mg/L | 0.44 | - | 0.20 | 0.77 |
| **Alkali Metals** | | | | | | |
| Calcium | 0.5 | mg/L | 3.6 | < 0.5 | 39 | 6.2 |
| Magnesium | 0.5 | mg/L | 16 | < 0.5 | 33 | 19 |
| Potassium | 0.5 | mg/L | 2.1 | < 0.5 | 35 | 3.0 |
| Sodium | 0.5 | mg/L | 87 | < 0.5 | 150 | 110 |

## Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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 |
|---|---|---|---|
| Volatile Fatty Acids (VFA) by GC-MS | Melbourne | Feb 26, 2025 | 28 Day |
| - Method: LTM-ORG-2360 Determination of Volatile Fatty Acids in Water by GC-MS | | | |
| Chemical Oxygen Demand (COD) | Melbourne | Feb 26, 2025 | 28 Days |
| - Method: LTM-INO-4220 Determination of COD in Water | | | |
| Conductivity (at 25 °C) | Melbourne | Mar 05, 2025 | 28 Days |
| - Method: LTM-INO-4030 Conductivity | | | |
| pH (at 25 °C) | Melbourne | Feb 26, 2025 | 6 Hours |
| - Method: LTM-GEN-7090 pH in water by ISE | | | |
| Total Organic Carbon | Melbourne | Feb 26, 2025 | 28 Days |
| - Method: LTM-INO-4060 Total Organic Carbon in water and soil | | | |
| Heavy Metals | Melbourne | Feb 26, 2025 | 28 Days |
| - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS | | | |
| Heavy Metals (filtered) | Melbourne | Feb 26, 2025 | 180 Days |
| - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS | | | |
| Eurofins Suite B11C: Na/K/Ca/Mg | Melbourne | Mar 05, 2025 | 180 Days |
| - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS | | | |
| Eurofins Suite B11E: Cl/SO4/Alkalinity | | | |
| Chloride | Melbourne | Feb 26, 2025 | 28 Days |
| - Method: LTM-INO-4090 Chloride by Discrete Analyser | | | |
| Sulphate (as SO4) | Melbourne | Feb 26, 2025 | 28 Days |
| - Method: LTM-INO-4110 Sulfate by Discrete Analyser | | | |
| Alkalinity (speciated) | Melbourne | Mar 05, 2025 | 14 Days |
| - Method: LTM-INO-4250 Alkalinity by Electrometric Titration | | | |
| Total Nitrogen Set (as N) | | | |
| Nitrate & Nitrite (as N) | Melbourne | Feb 26, 2025 | 28 Days |
| - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA | | | |
| Nitrate (as N) | Melbourne | Feb 26, 2025 | 28 Days |
| - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA | | | |
| Nitrite (as N) | Melbourne | Feb 26, 2025 | 2 Days |
| - Method: LTM-INO-4450 Nitrogens by Discrete Analyser | | | |
| Total Kjeldahl Nitrogen (as N) | Melbourne | Feb 26, 2025 | 28 Days |
| - Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA | | | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: LTM-INO-4170 Total Dissolved Solids in Water | | | |

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**Eurofins Environment Testing Australia Pty Ltd**
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| 6 Monterey Road | 19/8 Lewalan Street | 179 Magowar Road | Unit 1,2 Dacre Street | 1/21 Smallwood Place | 1/2 Frost Drive |
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| +61 3 8564 5000 | +61 3 8564 5000 | +61 2 9900 8400 | +61 2 6113 8091 | +61 7 3902 4600 | +61 2 4968 8448 |
| NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 |
| Site# 1254 | Site# 25403 | Site# 18217 | Site# 25466 | Site# 20794 & 2780 | Site# 25079 |

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| +61 8 6253 4444 |
| NATA# 2377 |
| Site# 2370 & 2554 |

**Eurofins Environment Testing NZ Ltd**
NZBN: 9429046024954

| Auckland | Auckland (Focus) | Christchurch | Tauranga |
|---|---|---|---|
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| Penrose | Mount Wellington | Rolleston | Gate Pa |
| Auckland 1061 | Auckland 1061 | Christchurch 7675 | Tauranga 3112 |
| +64 9 526 4551 | +64 9 525 0568 | +64 3 343 5201 | +64 9 525 0568 |
| IANZ# 1327 | IANZ# 1308 | IANZ# 1290 | IANZ# 1402 |


**Company Name:** Ventia Utility Services P/L (Grovedale)
**Address:** 27 Essington St
Grovedale
VIC 3216

**Project Name:** CRESWICK LANDFILL

**Order No.:** 4701075276
**Report #:** 1191963
**Phone:** 03 5247 3710
**Fax:**

**Received:** Feb 26, 2025 10:25 AM
**Due:** Mar 6, 2025
**Priority:** 6 Day
**Contact Name:** Tarin Cummings

**Eurofins Analytical Services Manager : Savini Suduweli**

| Sample Detail | Chemical Oxygen Demand (COD) | Chromium | Chromium (filtered) | Conductivity (at 25 °C) | Iron | Iron (filtered) | Manganese | Manganese (filtered) | pH (at 25 °C) | Total Organic Carbon | Total Nitrogen Set (as N) | Eurofins Suite B11E: Cl/SO4/Alkalinity | Eurofins Suite B11C: Na/K/Ca/Mg | Total Dissolved Solids Dried at 180 °C ± 2 °C | Volatile Fatty Acids (VFA) by GC-MS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Melbourne Laboratory - NATA # 1261 Site # 1254** | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **External Laboratory** | | | | | | | | | | | | | | | |

| No | Sample ID | Sample Date | Sampling Time | Matrix | LAB ID | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BH1 GROUNDWATER BORE | Feb 25, 2025 | | Water | M25-Fe0065471 | X | X | | X | X | | X | | X | X | X | X | X | X | X |
| 2 | BH6 GROUNDWATER BORE | Feb 25, 2025 | | Water | M25-Fe0065472 | X | | X | X | | X | | X | X | X | X | X | X | X | X |
| 3 | BH7 GROUNDWATER BORE | Feb 25, 2025 | | Water | M25-Fe0065473 | X | | X | X | | X | | X | X | X | X | X | X | X | X |
| 4 | BH13 GROUNDWATER BORE | Feb 25, 2025 | | Water | M25-Fe0065474 | X | | X | X | | X | | X | X | X | X | X | X | X | X |
| 5 | BLIND DUPLICATE | Feb 25, 2025 | | Water | M25-Fe0065475 | X | | X | X | | X | | X | X | X | X | X | X | X | X |
| 6 | RINSATE | Feb 25, 2025 | | Water | M25-Fe0065476 | X | X | | X | X | | X | | X | X | X | X | X | X | X |
| 7 | LEACHATE SURFACE WATER SAMPLE | Feb 25, 2025 | | Water | M25-Fe0065477 | X | | X | X | | X | | X | X | X | X | X | X | X | X |

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| NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 |
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**Eurofins Analytical Services Manager : Savini Suduweli**

| Sample Detail | | | | | | Chemical Oxygen Demand (COD) | Chromium | Chromium (filtered) | Conductivity (at 25 °C) | Iron | Iron (filtered) | Manganese | Manganese (filtered) | pH (at 25 °C) | Total Organic Carbon | Total Nitrogen Set (as N) | Eurofins Suite B11E: Cl/SO4/Alkalinity | Eurofins Suite B11C: Na/K/Ca/Mg | Total Dissolved Solids Dried at 180 °C ± 2 °C | Volatile Fatty Acids (VFA) by GC-MS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Melbourne Laboratory - NATA # 1261 Site # 1254** | | | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 8 | DREDGE SURFACE WATER SAMPLE | Feb 25, 2025 | | Water | M25-Fe0065478 | X | | X | X | | X | | X | X | X | X | X | X | X | X |
| **Test Counts** | | | | | | 8 | 2 | 6 | 10 | 2 | 6 | 2 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |

## Internal Quality Control Review and Glossary

### General

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

### Holding Times

Please refer to the '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 before sample receipt deadlines as stated on the SRA.

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

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

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

### Units

| | | |
|---|---|---|
| **mg/kg:** milligrams per kilogram | **mg/L:** milligrams per litre | **ppm:** parts per million |
| **µg/L:** micrograms per litre | **ppb:** parts per billion | **%:** Percentage |
| **org/100 mL:** Organisms per 100 millilitres | **NTU:** Nephelometric Turbidity Units | **MPN/100 mL:** Most Probable Number of organisms per 100 millilitres |
| **CFU:** Colony Forming Unit | **Colour:** Pt-Co Units (CU) | |

### Terms

| | |
|---|---|
| **APHA** | American Public Health Association |
| **CEC** | Cation Exchange Capacity |
| **COC** | Chain of Custody |
| **CP** | Client Parent - QC was performed on samples pertaining to this report |
| **CRM** | Certified Reference Material (ISO17034) - reported as percent recovery. |
| **Dry** | Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis. |
| **Duplicate** | A second piece of analysis from the same sample and reported in the same units as the result to show comparison. |
| **LOR** | Limit of Reporting. |
| **LCS** | Laboratory Control Sample - 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. |
| **NCP** | Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within. |
| **RPD** | Relative Percent Difference between two Duplicate pieces of analysis. |
| **SPIKE** | Addition of the analyte to the sample and reported as percentage recovery. |
| **SRA** | Sample Receipt Advice |
| **Surr - Surrogate** | The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria. |
| **TBTO** | Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits. |
| **TCLP** | Toxicity Characteristic Leaching Procedure |
| **TEQ** | Toxic Equivalency Quotient or Total Equivalence |
| **QSM** | US Department of Defense Quality Systems Manual Version 6.0 |
| **US EPA** | United States Environmental Protection Agency |
| **WA DWER** | Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA |

### QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

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% |

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

### QC Data General Comments

1. Where a result is reported as 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 are not data from your samples.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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** | | | | | | | |
| Chloride | mg/L | < 1 | | | 1 | Pass | |
| Nitrite (as N) | mg/L | < 0.02 | | | 0.02 | Pass | |
| Sulphate (as SO4) | mg/L | < 5 | | | 5 | Pass | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | mg/L | < 10 | | | 10 | Pass | |
| Total Kjeldahl Nitrogen (as N) | mg/L | < 0.2 | | | 0.2 | Pass | |
| **Method Blank** | | | | | | | |
| **Heavy Metals** | | | | | | | |
| Chromium | mg/L | < 0.001 | | | 0.001 | Pass | |
| Iron | mg/L | < 0.05 | | | 0.05 | Pass | |
| Manganese | mg/L | < 0.005 | | | 0.005 | Pass | |
| **Method Blank** | | | | | | | |
| **Heavy Metals** | | | | | | | |
| Chromium (filtered) | mg/L | < 0.001 | | | 0.001 | Pass | |
| Iron (filtered) | mg/L | < 0.05 | | | 0.05 | Pass | |
| Manganese (filtered) | mg/L | < 0.005 | | | 0.005 | Pass | |
| **Method Blank** | | | | | | | |
| Nitrite (as N) | mg/L | < 0.02 | | | 0.02 | Pass | |
| **Method Blank** | | | | | | | |
| **Heavy Metals** | | | | | | | |
| Chromium (filtered) | mg/L | < 0.001 | | | 0.001 | Pass | |
| Iron (filtered) | mg/L | < 0.05 | | | 0.05 | Pass | |
| Manganese (filtered) | mg/L | < 0.005 | | | 0.005 | Pass | |
| **Method Blank** | | | | | | | |
| Chemical Oxygen Demand (COD) | mg/L | < 25 | | | 25 | Pass | |
| Nitrate & Nitrite (as N) | mg/L | < 0.05 | | | 0.05 | Pass | |
| **Method Blank** | | | | | | | |
| Conductivity (at 25 °C) | uS/cm | < 10 | | | 10 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| Chloride | % | 106 | | | 70-130 | Pass | |
| Nitrite (as N) | % | 97 | | | 70-130 | Pass | |
| Sulphate (as SO4) | % | 116 | | | 70-130 | Pass | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | % | 97 | | | 70-130 | Pass | |
| Total Kjeldahl Nitrogen (as N) | % | 100 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| Chloride | % | 103 | | | 70-130 | Pass | |
| Nitrate & Nitrite (as N) | % | 119 | | | 70-130 | Pass | |
| Sulphate (as SO4) | % | 102 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| Chemical Oxygen Demand (COD) | % | 105 | | | 70-130 | Pass | |
| Nitrite (as N) | % | 95 | | | 70-130 | Pass | |
| Sulphate (as SO4) | % | 108 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Alkalinity (speciated)** | | | | | | | |
| Carbonate Alkalinity (as CaCO3) | % | 108 | | | 70-130 | Pass | |
| Total Alkalinity (as CaCO3) | % | 109 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| Chemical Oxygen Demand (COD) | % | 93 | | | 70-130 | Pass | |
| Nitrate & Nitrite (as N) | % | 106 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| Nitrate & Nitrite (as N) | % | 117 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| Conductivity (at 25 °C) | % | 100 | | | 70-130 | Pass | |

| Test | Lab Sample ID | QA Source | Units | Result 1 | | | Acceptance Limits | Pass Limits | Qualifying Code |
|---|---|---|---|---|---|---|---|---|---|
| **Spike - % Recovery** | | | | | | | | | |
| | | | | Result 1 | | | | | |
| Chloride | M25-Fe0074805 | NCP | % | 96 | | | 70-130 | Pass | |
| Nitrate & Nitrite (as N) | M25-Fe0069188 | NCP | % | 116 | | | 70-130 | Pass | |
| Nitrite (as N) | M25-Fe0069188 | NCP | % | 95 | | | 70-130 | Pass | |
| Sulphate (as SO4) | M25-Fe0067377 | NCP | % | 114 | | | 70-130 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| **Heavy Metals** | | | | Result 1 | | | | | |
| Chromium | M25-Fe0065471 | CP | % | 98 | | | 75-125 | Pass | |
| Iron | M25-Fe0065471 | CP | % | 94 | | | 75-125 | Pass | |
| Manganese | M25-Fe0065374 | NCP | % | 89 | | | 75-125 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| **Alkali Metals** | | | | Result 1 | | | | | |
| Calcium | M25-Fe0068673 | NCP | % | 76 | | | 75-125 | Pass | |
| Magnesium | M25-Fe0067900 | NCP | % | 84 | | | 75-125 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| **Heavy Metals** | | | | Result 1 | | | | | |
| Chromium (filtered) | M25-Fe0065473 | CP | % | 96 | | | 75-125 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| | | | | Result 1 | | | | | |
| Total Kjeldahl Nitrogen (as N) | M25-Fe0065474 | CP | % | 101 | | | 70-130 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| | | | | Result 1 | | | | | |
| Chemical Oxygen Demand (COD) | M25-Fe0065476 | CP | % | 100 | | | 70-130 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | Result 1 | | | | | |
| Isobutyric acid | M25-Fe0065477 | CP | % | 104 | | | 70-130 | Pass | |
| Isovaleric acid | M25-Fe0065477 | CP | % | 119 | | | 70-130 | Pass | |
| Valeric acid | M25-Fe0065477 | CP | % | 118 | | | 70-130 | Pass | |
| 4-Methylvaleric acid | M25-Fe0065477 | CP | % | 128 | | | 70-130 | Pass | |
| Hexanoic acid | M25-Fe0065477 | CP | % | 118 | | | 70-130 | Pass | |
| Heptanoic acid | M25-Fe0065477 | CP | % | 116 | | | 70-130 | Pass | |
| Total VFA as Acetic Acid Equivalents | M25-Fe0065477 | CP | % | 113 | | | 70-130 | Pass | |
| **Test** | **Lab Sample ID** | **QA Source** | **Units** | **Result 1** | | | **Acceptance Limits** | **Pass Limits** | **Qualifying Code** |
| **Duplicate** | | | | | | | | | |
| | | | | Result 1 | Result 2 | RPD | | | |
| Chloride | M25-Fe0074801 | NCP | mg/L | 2.7 | 2.7 | 1.0 | 30% | Pass | |
| Conductivity (at 25 °C) | M25-Fe0065471 | CP | uS/cm | 430 | 380 | 11 | 30% | Pass | |
| pH (at 25 °C) | M25-Fe0065471 | CP | pH Units | 6.8 | 6.9 | pass | 30% | Pass | |
| Total Kjeldahl Nitrogen (as N) | M25-Fe0064710 | NCP | mg/L | 4.4 | 4.3 | 1.0 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Heavy Metals** | | | | Result 1 | Result 2 | RPD | | | |
| Chromium | M25-Fe0065471 | CP | mg/L | < 0.001 | < 0.001 | <1 | 30% | Pass | |
| Iron | M25-Fe0065471 | CP | mg/L | < 0.05 | < 0.05 | <1 | 30% | Pass | |
| Manganese | M25-Fe0065471 | CP | mg/L | 2.5 | 2.5 | 1.0 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Alkali Metals** | | | | Result 1 | Result 2 | RPD | | | |
| Calcium | M25-Fe0063658 | NCP | mg/L | 180 | 180 | <1 | 30% | Pass | |
| Magnesium | M25-Fe0063658 | NCP | mg/L | 220 | 220 | 1.0 | 30% | Pass | |
| Potassium | M25-Fe0063658 | NCP | mg/L | 6.0 | 5.9 | 2.0 | 30% | Pass | |
| Sodium | M25-Fe0063658 | NCP | mg/L | 1000 | 1000 | 1.0 | 30% | Pass | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Duplicate** | | | | | | | | | |
| | | | | Result 1 | Result 2 | RPD | | | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | M25-Fe0062374 | NCP | mg/L | 6200 | 5200 | 19 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Alkalinity (speciated)** | | | | Result 1 | Result 2 | RPD | | | |
| Bicarbonate Alkalinity (as CaCO3) | M25-Fe0066105 | NCP | mg/L | 260 | 270 | 4.5 | 30% | Pass | |
| Carbonate Alkalinity (as CaCO3) | M25-Fe0066105 | NCP | mg/L | < 10 | < 10 | <1 | 30% | Pass | |
| Hydroxide Alkalinity (as CaCO3) | M25-Fe0066105 | NCP | mg/L | < 20 | < 20 | <1 | 30% | Pass | |
| Total Alkalinity (as CaCO3) | M25-Fe0066105 | NCP | mg/L | 270 | 270 | 4.5 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Heavy Metals** | | | | Result 1 | Result 2 | RPD | | | |
| Chromium (filtered) | M25-Fe0065473 | CP | mg/L | < 0.001 | < 0.001 | <1 | 30% | Pass | |
| Iron (filtered) | M25-Fe0065473 | CP | mg/L | 40 | 40 | <1 | 30% | Pass | |
| Manganese (filtered) | M25-Fe0065473 | CP | mg/L | 1.3 | 1.3 | <1 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| | | | | Result 1 | Result 2 | RPD | | | |
| Chemical Oxygen Demand (COD) | M25-Fe0065475 | CP | mg/L | < 25 | < 25 | <1 | 30% | Pass | |
| Nitrate & Nitrite (as N) | M25-Fe0065475 | CP | mg/L | 2.4 | 2.3 | 1.0 | 30% | Pass | |
| Nitrate (as N) | M25-Fe0065475 | CP | mg/L | 2.4 | 2.3 | 1.0 | 30% | Pass | |
| Nitrite (as N) | M25-Fe0065475 | CP | mg/L | < 0.02 | < 0.02 | <1 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | Result 1 | Result 2 | RPD | | | |
| Acetic Acid | M25-Fe0065476 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Propionic acid | M25-Fe0065476 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Isobutyric acid | M25-Fe0065476 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Butyric acid | M25-Fe0065476 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Isovaleric acid | M25-Fe0065476 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Valeric acid | M25-Fe0065476 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| 4-Methylvaleric acid | M25-Fe0065476 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Hexanoic acid | M25-Fe0065476 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Heptanoic acid | M25-Fe0065476 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| | | | | Result 1 | Result 2 | RPD | | | |
| Sulphate (as SO4) | M25-Fe0065476 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| | | | | Result 1 | Result 2 | RPD | | | |
| Total Organic Carbon | M25-Fe0065477 | CP | mg/L | 9.8 | 10 | 6.0 | 30% | Pass | |

## Comments

### Sample Integrity

| | |
|---|---|
| Custody Seals Intact (if used) | N/A |
| Attempt to Chill was evident | Yes |
| 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 |

### Authorised by:

| | |
|---|---|
| Savini Suduweli | Analytical Services Manager |
| Caitlin Breeze | Senior Analyst-Inorganic |
| Carroll Lee | Senior Analyst-Organic |
| Emily Rosenberg | Senior Analyst-Metal |
| Luke Holt | Senior Analyst-Inorganic |
| Mary Makarios | Senior Analyst-Inorganic |
| Mary Makarios | Senior Analyst-Metal |

**Glenn Jackson**
**Managing Director**

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.

ALS Group

SPLIT

# CHAIN OF CUSTODY

2-4 Westall Rd,
Springvale VIC 3171

| | | | |
|---|---|---|---|
| **Client:** | **Ventia** | **Job Ref:** | **Creswick Landfill CoC 1 of 1** |
| Contact Ventia: | Tarin Cummings 0428091782 | Please forward to ALS for analysis | |
| Contact ALS: | Graeme Jablonskas 03 8549 9609 | | |
| **Email:** | Tarin.cummings@ventia.com<br>Ping.Yao@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Robert.callander@ventia.com | | |
| **Lab Quote #:** EM23THISER0010 | | | |
| **Purchase Order Number:** 4700979690 | | | |

(3) ALS L.O

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | Matrix | PH | EC | DO | TEMP | ORP | SWL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Creswick SPLIT @ BH6 | Groundwater | 4 | 31.7.24 | | | 4.95 | 546 | 1.10 | 14.3 | 150.0 | 12.32 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
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| | | | | | | | | | | | |
| | | | | | | | | | | | |

Environmental Division
Melbourne
Work Order Reference
EM2413023

Telephone : +61-3-8549 9600

**Special Instructions:** Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com
Samples by Pandula R

| Relinquished By: | Company: | Date: | Time: | Received By: | Company: | Date: | Time: |
|---|---|---|---|---|---|---|---|
| Ryan 31/08/24 Sain | Ventia | 31.7.24 | 1440 | Lyn | Eurofins | 1/8/24 | 10:27 Ice 1.2° |
| **Relinquished By:** | **Company:** | **Date:** | **Time:** | **Received By:** | **Company:** | **Date:** | **Time:** |
| | | | | | | | |

This form is for recording of sample data after prior consultation with an analyst regarding sampling procedures and does not over-ride pricing agreements, OHS requirements and our terms and conditions.

As an Occupational Health and Safety consideration, it is a requirement of Ecowise Environmental (Victoria), that all samples received be undamaged and prior advice given in writing of any potential health risks.

***LAB USE ONLY***

Sample conditions:
Samples received undamaged [Yes/No]
Samples adequately preserved [Yes/No]
Samples within recommended holding times: [Yes/No]
Samples transported at appropriate temperature [Yes/No]

# SAMPLE RECEIPT NOTIFICATION (SRN)

**Work Order** : **EM2413023**

| | | | |
|---|---|---|---|
| Client | : **VENTIA UTILITY SERVICES PTY LTD** | Laboratory | : Environmental Division Melbourne |
| Contact | : TARIN CUMMINGS | Contact | : Graeme Jablonskas |
| Address | : 27 ESSINGTON STREET GROVEDALE VICTORIA, AUSTRALIA 3216 | Address | : 4 Westall Rd Springvale VIC Australia 3171 |
| E-mail | : Tarin.Cummings@ventia.com | E-mail | : graeme.jablonskas@alsglobal.com |
| Telephone | : ---- | Telephone | : +6138549 9609 |
| Facsimile | : ---- | Facsimile | : +61-3-8549 9626 |
| Project | : Landfill Monitoring | Page | : 1 of 3 |
| Order number | : 4700979690 | Quote number | : EM2023THISER0010 (EM23THISER0010 - SECONDARY SAMPLES ONLY) |
| C-O-C number | : ---- | QC Level | : NEPM 2013 B3 & ALS QC Standard |
| Site | : LANDFILL | | |
| Sampler | : PR | | |

## Dates

| | | | |
|---|---|---|---|
| Date Samples Received | : 02-Aug-2024 10:27 | Issue Date | : 02-Aug-2024 |
| Client Requested Due Date | : 09-Aug-2024 | Scheduled Reporting Date | : **09-Aug-2024** |

## Delivery Details

| | | | |
|---|---|---|---|
| Mode of Delivery | : Carrier | Security Seal | : Not Available |
| No. of coolers/boxes | : 2 | Temperature | : 7.7°C - Ice Bricks present |
| Receipt Detail | : | No. of samples received / analysed | : 1 / 1 |

## General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Melbourne, NATA accreditation no. 825, site no. 13778.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

| Method Sample ID | Sample Container Received | Preferred Sample Container for Analysis |
|---|---|---|
| **Dissolved Metals by ICP-MS - Suite A : EG020A-F** | | |
| **Creswick SPLIT@BH6** | - Clear Plastic Bottle - Natural | - Clear Plastic Bottle - Nitric Acid; Filtered |

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

| Laboratory sample ID | Sampling date / time | Sample ID | WATER - EA005P pH (Auto Titrator) | WATER - EA010P Electrical Conductivity (Auto Titrator) | WATER - EK058G Nitrate as N by Discrete Analyser | WATER - EK061G Total Kjeldahl Nitrogen as N (TKN) By Discrete | WATER - EP005 Total Organic Carbon (TOC) | WATER - EP045 Volatile Acids as CH3COOH | WATER - SAMP-02 Field Observations |
|---|---|---|---|---|---|---|---|---|---|
| EM2413023-001 | 31-Jul-2024 00:00 | Creswick SPLIT@BH6 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Matrix: **WATER**

| Laboratory sample ID | Sampling date / time | Sample ID | WATER - EA015H Total Dissolved Solids - Standard Level | WATER - EG020F Dissolved Metals by ICP/MS | WATER - EK055G Ammonia as N By Discrete Analyser | WATER - EP026SP Chemical Oxygen Demand (COD) | WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity |
|---|---|---|---|---|---|---|---|
| EM2413023-001 | 31-Jul-2024 00:00 | Creswick SPLIT@BH6 | ✓ | ✓ | ✓ | ✓ | ✓ |

## Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER** Evaluation: × = Holding time breach ; ✓ = Within holding time.

| Method / Client Sample ID(s) | Container | Due for extraction | Due for analysis | Samples Received Date | Samples Received Evaluation | Instructions Received Date | Instructions Received Evaluation |
|---|---|---|---|---|---|---|---|
| **EA005-P: pH by Auto Titrator** | | | | | | | |
| Creswick SPLIT@BH | Clear Plastic Bottle - Natural | ---- | 31-Jul-2024 | 02-Aug-2024 | ✘ | ---- | ---- |

## Requested Deliverables

**LUCY EDWARDS**

| | | |
|---|---|---|
| - *AU Certificate of Analysis - NATA (COA) | Email | Lucy.Edwards@ventia.com |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) | Email | Lucy.Edwards@ventia.com |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) | Email | Lucy.Edwards@ventia.com |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | Lucy.Edwards@ventia.com |
| - Chain of Custody (CoC) (COC) | Email | Lucy.Edwards@ventia.com |
| - EDI Format - ESDAT (ESDAT) | Email | Lucy.Edwards@ventia.com |

**Pandula R**

| | | |
|---|---|---|
| - *AU Certificate of Analysis - NATA (COA) | Email | pandula.r@ventia.com |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) | Email | pandula.r@ventia.com |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) | Email | pandula.r@ventia.com |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | pandula.r@ventia.com |
| - Chain of Custody (CoC) (COC) | Email | pandula.r@ventia.com |
| - EDI Format - ESDAT (ESDAT) | Email | pandula.r@ventia.com |

**Ping Yao**

| | | |
|---|---|---|
| - *AU Certificate of Analysis - NATA (COA) | Email | ping.yao@ventia.com |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) | Email | ping.yao@ventia.com |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) | Email | ping.yao@ventia.com |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | ping.yao@ventia.com |
| - Chain of Custody (CoC) (COC) | Email | ping.yao@ventia.com |
| - EDI Format - ESDAT (ESDAT) | Email | ping.yao@ventia.com |

**ROBERT CALLANDER**

| | | |
|---|---|---|
| - *AU Certificate of Analysis - NATA (COA) | Email | robert.callander@ventia.com |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) | Email | robert.callander@ventia.com |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) | Email | robert.callander@ventia.com |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | robert.callander@ventia.com |
| - Chain of Custody (CoC) (COC) | Email | robert.callander@ventia.com |
| - EDI Format - ESDAT (ESDAT) | Email | robert.callander@ventia.com |

**TARIN CUMMINGS**

| | | |
|---|---|---|
| - *AU Certificate of Analysis - NATA (COA) | Email | Tarin.Cummings@ventia.com |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) | Email | Tarin.Cummings@ventia.com |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) | Email | Tarin.Cummings@ventia.com |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | Tarin.Cummings@ventia.com |
| - A4 - AU Tax Invoice (INV) | Email | Tarin.Cummings@ventia.com |
| - Chain of Custody (CoC) (COC) | Email | Tarin.Cummings@ventia.com |
| - EDI Format - ESDAT (ESDAT) | Email | Tarin.Cummings@ventia.com |
| - Purchase Order Request Letter (PO_Request) | Email | Tarin.Cummings@ventia.com |

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **Work Order** | : **EM2413023** | Page | : 1 of 4 |
| Client | : **VENTIA UTILITY SERVICES PTY LTD** | Laboratory | : Environmental Division Melbourne |
| Contact | : TARIN CUMMINGS | Contact | : Graeme Jablonskas |
| Address | : 27 ESSINGTON STREET<br>GROVEDALE VICTORIA, AUSTRALIA 3216 | Address | : 4 Westall Rd Springvale VIC Australia 3171 |
| Telephone | : ---- | Telephone | : +6138549 9609 |
| Project | : Landfill Monitoring | Date Samples Received | : 02-Aug-2024 10:27 |
| Order number | : 4700979690 | Date Analysis Commenced | : 02-Aug-2024 |
| C-O-C number | : ---- | Issue Date | : 08-Aug-2024 20:56 |
| Sampler | : PR | | |
| Site | : LANDFILL | | |
| Quote number | : EM23THISER0010 - SECONDARY SAMPLES ONLY | | |
| No. of samples received | : 1 | | |
| No. of samples analysed | : 1 | | |

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

**Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.**

## *Signatories*

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

| *Signatories* | *Position* | *Accreditation Category* |
|---|---|---|
| Dilani Fernando | Laboratory Coordinator | Melbourne External Subcontracting, Springvale, VIC |
| Dilani Fernando | Laboratory Coordinator | Melbourne Inorganics, Springvale, VIC |

## General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sampling conducted by Samplescience. Samplescience are not NATA accredited for conducting sampling and field tests.
- EP005: EM2412941#1 Poor matrix spike recovery for total organic carbon due to sample matrix. Confirmed by re-extraction and re-analysis.
- EP005: EM2412966#8 Poor duplicate precision for total mercury due to sample matrix. Confirmed by re-extraction and re-analysis.
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Melbourne, NATA accreditation no. 825, site no. 13778.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | Creswick SPLIT@BH6 | ---- | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 31-Jul-2024 00:00 | ---- | ---- | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EM2413023-001 | -------- | -------- | -------- | -------- |
| | | | | | Result | ---- | ---- | ---- | ---- |
| **EA005P: pH by PC Titrator** | | | | | | | | | |
| pH Value | ---- | 0.01 | pH Unit | | **5.80** | ---- | ---- | ---- | ---- |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | | |
| Electrical Conductivity @ 25°C | ---- | 1 | µS/cm | | **565** | ---- | ---- | ---- | ---- |
| **EA015: Total Dissolved Solids dried at 180 ± 5 °C** | | | | | | | | | |
| Total Dissolved Solids @180°C | ---- | 10 | mg/L | | **388** | ---- | ---- | ---- | ---- |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | | |
| Hydroxide Alkalinity as CaCO3 | DMO-210-001 | 1 | mg/L | | <1 | ---- | ---- | ---- | ---- |
| Carbonate Alkalinity as CaCO3 | 3812-32-6 | 1 | mg/L | | <1 | ---- | ---- | ---- | ---- |
| Bicarbonate Alkalinity as CaCO3 | 71-52-3 | 1 | mg/L | | **19** | ---- | ---- | ---- | ---- |
| Total Alkalinity as CaCO3 | ---- | 1 | mg/L | | **19** | ---- | ---- | ---- | ---- |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | | |
| Sulfate as SO4 - Turbidimetric | 14808-79-8 | 1 | mg/L | | **20** | ---- | ---- | ---- | ---- |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | | |
| Chloride | 16887-00-6 | 1 | mg/L | | **152** | ---- | ---- | ---- | ---- |
| **ED093F: Dissolved Major Cations** | | | | | | | | | |
| Calcium | 7440-70-2 | 1 | mg/L | | **3** | ---- | ---- | ---- | ---- |
| Magnesium | 7439-95-4 | 1 | mg/L | | **14** | ---- | ---- | ---- | ---- |
| Sodium | 7440-23-5 | 1 | mg/L | | **79** | ---- | ---- | ---- | ---- |
| Potassium | 7440-09-7 | 1 | mg/L | | **1** | ---- | ---- | ---- | ---- |
| **EG020F: Dissolved Metals by ICP-MS** | | | | | | | | | |
| Chromium | 7440-47-3 | 0.001 | mg/L | | <0.001 | ---- | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 0.005 | mg/L | | **0.047** | ---- | ---- | ---- | ---- |
| Iron | 7439-89-6 | 0.05 | mg/L | | <0.05 | ---- | ---- | ---- | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | <0.01 | ---- | ---- | ---- | ---- |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | ---- | ---- | ---- | ---- |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | Creswick SPLIT@BH6 | ---- | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 31-Jul-2024 00:00 | ---- | ---- | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EM2413023-001 | -------- | -------- | -------- | -------- |
| | | | | | Result | ---- | ---- | ---- | ---- |
| **EK058G: Nitrate as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | **2.66** | ---- | ---- | ---- | ---- |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | **2.66** | ---- | ---- | ---- | ---- |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | **0.4** | ---- | ---- | ---- | ---- |
| **EN055: Ionic Balance** | | | | | | | | | |
| ø Total Anions | ---- | 0.01 | meq/L | | **5.08** | ---- | ---- | ---- | ---- |
| ø Total Cations | ---- | 0.01 | meq/L | | **4.76** | ---- | ---- | ---- | ---- |
| ø Ionic Balance | ---- | 0.01 | % | | **3.25** | ---- | ---- | ---- | ---- |
| **EP005: Total Organic Carbon (TOC)** | | | | | | | | | |
| Total Organic Carbon | ---- | 1 | mg/L | | **3** | ---- | ---- | ---- | ---- |
| **EP026SP: Chemical Oxygen Demand (Spectrophotometric)** | | | | | | | | | |
| Chemical Oxygen Demand | ---- | 10 | mg/L | | <10 | ---- | ---- | ---- | ---- |
| **EP045: Volatile Acids as CH3COOH** | | | | | | | | | |
| Volatile Acids as Acetic Acid | ---- | 5 | mg/L | | **24** | ---- | ---- | ---- | ---- |
| **SAMP02: Observations (peformed by external sampler)** | | | | | | | | | |
| Electrical Conductivity (Non Compensated) | ---- | - | µS/cm | | **546** | ---- | ---- | ---- | ---- |
| Field pH | ---- | - | pH Unit | | **4.95** | ---- | ---- | ---- | ---- |
| Dissolved Oxygen | ---- | - | % saturation | | **1.10** | ---- | ---- | ---- | ---- |
| Redox Potential | ---- | - | mV | | **150.0** | ---- | ---- | ---- | ---- |
| Temperature | ---- | - | °C | | **14.3** | ---- | ---- | ---- | ---- |
| **SAMP02: Observations (performed by external sampler)** | | | | | | | | | |
| Standing Water Level | ---- | 0.01 | m | | **12.32** | ---- | ---- | ---- | ---- |

# CHAIN OF CUSTODY

eurofins | mgt

6 Monterey Road,
Dandenong South,
Vic 3175

| Client: | Ventia | Job Ref: | Creswick Landfill 1 of 3 |
|---|---|---|---|
| Contact Ventia: | Tarin Cummings 0428091782 | **TESTS REQUIRED AS PER QUOTE # 230926VENVP** | |
| Contact Eurofins: | Savini Suduweli 03 385 645 051 | | |
| **Email Results to:** | Tarin.cummings@ventia.com<br>Ping.Yao@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Robert.callander@ventia.com | | |
| | **Purchase Order Number: 4701075276** | | |

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | PH | EC | DO | TEMP | ORP | SWL |
|---|---|---|---|---|---|---|---|---|---|---|
| BH3 | Groundwater Bore (BH3) | 5 | 26.2.25 | 10:23 | 6.20 | 2781 | 0.17 | 19.2 | -31.5 | 1.22 |
| BH2 | Groundwater Bore | 5 | 26.2.25 | 10:55 | 5.27 | 1382 | 1.66 | 22.2 | 44.7 | 3.28 |
| ~~BH1~~ | ~~Groundwater Bore~~ | ~~5~~ | ~~26.2.25~~ | | 6. | | | | | |
| ~~BH4~~ | ~~Groundwater Bore~~ | | | | | | | | | |
| ~~BH6~~ | ~~Groundwater Bore~~ | | | | | | | | | |
| ~~BH7~~ | ~~Groundwater Bore~~ | | | | | | | | | |
| BH8 | Groundwater Bore | 2 5 | 26.2.25 | 9:20am | 6.53 | 1046 | 4.27 | 19.0 | -23.2 | 3.5 |
| ~~BH9~~ | ~~Groundwater Bore~~ | | | | | | | | | |
| | | | | | | | | | | |

Amar 27/2/25 11:25pm

| Special Instructions: | Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com |
|---|---|

| Relinquished By: | Company: | Date: | Time: | Received By: | Company: | Date: | Time: |
|---|---|---|---|---|---|---|---|
| | Ventia | | | | | | |

DATE: 27/02/25
TIME: 9:20AM
COURIER:
TEMPERATURE: 3.7
ATTEMPT TO CHILL: ON NO

eurofins | mgt

# CHAIN OF CUSTODY

6 Monterey Road,
Dandenong South,
Vic 3175

| | | | |
|---|---|---|---|
| **Client:** | **Ventia** | **Job Ref:** | **Creswick Landfill 2 of 3** |
| Contact Ventia: | Tarin Cummings 0428091782 | **TESTS REQUIRED AS PER QUOTE # 230926VENVP** | |
| Contact Eurofins: | Savini Suduweli 03 385 645 051 | | |
| **Email Results to:** | Tarin.cummings@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Anastasia.wiltshire@ventia.com<br>Selina.yang@ventia.com | | |
| | **Purchase Order Number:** | | |

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | | PH | EC | DO | TEMP | ORP | SWL | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~BH10~~ | ~~Groundwater bore~~ | | | | | | | | | | | | | | |
| ~~BH13~~ | ~~Groundwater bore~~ | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| ~~LB1~~ | ~~Leachate bore~~ | | | | | | | | | | | | | | |
| ~~LB2~~ | ~~Leachate bore~~ | | | | | | | | | | | | | | |
| ~~LB3~~ | ~~Leachate bore~~ | | | | | NO SAMPLE - SWL ONLY | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| ~~BLIND~~ | ~~Blind duplicate~~ | | | | | | | | | | | | | | |
| ~~RINSATE~~ | ~~Rinsate blank~~ | | | | | | | | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Special Instructions:** | Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com | | | | | | |
| **Relinquished By:** | **Company:** | **Date:** | **Time:** | **Received By:** | **Company:** | **Date:** | **Time:** |
| | Ventia | | | | | | |

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# CHAIN OF CUSTODY

6 Monterey Road,
Dandenong South,
Vic 3175

| | |
|---|---|
| **Client:** | **Ventia** |
| Contact Ventia: | Tarin Cummings 0428091782 |
| Contact Eurofins: | Savini Suduweli 03 385 645 051 |
| **Email Results to:** | Tarin.cummings@ventia.com<br>Ping.Yao@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Robert.callander@ventia.com |

**Job Ref:** Creswick Landfill 3 of 3

**TESTS REQUIRED AS PER QUOTE # 230926VENVP**

**Purchase Order Number: 4700979689**

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | PH | EC | DO | TEMP | ORP | SWL | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~U/S BH3~~ | ~~Creek Sample~~ | 5 | 26.2.25 | 8:30 | 6.73 | 1670 | 3.28 | 17.7 | -7.6 | 1 | | | | |
| ~~@ BH3~~ | ~~Creek Sample~~ | | | | | | | | | | | | | |
| ~~D/S BH3~~ | ~~Creek Sample~~ | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| ~~Leachate~~ | ~~Surface water sample~~ | | | | | | | | | | | | | |
| ~~Wetland~~ | ~~Surface water sample~~ | | | | | | | | | | | | | |
| ~~Dredge~~ | ~~Surface water sample~~ | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

**Special Instructions:** Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com

| Relinquished By: | Company: | Date: | Time: | Received By: | Company: | Date: | Time: |
|---|---|---|---|---|---|---|---|
| | Ventia | 26.5.25 | 14:00 | | | | |

This form is for recording of sample data after prior consultation with an analyst regarding sampling procedures and does not over-ride pricing agreements, OHS requirements and our terms and conditions.

As an Occupational Health and Safety consideration, it is a requirement of Ecowise Environmental (Victoria), that all samples received be undamaged and prior advice given in writing of any potential health risks.

***LAB USE ONLY***

Sample conditions: Samples received undamaged [Yes/No]
Samples transported at appropriate temperatures [Yes/No]
Samples received within recommended holding times: [Yes/No]

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www.eurofins.com.au EnviroSales@eurofinsanz.com

**Eurofins Environment Testing Australia Pty Ltd**

ABN: 50 005 085 521

| Melbourne | Geelong | Sydney | Canberra | Brisbane | Newcastle |
|---|---|---|---|---|---|
| 6 Monterey Road | 19/8 Lewalan Street | 179 Magowar Road | Unit 1,2 Dacre Street | 1/21 Smallwood Place | 1/2 Frost Drive |
| Dandenong South | Grovedale | Girraween | Mitchell | Murarrie | Mayfield West |
| VIC 3175 | VIC 3216 | NSW 2145 | ACT 2911 | QLD 4172 | NSW 2304 |
| +61 3 8564 5000 | +61 3 8564 5000 | +61 2 9900 8400 | +61 2 6113 8091 | +61 7 3902 4600 | +61 2 4968 8448 |
| NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 |
| Site# 1254 | Site# 25403 | Site# 18217 | Site# 25466 | Site# 20794 & 2780 | Site# 25079 |

**Eurofins ARL Pty Ltd**

ABN: 91 05 0159 898

| Perth |
|---|
| 46-48 Banksia Road |
| Welshpool |
| WA 6106 |
| +61 8 6253 4444 |
| NATA# 2377 |
| Site# 2370 & 2554 |

**Eurofins Environment Testing NZ Ltd**

NZBN: 9429046024954

| Auckland | Auckland (Focus) | Christchurch | Tauranga |
|---|---|---|---|
| 35 O'Rorke Road | Unit C1/4 Pacific Rise | 43 Detroit Drive | 1277 Cameron Road |
| Penrose | Mount Wellington | Rolleston | Gate Pa |
| Auckland 1061 | Auckland 1061 | Christchurch 7675 | Tauranga 3112 |
| +64 9 526 4551 | +64 9 525 0568 | +64 3 343 5201 | +64 9 525 0568 |
| IANZ# 1327 | IANZ# 1308 | IANZ# 1290 | IANZ# 1402 |

# Sample Receipt Advice

**Company name:** Ventia Utility Services P/L (Grovedale)
**Contact name:** Tarin Cummings
**Project name:** Creswick Landfill
**Project ID:** Not provided
**Turnaround time:** 5 Day
**Date/Time received** Feb 27, 2025 9:40 AM
**Eurofins reference** 1192599

## Sample Information

| | |
|---|---|
| ✓ | A detailed list of analytes logged into our LIMS, is included in the attached summary table. |
| ✓ | All samples have been received as described on the above COC. |
| ✓ | COC has been completed correctly. |
| ✓ | Attempt to chill was evident. |
| ✓ | Appropriately preserved sample containers have been used. |
| ✓ | All samples were received in good condition. |
| ✓ | Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times. |
| ✓ | Appropriate sample containers have been used. |
| ✓ | Sample containers for volatile analysis received with zero headspace. |
| X | Split sample sent to requested external lab. |
| X | Some samples have been subcontracted. |
| N/A | Custody Seals intact (if used). |

## Notes

## Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

**Savini Suduweli on phone : +61 3 8564 5051 or by email: Savini.Suduwelikondage@eurofinsanz.com**

Results will be delivered electronically via email to Tarin Cummings - Tarin.Cummings@ventia.com.

*Note: A copy of these results will also be delivered to the general Ventia Utility Services P/L (Grovedale) email address.*

**Ventia Utility Services P/L (Grovedale)**
**27 Essington St**
**Grovedale**
**VIC 3216**



**Attention:** **Tarin Cummings**

**Report** **1192599-W**
Project name Creswick Landfill
Received Date Feb 27, 2025

| **Client Sample ID** | | | **BH3** | **BH2** | **BH8** | **U/S BH3 CREEK SAMPLE** |
|---|---|---|---|---|---|---|
| **Sample Matrix** | | | **Water** | **Water** | **Water** | **Water** |
| **Eurofins Sample No.** | | | **M25-Fe0069714** | **M25-Fe0069715** | **M25-Fe0069716** | **M25-Fe0069717** |
| **Date Sampled** | | | **Feb 26, 2025** | **Feb 26, 2025** | **Feb 26, 2025** | **Feb 26, 2025** |
| Test/Reference | LOR | Unit | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | |
| Acetic Acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Propionic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Isobutyric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Butyric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Isovaleric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Valeric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| 4-Methylvaleric acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Hexanoic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Heptanoic acid | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| Total VFA as Acetic Acid Equivalents | 5 | mg/L | < 5 | < 5 | < 5 | < 5 |
| | | | | | | |
| Ammonia (as N) | 0.01 | mg/L | 0.21 | 0.60 | 5.2 | 0.06 |
| Chemical Oxygen Demand (COD) | 25 | mg/L | 64 | 30 | 160 | 25 |
| Chloride | 1 | mg/L | 710 | 340 | 97 | 470 |
| Conductivity (at 25 °C) | 10 | uS/cm | 2600 | 1300 | 970 | 1500 |
| Nitrate (as N) | 0.02 | mg/L | < 0.02 | 23 | 12 | 0.02 |
| Organic Nitrogen (as N)* | 0.2 | mg/L | 0.89 | 2.1 | 6.8 | 0.44 |
| pH (at 25 °C) | 0.1 | pH Units | 6.4 | 5.6 | 6.8 | 6.8 |
| Sulphate (as SO4) | 5 | mg/L | 49 | 16 | 14 | 5.7 |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | 10 | mg/L | 1500 | 670 | 1200 | 1100 |
| Total Kjeldahl Nitrogen (as N) | 0.2 | mg/L | 1.1 | 2.7 | 12 | 0.5 |
| Total Organic Carbon | 5 | mg/L | < 5 | < 5 | 23 | < 5 |
| **Alkalinity (speciated)** | | | | | | |
| Bicarbonate Alkalinity (as CaCO3) | 20 | mg/L | 180 | 30 | 370 | 99 |
| Carbonate Alkalinity (as CaCO3) | 10 | mg/L | < 10 | < 10 | < 10 | < 10 |
| Hydroxide Alkalinity (as CaCO3) | 20 | mg/L | < 20 | < 20 | < 20 | < 20 |
| Total Alkalinity (as CaCO3) | 20 | mg/L | 180 | 30 | 370 | 99 |
| **Heavy Metals** | | | | | | |
| Chromium (filtered) | 0.001 | mg/L | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Iron (filtered) | 0.05 | mg/L | 59 | < 0.05 | 23 | 0.06 |
| Manganese (filtered) | 0.005 | mg/L | 3.6 | 9.8 | 0.61 | 0.78 |

| Client Sample ID | | | BH3 | BH2 | BH8 | U/S BH3 CREEK SAMPLE |
|---|---|---|---|---|---|---|
| Sample Matrix | | | Water | Water | Water | Water |
| Eurofins Sample No. | | | M25-Fe0069714 | M25-Fe0069715 | M25-Fe0069716 | M25-Fe0069717 |
| Date Sampled | | | Feb 26, 2025 | Feb 26, 2025 | Feb 26, 2025 | Feb 26, 2025 |
| Test/Reference | LOR | Unit | | | | |
| **Alkali Metals** | | | | | | |
| Calcium | 0.5 | mg/L | 44 | 2.1 | 59 | 36 |
| Magnesium | 0.5 | mg/L | 78 | 39 | 34 | 58 |
| Potassium | 0.5 | mg/L | 20 | 1.6 | 19 | 3.9 |
| Sodium | 0.5 | mg/L | 340 | 190 | 110 | 190 |

## Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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 |
|---|---|---|---|
| Volatile Fatty Acids (VFA) by GC-MS | Melbourne | Feb 27, 2025 | 28 Day |
| - Method: LTM-ORG-2360 Determination of Volatile Fatty Acids in Water by GC-MS | | | |
| Chemical Oxygen Demand (COD) | Melbourne | Feb 27, 2025 | 28 Days |
| - Method: LTM-INO-4220 Determination of COD in Water | | | |
| Conductivity (at 25 °C) | Melbourne | Feb 27, 2025 | 28 Days |
| - Method: LTM-INO-4030 Conductivity | | | |
| Nitrate (as N) | Melbourne | Feb 27, 2025 | 28 Days |
| - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA | | | |
| pH (at 25 °C) | Melbourne | Feb 27, 2025 | 6 Hours |
| - Method: LTM-GEN-7090 pH in water by ISE | | | |
| Total Organic Carbon | Melbourne | Feb 27, 2025 | 28 Days |
| - Method: LTM-INO-4060 Total Organic Carbon in water and soil | | | |
| Heavy Metals (filtered) | Melbourne | Feb 27, 2025 | 180 Days |
| - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS | | | |
| Eurofins Suite B11C: Na/K/Ca/Mg | Melbourne | Feb 27, 2025 | 180 Days |
| - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS | | | |
| Ammonia (as N) | Melbourne | Mar 05, 2025 | 28 Days |
| - Method: APHA 4500-NH3 Ammonia Nitrogen by FIA | | | |
| Organic Nitrogen (as N)* | Melbourne | Mar 05, 2025 | 7 Days |
| - Method: APHA 4500 Organic Nitrogen (N) | | | |
| Total Kjeldahl Nitrogen (as N) | Melbourne | Feb 27, 2025 | 28 Days |
| - Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA | | | |
| Eurofins Suite B11E: Cl/SO4/Alkalinity | | | |
| Chloride | Melbourne | Feb 27, 2025 | 28 Days |
| - Method: LTM-INO-4090 Chloride by Discrete Analyser | | | |
| Sulphate (as SO4) | Melbourne | Feb 27, 2025 | 28 Days |
| - Method: LTM-INO-4110 Sulfate by Discrete Analyser | | | |
| Alkalinity (speciated) | Melbourne | Feb 27, 2025 | 14 Days |
| - Method: LTM-INO-4250 Alkalinity by Electrometric Titration | | | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | Melbourne | Feb 27, 2025 | 28 Days |
| - Method: LTM-INO-4170 Total Dissolved Solids in Water | | | |

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web: www.eurofins.com.au
email: EnviroSales@eurofinsanz.com

**Eurofins Environment Testing Australia Pty Ltd**
ABN: 50 005 085 521

| Melbourne | Geelong | Sydney | Canberra | Brisbane | Newcastle |
|---|---|---|---|---|---|
| 6 Monterey Road | 19/8 Lewalan Street | 179 Magowar Road | Unit 1,2 Dacre Street | 1/21 Smallwood Place | 1/2 Frost Drive |
| Dandenong South | Grovedale | Girraween | Mitchell | Murarrie | Mayfield West |
| VIC 3175 | VIC 3216 | NSW 2145 | ACT 2911 | QLD 4172 | NSW 2304 |
| +61 3 8564 5000 | +61 3 8564 5000 | +61 2 9900 8400 | +61 2 6113 8091 | +61 7 3902 4600 | +61 2 4968 8448 |
| NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 |
| Site# 1254 | Site# 25403 | Site# 18217 | Site# 25466 | Site# 20794 & 2780 | Site# 25079 |

**Eurofins ARL Pty Ltd**
ABN: 91 05 0159 898

| Perth |
|---|
| 46-48 Banksia Road |
| Welshpool |
| WA 6106 |
| +61 8 6253 4444 |
| NATA# 2377 |
| Site# 2370 & 2554 |

**Eurofins Environment Testing NZ Ltd**
NZBN: 9429046024954

| Auckland | Auckland (Focus) | Christchurch | Tauranga |
|---|---|---|---|
| 35 O'Rorke Road | Unit C1/4 Pacific Rise | 43 Detroit Drive | 1277 Cameron Road |
| Penrose | Mount Wellington | Rolleston | Gate Pa |
| Auckland 1061 | Auckland 1061 | Christchurch 7675 | Tauranga 3112 |
| +64 9 526 4551 | +64 9 525 0568 | +64 3 343 5201 | +64 9 525 0568 |
| IANZ# 1327 | IANZ# 1308 | IANZ# 1290 | IANZ# 1402 |


**Company Name:** Ventia Utility Services P/L (Grovedale)
**Address:** 27 Essington St
Grovedale
VIC 3216

**Project Name:** Creswick Landfill

**Order No.:** 4701075276
**Report #:** 1192599
**Phone:** 03 5247 3710
**Fax:**

**Received:** Feb 27, 2025 9:40 AM
**Due:** Mar 6, 2025
**Priority:** 5 Day
**Contact Name:** Tarin Cummings

**Eurofins Analytical Services Manager : Savini Suduweli**

| Sample Detail | | | | | | Chemical Oxygen Demand (COD) | Chromium (filtered) | Conductivity (at 25 °C) | Iron (filtered) | Manganese (filtered) | pH (at 25 °C) | Total Organic Carbon | Total Nitrogen Set (as N) | Eurofins Suite B11E: Cl/SO4/Alkalinity | Eurofins Suite B11C: Na/K/Ca/Mg | Total Dissolved Solids Dried at 180 °C ± 2 °C | Volatile Fatty Acids (VFA) by GC-MS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Melbourne Laboratory - NATA # 1261 Site # 1254** | | | | | | X | X | X | X | X | X | X | X | X | X | X | X |
| **External Laboratory** | | | | | | | | | | | | | | | | | |
| **No** | **Sample ID** | **Sample Date** | **Sampling Time** | **Matrix** | **LAB ID** | | | | | | | | | | | | |
| 1 | BH3 | Feb 26, 2025 | | Water | M25-Fe0069714 | X | X | X | X | X | X | X | X | X | X | X | X |
| 2 | BH2 | Feb 26, 2025 | | Water | M25-Fe0069715 | X | X | X | X | X | X | X | X | X | X | X | X |
| 3 | BH8 | Feb 26, 2025 | | Water | M25-Fe0069716 | X | X | X | X | X | X | X | X | X | X | X | X |
| 4 | U/S BH3 CREEK SAMPLE | Feb 26, 2025 | | Water | M25-Fe0069717 | X | X | X | X | X | X | X | X | X | X | X | X |
| **Test Counts** | | | | | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |

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## Internal Quality Control Review and Glossary

### General

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

### Holding Times

Please refer to the '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 before sample receipt deadlines as stated on the SRA.

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

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

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

### Units

| | | |
|---|---|---|
| **mg/kg:** milligrams per kilogram | **mg/L:** milligrams per litre | **ppm:** parts per million |
| **µg/L:** micrograms per litre | **ppb:** parts per billion | **%:** Percentage |
| **org/100 mL:** Organisms per 100 millilitres | **NTU:** Nephelometric Turbidity Units | **MPN/100 mL:** Most Probable Number of organisms per 100 millilitres |
| **CFU:** Colony Forming Unit | **Colour:** Pt-Co Units (CU) | |

### Terms

| | |
|---|---|
| **APHA** | American Public Health Association |
| **CEC** | Cation Exchange Capacity |
| **COC** | Chain of Custody |
| **CP** | Client Parent - QC was performed on samples pertaining to this report |
| **CRM** | Certified Reference Material (ISO17034) - reported as percent recovery. |
| **Dry** | Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis. |
| **Duplicate** | A second piece of analysis from the same sample and reported in the same units as the result to show comparison. |
| **LOR** | Limit of Reporting. |
| **LCS** | Laboratory Control Sample - 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. |
| **NCP** | Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within. |
| **RPD** | Relative Percent Difference between two Duplicate pieces of analysis. |
| **SPIKE** | Addition of the analyte to the sample and reported as percentage recovery. |
| **SRA** | Sample Receipt Advice |
| **Surr - Surrogate** | The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria. |
| **TBTO** | Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits. |
| **TCLP** | Toxicity Characteristic Leaching Procedure |
| **TEQ** | Toxic Equivalency Quotient or Total Equivalence |
| **QSM** | US Department of Defense Quality Systems Manual Version 6.0 |
| **US EPA** | United States Environmental Protection Agency |
| **WA DWER** | Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA |

### QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

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% |

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

### QC Data General Comments

1. Where a result is reported as 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 are not data from your samples.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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** | | | | | | | |
| Ammonia (as N) | mg/L | < 0.01 | | | 0.01 | Pass | |
| Chemical Oxygen Demand (COD) | mg/L | < 25 | | | 25 | Pass | |
| Chloride | mg/L | < 1 | | | 1 | Pass | |
| Conductivity (at 25 °C) | uS/cm | < 10 | | | 10 | Pass | |
| Nitrate (as N) | mg/L | < 0.02 | | | 0.02 | Pass | |
| Sulphate (as SO4) | mg/L | < 5 | | | 5 | Pass | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | mg/L | < 10 | | | 10 | Pass | |
| Total Kjeldahl Nitrogen (as N) | mg/L | < 0.2 | | | 0.2 | Pass | |
| Total Organic Carbon | mg/L | < 5 | | | 5 | Pass | |
| **Method Blank** | | | | | | | |
| **Alkali Metals** | | | | | | | |
| Calcium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Magnesium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Potassium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Sodium | mg/L | < 0.5 | | | 0.5 | Pass | |
| **Method Blank** | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | | |
| Acetic Acid | mg/L | < 5 | | | 5 | Pass | |
| Propionic acid | mg/L | < 5 | | | 5 | Pass | |
| Butyric acid | mg/L | < 5 | | | 5 | Pass | |
| Isovaleric acid | mg/L | < 5 | | | 5 | Pass | |
| Valeric acid | mg/L | < 5 | | | 5 | Pass | |
| Hexanoic acid | mg/L | < 5 | | | 5 | Pass | |
| Heptanoic acid | mg/L | < 5 | | | 5 | Pass | |
| **Method Blank** | | | | | | | |
| **Heavy Metals** | | | | | | | |
| Chromium (filtered) | mg/L | < 0.001 | | | 0.001 | Pass | |
| Iron (filtered) | mg/L | < 0.05 | | | 0.05 | Pass | |
| Manganese (filtered) | mg/L | < 0.005 | | | 0.005 | Pass | |
| **Method Blank** | | | | | | | |
| **Heavy Metals** | | | | | | | |
| Chromium (filtered) | mg/L | < 0.001 | | | 0.001 | Pass | |
| Iron (filtered) | mg/L | < 0.05 | | | 0.05 | Pass | |
| Manganese (filtered) | mg/L | < 0.005 | | | 0.005 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | | |
| Total VFA as Acetic Acid Equivalents | % | 113 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| Chemical Oxygen Demand (COD) | % | 105 | | | 70-130 | Pass | |
| Chloride | % | 101 | | | 70-130 | Pass | |
| Conductivity (at 25 °C) | % | 100 | | | 70-130 | Pass | |
| Sulphate (as SO4) | % | 115 | | | 70-130 | Pass | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | % | 98 | | | 70-130 | Pass | |
| Total Kjeldahl Nitrogen (as N) | % | 96 | | | 70-130 | Pass | |
| Total Organic Carbon | % | 111 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Alkalinity (speciated)** | | | | | | | |
| Carbonate Alkalinity (as CaCO3) | % | 108 | | | 70-130 | Pass | |
| Total Alkalinity (as CaCO3) | % | 111 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Heavy Metals** | | | | | | | |

| Test | Units | Result 1 | | | Acceptance Limits | Pass Limits | Qualifying Code |
|---|---|---|---|---|---|---|---|
| Chromium (filtered) | % | 90 | | | 80-120 | Pass | |
| Iron (filtered) | % | 94 | | | 80-120 | Pass | |
| Manganese (filtered) | % | 98 | | | 80-120 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Alkali Metals** | | | | | | | |
| Calcium | % | 89 | | | 80-120 | Pass | |
| Magnesium | % | 90 | | | 80-120 | Pass | |
| Potassium | % | 88 | | | 80-120 | Pass | |
| Sodium | % | 90 | | | 80-120 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | | |
| Acetic Acid | % | 101 | | | 70-130 | Pass | |
| Propionic acid | % | 94 | | | 70-130 | Pass | |
| Isobutyric acid | % | 87 | | | 70-130 | Pass | |
| Butyric acid | % | 103 | | | 70-130 | Pass | |
| Isovaleric acid | % | 120 | | | 70-130 | Pass | |
| Valeric acid | % | 129 | | | 70-130 | Pass | |
| 4-Methylvaleric acid | % | 126 | | | 70-130 | Pass | |
| Hexanoic acid | % | 129 | | | 70-130 | Pass | |
| Heptanoic acid | % | 127 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| Ammonia (as N) | % | 102 | | | 70-130 | Pass | |

| Test | Lab Sample ID | QA Source | Units | Result 1 | | | Acceptance Limits | Pass Limits | Qualifying Code |
|---|---|---|---|---|---|---|---|---|---|
| **Spike - % Recovery** | | | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | Result 1 | | | | | |
| Isobutyric acid | M25-Fe0065477 | NCP | % | 104 | | | 70-130 | Pass | |
| Isovaleric acid | M25-Fe0065477 | NCP | % | 119 | | | 70-130 | Pass | |
| Valeric acid | M25-Fe0065477 | NCP | % | 118 | | | 70-130 | Pass | |
| 4-Methylvaleric acid | M25-Fe0065477 | NCP | % | 128 | | | 70-130 | Pass | |
| Hexanoic acid | M25-Fe0065477 | NCP | % | 118 | | | 70-130 | Pass | |
| Heptanoic acid | M25-Fe0065477 | NCP | % | 116 | | | 70-130 | Pass | |
| Total VFA as Acetic Acid Equivalents | M25-Fe0065477 | NCP | % | 113 | | | 70-130 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| | | | | Result 1 | | | | | |
| Ammonia (as N) | M25-Ma0009742 | NCP | % | 92 | | | 70-130 | Pass | |
| Chemical Oxygen Demand (COD) | M25-Fe0065476 | NCP | % | 100 | | | 70-130 | Pass | |
| Chloride | M25-Ma0005008 | NCP | % | 95 | | | 70-130 | Pass | |
| Sulphate (as SO4) | M25-Ma0002959 | NCP | % | 108 | | | 70-130 | Pass | |
| Total Kjeldahl Nitrogen (as N) | B25-Fe0066725 | NCP | % | 105 | | | 70-130 | Pass | |
| Total Organic Carbon | M25-Fe0068588 | NCP | % | 97 | | | 70-130 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| **Heavy Metals** | | | | Result 1 | | | | | |
| Iron (filtered) | M25-Fe0074488 | NCP | % | 81 | | | 75-125 | Pass | |
| Manganese (filtered) | M25-Fe0071355 | NCP | % | 87 | | | 75-125 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| **Alkali Metals** | | | | Result 1 | | | | | |
| Calcium | M25-Fe0067900 | NCP | % | 83 | | | 75-125 | Pass | |
| Magnesium | M25-Fe0067900 | NCP | % | 84 | | | 75-125 | Pass | |
| Potassium | M25-Fe0067900 | NCP | % | 81 | | | 75-125 | Pass | |
| Sodium | M25-Fe0067900 | NCP | % | 78 | | | 75-125 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| **Heavy Metals** | | | | Result 1 | | | | | |
| Chromium (filtered) | M25-Fe0069716 | CP | % | 97 | | | 75-125 | Pass | |

| Test | Lab Sample ID | QA Source | Units | Result 1 | | | Acceptance Limits | Pass Limits | Qualifying Code |
|---|---|---|---|---|---|---|---|---|---|
| **Duplicate** | | | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | Result 1 | Result 2 | RPD | | | |
| Acetic Acid | M25-Fe0065476 | NCP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Propionic acid | M25-Fe0065476 | NCP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Isobutyric acid | M25-Fe0065476 | NCP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Butyric acid | M25-Fe0065476 | NCP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Isovaleric acid | M25-Fe0065476 | NCP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Valeric acid | M25-Fe0065476 | NCP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| 4-Methylvaleric acid | M25-Fe0065476 | NCP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Hexanoic acid | M25-Fe0065476 | NCP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Heptanoic acid | M25-Fe0065476 | NCP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| | | | | Result 1 | Result 2 | RPD | | | |
| Ammonia (as N) | M25-Fe0069714 | CP | mg/L | 0.21 | 0.21 | 2.0 | 30% | Pass | |
| Chemical Oxygen Demand (COD) | M25-Fe0065215 | NCP | mg/L | 8000 | 8500 | 7.0 | 30% | Pass | |
| Chloride | M25-Fe0069714 | CP | mg/L | 710 | 700 | 2.0 | 30% | Pass | |
| Conductivity (at 25 °C) | M25-Fe0067896 | NCP | uS/cm | 6900 | 6500 | 5.8 | 30% | Pass | |
| pH (at 25 °C) | M25-Fe0067896 | NCP | pH Units | 8.1 | 8.1 | pass | 30% | Pass | |
| Sulphate (as SO4) | M25-Fe0069714 | CP | mg/L | 49 | 50 | 1.0 | 30% | Pass | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | M25-Fe0071341 | NCP | mg/L | 1500 | 1300 | 14 | 30% | Pass | |
| Total Kjeldahl Nitrogen (as N) | M25-Fe0067497 | NCP | mg/L | 320 | 320 | 2.0 | 30% | Pass | |
| Total Organic Carbon | M25-Fe0068597 | NCP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Alkalinity (speciated)** | | | | Result 1 | Result 2 | RPD | | | |
| Bicarbonate Alkalinity (as CaCO3) | M25-Fe0067896 | NCP | mg/L | 180 | 170 | 9.1 | 30% | Pass | |
| Carbonate Alkalinity (as CaCO3) | M25-Fe0067896 | NCP | mg/L | < 10 | < 10 | <1 | 30% | Pass | |
| Hydroxide Alkalinity (as CaCO3) | M25-Fe0067896 | NCP | mg/L | < 20 | < 20 | <1 | 30% | Pass | |
| Total Alkalinity (as CaCO3) | M25-Fe0067896 | NCP | mg/L | 180 | 170 | 9.1 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Alkali Metals** | | | | Result 1 | Result 2 | RPD | | | |
| Calcium | M25-Fe0067900 | NCP | mg/L | 19 | 19 | 2.0 | 30% | Pass | |
| Magnesium | M25-Fe0067900 | NCP | mg/L | 8.9 | 9.3 | 5.0 | 30% | Pass | |
| Potassium | M25-Fe0067900 | NCP | mg/L | 4.2 | 4.3 | 3.0 | 30% | Pass | |
| Sodium | M25-Fe0067900 | NCP | mg/L | 49 | 50 | 3.0 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Heavy Metals** | | | | Result 1 | Result 2 | RPD | | | |
| Chromium (filtered) | M25-Fe0069716 | CP | mg/L | < 0.001 | < 0.001 | <1 | 30% | Pass | |
| Iron (filtered) | M25-Fe0069716 | CP | mg/L | 23 | 23 | 1.0 | 30% | Pass | |
| Manganese (filtered) | M25-Fe0069716 | CP | mg/L | 0.61 | 0.60 | 2.0 | 30% | Pass | |

## Comments

### Sample Integrity

| | |
|---|---|
| Custody Seals Intact (if used) | N/A |
| Attempt to Chill was evident | Yes |
| 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 |

## Authorised by:

| | |
|---|---|
| Catherine Wilson | Analytical Services Manager |
| Caitlin Breeze | Senior Analyst-Inorganic |
| Carroll Lee | Senior Analyst-Organic |
| Luke Holt | Senior Analyst-Inorganic |
| Mary Makarios | Senior Analyst-Metal |

**Glenn Jackson**
**Managing Director**

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.

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# CHAIN OF CUSTODY

6 Monterey Road,
Dandenong South,
Vic 3175

| Client: | Ventia | Job Ref: | Creswick Landfill 1 of 3 |
|---|---|---|---|
| Contact Ventia: | Tarin Cummings 0428091782 | **TESTS REQUIRED AS PER QUOTE # 230926VENVP** | |
| Contact Eurofins: | Savini Suduweli 03 385 645 051 | | |
| **Email Results to:** | Tarin.cummings@ventia.com<br>Ping.Yao@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Robert.callander@ventia.com | | |
| | **Purchase Order Number: 4701075276** | | |

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | PH | EC | DO | TEMP | ORP | SWL | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~BH1~~ | ~~Groundwater Bore~~ | | | | | | | | | | | | | |
| ~~BH2~~ | ~~Groundwater Bore~~ | | | | | | | | | | | | | |
| ~~BH3~~ | ~~Groundwater Bore~~ | | | | | | | | | | | | | |
| ~~BH4~~ | ~~Groundwater Bore~~ | | | | | | | | | | | | | |
| ~~BH6~~ | ~~Groundwater Bore~~ | | | | | | | | | | | | | |
| ~~BH7~~ | ~~Groundwater Bore~~ | | | | | | | | | | | | | |
| ~~BH8~~ | ~~Groundwater Bore~~ | | | | | | | | | | | | | |
| ~~BH9~~ | ~~Groundwater Bore~~ | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

Amo 28/2/25 119308

| Special Instructions: | Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com | | | | | | |
|---|---|---|---|---|---|---|---|
| **Relinquished By:** | **Company:** | **Date:** | **Time:** | **Received By:** | **Company:** | **Date:** | **Time:** |
| | Ventia | 27.2.25 | 1400 | | | | |

eurofins | mgt

# CHAIN OF CUSTODY

6 Monterey Road,
Dandenong South,
Vic 3175

| | |
|---|---|
| **Client:** | **Ventia** |
| Contact Ventia: | Tarin Cummings 0428091782 |
| Contact Eurofins: | Savini Suduweli 03 385 645 051 |
| **Email Results to:** | Tarin.cummings@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Anastasia.wiltshire@ventia.com<br>Selina.yang@ventia.com |
| | **Purchase Order Number:** |

| **Job Ref:** | **Creswick Landfill 2 of 3** |
|---|---|
| | **TESTS REQUIRED AS PER QUOTE # 230926VENVP** |

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | PH | EC | DO | TEMP | ORP | SWL | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BH10** | **Groundwater bore** | 5 | 27.2.25 | 12:10 | 5.88 | 804 | 0.22 | 19.0 | 1.1 | 2.71 | | | | |
| ~~BH13~~ | ~~Groundwater bore~~ | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| ~~LB1~~ | ~~Leachate bore~~ | | | | | | | | | | | | | |
| ~~LB2~~ | ~~Leachate bore~~ | | | | | | | | | | | | | |
| ~~LB3~~ | ~~Leachate bore~~ | | | | NO SAMPLE - SWL ONLY | | | | | | | | | |
| | | | | | | | | | | | | | | |
| ~~BLIND~~ | ~~Blind duplicate~~ | | | | | | | | | | | | | |
| ~~RINSATE~~ | ~~Rinsate blank~~ | | | | | | | | | | | | | |

| | |
|---|---|
| **Special Instructions:** | Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com |

| Relinquished By: | Company: | Date: | Time: | Received By: | Company: | Date: | Time: |
|---|---|---|---|---|---|---|---|
| | Ventia | 27.2.25 | 1400 | | | | |

DATE: 28.02.25
TIME: 10:20am
COURIER: OK
TEMPERATURE: 2.7
ATTEMPT TO CHILL: YES NO

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# CHAIN OF CUSTODY

6 Monterey Road,
Dandenong South,
Vic 3175

| | |
|---|---|
| **Client:** | **Ventia** |
| Contact Ventia: | Tarin Cummings 0428091782 |
| Contact Eurofins: | Savini Suduweli 03 385 645 051 |
| **Email Results to:** | Tarin.cummings@ventia.com<br>Ping.Yao@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Robert.callander@ventia.com |

**Job Ref:** Creswick Landfill 3 of 3

**TESTS REQUIRED AS PER QUOTE # 230926VENVP**

**Purchase Order Number: 4700979689**

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | PH | EC | DO | TEMP | ORP | SWL | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~U/S BH3~~ | ~~Creek Sample~~ | | | | | | | | | | | | | |
| ~~@ BH3~~ | ~~Creek Sample~~ | | | | | | | | | | | | | |
| **D/S BH3** | **Creek Sample** | 5 | 27.2.25 | 13:30 | 6.83 | 554 | 3.07 | 27.7 | 6.8 | — | | | | |
| | | | | | | | | | | | | | | |
| ~~Leachate~~ | ~~Surface water sample~~ | | | | | | | | | | | | | |
| ~~Wetland~~ | **Surface water sample** | | | | | | | | | | | | | |
| ~~Dredge~~ | ~~Surface water sample~~ | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

**Special Instructions:** Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com

| Relinquished By: | Company: | Date: | Time: | Received By: | Company: | Date: | Time: |
|---|---|---|---|---|---|---|---|
| | Ventia | 27.2.25 | 1400 | | | | |

This form is for recording of sample data after prior consultation with an analyst regarding sampling procedures and does not over-ride pricing agreements, OHS requirements and our terms and conditions.

As an Occupational Health and Safety consideration, it is a requirement of Ecowise Environmental (Victoria), that all samples received be undamaged and prior advice given in writing of any potential health risks.

***LAB USE ONLY***

Sample conditions: Samples received undamaged [Yes/No]
Samples transported at appropriate temperatures [Yes/No]
Samples received within recommended holding times: [Yes/No]

eurofins | Environment Testing

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**Eurofins Environment Testing Australia Pty Ltd**

ABN: 50 005 085 521

| Melbourne | Geelong | Sydney | Canberra | Brisbane | Newcastle |
|---|---|---|---|---|---|
| 6 Monterey Road | 19/8 Lewalan Street | 179 Magowar Road | Unit 1,2 Dacre Street | 1/21 Smallwood Place | 1/2 Frost Drive |
| Dandenong South | Grovedale | Girraween | Mitchell | Murarrie | Mayfield West |
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| +61 3 8564 5000 | +61 3 8564 5000 | +61 2 9900 8400 | +61 2 6113 8091 | +61 7 3902 4600 | +61 2 4968 8448 |
| NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 |
| Site# 1254 | Site# 25403 | Site# 18217 | Site# 25466 | Site# 20794 & 2780 | Site# 25079 |

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| Perth |
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| 46-48 Banksia Road |
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| +61 8 6253 4444 |
| NATA# 2377 |
| Site# 2370 & 2554 |

**Eurofins Environment Testing NZ Ltd**

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|---|---|---|---|
| 35 O'Rorke Road | Unit C1/4 Pacific Rise | 43 Detroit Drive | 1277 Cameron Road |
| Penrose | Mount Wellington | Rolleston | Gate Pa |
| Auckland 1061 | Auckland 1061 | Christchurch 7675 | Tauranga 3112 |
| +64 9 526 4551 | +64 9 525 0568 | +64 3 343 5201 | +64 9 525 0568 |
| IANZ# 1327 | IANZ# 1308 | IANZ# 1290 | IANZ# 1402 |

# Sample Receipt Advice

**Company name:** Ventia Utility Services P/L (Grovedale)
**Contact name:** Tarin Cummings
**Project name:** CRESWICK LANDFILL
**Project ID:** Not provided
**Turnaround time:** 5 Day
**Date/Time received** Feb 28, 2025 10:20 AM
**Eurofins reference** 1193085

## Sample Information

| | |
|---|---|
| ✓ | A detailed list of analytes logged into our LIMS, is included in the attached summary table. |
| ✓ | All samples have been received as described on the above COC. |
| ✓ | COC has been completed correctly. |
| ✓ | Attempt to chill was evident. |
| ✓ | Appropriately preserved sample containers have been used. |
| ✓ | All samples were received in good condition. |
| ✓ | Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times. |
| ✓ | Appropriate sample containers have been used. |
| ✓ | Sample containers for volatile analysis received with zero headspace. |
| X | Split sample sent to requested external lab. |
| X | Some samples have been subcontracted. |
| N/A | Custody Seals intact (if used). |

## Notes

## Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

**Savini Suduweli on phone : +61 3 8564 5051 or by email: Savini.Suduwelikondage@eurofinsanz.com**

Results will be delivered electronically via email to Tarin Cummings - Tarin.Cummings@ventia.com.

*Note: A copy of these results will also be delivered to the general Ventia Utility Services P/L (Grovedale) email address.*

**Ventia Utility Services P/L (Grovedale)**
**27 Essington St**
**Grovedale**
**VIC 3216**

**NATA Accredited**
**Accreditation Number 1261**
**Site Number 1254**

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

**Attention:** **Tarin Cummings**

**Report** **1193085-W**
Project name CRESWICK LANDFILL
Received Date Feb 28, 2025

| **Client Sample ID** | | | **BH10** | **D/S BH3** |
|---|---|---|---|---|
| **Sample Matrix** | | | **Water** | **Water** |
| **Eurofins Sample No.** | | | **M25-Fe0073317** | **M25-Fe0073318** |
| **Date Sampled** | | | **Feb 27, 2025** | **Feb 27, 2025** |
| Test/Reference | LOR | Unit | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | |
| Acetic Acid | 5 | mg/L | < 5 | < 5 |
| Propionic acid | 5 | mg/L | < 5 | < 5 |
| Isobutyric acid | 5 | mg/L | < 5 | < 5 |
| Butyric acid | 5 | mg/L | < 5 | < 5 |
| Isovaleric acid | 5 | mg/L | < 5 | < 5 |
| Valeric acid | 5 | mg/L | < 5 | < 5 |
| 4-Methylvaleric acid | 5 | mg/L | < 5 | < 5 |
| Hexanoic acid | 5 | mg/L | < 5 | < 5 |
| Heptanoic acid | 5 | mg/L | < 5 | < 5 |
| Total VFA as Acetic Acid Equivalents | 5 | mg/L | < 5 | < 5 |
| | | | | |
| Ammonia (as N) | 0.01 | mg/L | 1.8 | 0.05 |
| Chemical Oxygen Demand (COD) | 25 | mg/L | 57 | < 25 |
| Chloride | 1 | mg/L | 190 | 120 |
| Conductivity (at 25 °C) | 10 | uS/cm | 710 | 520 |
| Nitrate (as N) | 0.02 | mg/L | 0.12 | 0.05 |
| Organic Nitrogen (as N)* | 0.2 | mg/L | 1.9 | 0.45 |
| pH (at 25 °C) | 0.1 | pH Units | 6.4 | 6.9 |
| Sulphate (as SO4) | 5 | mg/L | 18 | < 5 |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | 10 | mg/L | 520 | 320 |
| Total Kjeldahl Nitrogen (as N) | 0.2 | mg/L | 3.7 | 0.5 |
| Total Organic Carbon | 5 | mg/L | < 25 | 5.1 |
| **Alkalinity (speciated)** | | | | |
| Bicarbonate Alkalinity (as CaCO3) | 20 | mg/L | 68 | 91 |
| Carbonate Alkalinity (as CaCO3) | 10 | mg/L | < 10 | < 10 |
| Hydroxide Alkalinity (as CaCO3) | 20 | mg/L | < 20 | < 20 |
| Total Alkalinity (as CaCO3) | 20 | mg/L | 68 | 91 |
| **Heavy Metals** | | | | |
| Chromium (filtered) | 0.001 | mg/L | 0.009 | < 0.001 |
| Iron (filtered) | 0.05 | mg/L | 12 | 0.08 |
| Manganese (filtered) | 0.005 | mg/L | 4.8 | 0.33 |
| **Alkali Metals** | | | | |
| Calcium | 0.5 | mg/L | 6.0 | 18 |
| Magnesium | 0.5 | mg/L | 21 | 19 |
| Potassium | 0.5 | mg/L | 3.9 | 3.2 |
| Sodium | 0.5 | mg/L | 100 | 61 |

## Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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 |
|---|---|---|---|
| Volatile Fatty Acids (VFA) by GC-MS | Melbourne | Feb 28, 2025 | 28 Day |
| - Method: LTM-ORG-2360 Determination of Volatile Fatty Acids in Water by GC-MS | | | |
| Chemical Oxygen Demand (COD) | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: LTM-INO-4220 Determination of COD in Water | | | |
| Conductivity (at 25 °C) | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: LTM-INO-4030 Conductivity | | | |
| Nitrate (as N) | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA | | | |
| pH (at 25 °C) | Melbourne | Feb 28, 2025 | 6 Hours |
| - Method: LTM-GEN-7090 pH in water by ISE | | | |
| Total Organic Carbon | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: LTM-INO-4060 Total Organic Carbon in water and soil | | | |
| Heavy Metals (filtered) | Melbourne | Feb 28, 2025 | 180 Days |
| - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS | | | |
| Eurofins Suite B11C: Na/K/Ca/Mg | Melbourne | Feb 28, 2025 | 180 Days |
| - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS | | | |
| Ammonia (as N) | Melbourne | Mar 07, 2025 | 28 Days |
| - Method: APHA 4500-NH3 Ammonia Nitrogen by FIA | | | |
| Organic Nitrogen (as N)* | Melbourne | Mar 06, 2025 | 7 Days |
| - Method: APHA 4500 Organic Nitrogen (N) | | | |
| Total Kjeldahl Nitrogen (as N) | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA | | | |
| Eurofins Suite B11E: Cl/SO4/Alkalinity | | | |
| Chloride | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: LTM-INO-4090 Chloride by Discrete Analyser | | | |
| Sulphate (as SO4) | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: LTM-INO-4110 Sulfate by Discrete Analyser | | | |
| Alkalinity (speciated) | Melbourne | Feb 28, 2025 | 14 Days |
| - Method: LTM-INO-4250 Alkalinity by Electrometric Titration | | | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: LTM-INO-4170 Total Dissolved Solids in Water | | | |

## Repeat Samples

| Description | Testing Site | Extracted | Holding Time |
|---|---|---|---|
| Volatile Fatty Acids (VFA) by GC-MS | Melbourne | Feb 28, 2025 | 28 Day |
| - Method: LTM-ORG-2360 Determination of Volatile Fatty Acids in Water by GC-MS | | | |
| Chemical Oxygen Demand (COD) | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: LTM-INO-4220 Determination of COD in Water | | | |
| Conductivity (at 25 °C) | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: LTM-INO-4030 Conductivity | | | |
| Nitrate (as N) | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA | | | |
| pH (at 25 °C) | Melbourne | Feb 28, 2025 | 6 Hours |
| - Method: LTM-GEN-7090 pH in water by ISE | | | |
| Total Organic Carbon | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: LTM-INO-4060 Total Organic Carbon in water and soil | | | |
| Heavy Metals (filtered) | Melbourne | Feb 28, 2025 | 180 Days |
| - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS | | | |
| Eurofins Suite B11C: Na/K/Ca/Mg | Melbourne | Feb 28, 2025 | 180 Days |
| - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS | | | |

| Description | Testing Site | Extracted | Holding Time |
|---|---|---|---|
| Ammonia (as N) | Melbourne | Mar 07, 2025 | 28 Days |
| - Method: APHA 4500-NH3 Ammonia Nitrogen by FIA | | | |
| Organic Nitrogen (as N)* | Melbourne | Mar 06, 2025 | 7 Days |
| - Method: APHA 4500 Organic Nitrogen (N) | | | |
| Total Kjeldahl Nitrogen (as N) | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA | | | |
| Eurofins Suite B11E: Cl/SO4/Alkalinity | | | |
| Chloride | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: LTM-INO-4090 Chloride by Discrete Analyser | | | |
| Sulphate (as SO4) | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: LTM-INO-4110 Sulfate by Discrete Analyser | | | |
| Alkalinity (speciated) | Melbourne | Feb 28, 2025 | 14 Days |
| - Method: LTM-INO-4250 Alkalinity by Electrometric Titration | | | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | Melbourne | Feb 28, 2025 | 28 Days |
| - Method: LTM-INO-4170 Total Dissolved Solids in Water | | | |

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**Eurofins Environment Testing Australia Pty Ltd**
ABN: 50 005 085 521

| Melbourne | Geelong | Sydney | Canberra | Brisbane | Newcastle |
|---|---|---|---|---|---|
| 6 Monterey Road | 19/8 Lewalan Street | 179 Magowar Road | Unit 1,2 Dacre Street | 1/21 Smallwood Place | 1/2 Frost Drive |
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| +61 3 8564 5000 | +61 3 8564 5000 | +61 2 9900 8400 | +61 2 6113 8091 | +61 7 3902 4600 | +61 2 4968 8448 |
| NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 | NATA# 1261 |
| Site# 1254 | Site# 25403 | Site# 18217 | Site# 25466 | Site# 20794 & 2780 | Site# 25079 |

**Eurofins ARL Pty Ltd**
ABN: 91 05 0159 898

| Perth |
|---|
| 46-48 Banksia Road |
| Welshpool |
| WA 6106 |
| +61 8 6253 4444 |
| NATA# 2377 |
| Site# 2370 & 2554 |

**Eurofins Environment Testing NZ Ltd**
NZBN: 9429046024954

| Auckland | Auckland (Focus) | Christchurch | Tauranga |
|---|---|---|---|
| 35 O'Rorke Road | Unit C1/4 Pacific Rise | 43 Detroit Drive | 1277 Cameron Road |
| Penrose | Mount Wellington | Rolleston | Gate Pa |
| Auckland 1061 | Auckland 1061 | Christchurch 7675 | Tauranga 3112 |
| +64 9 526 4551 | +64 9 525 0568 | +64 3 343 5201 | +64 9 525 0568 |
| IANZ# 1327 | IANZ# 1308 | IANZ# 1290 | IANZ# 1402 |


**Company Name:** Ventia Utility Services P/L (Grovedale)
**Address:** 27 Essington St
Grovedale
VIC 3216

**Project Name:** CRESWICK LANDFILL

**Order No.:**
**Report #:** 1193085
**Phone:** 03 5247 3710
**Fax:**

**Received:** Feb 28, 2025 10:20 AM
**Due:** Mar 7, 2025
**Priority:** 5 Day
**Contact Name:** Tarin Cummings

**Eurofins Analytical Services Manager : Savini Suduweli**

| Sample Detail | Chemical Oxygen Demand (COD) | Chromium (filtered) | Conductivity (at 25 °C) | Iron (filtered) | Manganese (filtered) | Nitrate (as N) | pH (at 25 °C) | Total Organic Carbon | Organic Nitrogen Set (as N) | Eurofins Suite B11E: Cl/SO4/Alkalinity | Eurofins Suite B11C: Na/K/Ca/Mg | Total Dissolved Solids Dried at 180 °C ± 2 °C | Volatile Fatty Acids (VFA) by GC-MS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Melbourne Laboratory - NATA # 1261 Site # 1254** | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **External Laboratory** | | | | | | | | | | | | | |

| No | Sample ID | Sample Date | Sampling Time | Matrix | LAB ID | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BH10 | Feb 27, 2025 | | Water | M25-Fe0073317 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 2 | D/S BH3 | Feb 27, 2025 | | Water | M25-Fe0073318 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Test Counts** | | | | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

## Internal Quality Control Review and Glossary

### General

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

### Holding Times

Please refer to the '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 before sample receipt deadlines as stated on the SRA.

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

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

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

### Units

| | | |
|---|---|---|
| **mg/kg:** milligrams per kilogram | **mg/L:** milligrams per litre | **ppm:** parts per million |
| **µg/L:** micrograms per litre | **ppb:** parts per billion | **%:** Percentage |
| **org/100 mL:** Organisms per 100 millilitres | **NTU:** Nephelometric Turbidity Units | **MPN/100 mL:** Most Probable Number of organisms per 100 millilitres |
| **CFU:** Colony Forming Unit | **Colour:** Pt-Co Units (CU) | |

### Terms

| | |
|---|---|
| **APHA** | American Public Health Association |
| **CEC** | Cation Exchange Capacity |
| **COC** | Chain of Custody |
| **CP** | Client Parent - QC was performed on samples pertaining to this report |
| **CRM** | Certified Reference Material (ISO17034) - reported as percent recovery. |
| **Dry** | Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis. |
| **Duplicate** | A second piece of analysis from the same sample and reported in the same units as the result to show comparison. |
| **LOR** | Limit of Reporting. |
| **LCS** | Laboratory Control Sample - 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. |
| **NCP** | Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within. |
| **RPD** | Relative Percent Difference between two Duplicate pieces of analysis. |
| **SPIKE** | Addition of the analyte to the sample and reported as percentage recovery. |
| **SRA** | Sample Receipt Advice |
| **Surr - Surrogate** | The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria. |
| **TBTO** | Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits. |
| **TCLP** | Toxicity Characteristic Leaching Procedure |
| **TEQ** | Toxic Equivalency Quotient or Total Equivalence |
| **QSM** | US Department of Defense Quality Systems Manual Version 6.0 |
| **US EPA** | United States Environmental Protection Agency |
| **WA DWER** | Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA |

### QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

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% |

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

### QC Data General Comments

1. Where a result is reported as 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 are not data from your samples.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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** | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | | |
| Acetic Acid | mg/L | < 5 | | | 5 | Pass | |
| Propionic acid | mg/L | < 5 | | | 5 | Pass | |
| Isobutyric acid | mg/L | < 5 | | | 5 | Pass | |
| Butyric acid | mg/L | < 5 | | | 5 | Pass | |
| Isovaleric acid | mg/L | < 5 | | | 5 | Pass | |
| Valeric acid | mg/L | < 5 | | | 5 | Pass | |
| 4-Methylvaleric acid | mg/L | < 5 | | | 5 | Pass | |
| Hexanoic acid | mg/L | < 5 | | | 5 | Pass | |
| Heptanoic acid | mg/L | < 5 | | | 5 | Pass | |
| Total VFA as Acetic Acid Equivalents | mg/L | < 5 | | | 5 | Pass | |
| **Method Blank** | | | | | | | |
| Chemical Oxygen Demand (COD) | mg/L | < 25 | | | 25 | Pass | |
| Chloride | mg/L | < 1 | | | 1 | Pass | |
| Conductivity (at 25 °C) | uS/cm | < 10 | | | 10 | Pass | |
| Nitrate (as N) | mg/L | < 0.02 | | | 0.02 | Pass | |
| Sulphate (as SO4) | mg/L | < 5 | | | 5 | Pass | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | mg/L | < 10 | | | 10 | Pass | |
| Total Organic Carbon | mg/L | < 5 | | | 5 | Pass | |
| **Method Blank** | | | | | | | |
| **Heavy Metals** | | | | | | | |
| Chromium (filtered) | mg/L | < 0.001 | | | 0.001 | Pass | |
| Iron (filtered) | mg/L | < 0.05 | | | 0.05 | Pass | |
| Manganese (filtered) | mg/L | < 0.005 | | | 0.005 | Pass | |
| **Method Blank** | | | | | | | |
| **Alkali Metals** | | | | | | | |
| Calcium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Magnesium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Potassium | mg/L | < 0.5 | | | 0.5 | Pass | |
| Sodium | mg/L | < 0.5 | | | 0.5 | Pass | |
| **Method Blank** | | | | | | | |
| Ammonia (as N) | mg/L | < 0.01 | | | 0.01 | Pass | |
| Total Kjeldahl Nitrogen (as N) | mg/L | < 0.2 | | | 0.2 | Pass | |
| **Method Blank** | | | | | | | |
| **Heavy Metals** | | | | | | | |
| Chromium (filtered) | mg/L | < 0.001 | | | 0.001 | Pass | |
| Iron (filtered) | mg/L | < 0.05 | | | 0.05 | Pass | |
| Manganese (filtered) | mg/L | < 0.005 | | | 0.005 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | | | | |
| Acetic Acid | % | 108 | | | 70-130 | Pass | |
| Propionic acid | % | 108 | | | 70-130 | Pass | |
| Isobutyric acid | % | 99 | | | 70-130 | Pass | |
| Butyric acid | % | 104 | | | 70-130 | Pass | |
| Isovaleric acid | % | 108 | | | 70-130 | Pass | |
| Valeric acid | % | 116 | | | 70-130 | Pass | |
| 4-Methylvaleric acid | % | 111 | | | 70-130 | Pass | |
| Hexanoic acid | % | 113 | | | 70-130 | Pass | |
| Heptanoic acid | % | 110 | | | 70-130 | Pass | |
| Total VFA as Acetic Acid Equivalents | % | 113 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |

| Test | Units | Result 1 | | | Acceptance Limits | Pass Limits | Qualifying Code |
|---|---|---|---|---|---|---|---|
| Ammonia (as N) | % | 97 | | | 70-130 | Pass | |
| Chemical Oxygen Demand (COD) | % | 96 | | | 70-130 | Pass | |
| Chloride | % | 99 | | | 70-130 | Pass | |
| Conductivity (at 25 °C) | % | 98 | | | 70-130 | Pass | |
| Sulphate (as SO4) | % | 103 | | | 70-130 | Pass | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | % | 97 | | | 70-130 | Pass | |
| Total Organic Carbon | % | 108 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Alkalinity (speciated)** | | | | | | | |
| Carbonate Alkalinity (as CaCO3) | % | 107 | | | 70-130 | Pass | |
| Total Alkalinity (as CaCO3) | % | 111 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Alkali Metals** | | | | | | | |
| Calcium | % | 97 | | | 80-120 | Pass | |
| Magnesium | % | 97 | | | 80-120 | Pass | |
| Potassium | % | 97 | | | 80-120 | Pass | |
| Sodium | % | 98 | | | 80-120 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| Ammonia (as N) | % | 97 | | | 70-130 | Pass | |
| Total Kjeldahl Nitrogen (as N) | % | 92 | | | 70-130 | Pass | |
| **LCS - % Recovery** | | | | | | | |
| **Heavy Metals** | | | | | | | |
| Chromium (filtered) | % | 96 | | | 80-120 | Pass | |
| Iron (filtered) | % | 94 | | | 80-120 | Pass | |
| Manganese (filtered) | % | 92 | | | 80-120 | Pass | |

| Test | Lab Sample ID | QA Source | Units | Result 1 | | | Acceptance Limits | Pass Limits | Qualifying Code |
|---|---|---|---|---|---|---|---|---|---|
| **Spike - % Recovery** | | | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | Result 1 | | | | | |
| Isobutyric acid | M25-Fe0063209 | NCP | % | 106 | | | 70-130 | Pass | |
| Isovaleric acid | M25-Fe0063209 | NCP | % | 104 | | | 70-130 | Pass | |
| Valeric acid | M25-Fe0063209 | NCP | % | 103 | | | 70-130 | Pass | |
| 4-Methylvaleric acid | M25-Fe0063209 | NCP | % | 111 | | | 70-130 | Pass | |
| Hexanoic acid | M25-Fe0063209 | NCP | % | 103 | | | 70-130 | Pass | |
| Heptanoic acid | M25-Fe0063209 | NCP | % | 102 | | | 70-130 | Pass | |
| Total VFA as Acetic Acid Equivalents | M25-Fe0063209 | NCP | % | 107 | | | 70-130 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| | | | | Result 1 | | | | | |
| Ammonia (as N) | M25-Ma0007730 | NCP | % | 91 | | | 70-130 | Pass | |
| Chemical Oxygen Demand (COD) | M25-Fe0068590 | NCP | % | 119 | | | 70-130 | Pass | |
| Chloride | M25-Fe0067888 | NCP | % | 92 | | | 70-130 | Pass | |
| Sulphate (as SO4) | M25-Fe0067888 | NCP | % | 121 | | | 70-130 | Pass | |
| Total Kjeldahl Nitrogen (as N) | M25-Ma0016937 | NCP | % | 115 | | | 70-130 | Pass | |
| Total Organic Carbon | M25-Fe0068588 | NCP | % | 97 | | | 70-130 | Pass | |
| **Spike - % Recovery** | | | | | | | | | |
| **Heavy Metals** | | | | Result 1 | | | | | |
| Chromium (filtered) | M25-Fe0056034 | NCP | % | 87 | | | 75-125 | Pass | |
| Iron (filtered) | M25-Fe0056034 | NCP | % | 89 | | | 75-125 | Pass | |
| Manganese (filtered) | M25-Fe0056034 | NCP | % | 71 | | | 75-125 | Fail | Q08 |
| **Spike - % Recovery** | | | | | | | | | |
| **Alkali Metals** | | | | Result 1 | | | | | |
| Calcium | M25-Ma0000642 | NCP | % | 98 | | | 75-125 | Pass | |
| Magnesium | M25-Ma0000642 | NCP | % | 98 | | | 75-125 | Pass | |
| Potassium | M25-Ma0000642 | NCP | % | 96 | | | 75-125 | Pass | |
| Sodium | M25-Ma0000642 | NCP | % | 98 | | | 75-125 | Pass | |

| Test | Lab Sample ID | QA Source | Units | Result 1 | | | Acceptance Limits | Pass Limits | Qualifying Code |
|---|---|---|---|---|---|---|---|---|---|
| **Duplicate** | | | | | | | | | |
| **Volatile Fatty Acids (VFA) by GC-MS** | | | | Result 1 | Result 2 | RPD | | | |
| Acetic Acid | M25-Fe0073317 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Propionic acid | M25-Fe0073317 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Isobutyric acid | M25-Fe0073317 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Butyric acid | M25-Fe0073317 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Isovaleric acid | M25-Fe0073317 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Valeric acid | M25-Fe0073317 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| 4-Methylvaleric acid | M25-Fe0073317 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Hexanoic acid | M25-Fe0073317 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| Heptanoic acid | M25-Fe0073317 | CP | mg/L | < 5 | < 5 | <1 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| | | | | Result 1 | Result 2 | RPD | | | |
| Chemical Oxygen Demand (COD) | M25-Fe0068599 | NCP | mg/L | 300 | 340 | 11 | 30% | Pass | |
| Chloride | M25-Ma0000585 | NCP | mg/L | 77 | 83 | 8.0 | 30% | Pass | |
| Conductivity (at 25 °C) | M25-Fe0067883 | NCP | uS/cm | 130 | 130 | <1 | 30% | Pass | |
| pH (at 25 °C) | M25-Fe0067883 | NCP | pH Units | 6.4 | 6.4 | pass | 30% | Pass | |
| Sulphate (as SO4) | M25-Ma0000585 | NCP | mg/L | 170 | 150 | 11 | 30% | Pass | |
| Total Dissolved Solids Dried at 180 °C ± 2 °C | M25-Ma0000584 | NCP | mg/L | 290 | 300 | 1.4 | 30% | Pass | |
| Total Organic Carbon | M25-Fe0073317 | CP | mg/L | < 25 | < 25 | <1 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Alkalinity (speciated)** | | | | Result 1 | Result 2 | RPD | | | |
| Bicarbonate Alkalinity (as CaCO3) | M25-Fe0067883 | NCP | mg/L | 21 | < 20 | 10 | 30% | Pass | |
| Carbonate Alkalinity (as CaCO3) | M25-Fe0067883 | NCP | mg/L | < 20 | < 20 | <1 | 30% | Pass | |
| Hydroxide Alkalinity (as CaCO3) | M25-Fe0067883 | NCP | mg/L | < 20 | < 20 | <1 | 30% | Pass | |
| Total Alkalinity (as CaCO3) | M25-Fe0067883 | NCP | mg/L | 21 | < 20 | 10 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Heavy Metals** | | | | Result 1 | Result 2 | RPD | | | |
| Chromium (filtered) | M25-Fe0056034 | NCP | mg/L | < 0.001 | < 0.001 | <1 | 30% | Pass | |
| Iron (filtered) | M25-Fe0056034 | NCP | mg/L | 0.06 | 0.05 | 10 | 30% | Pass | |
| Manganese (filtered) | M25-Fe0056034 | NCP | mg/L | 0.23 | 0.23 | 2.0 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| **Alkali Metals** | | | | Result 1 | Result 2 | RPD | | | |
| Calcium | M25-Ma0000642 | NCP | mg/L | 57 | 54 | 2.0 | 30% | Pass | |
| Magnesium | M25-Ma0000642 | NCP | mg/L | 320 | 290 | 1.0 | 30% | Pass | |
| Potassium | M25-Ma0000642 | NCP | mg/L | 52 | 50 | 1.0 | 30% | Pass | |
| Sodium | M25-Ma0000642 | NCP | mg/L | 1400 | 1300 | 1.0 | 30% | Pass | |
| **Duplicate** | | | | | | | | | |
| | | | | Result 1 | Result 2 | RPD | | | |
| Ammonia (as N) | M25-Fe0073318 | CP | mg/L | 0.05 | 0.04 | 7.0 | 30% | Pass | |

## Comments

## Sample Integrity

| | |
|---|---|
| Custody Seals Intact (if used) | N/A |
| Attempt to Chill was evident | Yes |
| 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 |
|---|---|
| Q08 | The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference. |

## Authorised by:

| | |
|---|---|
| Catherine Wilson | Analytical Services Manager |
| Caitlin Breeze | Senior Analyst-Inorganic |
| Carroll Lee | Senior Analyst-Organic |
| Luke Holt | Senior Analyst-Inorganic |
| Mary Makarios | Senior Analyst-Inorganic |
| Mary Makarios | Senior Analyst-Metal |

**Glenn Jackson**
**Managing Director**

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.

# CHAIN OF CUSTODY

2-4 Westall Rd,
Springvale VIC 3171

| | | | |
|---|---|---|---|
| **Client:** | **Ventia** | **Job Ref:** | **Creswick Landfill CoC 1 of 1** |
| Contact Ventia: | Tarin Cummings 0428091782 | | Please forward to ALS for analysis |
| Contact ALS: | Graeme Jablonskas 03 8549 9609 | | |
| **Email:** | Tarin.cummings@ventia.com<br>Lucy.edwards@vventia.com<br>Pandula.R@ventia.com<br>Anastasia.wiltshire@ventia.com<br>Selina.yang@ventia.com | | |
| | **Lab Quote #: EM23THISER0010** | | |
| | **Purchase Order Number: 4701075273** | | |

| Sample ID | Sample Description | No of Containers | Date Sampled | Time sampled | Matrix | PH | EC | DO | TEMP | ORP | SWL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Creswick SPLIT | Groundwater | 5 | 25.2.25 | 11:52 | BHG | 4.84 | 583 | 0.12 | 17.2 | 2.5 | 12.62 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
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| | | | | | | | | | | | |

Environmental Division
Melbourne
Work Order Reference
EM2503185

Telephone : +61-3-8549 9600

**Special Instructions:** Please email Invoices to Tania.Dahlin@ventia.com, Lucy.Edwards@ventia.com

| Relinquished By: | Company: | Date: | Time: | Received By: | Company: | Date: | Time: |
|---|---|---|---|---|---|---|---|
| | Ventia | 25.2.2025 | 1600 | | | 26/2 | 10:57 |
| **Relinquished By:** | **Company:** | **Date:** | **Time:** | **Received By:** | **Company:** | **Date:** | **Time:** |
| | | | | | | | |

This form is for recording of sample data after prior consultation with an analyst regarding sampling procedures and does not over-ride pricing agreements, OHS requirements and our terms and conditions.

As an Occupational Health and Safety consideration, it is a requirement of Ecowise Environmental (Victoria), that all samples received be undamaged and prior advice given in writing of any potential health risks.

***LAB USE ONLY***

Sample conditions:
Samples received undamaged [Yes/No]
Samples adequately preserved [Yes/No]
Samples within recommended holding times: [Yes/No]
Samples transported at appropriate temperature [Yes/No]

# SAMPLE RECEIPT NOTIFICATION (SRN)

**Work Order** : **EM2503185**

| | | | |
|---|---|---|---|
| Client | : **VENTIA UTILITY SERVICES PTY LTD** | Laboratory | : Environmental Division Melbourne |
| Contact | : MR TARIN CUMMINGS | Contact | : Graeme Jablonskas |
| Address | : 27 ESSINGTON STREET GROVEDALE VICTORIA, AUSTRALIA 3216 | Address | : 4 Westall Rd Springvale VIC Australia 3171 |
| E-mail | : tarin.cummings@ventia.com.au | E-mail | : graeme.jablonskas@alsglobal.com |
| Telephone | : +61 03 5249 3610 | Telephone | : +6138549 9609 |
| Facsimile | : +61 03 5221 9711 | Facsimile | : +61-3-8549 9626 |
| Project | : Creswick Landfill | Page | : 1 of 3 |
| Order number | : 4701075273 | Quote number | : EM2023THISER0010 (EM23THISER0010 - SECONDARY SAMPLES ONLY) |
| C-O-C number | : ---- | QC Level | : NEPM 2013 B3 & ALS QC Standard |
| Site | : LANDFILL | | |
| Sampler | : | | |

## Dates

| | | | |
|---|---|---|---|
| Date Samples Received | : 26-Feb-2025 10:50 | Issue Date | : 26-Feb-2025 |
| Client Requested Due Date | : 05-Mar-2025 | Scheduled Reporting Date | : **05-Mar-2025** |

## Delivery Details

| | | | |
|---|---|---|---|
| Mode of Delivery | : Carrier | Security Seal | : Intact. |
| No. of coolers/boxes | : 1 | Temperature | : 14.9°C - Ice present |
| Receipt Detail | : | No. of samples received / analysed | : 1 / 1 |

## General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Melbourne, NATA accreditation no. 825, site no. 13778.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

| *Laboratory sample ID* | *Sampling date / time* | *Sample ID* | WATER - EA005P pH (Auto Titrator) | WATER - EA010P Electrical Conductivity (Auto Titrator) | WATER - EK055G Ammonia as N By Discrete Analyser | WATER - EK058G Nitrate as N by Discrete Analyser | WATER - EK061G Total Kjeldahl Nitrogen as N (TKN) By Discrete | WATER - EP005 Total Organic Carbon (TOC) | WATER - EP045 Volatile Acids as CH3COOH |
|---|---|---|---|---|---|---|---|---|---|
| EM2503185-001 | 25-Feb-2025 11:52 | Creskwick SPLIT | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Matrix: **WATER**

| *Laboratory sample ID* | *Sampling date / time* | *Sample ID* | WATER - EA015H Total Dissolved Solids - Standard Level | WATER - EG020F Dissolved Metals by ICP/MS | WATER - EN67-B02 Field Tests (performed by external sampler) | WATER - EP026SP Chemical Oxygen Demand (COD) | WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity |
|---|---|---|---|---|---|---|---|
| EM2503185-001 | 25-Feb-2025 11:52 | Creskwick SPLIT | ✓ | ✓ | ✓ | ✓ | ✓ |

## Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER** Evaluation: × = Holding time breach ; ✓ = Within holding time.

| *Method* / Client Sample ID(s) | Container | Due for extraction | Due for analysis | Samples Received | | Instructions Received | |
|---|---|---|---|---|---|---|---|
| | | | | Date | Evaluation | Date | Evaluation |
| **EA005-P: pH by Auto Titrator** | | | | | | | |
| Creskwick SPLIT | Clear Plastic Bottle - Natural | ---- | 25-Feb-2025 | 26-Feb-2025 | ✘ | ---- | ---- |

## Requested Deliverables

| | | |
|---|---|---|
| **ACCOUNTS PAYABLE** | | |
| - A4 - AU Tax Invoice (INV) | Email | Invoices@ventia.com.au |
| **ANASTASIA WILTSHIRE** | | |
| - *AU Certificate of Analysis - NATA (COA) | Email | anastasia.wiltshire@ventia.com |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) | Email | anastasia.wiltshire@ventia.com |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) | Email | anastasia.wiltshire@ventia.com |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | anastasia.wiltshire@ventia.com |
| - Chain of Custody (CoC) (COC) | Email | anastasia.wiltshire@ventia.com |
| - EDI Format - ESDAT (ESDAT) | Email | anastasia.wiltshire@ventia.com |
| **LUCY EDWARDS** | | |
| - *AU Certificate of Analysis - NATA (COA) | Email | Lucy.Edwards@ventia.com |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) | Email | Lucy.Edwards@ventia.com |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) | Email | Lucy.Edwards@ventia.com |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | Lucy.Edwards@ventia.com |
| - A4 - AU Tax Invoice (INV) | Email | Lucy.Edwards@ventia.com |
| - Chain of Custody (CoC) (COC) | Email | Lucy.Edwards@ventia.com |
| - EDI Format - ESDAT (ESDAT) | Email | Lucy.Edwards@ventia.com |
| **Pandula R** | | |
| - *AU Certificate of Analysis - NATA (COA) | Email | pandula.r@ventia.com |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) | Email | pandula.r@ventia.com |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) | Email | pandula.r@ventia.com |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | pandula.r@ventia.com |
| - Chain of Custody (CoC) (COC) | Email | pandula.r@ventia.com |
| - EDI Format - ESDAT (ESDAT) | Email | pandula.r@ventia.com |
| **SELINA YANG** | | |
| - *AU Certificate of Analysis - NATA (COA) | Email | selina.yang@ventia.com |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) | Email | selina.yang@ventia.com |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) | Email | selina.yang@ventia.com |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | selina.yang@ventia.com |
| - Chain of Custody (CoC) (COC) | Email | selina.yang@ventia.com |
| - EDI Format - ESDAT (ESDAT) | Email | selina.yang@ventia.com |
| **TANIA DAHLIN** | | |
| - A4 - AU Tax Invoice (INV) | Email | Tania.Dahlin@ventia.com |
| **TARIN CUMMINGS** | | |
| - *AU Certificate of Analysis - NATA (COA) | Email | tarin.cummings@ventia.com.au |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) | Email | tarin.cummings@ventia.com.au |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) | Email | tarin.cummings@ventia.com.au |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | tarin.cummings@ventia.com.au |
| - A4 - AU Tax Invoice (INV) | Email | tarin.cummings@ventia.com.au |
| - Chain of Custody (CoC) (COC) | Email | tarin.cummings@ventia.com.au |
| - EDI Format - ESDAT (ESDAT) | Email | tarin.cummings@ventia.com.au |
| - Purchase Order Request Letter (PO_Request) | Email | tarin.cummings@ventia.com.au |

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **Work Order** | : **EM2503185** | Page | : 1 of 4 |
| Client | : **VENTIA UTILITY SERVICES PTY LTD** | Laboratory | : Environmental Division Melbourne |
| Contact | : MR TARIN CUMMINGS | Contact | : Graeme Jablonskas |
| Address | : 27 ESSINGTON STREET<br>GROVEDALE VICTORIA, AUSTRALIA 3216 | Address | : 4 Westall Rd Springvale VIC Australia 3171 |
| Telephone | : +61 03 5249 3610 | Telephone | : +6138549 9609 |
| Project | : Creswick Landfill | Date Samples Received | : 26-Feb-2025 10:50 |
| Order number | : 4701075273 | Date Analysis Commenced | : 27-Feb-2025 |
| C-O-C number | : ---- | Issue Date | : 05-Mar-2025 17:51 |
| Sampler | : ---- | | |
| Site | : LANDFILL | | |
| Quote number | : EM23THISER0010 - SECONDARY SAMPLES ONLY | | |
| No. of samples received | : 1 | | |
| No. of samples analysed | : 1 | | |

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

**Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.**

## *Signatories*

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

| *Signatories* | *Position* | *Accreditation Category* |
|---|---|---|
| Dilani Fernando | Laboratory Coordinator | Melbourne External Subcontracting, Springvale, VIC |
| Dilani Fernando | Laboratory Coordinator | Melbourne Inorganics, Springvale, VIC |
| Jarwis Nheu | Non-Metals Team Leader | Melbourne Inorganics, Springvale, VIC |

## General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | Creskwick SPLIT | ---- | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 25-Feb-2025 11:52 | ---- | ---- | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EM2503185-001 | -------- | -------- | -------- | -------- |
| | | | | | Result | ---- | ---- | ---- | ---- |
| **EA005P: pH by PC Titrator** | | | | | | | | | |
| pH Value | ---- | 0.01 | pH Unit | | **6.84** | ---- | ---- | ---- | ---- |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | | |
| Electrical Conductivity @ 25°C | ---- | 1 | µS/cm | | **579** | ---- | ---- | ---- | ---- |
| **EA015: Total Dissolved Solids dried at 180 ± 5 °C** | | | | | | | | | |
| Total Dissolved Solids @180°C | ---- | 10 | mg/L | | **314** | ---- | ---- | ---- | ---- |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | | |
| Hydroxide Alkalinity as CaCO3 | DMO-210-001 | 1 | mg/L | | <1 | ---- | ---- | ---- | ---- |
| Carbonate Alkalinity as CaCO3 | 3812-32-6 | 1 | mg/L | | <1 | ---- | ---- | ---- | ---- |
| Bicarbonate Alkalinity as CaCO3 | 71-52-3 | 1 | mg/L | | **12** | ---- | ---- | ---- | ---- |
| Total Alkalinity as CaCO3 | ---- | 1 | mg/L | | **12** | ---- | ---- | ---- | ---- |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | | |
| Sulfate as SO4 - Turbidimetric | 14808-79-8 | 1 | mg/L | | **22** | ---- | ---- | ---- | ---- |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | | |
| Chloride | 16887-00-6 | 1 | mg/L | | **157** | ---- | ---- | ---- | ---- |
| **ED093F: Dissolved Major Cations** | | | | | | | | | |
| Calcium | 7440-70-2 | 1 | mg/L | | **4** | ---- | ---- | ---- | ---- |
| Magnesium | 7439-95-4 | 1 | mg/L | | **15** | ---- | ---- | ---- | ---- |
| Sodium | 7440-23-5 | 1 | mg/L | | **91** | ---- | ---- | ---- | ---- |
| Potassium | 7440-09-7 | 1 | mg/L | | **1** | ---- | ---- | ---- | ---- |
| **EG020F: Dissolved Metals by ICP-MS** | | | | | | | | | |
| Chromium | 7440-47-3 | 0.001 | mg/L | | <0.001 | ---- | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 0.005 | mg/L | | **0.048** | ---- | ---- | ---- | ---- |
| Iron | 7439-89-6 | 0.05 | mg/L | | <0.05 | ---- | ---- | ---- | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | <0.01 | ---- | ---- | ---- | ---- |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | ---- | ---- | ---- | ---- |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | Creskwick SPLIT | ---- | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 25-Feb-2025 11:52 | ---- | ---- | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EM2503185-001 | -------- | -------- | -------- | -------- |
| | | | | | Result | ---- | ---- | ---- | ---- |
| **EK058G: Nitrate as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | **2.29** | ---- | ---- | ---- | ---- |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | **2.29** | ---- | ---- | ---- | ---- |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | **0.4** | ---- | ---- | ---- | ---- |
| **EN055: Ionic Balance** | | | | | | | | | |
| ø Total Anions | ---- | 0.01 | meq/L | | **5.13** | ---- | ---- | ---- | ---- |
| ø Total Cations | ---- | 0.01 | meq/L | | **5.42** | ---- | ---- | ---- | ---- |
| ø Ionic Balance | ---- | 0.01 | % | | **2.76** | ---- | ---- | ---- | ---- |
| **EN67: Field Tests** | | | | | | | | | |
| ø Electrical Conductivity (Non Compensated) | ---- | 1 | µS/cm | | **583** | ---- | ---- | ---- | ---- |
| ø Dissolved Oxygen | ---- | 0.1 | mg/L | | **0.12** | ---- | ---- | ---- | ---- |
| ø pH | ---- | 0.01 | pH Unit | | **4.84** | ---- | ---- | ---- | ---- |
| ø Redox Potential | ---- | 0.1 | mV | | **2.5** | ---- | ---- | ---- | ---- |
| ø Temperature | ---- | 0.1 | °C | | **17.2** | ---- | ---- | ---- | ---- |
| **EN67: Field Tests (non-NATA)** | | | | | | | | | |
| ø Standing Water Level | ---- | 0.01 | m | | **12.62** | ---- | ---- | ---- | ---- |
| **EP005: Total Organic Carbon (TOC)** | | | | | | | | | |
| Total Organic Carbon | ---- | 1 | mg/L | | **22** | ---- | ---- | ---- | ---- |
| **EP026SP: Chemical Oxygen Demand (Spectrophotometric)** | | | | | | | | | |
| Chemical Oxygen Demand | ---- | 10 | mg/L | | <10 | ---- | ---- | ---- | ---- |
| **EP045: Volatile Acids as CH3COOH** | | | | | | | | | |
| Volatile Acids as Acetic Acid | ---- | 5 | mg/L | | **19** | ---- | ---- | ---- | ---- |

## APPENDIX E – ALL HISTORICAL RECORDS

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**Historical Groundwater Lab Results**
**Hepburn Shire Council**
**Creswick Landfill**

| SAMPLE NO. | SAMPLE DATE | LAB REPORT NO. | SWL | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | m BGL | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| BH1 | 31-Oct-2003 | 619301 | 2.3 | 90 | <0.01 | 0.4 | <0.01 | 1.3 | 0.5 | 1.1 | 28 | - | - | - | 20 | 6.2 | <0.1 | 0.03 | 3.4 | - | - | 5.9 | <1 | 25 | 22 | 130 | - |
| BH1 | 29-Jan-2004 | 648473 | 3.22 | 100 | <0.01 | 0.27 | <0.01 | <0.05 | 1.2 | 2.6 | 13 | - | - | - | 12 | <10 | <0.1 | 0.07 | 16 | - | - | 5.6 | 4 | - | 23 | 150 | - |
| BH1 | 07-Apr-2004 | 673235 | 3.01 | 530 | <0.01 | 0.28 | <0.01 | 2 | <0.1 | 2.9 | 20 | - | - | - | 8 | <1.0 | 0.1 | 0.09 | 0.7 | - | - | 5.6 | 3 | 3 | 20 | 140 | - |
| BH1 | 21-Jul-2004 | 707745 | 2.34 | 420 | <0.01 | <0.05 | 0.06 | 0.16 | 4.9 | 3.4 | 30 | - | - | - | 16 | 14 | 0.2 | 0.03 | 1.1 | - | - | 8 | 5 | 12 | 24 | 150 | - |
| BH1 | 26-Oct-2004 | 743326 | 2.41 | 140 | <0.01 | 2.9 | <0.01 | <0.05 | 3.7 | 2.9 | 34 | - | - | - | 14 | 21 | 0.2 | 0.03 | 1.8 | - | - | 5.3 | 4 | 16 | 40 | 140 | - |
| BH1 | 20-Jan-2005 | 775529 | 2.74 | 190 | <0.01 | 0.37 | <0.01 | 1.8 | 4.5 | 8.9 | 31 | - | - | - | 13 | 12 | 0.6 | 0.05 | <0.3 | - | - | 5.7 | 6 | 7 | 35 | 150 | - |
| BH1 | 13-Apr-2005 | 804580 | 2.86 | 150 | <0.01 | 21 | 0.06 | 1.4 | 0.7 | 8.6 | 30 | - | - | - | 8 | 15 | 0.2 | <0.01 | 0.3 | - | - | 5.8 | 4 | 16 | 25 | 170 | - |
| BH1 | 28-Jul-2005 | 841923 | 2.84 | 120 | <0.01 | 22 | 0.05 | <1.0 | <1.0 | <1.0 | <1.0 | - | - | - | 10 | 14 | <0.1 | 0.09 | 1.7 | - | - | 5.2 | 6 | 17 | 30 | 140 | - |
| BH1 | 31-Oct-2005 | 872629 | 2.31 | 140 | <0.01 | 9.5 | 0.03 | 1.5 | 0.5 | 7.7 | 30 | - | - | - | 14 | 29 | 0.2 | 0.02 | 0.5 | - | - | 5.5 | 7 | 13 | 33 | 180 | - |
| BH1 | 30-Jan-2006 | 903878 | 2.77 | 250 | <0.00 | 0.28 | <0.01 | 1.3 | 0.5 | 7.4 | 32 | - | - | - | 16 | 27 | <0.1 | 0.19 | 1 | - | - | 6.6 | 5 | 5 | 32 | 160 | - |
| BH1 | 20-Apr-2006 | 933443 | 3.1 | 380 | <0.01 | 0.48 | <0.01 | 0.59 | <0.1 | 2.8 | 31 | - | - | - | 16 | 10 | <0.1 | <0.01 | <0.3 | - | - | 5.8 | 8 | 3 | 32 | 170 | - |
| BH1 | 25-Jul-2006 | 965726 | 2.89 | 140 | <0.01 | 1.6 | 0.13 | 0.7 | <0.5 | 3.5 | 33 | - | - | - | 32 | 8 | <0.1 | <0.01 | <0.3 | - | - | 6 | 4 | 13 | 32 | 190 | - |
| BH1 | 24-Oct-2006 | 993112 | 3 | 110 | <0.01 | 2.2 | <0.01 | 0.74 | 0.7 | 3.6 | 30 | - | - | - | 55 | 15 | <0.1 | 0.02 | <0.3 | - | - | 5.8 | 4 | 5 | 31 | 170 | - |
| BH1 | 24-Jan-2007 | 1108115 | 3.2 | 450 | <0.01 | 1.6 | 0.02 | <0.05 | 2.6 | 3.7 | 32 | - | - | - | 12 | 21 | <0.1 | 0.08 | 0.4 | - | - | 5.6 | 12 | 25 | 46 | 190 | - |
| BH1 | 17-Apr-2007 | 1150661 | 3.42 | 300 | <0.01 | 1.4 | <0.01 | 2.8 | 4.5 | 2.6 | 30 | - | - | - | 40 | 13 | <0.1 | <0.01 | <0.1 | - | - | 5.7 | 7 | 40 | 30 | 160 | - |
| BH1 | 25-Jul-2007 | 1219303 | 2.42 | 160 | <0.01 | 3.0 | <0.02 | 1.0 | 2.4 | 4.0 | 28 | - | - | - | 29 | 12 | <0.1 | <0.01 | <0.1 | - | - | 6.4 | 5 | 6 | 33 | 190 | - |
| BH1 | 22-Oct-2007 | 1297214 | 2.85 | 170 | <0.01 | <0.2 | <0.02 | 0.27 | 1.3 | 0.24 | 27 | - | - | - | 16 | 14 | 0.1 | 0.02 | 0.2 | - | - | 6.6 | 6 | 150 | 33 | 170 | - |
| BH1 | 22-Jan-2008 | 1375491 | 3.15 | 350 | <0.01 | 0.8 | 0.01 | 1.0 | 4.3 | 2.2 | 27 | - | - | - | 17 | 12 | <0.1 | 1.3 | 0.6 | - | - | 6.4 | 4 | 20 | 32 | 180 | - |
| BH1 | 22-Apr-2008 | 1458428 | 3.425 | 200 | <0.01 | 9.6 | 0.15 | <0.5 | 2.0 | 3.4 | 40 | - | - | - | 32 | 14 | <0.1 | 0.02 | 0.5 | - | - | 6.15 | 12 | 18 | 45 | 260 | - |
| BH1 | 22-Jul-2008 | 1539821 | 2.81 | 170 | <0.01 | 0.8 | 0.01 | 0.58 | 3.3 | 2.9 | 30 | - | - | - | 33 | 52 | 0.1 | 0.01 | 0.3 | - | - | 6.36 | 19 | <2 | 29 | 230 | - |
| BH1 | 21-Oct-2008 | 1620239 | 2.74 | 150 | <0.01 | 4.9 | 0.02 | 0.54 | 2.5 | 2.5 | 34 | - | - | - | 25 | 14 | <0.1 | 0.30 | 0.5 | - | - | 5.31 | 4 | 13 | 36 | 220 | - |
| BH1 | 28-Apr-2009 | 1791390 | 3.02 | 290 | <0.01 | 15 | 0.15 | 5.2 | 4.9 | 7.4 | 69 | - | - | - | 53 | 18 | 0.8 | 0.15 | 3.6 | - | - | 6.3 | 39 | 70 | 61 | 340 | - |
| BH1 | 29-Jul-2009 | - | 2.96 | 190 | <0.01 | 12 | 0.11 | <1 | 3 | 6 | 42 | - | - | - | 44 | 18 | 0.5 | 0.075 | 1.0 | - | - | 6.4 | 6 | 19 | 39 | 280 | - |
| BH1 | 29-Oct-2009 | 1976818 | 2.52 | 170 | < 0.01 | 15 | 0.19 | 2 | 2 | 6 | 40 | 57 | < 2 | < 2 | 57 | 19 | 0.3 | < 0.01 | 0.4 | - | - | 5.8 | 9 | < 5 | 33 | 260 | - |
| BH1 | 28-Jan-2010 | 2070255 | 2.81 | 150 | < 0.001 | 0.92 | 0.006 | 3.2 | 5.4 | 9.1 | 57 | 84 | < 2 | < 2 | 84 | 16 | 0.3 | < 0.01 | 0.5 | - | - | 6 | 12 | 23 | 36 | 310 | - |
| BH1 | 28-Jul-2011 | 2688215 | 1.39 | 220 | 0.034 | 16 | 0.022 | 1.8 | 2.1 | 4.1 | 60 | 30 | < 2 | < 2 | 30 | 14 | 0.4 | < 0.01 | 0.5 | - | - | 5.7 | 7 | 33 | 85 | 350 | - |
| BH1 | 18-Oct-2011 | 2784843 | 1.51 | 220 | < 0.01 | 1.7 | 0.11 | 2.7 | 2.2 | 4.7 | 59 | 37 | < 2 | < 2 | 37 | 16 | 0.2 | 0.25 | 0.5 | - | - | 5.8 | - | 15 | 84 | 350 | - |
| BH1 | 19-Jan-2012 | 2895496 | 1.97 | 200 | 0.03 | 13 | 0.02 | 1 | 3 | 2 | 48 | 38 | < 2 | < 2 | 38 | 19 | 0.2 | < 0.01 | 0.5 | - | - | 5.9 | 9 | 10 | 63 | 330 | - |
| BH1 | 09-Aug-2012 | 3137525 | 1.36 | 230 | 0.01 | 22 | 0.02 | 2.2 | 2.2 | 6 | 49 | 39 | < 2 | < 2 | 39 | 15 | 0.4 | 0.21 | 0.8 | - | - | 5.8 | 9 | 5 | 63 | 310 | - |
| BH1 | 28-Nov-2012 | 3274903 | 1.64 | 580 | 0.03 | 15 | 0.03 | 2.9 | 16 | 16 | 65 | 24 | < 2 | < 2 | 24 | 21 | 0.2 | < 0.01 | 1.4 | - | - | 5.6 | 40 | 110 | 84 | 380 | - |
| BH1 | 27-Feb-2013 | 3383769 | 2.29 | 410 | < 0.01 | 4.1 | < 0.01 | 0.4 | 2.6 | 0.7 | 61 | 14 | < 2 | < 2 | 14 | 24 | 0.5 | 0.79 | 2.6 | - | - | 5.9 | 34 | 42 | 90 | 400 | - |
| BH1 | 16-May-2013 | 3478280 | 2.5 | 170 | 0.07 | 74 | 0.09 | 2.5 | 3.2 | 6.6 | 49 | 28 | < 2 | < 2 | 28 | 14 | 0.3 | 0.03 | 0.9 | - | - | 5.8 | 10 | 8 | 64 | 290 | - |
| BH1 | 28-Aug-2013 | 3598479 | 1.65 | 260 | < 0.01 | 10 | < 0.01 | 2 | 1.8 | 4.8 | 51 | 39 | < 2 | < 2 | 39 | 14 | 0.3 | 0.52 | 0.6 | - | - | 6 | 6 | 5 | 67 | 330 | - |
| BH1 | 26-Nov-2013 | 3705702 | 1.82 | 190 | < 0.01 | 2 | 0.02 | 3.1 | 2 | 3.2 | 41 | 32 | < 2 | < 2 | 32 | 16 | 0.2 | 1.8 | 0.5 | - | - | 5.9 | 6 | < 5 | 73 | 350 | - |
| BH1 | 25-Feb-2014 | 3807898 | 2.43 | 200 | < 0.01 | 32 | 0.11 | 5.4 | 4.2 | 12 | 60 | 9 | < 2 | < 2 | 9 | 16 | 0.6 | 0.18 | 0.8 | - | - | 5.5 | 9 | < 5 | 79 | 300 | - |
| BH1 | 28-May-2014 | 3917832 | 2.49 | 230 | < 0.01 | 4.5 | 0.02 | 3 | 3 | 6 | 48 | 34 | < 2 | < 2 | 34 | 18 | 0.4 | 0.02 | 1.1 | - | 0.87 | 5.9 | 16 | 10 | 82 | 380 | - |
| BH1 | 26-Aug-2014 | 4022966 | 1.9 | 150 | < 0.01 | 4 | 0.02 | 1.2 | 1.8 | 2.9 | 45 | 15 | < 2 | < 2 | 15 | 22 | 0.2 | 0.08 | 0.3 | - | 0.21 | 5.8 | 6 | < 5 | 67 | 300 | - |
| BH1 | 27-Nov-2014 | 4134768 | 2.21 | 280 | < 0.01 | < 0.2 | 0.02 | 0.8 | 1.7 | 2.3 | 48 | 16 | < 2 | < 2 | 16 | 18 | < 0.1 | 0.94 | 0.8 | - | 0.17 | 6 | 3 | < 5 | 64 | 280 | - |
| BH1 | 25-Feb-2015 | 4243098 | 2.46 | 280 | <0.01 | 0.5 | 0.02 | 2.2 | 5.3 | 3.5 | 38 | 20 | <2 | <2 | 20 | 17 | <0.1 | 2.1 | 0.15 | - | 1 | 5.7 | 8.2 | 23 | 56 | 280 | - |
| BH1 | 27-Aug-2015 | 4455817 | 2.31 | 260 | 0.031 | 15 | 0.047 | 1.1 | 3.1 | 3.8 | 53 | 22 | < 2 | < 2 | 22 | 16 | < 0.1 | 0.57 | 0.8 | - | - | 6.1 | 6.8 | 17 | 65 | 280 | - |
| BH1 | 16-Jan-2017 | - | - | 402 | <0.001 | 0.1 | 0.052 | 4 | 4 | 9 | 112 | 38 | <1 | <1 | 38 | 38 | 0.02 | 2.8 | 1.2 | - | - | 6.21 | 7 | 21 | 183 | 684 | 11 |
| BH1 | 21-Mar-2017 | - | 2.81 | 564 | 0.003 | 2.38 | 0.144 | 2 | 4 | 5 | 82 | 39 | <1 | <1 | 39 | 28 | 0.07 | 0.69 | 0.9 | - | - | 6.13 | 14 | 51 | 118 | 516 | 13 |
| BH1 | 23-May-2017 | - | 2.11 | 841 | 0.002 | 1.13 | 0.04 | 1 | 4 | 4 | 66 | 35 | <1 | <1 | 35 | 20 | 0.09 | 0.4 | 1.2 | - | - | 6.35 | 12 | 64 | 61 | 328 | 13 |
| BH1 | 22-Aug-2017 | EM1711311001 | 1.56 | 699 | 0.002 | 0.68 | 0.01 | 2 | 3 | 3 | 50 | 40 | <1 | <1 | 40 | 15 | 0.12 | 0.98 | 1.2 | - | - | 6.15 | 20 | 105 | 53 | 312 | 6 |
| BH1 | 09-Nov-2017 | EM1715406001 | 1.92 | 730 | 0.006 | 2.08 | 0.037 | 2 | 4 | 4 | 50 | 42 | <1 | <1 | 42 | 22 | 0.21 | 0.74 | 2.1 | - | - | 6.52 | 12 | 81 | 61 | 315 | 19 |
| BH1 | 26-Feb-2018 | EM1803674001 | 2.41 | 335 | 0.001 | 0.42 | 0.04 | <1 | 4 | 2 | 52 | 34 | <1 | <1 | 34 | 15 | 0.14 | 1.25 | 0.2 | - | - | 5.6 | 5 | <10 | 57 | 320 | 23 |
| BH1 | 28-May-2018 | EM1808721001 | 2.38 | 2,090 | 0.001 | 1.43 | 0.199 | <1 | 2 | <1 | 36 | 23 | <1 | <1 | 23 | 14 | 0.09 | 0.74 | 0.9 | 2,000 | - | 6.22 | 24 | 316 | 38 | 210 | 14 |
| BH1 | 01-Aug-2018 | EM1812302001 | 1.83 | 2,320 | 0.002 | 4.82 | 0.612 | 2 | 3 | 2 | 41 | 36 | <1 | <1 | 36 | 22 | 0.28 | 0.11 | 2 | -- | - | 6.44 | 9 | 196 | 42 | 245 | 19 |
| BH1 | 28-Nov-2018 | EM1819277001 | 2.28 | 330 | 0.001 | 0.7 | 0.03 | <1 | 3 | 2 | 48 | 29 | <1 | <1 | 29 | 17 | 0.05 | 1.58 | 0.8 | -- | - | 6.24 | 6 | 61 | 56 | 273 | 44 |
| BH1 | 26-Feb-2019 | EM1902808001 | 2.62 | 478 | 0.009 | 5.03 | 0.055 | <1 | 3 | 2 | 44 | 22 | <1 | <1 | 22 | 10 | 0.03 | 1.83 | 1.1 | -- | - | 6.15 | 6 | <10 | 65 | 277 | 21 |
| BH1 | 20-May-2019 | EM1907716001 | 2.21 | 593 | 0.003 | 1.64 | 0.014 | <1 | 5 | 2 | 37 | 20 | <1 | <1 | 20 | 12 | 0.06 | 3.46 | 2.8 | - | -- | 5.7 | 10 | 20 | 49 | 824 | 7 |
| BH1 | 20-Aug-2019 | EM1913616 | 1.2 | 509 | 0.002 | 0.9 | 0.015 | <1 | 4 | 2 | 43 | 32 | <1 | <1 | 32 | 14 | 0.07 | 1.42 | 1.4 | 1.43 | -- | 6.1 | 5 | <10 | 53 | 308 | 21 |
| BH1 | 04-Dec-2019 | EM1920907 | 1.93 | 290 | <0.001 | 0.08 | 0.044 | 2 | 6 | 8 | 73 | 31 | <1 | <1 | 31 | 23 | <0.01 | 4.23 | 0.9 | 4.25 | -- | 5.88 | 8 | <10 | 116 | 494 | 21 |
| BH1 | 11-Feb-2020 | EM2002157 | 2.28 | 314 | <0.001 | 0.05 | 0.023 | 2 | 5 | 6 | 63 | 25 | <1 | <1 | 25 | 16 | 0.04 | 2.61 | 2.7 | 2.62 | -- | 6.42 | 1 | 90 | 91 | 406 | 11 |
| BH1 | 19-May-2020 | EM2008425 | 2.15 | 432 | 0.015 | 6.51 | 0.04 | 1 | 5 | 5 | 60 | 25 | <1 | <1 | 25 | 24 | <0.01 | 8.42 | 2.5 | 8.43 | -- | 6.17 | 16 | 46 | 57 | 357 | 13 |
| BH1 | 18-Aug-2020 | EM2014393 | 1.63 | 421 | - | - | - | 2 | 12 | 5 | 43 | 48 | <1 | <1 | 48 | 14 | 0.02 | 5.06 | 3.3 | 5.07 | - | 6.84 | 22 | 77 | 40 | 300 | 47 |
| BH1 | 24-Nov-2020 | EM2021040 | 1.7 | 476 | 0.006 | 2.17 | 0.162 | 5 | 18 | 14 | 94 | 78 | <1 | <1 | 78 | 33 | 0.04 | 10.3 | 2.7 | 10.3 | - | 7.17 | 20 | 48 | 131 | 723 | 17 |
| BH1 | 24-Feb-2021 | - | Unable to access | | | | | | | | | | | | | | | | | | | | | | | | |
| BH1 | 26-May-2021 | - | Bore location lost due to road resurfacing | | | | | | | | | | | | | | | | | | | | | | | | |
| BH1 | 13-Sep-2021 | - | Bore location lost due to road resurfacing | | | | | | | | | | | | | | | | | | | | | | | | |
| BH1 | 18-Nov-2021 | - | Bore location lost due to road resurfacing | | | | | | | | | | | | | | | | | | | | | | | | |
| BH1 | 01-Mar-2022 | - | Bore location lost due to road resurfacing | | | | | | | | | | | | | | | | | | | | | | | | |
| BH1 | 17-May-2022 | - | Bore location lost due to road resurfacing | | | | | | | | | | | | | | | | | | | | | | | | |
| BH1 | - | - | Bore location lost due to road resurfacing | | | | | | | | | | | | | | | | | | | | | | | | |
| BH1 | - | - | Bore location lost due to road resurfacing | | | | | | | | | | | | | | | | | | | | | | | | |
| BH1 | - | - | Bore location lost due to road resurfacing | | | | | | | | | | | | | | | | | | | | | | | | |
| BH1 | - | - | Bore location lost due to road resurfacing | | | | | | | | | | | | | | | | | | | | | | | | |

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**Historical Groundwater Lab Results**
**Hepburn Shire Council**
**Creswick Landfill**

| SAMPLE NO. | SAMPLE DATE | LAB REPORT NO. | SWL | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | m BGL | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| BH2 | 31-Oct-2003 | 619302 | 2.7 | 330 | <0.01 | <0.05 | <0.01 | 16 | 1 | 32 | 83 | - | - | - | 130 | 8 | 0.2 | <0.01 | <0.3 | - | - | 7.4 | 3 | 17 | 110 | 500 | - |
| BH2 | 29-Jan-2004 | 648474 | 4.4 | 320 | <0.01 | 9 | <0.01 | <5.0 | <5.0 | 14 | 70 | - | - | - | 130 | 7 | 0.2 | 0.07 | 1.4 | - | - | 6.7 | 4 | - | 100 | 600 | - |
| BH2 | 07-Apr-2004 | 673236 | 3.43 | 310 | <0.01 | 2.4 | <0.01 | 4.6 | 3.1 | 25 | 52 | - | - | - | 150 | 7.8 | 0.2 | 0.03 | 0.5 | - | - | 6.9 | 4 | 9 | 110 | 690 | - |
| BH2 | 21-Jul-2004 | 707746 | 2.69 | 320 | <0.01 | 1.6 | <0.01 | 2.7 | 5.6 | 29 | 62 | - | - | - | 130 | 16 | 0.2 | 0.01 | <0.3 | - | - | 7.6 | 4 | 17 | 100 | 650 | - |
| BH2 | 26-Oct-2004 | 743327 | 2.9 | 230 | <0.01 | 0.94 | <0.01 | 1.5 | 3.5 | 22 | 51 | - | - | - | 120 | <1 | 0.2 | <0.01 | <0.3 | - | - | 6.9 | 2 | 11 | 72 | 490 | - |
| BH2 | 20-Jan-2005 | 775528 | 3.02 | 220 | <0.01 | 19 | <0.01 | 2.2 | 4.1 | 19 | 48 | - | - | - | 110 | 8 | 0.2 | <0.01 | <0.3 | - | - | 6.9 | 1 | <2 | 130 | 420 | - |
| BH2 | 13-Apr-2005 | 804581 | 3.16 | 210 | <0.01 | 24 | 0.02 | 1.9 | 0.5 | 20 | 47 | - | - | - | 110 | 6 | 0.2 | <0.01 | 0.3 | - | - | 6.8 | 3 | 9 | 59 | 400 | - |
| BH2 | 28-Jul-2005 | 841924 | 3.14 | 200 | <0.01 | 35 | 0.27 | 2.1 | 1 | 19 | 33 | - | - | - | 120 | 2 | 0.1 | 0.04 | <0.3 | - | - | 6.9 | 3 | 14 | 68 | 440 | - |
| BH2 | 31-Oct-2005 | 872630 | 2.6 | 200 | <0.01 | 24 | <0.01 | 2 | 0.5 | 18 | 40 | - | - | - | 160 | 2 | 0.2 | <0.01 | 0.5 | - | - | 6.7 | 4 | 4 | 61 | 390 | - |
| BH2 | 30-Jan-2006 | 903879 | 3.03 | 190 | <0.00 | 17 | 0.2 | 1.9 | 0.8 | 17 | 44 | - | - | - | 100 | 7 | 0.1 | <0.01 | 0.7 | - | - | 7.9 | 2 | <2 | 59 | 380 | - |
| BH2 | 20-Apr-2006 | 933444 | 3.44 | 200 | <0.01 | 22 | 0.04 | 2.1 | 0.3 | 19 | 42 | - | - | - | 110 | 2 | 0.2 | <0.01 | <0.3 | - | - | 6.8 | 6 | 7 | 63 | 400 | - |
| BH2 | 25-Jul-2006 | 965727 | 3.22 | 180 | <0.01 | 20 | 0.02 | 1.9 | <0.5 | 18 | 60 | - | - | - | 100 | 2 | 0.2 | <0.01 | <0.3 | - | - | 6.8 | 5 | 10 | 68 | 400 | - |
| BH2 | 24-Oct-2006 | 993113 | 3.47 | 170 | <0.01 | 23 | <0.01 | 2 | 0.6 | 18 | 43 | - | - | - | 140 | 3 | 0.1 | <0.01 | 0.8 | - | - | 6.8 | 3 | 10 | 65 | 400 | - |
| BH2 | 24-Jan-2007 | 1108116 | 3.48 | 180 | <0.01 | 23 | 0.02 | 1.6 | 5.8 | 17 | 43 | - | - | - | 110 | 2.4 | 0.2 | <0.01 | <0.1 | - | - | 6.8 | 4 | 9 | 78 | 400 | - |
| BH2 | 17-Apr-2007 | 1150662 | 3.71 | 200 | <0.01 | 24 | 0.05 | 2.5 | 4.5 | 18 | 44 | - | - | - | 140 | 2 | 0.2 | <0.01 | 0.4 | - | - | 6.8 | 9 | 60 | 69 | 410 | - |
| BH2 | 25-Jul-2007 | 1219304 | 2.73 | 220 | <0.01 | 27 | <0.02 | 2.1 | 2.0 | 18 | 37 | - | - | - | 98 | <1 | 0.2 | <0.01 | 0.1 | - | - | 7.2 | 4 | 6 | 86 | 420 | - |
| BH2 | 22-Oct-2007 | 1297215 | 3.16 | 210 | <0.01 | 2.6 | <0.02 | 2.3 | 1.5 | 20 | 44 | - | - | - | 100 | <1 | 0.2 | 0.01 | 0.2 | - | - | 7.8 | 3 | 18 | 75 | 420 | - |
| BH2 | 22-Jan-2008 | 1375492 | 3.48 | 220 | <0.01 | <0.2 | <0.01 | 2.4 | 3.1 | 18 | 39 | - | - | - | 94 | 1 | 0.2 | 1.2 | 0.2 | - | - | 7.2 | 3 | 10 | 80 | 420 | - |
| BH2 | 22-Apr-2008 | 1458429 | 3.745 | 210 | <0.01 | 11 | 0.04 | 0.38 | <0.5 | 16 | 39 | - | - | - | 88 | <1 | 0.1 | <0.01 | 0.4 | - | - | 6.89 | 3 | 8 | 76 | 410 | - |
| BH2 | 22-Jul-2008 | 1539822 | 3.14 | 110 | <0.01 | 0.8 | <0.01 | 2.3 | 3.3 | 18 | 43 | - | - | - | 86 | <1 | 0.3 | <0.01 | 1.1 | - | - | 6.84 | 3 | <2 | 91 | 440 | - |
| BH2 | 21-Oct-2008 | 1620240 | 3.06 | 220 | <0.01 | 5.1 | 0.02 | 1.9 | 2.4 | 17 | 42 | - | - | - | 94 | 3 | 0.1 | <0.01 | 0.2 | - | - | 6.55 | 2 | 12 | 80 | 420 | - |
| BH2 | 28-Jan-2009 | 1706035 | 3.41 | 220 | <0.01 | 2.3 | 0.01 | 2.2 | 0.6 | 18 | 44 | - | - | - | 79 | 13 | 0.2 | 0.02 | 0.3 | - | - | 7.2 | 4 | <10 | 82 | 450 | - |
| BH2 | 28-Apr-2009 | 1791391 | 3.85 | 210 | <0.01 | 3.3 | 0.02 | 5.1 | 1.3 | 19 | 57 | - | - | - | 91 | <1 | 0.2 | 0.02 | 0.2 | - | - | 7.1 | 2 | <5 | 80 | 420 | - |
| BH2 | 29-Jul-2009 | - | 3.38 | 210 | <0.01 | 6.3 | 0.02 | 2 | <1 | 17 | 46 | - | - | - | 81 | 2 | 0.2 | 0.031 | 0.3 | - | - | 6.8 | 2 | <5 | 85 | 430 | - |
| BH2 | 29-Oct-2009 | 1976819 | 2.95 | 200 | < 0.01 | 6.3 | < 0.01 | 2 | < 1 | 17 | 44 | 92 | < 2 | < 2 | 92 | 2 | 0.2 | < 0.01 | 0.3 | - | - | 6.6 | 3 | < 5 | 79 | 410 | - |
| BH2 | 28-Jan-2010 | 2070256 | 3.29 | 180 | < 0.001 | 0.17 | 0.001 | 1.7 | 1.8 | 17 | 46 | 97 | < 2 | < 2 | 97 | 1 | 0.2 | < 0.01 | 0.2 | - | - | 6.6 | 3 | 8 | 77 | 430 | - |
| BH2 | 20-Jul-2010 | 2259580 | 2.59 | 200 | < 0.001 | 0.32 | < 0.001 | 1.9 | 2.2 | 21 | 43 | 100 | < 2 | < 2 | 100 | < 1 | 0.2 | 0.01 | 0.2 | - | - | 6.6 | 5 | 11 | 78 | 420 | - |
| BH2 | 20-Oct-2010 | 2367031 | 2.9 | 210 | < 0.001 | 2 | < 0.001 | 1.6 | 0.4 | 19 | 42 | 100 | < 2 | < 2 | 100 | 2 | 0.2 | < 0.01 | 0.4 | - | - | 6.6 | 5 | < 5 | 81 | 410 | - |
| BH2 | 24-Jan-2011 | 2474615 | 2.43 | 210 | < 0.001 | 1.5 | < 0.001 | 1.7 | 0.4 | 20 | 50 | 100 | < 2 | < 2 | 100 | 3 | 0.3 | 0.03 | 0.5 | - | - | 6.6 | 7 | 12 | 77 | 430 | - |
| BH2 | 19-Apr-2011 | 2574914 | 2.65 | 210 | < 0.001 | 1.4 | 0.022 | 1.6 | 0.8 | 18 | 53 | 94 | < 2 | < 2 | 94 | 7 | 0.6 | 0.07 | 0.7 | - | - | 6.6 | 4 | 12 | 74 | 430 | - |
| BH2 | 28-Jul-2011 | 2688216 | 2.28 | 240 | < 0.001 | 8.8 | < 0.001 | 1.7 | 0.5 | 20 | 48 | 100 | < 2 | < 2 | 100 | 1 | 0.3 | < 0.1 | 0.3 | - | - | 6.6 | 5 | 14 | 87 | 440 | - |
| BH2 | 18-Oct-2011 | 2784844 | 2.59 | 230 | < 0.01 | 1.6 | < 0.01 | 1.8 | 0.5 | 20 | 50 | 100 | < 2 | < 2 | 100 | 2 | 0.3 | 0.02 | 0.5 | - | - | 6.7 | - | 8 | 89 | 450 | - |
| BH2 | 19-Jan-2012 | 2895497 | 2.92 | 260 | < 0.01 | 5.7 | < 0.01 | 2 | < 1 | 18 | 48 | 100 | < 2 | < 2 | 100 | 2 | 0.1 | < 0.05 | 0.3 | - | - | 6.7 | 4 | < 5 | 85 | 470 | - |
| BH2 | 09-Aug-2012 | 3137526 | 2.3 | 250 | < 0.01 | 24 | < 0.01 | 2.1 | 0.6 | 20 | 51 | 95 | < 2 | < 2 | 95 | 2 | 0.3 | 0.15 | 0.4 | - | - | 6.7 | 4 | < 5 | 89 | 460 | - |
| BH2 | 28-Nov-2012 | 3274904 | 2.75 | 240 | < 0.01 | 0.9 | < 0.01 | 1.3 | 0.5 | 16 | 48 | 97 | < 2 | < 2 | 97 | < 5 | 0.3 | < 0.01 | 0.4 | - | - | 6.6 | 3 | 6 | 90 | 460 | - |
| BH2 | 27-Feb-2013 | 3383770 | 3.24 | 260 | < 0.01 | 2.2 | < 0.01 | 1.5 | 0.6 | 15 | 51 | 33 | < 2 | < 2 | 33 | 4 | 0.3 | < 0.01 | 0.4 | - | - | 6.6 | 4 | < 5 | 110 | 500 | - |
| BH2 | 16-May-2013 | 3478281 | 3.41 | 290 | < 0.01 | 35 | < 0.01 | 2.2 | 0.6 | 21 | 60 | 87 | < 2 | < 2 | 87 | < 5 | 0.3 | < 0.01 | 0.3 | - | - | 6.6 | 3 | < 5 | 140 | 570 | - |
| BH2 | 28-Aug-2013 | 3598517 | 2.57 | 390 | < 0.01 | 34 | < 0.01 | 3.1 | 0.7 | 26 | 68 | 91 | < 2 | < 2 | 91 | < 5 | 0.3 | 0.03 | 0.3 | - | - | 6.6 | 4 | < 5 | 160 | 670 | - |
| BH2 | 26-Nov-2013 | 3705703 | 2.86 | 280 | < 0.01 | 7 | 0.04 | 1.8 | 0.5 | 16 | 48 | 94 | < 2 | < 2 | 94 | < 10 | 0.2 | < 0.05 | 0.2 | - | - | 6.7 | 3 | < 5 | 110 | 520 | - |
| BH2 | 25-Feb-2014 | 3807899 | 3.43 | 340 | < 0.01 | 27 | < 0.01 | 3 | 0.8 | 25 | 78 | 96 | < 2 | < 2 | 96 | 3 | 0.4 | 0.03 | 0.4 | - | - | 6.7 | 3 | < 5 | 150 | 640 | - |
| BH2 | 28-May-2014 | 3917833 | 3.52 | 360 | < 0.01 | 17 | < 0.01 | 2 | < 1 | 20 | 59 | 110 | < 2 | < 2 | 110 | 4 | 0.4 | < 0.01 | 0.5 | - | 0.06 | 6.6 | 5 | < 5 | 170 | 720 | - |
| BH2 | 26-Aug-2014 | 4022967 | 2.76 | 270 | < 0.01 | 5.8 | < 0.01 | 1.9 | 0.5 | 21 | 56 | 95 | < 2 | < 2 | 95 | 10 | 0.2 | < 0.05 | 0.2 | - | 0.09 | 6.7 | 2 | < 5 | 120 | 550 | - |
| BH2 | 27-Nov-2014 | 4134769 | 3.27 | 270 | < 0.01 | < 0.2 | < 0.01 | 1.7 | 0.5 | 21 | 59 | 94 | < 2 | < 2 | 94 | 7 | 0.2 | < 0.01 | 0.4 | - | 0.16 | 6.6 | 2 | < 5 | 110 | 510 | - |
| BH2 | 25-Feb-2015 | 4243096 | 3.52 | 280 | <0.01 | 3.6 | 0.02 | 1.5 | 0.7 | 18 | 52 | 93 | <2 | < 2 | 93 | 11 | 0.2 | 0.04 | 0.05 | - | 0.4 | 6.6 | 2.1 | <5 | 94 | 500 | - |
| BH2 | 27-Aug-2015 | 4455818 | 3.37 | 350 | 0.005 | 38 | 0.025 | 3 | 0.7 | 26 | 88 | 110 | < 2 | < 2 | 110 | 6 | 0.3 | 0.01 | 0.5 | - | - | 6.7 | 2.1 | < 5 | 170 | 720 | - |
| BH2 | 24-Feb-2016 | 4674179 | 3.84 | 460 | <0.01 | 11 | <0.01 | 3.9 | 0.9 | 26 | 96 | 80 | < 2 | < 2 | 80 | 12 | 0.6 | 0.04 | 0.9 | - | - | 6.5 | 3.5 | < 5 | 210 | 890 | - |
| BH2 | 16-Jan-2017 | - | 3.02 | 412 | <0.001 | 0.09 | <0.005 | 2 | <1 | 19 | 87 | 86 | <1 | <1 | 86 | 14 | 0.59 | 0.01 | 0.8 | - | - | 6.5 | 3 | <10 | 179 | 715 | 24 |
| BH2 | 21-Mar-2017 | - | 3.27 | 400 | <0.001 | 28.4 | 0.031 | 2 | <1 | 19 | 86 | 76 | <1 | <1 | 76 | 13 | 1.29 | <0.01 | 1.8 | - | - | 6.47 | 3 | <10 | 192 | 750 | 24 |
| BH2 | 23-May-2017 | - | 3.18 | 394 | <0.001 | 25 | 0.017 | 2 | 1 | 23 | 108 | 92 | <1 | <1 | 92 | 10 | 0.81 | 0.01 | 1.1 | - | - | 6.57 | 2 | 13 | 191 | 720 | 22 |
| BH2 | 23-Aug-2017 | EM1711442001 | 3.18 | 600 | <0.001 | 30.2 | 0.02 | 4 | <1 | 28 | 113 | 87 | <1 | <1 | 87 | 25 | 0.36 | 0.01 | 0.7 | - | - | 6.79 | 4 | 22 | 260 | 980 | 28 |
| BH2 | 09-Nov-2017 | EM1715406002 | 2.99 | 435 | <0.001 | 28.6 | 0.01 | 3 | <1 | 27 | 94 | 96 | <1 | <1 | 96 | 14 | 0.83 | <0.01 | 0.8 | - | - | 6.54 | <1 | <10 | 228 | 803 | 32 |
| BH2 | 27-Feb-2018 | EM1803772001 | 3.46 | 415 | <0.001 | 16.4 | 0.015 | 2 | <1 | 19 | 81 | 87 | <1 | <1 | 87 | 11 | 0.71 | 0.04 | 0.7 | - | - | 6.4 | 3 | <10 | 155 | 725 | 11 |
| BH2 | 28-May-2018 | EM1808721002 | 3.44 | 355 | <0.001 | 11.9 | 0.044 | 2 | 1 | 19 | 79 | 93 | <1 | <1 | 93 | 14 | 1.79 | <0.01 | 2.3 | -- | - | 6.73 | 4 | 12 | 163 | 704 | 37 |
| BH2 | 01-Aug-2018 | EM1812302002 | 2.9 | 398 | 0.002 | 4.86 | 0.362 | 2 | <1 | 26 | 89 | 92 | <1 | <1 | 92 | 19 | 0.36 | 0.02 | 1 | - | - | 6.78 | <1 | 74 | 190 | 745 | 13 |
| BH2 | 28-Nov-2018 | EM1819277002 | 2.82 | 355 | <0.001 | 1.41 | 0.007 | 2 | <1 | 21 | 107 | 86 | <1 | <1 | 86 | 14 | 0.33 | 0.08 | 0.8 | - | - | 6.87 | 4 | 61 | 182 | 683 | 42 |
| BH2 | 26-Feb-2019 | EM1902808002 | 3.69 | 372 | 0.001 | 21.2 | 0.024 | 2 | <1 | 19 | 90 | 90 | <1 | <1 | 90 | 19 | 0.47 | 0.14 | 0.9 | - | - | 6.82 | 5 | <10 | 202 | 750 | 30 |
| BH2 | 20-May-2019 | EM1907716002 | 3.11 | 474 | <0.001 | 2.64 | 0.083 | 2 | <1 | 23 | 94 | 79 | <1 | <1 | 79 | 18 | 0.3 | 0.07 | 0.5 | - | - | 6.40 | 2 | <10 | 214 | 809 | 10 |
| BH2 | 20-Aug-2019 | EM1913616 | 2.27 | 493 | <0.001 | 4.34 | 0.011 | 1 | <1 | 23 | 97 | 104 | <1 | <1 | 104 | 15 | 0.21 | 0.03 | 0.4 | <0.01 | -- | 6.37 | 3 | <10 | 200 | 813 | 26 |
| BH2 | 04-Dec-2019 | EM1920907 | 2.82 | 329 | <0.001 | 0.3 | 0.013 | 2 | 1 | 21 | 87 | 84 | <1 | <1 | 84 | 19 | 0.37 | 0.1 | 0.6 | <0.01 | -- | 6.47 | 4 | <10 | 171 | 693 | 17 |
| BH2 | 11-Feb-2020 | EM2002157 | 3.18 | 392 | <0.001 | 2.93 | 0.013 | 2 | <1 | 21 | 87 | 78 | <1 | <1 | 78 | 20 | 0.3 | 0.03 | 1.1 | 0.53 | -- | 7 | <1 | 36 | 170 | 679 | 22 |
| BH2 | 18-May-2020 | EM2008378 | 3.09 | 602 | <0.001 | 25 | 0.017 | 2 | <1 | 20 | 86 | 86 | <1 | <1 | 86 | 21 | 0.23 | 0.1 | 0.5 | 0.62 | -- | 7.45 | <1 | <10 | 175 | 701 | 8 |
| BH2 | 18-Aug-2020 | EM2014393 | 2.56 | 442 | - | - | - | 2 | 1 | 23 | 98 | 97 | <1 | <1 | 97 | 19 | 0.36 | 0.12 | 0.9 | 0.14 | - | 7.16 | <1 | <10 | 208 | 822 | 45 |
| BH2 | 24-Nov-2020 | EM2021040 | 2.76 | 382 | <0.001 | 31.8 | 0.031 | 1 | <1 | 17 | 90 | 90 | <1 | <1 | 90 | 16 | 0.68 | 0.08 | 2.2 | 0.09 | - | 7.13 | 3 | <10 | 167 | 703 | 11 |
| BH2 | 24-Feb-2021 | EM2103002 | 2.72 | 380 | <0.001 | - | 0.023 | 2 | 2 | 13 | 84 | 68 | <1 | <1 | 68 | 28 | 1.66 | 0.77 | 2.1 | 0.87 | - | - | 1 | <10 | 149 | - | 22 |
| BH2 | 26-May-2021 | EM2109946 | 3.22 | 354 | 0.001 | 12.9 | 0.068 | 1 | <1 | 15 | 82 | 53 | <1 | <1 | 53 | 28 | 0.35 | 0.11 | 0.6 | 0.11 | - | 6.87 | <1 | <10 | 138 | 592 | 6 |
| BH2 | 14-Sep-2021 | EM2118437 | 2.27 | 359 | 0.001 | 106 | 0.073 | 1 | <1 | 15 | 84 | 54 | <1 | <1 | 54 | 22 | 0.75 | 0.07 | 0.6 | 0.07 | -- | 6.81 | <1 | <10 | 157 | 654 | 22 |
| BH2 | 18-Nov-2021 | EM2123390 | 2.58 | 372 | 0.002 | 77.9 | 0.109 | 1 | 1 | 13 | 84 | 50 | <1 | <1 | 50 | 22 | 0.86 | 0.03 | 1 | 0.21 | -- | 7.2 | 4 | <20 | 153 | 646 | 15 |
| BH2 | 03-Mar-2022 | EM2203751 | 2.92 | 295 | 0.001 | 33.1 | 0.064 | 3 | 1 | 13 | 82 | 57 | <1 | <1 | 57 | 31 | 0.43 | 0.27 | 0.6 | 0.27 | -- | 6.74 | 2 | <10 | 137 | 575 | 20 |
| BH2 | 17-May-2022 | EM2209266 | 3.13 | 272 | 0.002 | 8.62 | 0.025 | 1 | <1 | 10 | 79 | 41 | <1 | <1 | 41 | 28 | 0.18 | 0.09 | 0.3 | 0.09 | -- | 6.47 | <1 | <20 | 141 | 562 | 21 |
| BH2 | 31-Aug-2022 | EM2216860 | 2.12 | 417 | <0.001 | 23 | 0.04 | 2 | <1 | 18 | 96 | 56 | <1 | <1 | 56 | 22 | 0.08 | 0.01 | 0.3 | 0.01 | -- | 6.78 | 2 | <10 | 209 | 763 | 16 |
| BH2 | 17-Nov-2022 | EM2222858 | 1.93 | 342 | <0.001 | 27.4 | 0.044 | 1 | 1 | 14 | 97 | 32 | <1 | <1 | 32 | 20 | 0.03 | 0.15 | 0.9 | 0.19 | -- | 6.07 | <1 | <10 | 181 | 730 | 23 |
| BH2 | 17-Feb-2023 | EM2302775 | 2.98 | 385 | <0.001 | 3.95 | 0.053 | 1 | 1 | 14 | 103 | 32 | <1 | <1 | 32 | 20 | 0.32 | 0.89 | 0.6 | 0.89 | -- | 6.39 | 1 | 34 | 199 | 734 | 12 |

**Historical Groundwater Lab Results**
**Hepburn Shire Council**
**Creswick Landfill**

| SAMPLE NO. | SAMPLE DATE | LAB REPORT NO. | SWL | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | m BGL | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| BH2 | 10-May-2023 | EM2308315 | 2.9 | 469 | <0.001 | 8.46 | 0.057 | 1 | 1 | 17 | 117 | 34 | <1 | <1 | 34 | 18 | 0.08 | 3.14 | 0.7 | 3.15 | -- | 6.43 | 6 | 58 | 226 | 756 | 11 |

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**Historical Groundwater Lab Results**
**Hepburn Shire Council**
**Creswick Landfill**

| SAMPLE NO. | SAMPLE DATE | LAB REPORT NO. | SWL | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | m BGL | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| BH3 | 31-Oct-2003 | 619303 | 0.4 | 950 | <0.01 | 12 | 0.02 | 13 | 2.7 | 56 | 280 | - | < 2 | < 2 | 48 | 37 | 0.2 | <0.01 | 0.5 | - | - | 6 | 10 | 31 | 590 | 1200 | - |
| BH3 | 29-Jan-2004 | 648475 | 0.65 | 560 | <0.01 | 0.09 | 0.02 | <0.05 | 2.9 | 20 | 60 | - | < 2 | < 2 | 12 | 15 | <0.1 | 0.29 | <0.3 | - | - | 5.4 | <1 | - | 240 | 820 | - |
| BH3 | 07-Apr-2004 | 673237 | 0.9 | 1500 | <0.01 | 17 | <0.01 | 28 | 11 | 75 | 290 | - | < 2 | < 2 | 200 | 30 | 0.2 | <0.01 | 1.4 | - | - | 6.4 | 19 | 45 | 740 | 2900 | - |
| BH3 | 21-Jul-2004 | 707747 | 0.4 | 1800 | <0.01 | 0.2 | <0.01 | 29 | 13 | 93 | 390 | - | < 2 | < 2 | 120 | 47 | 0.1 | 0.03 | 0.8 | - | - | 7.6 | 15 | 58 | 860 | 3100 | - |
| BH3 | 26-Oct-2004 | 743328 | 0.55 | 1500 | <0.01 | 4.9 | <0.01 | 27 | 11 | 83 | 390 | - | < 2 | < 2 | 100 | <1 | 0.1 | <0.01 | 0.5 | - | - | 6.2 | 15 | 45 | 790 | 2700 | - |
| BH3 | 20-Jan-2005 | 775527 | 0.75 | 1100 | <0.01 | 32 | 0.02 | 17 | 10 | 67 | 290 | - | < 2 | < 2 | 140 | 35 | 0.1 | <0.01 | 0.7 | - | - | 6.6 | 16 | 30 | 690 | 2200 | - |
| BH3 | 13-Apr-2005 | 804582 | 0.74 | 1200 | <0.01 | 38 | 0.08 | 22 | 10 | 68 | 310 | - | < 2 | < 2 | 160 | 27 | 0.2 | <0.01 | 0.9 | - | - | 6.4 | 17 | 7 | 570 | 2000 | - |
| BH3 | 28-Jul-2005 | 841925 | 0.51 | 1400 | <0.01 | 56 | 0.03 | 30 | 10 | 81 | 400 | - | < 2 | < 2 | 160 | 35 | 0.1 | 0.43 | 0.8 | - | - | 6.4 | 16 | 45 | 790 | 2800 | - |
| BH3 | 31-Oct-2005 | 872631 | 0.5 | 1500 | <0.01 | 35 | 0.02 | 27 | 9.2 | 75 | 340 | - | < 2 | < 2 | 150 | 27 | 0.1 | 0.02 | 1.1 | - | - | 6.4 | 17 | 32 | 740 | 2600 | - |
| BH3 | 30-Jan-2006 | 903880 | 0.63 | 1200 | 0.05 | <0.05 | 0.06 | 26 | 12 | 65 | 280 | - | < 2 | < 2 | 220 | 27 | <0.1 | 0.44 | 1 | - | - | 7.6 | 13 | 38 | 490 | 2100 | - |
| BH3 | 20-Apr-2006 | 933445 | 0.705 | 1800 | <0.01 | 37 | 0.08 | 44 | 24 | 97 | 410 | - | < 2 | < 2 | 230 | 31 | 0.1 | <0.01 | 1.4 | - | - | 6.6 | 35 | 50 | 830 | 3200 | - |
| BH3 | 25-Jul-2006 | 965728 | 0.51 | 1600 | <0.01 | 35 | 0.06 | 38 | 13 | 88 | 500 | - | < 2 | < 2 | 190 | 28 | 0.1 | <0.01 | 1.1 | - | - | 6.5 | 22 | 39 | 830 | 3100 | - |
| BH3 | 24-Oct-2006 | 993114 | 0.58 | 1400 | <0.01 | 44 | 0.02 | 31 | 16 | 76 | 350 | - | < 2 | < 2 | 220 | 27 | <0.1 | <0.01 | 1.8 | - | - | 6.6 | 11 | 54 | 680 | 2700 | - |
| BH3 | 24-Jan-2007 | 1108117 | 0.81 | 1700 | <0.01 | 35 | 0.03 | 49 | 38 | 110 | 490 | - | < 2 | < 2 | 280 | 27 | 0.1 | 0.01 | 0.9 | - | - | 6.7 | 21 | 60 | 1000 | 1000 | - |
| BH3 | 17-Apr-2007 | 1150663 | 0.81 | 1200 | <0.01 | 57 | <0.01 | 24 | 18 | 64 | 270 | - | < 2 | < 2 | 270 | 33 | 0.2 | <0.01 | 0.5 | - | - | 6.6 | 10 | 240 | 560 | 2200 | - |
| BH3 | 25-Jul-2007 | 1219305 | 0.52 | 1,800 | <0.01 | 47 | 0.03 | 38 | 21 | 98 | 470 | - | < 2 | < 2 | 130 | 47 | 0.1 | <0.01 | 0.7 | - | - | 6.9 | 16 | 62 | 1,200 | 3,600 | - |
| BH3 | 22-Oct-2007 | 1297216 | 0.52 | 1,800 | <0.01 | 22 | <0.02 | 41 | 18 | 100 | 480 | - | < 2 | < 2 | 170 | 35 | 0.3 | <0.01 | 0.7 | - | - | 8.1 | 15 | 100 | 1,000 | 3,400 | - |
| BH3 | 22-Jan-2008 | 1375493 | 0.90 | 1,800 | <0.01 | 3.5 | 0.02 | 56 | 39 | 100 | 460 | - | < 2 | < 2 | 280 | 5 | <0.1 | 0.03 | 1.3 | - | - | 7.3 | 25 | 65 | 990 | 2,800 | - |
| BH3 | 22-Apr-2008 | 1458430 | 1.250 | 1,500 | <0.01 | 37 | 0.05 | 27 | 14 | 79 | 370 | - | < 2 | < 2 | 91 | 35 | <0.1 | 0.03 | 0.8 | - | - | 6.61 | 15 | 35 | 910 | 2,900 | - |
| BH3 | 22-Jul-2008 | 1539823 | 0.54 | 1,900 | <0.01 | 12 | 0.02 | 43 | 20 | 100 | 500 | - | < 2 | < 2 | 34 | 43 | <0.1 | <0.01 | 0.7 | - | - | 6.25 | 14 | 37 | 1,200 | 3,800 | - |
| BH3 | 21-Oct-2008 | 1620241 | 0.52 | 2,000 | <0.01 | 28 | 0.02 | 38 | 19 | 97 | 480 | - | < 2 | < 2 | 110 | 39 | 0.1 | <0.01 | 1.1 | - | - | 6.07 | 14 | 38 | 1,200 | 3,700 | - |
| BH3 | 28-Jan-2009 | 1706036 | 0.80 | 1,700 | <0.01 | 4.9 | 0.01 | 46 | 25 | 89 | 420 | - | < 2 | < 2 | 240 | 21 | 0.1 | 0.03 | 1.3 | - | - | 6.6 | 16 | 52 | 960 | 3,100 | - |
| BH3 | 28-Apr-2009 | 1791389 | 1.03 | 2,000 | <0.01 | 43 | 0.05 | 73 | 20 | 110 | 490 | - | < 2 | < 2 | 120 | 47 | 0.2 | 0.03 | 0.9 | - | - | 6.7 | 17 | 52 | 1,300 | 3,800 | - |
| BH3 | 29-Jul-2009 | - | 0.58 | 2,200 | <0.01 | 6.8 | 0.05 | 43 | 20 | 110 | 580 | - | < 2 | < 2 | 80 | 43 | <0.1 | 0.005 | 0.8 | - | - | 6.5 | 14 | 46 | 1,300 | 4,200 | - |
| BH3 | 29-Oct-2009 | 1976820 | 0.054 | 2200 | < 0.01 | 38 | 0.04 | 45 | 21 | 120 | 580 | 140 | < 2 | < 2 | 140 | 47 | 0.2 | < 0.01 | 0.8 | - | - | 6.3 | 15 | 45 | 1300 | 4100 | - |
| BH3 | 28-Jan-2010 | 2070257 | 0.78 | 1700 | < 0.001 | 1.6 | 0.013 | 45 | 28 | 95 | 460 | 260 | < 2 | < 2 | 260 | 23 | < 0.1 | < 0.01 | 0.8 | - | - | 6.5 | < 1 | 55 | 880 | 3300 | - |
| BH3 | 20-Jul-2010 | 2259581 | 0.51 | 2200 | < 0.001 | 15 | 0.006 | 54 | 25 | 130 | 590 | 230 | < 2 | < 2 | 230 | 29 | 0.3 | < 0.05 | 0.9 | - | - | 6.4 | 22 | 63 | 1300 | 3700 | - |
| BH3 | 20-Oct-2010 | 2367032 | 0.49 | 2000 | < 0.001 | 37 | 0.008 | 47 | 20 | 120 | 540 | 210 | < 2 | < 2 | 210 | 32 | 0.1 | < 0.05 | 1 | - | - | 6.3 | 22 | 43 | 1300 | 3800 | - |
| BH3 | 24-Jan-2011 | 2474616 | 0.53 | 2100 | < 0.001 | 19 | 0.095 | 38 | 16 | 110 | 530 | 170 | < 2 | < 2 | 170 | 35 | 0.2 | < 0.01 | 1.3 | - | - | 6.2 | 19 | 59 | 960 | 3200 | - |
| BH3 | 19-Apr-2011 | 2574915 | 0.52 | 2200 | < 0.001 | 36 | 0.01 | 41 | 16 | 120 | 540 | 220 | < 2 | < 2 | 220 | 37 | 0.2 | 0.01 | 0.7 | - | - | 6.4 | 20 | 64 | 1200 | 3900 | - |
| BH3 | 28-Jul-2011 | 2688217 | 0.52 | 2000 | < 0.001 | 52 | 0.011 | 44 | 15 | 120 | 510 | 210 | < 2 | < 2 | 210 | 34 | 0.2 | < 0.1 | 0.7 | - | - | 6.2 | 24 | 70 | 1100 | 3700 | - |
| BH3 | 18-Oct-2011 | 2784845 | 0.53 | 2300 | < 0.01 | 45 | < 0.01 | 38 | 13 | 110 | 540 | 190 | < 2 | < 2 | 190 | 36 | 0.4 | 0.03 | 0.8 | - | - | 6.4 | - | 62 | 2100 | 3800 | - |
| BH3 | 19-Jan-2012 | 2895498 | 0.66 | 1700 | < 0.01 | 40 | < 0.01 | 32 | 14 | 82 | 370 | 210 | < 2 | < 2 | 210 | 30 | < 0.1 | < 0.1 | 1 | - | - | 6.5 | 24 | 31 | 760 | 2800 | - |
| BH3 | 02-Aug-2012 | 3131138 | 0.47 | 1900 | < 0.001 | 71 | 0.099 | 47 | 14 | 110 | 390 | 210 | < 2 | < 2 | 210 | 29 | 0.1 | 0.02 | 0.9 | - | - | 6.4 | 20 | 28 | 1000 | 3300 | - |
| BH3 | 28-Nov-2012 | 3274905 | 0.59 | 1500 | < 0.01 | 25 | < 0.01 | 29 | 13 | 71 | 330 | 240 | < 2 | < 2 | 240 | 28 | 0.1 | < 0.05 | 0.7 | - | - | 6.4 | 21 | 46 | 700 | 2600 | - |
| BH3 | 28-Feb-2013 | 3383772 | 1.19 | 1600 | < 0.01 | 27 | < 0.01 | 37 | 16 | 78 | 370 | 180 | < 2 | < 2 | 180 | 37 | 0.2 | < 0.05 | 0.9 | - | - | 6.4 | 21 | 20 | 800 | 2600 | - |
| BH3 | 16-May-2013 | 3478110 | 0.99 | 1500 | < 0.01 | 34 | < 0.01 | 33 | 11 | 80 | 390 | 130 | < 2 | < 2 | 130 | 74 | 0.2 | 0.02 | 0.7 | - | - | 6.4 | 13 | 27 | 860 | 2800 | - |
| BH3 | 28-Aug-2013 | 3598480 | 0.51 | 2500 | < 0.01 | 52 | 0.02 | 56 | 15 | 120 | 570 | 130 | < 2 | < 2 | 130 | 67 | 0.3 | < 0.1 | 0.8 | - | - | 6.3 | 15 | 23 | 1400 | 4300 | - |
| BH3 | 26-Nov-2013 | 3705704 | 0.54 | 2200 | < 0.01 | 19 | 0.06 | 37 | 12 | 86 | 480 | 90 | < 2 | < 2 | 90 | 58 | 0.1 | < 0.05 | 0.7 | - | - | 6.3 | 14 | 7 | 1300 | 4100 | - |
| BH3 | 25-Feb-2014 | 3808278 | 1.42 | 1700 | < 0.01 | 65 | 0.02 | 41 | 18 | 89 | 390 | 150 | < 2 | < 2 | 150 | 57 | 0.2 | < 0.01 | 1 | - | - | 6.5 | 16 | 30 | 930 | 3000 | - |
| BH3 | 28-May-2014 | 3917834 | 0.75 | 2900 | < 0.01 | 35 | < 0.01 | 66 | 20 | 140 | 670 | 95 | < 2 | < 2 | 95 | 84 | 0.1 | 0.02 | 0.7 | - | < 0.05 | 6.1 | 12 | 10 | 1500 | 4700 | - |
| BH3 | 26-Aug-2014 | 4022971 | 0.52 | 2200 | < 0.01 | 28 | 0.03 | 59 | 16 | 140 | 650 | 55 | < 2 | < 2 | 55 | 55 | 0.1 | < 0.05 | 0.6 | - | 0.07 | 6.2 | 9 | 13 | 1500 | 4500 | - |
| BH3 | 26-Nov-2014 | 4133546 | 0.71 | 1500 | < 0.01 | < 0.2 | < 0.01 | 41 | 18 | 86 | 440 | 150 | < 2 | < 2 | 150 | 36 | < 0.1 | < 0.1 | 1 | - | - | 6.7 | 14 | 18 | 800 | 2700 | - |
| BH3 | 25-Feb-2015 | 4243094 | 1.17 | 1800 | <0.01 | 17 | 0.04 | 40 | 21 | 80 | 360 | 110 | < 2 | < 2 | 110 | 76 | 0.2 | 0.1 | 0.07 | - | 0.8 | 6.4 | 15 | 16 | 940 | 3200 | - |
| BH3 | 27-Aug-2015 | 4455819 | 0.54 | 2200 | 0.004 | 53 | 0.035 | 57 | 14 | 130 | 650 | 120 | < 2 | < 2 | 120 | 56 | 0.1 | 0.02 | 0.6 | - | - | 6.4 | 9.8 | 13 | 1200 | 4400 | - |
| BH3 | 24-Feb-2016 | 4674178 | 1.49 | 2000 | <0.01 | 35 | 0.03 | 44 | 19 | 87 | 440 | 130 | < 2 | < 2 | 130 | 60 | 0.2 | 0.04 | 0.9 | - | - | 6.3 | 15 | <5 | 980 | 3400 | - |
| BH3 | 16-Jan-2017 | - | 0.85 | 1650 | <0.001 | 2.35 | 0.015 | 38 | 21 | 80 | 403 | 165 | <1 | <1 | 165 | 26 | 0.17 | 0.02 | 1.1 | - | - | 6.75 | 25 | 95 | 901 | 2820 | 24 |
| BH3 | 21-Mar-2017 | - | 1.4 | 1930 | <0.001 | 32.1 | 0.301 | 41 | 23 | 76 | 411 | 130 | <1 | <1 | 130 | 52 | 0.14 | 0.66 | 2.1 | - | - | 6.43 | 19 | 93 | 932 | 3590 | 33 |
| BH3 | 24-May-2017 | - | 0.67 | 2190 | <0.001 | 37.9 | 0.064 | 50 | 18 | 108 | 556 | 81 | <1 | <1 | 81 | 66 | 0.13 | <0.01 | 0.9 | - | - | 6.56 | 14 | 96 | 1210 | 3810 | 37 |
| BH3 | 23-Aug-2017 | EM1711311001 | 0.5 | 2,460 | <0.001 | 30.1 | 0.066 | 53 | 13 | 124 | 652 | 90 | <1 | <1 | 90 | 63 | 0.09 | 0.03 | 0.4 | - | - | 6.68 | 18 | 63 | 1,440 | 4,580 | 21 |
| BH3 | 09-Nov-2017 | EM1715406003 | 0.57 | 2,450 | <0.001 | 43.6 | 0.067 | 45 | 10 | 108 | 576 | 96 | <1 | <1 | 96 | 62 | 0.12 | 0.06 | 0.9 | - | - | 6.62 | 8 | <10 | 1,310 | 4,350 | 36 |
| BH3 | 09-Nov-2017 | EM1803674002 | 1.63 | 1,900 | <0.001 | 39.6 | 0.033 | 42 | 22 | 79 | 354 | 158 | <1 | <1 | 158 | 56 | 0.26 | <0.01 | 0.4 | - | - | 6.3 | 14 | <10 | 819 | 3150 | 42 |
| BH3 | 28-May-2018 | EM1808881007 | 0.76 | 2,790 | <0.001 | 7.67 | 0.031 | 60 | 18 | 119 | 712 | 46 | <1 | <1 | 46 | 55 | 0.06 | 0.02 | 0.6 | -- | - | 6.22 | 10 | 28 | 1370 | 4780 | 30 |
| BH3 | 02-Aug-2018 | EM1812371008 | 0.57 | 2,060 | <0.001 | 8.87 | 0.113 | 46 | 18 | 94 | 458 | 63 | <1 | <1 | 63 | 49 | 0.06 | 0.02 | <0.1 | - | - | 6.49 | 6 | 22 | 1,170 | 3,530 | 25 |
| BH3 | 28-Nov-2018 | EM1819277003 | 0.62 | 1,540 | <0.001 | 23.3 | 0.014 | 34 | 17 | 74 | 360 | 148 | <1 | <1 | 148 | 38 | 0.18 | 0.01 | 0.8 | - | - | 6.59 | 18 | <10 | 867 | 2,780 | 31 |
| BH3 | 25-Feb-2019 | EM1902711001 | 1.9 | 1,680 | 0.001 | 54.9 | 0.043 | 40 | 22 | 74 | 336 | 194 | <1 | <1 | 194 | 63 | 0.19 | 0.04 | 0.9 | - | - | 6.58 | 26 | <10 | 997 | 2,770 | 45 |
| BH3 | 20-May-2019 | EM1907716003 | 0.46 | 2,980 | <0.001 | 11 | 0.034 | 58 | 21 | 130 | 606 | 62 | <1 | <1 | 62 | 67 | 0.11 | 0.04 | 1 | - | - | 5.9 | 14 | <10 | 1,530 | 4,390 | 12 |
| BH3 | 20-Aug-2019 | EM1913616 | 0.5 | 2,840 | <0.001 | 5.04 | 0.019 | 60 | 17 | 135 | 724 | 50 | <1 | <1 | 50 | 67 | 0.06 | 0.02 | 1.2 | 0.53 | -- | 6.01 | 11 | <10 | 1,570 | 4,820 | 32 |
| BH3 | 04-Dec-2019 | EM1920907 | 0.61 | 2,150 | <0.001 | 54.5 | 0.033 | 43 | 17 | 100 | 460 | 71 | <1 | <1 | 71 | 68 | 0.25 | <0.01 | 1.3 | 0.52 | -- | 6.45 | 21 | <10 | 1,320 | 3,750 | 21 |
| BH3 | 10-Feb-2020 | EM2002050 | 1.18 | 2,500 | <0.001 | 32.1 | 0.016 | 50 | 25 | 102 | 501 | 146 | <1 | <1 | 146 | 48 | 0.14 | <0.01 | 1.3 | <0.01 | -- | 6.49 | 6 | 95 | 1,130 | 3,580 | 41 |
| BH3 | 19-May-2020 | EM2008425 | 0.63 | 2,610 | 0.002 | 18.7 | 0.027 | 55 | 18 | 118 | 594 | 85 | <1 | <1 | 85 | 63 | 0.05 | <0.01 | 0.6 | <0.01 | -- | 6.55 | 12 | 44 | 1,380 | 4,480 | 16 |
| BH3 | 17-Aug-2020 | EM2014279 | 0.51 | 2840 | 0.003 | 45.4 | 0.039 | 67 | 19 | 159 | 643 | 114 | <1 | <1 | 114 | 69 | 0.21 | <0.01 | 0.7 | <0.01 | - | 6.41 | 12 | <10 | 1580 | 5220 | 47 |
| BH3 | 23-Nov-2020 | EM2020734 | 0.6 | 2380 | 0.001 | 44.8 | 0.075 | 48 | 18 | 114 | 559 | 144 | <1 | <1 | 144 | 54 | 0.42 | <0.01 | 0.8 | <0.01 | - | 6.42 | 16 | <10 | 1180 | 4170 | 23 |
| BH3 | 23-Feb-2021 | EM2102910 | 0.7 | 1600 | 0.002 | 36.3 | 0.025 | 37 | 20 | 74 | 352 | 221 | <1 | <1 | 221 | 27 | 0.1 | 0.06 | 1 | 0.06 | - | 6.77 | 26 | 12 | 761 | 2840 | 28 |
| BH3 | 25-May-2021 | EM2109822 | 0.63 | 1800 | 0.002 | 0.22 | <0.005 | 49 | 27 | 88 | 379 | 242 | <1 | <1 | 242 | 13 | 0.03 | 0.01 | 0.9 | 0.01 | - | 7.02 | 19 | 40 | 888 | 3250 | 23 |
| BH3 | 14-Sep-2021 | EM2118437 | 0.63 | 2260 | 0.003 | 56 | 0.021 | 48 | 15 | 109 | 533 | 172 | <1 | <1 | 172 | 31 | 0.47 | <0.01 | 0.9 | <0.01 | -- | 6.93 | 15 | 14 | 1210 | 4250 | 39 |
| BH3 | 18-Nov-2021 | EM2123390 | 0.62 | 2340 | 0.003 | 58.7 | 0.022 | 41 | 14 | 100 | 483 | 144 | <1 | <1 | 144 | 35 | 0.62 | <0.01 | 0.7 | <0.01 | -- | 7.09 | 17 | <10 | 1110 | 3920 | 33 |
| BH3 | 01-Mar-2022 | EM2203633 | 0.64 | 1540 | 0.002 | 35.3 | 0.088 | 45 | 22 | 80 | 358 | 298 | <1 | <1 | 298 | 15 | 0.69 | 0.04 | 1.8 | 0.04 | -- | 6.86 | 19 | 33 | 747 | 2430 | 142 |
| BH3 | 17-May-2022 | EM2209266 | 0.61 | 2010 | 0.006 | 63.2 | 0.115 | 53 | 19 | 110 | 461 | 284 | <1 | <1 | 284 | 26 | 0.07 | <0.01 | 1 | <0.01 | -- | 6.71 | 18 | <20 | 1130 | 3590 | 30 |
| BH3 | 31-Aug-2022 | EM2216860 | 0.45 | 1,830 | <0.001 | 58.4 | 0.061 | 39 | 12 | 83 | 423 | 241 | <1 | <1 | 241 | 14 | 0.68 | <0.01 | 0.9 | <0.01 | -- | 6.93 | 30 | 18 | 932 | 3,240 | 14 |
| BH3 | 17-Nov-2022 | EM2222858 | 0.59 | 1,820 | 0.002 | 68.4 | 0.159 | 44 | 14 | 95 | 431 | 226 | <1 | <1 | 226 | 18 | 0.42 | 0.03 | 1 | 0.03 | -- | 6.58 | 17 | 12 | 991 | 2,950 | 26 |
| BH3 | 14-Feb-2023 | EM2302525 | 0.87 | 1,380 | 0.01 | 49.9 | 0.09 | 39 | 18 | 71 | 304 | 227 | <1 | <1 | 227 | 18 | 0.13 | <0.01 | 0.9 | <0.01 | -- | 6.67 | 30 | 13 | 669 | 2,390 | <5 |

**Historical Groundwater Lab Results**
**Hepburn Shire Council**
**Creswick Landfill**

| SAMPLE NO. | SAMPLE DATE | LAB REPORT NO. | SWL | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | m BGL | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| BH3 | 10-May-2023 | EM2308315 | 0.60 | 2,030 | 0.003 | 68.9 | 0.045 | 51 | 18 | 94 | 406 | 196 | <1 | <1 | 196 | 29 | 0.14 | <0.02 | 0.9 | 0.01 | -- | 8.15 | 23 | 117 | 917 | 3,350 | 18 |

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**Historical Groundwater Lab Results**
**Hepburn Shire Council**
**Creswick Landfill**

| SAMPLE NO. | SAMPLE DATE | LAB REPORT NO. | SWL | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | m BGL | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| BH4 | 31-Oct-2003 | 619304 | 5 | 590 | <0.01 | 18 | 0.02 | 9.4 | 0.2 | 27 | 150 | - | < 2 | < 2 | 54 | 94 | <0.1 | <0.01 | <0.3 | - | - | 5.8 | 15 | 41 | 170 | 680 | - |
| BH4 | 29-Jan-2004 | 648476 | 5.56 | 620 | <0.01 | 50 | 0.04 | 1.3 | 1.7 | 21 | 93 | - | < 2 | < 2 | 96 | 120 | 0.1 | <0.01 | 1.7 | - | - | 6 | 10 | - | 160 | 870 | - |
| BH4 | 07-Apr-2004 | 673238 | 6.11 | 590 | <0.01 | 47 | <0.01 | 12 | 1.9 | 31 | 74 | - | < 2 | < 2 | 250 | 85 | 0.1 | 0.03 | <0.3 | - | - | 6.5 | 6 | 19 | 120 | 1000 | - |
| BH4 | 21-Jul-2004 | 707748 | 5.46 | 470 | <0.01 | 1.1 | <0.01 | 7.4 | 4.9 | 22 | 92 | - | < 2 | < 2 | 94 | 80 | <0.1 | 0.02 | 0.4 | - | - | 8.2 | 6 | 17 | 140 | 770 | - |
| BH4 | 26-Oct-2004 | 743329 | 4.78 | 500 | <0.01 | 6.1 | 0.03 | 4.9 | 3.4 | 14 | 120 | - | < 2 | < 2 | 8 | 2 | <0.1 | 0.2 | <0.3 | - | - | 5.1 | 13 | 31 | 230 | 800 | - |
| BH4 | 20-Jan-2005 | 775526 | 5.39 | 470 | <0.01 | 21 | 0.05 | 0.37 | 3.2 | 13 | 130 | - | < 2 | < 2 | 30 | 35 | <0.1 | 0.16 | <0.3 | - | - | 5.8 | 12 | 29 | 240 | 790 | - |
| BH4 | 13-Apr-2005 | 804583 | 5.53 | 570 | <0.01 | 41 | 0.05 | 6.6 | 0.4 | 18 | 100 | - | < 2 | < 2 | 35 | 43 | <0.1 | <0.01 | <0.3 | - | - | 5.6 | 11 | 20 | 130 | 660 | - |
| BH4 | 28-Jul-2005 | 841921 | 5.54 | 430 | <0.01 | 24 | 0.03 | 5.5 | 0.7 | 13 | 100 | - | < 2 | < 2 | 18 | 86 | <0.1 | 0.23 | 0.7 | - | - | 5.4 | 6 | 21 | 170 | 730 | - |
| BH4 | 31-Oct-2005 | 872632 | 4.82 | 1100 | <0.01 | 16 | 0.02 | 3.6 | 0.2 | 8.9 | 76 | - | < 2 | < 2 | 16 | 44 | <0.1 | 0.28 | 0.3 | - | - | 5.3 | 9 | 16 | 100 | 450 | - |
| BH4 | 30-Jan-2006 | 903881 | 5.58 | 300 | <0.00 | 0.35 | 0.03 | 4.5 | 1.1 | 11 | 89 | - | < 2 | < 2 | 20 | 33 | <0.1 | 0.02 | 0.6 | - | - | 6.6 | 12 | 13 | 110 | 470 | - |
| BH4 | 20-Apr-2006 | 933446 | 6.245 | 390 | <0.01 | 15 | <0.01 | 5.5 | <0.1 | 15 | 95 | - | < 2 | < 2 | 100 | 45 | 0.4 | <0.01 | 0.4 | - | - | 6.4 | 16 | 20 | 110 | 680 | - |
| BH4 | 25-Jul-2006 | 965729 | 5.86 | 400 | <0.01 | 37 | 0.13 | 8.7 | 1.2 | 22 | 83 | - | < 2 | < 2 | 140 | 38 | <0.1 | 0.01 | <0.3 | - | - | 6.4 | 7 | 15 | 110 | 690 | - |
| BH4 | 24-Oct-2006 | 993115 | 6.13 | 370 | <0.01 | 28 | 0.03 | 7.5 | 0.6 | 20 | 100 | - | < 2 | < 2 | 130 | 34 | <0.1 | 0.03 | 0.7 | - | - | 6.4 | 6 | 21 | 100 | 680 | - |
| BH4 | 24-Jan-2007 | 1108118 | 7.72 | 530 | 0.01 | 66 | 1.3 | 17 | 6.3 | 28 | 63 | - | < 2 | < 2 | <2 | 230 | 0.1 | 20 | 0.4 | - | - | 3.2 | 17 | 96 | 84 | 1000 | - |
| BH4 | 25-Jul-2007 | 1219306 | 6.56 | 420 | <0.01 | 2.8 | 0.22 | 4.5 | 2.0 | 11 | 81 | - | < 2 | < 2 | 38 | 62 | <0.1 | 0.25 | 0.2 | - | - | 6.3 | 6 | 8 | 120 | 560 | - |
| BH4 | 22-Oct-2007 | 1297217 | 5.82 | 400 | <0.01 | 4.2 | 0.05 | 4.6 | 1.1 | 11 | 84 | - | < 2 | < 2 | 32 | 34 | <0.1 | 0.02 | 0.4 | - | - | 6.9 | 11 | 54 | 130 | 590 | - |
| BH4 | 22-Jul-2008 | 1539824 | 7.26 | 330 | <0.01 | 1 | 0.1 | 4.6 | 3.7 | 12 | 89 | - | < 2 | < 2 | 12 | 85 | <0.1 | 0.06 | 0.8 | - | - | 5.22 | 4 | 11 | 110 | 600 | - |
| BH4 | 21-Oct-2008 | 1620242 | 5.97 | 600 | <0.01 | 24 | 0.03 | 6.6 | 2.0 | 16 | 100 | - | < 2 | < 2 | 57 | 37 | 1.0 | <0.01 | 1.1 | - | - | - | 43 | 160 | 170 | 720 | - |
| BH4 | 29-Oct-2009 | 1976821 | 6.9 | 570 | < 0.01 | 3.4 | 0.06 | 4 | < 1 | 11 | 96 | 95 | < 2 | < 2 | 95 | 44 | < 0.1 | < 0.01 | 1 | - | - | 6.1 | 12 | < 5 | 110 | 580 | - |
| BH4 | 20-Jul-2010 | 2259582 | 7.05 | 370 | 0.011 | 4.3 | 0.064 | 5.3 | 7.2 | 15 | 110 | 160 | < 2 | < 2 | 160 | 32 | 0.3 | 0.05 | 0.5 | - | - | 6.3 | 15 | 23 | 98 | 640 | - |
| BH4 | 20-Oct-2010 | 2367033 | 4.45 | 1100 | 0.021 | 130 | 0.008 | 17 | 0.2 | 40 | 140 | 290 | < 2 | < 2 | 290 | < 5 | < 0.1 | < 0.2 | 3 | - | - | 6.3 | 180 | 420 | 150 | 1200 | - |
| BH4 | 24-Jan-2011 | 2474617 | 3.43 | 940 | 0.013 | 96 | 0.008 | 12 | 0.2 | 32 | 210 | 160 | < 2 | < 2 | 160 | 46 | 0.1 | < 0.05 | 1.5 | - | - | 5.8 | 66 | 170 | 360 | 1400 | - |
| BH4 | 19-Apr-2011 | 2574916 | 4.4 | 930 | 0.014 | 97 | 0.009 | 11 | 0.3 | 29 | 190 | 180 | < 2 | < 2 | 180 | 13 | 0.1 | < 0.01 | 0.6 | - | - | 5.8 | 63 | 190 | 280 | 1400 | - |
| BH4 | 28-Jul-2011 | 2688218 | 4.58 | 920 | 0.011 | 89 | 0.005 | 10 | 0.2 | 31 | 200 | 230 | < 2 | < 2 | 230 | 13 | 0.2 | < 0.1 | 0.9 | - | - | 5.8 | 60 | 170 | 320 | 1400 | - |
| BH4 | 18-Oct-2011 | 2784846 | 4.47 | 860 | < 0.01 | 64 | < 0.01 | 11 | 0.3 | 30 | 190 | 160 | < 2 | < 2 | 160 | 20 | < 0.1 | < 0.1 | 0.6 | - | - | 5.8 | - | 100 | 340 | 1400 | - |
| BH4 | 19-Jan-2012 | 2895499 | 4.84 | 960 | < 0.01 | 88 | < 0.01 | 11 | < 1 | 30 | 180 | 130 | < 2 | < 2 | 130 | 11 | < 0.1 | < 0.1 | 0.8 | - | - | 5.9 | 43 | 27 | 340 | 1500 | - |
| BH4 | 09-Aug-2012 | 3137527 | 4.38 | 910 | < 0.01 | 120 | 0.02 | 17 | 0.4 | 43 | 190 | 210 | < 2 | < 2 | 210 | < 50 | 0.2 | < 0.2 | 0.4 | - | - | 5.9 | 21 | 13 | 340 | 1500 | - |
| BH4 | 28-Nov-2012 | 3274906 | 4.69 | 830 | < 0.01 | 45 | < 0.01 | 10 | 0.2 | 34 | 180 | 190 | < 2 | < 2 | 190 | 41 | < 0.1 | < 0.1 | 0.3 | - | - | 6 | 23 | 14 | 340 | 1500 | - |
| BH4 | 28-Feb-2013 | 3383773 | 5.47 | 1000 | < 0.01 | 72 | < 0.01 | 15 | 0.4 | 48 | 230 | 210 | < 2 | < 2 | 210 | 26 | 0.4 | < 0.1 | 1 | - | - | 6 | 29 | 16 | 390 | 1700 | - |
| BH4 | 16-May-2013 | 3478111 | 5.86 | 1000 | < 0.01 | 110 | 0.02 | 19 | < 1 | 49 | 200 | 380 | < 2 | < 2 | 380 | 34 | 0.2 | < 0.01 | 0.7 | - | - | 6.2 | 24 | 21 | 400 | 1800 | - |
| BH4 | 28-Aug-2013 | 3598481 | 5.72 | 1100 | < 0.01 | 140 | 0.07 | 20 | 0.4 | 53 | 210 | 260 | < 2 | < 2 | 260 | 71 | < 0.1 | < 0.1 | 0.5 | - | - | 6.2 | 17 | 61 | 410 | 1800 | - |
| BH4 | 26-Nov-2013 | 3705735 | 5.32 | 960 | < 0.01 | 67 | 0.06 | 14 | 0.4 | 34 | 160 | 230 | < 2 | < 2 | 230 | 45 | 0.3 | < 0.1 | 0.7 | - | - | 6.2 | 27 | < 5 | 420 | 1700 | - |
| BH4 | 25-Feb-2014 | 3808279 | 6.36 | 920 | < 0.01 | 120 | 0.06 | 23 | 0.9 | 58 | 200 | 280 | < 2 | < 2 | 280 | 29 | 0.3 | < 0.01 | 0.9 | - | - | 6.4 | 18 | < 5 | 310 | 1500 | - |
| BH4 | 26-Aug-2014 | 4022972 | 6.32 | 670 | < 0.01 | 60 | 0.05 | 17 | < 1 | 51 | 160 | 270 | < 2 | < 2 | 270 | 49 | 0.3 | < 0.1 | 0.5 | - | 0.18 | 6.5 | 11 | < 5 | 240 | 1300 | - |
| BH4 | 27-Aug-2015 | 4455822 | 7.11 | 480 | 0.011 | 11 | 0.14 | 5.6 | 1.2 | 16 | 120 | 43 | < 2 | < 2 | 43 | 83 | 0.3 | 0.04 | 0.3 | - | - | 5.9 | 2.8 | 7 | 160 | 770 | - |
| BH4 | 16-Jan-2017 | - | 5.44 | 1540 | 0.026 | 129 | 0.031 | 15 | <1 | 49 | 233 | 334 | <1 | <1 | 334 | <10 | 0.07 | 0.01 | 5 | - | - | 6.15 | 145 | 436 | 457 | 1740 | 200 |
| BH4 | 21-Mar-2017 | - | 6.73 | 1300 | 0.037 | 193 | 0.063 | 18 | <1 | 52 | 204 | 410 | <1 | <1 | 410 | <10 | 0.14 | <0.01 | 2.6 | - | - | 6.29 | 108 | 347 | 432 | 1940 | 44 |
| BH4 | 24-May-2017 | - | 6.89 | 1020 | 0.012 | 99 | 0.076 | 14 | <1 | 53 | 198 | 334 | <1 | <1 | 334 | 20 | 0.17 | 0.02 | 1 | - | - | 6.31 | 48 | 191 | 355 | 1530 | 82 |
| BH4 | 24-Aug-2017 | EM1711445001 | 6.67 | 861 | 0.01 | 117 | 0.201 | 16 | <1 | 54 | 181 | 374 | <1 | <1 | 374 | 12 | 0.38 | <0.01 | 1.8 | - | - | 6.54 | 44 | 310 | 288 | 1430 | 56 |
| BH4 | 09-Nov-2017 | EM1715406004 | 6.82 | 756 | 0.009 | 102 | 0.271 | 14 | <1 | 47 | 155 | 351 | <1 | <1 | 351 | <1 | 0.16 | <0.01 | 0.8 | - | - | 6.54 | 26 | 171 | 240 | 1280 | 78 |
| BH4 | 19-Aug-2019 | EM1913513 | 5.3 | 1,900 | 0.007 | 30.8 | 0.081 | 18 | <1 | 49 | 272 | 53 | <1 | <1 | 53 | 25 | <0.01 | <0.01 | 3.5 | <0.01 | -- | 5.5 | 77 | 300 | 663 | 2,270 | 41 |
| BH4 | 03-Dec-2019 | EM1920764 | 5.59 | 1,600 | 0.024 | 124 | 0.012 | 18 | <1 | 56 | 288 | 196 | <1 | <1 | 196 | <20 | 0.1 | <0.01 | 2.9 | 0.03 | -77.3 | 5.87 | 89 | 285 | 782 | 2,600 | 27 |
| BH4 | 17-Aug-2020 | EM2014279 | 7.17 | 625 | 0.006 | 12.6 | 0.091 | 7 | <1 | 19 | 158 | 43 | <1 | <1 | 43 | 27 | 0.17 | 0.02 | 1.8 | 0.02 | - | 5.65 | <1 | 39 | 321 | 1150 | 42 |
| BH4 | 23-Nov-2020 | EM2020734 | 5.74 | 1510 | 0.01 | 51.6 | 0.125 | 19 | <1 | 56 | 335 | 49 | <1 | <1 | 49 | 25 | 0.14 | <0.01 | 1.9 | <0.01 | - | 5.65 | 21 | 23 | 795 | 2570 | 23 |
| BH4 | 23-Feb-2021 | EM2102910 | 5.9 | 1450 | 0.016 | 26.1 | 0.136 | 14 | <1 | 39 | 277 | <1 | <1 | <1 | <1 | 23 | 0.04 | <0.01 | 1.1 | <0.01 | - | 4.76 | 22 | 29 | 607 | 2000 | 26 |
| BH4 | 24-May-2021 | EM2109755 | 7.02 | 1130 | 0.018 | 47.8 | 0.106 | 11 | <1 | 38 | 229 | 113 | <1 | <1 | 113 | 20 | 0.08 | <0.01 | 2.4 | 0.01 | - | 6.14 | 11 | 142 | 504 | 1760 | 15 |
| BH4 | 13-Sep-2021 | EM2118306 | 4.69 | 1600 | 0.023 | 64.7 | 0.01 | 19 | <1 | 59 | 344 | 51 | <1 | <1 | 51 | 5 | 0.29 | <0.01 | 1.4 | 0.01 | -- | 5.74 | 108 | 349 | 820 | 2750 | 47 |
| BH4 | 17-Nov-2021 | EM2123379 | 4.68 | 2460 | 0.036 | 171 | 0.041 | 29 | <1 | 102 | 497 | 131 | <1 | <1 | 131 | 2 | 0.38 | <0.01 | 2.6 | <0.01 | -- | 5.84 | 108 | 350 | 1080 | 3370 | 40 |
| BH4 | 28-Feb-2022 | EM2203466 | 5.4 | 3740 | 0.061 | 141 | 0.112 | 21 | <1 | 70 | 353 | 110 | <1 | <1 | 110 | 2 | 0.26 | <0.01 | 8.3 | <0.01 | -- | 5.93 | 77 | 721 | 770 | 2420 | 74 |
| BH4 | 16-May-2022 | EM2209019 | 5.79 | 2570 | 0.032 | 144 | 0.089 | 24 | <1 | 73 | 307 | 84 | <1 | <1 | 84 | 8 | 0.54 | 0.02 | 1.5 | 0.02 | -- | 6.25 | 62 | 252 | 674 | 2320 | 42 |
| BH4 | 01-Sep-2022 | EM2217005 | 4.52 | 1,380 | 0.019 | 123 | 0.061 | 20 | <1 | 58 | 253 | 213 | <1 | <1 | 213 | 9 | 0.62 | <0.01 | 1.4 | <0.01 | -- | 6.55 | 58 | 142 | 570 | 2,030 | 28 |
| BH4 | 16-Nov-2022 | EM2222748 | 3.25 | 1,410 | 0.03 | 116 | 0.077 | 23 | <1 | 64 | 283 | 167 | <1 | <1 | 167 | 8 | 0.67 | <0.02 | 2.3 | <0.01 | -- | 6.34 | 28 | 210 | 688 | 2,100 | 56 |
| BH4 | 13-Feb-2023 | EM2302400 | 4.88 | 1,060 | 0.012 | 39.5 | 0.035 | 12 | <1 | 37 | 239 | 71 | <1 | <1 | 71 | 6 | <0.01 | 0.03 | 0.7 | 0.03 | -- | 5.96 | 39 | 145 | 550 | 1,770 | 25 |
| BH4 | 10-May-2023 | EM2308315 | 5.33 | 1,510 | 0.012 | 82.9 | 0.017 | 20 | <1 | 58 | 303 | 96 | <1 | <1 | 96 | 2 | 0.16 | 0.08 | 0.7 | 0.08 | -- | 7.71 | 35 | 149 | 720 | 2,300 | 60 |

**Historical Groundwater Lab Results**
**Hepburn Shire Council**
**Creswick Landfill**

| SAMPLE NO. | SAMPLE DATE | LAB REPORT NO. | SWL | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | m BGL | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| BH5 | 31-Oct-2003 | 619300 | 11 | 420 | <0.01 | <0.05 | 0.02 | 5.3 | 1.4 | 27 | 140 | - | - | - | 8 | 14 | <0.1 | 0.29 | <0.3 | - | - | 5.4 | <1 | <2 | 220 | 670 | - |
| BH5 | 29-Jan-2004 | 648472 | 11.45 | 1200 | <0.01 | 22 | 0.01 | 9.7 | 5.8 | 44 | 200 | - | - | - | 120 | 33 | 0.1 | <0.01 | 4.8 | - | - | 6.4 | 10 | - | 500 | 1500 | - |
| BH5 | 07-Apr-2004 | 673234 | 11.55 | 430 | <0.01 | <0.05 | <0.01 | 6.8 | <0.1 | 22 | 88 | - | - | - | 10 | 3.3 | <0.1 | 0.29 | <0.3 | - | - | 5.7 | <1 | <2 | 240 | 930 | - |
| BH5 | 21-Jul-2004 | 707744 | 11.485 | 450 | <0.01 | <0.05 | 0.07 | 4.7 | 5.6 | 25 | 100 | - | - | - | 8 | 17 | 0.1 | 0.24 | 0.5 | - | - | 5.9 | 1 | 12 | 250 | 920 | - |
| BH5 | 26-Oct-2004 | 743325 | 11.5 | 460 | <0.01 | <0.05 | 0.02 | 5.2 | 3.9 | 23 | 110 | - | - | - | <2 | 16 | <0.1 | 0.2 | <0.3 | - | - | 5.6 | 1 | 6 | 250 | 880 | - |
| BH5 | 20-Jan-2005 | 775530 | 11.55 | 460 | <0.01 | <0.05 | 0.03 | 0.49 | 4 | 23 | 110 | - | - | - | 10 | 17 | <0.1 | 0.15 | <0.3 | - | - | 5.6 | <1 | 4 | 280 | 850 | - |
| BH5 | 13-Apr-2005 | 804579 | 11.65 | 480 | <0.01 | 0.26 | 0.03 | 5.3 | 1.6 | 25 | 120 | - | - | - | 15 | 18 | <0.1 | 0.26 | 0.3 | - | - | 5.3 | 2 | <2 | 210 | 850 | - |
| BH5 | 28-Jul-2005 | 841922 | 11.81 | 430 | <0.01 | 0.23 | 0.03 | 5 | 1.7 | 22 | 120 | - | - | - | 10 | 21 | <0.1 | 0.25 | <0.3 | - | - | 5.4 | 2 | 10 | 260 | 860 | - |
| BH5 | 31-Oct-2005 | 872628 | 11.55 | 430 | <0.01 | <0.05 | 0.03 | 5 | 1.4 | 22 | 110 | - | - | - | 10 | 17 | <0.1 | 0.23 | 0.3 | - | - | 5.5 | 5 | <2 | 260 | 850 | - |
| BH5 | 30-Jan-2006 | 903877 | 11.67 | 490 | <0.00 | <0.05 | 0.11 | 5 | 1.7 | 20 | 130 | - | - | - | 10 | 23 | <0.1 | 0.16 | 0.7 | - | - | 6.5 | 4 | 4 | 270 | 870 | - |
| BH5 | 20-Apr-2006 | 933442 | 11.93 | 510 | <0.01 | <0.05 | 0.07 | 5.5 | 1.3 | 25 | 130 | - | - | - | 4 | 16 | 0.2 | 0.14 | <0.3 | - | - | 5.4 | 7 | <2 | 260 | 910 | - |
| BH5 | 25-Jul-2006 | 965725 | 11.93 | 450 | <0.01 | <0.05 | 0.09 | 5.2 | <0.5 | 23 | 150 | - | - | - | 18 | 15 | <0.1 | 0.1 | <0.3 | - | - | 5.3 | 3 | <2 | 260 | 900 | - |
| BH5 | 24-Oct-2006 | 993111 | 12.11 | 460 | <0.01 | 0.08 | 0.03 | 5.4 | 1.2 | 25 | 140 | - | - | - | 52 | 17 | <0.1 | 0.14 | 0.3 | - | - | 5.4 | 3 | <2 | 240 | 940 | - |
| BH5 | 24-Jan-2007 | 1108114 | 12.19 | 460 | 0.03 | 65 | 1 | 7.3 | 5.2 | 35 | 140 | - | - | - | 7 | 18 | <0.1 | <0.01 | <0.1 | - | - | 5.4 | 19 | <2 | 290 | 950 | - |
| BH5 | 17-Apr-2007 | 1150660 | 12.25 | 530 | <0.01 | 4 | 0.14 | 10 | 6.5 | 27 | 140 | - | - | - | 38 | 17 | <0.1 | 0.03 | <0.1 | - | - | 5.4 | 9 | <2 | 350 | 940 | - |
| BH5 | 25-Jul-2007 | 1219302 | 13.23 | 460 | <0.01 | 0.3 | 0.03 | 5.2 | 2.9 | 24 | 130 | - | - | - | 15 | 15 | <0.1 | 0.07 | <0.1 | - | - | 6.1 | 4 | 7 | 300 | 970 | - |
| BH5 | 22-Oct-2007 | 1297213 | 12.25 | 480 | <0.01 | <0.2 | 0.04 | 7.0 | 2.6 | 30 | 140 | - | - | - | 16 | 18 | <0.1 | 0.04 | <0.05 | - | - | 6.5 | 2 | 30 | 270 | 1,000 | - |
| BH5 | 22-Jan-2008 | 1375490 | 12.44 | 510 | <0.01 | <0.2 | 0.04 | 6.2 | 1.2 | 27 | 140 | - | - | - | 13 | 17 | <0.1 | 0.25 | <0.1 | - | - | 6.0 | 2 | 4 | 290 | 950 | - |
| BH5 | 22-Apr-2008 | 1458427 | 12.60 | 500 | <0.01 | <0.2 | 0.05 | 3.8 | <0.5 | 24 | 130 | - | - | - | 12 | 19 | <0.1 | 0.09 | 0.1 | - | - | 5.22 | 2 | <2 | 300 | 1,000 | - |
| BH5 | 22-Jul-2008 | 1539820 | 12.55 | 440 | <0.01 | <0.2 | 0.06 | 6.9 | 2.0 | 29 | 130 | - | - | - | 43 | 17 | <0.1 | <0.01 | <0.1 | - | - | 5.07 | 2 | <2 | 280 | 1,000 | - |
| BH5 | 21-Oct-2008 | 1620238 | 12.25 | 510 | <0.01 | 0.4 | 0.03 | 4.9 | 1.2 | 23 | 120 | - | - | - | 12 | 18 | <0.1 | 0.02 | 0.2 | - | - | 4.75 | 1 | <10 | 310 | 1,000 | - |
| BH5 | 28-Jan-2009 | 1706033 | 12.42 | 500 | <0.01 | <0.2 | 0.09 | 6.2 | 1.7 | 27 | 130 | - | - | - | 11 | 18 | <0.1 | 0.06 | 0.2 | - | - | 5.1 | 2 | 31 | 280 | 1,000 | - |
| BH5 | 28-Apr-2009 | 1791386 | 12.66 | 510 | <0.01 | 0.3 | 0.1 | 11 | 1.8 | 25 | 140 | - | - | - | 11 | 20 | <0.1 | 0.02 | 0.3 | - | - | 3.4 | 1 | 6 | 280 | 1,200 | - |
| BH5 | 29-Jul-2009 | - | 12.58 | 480 | <0.01 | 0.3 | 0.1 | 6 | 2 | 27 | 140 | - | - | - | 13 | 19 | <0.1 | 0.003 | <0.1 | - | - | 5.5 | 2 | <5 | 280 | 1,000 | - |
| BH5 | 29-Oct-2009 | 1976817 | 12.27 | 530 | < 0.01 | 0.4 | 0.04 | 6 | 2 | 26 | 130 | 21 | < 2 | < 2 | 21 | 21 | < 0.1 | < 0.01 | < 0.1 | - | - | 5.2 | 2 | < 5 | 290 | 1000 | - |
| BH5 | 28-Jan-2010 | 2070254 | 12.28 | 480 | < 0.001 | 0.34 | 0.05 | 6.1 | 3.2 | 29 | 130 | 12 | < 2 | < 2 | 12 | 19 | < 0.1 | 0.02 | < 0.1 | - | - | 5.1 | 2 | < 5 | 310 | 1000 | - |
| BH5 | 20-Jul-2010 | 2259579 | 11.89 | 570 | < 0.001 | 0.37 | 0.038 | 6.3 | 3.2 | 29 | 130 | 13 | < 2 | < 2 | 13 | 20 | < 0.1 | 0.06 | < 0.1 | - | - | 5.2 | 2 | 10 | 280 | 970 | - |
| BH5 | 20-Oct-2010 | 2367030 | 10.34 | 510 | < 0.001 | 0.4 | 0.038 | 6.8 | 1.4 | 31 | 130 | 12 | < 2 | < 2 | 12 | 20 | < 0.1 | < 0.01 | 0.1 | - | - | 5.1 | 5 | < 5 | 330 | 1000 | - |
| BH5 | 24-Jan-2011 | 2474614 | 9.68 | 570 | < 0.001 | 0.12 | 0.036 | 6.5 | 1.5 | 30 | 150 | 11 | < 2 | < 2 | 11 | 22 | < 0.1 | < 0.01 | 0.2 | - | - | 5.1 | 6 | < 10 | 330 | 1100 | - |
| BH5 | 19-Apr-2011 | 2574913 | 9.95 | 520 | < 0.001 | 0.13 | 0.033 | 6.4 | 1.5 | 28 | 150 | 12 | < 2 | < 2 | 12 | 21 | < 0.1 | 0.05 | < 0.1 | - | - | 5.2 | 2 | 6 | 280 | 1100 | - |
| BH5 | 28-Jul-2011 | 2688214 | 10.03 | 480 | < 0.001 | 0.28 | 0.036 | 5.8 | 1.5 | 26 | 140 | 12 | < 2 | < 2 | 12 | 22 | < 0.1 | 0.01 | 0.1 | - | - | 5.2 | 3 | 9 | 320 | 1000 | - |
| BH5 | 28-Nov-2012 | 3274902 | 10.08 | 360 | < 0.01 | < 0.2 | 0.03 | 3 | 1.2 | 16 | 100 | 15 | < 2 | < 2 | 15 | 20 | < 0.1 | 0.7 | < 0.1 | - | - | 5.4 | 3 | < 5 | 190 | 720 | - |
| BH5 | 27-Feb-2013 | 3383768 | 10.4 | 380 | < 0.01 | < 0.2 | 0.01 | 3 | 1.1 | 16 | 100 | 39 | < 2 | < 2 | 39 | 21 | < 0.1 | 0.98 | < 0.1 | - | - | 5.2 | 3 | < 5 | 190 | 700 | - |

**Historical Groundwater Lab Results**
**Hepburn Shire Council**
**Creswick Landfill**

| SAMPLE NO. | SAMPLE DATE | LAB REPORT NO. | SWL | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | m BGL | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| BH6 | 16-Jan-2017 | - | 12.09 | 422 | <0.001 | 0.17 | 0.142 | 4 | 1 | 20 | 107 | 7 | <1 | <1 | 7 | 20 | 0.02 | 0.51 | <0.1 | - | - | 5.22 | 1 | <10 | 245 | 790 | 18 |
| BH6 | 21-Mar-2017 | - | 12.3 | 478 | <0.001 | 0.1 | 0.106 | 4 | 1 | 19 | 102 | 11 | <1 | <1 | 410 | 20 | 0.02 | 0.53 | 0.2 | - | - | 5.39 | 1 | <10 | 234 | 784 | 18 |
| BH6 | 23-May-2017 | - | 12.41 | 548 | <0.001 | <0.05 | 0.086 | 5 | 2 | 23 | 127 | 8 | <1 | <1 | 8 | 20 | 0.03 | 0.53 | 0.3 | - | - | 5.44 | 2 | 17 | 256 | 776 | 11 |
| BH6 | 23-Aug-2017 | EM1711442003 | 12.42 | 593 | <0.001 | 0.2 | 0.14 | 6 | 2 | 22 | 107 | 9 | <1 | <1 | 9 | 21 | 0.02 | 0.48 | <0.1 | - | - | 6.62 | 3 | 28 | 249 | 848 | 9 |
| BH6 | 08-Nov-2017 | EM1715369001 | 12.51 | 508 | <0.001 | 0.11 | 0.045 | 5 | 1 | 23 | 108 | 13 | <1 | <1 | 13 | 20 | 0.02 | 0.55 | <0.1 | - | - | 5.82 | <1 | <10 | 235 | 786 | 23 |
| BH6 | 26-Feb-2018 | EM1803674003 | 12.77 | 516 | <0.001 | 0.2 | 0.117 | 4 | 2 | 19 | 106 | 12 | <1 | <1 | 12 | 20 | 0.02 | 0.7 | <0.1 | - | - | 5 | <1 | <10 | 227 | 795 | 28 |
| BH6 | 28-May-2018 | EM1808540001 | 12.98 | 484 | <0.001 | <0.05 | 0.069 | 6 | 1 | 18 | 93 | 12 | <1 | <1 | 12 | 18 | 0.04 | 0.74 | 0.1 | -- | - | 5.7 | 1 | <10 | 225 | 728 | 32 |
| BH6 | 31-Jul-2018 | EM1812248001 | 12.93 | 483 | <0.001 | 0.18 | 0.096 | 5 | 2 | 20 | 98 | 27 | <1 | <1 | 27 | 18 | <0.01 | 0.85 | <0.1 | - | - | 6.11 | <1 | 38 | 226 | 780 | 34 |
| BH6 | 28-Nov-2018 | EM1819277004 | 13.02 | 398 | <0.001 | 0.06 | 0.05 | 4 | 1 | 18 | 93 | 30 | <1 | <1 | 30 | 20 | 0.02 | 0.85 | 0.2 | - | - | 5.62 | 2 | 34 | 216 | 732 | 17 |
| BH6 | 26-Feb-2019 | EM1902808003 | 13.22 | 427 | <0.001 | 0.13 | 0.046 | 3 | 1 | 17 | 96 | 9 | <1 | <1 | 9 | 22 | 0.09 | 0.73 | <0.1 | - | - | 5.62 | 4 | <10 | 254 | 731 | 30 |
| BH6 | 21-May-2019 | EM1907812006 | 13.23 | 410 | 0.002 | 0.31 | 0.067 | 4 | 1 | 17 | 96 | 10 | <1 | <1 | 10 | 18 | 0.04 | 0.58 | <0.1 | - | - | 5.05 | <1 | <10 | 231 | 785 | 9 |
| BH6 | 20-Aug-2019 | EM1913616 | 12.45 | 447 | <0.001 | <0.05 | 0.054 | 4 | 1 | 18 | 96 | 11 | <1 | <1 | 11 | 21 | 0.01 | 0.53 | <0.1 | <0.01 | -- | 5.37 | <1 | <10 | 234 | 745 | 21 |
| BH6 | 05-Dec-2019 | EM1920919 | 12.41 | 466 | <0.001 | 0.07 | 0.05 | 4 | 2 | 19 | 96 | 6 | <1 | <1 | 6 | 33 | 0.02 | 0.62 | 1.4 | 0.02 | -- | 5.04 | 2 | <10 | 225 | 800 | 6 |
| BH6 | 11-Feb-2020 | EM2002157 | 12.6 | 515 | <0.001 | <0.05 | 0.054 | 4 | 2 | 20 | 97 | 8 | <1 | <1 | 8 | 18 | 0.01 | 0.53 | 0.4 | 0.04 | -- | 6.02 | <1 | <10 | 238 | 757 | 9 |
| BH6 | 20-May-2020 | EM2008511 | 12.69 | 494 | 0.001 | 0.26 | 0.043 | 4 | 1 | 21 | 100 | 12 | <1 | <1 | 12 | 19 | <0.01 | 0.52 | <0.1 | 0.72 | -- | 5.87 | <1 | <10 | 234 | 821 | 11 |
| BH6 | 19-Aug-2020 | EM2014471 | 12.59 | 427 | <0.001 | 0.11 | 0.055 | 4 | 2 | 21 | 102 | 13 | <1 | <1 | 13 | 18 | <0.01 | 0.47 | 0.2 | 0.47 | - | 6.82 | <1 | <10 | 250 | 847 | 40 |
| BH6 | 24-Nov-2020 | EM2021040 | 12.38 | 454 | <0.001 | <0.05 | 0.113 | 4 | 1 | 21 | 102 | 12 | <1 | <1 | 12 | 18 | 0.06 | 0.57 | <0.1 | 0.57 | - | 6.05 | <1 | <10 | 228 | 799 | 15 |
| BH6 | 22-Feb-2021 | EM2102856 | 12.41 | 444 | <0.001 | 0.07 | 0.041 | 4 | 1 | 20 | 101 | 9 | <1 | <1 | 9 | 19 | <0.01 | 0.6 | 0.4 | 0.6 | - | 5.37 | <1 | <10 | 260 | 795 | 18 |
| BH6 | 24-May-2021 | EM2109755 | 12.6 | 506 | 0.003 | 0.49 | 0.052 | 4 | 1 | 20 | 98 | 11 | <1 | <1 | 11 | 20 | 0.02 | 0.63 | 0.2 | 0.63 | - | 5.43 | <1 | <10 | 226 | 782 | 15 |
| BH6 | 15-Sep-2021 | EM2118538 | 12.04 | 494 | 0.001 | 0.25 | 0.042 | 4 | 2 | 21 | 100 | 11 | <1 | <1 | 11 | 21 | 0.07 | 0.76 | <0.1 | 0.76 | -- | 5.62 | <10 | <10 | 255 | 804 | 19 |
| BH6 | 19-Nov-2021 | EM2123116 | 12.03 | 426 | 0.002 | 0.25 | 0.042 | 4 | 2 | 19 | 94 | 10 | <1 | <1 | 10 | 22 | 0.1 | 0.82 | 0.1 | 0.82 | -- | 5.19 | <5 | <10 | 233 | 736 | 12 |
| BH6 | 02-Mar-2022 | EM2203679 | 12.19 | 450 | <0.001 | -- | 0.062 | 4 | 1 | 19 | 96 | 10 | <1 | <1 | 10 | 20 | 0.19 | 0.89 | 1.6 | 0.89 | -- | -- | <1 | <10 | 213 | -- | 16 |
| BH6 | 16-May-2022 | EM2209138 | 12.37 | 365 | <0.001 | -- | 0.041 | 4 | 1 | 18 | 94 | 15 | <1 | <1 | 15 | 20 | 0.08 | 0.79 | <0.1 | 0.79 | -- | -- | 5 | <10 | 218 | -- | 12 |
| BH6 | 02-Sep-2022 | EM2217005 | 11.72 | 439 | 0.001 | 0.3 | 0.059 | 4 | 1 | 17 | 94 | 10 | <1 | <1 | 10 | 20 | <0.01 | 0.97 | 0.4 | 0.97 | -- | 5.79 | 5 | <10 | 215 | 746 | 11 |
| BH6 | 17-Nov-2022 | EM2222858 | 11.20 | 375 | 0.001 | 0.22 | 0.077 | 4 | 1 | 18 | 91 | 12 | <1 | <1 | 12 | 20 | <0.01 | 1.39 | 0.3 | 1.39 | -- | 5.57 | <1 | 12 | 197 | 754 | 30 |
| BH6 | 14-Feb-2023 | EM2302525 | 11.65 | 395 | 0.003 | 0.41 | 0.043 | 5 | 1 | 17 | 91 | 13 | <1 | <1 | 13 | 19 | <0.01 | 1.91 | 0.3 | 1.91 | -- | 5.66 | 4 | 16 | 182 | 661 | <5 |
| BH6 | 10-May-2023 | EM2308315 | 11.96 | 425 | 0.001 | 0.12 | 0.034 | 4 | 1 | 17 | 90 | 10 | <1 | <1 | 10 | 20 | <0.01 | 2.01 | 0.4 | 2.01 | -- | 6.92 | <1 | <10 | 180 | 674 | 11 |

**Historical Groundwater Lab Results**
**Hepburn Shire Council**
**Creswick Landfill**

| SAMPLE NO. | SAMPLE DATE | LAB REPORT NO. | SWL | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | m BGL | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| BH7 | 16-Jan-2017 | - | 2.7 | 542 | <0.001 | 5.41 | 0.013 | 19 | 13 | 22 | 123 | 148 | <1 | <1 | 148 | 11 | 0.62 | <0.01 | 1.2 | - | - | 6.34 | 8 | 28 | 250 | 1010 | 27 |
| BH7 | 21-Mar-2017 | - | 2.85 | 685 | <0.001 | 57.6 | 0.033 | 17 | 10 | 22 | 116 | 162 | <1 | <1 | 162 | 3 | 0.73 | <0.01 | 0.08 | - | - | 6.42 | 6 | 22 | 272 | 1080 | 31 |
| BH7 | 24-May-2017 | - | 2.57 | 690 | <0.001 | 48.2 | 0.029 | 19 | 13 | 26 | 132 | 110 | <1 | <1 | 110 | 18 | 0.61 | <0.01 | 1.1 | - | - | 6.4 | 7 | 79 | 319 | 1070 | 40 |
| BH7 | 22-Aug-2017 | EM1711311002 | 2.37 | 863 | <0.001 | 11.4 | 0.009 | 36 | 19 | 35 | 146 | 172 | <1 | <1 | 172 | 3 | 0.48 | 0.01 | 1.5 | - | - | 6.48 | 7 | 65 | 390 | 1,410 | 11 |
| BH7 | 08-Nov-2017 | EM1715369002 | 2.47 | 840 | <0.001 | 43.2 | 0.027 | 29 | 15 | 31 | 149 | 192 | <1 | <1 | 192 | 3 | 0.71 | 0.01 | 1.4 | - | - | 6.6 | 3 | 105 | 363 | 1,310 | 60 |
| BH7 | 26-Feb-2018 | EM1803674004 | 3.14 | 636 | <0.001 | 47.5 | 0.033 | 18 | 12 | 25 | 116 | 142 | <1 | <1 | 142 | <1 | 0.32 | <0.01 | 0.4 | - | - | 6.7 | 7 | 73 | 250 | 1215 | 32 |
| BH7 | 28-May-2018 | EM1808721003 | 2.73 | 657 | <0.001 | 51.4 | 0.044 | 22 | 14 | 27 | 128 | 166 | <1 | <1 | 166 | 10 | 0.91 | <0.01 | 1 | -- | - | 6.55 | 6 | 58 | 306 | 1150 | 76 |
| BH7 | 02-Aug-2018 | EM1812371007 | 2.46 | 865 | <0.001 | 57.9 | 0.06 | 36 | 19 | 36 | 152 | 180 | <1 | <1 | 180 | 6 | 0.82 | 0.01 | 1.3 | - | - | 6.46 | <5 | <10 | 411 | 1,280 | 23 |
| BH7 | 27-Nov-2018 | EM1819190001 | 2.63 | 956 | <0.001 | 11.3 | 0.012 | 28 | 16 | 33 | 160 | 111 | <1 | <1 | 111 | 21 | 0.76 | 0.02 | 2.4 | - | - | 6.96 | 12 | <10 | 391 | 1,450 | 38 |
| BH7 | 25-Feb-2019 | EM1902711002 | 3.38 | 639 | 0.027 | 79.1 | 0.024 | 16 | 11 | 25 | 115 | 171 | <1 | <1 | 171 | 1 | 0.66 | 0.06 | 0.8 | - | - | 6.46 | 17 | <10 | 314 | 959 | 58 |
| BH7 | 20-May-2019 | EM1907716004 | 2.6 | 714 | <0.001 | 14.8 | 0.009 | 19 | 13 | 25 | 136 | 119 | <1 | <1 | 119 | 24 | 0.73 | <0.01 | 1.5 | - | - | 6.38 | 6 | <10 | 352 | 1,160 | 16 |
| BH7 | 19-Aug-2019 | EM1913513 | 2.38 | 840 | <0.001 | 31.9 | 0.011 | 31 | 18 | 33 | 154 | 206 | <1 | <1 | 206 | 45 | 0.8 | <0.01 | 1.8 | 4.04 | -- | 6.41 | 12 | 136 | 377 | 1,630 | 48 |
| BH7 | 04-Dec-2019 | EM1920907 | 2.51 | 769 | <0.001 | 63.7 | 0.007 | 28 | 15 | 34 | 151 | 122 | <1 | <1 | 122 | 29 | 0.81 | <0.01 | 1.2 | 0.14 | -- | 6.6 | 14 | 64 | 406 | 1,410 | 17 |
| BH7 | 11-Feb-2020 | EM2002157 | 2.97 | 960 | <0.001 | 62.6 | 0.015 | 31 | 18 | 36 | 165 | 146 | <1 | <1 | 146 | 32 | 0.69 | <0.01 | 1.5 | 0.07 | -- | 6.74 | 6 | 70 | 401 | 1,410 | 17 |
| BH7 | 19-May-2020 | EM2008425 | 2.53 | 748 | 0.113 | 115 | 0.114 | 22 | 14 | 28 | 153 | 154 | <1 | <1 | 154 | 31 | 0.43 | 0.03 | 1.8 | 0.14 | -- | 6.44 | 9 | <10 | 365 | 1,270 | 24 |
| BH7 | 17-Aug-2020 | EM2014279 | 2.39 | 996 | 0.023 | 83.4 | 0.032 | 42 | 22 | 47 | 183 | 210 | <1 | <1 | 210 | 15 | 1.01 | <0.01 | 1.4 | <0.01 | - | 6.4 | <1 | 56 | 483 | 1790 | 88 |
| BH7 | 23-Nov-2020 | EM2020734 | 2.48 | 935 | 0.028 | 86.9 | 0.13 | 33 | 18 | 38 | 205 | 181 | <1 | <1 | 181 | 40 | 1.4 | <0.01 | 7.4 | <0.01 | - | 6.31 | 3 | <10 | 484 | 1640 | 36 |
| BH7 | 23-Feb-2021 | EM2102910 | 2.57 | 950 | 0.033 | 75.5 | 0.051 | 21 | 14 | 29 | 187 | 142 | <1 | <1 | 142 | 45 | 0.39 | <0.01 | 1.5 | <0.01 | - | 6.44 | 10 | <10 | 421 | 1540 | 24 |
| BH7 | 25-May-2021 | EM2109822 | 2.52 | 885 | 0.02 | 64.2 | 0.029 | 20 | 15 | 28 | 180 | 66 | <1 | <1 | 66 | 30 | 0.41 | <0.01 | 0.9 | <0.01 | - | 6.18 | 5 | 62 | 412 | 1500 | 16 |
| BH7 | 14-Sep-2021 | EM2118437 | 2.5 | 613 | 0.022 | 64.5 | 0.026 | 17 | 12 | 23 | 136 | 141 | <1 | <1 | 141 | 31 | 0.65 | 0.01 | 0.9 | 0.03 | -- | 6.79 | 2 | <10 | 264 | 1240 | 40 |
| BH7 | 18-Nov-2021 | EM2123390 | 2.5 | 641 | 0.014 | 62 | 0.018 | 13 | 11 | 22 | 130 | 127 | <1 | <1 | 127 | 25 | 1 | 0.01 | 2.2 | 0.01 | -- | 7.04 | 6 | <20 | 252 | 1070 | 36 |
| BH7 | 01-Mar-2022 | EM2203633 | 2.6 | 621 | 0.003 | 48.3 | 0.034 | 17 | 12 | 24 | 135 | 133 | <1 | <1 | 133 | 31 | 1.19 | 0.02 | 1.2 | 0.02 | -- | 6.39 | 6 | <10 | 296 | 1020 | 18 |
| BH7 | 17-May-2022 | EM2209266 | 2.49 | 590 | 0.012 | 43.9 | 0.028 | 21 | 16 | 23 | 116 | 134 | <1 | <1 | 134 | 5 | 0.41 | 0.02 | 0.8 | 0.02 | -- | 6.6 | 4 | <20 | 290 | 1050 | 37 |
| BH7 | 31-Aug-2022 | EM2216860 | 2.42 | 588 | 0.002 | 44.9 | 0.037 | 24 | 16 | 26 | 119 | 146 | <1 | <1 | 146 | 12 | 0.8 | 0.02 | 1.2 | 0.02 | -- | 6.79 | 9 | <10 | 263 | 1,090 | 25 |
| BH7 | 17-Nov-2022 | EM2222858 | 2.42 | 462 | 0.004 | 39.2 | 0.018 | 22 | 15 | 24 | 100 | 181 | <1 | <1 | 181 | 9 | 0.43 | 0.01 | 1 | 0.01 | -- | 6.63 | 13 | <10 | 168 | 934 | 31 |
| BH7 | 14-Feb-2023 | EM2302525 | 2.69 | 573 | 0.035 | 85.1 | 0.07 | 18 | 15 | 24 | 111 | 152 | <1 | <1 | 152 | 10 | 0.79 | <0.01 | 0.9 | <0.01 | -- | 6.53 | 15 | 196 | 205 | 924 | <5 |
| BH7 | 10-May-2023 | EM2308315 | 2.31 | 500 | 0.003 | 16.1 | 0.013 | 25 | 18 | 25 | 106 | 146 | <1 | <1 | 146 | 2 | 1.51 | 0.02 | 1.5 | 0.02 | -- | 8.03 | 12 | 65 | 210 | 928 | 29 |

**Historical Groundwater Lab Results**
**Hepburn Shire Council**
**Creswick Landfill**

| SAMPLE NO. | SAMPLE DATE | LAB REPORT NO. | SWL | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | m BGL | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| BH8 | 16-Jan-2017 | - | 3.15 | 627 | <0.001 | 10.2 | 0.035 | 16 | 8 | 47 | 129 | 430 | <1 | <1 | 430 | 15 | 9.35 | 0.13 | 9.7 | - | - | 6.46 | 34 | 117 | 144 | 1150 | 76 |
| BH8 | 21-Mar-2017 | - | 3.39 | 614 | 0.001 | 77.6 | 0.047 | 11 | 7 | 38 | 114 | 414 | <1 | <1 | 414 | <1 | 7.52 | <0.01 | 7.8 | - | - | 6.56 | 41 | 129 | 162 | 1180 | 64 |
| BH8 | 24-May-2017 | - | 3.38 | 447 | <0.001 | 31.2 | 0.016 | 4 | 3 | 28 | 102 | 252 | <1 | <1 | 252 | 2 | 3.1 | 0.04 | 3.2 | - | - | 6.84 | 17 | 117 | 118 | 783 | 40 |
| BH8 | 22-Aug-2017 | EM1711311003 | 3.26 | 510 | <0.001 | 4.43 | 0.049 | 10 | 4 | 28 | 94 | 252 | <1 | <1 | 252 | 3 | 3.93 | 0.04 | 4.3 | - | - | 7.01 | 17 | 317 | 112 | 769 | 9 |
| BH8 | 08-Nov-2017 | EM1715369003 | 3.24 | 596 | 0.001 | 39.9 | 0.034 | 9 | 5 | 36 | 103 | 313 | <1 | <1 | 313 | 2 | 6.84 | 0.01 | 7.6 | - | - | 6.76 | 21 | 194 | 127 | 920 | 74 |
| BH8 | 27-Feb-2018 | EM1803772002 | 3.54 | 533 | <0.001 | 19.4 | 0.027 | 5 | 3 | 28 | 97 | 250 | <1 | <1 | 250 | 3 | 1.67 | 0.06 | 4.9 | - | - | 6.9 | 21 | <50 | 100 | - | - |
| BH8 | 28-May-2018 | EM1808721004 | 3.6 | 434 | <0.001 | 30.9 | 0.024 | 2 | <1 | 25 | 97 | 236 | <1 | <1 | 236 | 3 | 1.06 | <0.01 | 1.4 | -- | - | 6.92 | 10 | <10 | 107 | 730 | 70 |
| BH8 | 01-Aug-2018 | EM1812302003 | 3.5 | 398 | <0.001 | 31.6 | 0.07 | 2 | 1 | 24 | 105 | 233 | <1 | <1 | 233 | 2 | 1.06 | <0.01 | 1.5 | - | - | 6.93 | 10 | 85 | 106 | 717 | 23 |
| BH8 | 27-Nov-2018 | EM1819190002 | 3.48 | 418 | <0.001 | 1.61 | 0.006 | 2 | <1 | 22 | 105 | 208 | <1 | <1 | 208 | 3 | 0.7 | 0.03 | 1.1 | - | - | 7.83 | 9 | <10 | 105 | 747 | 30 |
| BH8 | 25-Feb-2019 | EM1902711003 | 3.68 | 528 | 0.099 | 121 | 0.128 | 2 | 1 | 21 | 95 | 244 | <1 | <1 | 244 | 6 | 0.91 | 0.23 | 3.5 | - | - | 6.71 | 33 | <10 | 115 | 671 | 42 |
| BH8 | 20-May-2019 | EM1907716005 | 3.74 | 469 | <0.001 | <0.05 | 0.006 | 2 | <1 | 20 | 103 | 227 | <1 | <1 | 227 | 3 | 0.78 | 0.02 | 1.6 | - | - | 6.75 | 10 | <10 | 123 | 748 | 18 |
| BH8 | 20-Aug-2019 | EM1913616 | 2.75 | 504 | <0.001 | 14.8 | 0.013 | 13 | 5 | 25 | 110 | 192 | <1 | <1 | 192 | 108 | 3.7 | <0.01 | 6 | 0.17 | -- | 6.21 | 25 | 200 | 99 | 877 | 57 |
| BH8 | 04-Dec-2019 | EM1920907 | 3.14 | 515 | 0.002 | 60.9 | 0.021 | 14 | 5 | 37 | 113 | 309 | <1 | <1 | 309 | 19 | 5.47 | 0.02 | 9.6 | <0.01 | -- | 7.07 | 42 | 109 | 138 | 1,010 | 6 |
| BH8 | 10-Feb-2020 | EM2002050 | 3.35 | 640 | <0.001 | 59.8 | 0.029 | 9 | 5 | 34 | 111 | 331 | <1 | <1 | 331 | 4 | 3.83 | 0.02 | 5.9 | 0.02 | -- | 6.6 | 11 | 114 | 131 | 905 | 20 |
| BH8 | 19-May-2020 | EM2008425 | 3.47 | 466 | 0.059 | 78 | 0.055 | 4 | 2 | 24 | 102 | 249 | <1 | <1 | 249 | 2 | 0.99 | 0.72 | 3.5 | 0.27 | -- | 6.93 | 10 | 75 | 43 | 747 | 21 |
| BH8 | 18-Aug-2020 | EM2014393 | 3.34 | 430 | - | - | - | 3 | 3 | 25 | 107 | 238 | <1 | <1 | 238 | 3 | 2.45 | 0.02 | 5.4 | 0.02 | - | 8 | 5 | 96 | 134 | 828 | 67 |
| BH8 | 23-Nov-2020 | EM2020734 | 3.03 | 523 | 0.016 | 80.7 | 0.067 | 16 | 6 | 35 | 116 | 367 | <1 | <1 | 367 | 27 | 5.39 | 0.01 | 5.5 | 0.01 | - | 6.6 | 21 | 114 | 118 | 965 | 15 |
| BH8 | 23-Feb-2021 | EM2102910 | 3.15 | 682 | 0.103 | 122 | 0.086 | 12 | 4 | 30 | 118 | 299 | <1 | <1 | 299 | 18 | 1.78 | 0.02 | 6.7 | 0.02 | - | 6.78 | 25 | 196 | 130 | 986 | 31 |
| BH8 | 25-May-2021 | EM2109822 | 3.32 | 489 | 0.028 | 69.7 | 0.033 | 10 | 4 | 33 | 106 | 297 | <1 | <1 | 297 | 2 | 1.5 | <0.01 | 3.6 | <0.01 | - | 6.61 | 30 | 141 | 128 | 901 | 26 |
| BH8 | 14-Sep-2021 | EM2118437 | 2.73 | 534 | 0.028 | 85.8 | 0.033 | 16 | 4 | 37 | 112 | 276 | <1 | <1 | 276 | 29 | 3.13 | 0.01 | 5.2 | 0.01 | -- | 7.11 | 14 | 138 | 147 | 1020 | 45 |
| BH8 | 18-Nov-2021 | EM2123390 | 2.85 | 536 | 0.01 | 69.4 | 0.017 | 12 | 3 | 31 | 104 | 258 | <1 | <1 | 258 | 34 | 2.01 | <0.01 | 4 | <0.01 | -- | 7.37 | 21 | <10 | 112 | 914 | 48 |
| BH8 | 01-Mar-2022 | EM2203633 | 2.96 | 1120 | 0.061 | 118 | 0.088 | 17 | 4 | 32 | 114 | 293 | <1 | <1 | 293 | 14 | 4.79 | 0.04 | 6.7 | 0.04 | -- | 6.8 | 18 | 143 | 147 | 980 | 47 |
| BH8 | 17-May-2022 | EM2209266 | 3.18 | 539 | 0.022 | 76.6 | 0.043 | 12 | 5 | 31 | 119 | 317 | <1 | <1 | 317 | 2 | 5.49 | <0.01 | 6.2 | <0.01 | -- | 6.71 | 24 | <20 | 165 | 993 | 35 |
| BH8 | 31-Aug-2022 | EM2216860 | 2.25 | 521 | 0.013 | 70 | 0.072 | 17 | 4 | 33 | 116 | 242 | <1 | <1 | 242 | 56 | 3.7 | 0.01 | 5.4 | 0.01 | -- | 7.05 | 21 | <10 | 139 | 1,020 | 17 |
| BH8 | 16-Nov-2022 | EM2222748 | 1.87 | 455 | 0.01 | 56.5 | 0.023 | 15 | 4 | 31 | 101 | 277 | <1 | <1 | 277 | 28 | 4.56 | <0.01 | 4.9 | <0.01 | -- | 7.06 | 19 | 105 | 100 | 875 | 31 |
| BH8 | 14-Feb-2023 | EM2302525 | 3.02 | 656 | 0.102 | 162 | 0.098 | 13 | 4 | 26 | 114 | 275 | <1 | <1 | 275 | 7 | 1.43 | <0.01 | 4 | <0.01 | -- | 6.85 | 30 | 439 | 96 | 823 | 9 |
| BH8 | 10-May-2023 | EM2308315 | 3.00 | 489 | 0.011 | 51.2 | 0.009 | 13 | 4 | 30 | 112 | 282 | 16 | <1 | 298 | 3 | 3.6 | 0.02 | 3.7 | 0.02 | -- | 8.46 | 21 | 134 | 94 | 809 | 55 |

**Historical Groundwater Lab Results**
**Hepburn Shire Council**
**Creswick Landfill**

| SAMPLE NO. | SAMPLE DATE | LAB REPORT NO. | SWL | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | m BGL | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| BH10 | 16-Jan-2017 | - | 2.93 | 466 | 0.002 | 2.91 | 0.178 | 5 | 8 | 15 | 96 | 44 | <1 | <1 | 44 | 31 | 1.3 | 0.25 | 1.9 | - | - | 5.72 | 8 | 22 | 205 | 753 | 26 |
| BH10 | 21-Mar-2017 | - | 2.96 | 599 | 0.001 | 7.6 | 0.089 | 5 | 6 | 16 | 97 | 49 | <1 | <1 | 49 | 24 | 1.32 | 0.07 | 1.5 | - | - | 5.8 | 6 | 17 | 224 | 796 | 27 |
| BH10 | 23-May-2017 | - | 2.98 | 596 | 0.001 | 7.98 | 0.058 | 7 | 6 | 23 | 129 | 52 | <1 | <1 | 52 | 21 | 1.76 | 0.02 | 2.1 | - | - | 6.37 | 6 | 47 | 238 | 821 | 24 |
| BH10 | 23-Aug-2017 | EM1711442004 | 2.94 | 478 | <0.001 | 12.9 | 0.059 | 7 | 3 | 22 | 105 | 63 | <1 | <1 | 63 | 19 | 1.81 | 0.02 | 2.6 | - | - | 6.94 | 5 | 147 | 230 | 886 | 12 |
| BH10 | 08-Nov-2017 | EM1715369004 | 2.97 | 498 | 0.001 | 10.5 | 0.032 | 5 | 5 | 21 | 97 | 59 | <1 | <1 | 59 | 25 | 1.44 | 0.02 | 1.4 | - | - | 6.09 | 2 | 53 | 208 | 785 | 34 |
| BH10 | 26-Feb-2018 | EM1803674005 | 3.13 | 554 | <0.001 | 14.6 | 0.069 | 5 | 4 | 20 | 101 | 67 | <1 | <1 | 67 | 16 | 2.4 | 0.02 | 2.4 | - | - | 6 | 2 | <10 | 226 | 923 | 17 |
| BH10 | 28-May-2018 | EM1808540002 | 3.24 | 614 | <0.001 | 5.12 | 0.027 | 6 | 4 | 22 | 102 | 60 | <1 | <1 | 60 | 18 | 1.34 | 0.06 | 1.4 | -- | - | 6.28 | 8 | <10 | 242 | 860 | 40 |
| BH10 | 01-Aug-2018 | EM1812302004 | 3.2 | 849 | <0.001 | 8.02 | 0.354 | 6 | 4 | 21 | 110 | 70 | <1 | <1 | 70 | 21 | 2.02 | 0.09 | 2.6 | - | - | 6.36 | 6 | 96 | 244 | 819 | 32 |
| BH10 | 27-Nov-2018 | EM1819190003 | 3.31 | 937 | <0.001 | 1.85 | 0.015 | 5 | 3 | 21 | 105 | 34 | <1 | <1 | 34 | 18 | 1.94 | 0.05 | 10.2 | - | - | 7.09 | 8 | <10 | 243 | 845 | 19 |
| BH10 | 25-Feb-2019 | EM1902711004 | 3.44 | 623 | 0.041 | 45.4 | 0.055 | 5 | 4 | 19 | 102 | 60 | <1 | <1 | 60 | 18 | 1.89 | 0.06 | 3.9 | - | - | 6.49 | 13 | <10 | 287 | 840 | 23 |
| BH10 | 21-May-2019 | EM1907812004 | 3.44 | 424 | 0.004 | 6.08 | 0.067 | 4 | 4 | 13 | 87 | 14 | <1 | <1 | 14 | 16 | 1.13 | 1.53 | 2.7 | - | - | 5.22 | 5 | <10 | 206 | 717 | 7 |
| BH10 | 20-Aug-2019 | EM1913616 | 2.97 | 597 | 0.019 | 1.48 | 0.06 | 2 | 8 | 7 | 56 | 25 | <1 | <1 | 25 | 32 | 0.21 | 4.02 | 3.7 | 0.03 | -- | 5.86 | 36 | 215 | 70 | 372 | 23 |
| BH10 | 04-Dec-2019 | EM1920907 | 2.94 | 657 | 0.001 | 4.49 | 0.034 | 5 | 8 | 19 | 94 | 33 | <1 | <1 | 33 | 26 | 1.2 | 0.13 | 2.8 | 0.1 | -- | 6.06 | 8 | 251 | 220 | 754 | 13 |
| BH10 | 11-Feb-2020 | EM2002157 | 3.05 | 530 | 0.001 | 7.9 | 0.032 | 6 | 7 | 20 | 96 | 44 | <1 | <1 | 44 | 21 | 1.34 | 0.07 | 1.9 | 0.03 | -- | 6.34 | 2 | 48 | 232 | 791 | 15 |
| BH10 | 19-May-2020 | EM2008425 | 2.94 | 449 | 0.008 | 22.3 | 0.03 | 5 | 4 | 21 | 99 | 57 | <1 | <1 | 57 | 18 | 1.42 | 0.14 | 1.8 | 0.1 | -- | 6.28 | <1 | 25 | 242 | 812 | 11 |
| BH10 | 18-Aug-2020 | EM2014393 | 2.89 | 390 | - | - | - | 4 | 6 | 18 | 93 | 51 | <1 | <1 | 51 | 26 | 1.26 | 2.11 | 1.8 | 2.12 | - | 6.52 | 1 | 15 | 218 | 750 | 51 |
| BH10 | 24-Nov-2020 | EM2021040 | 2.68 | 485 | 0.003 | 20.3 | 0.104 | 5 | 6 | 20 | 102 | 64 | <1 | <1 | 64 | 20 | 1.34 | 0.3 | 2.3 | 0.3 | - | 6.3 | <1 | <10 | 222 | 831 | 14 |
| BH10 | 22-Feb-2021 | EM2102856 | 2.7 | 484 | 0.004 | 3.88 | 0.048 | 4 | 6 | 18 | 97 | 33 | <1 | <1 | 33 | 24 | 1.63 | 2.1 | 2 | 2.13 | - | 5.7 | 5 | <10 | 238 | 805 | 13 |
| BH10 | 25-May-2021 | EM2109822 | 2.72 | 470 | 0.009 | 29.2 | 0.044 | 6 | 4 | 22 | 101 | 58 | <1 | <1 | 58 | 18 | 1.11 | 0.21 | 1.9 | 0.22 | - | 6.23 | <1 | 41 | 229 | 933 | 16 |
| BH10 | 13-Sep-2021 | EM2118306 | 2.55 | 920 | 0.051 | 147 | 0.151 | 6 | 7 | 20 | 103 | 49 | <1 | <1 | 49 | 21 | 1.61 | 0.22 | 5 | 0.24 | -- | 6.15 | 10 | <20 | 239 | 875 | 16 |
| BH10 | 17-Nov-2021 | EM2123379 | 2.54 | 748 | 0.019 | 55 | 0.071 | 8 | 5 | 24 | 111 | 48 | <1 | <1 | 48 | 19 | 1.74 | 0.15 | 2.1 | 0.22 | -- | 5.92 | 7 | <20 | 237 | 841 | 17 |
| BH10 | 28-Feb-2022 | EM2203466 | 2.52 | 1720 | 0.068 | 151 | 0.255 | 6 | 12 | 16 | 108 | 41 | <1 | <1 | 41 | 24 | 1.93 | 0.44 | 10.6 | 0.44 | -- | 6.26 | 14 | <50 | 222 | 780 | 46 |
| BH10 | 16-May-2022 | EM2209019 | 2.59 | 732 | 0.024 | 64 | 0.137 | 5 | 4 | 21 | 102 | 59 | <1 | <1 | 59 | 17 | 1.76 | <0.01 | 4 | <0.01 | -- | 6.53 | 6 | <10 | 235 | 889 | 18 |
| BH10 | 01-Sep-2022 | EM2217005 | 2.26 | 764 | 0.021 | 35.9 | 0.108 | 8 | 19 | 17 | 85 | 95 | <1 | <1 | 95 | 30 | 1.06 | 0.57 | 4.8 | 0.57 | -- | 6.44 | 33 | 61 | 150 | 708 | 30 |
| BH10 | 18-Nov-2022 | EM2222858 | 2.06 | 566 | 0.016 | 31 | 0.071 | 8 | 11 | 19 | 96 | 58 | <1 | <1 | 58 | 23 | 1.28 | 0.03 | 3.2 | 0.03 | -- | 6 | 11 | 17 | 206 | 845 | 17 |
| BH10 | 14-Feb-2023 | EM2302525 | 2.44 | 563 | 0.005 | 22.8 | 0.062 | 8 | 9 | 20 | 103 | 46 | <1 | <1 | 46 | 23 | 1.52 | 0.03 | 1.8 | 0.03 | -- | 5.76 | 11 | 83 | 215 | 806 | 9 |
| BH10 | 09-May-2023 | EM2308222 | -- | 459 | 0.003 | 7.1 | 0.028 | 6 | 9 | 19 | 95 | 47 | <1 | <1 | 47 | 24 | 1.23 | 0.25 | 1.3 | 0.25 | -- | 6.32 | 11 | 24 | 200 | 761 | 18 |

**Historical Groundwater Lab Results**
**Hepburn Shire Council**
**Creswick Landfill**

| SAMPLE NO. | SAMPLE DATE | LAB REPORT NO. | SWL | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | m BGL | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| BH14 | 09-Nov-2017 | EM1715406005 | 2.99 | 833 | 0.003 | 1.42 | 0.125 | 4 | <1 | 11 | 87 | 107 | <1 | <1 | 107 | 22 | 0.17 | 0.01 | 1 | - | - | 6.78 | 8 | 600 | 134 | 603 | 34 |
| BH14 | 27-Feb-2018 | EM1803772003 | 4.15 | 2,170 | 0.002 | 1.93 | 0.284 | 6 | <1 | 18 | 209 | 274 | <1 | <1 | 274 | 8 | 0.46 | 0.02 | 3.6 | - | - | 6.6 | 11 | <100 | 254 | 1255 | 22 |
| BH14 | 28-May-2018 | EM1808881008 | 3.3 | 755 | <0.001 | 4.17 | 0.029 | 9 | <1 | 24 | 180 | 172 | <1 | <1 | 172 | 39 | 0.06 | 0.88 | 0.3 | -- | - | 6.99 | 4 | <10 | 233 | 1100 | 40 |
| BH14 | 02-Aug-2018 | EM1812371009 | 2.68 | 595 | 0.002 | 0.47 | 0.188 | 16 | 3 | 24 | 87 | 52 | <1 | <1 | 52 | 26 | 0.01 | 0.19 | 0.8 | - | - | 6.21 | <1 | 111 | 220 | 714 | 15 |
| BH14 | 28-Nov-2018 | EM1819277005 | 3.14 | 258 | <0.001 | 0.07 | 0.02 | 6 | 2 | 10 | 48 | 52 | <1 | <1 | 52 | 13 | 0.05 | 0.18 | 0.1 | - | - | 6.33 | 5 | 41 | 85 | 388 | 24 |
| BH14 | 26-Feb-2019 | EM1902808004 | 4.13 | 876 | 0.038 | 39.7 | 0.053 | 4 | <1 | 17 | 207 | 302 | <1 | <1 | 302 | 4 | 0.1 | 0.03 | 0.1 | - | - | 7.08 | 13 | <10 | 313 | 1260 | 41 |
| BH14 | 21-May-2019 | EM1907812005 | 3.24 | 498 | 0.018 | 9.34 | 0.036 | 13 | 3 | 19 | 73 | 26 | <1 | <1 | 26 | 24 | 0.03 | 1.67 | 0.8 | - | - | 5.92 | 1 | <10 | 199 | 738 | 7 |
| BH14 | 19-Aug-2019 | EM1913513 | 2.31 | 1,520 | <0.001 | 0.05 | 0.021 | 43 | 4 | 74 | 278 | 64 | <1 | <1 | 64 | 49 | 0.04 | 0.16 | 1.2 | 0.02 | -- | 5.92 | 7 | <10 | 715 | 2,500 | 32 |
| BH14 | 05-Dec-2019 | EM1920919 | 2.88 | 466 | <0.001 | 7.91 | 0.018 | 9 | 2 | 15 | 68 | 94 | <1 | <1 | 94 | 15 | 0.13 | <0.01 | 5.8 | <0.01 | -- | 6.27 | 8 | <10 | 114 | 541 | 13 |
| BH14 | 10-Feb-2020 | EM2002050 | 3.74 | 502 | <0.001 | 16.5 | 0.023 | 10 | 2 | 21 | 92 | 129 | <1 | <1 | 129 | 2 | 0.38 | 0.02 | 0.7 | <0.01 | -- | 6.91 | 5 | 46 | 178 | 736 | 16 |
| BH14 | 19-May-2020 | EM2008425 | 3.04 | 444 | 0.011 | 9.8 | 0.028 | 11 | 2 | 19 | 78 | 60 | <1 | <1 | 60 | 11 | 0.07 | 0.27 | 0.5 | <0.01 | -- | 6.48 | <1 | <10 | 188 | 662 | 16 |
| BH14 | 18-Aug-2020 | EM2014393 | 2.55 | 416 | - | - | - | 10 | 2 | 19 | 86 | 84 | <1 | <1 | 84 | 16 | 0.22 | 0.01 | 2.2 | 0.01 | - | 6.8 | 4 | 112 | 178 | 699 | 36 |
| BH14 | 23-Nov-2020 | EM2020734 | 2.61 | 248 | 0.004 | 22.6 | 0.036 | 8 | 2 | 16 | 47 | 133 | <1 | <1 | 133 | 1 | 0.38 | 0.01 | 0.8 | 0.01 | - | 6.69 | 9 | 54 | 60 | 422 | 12 |
| BH14 | 23-Feb-2021 | EM2102910 | 3.36 | 284 | 0.031 | 27.7 | 0.049 | 8 | 2 | 15 | 64 | 103 | <1 | <1 | 103 | 5 | 0.24 | 0.04 | 1 | 0.04 | - | 6.74 | 10 | 94 | 109 | 550 | 24 |
| BH14 | 26-May-2021 | EM2109946 | 2.81 | 619 | 0.193 | 177 | 0.246 | 9 | 2 | 19 | 91 | 92 | <1 | <1 | 92 | 3 | 0.56 | 0.02 | 6.3 | 0.02 | - | 6.84 | 18 | 142 | 197 | 768 | 16 |
| BH14 | 15-Sep-2021 | EM2118538 | 2.55 | 642 | 0.016 | 34.6 | 0.032 | 19 | 2 | 33 | 127 | 115 | <1 | <1 | 115 | 13 | 0.29 | 0.02 | 0.6 | 0.02 | -- | 6.64 | 2 | 103 | 322 | 1230 | 24 |
| BH14 | 18-Nov-2021 | EM2123390 | 2.66 | 980 | 0.09 | 91.4 | 0.104 | 8 | 2 | 19 | 111 | 134 | <1 | <1 | 134 | 5 | 0.87 | <0.01 | 2.6 | <0.01 | -- | 7.15 | 10 | <20 | 195 | 856 | 31 |
| BH14 | 01-Mar-2022 | EM2203633 | 3.46 | 2010 | 0.037 | 53 | 0.129 | 11 | 1 | 24 | 136 | 150 | <1 | <1 | 150 | 6 | 0.86 | 0.02 | 5.8 | 0.02 | -- | 6.92 | 10 | 80 | 251 | 866 | 34 |
| BH14 | 17-May-2022 | EM2209266 | 2.85 | 570 | 0.007 | 40.2 | 0.018 | 20 | 3 | 31 | 101 | 97 | <1 | <1 | 97 | 1 | 0.67 | 0.03 | 0.9 | 0.03 | -- | 6.54 | 7 | <20 | 295 | 993 | 23 |
| BH14 | 01-Sep-2022 | EM2217005 | 2.23 | 1,240 | 0.014 | 48.2 | 0.046 | 33 | 3 | 52 | 187 | 97 | <1 | <1 | 97 | 17 | 0.24 | 0.04 | 1.5 | 0.04 | -- | 6.68 | 10 | <10 | 517 | 1,780 | 14 |
| BH14 | 16-Nov-2022 | EM2222748 | 2.01 | 820 | 0.024 | 40.9 | 0.073 | 22 | 3 | 45 | 168 | 124 | <1 | <1 | 124 | 37 | 0.32 | 0.03 | 1.4 | 0.03 | -- | 6.88 | 11 | 131 | 409 | 1,520 | 34 |
| BH14 | 13-Feb-2023 | EM2302400 | 3.19 | 978 | 0.048 | 47.5 | 0.059 | 21 | 4 | 39 | 163 | 138 | <1 | <1 | 138 | 22 | 0.51 | 0.01 | 0.9 | 0.01 | -- | 6.65 | 16 | 90 | 363 | 1,330 | 19 |
| BH14 | 11-May-2023 | EM2308446 | 2.85 | 893 | 0.004 | 36.6 | 0.016 | 26 | 4 | 42 | 158 | 103 | <1 | <1 | 103 | 9 | 0.74 | 0.03 | 1.3 | 0.03 | -- | 6.7 | 7 | <10 | 378 | 1,290 | 24 |

**Historical Groundwater Lab Results**
**Hepburn Shire Council**
**Creswick Landfill**

| SAMPLE NO. | SAMPLE DATE | LAB REPORT NO. | SWL | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | m BGL | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| LB1 | 16-Jan-2017 | - | 11.92 | 564 | 0.009 | 16.4 | 0.23 | 47 | 15 | 22 | 115 | 212 | <1 | <1 | 212 | <1 | 3.28 | <0.01 | 5.1 | - | - | 7.15 | 4 | 23 | 231 | 1060 | 36 |
| LB1 | 21-Mar-2017 | - | 12 | 604 | 0.006 | 18.1 | 0.274 | 44 | 12 | 20 | 103 | 202 | <1 | <1 | 202 | <1 | 2.02 | <0.01 | 2.2 | - | - | 7.21 | 3 | 14 | 245 | 1070 | 46 |
| LB1 | 23-May-2017 | - | 12.04 | 728 | 0.171 | 161 | 9.21 | 52 | 22 | 25 | 133 | 217 | <1 | <1 | 217 | <1 | 5.25 | <0.01 | 8.4 | - | - | 7.23 | 11 | 402 | 251 | 1080 | 64 |
| LB1 | 23-Aug-2017 | EM1711442005 | 12.07 | 608 | 0.099 | 92.3 | 4.88 | 49 | 14 | 23 | 111 | 218 | <1 | <1 | 218 | <1 | 3.02 | <0.01 | 3 | - | - | 7.83 | 8 | 390 | 255 | 1,120 | 35 |
| LB1 | 08-Nov-2017 | EM1715369005 | 12.09 | 588 | 0.002 | 10.1 | 0.09 | 45 | 8 | 22 | 110 | 176 | <1 | <1 | 176 | <1 | 1.79 | <0.01 | 1.8 | - | - | 7.71 | <1 | <10 | 230 | 1,020 | 29 |
| LB1 | 26-Feb-2018 | EM1803674006 | 12.21 | 622 | 0.014 | 14.7 | 0.536 | 41 | 12 | 17 | 112 | 163 | <1 | <1 | 163 | <1 | 2.26 | <0.01 | 2.4 | - | - | 6.9 | 5 | 96 | 225 | 1,041 | 25 |
| LB1 | 27-Nov-2018 | EM1819193001 | - | 620 | <0.001 | <0.05 | <0.005 | 63 | 23 | 25 | 107 | 267 | <1 | <1 | 267 | <1 | 5.19 | 0.04 | 12.3 | - | - | 7.93 | 13 | 101 | 244 | 1,170 | 23 |
| LB1 | 18-Aug-2020 | - | 13.73 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| LB1 | 24-Nov-2020 | - | 13.57 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| LB1 | 24-Feb-2021 | EM2103002 | 13.56 | 815 | 0.012 | - | 1.57 | 47 | 13 | 21 | 120 | 217 | <1 | <1 | 217 | <1 | 3.26 | <0.01 | 3.7 | <0.01 | - | - | 6 | 82 | 262 | - | 31 |
| LB1 | 26-May-2021 | - | 13.63 | Bore blo | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| LB1 | 15-Sep-2021 | - | 13.36 | Bore blo | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| LB1 | 18-Nov-2021 | - | 13.31 | Bore blo | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| LB1 | 03-Mar-2022 | - | 13.45 | Bore blo | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| LB1 | 17-May-2022 | - | 13.5 | Bore blo | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

**Historical Groundwater Lab Results**
**Hepburn Shire Council**
**Creswick Landfill**

| SAMPLE NO. | SAMPLE DATE | LAB REPORT NO. | SWL | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | m BGL | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| LB2 | 16-Jan-2017 | - | 14.59 | 737 | 0.035 | 47.7 | 0.316 | 35 | 45 | 27 | 143 | 330 | <1 | <1 | 330 | <1 | 18.6 | 0.04 | 20.9 | - | - | 6.56 | 31 | 238 | 308 | 1440 | 66 |
| LB2 | 21-Mar-2017 | - | 14.44 | 792 | 0.114 | 97.5 | 1.07 | 33 | 35 | 26 | 128 | 325 | <1 | <1 | 325 | <1 | 19.9 | 0.08 | 27.1 | - | - | 6.7 | 19 | 200 | 282 | 1420 | 48 |
| LB2 | 23-May-2017 | - | 14.78 | 862 | 0.368 | 232 | 3.69 | 35 | 56 | 29 | 163 | 326 | <1 | <1 | 326 | <1 | 23.8 | 0.02 | 26.7 | - | - | 6.66 | 22 | 607 | 281 | 1350 | 51 |
| LB2 | 24-Aug-2017 | EM1711445006 | 14.88 | 774 | 0.138 | 102 | 1.64 | 40 | 35 | 28 | 126 | 331 | <1 | <1 | 331 | <1 | 21.7 | 0.01 | 20.6 | - | - | 7.28 | 20 | 359 | 261 | 1,420 | 53 |
| LB2 | 09-Nov-2017 | EM1715406006 | 14.81 | 784 | 0.107 | 85.8 | 1.06 | 39 | 30 | 30 | 136 | 320 | <1 | <1 | 320 | 2 | 20.5 | 0.01 | 20.1 | - | - | 6.9 | 16 | 1,280 | 296 | 1,360 | 69 |
| LB2 | 27-Feb-2018 | EM1803772004 | 14.82 | 698 | <0.001 | 28.5 | 0.021 | 41 | 33 | 27 | 123 | 334 | <1 | <1 | 334 | <1 | 21.2 | 0.04 | 24.7 | - | - | 6.5 | 14 | 51 | 256 | 1475 | 36 |
| LB2 | 28-May-2018 | EM1808540003 | 1480 | 753 | <0.001 | 1.19 | 0.008 | 44 | 35 | 30 | 123 | 351 | <1 | <1 | 351 | 1 | 19.1 | 0.02 | 24.6 | -- | - | 7.03 | 8 | 11 | 264 | 1380 | 70 |
| LB2 | 01-Aug-2018 | EM1812302005 | - | 712 | 0.001 | 28 | 0.3 | 41 | 34 | 31 | 125 | 350 | <1 | <1 | 350 | <1 | 19.1 | 0.02 | 19.5 | - | - | 6.98 | 9 | 173 | 276 | 1,420 | 69 |
| LB2 | 27-Nov-2018 | EM1819193002 | - | 661 | <0.001 | 0.19 | <0.005 | 38 | 35 | 29 | 125 | 316 | <1 | <1 | 316 | <1 | 16.9 | <0.01 | 18.1 | - | - | 7.64 | 20 | 70 | 272 | 1,440 | 64 |
| LB2 | 26-Feb-2019 | EM1902808005 | 15.01 | 1680 | 0.034 | 72.6 | 0.143 | 38 | 35 | 29 | 127 | 373 | <1 | <1 | 373 | <1 | 20.4 | <0.01 | 28.1 | - | - | 6.95 | 31 | <10 | 319 | 1,450 | 50 |
| LB2 | 21-May-2019 | EM1907812007 | 14.78 | 869 | 0.012 | 50.3 | 0.332 | 39 | 36 | 29 | 125 | 352 | <1 | <1 | 352 | 1 | 24.7 | <0.01 | 28.7 | - | - | 6.62 | 15 | <10 | 293 | 1,610 | 45 |
| LB2 | 20-Aug-2019 | EM1913616 | 14.66 | 931 | 0.061 | 72.8 | 0.274 | 48 | 38 | 33 | 130 | 371 | <1 | <1 | 371 | <1 | 26.1 | 0.01 | 30.3 | 0.01 | -- | 6.61 | 22 | 181 | 311 | 1,530 | 83 |
| LB2 | 04-Dec-2019 | EM1920907 | 14.73 | 697 | 0.001 | 45.2 | <0.005 | 44 | 34 | 31 | 125 | 307 | <1 | <1 | 307 | <1 | 25.9 | <0.01 | 26.5 | <0.01 | -- | 7.11 | 22 | 103 | 316 | 1,450 | 21 |
| LB2 | 11-Feb-2020 | EM2002157 | 14.75 | 678 | 0.01 | 52 | 0.186 | 42 | 36 | 28 | 124 | 254 | <1 | <1 | 254 | <1 | 20.8 | <0.01 | 24.2 | <0.01 | -- | 7.38 | 16 | 131 | 274 | 1,330 | 22 |
| LB2 | 18-May-2020 | EM2008378 | 16.7 | 721 | 0.023 | 58.5 | 0.188 | 36 | 35 | 27 | 125 | 319 | <1 | <1 | 319 | <1 | 18 | 0.01 | 26.1 | 0.01 | -- | 7.37 | 7 | 155 | 286 | 1,380 | 24 |
| LB2 | 18-Aug-2020 | EM2014393 | 14.67 | 683 | 0.01 | 40.7 | 0.054 | 35 | 35 | 26 | 124 | 292 | <1 | <1 | 292 | <1 | 18.4 | <0.01 | 18.4 | <0.01 | - | 7.33 | 12 | 51 | 299 | 1400 | 51 |
| LB2 | 24-Nov-2020 | EM2021040 | 14.54 | 709 | 0.024 | 52.4 | 0.167 | 32 | 34 | 24 | 118 | 301 | <1 | <1 | 301 | 5 | 17.6 | 0.01 | 25.5 | 0.01 | - | 7.38 | 15 | <10 | 264 | 1290 | 32 |
| LB2 | 24-Feb-2021 | EM2103002 | 14.68 | 697 | 0.034 | - | 0.249 | 32 | 33 | 24 | 124 | 298 | <1 | <1 | 298 | <1 | 19.7 | <0.01 | 21.3 | <0.01 | - | - | 11 | 139 | 284 | - | 36 |
| LB2 | 26-May-2021 | EM2109946 | 14.67 | 678 | 0.048 | 65.4 | 0.296 | 39 | 31 | 26 | 119 | 278 | <1 | <1 | 278 | <1 | 13 | 0.02 | 15.4 | 0.02 | - | 7.22 | 11 | <10 | 256 | 1290 | 49 |
| LB2 | 15-Sep-2021 | EM2118538 | 14.6 | 754 | 0.114 | 96.7 | 0.924 | 34 | 31 | 24 | 122 | 260 | <1 | <1 | 260 | <1 | 18 | <0.01 | 25.2 | <0.01 | -- | 6.78 | 21 | <50 | 309 | 1310 | 19 |
| LB2 | 18-Nov-2021 | EM2123390 | 14.58 | 810 | 0.084 | 83.8 | 0.742 | 29 | 27 | 23 | 119 | 246 | <1 | <1 | 246 | 2 | 16.3 | <0.01 | 19.1 | <0.01 | -- | 7.46 | 15 | 23 | 264 | 1280 | 38 |
| LB2 | 03-Mar-2022 | - | 14.32 | Bore blo | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| LB2 | 17-May-2022 | - | 14.26 | Bore blo | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

**Historical Groundwater Lab Results**
**Hepburn Shire Council**
**Creswick Landfill**

| SAMPLE NO. | SAMPLE DATE | LAB REPORT NO. | SWL | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | m BGL | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| LB3 | 18-Aug-2020 | - | 11.1 | N/A | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| LB3 | 24-Nov-2020 | - | 10.95 | N/A | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| LB3 | 24-Feb-2021 | - | 10.94 | N/A | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| LB3 | 26-May-2021 | - | 11.01 | N/A | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| LB3 | 15-Sep-2021 | - | 10.76 | N/A | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| LB3 | 18-Nov-2021 | - | 10.48 | N/A | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| LB3 | 03-Mar-2022 | - | 10.82 | N/A | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| LB3 | 17-May-2022 | - | 11.88 | N/A | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

**Historical Surface Water / Leachate Lab Results**
**Hepburn Shire Council**

| SAMPLE NO. | SAMPLE DATE | REPROT No. | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| Creek @ BH3 | 21-Oct-08 | 1620319 | 290 | <0.01 | 7.4 | <0.01 | 11 | 4.1 | 16 | 55 | - | - | - | 77 | 4 | 0.1 | <0.01 | 0.7 | - | 7.9 | 10 | 31 | 120 | 560 | - |
| Creek @ BH3 | 29-Jul-09 | 1882853 | 180 | - | - | 0.01 | 7.9 | 1.9 | 11 | 38 | - | - | - | 32 | 19 | - | - | 0.4 | - | 7.1 | 4 | 9 | 79 | 350 | - |
| Creek @ BH3 | 29-Oct-09 | 1976835 | 150 | < 0.01 | 0.7 | 0.04 | 7.2 | 1.3 | 8 | 33 | 38 | < 2 | < 2 | 38 | 8 | < 0.1 | < 0.01 | 0.4 | - | 7 | 6 | 12 | 56 | 260 | - |
| Creek @ BH3 | 20-Jul-10 | 2259587 | 170 | < 0.001 | 1.6 | 0.014 | 6.2 | 3.9 | 8.5 | 32 | 32 | < 2 | < 2 | 32 | 8 | < 0.1 | 0.41 | 0.6 | - | 7.1 | 12 | 22 | 64 | 280 | - |
| Creek @ BH3 | 03-Nov-10 | 2382975 | - | - | - | < 0.01 | - | - | - | - | - | - | - | - | - | - | - | 0.8 | - | 7.4 | - | 19 | - | 210 | - |
| Creek @ BH3 | 22-May-12 | 3045888 | 200 | < 0.01 | 5 | < 0.01 | 10 | 1.7 | 13 | 39 | 60 | < 2 | < 2 | 60 | 3 | < 0.1 | 1.6 | 0.8 | - | 7.4 | 7 | 16 | 87 | 370 | - |
| Creek @ BH3 | 02-Aug-12 | 3131175 | 160 | 0.001 | 1.2 | 0.01 | 6 | 5 | 7.5 | 22 | 33 | < 2 | < 2 | 33 | 6 | < 0.1 | 1.1 | 0.7 | - | 7.1 | 9 | 17 | 46 | 240 | - |
| Creek @ BH3 | 29-Nov-12 | 3276020 | - | - | - | 0.02 | - | - | - | - | - | - | - | - | - | - | - | 0.4 | - | 7.1 | - | 16 | - | 380 | - |
| Creek @ BH3 | 28-Aug-13 | 3598537 | 180 | < 0.01 | 1.7 | < 0.01 | 6.6 | 2 | 8.2 | 30 | 30 | < 2 | < 2 | 30 | 7 | < 0.1 | 0.53 | 0.3 | - | 7.3 | 8 | 16 | 53 | 250 | - |
| Creek @ BH3 | 26-Nov-13 | 3705776 | 120 | < 0.01 | 1.2 | < 0.01 | 6.6 | 1.2 | 8.1 | 25 | 46 | < 2 | < 2 | 46 | 5 | < 0.1 | 0.13 | 0.2 | - | 7.3 | 5 | 10 | 53 | 270 | - |
| Creek @ BH3 | 27-Aug-14 | 4024248 | 160 | < 0.01 | 1.1 | < 0.01 | 5.7 | 1.5 | 7.6 | 20 | 31 | < 2 | < 2 | 31 | 7 | < 0.1 | 1 | 0.5 | - | 7.2 | 6 | 10 | 55 | 250 | - |
| Creek @ BH3 | 26-Nov-14 | 4133479 | 290 | < 0.01 | 0.7 | < 0.01 | 14 | 2.1 | 19 | 57 | 56 | < 2 | < 2 | 56 | 3 | < 0.1 | < 0.01 | 0.3 | - | 6.7 | 5 | 9 | 120 | 530 | - |
| Creek @ BH3 | 17-Jan-17 | - | 416 | 0.001 | 12 | <0.005 | 14 | 2 | 22 | 84 | 83 | <1 | <1 | 83 | 2 | 0.08 | 0.01 | <0.1 | - | 6.61 | 9 | 16 | 175 | 708 | - |
| Creek @ BH3 | 21-Mar-17 | - | 327 | 0.001 | 7.14 | 0.018 | 10 | 4 | 13 | 52 | 48 | <1 | <1 | 48 | 7 | 0.1 | 0.50 | 1.3 | - | 6.79 | 19 | 45 | 129 | 517 | - |
| Creek @ BH3 | 24-May-17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Creek @ BH3 | 24-Aug-17 | EM1711445003 | 523 | <0.001 | 1.03 | <0.005 | 26 | 14 | 27 | 104 | 174 | <1 | <1 | 174 | 205 | <0.01 | 0.05 | 0.6 | - | 7.68 | 13 | 26 | 205 | 954 | 16 |
| Creek @ BH3 | 09-Nov-17 | EM1715409002 | 182 | <0.001 | 2.3 | <0.005 | 7 | 1 | 11 | 32 | 57 | <1 | <1 | 57 | 4 | 0.1 | 0.08 | 0.3 | - | 7.45 | 5 | 16 | 72 | 326 | 11 |
| Creek @ BH3 | 29-May-18 | EM1808881002 | 214 | <0.001 | 1.26 | 0.031 | 7 | 3 | 10 | 33 | 25 | <1 | <1 | 25 | 11 | 0.06 | 0.33 | 0.6 | - | 6.56 | 8 | 25 | 80 | 351 | 26 |
| Creek @ BH3 | 02-Aug-18 | EM1812371002 | 151 | <0.001 | 0.77 | 0.009 | 6 | 2 | 8 | 30 | 24 | <1 | <1 | 24 | 7 | 0.02 | 0.39 | 0.4 | - | 7.04 | 8 | 26 | 58 | 247 | 10 |
| Creek @ BH3 | 29-Nov-18 | EM1819464002 | 266 | <0.001 | 7.49 | <0.005 | 10 | 2 | 15 | 56 | 62 | <1 | <1 | 62 | 2 | 0.09 | 0.02 | 0.3 | - | 7.04 | 7 | 10 | 126 | 505 | 23 |
| Creek @ BH3 | 19-Aug-19 | EM1913513 | 140 | 0.001 | 1.01 | <0.005 | 5 | 2 | 6 | 26 | 30 | <1 | <1 | 30 | 7 | 0.01 | 2.23 | 0.6 | -- | 6.99 | 10 | 24 | 39 | 249 | 32 |
| Creek @ BH3 | 03-Dec-19 | EM1920764 | 205 | <0.001 | 0.99 | <0.005 | 4 | 2 | 6 | 30 | 51 | <1 | <1 | 51 | 6 | 0.02 | 0.06 | 0.3 | 44.1 | 6.89 | 8 | 14 | 58 | 308 | 8 |
| Creek @ BH3 | 14-Feb-20 | EM2002405 | 640 | <0.001 | 16.4 | <0.005 | 18 | 3 | 30 | 92 | 80 | <1 | <1 | 80 | <1 | 0.08 | <0.01 | 0.4 | -- | 6.87 | 4 | 10 | 264 | 905 | 9 |
| Creek @ BH3 | 18-May-20 | EM2008378 | 374 | <0.001 | 12.5 | 0.009 | 11 | 2 | 19 | 70 | 83 | <1 | <1 | 83 | 1 | 0.08 | 0.01 | 0.5 | -- | 6.88 | 8 | <10 | 160 | 594 | 16 |
| Creek @ BH3 | 17-Aug-20 | EM2014279 | 148 | 0.001 | 1.27 | <0.005 | 6 | 1 | 9 | 29 | 45 | <1 | <1 | 45 | 5 | <0.01 | <0.01 | 0.4 | - | 6.75 | 6 | <10 | 49 | 274 | 35 |
| Creek @ BH3 | 25-Nov-20 | EM2021046 | 180 | <0.001 | 1.6 | <0.005 | 5 | 2 | 7 | 26 | 56 | <1 | <1 | 56 | 4 | 0.05 | <0.01 | 0.3 | - | 7.14 | 6 | 11 | 44 | 256 | 12 |
| Creek @ BH3 | 23-Feb-21 | EM2102910 | 532 | <0.001 | 35.5 | <0.005 | 17 | 3 | 28 | 97 | 114 | <1 | <1 | 114 | <1 | 0.15 | <0.01 | 0.8 | - | 6.81 | 16 | <10 | 233 | 927 | 20 |
| Creek @ BH3 | 24-May-21 | EM2109755 | 614 | <0.001 | 17.6 | <0.005 | 16 | 3 | 28 | 100 | 92 | <1 | <1 | 92 | <1 | 0.19 | <0.01 | 0.5 | - | 6.69 | 6 | <10 | 272 | 965 | 13 |
| Creek @ BH3 | 13-Sep-21 | EM2118306 | 134 | <0.001 | 0.76 | <0.005 | 6 | 2 | 7 | 24 | 42 | <1 | <1 | 42 | 6 | 0.02 | 1.55 | -- | 7 | 21 | 43 | 251 | 19 | -- | -- |
| Creek @ BH3 | 17-Nov-21 | EM2123379 | 175 | <0.001 | 1.2 | <0.005 | 5 | 1 | 8 | 28 | 48 | <1 | <1 | 48 | 4 | 0.09 | 0.36 | -- | 7 | 23 | 48 | 264 | 19 | -- | -- |
| Creek @ BH3 | 28-Feb-22 | EM2203466 | 950 | <0.001 | 38.8 | <0.005 | 25 | 4 | 42 | 138 | 94 | <1 | <1 | 94 | 2 | 1.17 | <0.01 | -- | 9 | <10 | 371 | 1160 | 56 | -- | -- |
| Creek @ BH3 | 16-May-22 | EM2209019 | 318 | <0.001 | 7.04 | <0.005 | 10 | 3 | 15 | 66 | 71 | <1 | <1 | 71 | 4 | 0.19 | 0.02 | -- | 7 | 12 | 131 | 572 | 21 | -- | -- |
| Creek @ BH3 | 01-Sep-22 | EM2217005 | 217 | 0.002 | 1.2 | <0.005 | 6 | 2 | 7 | 24 | 35 | <1 | <1 | 35 | 7 | <0.01 | 1.68 | 0.8 | -- | 7.44 | 10 | 29 | 34 | 228 | 10 |
| Creek @ BH3 | 16-Nov-22 | EM2222748 | 158 | 0.005 | 2.82 | 0.012 | 6 | 2 | 7 | 19 | 33 | <1 | <1 | 33 | 3 | 0.01 | 0.73 | 1.3 | -- | 7.04 | 20 | 69 | 31 | 204 | 16 |
| Creek @ BH3 | 13-Feb-23 | EM2302400 | 477 | <0.001 | 14.7 | <0.005 | 18 | 3 | 26 | 84 | 90 | <1 | <1 | 90 | <1 | 0.15 | <0.01 | 0.8 | -- | 7.1 | 11 | 11 | 205 | 782 | 8 |
| Creek @ BH3 | 11-May-23 | EM2308446 | 561 | <0.001 | 2.68 | 0.01 | 16 | 4 | 22 | 80 | 187 | <1 | <1 | 187 | 1 | 0.11 | 0.05 | 0.7 | -- | 7.67 | 11 | 15 | 220 | 996 | 16 |

**Historical Surface Water / Leachate Lab Results**
**Hepburn Shire Council**

| SAMPLE NO. | SAMPLE DATE | REPROT No. | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| Creek D/S BH3 | 08-Sep-08 | 1580862 | 150 | <0.01 | 0.4 | <0.01 | 4.7 | 1.3 | 6.6 | 27 | - | - | - | 24 | 11 | <0.1 | 0.39 | 0.5 | - | 7.2 | 8 | 7 | 57 | 240 | - |
| Creek D/S BH3 | 21-Oct-08 | 1620320 | 210 | <0.01 | 2.1 | <0.01 | 7.0 | 3.6 | 9.6 | 36 | - | - | - | 46 | 9 | <0.1 | 0.03 | 0.6 | - | 7.7 | 8 | 24 | 78 | 370 | - |
| Creek D/S BH3 | 29-Jul-09 | 1882854 | 200 | - | - | 0.01 | 8.5 | 2.1 | 12 | 45 | - | - | - | 32 | 20 | - | - | 0.2 | - | 7.2 | 4 | 7 | 91 | 400 | - |
| Creek D/S BH3 | 29-Oct-09 | 1976836 | 150 | < 0.01 | 0.8 | 0.06 | 7 | 1.3 | 7.9 | 32 | 38 | < 2 | < 2 | 38 | 8 | < 0.1 | < 0.01 | 0.4 | - | 7 | 7 | 14 | 58 | 270 | - |
| Creek D/S BH3 | 20-Jul-10 | 2259588 | 180 | 0.001 | 1.7 | 0.011 | 5.7 | 3.5 | 8 | 30 | 28 | < 2 | < 2 | 28 | 9 | < 0.1 | 0.38 | 0.5 | - | 7 | 12 | 21 | 60 | 270 | - |
| Creek D/S BH3 | 03-Nov-10 | 2382976 | - | - | - | < 0.01 | - | - | - | - | - | - | - | - | - | - | - | 0.6 | - | 7.4 | - | 18 | - | 210 | - |
| Creek D/S BH3 | 22-May-12 | 3045889 | 180 | < 0.01 | 3.8 | < 0.01 | 9.7 | 1.7 | 13 | 38 | 60 | < 2 | < 2 | 60 | 3 | < 0.1 | 0.07 | 0.5 | - | 7.5 | 7 | 17 | 85 | 370 | - |
| Creek D/S BH3 | 02-Aug-12 | 3131176 | 160 | 0.001 | 1.3 | 0.004 | 6 | 1.7 | 7.3 | 21 | 35 | < 2 | < 2 | 35 | 5 | < 0.1 | 1.1 | 0.5 | - | 7.5 | 9 | 15 | 42 | 220 | - |
| Creek D/S BH3 | 29-Nov-12 | 3276021 | - | - | - | < 0.01 | - | - | - | - | - | - | - | - | - | - | - | 0.3 | - | 7 | - | 15 | - | 350 | - |
| Creek D/S BH3 | 28-Aug-13 | 3598538 | 180 | < 0.01 | 1 | < 0.01 | 6.9 | 1.8 | 8.3 | 33 | 30 | < 2 | < 2 | 30 | 8 | < 0.1 | 0.48 | 0.4 | - | 7 | 7 | 18 | 60 | 270 | - |
| Creek D/S BH3 | 26-Nov-13 | 3705777 | 130 | < 0.01 | 1.2 | < 0.01 | 7.2 | 1.2 | 8.5 | 22 | 45 | < 2 | < 2 | 45 | 5 | 0.1 | 0.12 | 0.3 | - | 7.3 | 5 | 10 | 53 | 270 | - |
| Creek D/S BH3 | 27-Aug-14 | 4024249 | 100 | < 0.01 | 0.6 | < 0.01 | 6 | 1.4 | 7.9 | 21 | 30 | < 2 | < 2 | 30 | 6 | 0 | 1 | 0.3 | - | 7.3 | 6 | 11 | 48 | 240 | - |
| Creek D/S BH3 | 26-Nov-14 | 4133480 | 270 | < 0.01 | 0.4 | < 0.01 | 14 | 2 | 16 | 49 | 57 | < 2 | < 2 | 57 | 4 | < 0.1 | 0.01 | 0.3 | - | 6.7 | 5 | 9 | 110 | 480 | - |
| Creek D/S BH3 | 17-Jan-17 | - | 290 | 0.001 | 4.41 | <0.005 | 12 | 2 | 15 | 54 | 84 | <1 | <1 | 84 | 3 | 0.19 | 0.06 | 0.3 | - | 6.46 | 10 | 22 | 100 | 506 | - |
| Creek D/S BH3 | 21-Mar-17 | - | 194 | <0.001 | 2.43 | 0.142 | 8 | 2 | 8 | 28 | 38 | <1 | <1 | 38 | 40 | 0.13 | 0.09 | 0.6 | - | 6.6 | 7 | 17 | 35 | 295 | - |
| Creek D/S BH3 | 24-May-17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Creek D/S BH3 | 24-Aug-17 | EM1711445004 | 152 | 0.002 | 1.43 | 0.009 | 5 | 2 | 8 | 30 | 34 | <1 | <1 | 34 | 6 | 0.03 | 0.42 | 0.3 | - | 7.16 | 10 | 26 | 45 | 255 | 18 |
| Creek D/S BH3 | 09-Nov-17 | EM1715409003 | 173 | <0.001 | 1.61 | <0.005 | 7 | 1 | 11 | 31 | 56 | <1 | <1 | 56 | 5 | 0.11 | 0.13 | 0.4 | - | 7 | 6 | 18 | 66 | 319 | 11 |
| Creek D/S BH3 | 29-May-18 | EM1808881003 | 450 | <0.001 | 2.57 | 0.056 | 15 | 3 | 21 | 75 | 34 | <1 | <1 | 34 | 16 | 0.13 | 0.39 | 0.4 | - | 6.59 | 5 | 15 | 207 | 754 | 18 |
| Creek D/S BH3 | 02-Aug-18 | EM1812371003 | 155 | <0.001 | 0.76 | 0.009 | 6 | 2 | 7 | 28 | 24 | <1 | <1 | 24 | 7 | 0.05 | 0.38 | 0.1 | - | 7.02 | 8 | 24 | 56 | 246 | 13 |
| Creek D/S BH3 | 29-Nov-18 | EM1819464003 | 319 | <0.001 | 4.18 | 0.008 | 9 | 2 | 12 | 46 | 63 | <1 | <1 | 63 | 3 | 0.03 | 0.01 | 0.4 | - | 7.15 | 7 | 15 | 96 | 408 | 29 |
| Creek D/S BH3 | 19-Aug-19 | EM1913513 | 130 | 0.002 | 0.93 | <0.005 | 4 | 2 | 6 | 23 | 25 | <1 | <1 | 25 | 7 | 0.03 | 2.34 | 0.7 | -- | 6.98 | 9 | 24 | 34 | 223 | 13 |
| Creek D/S BH3 | 03-Dec-19 | EM1920764 | 214 | <0.001 | 0.8 | 0.005 | 4 | 2 | 6 | 27 | 49 | <1 | <1 | 49 | 6 | 0.03 | 0.06 | 0.3 | 50.7 | 6.96 | 7 | 13 | 49 | 476 | 8 |
| Creek D/S BH3 | 18-May-20 | EM2008378 | 272 | 0.002 | 1.23 | 0.01 | 12 | 3 | 14 | 46 | 59 | <1 | <1 | 59 | 4 | 0.03 | 0.02 | 0.2 | -- | 7.02 | 6 | 13 | 102 | 389 | 13 |
| Creek D/S BH3 | 17-Aug-20 | EM2014279 | 166 | <0.001 | 1.01 | <0.005 | 6 | 1 | 9 | 28 | 48 | <1 | <1 | 48 | 5 | <0.01 | <0.01 | 0.5 | - | 6.79 | 7 | <10 | 49 | 279 | 35 |
| Creek D/S BH3 | 25-Nov-20 | EM2021046 | 185 | <0.001 | 1.61 | <0.005 | 5 | 2 | 7 | 26 | 56 | <1 | <1 | 56 | 4 | 0.03 | <0.01 | 0.5 | - | 7.11 | 6 | 12 | 45 | 252 | 11 |
| Creek D/S BH3 | 23-Feb-21 | EM2102910 | 340 | <0.001 | 10.5 | 0.006 | 14 | 2 | 17 | 52 | 95 | <1 | <1 | 95 | 1 | 0.16 | <0.01 | 0.6 | - | 6.96 | 11 | 18 | 112 | 544 | 20 |
| Creek D/S BH3 | 24-May-21 | EM2109755 | 437 | <0.001 | 8.21 | <0.005 | 14 | 2 | 18 | 65 | 62 | <1 | <1 | 62 | 2 | 0.17 | <0.01 | 0.3 | - | 6.9 | 4 | <10 | 170 | 640 | 34 |
| Creek D/S BH3 | 13-Sep-21 | EM2118306 | 144 | <0.001 | 0.9 | 0.006 | 6 | 2 | 8 | 24 | 44 | <1 | <1 | 44 | 6 | <0.01 | 1.52 | -- | 8 | 22 | 44 | 260 | 12 | -- | -- |
| Creek D/S BH3 | 17-Nov-21 | EM2123379 | 180 | <0.001 | 1.93 | 0.008 | 6 | 1 | 8 | 29 | 52 | <1 | <1 | 52 | 4 | 0.11 | 0.31 | -- | 8 | 24 | 50 | 284 | 15 | -- | -- |
| Creek D/S BH3 | 28-Feb-22 | EM2203466 | 470 | <0.001 | 13 | 0.018 | 17 | 2 | 22 | 66 | 96 | <1 | <1 | 96 | <1 | 0.6 | 0.02 | -- | 9 | 18 | 149 | 591 | 52 | -- | -- |
| Creek D/S BH3 | 16-May-22 | EM2209019 | 344 | <0.001 | 4.95 | <0.005 | 10 | 3 | 16 | 69 | 70 | <1 | <1 | 70 | 4 | 0.24 | 0.02 | -- | 6 | 11 | 142 | 600 | 16 | -- | -- |
| Creek D/S BH3 | 01-Sep-22 | EM2217005 | 216 | 0.002 | 1.28 | <0.005 | 6 | 2 | 7 | 24 | 33 | <1 | <1 | 33 | 8 | <0.01 | 1.65 | 1 | -- | 7.22 | 10 | 31 | 34 | 230 | 10 |
| Creek D/S BH3 | 16-Nov-22 | EM2222748 | 154 | 0.003 | 2.54 | 0.012 | 6 | 2 | 7 | 19 | 32 | <1 | <1 | 32 | 3 | 0.03 | 0.73 | 1.2 | -- | 7.04 | 19 | 69 | 30 | 207 | 22 |
| Creek D/S BH3 | 13-Feb-23 | EM2302400 | 429 | <0.001 | 4.82 | <0.005 | 16 | 3 | 22 | 77 | 82 | <1 | <1 | 82 | 6 | <0.01 | 0.14 | 0.8 | -- | 7.5 | 10 | 15 | 172 | 687 | 11 |
| Creek D/S BH3 | 11-May-23 | EM2308446 | 537 | <0.001 | 9.1 | 0.011 | 16 | 3 | 23 | 84 | 62 | <1 | <1 | 62 | 7 | 0.1 | 0.09 | 0.7 | -- | 7.1 | 7 | <10 | 189 | 700 | 10 |

**Historical Surface Water / Leachate Lab Results**
**Hepburn Shire Council**

| SAMPLE NO. | SAMPLE DATE | REPROT No. | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| Creek U/S BH3 | 08-Sep-08 | 1580861 | 140 | <0.01 | 0.4 | <0.01 | 4.8 | 1.4 | 7.4 | 30 | - | - | - | 22 | 9 | <0.1 | 0.60 | 0.6 | - | 7.3 | 8 | 10 | 51 | 230 | - |
| Creek U/S BH3 | 21-Oct-08 | 1620318 | 220 | <0.01 | 2.9 | 0.02 | 9.3 | 3.4 | 12 | 39 | - | - | - | 62 | 7 | <0.1 | 0.01 | 0.7 | - | 8.0 | 11 | 31 | 77 | 390 | - |
| Creek U/S BH3 | 29-Jul-09 | 1882852 | 140 | - | - | 0.04 | 7.2 | 2.8 | 8.4 | 30 | - | - | - | 30 | 19 | - | - | 0.2 | - | 7.0 | 4 | 7 | 58 | 290 | - |
| Creek U/S BH3 | 29-Oct-09 | 1976834 | 190 | < 0.01 | 0.3 | 0.01 | 7.1 | 1.4 | 7.9 | 33 | 34 | < 2 | < 2 | 34 | 9 | < 0.1 | < 0.01 | 0.4 | - | 6.8 | 7 | 10 | 53 | 260 | - |
| Creek U/S BH3 | 20-Jul-10 | 2259586 | 160 | 0.001 | 1.4 | 0.012 | 5.2 | 3.4 | 7.3 | 28 | 27 | < 2 | < 2 | 27 | 8 | < 0.1 | 0.42 | 0.5 | - | 7.1 | 12 | 17 | 57 | 250 | - |
| Creek U/S BH3 | 03-Nov-10 | 2382974 | - | - | - | < 0.01 | - | - | - | - | - | - | - | - | - | - | - | 0.8 | - | 7.4 | - | 18 | - | 220 | - |
| Creek U/S BH3 | 22-May-12 | 3045887 | 180 | < 0.01 | 3.8 | < 0.01 | 9.5 | 1.6 | 12 | 38 | 60 | < 2 | < 2 | 60 | 4 | < 0.1 | 0.07 | 0.3 | - | 7.3 | 7 | 13 | 82 | 360 | - |
| Creek U/S BH3 | 02-Aug-12 | 3131174 | 160 | 0.001 | 1.2 | 0.003 | 5.4 | 1.7 | 7.2 | 21 | 31 | < 2 | < 2 | 31 | 5 | < 0.1 | 1.2 | 0.8 | - | 7.5 | 9 | 16 | 41 | 220 | - |
| Creek U/S BH3 | 29-Nov-12 | 3276019 | - | - | - | 0.01 | - | - | - | - | - | - | - | - | - | - | - | 0.2 | - | 6.9 | - | 17 | - | 370 | - |
| Creek U/S BH3 | 28-Aug-13 | 3598536 | 170 | < 0.01 | 0.6 | < 0.01 | 6.2 | 1.7 | 8 | 29 | 30 | < 2 | < 2 | 30 | 7 | < 0.1 | 0.52 | 0.5 | - | 7.3 | 8 | 17 | 53 | 250 | - |
| Creek U/S BH3 | 26-Nov-13 | 3705775 | 140 | < 0.01 | 1.1 | 0.01 | 6.4 | 1.1 | 7.8 | 21 | 42 | < 2 | < 2 | 42 | 6 | 0.2 | 0.13 | 0.3 | - | 7.2 | 5 | 8 | 52 | 260 | - |
| Creek U/S BH3 | 27-Aug-14 | 4024247 | 110 | < 0.01 | 0.4 | < 0.01 | 5.3 | 1.3 | 7 | 16 | 30 | < 2 | < 2 | 30 | 7 | < 0.1 | 1 | 0.3 | - | 7.3 | 6 | 11 | 49 | 230 | - |
| Creek U/S BH3 | 26-Nov-14 | 4133478 | 220 | < 0.01 | 0.3 | < 0.01 | 8.8 | 2.3 | 11 | 34 | 38 | < 2 | < 2 | 38 | 4 | < 0.1 | 0.2 | 0.6 | - | 6.9 | 7 | 16 | 74 | 320 | - |
| Creek U/S BH3 | 17-Jan-17 | - | 414 | 0.001 | 3.22 | <0.005 | 15 | 2 | 22 | 84 | 81.00 | <1 | <1 | 81 | 7 | 0.08 | 0.08 | <0.1 | - | 7.25 | 9 | 16 | 172 | 708 | - |
| Creek U/S BH3 | 21-Mar-17 | - | 242 | 0.001 | 5.21 | 0.028 | 7 | 4 | 9 | 34 | 35.00 | <1 | <1 | 35 | 8 | 0.08 | 0.57 | 1 | - | 6.67 | 14 | 37 | 78 | 352 | - |
| Creek U/S BH3 | 24-May-17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Creek U/S BH3 | 24-Aug-17 | EM1711445002 | 141 | 0.002 | 1.21 | 0.007 | 6 | 1 | 8 | 29 | 34 | <1 | <1 | 34 | 7 | <0.01 | 0.42 | 0.3 | - | 6.95 | 11 | 22 | 43 | 248 | 11 |
| Creek U/S BH3 | 09-Nov-17 | EM1715409001 | 170 | <0.001 | 1.84 | <0.005 | 7 | 1 | 11 | 31 | 55 | <1 | <1 | 55 | 5 | 0.11 | 0.08 | 0.3 | - | 7.29 | 5 | 16 | 73 | 312 | 10 |
| Creek U/S BH3 | 29-May-18 | EM1808881001 | 173 | <0.001 | 0.98 | 0.037 | 5 | 3 | 7 | 25 | 24 | <1 | <1 | 24 | 8 | 0.05 | 0.36 | 0.3 | - | 6.75 | 8 | 23 | 54 | 263 | 7 |
| Creek U/S BH3 | 02-Aug-18 | EM1812371001 | 166 | 0.001 | 0.74 | 0.009 | 5 | 1 | 7 | 27 | 27 | <1 | <1 | 27 | 11 | 0.03 | 0.43 | <0.1 | - | 7.19 | 8 | 25 | 72 | 241 | 13 |
| Creek U/S BH3 | 29-Nov-18 | EM1819464001 | 330 | <0.001 | 3.86 | 0.009 | 7 | 1 | 11 | 42 | 60 | <1 | <1 | 60 | 4 | 0.02 | 0.05 | 0.4 | - | 7.27 | 7 | 16 | 102 | 441 | 11 |
| Creek U/S BH3 | 19-Aug-19 | EM1913513 | 165 | 0.001 | 0.84 | <0.005 | 4 | 2 | 6 | 23 | 25 | <1 | <1 | 25 | 8 | 0.01 | 2.34 | 0.6 | -- | 6.88 | 10 | 26 | 34 | 223 | 96 |
| Creek U/S BH3 | 03-Dec-19 | EM1920764 | 200 | <0.001 | 0.95 | 0.005 | 4 | 2 | 6 | 30 | 52 | <1 | <1 | 52 | 6 | 0.02 | 0.08 | 0.2 | 81.7 | 6.79 | 7 | 12 | 57 | 289 | 10 |
| Creek U/S BH3 | 14-Feb-20 | EM2002405 | 1,270 | <0.001 | 1.69 | 0.012 | 35 | 4 | 57 | 171 | 95 | <1 | <1 | 95 | 11 | 0.08 | 0.01 | 0.3 | -- | 7.21 | 3 | 16 | 512 | 1,680 | 10 |
| Creek U/S BH3 | 18-May-20 | EM2008378 | 312 | <0.001 | 8.86 | 0.018 | 9 | 3 | 15 | 62 | 67 | <1 | <1 | 67 | 4 | 0.09 | 0.02 | 0.5 | -- | 7 | 6 | 16 | 134 | 506 | 10 |
| Creek U/S BH3 | 17-Aug-20 | EM2014279 | 150 | <0.001 | 1.03 | 0.006 | 6 | 1 | 9 | 27 | 48 | <1 | <1 | 48 | 5 | <0.01 | <0.01 | 0.3 | - | 6.81 | 6 | <10 | 48 | 276 | 35 |
| Creek U/S BH3 | 25-Nov-20 | EM2021046 | 210 | <0.001 | 1.39 | <0.005 | 5 | 2 | 7 | 26 | 56 | <1 | <1 | 56 | 4 | 0.06 | <0.01 | 0.4 | - | 7.37 | 6 | <10 | 43 | 254 | 14 |
| Creek U/S BH3 | 23-Feb-21 | EM2102910 | 480 | <0.001 | 3.07 | <0.005 | 16 | 2 | 24 | 84 | 94 | <1 | <1 | 94 | 2 | 0.01 | <0.01 | 0.6 | - | 7.17 | 11 | 22 | 202 | 808 | 13 |
| Creek U/S BH3 | 24-May-21 | EM2109755 | 378 | <0.001 | 3.66 | 0.005 | 12 | 2 | 21 | 82 | 66 | <1 | <1 | 66 | 3 | 0.16 | <0.01 | 0.4 | - | 6.74 | 4 | <10 | 208 | 764 | 24 |
| Creek U/S BH3 | 13-Sep-21 | EM2118306 | 168 | <0.001 | 0.78 | <0.005 | 6 | 2 | 7 | 24 | 39 | <1 | <1 | 39 | 6 | 0.02 | 1.59 | -- | 8 | 23 | 42 | 264 | 17 | -- | -- |
| Creek U/S BH3 | 17-Nov-21 | EM2123379 | 188 | <0.001 | 1.32 | <0.005 | 5 | 1 | 8 | 27 | 49 | <1 | <1 | 49 | 4 | 0.2 | 0.36 | -- | 7 | 22 | 49 | 271 | 19 | -- | -- |
| Creek U/S BH3 | 28-Feb-22 | EM2203466 | 1030 | 0.002 | 4.21 | 0.007 | 27 | 4 | 43 | 149 | 103 | <1 | <1 | 103 | 2 | 0.52 | <0.01 | -- | 9 | 26 | 383 | 1270 | 49 | -- | -- |
| Creek U/S BH3 | 16-May-22 | EM2209019 | 301 | <0.001 | 5.67 | <0.005 | 9 | 3 | 14 | 58 | 67 | <1 | <1 | 67 | 4 | 0.15 | 0.03 | -- | 6 | 10 | 113 | 516 | 14 | -- | -- |
| Creek U/S BH3 | 31-Aug-22 | EM2216860 | 162 | 0.002 | 1.41 | <0.005 | 6 | 2 | 7 | 25 | 28 | <1 | <1 | 28 | 9 | <0.01 | 1.63 | 1 | -- | 6.9 | 11 | 35 | 39 | 229 | 10 |
| Creek U/S BH3 | 16-Nov-22 | EM2222748 | 160 | 0.004 | 2.56 | 0.013 | 6 | 2 | 7 | 19 | 34 | <1 | <1 | 34 | 3 | 0.03 | 0.72 | 1.2 | -- | 7.05 | 20 | 72 | 31 | 207 | 23 |
| Creek U/S BH3 | 13-Feb-23 | EM2302400 | 341 | <0.001 | 13.8 | <0.005 | 17 | 3 | 18 | 55 | 88 | <1 | <1 | 88 | <1 | 0.21 | <0.01 | 1 | -- | 7.06 | 13 | 14 | 122 | 545 | 14 |
| Creek U/S BH3 | 11-May-23 | EM2308446 | 470 | <0.001 | 6.54 | 0.01 | 28 | 19 | 31 | 108 | 70 | <1 | <1 | 70 | 6 | 1.17 | 0.02 | 1.8 | -- | 7.21 | 7 | 31 | 186 | 695 | 13 |

**Historical Surface Water / Leachate Lab Results**
**Hepburn Shire Council**

| SAMPLE NO. | SAMPLE DATE | REPROT No. | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| Dredge Hole | 31-Oct-03 | 619306 | 560 | <0.01 | <0.05 | 0.03 | 11 | 2.9 | 34 | 160 | - | - | - | 28 | 15 | 0.1 | 0.21 | <0.3 | - | 6.9 | 3 | 13 | 290 | 780 | - |
| Dredge Hole | 29-Jan-04 | 648478 | 680 | <0.01 | 0.11 | <0.01 | 19 | 21 | 29 | 110 | - | - | - | 38 | 17 | <0.1 | 0.11 | <0.3 | - | 6.9 | 4 | - | 320 | 1000 | - |
| Dredge Hole | 7-Apr-04 | 673240 | 600 | <0.01 | 0.73 | <0.01 | 13 | 4.6 | 31 | 120 | - | - | - | 26 | 16 | <0.1 | 0.08 | 0.6 | - | 7.1 | 5 | 4 | 330 | 1200 | - |
| Dredge Hole | 21-Jul-04 | 707750 | 590 | <0.01 | 2.4 | <0.01 | 9.8 | 6.8 | 33 | 120 | - | - | - | 22 | 18 | <0.1 | 0.04 | 1.2 | - | 8.2 | 6 | 19 | 320 | 1100 | - |
| Dredge Hole | 27-Oct-04 | 743751 | 600 | <0.01 | 0.89 | <0.01 | 10 | 4.8 | 30 | 120 | - | - | - | 28 | 19 | <0.1 | 0.03 | 0.3 | - | 8.2 | 6 | 5 | 310 | - | - |
| Dredge Hole | 20-Jan-05 | 775532 | 630 | <0.01 | 0.1 | 0.01 | 6.8 | 4.2 | 35 | 150 | - | - | - | 32 | 19 | <0.1 | 0.03 | 0.6 | - | 7.2 | 3 | 17 | 380 | 1200 | - |
| Dredge Hole | 13-Apr-05 | 804585 | 680 | <0.01 | 1.6 | 0.01 | 13 | 3.3 | 36 | 170 | - | - | - | 35 | 18 | <0.1 | <0.01 | 1 | - | 6.7 | 7 | 15 | 350 | 1200 | - |
| Dredge Hole | 28-Jul-05 | 841927 | 660 | <0.01 | 2.1 | <0.01 | 11 | 3.3 | 29 | 140 | - | - | - | 30 | 18 | <0.1 | 0.24 | 1 | - | 6.9 | 6 | 19 | 330 | 1100 | - |
| Dredge Hole | 31-Oct-05 | 872634 | 580 | <0.01 | 0.99 | 0.01 | 11 | 2.4 | 29 | 130 | - | - | - | 28 | 15 | <0.1 | <0.01 | 1 | - | 6.9 | 5 | 7 | 310 | 1000 | - |
| Dredge Hole | 30-Jan-06 | 903883 | 690 | <0.00 | 0.06 | 0.04 | 13 | 3.1 | 33 | 160 | - | - | - | 32 | 18 | <0.1 | 0.01 | 1.1 | - | 7.7 | 3 | 8 | 360 | 1200 | - |
| Dredge Hole | 20-Apr-06 | 933448 | 710 | <0.01 | 0.28 | 0.07 | 13 | 3.7 | 36 | 160 | - | - | - | 30 | 15 | 0.2 | 0.07 | 1.2 | - | 7.1 | 9 | 9 | 340 | 1200 | - |
| Dredge Hole | 25-Jul-06 | 965731 | 550 | <0.01 | 0.23 | 0.03 | 11 | 3.2 | 30 | 170 | - | - | - | 34 | 15 | <0.1 | 0.01 | 1.1 | - | 7 | 8 | 14 | 320 | 1100 | - |
| Dredge Hole | 24-Oct-06 | 993117 | 560 | <0.01 | 0.7 | <0.01 | 11 | 2.9 | 33 | 150 | - | - | - | 62 | 17 | <0.1 | 0.01 | 1.5 | - | 7.1 | 7 | 22 | 320 | 1200 | - |
| Dredge Hole | 24-Jan-07 | 1108120 | 590 | <0.01 | 0.68 | <0.01 | 11 | 10 | 34 | 180 | - | - | - | 26 | 16 | <0.1 | <0.01 | 0.5 | - | 7.2 | 9 | 17 | 350 | 1200 | - |
| Dredge Hole | 17-Apr-07 | 1150665 | 700 | <0.01 | 0.81 | <0.01 | 13 | 6.4 | 40 | 190 | - | - | - | 56 | 15 | <0.1 | 0.01 | 0.9 | - | 6.9 | 12 | <2 | 370 | 1200 | - |
| Dredge Hole | 25-Jul-07 | 1219308 | 560 | <0.01 | 0.7 | <0.02 | 9.8 | 4.4 | 31 | 150 | - | - | - | 27 | 15 | <0.1 | 0.10 | 0.9 | - | 6.9 | 5 | 20 | 380 | 1,200 | - |
| Dredge Hole | 22-Oct-07 | 1297219 | 590 | <0.01 | <0.2 | <0.02 | 12 | 3.6 | 36 | 170 | - | - | - | 26 | 17 | 0.2 | 0.06 | 0.8 | - | 6.9 | 6 | 18 | 330 | 1,200 | - |
| Dredge Hole | 22-Jan-08 | 1375496 | 660 | <0.01 | <0.2 | 0.01 | 12 | 3.0 | 37 | 190 | - | - | - | 28 | <1 | <0.1 | <0.01 | 0.5 | - | 7.2 | 6 | 17 | 370 | 1,200 | - |
| Dredge Hole | 22-Apr-08 | 1458431 | 640 | <0.01 | <0.2 | 0.05 | 10 | 2.2 | 35 | 190 | - | - | - | 23 | 14 | <0.1 | <0.01 | 0.7 | - | 7.21 | 8 | 13 | 400 | 1,400 | - |
| Dredge Hole | 22-Jul-08 | 1539826 | 530 | <0.01 | <0.2 | 0.01 | 11 | 3.1 | 34 | 150 | - | - | - | 8 | 16 | <0.1 | <0.01 | 1.0 | - | 6.85 | 5 | 17 | 380 | 1,300 | - |
| Dredge Hole | 21-Oct-08 | 1620244 | 620 | <0.01 | <0.2 | 0.03 | 10 | 4.3 | 33 | 160 | - | - | - | 19 | 17 | <0.1 | <0.01 | 0.9 | - | 6.43 | 5 | 18 | 340 | 1,200 | - |
| Dredge Hole | 28-Jan-09 | 1706039 | 730 | <0.01 | <0.2 | 0.02 | 12 | 2.9 | 37 | 170 | - | - | - | 24 | 15 | <0.1 | 0.09 | 0.6 | - | 7.0 | 5 | <10 | 380 | 1,300 | - |
| Dredge Hole | 28-Apr-09 | - | 670 | <0.01 | 0.2 | 0.05 | 18 | 2.9 | 32 | 180 | - | - | - | 22 | 17 | <0.1 | 0.05 | 0.5 | - | 7.2 | 5 | 11 | 380 | 1,400 | - |
| Dredge Hole | 29-Jul-09 | 1882869 | 620 | - | - | 0.03 | 10 | 3 | 35 | 160 | - | - | - | 18 | 20 | - | - | 0.7 | - | 7.1 | 4 | 14 | 340 | 1,200 | - |
| Dredge Hole | 29-Oct-09 | 1976823 | 610 | < 0.01 | 0.4 | 0.07 | 11 | 3 | 35 | 180 | 17 | < 2 | < 2 | 17 | 20 | < 0.1 | < 0.01 | 0.6 | - | 6.7 | 4 | 11 | 360 | 1200 | - |
| Dredge Hole | 28-Jan-10 | 2070260 | 670 | < 0.001 | 0.27 | 0.004 | 10 | 3 | 38 | 160 | 23 | < 2 | < 2 | 23 | 19 | < 0.1 | 0.02 | 0.4 | - | 6.8 | 34 | 14 | 390 | 1300 | - |
| Dredge Hole | 20-Jul-10 | 2259584 | 580 | < 0.001 | 0.49 | 0.003 | 11 | 4.7 | 34 | 160 | 20 | < 2 | < 2 | 20 | 18 | < 0.1 | 0.02 | 0.5 | - | 6.8 | 4 | 7 | 330 | 1100 | - |
| Dredge Hole | 20-Oct-10 | 2367035 | 590 | < 0.001 | 1.4 | 0.008 | 17 | 2.9 | 33 | 150 | 42 | < 2 | < 2 | 42 | 22 | < 0.1 | 0.26 | 1.3 | - | 6.8 | 9 | 16 | 360 | 1200 | - |
| Dredge Hole | 24-Jan-11 | 2474619 | 530 | 0.002 | 2.5 | 0.008 | 14 | 3.7 | 27 | 140 | 48 | < 2 | < 2 | 48 | 18 | 0.2 | 0.47 | 1.1 | - | 6.8 | 12 | 33 | 280 | 980 | - |
| Dredge Hole | 19-Apr-11 | 2574918 | 590 | < 0.001 | 1.2 | 0.004 | 15 | 2.9 | 30 | 160 | 50 | < 2 | < 2 | 50 | 14 | < 0.1 | < 0.01 | 0.6 | - | 6.8 | 7 | 18 | 300 | 1100 | - |
| Dredge Hole | 28-Jul-11 | 2688220 | 580 | < 0.001 | 1.2 | 0.003 | 13 | 2.4 | 30 | 160 | 42 | < 2 | < 2 | 42 | 16 | 0.3 | 0.22 | 0.7 | - | 6.7 | 6 | 17 | 330 | 1100 | - |
| Dredge Hole | 18-Oct-11 | 2784848 | 600 | < 0.01 | 1 | < 0.01 | 11 | 2.3 | 27 | 140 | 38 | < 2 | < 2 | 38 | 17 | < 0.1 | < 0.01 | 0.6 | - | 6.9 | - | 14 | 310 | 1100 | - |
| Dredge Hole | 19-Jan-12 | 2895501 | 610 | < 0.01 | 0.8 | < 0.01 | 10 | 2 | 30 | 150 | 40 | < 2 | < 2 | 40 | 17 | < 0.1 | < 0.01 | 0.6 | - | 7 | 5 | 12 | 290 | 1100 | - |
| Dredge Hole | 22-May-12 | 3045829 | 530 | < 0.01 | 2.2 | < 0.01 | 8.7 | 2.4 | 25 | 120 | 36 | < 2 | < 2 | 36 | 15 | 0.1 | 0.18 | 1 | - | 7.1 | 6 | 15 | 290 | 980 | - |
| Dredge Hole | 02-Aug-12 | 3131140 | 470 | < 0.001 | 1 | 0.01 | 7.9 | 2.7 | 24 | 130 | 34 | < 2 | < 2 | 34 | 19 | 0.3 | 0.22 | 0.7 | - | 6.8 | 4 | 7 | 250 | 890 | - |
| Dredge Hole | 29-Nov-12 | 3274868 | 590 | < 0.01 | 0.6 | < 0.01 | 6.8 | 2.9 | 23 | 120 | 41 | < 2 | < 2 | 41 | 16 | < 0.1 | 0.05 | 0.7 | - | 7 | 20 | 14 | 250 | 900 | - |
| Dredge Hole | 27-Feb-13 | 3383771 | 490 | < 0.01 | 0.5 | < 0.01 | 7.3 | 2.5 | 25 | 130 | 90 | < 2 | < 2 | 90 | 17 | < 0.1 | 0.06 | 0.5 | - | 7 | 5 | 8 | 250 | 940 | - |
| Dredge Hole | 16-May-13 | 3478282 | 430 | < 0.01 | 1.3 | < 0.01 | 8.6 | 2.3 | 23 | 130 | 40 | < 2 | < 2 | 40 | 15 | 0.1 | 0.16 | 0.9 | - | 7 | 5 | 11 | 240 | 900 | - |
| Dredge Hole | 28-Aug-13 | 3598518 | 430 | < 0.01 | 1.4 | < 0.01 | 8.1 | 2.1 | 22 | 67 | 31 | < 2 | < 2 | 31 | 16 | < 0.1 | 0.1 | 0.8 | - | 6.8 | 4 | 12 | 220 | 790 | - |
| Dredge Hole | 26-Nov-13 | 3705736 | 430 | < 0.01 | 1 | < 0.01 | 4.9 | 2.1 | 17 | 90 | 34 | < 2 | < 2 | 34 | 17 | 0.3 | < 0.01 | 0.7 | - | 7 | 5 | 10 | 230 | 820 | - |
| Dredge Hole | 25-Feb-14 | 3807900 | 500 | < 0.01 | 1.5 | < 0.01 | 7.6 | 3 | 24 | 140 | 44 | < 2 | < 2 | 44 | 16 | 0.1 | 0.06 | 0.7 | - | 7.2 | 5 | 11 | 240 | 880 | - |
| Dredge Hole | 28-May-14 | 3917836 | 420 | < 0.01 | 0.8 | < 0.01 | 6 | 2 | 18 | 99 | 34 | < 2 | < 2 | 34 | < 100 | < 0.1 | 0.13 | 0.8 | < 0.05 | 6.8 | 5 | 14 | 230 | 820 | - |
| Dredge Hole | 26-Aug-14 | 4022969 | 350 | < 0.01 | 0.8 | < 0.01 | 6.1 | 2.1 | 20 | 99 | 30 | < 2 | < 2 | 30 | 16 | < 0.1 | 0.04 | 1.3 | 0.17 | 6.9 | 4 | 16 | 220 | 770 | - |
| Dredge Hole | 26-Nov-14 | 4133549 | 420 | < 0.01 | < 0.2 | < 0.01 | 6.5 | 2.5 | 20 | 110 | 30 | < 2 | < 2 | 30 | 16 | < 0.1 | < 0.01 | 0.8 | - | 7 | 6 | 11 | 220 | 810 | - |
| Dredge Hole | 23-Feb-15 | 4237814 | 430 | <0.01 | 0.6 | <0.01 | 8.3 | 3.9 | 17 | 96 | 32 | <2 | <2 | 32 | 16 | <0.1 | 0.02 | 0.8 | 0.06 | 7 | 4.1 | 13 | 260 | 850 | - |
| Dredge Hole | 24-Feb-16 | 4674182 | 470 | < 0.01 | 0.6 | < 0.01 | 6.5 | 2.7 | 22 | 120 | 28 | < 2 | < 2 | 28 | 16 | < 0.1 | 0.02 | 0.1 | - | 6.8 | 3 | 9 | 220 | 870 | - |
| Dredge Hole | 17-Jan-17 | - | 550 | 0.001 | 0.8 | 0.007 | 9 | 2 | 25 | 148 | 35 | <1 | <1 | 35 | 18 | 0.03 | 0.03 | <0.1 | - | 7.03 | 5 | <10 | 296 | 1010 | 11 |
| Dredge Hole | 21-Mar-17 | - | 568 | <0.001 | 1.11 | 0.006 | 8 | 2 | 22 | 130 | 36 | <1 | <1 | 36 | 16 | 0.02 | 0.02 | 0.4 | - | 7.08 | 5 | 12 | 307 | 1020 | 13 |
| Dredge Hole | 24-May-17 | - | 511 | <0.001 | 1.17 | <0.005 | 48 | 13 | 92 | 440 | 68 | <1 | <1 | 35 | 16 | 0.06 | 0.24 | 0.5 | - | 7.22 | 6 | 15 | 318 | 939 | 18 |
| Dredge Hole | 24-Aug-17 | EM1711445005 | 434 | <0.001 | 1.2 | 0.024 | 7 | 2 | 21 | 110 | 23 | <1 | <1 | 23 | 16 | 0.11 | 1.34 | 0.5 | - | 6.97 | 6 | 14 | 244 | 848 | 19 |
| Dredge Hole | 09-Nov-17 | EM1715409006 | 455 | <0.001 | 0.81 | 0.008 | 7 | 2 | 23 | 118 | 29 | <1 | <1 | 29 | 17 | 0.04 | 0.02 | 0.4 | - | 7.17 | 5 | 14 | 290 | 856 | 13 |
| Dredge Hole | 26-Feb-18 | EM1803674010 | 524 | <0.001 | 1.27 | 0.006 | 6 | 3 | 21 | 121 | 30 | <1 | <1 | 30 | 15 | 0.04 | 0.06 | 0.3 | - | 6.82 | 4 | 10 | 255 | 917 | 15 |
| Dredge Hole | 29-May-18 | EM1808881006 | 490 | <0.001 | 0.34 | 0.008 | 7 | 2 | 22 | 119 | 29 | <1 | <1 | 29 | 14 | 0.18 | 0.05 | 0.4 | - | 6.7 | 4 | 14 | 261 | 894 | 18 |
| Dredge Hole | 02-Aug-18 | EM1812371006 | 464 | <0.001 | 0.99 | <0.005 | 7 | 3 | 20 | 101 | 25 | <1 | <1 | 25 | 15 | 0.1 | 0.15 | 0.3 | - | 6.8 | 4 | 12 | 263 | 785 | 10 |
| Dredge Hole | 28-Nov-18 | EM1819277008 | 412 | <0.001 | 0.75 | <0.005 | 5 | 2 | 20 | 103 | 23 | <1 | <1 | 23 | 16 | 0.03 | <0.01 | 0.5 | - | 7.3 | 5 | 13 | 257 | 808 | 26 |
| Dredge Hole | 26-Feb-19 | EM1902808009 | 536 | <0.001 | 0.8 | 0.009 | 5 | 3 | 20 | 116 | 29 | <1 | <1 | 29 | 15 | 0.03 | <0.01 | 0.6 | - | 7.18 | 4 | 11 | 308 | 900 | 20 |
| Dredge Hole | 21-May-19 | EM1907812003 | 484 | <0.001 | 0.75 | <0.005 | 6 | 2 | 20 | 110 | 26 | <1 | <1 | 26 | 13 | 0.15 | 0.08 | 0.5 | - | 6.66 | 4 | <10 | 284 | 925 | 10 |
| Dredge Hole | 19-Aug-19 | EM1913513 | 420 | 0.002 | 1.29 | <0.005 | 5 | 2 | 18 | 99 | 26 | <1 | <1 | 26 | 12 | 0.08 | 0.02 | 1.1 | -- | 6.94 | 9 | 22 | 222 | 788 | 18 |
| Dredge Hole | 03-Dec-19 | EM1920764 | 367 | <0.001 | 0.18 | <0.005 | 5 | 2 | 19 | 109 | 36 | <1 | <1 | 36 | 15 | 0.03 | <0.01 | 0.6 | 33.2 | 6.95 | 5 | <10 | 272 | 853 | 6 |
| Dredge Hole | 14-Feb-20 | EM2002405 | 684 | <0.001 | 0.68 | <0.005 | 7 | 3 | 23 | 119 | 32 | <1 | <1 | 32 | 12 | 0.01 | <0.01 | 0.2 | -- | 7 | 2 | 12 | 285 | 914 | 10 |
| Dredge Hole | 18-May-20 | EM2008378 | 460 | <0.001 | 1.7 | <0.005 | 6 | 3 | 22 | 111 | 29 | <1 | <1 | 29 | 13 | 0.11 | 0.1 | 0.6 | -- | 6.47 | 3 | 10 | 276 | 852 | 15 |
| Dredge Hole | 19-Aug-20 | EM2014471 | 417 | <0.001 | 2.31 | 0.006 | 5 | 2 | 20 | 104 | 31 | <1 | <1 | 31 | 14 | 0.14 | <0.01 | 0.7 | - | 7.19 | <1 | 14 | 262 | 876 | 38 |
| Dredge Hole | 23-Nov-20 | EM2020734 | 415 | <0.001 | 0.82 | <0.005 | 5 | 2 | 19 | 105 | 33 | <1 | <1 | 33 | 14 | 0.01 | <0.01 | 0.8 | - | 6.94 | 4 | <10 | 238 | 816 | 7 |
| Dredge Hole | 22-Feb-21 | EM2102856 | 490 | <0.001 | 1.24 | <0.005 | 6 | 3 | 20 | 114 | 30 | <1 | <1 | 30 | 13 | 0.02 | <0.01 | 0.5 | - | 6.69 | 4 | <10 | 288 | 886 | 13 |
| Dredge Hole | 26-May-21 | EM2109946 | 520 | <0.001 | 2.43 | <0.005 | 6 | 3 | 20 | 104 | 31 | <1 | <1 | 31 | 12 | 0.24 | <0.01 | 0.7 | - | 7.12 | 4 | <10 | 252 | 840 | 16 |
| Dredge Hole | 14-Sep-21 | EM2118437 | 453 | <0.001 | 0.87 | 0.008 | 6 | 2 | 21 | 109 | 31 | <1 | <1 | 31 | 14 | <0.01 | 0.09 | -- | 4 | 15 | 244 | 876 | 14 | -- | -- |
| Dredge Hole | 18-Nov-21 | EM2123390 | 524 | <0.001 | 0.88 | <0.005 | 7 | 2 | 21 | 113 | 34 | <1 | <1 | 34 | 15 | 0.21 | 0.63 | -- | 4 | 16 | 270 | 921 | 13 | -- | -- |
| Dredge Hole | 03-Mar-22 | EM2203751 | 359 | <0.001 | <0.05 | 0.01 | 7 | 4 | 18 | 90 | 36 | <1 | <1 | 36 | 10 | 0.35 | 0.02 | -- | 4 | 11 | 198 | 678 | 14 | -- | -- |
| Dredge Hole | 17-May-22 | EM2209262 | 396 | <0.001 | 3.9 | <0.005 | 6 | 4 | 17 | 94 | 41 | <1 | <1 | 41 | 11 | 0.51 | 0.03 | -- | 5 | 15 | 223 | 759 | 18 | -- | -- |
| Dredge Hole | 31-Aug-22 | EM2216860 | 400 | <0.001 | 2.16 | 0.007 | 6 | 2 | 17 | 99 | 30 | <1 | <1 | 30 | 14 | <0.01 | 0.22 | 0.7 | -- | 7.19 | 5 | 15 | 235 | 799 | 11 |
| Dredge Hole | 18-Nov-22 | EM2222858 | 503 | <0.001 | 2.45 | 0.005 | 12 | 3 | 24 | 118 | 65 | <1 | <1 | 65 | 15 | 0.01 | 0.11 | 1.1 | -- | 6.85 | 9 | 28 | 248 | 940 | 25 |
| Dredge Hole | 16-Feb-23 | EM2302773 | 518 | <0.001 | 1.42 | <0.005 | 11 | 3 | 24 | 126 | 58 | <1 | <1 | 58 | 16 | <0.01 | 0.01 | 0.7 | -- | 6.93 | 6 | 47 | 286 | 976 | 8 |
| Dredge Hole | 09-May-23 | EM2308222 | 533 | <0.001 | 3.93 | <0.005 | 10 | 3 | 22 | 113 | 49 | <1 | <1 | 49 | 12 | 0.43 | 0.09 | 1.1 | -- | 6.91 | 7 | 21 | 246 | 878 | 13 |

**Historical Surface Water / Leachate Lab Results**
**Hepburn Shire Council**

| SAMPLE NO. | SAMPLE DATE | REPROT No. | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| Leachate Pond | 31-Oct-03 | 619305 | 420 | <0.01 | 0.17 | <0.01 | 32 | 16 | 21 | 80 | - | - | - | 140 | 1.2 | 0.3 | 0.32 | 0.7 | - | 7.9 | 8 | 30 | 140 | 590 | - |
| Leachate Pond | 29-Jan-04 | 648477 | 650 | <0.01 | 0.24 | <0.01 | 13 | 10 | 22 | 94 | - | - | - | 160 | <1.0 | 0.3 | 0.17 | 1.2 | - | 8 | 17 | - | 260 | 1100 | - |
| Leachate Pond | 7-Apr-04 | 673239 | 800 | <0.01 | 1.6 | <0.01 | 45 | 30 | 41 | 140 | - | - | - | 240 | <1.0 | 1.1 | 0.09 | 2.5 | - | 8 | 18 | 38 | 350 | 1600 | - |
| Leachate Pond | 21-Jul-04 | 707749 | 490 | <0.01 | 23 | 0.02 | 36 | 17 | 26 | 78 | - | - | - | 160 | 17 | 1.8 | 0.52 | 2.3 | - | 7.4 | 9 | 22 | 180 | 910 | - |
| Leachate Pond | 27-Oct-04 | 743750 | 530 | <0.01 | 2.5 | <0.01 | 30 | 17 | 27 | 87 | - | - | - | 170 | 1.8 | 0.6 | 0.44 | 1.2 | - | 7.2 | 15 | 42 | 210 | - | - |
| Leachate Pond | 20-Jan-05 | 775531 | 700 | <0.01 | <0.05 | <0.01 | 46 | 30 | 39 | 140 | - | - | - | 260 | 3 | 1.3 | 0.14 | 2.4 | - | 7.9 | 13 | 36 | 320 | 1300 | - |
| Leachate Pond | 13-Apr-05 | 804584 | 680 | <0.01 | 3.2 | 0.02 | 50 | 28 | 35 | 130 | - | - | - | 220 | 6 | 2.1 | 0.14 | 2.6 | - | 7.4 | 15 | 28 | 230 | 1200 | - |
| Leachate Pond | 28-Jul-05 | 841926 | 620 | <0.01 | 3.2 | 0.26 | 49 | 27 | 30 | 130 | - | - | - | 230 | 1 | 2.5 | 1.5 | 2.9 | - | 7.7 | 12 | 35 | 220 | 1200 | - |
| Leachate Pond | 31-Oct-05 | 872633 | 250 | <0.01 | 2.9 | 0.03 | 20 | 12 | 12 | 41 | - | - | - | 94 | <1 | 0.1 | <0.01 | 1.5 | - | 7.3 | 12 | 28 | 74 | 440 | - |
| Leachate Pond | 30-Jan-06 | 903882 | 550 | <0.00 | 0.64 | 0.43 | 45 | 24 | 28 | 110 | - | - | - | 210 | 4 | 1.6 | 0.03 | 3.8 | - | 8.4 | 15 | 83 | 220 | 1000 | - |
| Leachate Pond | 20-Apr-06 | 933447 | 770 | <0.01 | 0.35 | 0.03 | 54 | 33 | 39 | 150 | - | - | - | 250 | <1 | 2 | 0.04 | 3.7 | - | 7.9 | 24 | 34 | 290 | 1400 | - |
| Leachate Pond | 25-Jul-06 | 965730 | 550 | <0.01 | 0.38 | 0.04 | 45 | 31 | 30 | 150 | - | - | - | 190 | 8 | 0.8 | 0.56 | 3 | - | 7.7 | 23 | 47 | 230 | 1100 | - |
| Leachate Pond | 24-Oct-06 | 993116 | 680 | <0.01 | 1.9 | <0.01 | 57 | 36 | 37 | 140 | - | - | - | 290 | <1 | 1.7 | 0.01 | 5.4 | - | 7.7 | 11 | 45 | 280 | 1400 | - |
| Leachate Pond | 24-Jan-07 | 1108119 | 1100 | <0.01 | 2.8 | 0.02 | 46 | 52 | 63 | 280 | - | - | - | 69 | <0.5 | <0.1 | 0.2 | 0.7 | - | 8 | 22 | 76 | 490 | 2000 | - |
| Leachate Pond | 17-Apr-07 | 1150664 | 1100 | <0.01 | 27 | 0.02 | 77 | 37 | 60 | 210 | - | - | - | 460 | 5 | 3.2 | <0.01 | 5.9 | - | 7.4 | 32 | 360 | 380 | 1800 | - |
| Leachate Pond | 25-Jul-07 | 1219307 | 680 | <0.01 | 1.3 | <0.02 | 41 | 30 | 38 | 130 | - | - | - | 240 | 8 | <0.1 | <0.01 | 1.5 | - | 8.4 | 16 | 48 | 300 | 1,300 | - |
| Leachate Pond | 22-Oct-07 | 1297218 | 880 | <0.01 | 0.5 | <0.02 | 53 | 34 | 57 | 200 | - | - | - | 270 | <1 | 0.1 | 0.11 | 1.2 | - | 8.6 | 23 | 64 | 350 | 1,600 | - |
| Leachate Pond | 22-Jan-08 | 1375495 | 1,600 | <0.01 | 0.4 | 0.01 | 76 | 52 | 95 | 370 | - | - | - | 460 | <1 | <0.1 | 0.22 | 1.8 | - | 8.4 | 30 | 91 | 730 | 2,600 | - |
| Leachate Pond | 22-Jul-08 | 1539825 | 670 | <0.01 | 0.7 | 0.01 | 46 | 31 | 39 | 150 | - | - | - | 74 | 9 | <0.1 | <0.01 | 1.0 | - | 7.70 | 16 | 39 | 290 | 1,400 | - |
| Leachate Pond | 21-Oct-08 | 1620243 | 990 | <0.01 | 0.2 | 0.01 | 46 | 37 | 53 | 210 | - | - | - | 280 | <1 | <0.1 | <0.01 | 1.8 | - | 7.4 | 20 | 42 | 440 | 1,700 | - |
| Leachate Pond | 28-Jan-09 | 1706038 | 1,600 | <0.01 | <0.2 | <0.01 | 79 | 55 | 89 | 360 | - | - | - | 440 | <1 | <0.1 | 0.01 | 2.5 | - | 7.6 | 23 | 74 | 750 | 2,900 | - |
| Leachate Pond | 28-Apr-09 | - | 2,900 | <0.01 | 0.3 | 0.03 | 220 | 110 | 140 | 690 | - | - | - | 170 | 190 | 0.2 | 1.2 | 3.0 | - | 8.0 | 40 | 110 | 1,500 | 4,900 | - |
| Leachate Pond | 29-Jul-09 | - | 820 | <0.01 | 0.3 | 0.02 | 48 | 35 | 42 | 170 | - | - | - | 240 | 9 | <0.1 | 0.089 | 1.3 | - | 8.1 | 20 | 45 | 310 | 1,500 | - |
| Leachate Pond | 29-Oct-09 | 1976822 | 710 | < 0.01 | 0.3 | 0.01 | 43 | 34 | 43 | 160 | 220 | 10 | < 2 | 240 | < 1 | < 0.1 | < 0.01 | 2.1 | - | 8.5 | 27 | 65 | 300 | 1300 | - |
| Leachate Pond | 28-Jan-10 | 2070259 | 1400 | < 0.001 | 0.06 | 0.005 | 66 | 50 | 81 | 320 | 430 | < 2 | < 2 | 430 | < 1 | < 0.1 | < 0.01 | 1.5 | - | 7.9 | 2 | 81 | 610 | 2600 | - |
| Leachate Pond | 20-Jul-10 | 2259583 | 540 | < 0.001 | 0.3 | 0.017 | 30 | 16 | 33 | 130 | 180 | < 2 | < 2 | 180 | < 1 | 0.1 | 0.01 | 0.6 | - | 7.9 | 21 | 43 | 230 | 1000 | - |
| Leachate Pond | 20-Oct-10 | 2367034 | 440 | < 0.001 | 1.2 | 0.001 | 30 | 13 | 27 | 90 | 170 | < 2 | < 2 | 170 | < 1 | < 0.1 | 0.21 | 1.4 | - | 7.5 | 20 | 33 | 170 | 810 | - |
| Leachate Pond | 24-Jan-11 | 2474618 | 290 | < 0.001 | 1.7 | 0.001 | 21 | 10 | 18 | 65 | 130 | < 2 | < 2 | 130 | < 1 | 0.1 | < 0.01 | 1.3 | - | 7.3 | 22 | 57 | 100 | 550 | - |
| Leachate Pond | 19-Apr-11 | 2574917 | 570 | < 0.001 | 0.21 | 0.001 | 30 | 22 | 29 | 120 | 190 | < 2 | < 2 | 190 | < 1 | < 0.1 | < 0.01 | 0.6 | - | 7.8 | 16 | 41 | 210 | 1000 | - |
| Leachate Pond | 28-Jul-11 | 2688219 | 500 | < 0.001 | 0.73 | < 0.001 | 29 | 16 | 26 | 110 | 160 | < 2 | < 2 | 160 | 12 | < 0.1 | < 0.01 | 0.6 | - | 7.5 | 14 | 32 | 210 | 930 | - |
| Leachate Pond | 18-Oct-11 | 2784847 | 520 | < 0.01 | 0.8 | < 0.01 | 29 | 15 | 28 | 100 | 190 | < 2 | < 2 | 190 | 9 | < 0.1 | < 0.01 | 1.9 | - | 7.6 | - | 65 | 200 | 940 | - |
| Leachate Pond | 19-Jan-12 | 2895500 | 740 | < 0.01 | 0.7 | < 0.01 | 39 | 20 | 38 | 130 | 240 | 22 | < 2 | 260 | 1 | < 0.1 | < 0.05 | 1.6 | - | 7.5 | 24 | 46 | 250 | 1300 | - |
| Leachate Pond | 22-May-12 | 3045828 | 740 | < 0.01 | 1.7 | < 0.01 | 36 | 25 | 38 | 140 | 240 | < 2 | < 2 | 240 | < 1 | < 0.1 | 0.08 | 1.6 | - | 7.7 | 23 | 43 | 270 | 1300 | - |
| Leachate Pond | 02-Aug-12 | 3131139 | 430 | < 0.001 | 0.74 | 0.003 | 22 | 13 | 24 | 96 | 140 | < 2 | < 2 | 140 | 11 | 0.3 | 0.02 | 0.8 | - | 7.7 | 10 | 24 | 180 | 810 | - |
| Leachate Pond | 29-Nov-12 | 3274867 | 770 | < 0.01 | 0.9 | < 0.01 | 42 | 21 | 40 | 140 | 260 | < 2 | < 2 | 260 | < 1 | 0.1 | 0.01 | 0.8 | - | 7.5 | 6 | 44 | 280 | 1300 | - |
| Leachate Pond | 28-Feb-13 | 3383774 | 1600 | < 0.01 | 0.9 | < 0.01 | 80 | 57 | 75 | 330 | 130 | < 2 | < 2 | 130 | 210 | 0.2 | 0.06 | 2.6 | - | 7.6 | 30 | 72 | 730 | 2600 | - |
| Leachate Pond | 16-May-13 | 3478112 | 1700 | < 0.01 | 1.7 | < 0.01 | 67 | 44 | 71 | 290 | 260 | < 2 | < 2 | 260 | 66 | < 0.1 | 0.44 | 1.8 | - | 7.6 | 27 | 76 | 810 | 2900 | - |
| Leachate Pond | 28-Aug-13 | 3598482 | 650 | < 0.01 | 1.4 | < 0.01 | 41 | 23 | 37 | 120 | 190 | < 2 | < 2 | 190 | < 1 | < 0.1 | < 0.01 | 0.8 | - | 7.6 | 16 | 40 | 230 | 1100 | - |
| Leachate Pond | 26-Nov-13 | 3705705 | 710 | < 0.01 | 1.6 | 0.01 | 31 | 13 | 28 | 100 | 220 | < 2 | < 2 | 220 | < 1 | < 0.1 | 0.01 | 1 | - | 7.5 | 18 | 43 | 250 | 1200 | - |
| Leachate Pond | 28-May-14 | 3917835 | 1200 | < 0.01 | 0.9 | < 0.01 | 72 | 46 | 60 | 260 | 240 | < 2 | < 2 | 240 | 63 | < 0.1 | < 0.01 | 1.1 | 0.06 | 7.4 | 19 | 45 | 510 | 2100 | - |
| Leachate Pond | 26-Aug-14 | 4022973 | 650 | < 0.01 | 0.7 | < 0.01 | 42 | 23 | 39 | 140 | 220 | < 2 | < 2 | 220 | < 1 | < 0.1 | < 0.01 | 0.6 | < 0.05 | 7.8 | 13 | 35 | 260 | 1200 | - |
| Leachate Pond | 26-Nov-14 | 4133548 | 1100 | < 0.01 | < 0.2 | < 0.01 | 61 | 28 | 60 | 220 | 320 | < 2 | < 2 | 320 | < 1 | < 0.1 | < 0.01 | 1.1 | - | 7.7 | 21 | 51 | 480 | 2000 | - |
| Leachate Pond | 27-Aug-15 | 4455822 | 640 | <0.001 | 0.89 | 0.02 | 46 | 21 | 43 | 160 | 230 | <2 | <2 | 230 | <5 LINT | <0.1 | 0.020 | 0.8 | - | 7.9 | 13 | 48 | 270 | 1300 | - |
| Leachate Pond | 17-Jan-17 | - | 701 | 0.002 | 1.77 | 0.034 | 42 | 24 | 34 | 154 | 243.00 | <1 | <1 | 243 | 1 | 4.77 | 0.02 | 4.2 | - | 7.37 | 13 | 36 | 287 | 1300 | 19 |
| Leachate Pond | 21-Mar-17 | - | 718 | <0.001 | 2.01 | 0.007 | 39 | 26 | 29 | 135 | 231.00 | <1 | <1 | 231 | 2 | 2.41 | 0.07 | 3.7 | - | 7.53 | 18 | 49 | 303 | 1330 | 27 |
| Leachate Pond | 24-May-17 | - | 769 | 0.027 | 5.42 | 0.078 | 33 | 41 | 32 | 140 | 284.00 | <1 | <1 | 284 | <1 | 9.58 | 0.01 | 9.6 | - | 7.4 | 21 | 120 | 326 | 1380 | 59 |
| Leachate Pond | 23-Aug-17 | EM1711442007 | 503 | 0.016 | 19.4 | 0.594 | 24 | 22 | 22 | 97 | 161 | <1 | <1 | 161 | 2 | 1.22 | 0.53 | 44.9 | - | 7.53 | 14 | 1810 | 204 | 931 | 19 |
| Leachate Pond | 09-Nov-17 | EM1715409004 | 611 | 0.004 | 7.51 | 0.145 | 34 | 19 | 30 | 129 | 206 | <1 | <1 | 206 | 1 | 6.7 | 0.12 | 6.7 | - | 7.66 | 7 | 65 | 298 | 1170 | 16 |
| Leachate Pond | 26-Feb-18 | EM1803674009 | 794 | 0.043 | 109 | 1.44 | 36 | 29 | 32 | 143 | 224 | <1 | <1 | 224 | 4 | 2.02 | 0.06 | 14.5 | - | 7.2 | 17 | 398 | 316 | 1384 | 38 |
| Leachate Pond | 29-May-18 | EM1808881004 | 608 | <0.001 | 0.1 | 0.008 | 32 | 19 | 28 | 125 | 196 | <1 | <1 | 196 | 2 | 4.41 | 0.02 | 5.4 | - | 7.5 | 7 | 49 | 267 | 1180 | 37 |
| Leachate Pond | 02-Aug-18 | EM1812371004 | 477 | <0.001 | 4.17 | 0.007 | 24 | 21 | 22 | 93 | 165 | <1 | <1 | 165 | 3 | 4.56 | 0.04 | 11.9 | - | 7.44 | 5 | 26 | 221 | 850 | 21 |
| Leachate Pond | 27-Nov-18 | EM1819193003 | 602 | <0.001 | <0.05 | <0.005 | 30 | 22 | 28 | 127 | 194 | <1 | <1 | 194 | <1 | 6.29 | 0.01 | 7.2 | - | 8.16 | 11 | 36 | 291 | 1,220 | 30 |
| Leachate Pond | 26-Feb-19 | EM1902808008 | 895 | <0.001 | 3.23 | 0.006 | 28 | 26 | 34 | 161 | 201 | <1 | <1 | 201 | 4 | 1.33 | 0.02 | 2.9 | - | 7.96 | 17 | 37 | 429 | 1,440 | 28 |
| Leachate Pond | 21-May-19 | EM1907812001 | 718 | <0.001 | 1.37 | <0.005 | 26 | 23 | 26 | 128 | 133 | <1 | <1 | 133 | 9 | 1.92 | 0.01 | 2.1 | - | 7.29 | 11 | 27 | 327 | 1,280 | 9 |
| Leachate Pond | 19-Aug-19 | EM1913513 | 398 | 0.001 | 9.72 | 0.016 | 20 | 20 | 18 | 83 | 154 | <1 | <1 | 154 | 7 | 4.42 | 0.07 | 5.3 | -- | 7.17 | 14 | 36 | 164 | 821 | 36 |
| Leachate Pond | 03-Dec-19 | EM1920764 | 600 | <0.001 | 0.08 | <0.005 | 27 | 23 | 27 | 122 | 214 | <1 | <1 | 214 | 1 | 7.27 | <0.01 | 7.5 | -93.3 | 7.45 | 12 | 30 | 274 | 1,170 | 10 |
| Leachate Pond | 10-Feb-20 | EM2002050 | 754 | <0.001 | 1.61 | <0.005 | 28 | 24 | 31 | 138 | 204 | <1 | <1 | 204 | <1 | 2.67 | 0.06 | 3.6 | -- | 8.11 | 8 | 24 | 322 | 1,280 | 20 |
| Leachate Pond | 18-May-20 | EM2008378 | 588 | <0.001 | 3.12 | <0.005 | 29 | 21 | 27 | 114 | 196 | <1 | <1 | 196 | 1 | 3.1 | 0.02 | 3.8 | -- | 7.44 | 6 | 33 | 273 | 1,030 | 15 |
| Leachate Pond | 17-Aug-20 | EM2014279 | 561 | <0.001 | 2.56 | <0.005 | 31 | 19 | 27 | 101 | 194 | <1 | <1 | 194 | 2 | 6.2 | 0.02 | 6.2 | - | 7.43 | 6 | 11 | 227 | 1070 | 38 |
| Leachate Pond | 23-Nov-20 | EM2020734 | 643 | <0.001 | 2.04 | <0.005 | 23 | 21 | 27 | 112 | 193 | <1 | <1 | 193 | 3 | 3.62 | 0.03 | 3.8 | - | 7.6 | 10 | 22 | 243 | 1070 | 12 |
| Leachate Pond | 22-Feb-21 | EM2102856 | 629 | 0.002 | 15.8 | 0.032 | 28 | 32 | 28 | 122 | 221 | <1 | <1 | 221 | 1 | 4.95 | <0.01 | 9.4 | - | 7.45 | 11 | 136 | 292 | 1220 | 20 |
| Leachate Pond | 25-May-21 | EM2109822 | 460 | 0.015 | 8.68 | 0.322 | 8 | 29 | 5 | 32 | 66 | <1 | <1 | 66 | 28 | 0.07 | 0.04 | 3.7 | - | 6.62 | 42 | 203 | 42 | 357 | 13 |
| Leachate Pond | 14-Sep-21 | EM2118437 | 536 | <0.001 | 12.7 | 0.008 | 31 | 25 | 26 | 101 | 210 | <1 | <1 | 210 | 5 | 5.15 | 0.05 | -- | 13 | 46 | 224 | 1060 | 31 | -- | -- |
| Leachate Pond | 18-Nov-21 | EM2123390 | 554 | <0.001 | 2.04 | <0.005 | 25 | 18 | 24 | 107 | 181 | <1 | <1 | 181 | 4 | 4.76 | 0.13 | -- | 10 | 29 | 254 | 1040 | 27 | -- | -- |
| Leachate Pond | 01-Mar-22 | EM2203633 | 635 | <0.001 | 2 | <0.005 | 41 | 26 | 32 | 124 | 214 | <1 | <1 | 214 | 1 | 4.18 | 0.02 | -- | 9 | 35 | 303 | 1120 | 30 | -- | -- |
| Leachate Pond | 17-May-22 | EM2209262 | 622 | <0.001 | 3.1 | <0.005 | 37 | 26 | 28 | 117 | 246 | <1 | <1 | 246 | 1 | 5.6 | <0.01 | -- | 11 | 29 | 275 | 1220 | 28 | -- | -- |
| Leachate Pond | 31-Aug-22 | EM2216860 | 466 | 0.005 | 18.3 | 0.033 | 23 | 28 | 17 | 72 | 160 | <1 | <1 | 160 | 4 | 3.78 | 0.05 | 6 | -- | 7.55 | 38 | 147 | 132 | 745 | 14 |
| Leachate Pond | 17-Nov-22 | EM2222858 | 480 | 0.006 | 23.5 | 0.036 | 27 | 32 | 19 | 73 | 171 | <1 | <1 | 171 | 5 | 5.35 | <0.01 | 5.5 | -- | 7.25 | 29 | 108 | 136 | 834 | 28 |
| Leachate Pond | 14-Feb-23 | EM2302525 | 638 | <0.001 | 5.48 | <0.005 | 40 | 24 | 30 | 130 | 194 | <1 | <1 | 194 | 3 | 6.26 | 0.06 | 6.6 | -- | 7.54 | 13 | 53 | 264 | 1,180 | <5 |
| Leachate Pond | 09-May-23 | EM2308222 | 518 | <0.001 | 1.42 | <0.005 | 29 | 22 | 23 | 100 | 163 | <1 | <1 | 163 | 4 | 4.11 | 0.01 | 3.8 | -- | 7.58 | 10 | 34 | 210 | 950 | 26 |

**Historical Surface Water / Leachate Lab Results**
**Hepburn Shire Council**

| SAMPLE NO. | SAMPLE DATE | REPROT No. | TDS | Chromium | Iron | Zinc | Calcium | Potassium | Magnesium | Sodium | Bicarbonate | Carbonate | Hydroxide | Total Alkalinity | Sulphate | Ammonia | Nitrate | Total Kjeldahl Nitrogen | Total Phosphate | pH | Total Organic Carbon | Chemical Oxygen Demand | Chloride | EC | Volatile Fatty Acids (as Acetic Acid) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L | mg N / L | mg N / L | mg N / L | mg P / L | Units | mg/L | mg/L | mg/L | uS/cm | mg/L |
| Wetland | 17-Jan-17 | - | 1160 | <0.001 | 5.82 | <0.005 | 59 | 33 | 66 | 279 | 322 | <1 | <1 | 322 | <1 | 0.06 | 0.01 | 2.2 | - | 7.54 | 29 | 91 | 511 | 2090 | - |
| Wetland | 21-Mar-17 | - | 1330 | <0.001 | 9.62 | 0.041 | 67 | 20 | 51 | 234 | 54 | <1 | <1 | 54 | 219 | 0.5 | 0.35 | 1.7 | - | 7.21 | 12 | 29 | 564 | 2320 | - |
| Wetland | 24-May-17 | - | 901 | <0.001 | 0.18 | <0.005 | 35 | 29 | 42 | 202 | 211 | <1 | <1 | 211 | 27 | 0.03 | <0.01 | 0.8 | - | 7.63 | 16 | 48 | 454 | 1610 | - |
| Wetland | 23-Aug-17 | EM1711442008 | 604 | <0.001 | 1.38 | <0.005 | 32 | 17 | 31 | 129 | 211 | <1 | <1 | 211 | 2 | <0.01 | <0.01 | 0.7 | - | 7.99 | 13 | 33 | 277 | 1160 | 25 |
| Wetland | 09-Nov-17 | EM1715409005 | 821 | <0.001 | 3.18 | 0.006 | 47 | 17 | 50 | 189 | 290 | <1 | <1 | 290 | <1 | 0.05 | 0.01 | 6.1 | - | 7.71 | 33 | 89 | 410 | 1570 | 16 |
| Wetland | 29-May-18 | EM1808881005 | 900 | <0.001 | 0.18 | <0.005 | 37 | 29 | 36 | 187 | 135 | <1 | <1 | 135 | 42 | 0.04 | 0.01 | 0.8 | - | 7.41 | 16 | 50 | 403 | 1570 | 33 |
| Wetland | 02-Aug-18 | EM1812371005 | 806 | 0.006 | 4.06 | 0.008 | 29 | 26 | 26 | 140 | 128 | <1 | <1 | 128 | 2 | 0.09 | 0.01 | 1.6 | - | 7.32 | 18 | 68 | 374 | 1,150 | 23 |
| Wetland | 28-Nov-18 | EM1819277007 | 986 | <0.001 | 1.64 | 0.008 | 50 | 34 | 48 | 198 | 291 | <1 | <1 | 291 | <1 | 0.06 | 0.01 | 1.3 | - | 7.92 | 24 | 52 | 476 | 1,670 | 30 |
| Wetland | 21-May-19 | EM1907812002 | 801 | <0.001 | 1.42 | 0.008 | 32 | 31 | 28 | 144 | 98 | <1 | <1 | 98 | 33 | 0.07 | <0.01 | 1.8 | - | 6.47 | 18 | 56 | 397 | 1470 | 12 |
| Wetland | 19-Aug-19 | EM1913513 | 438 | <0.001 | 4.39 | <0.005 | 22 | 15 | 20 | 84 | 143 | <1 | <1 | 143 | 5 | 0.04 | <0.01 | 1.4 | -- | 7.62 | 19 | 63 | 176 | 821 | 22 |
| Wetland | 03-Dec-19 | EM1920764 | 757 | <0.001 | 0.24 | 0.024 | 30 | 24 | 34 | 149 | 242 | <1 | <1 | 242 | 14 | 0.08 | <0.01 | 1.2 | -49.8 | 7.52 | 23 | 51 | 330 | 1,370 | 12 |
| Wetland | 18-May-20 | EM2008378 | 652 | <0.001 | 6.24 | 0.005 | 32 | 30 | 30 | 124 | 214 | <1 | <1 | 214 | 10 | 0.02 | <0.01 | 1.8 | -- | 7.4 | 19 | 52 | 282 | 1,110 | 18 |
| Wetland | 17-Aug-20 | EM2014279 | 587 | <0.001 | 4.41 | 0.008 | 33 | 20 | 31 | 103 | 218 | <1 | <1 | 218 | 3 | 0.1 | 0.01 | 0.9 | - | 7.45 | 8 | 30 | 214 | 1050 | 38 |
| Wetland | 23-Nov-20 | EM2020734 | 370 | <0.001 | 10.8 | 0.03 | 20 | 16 | 20 | 70 | 174 | <1 | <1 | 174 | 6 | 0.48 | 0.06 | 1.7 | - | 7.34 | 16 | 39 | 129 | 712 | 16 |
| Wetland | 22-Feb-21 | EM2102856 | 900 | <0.001 | 5 | <0.005 | 46 | 33 | 47 | 176 | 326 | <1 | <1 | 326 | <1 | 0.3 | <0.01 | 1.1 | - | 7.7 | 16 | 36 | 419 | 1690 | 24 |
| Wetland | 25-May-21 | EM2109822 | 2190 | 0.005 | 60.5 | 0.02 | 55 | 25 | 110 | 490 | 217 | <1 | <1 | 217 | 19 | 0.05 | <0.01 | 0.8 | - | 6.76 | 22 | <50 | 1140 | 4120 | 8 |
| Wetland | 14-Sep-21 | EM2118437 | 492 | <0.001 | 2.38 | <0.005 | 18 | 11 | 24 | 112 | 122 | <1 | <1 | 122 | 9 | <0.01 | <0.01 | -- | 18 | 50 | 234 | 962 | 25 | -- | -- |
| Wetland | 18-Nov-21 | EM2123390 | 641 | <0.001 | 0.71 | <0.005 | 23 | 16 | 32 | 141 | 196 | <1 | <1 | 196 | 2 | 0.14 | <0.01 | -- | 15 | 50 | 302 | 1280 | 23 | -- | -- |
| Wetland | 01-Mar-22 | EM2203633 | 997 | <0.001 | 3.36 | <0.005 | 49 | 37 | 58 | 202 | 342 | <1 | <1 | 342 | <1 | 0.14 | <0.01 | -- | 31 | 69 | 473 | 1720 | 32 | -- | -- |
| Wetland | 17-May-22 | EM2209262 | 730 | <0.001 | 2.89 | <0.005 | 36 | 27 | 41 | 151 | 300 | <1 | <1 | 300 | 1 | 0.03 | <0.01 | -- | 15 | 155 | 333 | 1470 | 23 | -- | -- |
| Wetland | 31-Aug-22 | EM2216860 | 313 | 0.002 | 2.43 | <0.005 | 9 | 6 | 12 | 67 | 64 | <1 | <1 | 64 | 13 | 0.01 | 0.08 | 0.8 | -- | 7.56 | 13 | 37 | 123 | 544 | 10 |
| Wetland | 17-Nov-22 | EM2222858 | 236 | 0.004 | 9.71 | 0.006 | 9 | 5 | 10 | 38 | 66 | <1 | <1 | 66 | 3 | 0.04 | 0.01 | 0.9 | -- | 6.99 | 18 | 45 | 55 | 361 | 17 |
| Wetland | 14-Feb-23 | EM2302525 | 892 | <0.001 | 7.65 | 0.01 | 30 | 33 | 50 | 207 | 244 | <1 | <1 | 244 | <1 | 0.01 | <0.01 | 10.4 | -- | 7.7 | 44 | 374 | 404 | 1,660 | 17 |
| Wetland | 09-May-23 | EM2308222 | 768 | <0.001 | 69.4 | <0.005 | 33 | 25 | 26 | 108 | 195 | <1 | <1 | 195 | 1 | 3.32 | <0.01 | 3.8 | -- | 6.92 | 13 | <10 | 236 | 1,060 | 38 |