



**Alice Springs Town Council
Regional Waste Management
Facility
Environmental Performance
Monitoring Report - March 2024**

Prepared for
Alice Springs Town Council

28 June 2024

Tierra Environment Pty Ltd
ABN 84 111 615 680

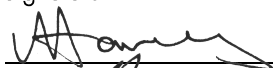
PO Box 360
Mitcham SA 5062
08 8373 2512
general@tierra.com.au

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Document Status

	Name	Signature	Date
Approved for Issue ☒	Prepared by <u>Lauren Harvey</u>		<u>28/06/2024</u>
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1 INTRODUCTION

1.1 General

This report has been prepared by Terra Environment Pty Ltd (Terra) for Alice Springs Town Council (Council). The purpose of this report is to give an account of the current condition of the Alice Springs Town Council Regional Waste Management Facility (RWMF) pertaining to environmental performance based on the environmental data generated by Terra and Council between March 2023 and March 2024.

1.2 Objectives

Council are required to undertake annual monitoring as per their licence conditions and the September 2021 Landfill Environmental Management Plan (LEMP).

The objectives of the environmental performance monitoring are as follows:

- to undertake monitoring of surface water, groundwater, leachate and landfill gas for comparison to licence conditions and previous performance
- to assess potential accumulation of landfill gas in several structures at the periphery of the landfill for landfill gas migration and potential explosive hazard
- to assess the environmental condition of the landfill (i.e. litter, erosion, dust)
- to prepare a report outlining the environmental performance of the landfill

1.3 Site Description

Site details are provided in the table below.

Description	Alice Springs Town Council Regional Waste Management Facility
Address	80 Commonage Road, Ilparpa, Northern Territory
Parcel	7902
Title	CUFT Volume 653 Folio 194
Plan	Survey Plan 88/059
Council	Alice Springs Town Council
Zoning	Community Purpose (CP)
Owner	Alice Springs Town Council

A site location plan is provided as Figure 1 in Appendix A.

1.4 Geological and Topographical Information

The RWMF is situated to the west of the Todd River. According to the geology of the Alice Springs region, 1:100,000 sheet, the landfill is situated on the border of Quaternary alluvial deposits and Late Proterozoic Gillen Member deposits consisting of dolomites and siltstones.

The south-eastern portion of the site is overlain by capped waste mounds between 10m and 15m in height. There are numerous natural ridges running diagonally along the northern edge of the landfill. The ridges represent the strike of the boundary between the alluvium and siltstone/dolomite, with the more resilient dolomite and siltstone forming the ridges.

1.5 Groundwater and Drainage Information

The direction of regional groundwater flow is expected to be east towards the Todd River. Regional surface flow is also expected to enter the river. A December 1999 landfill investigations report supports that the expected direction of groundwater flow is towards the Todd River. This report also identified a radial flow influence from the sewage ponds south of the landfill.

The directions of flows of deeper aquifers within the alluvium or Gillen Members are unknown, but are not necessarily in the same direction as the surface aquifer. It is also unknown if there are hydraulic connections between the upper and lower aquifers.

1.6 Previous Monitoring

Previous environmental monitoring and reporting has been undertaken at the site by Tierra since 2006 and others between 1999 and 2005. Selected historic data and general site information prepared by others previously has been reproduced in this document for reference and comparison purposes. Detailed historic data is presented in previous annual performance reports.

1.7 Scope of Work

The following activities were undertaken as part of the environmental monitoring by Tierra:

- Establishment and installation of 2 new gas wells, 1 replacement gas well, 1 new groundwater well and 2 new leachate wells
- Development of 1 new groundwater well
- Field monitoring of 17 landfill gas monitoring points for methane (CH₄), carbon dioxide (CO₂), oxygen (O₂), and volatile organic compounds (VOCs)
- Inspection of structures on or in close proximity to the landfill (e.g. outside toilet and office toilets) for potential for landfill gas accumulation and monitoring of any such structures for landfill gas
- Groundwater level gauging, purging and sampling of 14 groundwater wells
- Field analysis of 14 groundwater samples for temperature (°C), dissolved oxygen (% and mg/L), specific conductivity SPC (μS/cm), conductivity (μS/cm), total dissolved solids (ppm), pH and redox potential (mV)
- Laboratory analysis of 14 groundwater samples, 1 intra-laboratory and 1 inter-laboratory groundwater sample for turbidity, total alkalinity, hardness, chloride, Na, K, Mg, Ca, sulphate, ammonia, TKN, organic nitrogen, TOC, BOD, COD, Sb, As, Ba, Be, Cd, Cr, Cr 3+, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, V, Zn, Ferrous and Ferric Iron, Cr VI, PAH and PCB
- Laboratory analysis of 8 groundwater samples, 1 intra-laboratory and 1 inter-laboratory groundwater sample for TRH, VOC and SVOC
- Inspection of 2 leachate wells
- Inspection of 5 stormwater detention basins
- Collection and analysis of 1 stormwater sample for turbidity, total alkalinity, hardness, chloride, Na, K, Mg, Ca, sulphate, ammonia, TKN, organic nitrogen, TOC, BOD, COD, Sb, As, Ba, Be, Cd, Cr, Cr 3+, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, V, Zn, Ferrous and Ferric Iron, Cr VI, PCB, TRH, VOC and SVOC
- Collection and analysis of 1 rinsate and 1 field blank sample for metals and 1 trip blank sample for VOC
- Review of landfill conditions including; surface water, odour, litter, weeds, pest, landscaping and erosion
- Data review and assessment
- Preparation of performance report

2 INVESTIGATION METHODOLOGY

2.1 New Well Establishment

Two new gas wells (MW33 & MW34) and one replacement gas well (MW29A) were installed between 28 February and 1 March 2024.

Existing leachate wells MW37 & MW38 which have been out of service for multiple years were redrilled and reinstalled in the existing location.

A new leachate well (MW39) was attempted to be installed however the well intercepted groundwater (as the waste was deeper than expected at this location) and as such has been converted to a groundwater well (MW87). During drilling of this well the return of drilling cuttings to the surface was poor or non-existent at times so identifying the fill and natural interface was not possible. It is estimated there is as little as 1m or 2m of natural materials below the waste and above the standing water level at this location.

Wells were established using a drill rig with a 175mm air blade or air hammer. Logging was undertaken for new wells using a method based on the Unified Soil Classification System, Australian Standard AS1726-1993 and the ASC NEPM 1999. Visual and olfactory observations such as inclusions, moisture, odours and staining were also recorded on the log sheets. Other information recorded on the log sheets included the construction of the wells.

Log sheets are provided in Appendix B.

2.2 Landfill Gas

2.2.1 Gas well status

The following table details the current status of the gas wells at the landfill.

Gas Well	Status in March 2024	Comments
MW9	In service	-
MW10A (U, M, L)	In service (L, M) Out of service (U)	MW10A (U) was installed due to planned filling in the area however it is not currently surrounded by fill and hence connected to the atmosphere. This will be rectified in the future as fill is placed around it.
MW12 (U, M, L)	In service	-
MW17	In service	-
MW23 (U, L)	In service	-
MW24 (U, L)	In service (U) Out of service (L)	MW24 (L) is blocked at 3m. While the drilling rig was on site a ¼ inch nylon tube was inserted into the gas well and high pressure air injected to attempt to 'blow' this well clear, this was not successful.
MW25 (U, M, L)	In service (M) Out of service (U, L)	MW25 (U) was installed due to planned filling in the area however it is not currently surrounded by fill and hence connected to the atmosphere. This will be rectified in the future as fill is placed around it. MW25 (L) is blocked. While the drilling rig was on site a ¼ inch nylon tube was inserted into the gas well and high pressure air injected to attempt to 'blow' this well clear, this was not successful.
MW26	In service	-
MW27	In service	-
MW28	In service	-

Gas Well	Status in March 2024	Comments
MW29	Out of service	MW29 is blocked. This well was replaced by MW29A.
MW29A	In service	-
MW30	In service	-
MW31	In service	-
MW32	In service	-
MW33	In service	-
MW34	In service	-

Notes to table:

- "A" denotes a replacement well or bore.
- "U", "M" and "L" denote upper, middle and lower monitoring points respectively.

A site plan detailing locations of in service gas bores is presented as Figure 3 in Appendix A.

2.2.2 Landfill gas monitoring

Available gas wells were monitored for concentrations of methane, carbon dioxide, oxygen and volatile organic compounds (CH₄, CO₂, O₂ and VOCs respectively) on 6 and 7 March 2024. Monitoring data prior to March 2024, while not presented in this report, has been utilised to produce plots of gas levels and local moisture budgets over time.

A GA5000 landfill gas analyser with sampling pump was used to test for CH₄, CO₂ and O₂ concentrations. VOC concentrations were measured using an Ion Phocheck Tiger Photo Ionisation Detector (PID).

2.2.3 Landfill gas accumulation monitoring

The potential accumulation of landfill gas was investigated inside the outside toilet, the office toilets, the weighbridge toilet and the rediscovery centre toilet. A GA5000 landfill gas analyser with sampling pump was used to test for CH₄, CO₂ and O₂ concentrations and a PID was used to test for VOCs. The locations of the above toilets are shown on Figure 3 in Appendix A.

2.3 Landfill Leachate

2.3.1 Leachate well status

Leachate Well	Status in March 2024	Comments
MW37	In service	-
MW38	In service	-

A plan detailing the location of the leachate wells is presented as Figure 4 in Appendix A.

2.3.2 Leachate sampling

No leachate samples were collected as both leachate wells were dry. As they were installed within the preceding week this was expected.

2.4 Surface Water

2.4.1 Detention basin status

The following table details the current status of the detention basins at the landfill.

Detention basin	Status in March 2024	Comments
SW1	Dry	-
SW2	Contained water	-
SW3	Dry	-
SW4	Dry	-
SW5	Dry	-

A plan detailing the locations of the detention basins is presented as Figure 5 in Appendix A.

2.4.2 Surface water sampling

Surface water samples were collected in March 2024 with a bailer which was cast into the water, allowed to sink and then recovered. Samples were collected from detention basin SW2 only as all other detention basins were dry.

2.5 Groundwater

2.5.1 Groundwater well status

The following table details the current status of the groundwater wells at the landfill.

Groundwater Well	Status at March 2024	Comments
MW1	In service	-
MW2	In service	-
MW3	In service	-
MW4A	In service	-
MW5A	In service	-
MW6A	In service	-
MW7A	In service	-
MW81	In service	-
MW82	In service	-
MW83	In service	-
MW84	In service	-
MW85	In service	-
MW86	In service	-
MW87	In service	-

Notes to table: "A" denotes a replacement well or bore.

A site plan detailing locations of these groundwater wells is presented as Figure 2 in Appendix A.

The positions and purposes of the wells based on their location and the direction of groundwater flow are as follows:

- MW6A is situated within a filled area of the landfill and could display leachate contamination prior to other wells.

- MW1, MW5A, MW7A, MW85 and MW86 are located down gradient of the landfill and may display leachate contamination.
- MW3 is located up gradient of the landfill and is considered a background bore.
- MW81 is located to the west of the landfill beyond the likely influence of the landfill.
- MW2 and MW4A are situated between the landfill and the sewerage ponds and are considered to show background conditions influenced by the sewerage ponds.
- MW87 is located in the landfill on the southern side between background wells MW2 and MW4 and could display leachate contamination.
- MW82, MW83 and MW84 were positioned to be located down gradient of the landfill, however based on groundwater level contours appear to be located on a convergence between groundwater flow directions and at this stage it is unclear if they represent background or down gradient landfill conditions.

2.5.2 Sampling preparation

Sample bottles were labelled prior to going on site. Sample bottles for individual wells were removed from the site vehicle immediately after purging and prior to sampling. Sample bottles were labelled with the groundwater well designation as only one sample was to be taken from each well.

2.5.3 Groundwater sampling

All groundwater wells were dipped on 2 March 2024 prior to sampling. Groundwater wells were purged and sampled on 3, 4 and 5 March 2024.

Wells were generally purged prior to sampling until dissolved oxygen, redox potential, conductivity, pH and temperature readings, measured in the field using a YSI Quatro Pro Plus multi parameter water meter, had stabilised. Stabilisation was not achieved in one well (MW3) which ran dry before stabilisation could occur. The well was left to recover (water returned to the well and back to a level similar to the starting level) prior to sampling. Groundwater well summary records for purging are provided in Appendix E.

After the completion of purging activities samples were taken from the well. One sample was collected from each well. Appropriate sampling bottles were used and all samples were stored in an esky with ice prior to transportation to the laboratory to ensure that optimal storage conditions were achieved as relevant to the type of analyses to be undertaken.

For the purging and sampling of the wells a Waterra Power Pack was used to pump the dedicated tubing and foot valves located in each well.

2.6 Quality Control Sampling

Quality control sampling was undertaken at the rates indicated in the following table.

Quality Sampling	Number samples collected	Number samples analysed
Intra Laboratory Duplicate (groundwater)	1 sample	1 sample
Inter Laboratory Duplicate (groundwater)	1 sample	1 sample
Rinsate Sample	1 sample	1 sample
Field Blank Sample	1 sample	1 sample
Trip Blank Sample	1 sample	1 sample

The procedure for collecting quality samples was the same as for normal samples.

2.7 Tracking of Samples

Tracking of samples was undertaken using Chain of Custody (COC) documentation. COCs were sent to the laboratories with instructions for the analyses required. The laboratories checked the condition and number of samples and signed and returned copies of the COC to confirm the receipt of samples. Copies of COCs are provided in Appendix L.

2.8 Analytical Testing

Analysis of groundwater and surface water samples, intra-laboratory duplicates, rinsate, field blank and trip blank samples were conducted by Eurofins. Inter-laboratory duplicates were analysed by Envirolab Services. Both laboratories hold National Association of Testing Authorities (NATA) registration for the parameters listed in the following table:

Parameter	Analytical Method	Limits of Reporting	Total Number of Samples Tested
Turbidity	Eurofins: APHA 2130B (LTM-INO-4140)	1 (NTU)	15+ (1+0+0+0) quality
Alkalinity	Eurofins: LTM-INO-4250 by Electrometric Titration	20	15+ (1+0+0+0) quality
	Envirolab: Inorg-006 APHA 2320-B	5	(1) quality
Hardness	Eurofins: APHA 2340B by Calculation	5	15+ (1+0+0+0) quality
Chloride	Eurofins: LTM-INO-4270 Anions by Ion Chromatography	1	15+ (1+0+0+0) quality
	Envirolab: Inorg-081	1	(1) quality
Alkali Metals	Eurofins: LTM-MET-3010 by ICP-AES	0.5	15+ (1+0+0+0) quality
	Envirolab: Inorg-040	0.5	(1) quality
Sulphate	Eurofins: LTM-INO-4270 Anions by Ion Chromatography	5	15+ (1+0+0+0) quality
	Envirolab: Inorg-081	5	(1) quality
Organic N	Eurofins: APHA 4500	0.2	15+ (1+0+0+0) quality
	Envirolab: Inorg-062 colourimetrically	0.2	(1) quality
Ammonia	Eurofins: LTM-INO-4450 by Discrete Analyser	0.01	15+ (1+0+0+0) quality
	Envirolab: Inorg-057 colourimetrically	0.01	(1) quality
TKN	Eurofins: APHA 4500 by FIA	0.2	15+ (1+0+0+0) quality
	Envirolab: Inorg-062 colourimetrically	0.2	(1) quality
TOC	Eurofins: LTM-INO-4060	5	15+ (1+0+0+0) quality
	Envirolab: APHA 5310B	5	(1) quality
BOD 5 Day	Eurofins: LTM-INO-4010	5	15+ (0+0+0+0) quality
COD	Eurofins: LTM-INO-4220	25	15+ (0+0+0+0) quality
Metals	Eurofins: LTM-MET-3040 by ICP-MS	various	15+ (1+1+1+0) quality
	Envirolab: Metals-020 ICP-AES & Metals-022 ICP-MS	Various	(1) quality
Ferrous/Ferric Fe	Eurofins: LTM-INO-4190 by Discrete Analyser	0.05	15+ (0+0+0+0) quality
Cr VI	Eurofins: LTM-INO-4100 by Spectrometric detection	0.001	15+ (1+0+0+0) quality
	Envirolab: INORG-118	0.005	(1) quality
TRH	Eurofins: LTM-ORG-2010 TRH C6-C40	0.02, 0.05, 0.1	10+ (1+0+0+0) quality
VOC	Eurofins: LTM-ORG-2150 (USEPA 8260)	0.001 – 0.003, 0.005	10+ (1+0+0+1) quality
SVOC	Eurofins: USEPA SW 846 8270	various	10+ (1+0+0+0) quality
PCB	Eurofins: LTM-ORG-2220 (USEPA 8082)	0.0001	15+ (1+0+0+0) quality
PAH	Eurofins: LTM-ORG-2130	0.001	15+ (1+0+0+0) quality

Notes to table:

- Units are in mg/L unless otherwise stated
- Quality in the brackets refers to Eurofins intra-laboratory sample, rinsate, field blank and trip blank samples respectively and Envirolab inter-laboratory samples

3 QUALITY ASSESSMENT

Tierra Environment conducts investigations in accordance with the principles of quality assurance and quality control (QA/QC). The Tierra QA/QC principles include:

- use of established procedures and suitably qualified field personnel for environmental sampling
- documentation of chain-of-custody and sample handling and storage
- use of NATA registered laboratories (where possible)
- use of intra and inter laboratory field duplicates samples and rinsate, field blank, trip blank or trip spike samples

Quality of investigation outputs is maintained by ensuring:

- all staff are appropriately trained
- safety standards are defined and implemented
- good housekeeping practices are adopted during all phases of the investigation
- complete records of fieldwork, samples and data are maintained

Specific quality control procedures conducted for this investigation include:

- the use of appropriate sample collection and handling procedures
- the use of appropriately skilled and experienced personnel
- the application of decontamination procedures where appropriate to minimise cross contamination
- the extraction and analysis within appropriate handling times
- the use of an independent, NATA accredited laboratory for analysis (where possible)
- the collection and analysis of quality samples, e.g. blind duplicates, split duplicates, and internal laboratory duplicates, rinsate, field blank and matrix spike/matrix spike duplicates

Based on the QA/QC information listed in Appendix I, the results are considered to be of an appropriate standard and it is concluded that:

- field investigation and sample preservation methods are appropriate for the investigations reported
- the analytical methods used for site assessment are of appropriate precision and accuracy, and that the sensitivity and selectivity of the analytical methods are appropriate for the assessment of risks
- the precision and accuracy criteria set out in the QA/QC plan, for a given method and matrix, meet the performance expected of the reference method
- the quality of data supplied by the analytical laboratory meets the objectives of the testing laboratory's quality plan for blanks, spikes, control samples, laboratory duplicates and holding times

4 ASSESSMENT CRITERIA

As per the landfill's licence requirements groundwater, surface water and leachate results (where available) are to be assessed against the following criteria:

- ANZG (2018)¹ toxicant default guideline values for 95% level of species protection in freshwater
- ANZECC (2000) water quality trigger values (low risk) for heavy metals and metalloids in livestock drinking water, presented in Table 4.3.2
- ADWG (2011)² Table 10.6 – Guideline values for physical and chemical characteristics

Selected assessment criteria are listed in the summary table of analytical results provided in Appendix F.

As per the LEMP, the acceptance criteria for landfill gas are as follows:

- methane should be less than 1% by volume in perimeter wells
- CO₂ should be less than 1.5% by volume in perimeter wells

¹ Australian and New Zealand Guidelines for Fresh and Marine Water Quality, 2018 online revision

² Health and aesthetic criteria from The Australian Drinking Water Guidelines (ADWG) 6, 2011, updated 2018 was used in lieu of Guidelines for Managing Risks in Recreational Water (GMRRW), 2008 as the criteria in the GMRRW is taken from an old version of the ADWG.

5 INVESTIGATION RESULTS

5.1 Landfill Gas Monitoring

In March 2024, methane, carbon dioxide and oxygen concentrations were measured in 20 landfill gas monitoring points³.

Monitoring results for the 13 serviceable wells situated within the filled landfill area were as follows⁴:

	March 2024	
	Min	Max
Methane	6.4%	63.7%
Carbon dioxide	15.5%	46.8%
Oxygen	0.0%	4.0%
VOC (PID)	0.8ppm	14ppm

Serviceable wells within the active landfill area were MW9, MW10-M/L, MW12-U/M/L, MW17, MW23-U/L, MW24-U, MW25-M, MW33 and MW34.

The low oxygen and high carbon dioxide levels are consistent with an anoxic methane-producing environment, such as landfills. Methane concentrations measured in wells were generally above the upper explosive limit (UEL) of 15% with the exception of two wells MW12-M (14.2%) and MW34 (6.4%). Concentrations of methane in MW34 are thought to be low as the well is new and oxygen may still be present that was introduced during drilling. Methane concentrations in the MW12 wells have dropped over the last few years in particular in the lower and middle well. There does not appear to be a leak as there is no oxygen present. These wells are in a relatively old part of the landfill and may just be producing less methane with age.

Monitoring results for the 7 serviceable perimeter wells were as follows:

	March 2024	
	Min	Max
Methane	0%	0%
Carbon dioxide	0.6%	2.6%
Oxygen	11.9%	18.6%
VOC (PID)	0ppm	2.6ppm

Serviceable wells around the perimeter of the landfill were MW26, MW27, MW28, MW29, MW30, MW31 and MW32.

Carbon dioxide levels measured in MW26 (2.6%), MW29 (1.7%) and MW30 (1.8%) in March 2024 were above the 1.5% criterion stipulated in the LEMP. These levels can occur in natural soils and in the absence of any methane are unlikely to be associated with the landfill.

Landfill gas monitoring results are presented in Appendix C.

5.2 Landfill Gas Trends

Landfill gas generation is related to the moisture content within the fill for the majority of the life of a landfill. Generally an increase in moisture content results in an increase in landfill gas generation. The moisture content of the fill in the landfill is unknown. Meteorological records (pan evaporation and precipitation) logged at the Alice Springs airport between 1967 and June 2017⁵ serve as useful proxy records to

³ As discussed in Section 2.2.1 landfill gas monitoring point MW24 was not serviceable during this monitoring event.

⁴ Monitoring results for MW24(L) and MW25(U) were not used as it appears that the well may have a leak.

⁵ The Bureau of Meteorology stopped recoding pan evaporation measurements at the Alice Springs airport in July 2017. Pan evaporation measurements from this date onwards is based on the average pan evaporation between the years 2007 and 2017 for each month.

determine landfill moisture budgets. Surplus moisture budgets may facilitate increased water infiltration resulting in rising fill moisture content.

From the pan evaporation and precipitation records a continuous moisture budget since 1967 has been calculated. The moisture budget has been conservatively corrected for pan effects⁶ and soil effects⁷. A moisture budget figure is presented in Appendix D.

A graphical comparison between rainfall data and methane concentrations in monitoring wells since 2013⁸ has been prepared and is also provided in Appendix D.

In general LFG monitoring since 2014 indicates a general trend to lower methane concentrations as would be expected during sustained periods of moisture budget deficits however there are noticeable increases in the methane levels in wells following moisture surpluses as recently observed following the November 2021 moisture surplus. A slight increase in methane concentrations were observed in half the wells this monitoring event while a slight decrease was observed in the other half despite a surplus in the moisture budget. This may be due to monitoring occurring at the beginning of the surplus with the full effects of the moisture surplus on methane concentrations not apparent yet. Monitoring should be continued next year to assess if the predicted rise in methane concentrations occurred.

5.3 Landfill Gas Accumulation Monitoring

There is the potential for landfill gas to accumulate inside structures on the landfill. Hence concentrations of methane, carbon dioxide and oxygen were measured inside the outside toilet, the office toilets, the weighbridge toilet and the rediscovery centre toilet. Monitoring was undertaken in the toilets as their connection to the underlying ground via the plumbing presents a possible preferential pathway into the buildings and as such are early indicators of potential landfill gas intrusion issues. Measured levels were consistent with outside atmospheric conditions, i.e. an accumulation of landfill gases in these structures was not detectable at the time of monitoring. Landfill gas accumulation monitoring records are provided in Appendix C.

5.4 Leachate Analytical Results

Leachate samples were not able to be collected as the wells were dry.

5.5 Surface Water Field Observations

A water quality meter was used to record parameters in sampled water from SW2. In summary the following parameters were obtained:

	pH	Specific Conductivity (µS/cm)	Dissolved Oxygen (%)	Redox Potential (mV)	Odour	Dis-colouration	LNAPL
SW2	8.3	909	89	-25	No	Yes (green)	No

5.6 Surface Water Analytical Results

Surface water was present in detention basin SW2 in March 2024. Results from the surface water sample exceeded assessment criteria for hardness and copper. Acetone was also reported above the limits of reporting but no criteria exists for this analyte.

Detention basins SW1, SW3, SW4 and SW5 were dry.

⁶ Raw pan evaporation data has been multiplied by 0.75 to conservatively account for the pan effect in an arid environment as Alice Springs.

⁷ The raw pan evaporation data after accounting for the pan effect has been multiplied by 0.5 to conservatively account for the effect of evaporation from an alluvium as opposed to the pan itself.

⁸ Methane data from the August 2015 and 2016 monitoring events was omitted from the graph to reduce the effect of seasonal variation on the methane trends.

5.7 Groundwater Survey Results

Groundwater level surveys have been conducted at the site since November 1999. Groundwater level survey results for the last ten years are presented Appendix E.

Between March 2023 and March 2024 water levels in observation wells generally decreased between 0.1m (MW81) to 1.52m (MW2).

Groundwater at the landfill appears to be influenced by artificial recharge associated with the effluent treatment ponds to the south of the landfill which are inferred to create a groundwater mound below the southern portion of the landfill. The influence of the sewage ponds in dry periods may become more pronounced and this may be reducing the influence of the regional flow which is expected to be from the north-west to the southeast. Groundwater levels in wells between the landfill and the sewage ponds are more likely to be influenced by seepage losses from the sewage ponds than the levels in wells further away from the ponds.

A contour map of the groundwater levels⁹ for March 2024 is presented as Figure 6 in Appendix G. The contour map is similar to previous years with little change in the overall inferred groundwater flow patterns.

5.8 Groundwater Conductivity Monitoring

Field conductivity measurements were collected from all groundwater wells during purging.

Current conductivity levels continue to reflect the trend of elevated groundwater conductivity in wells within the vicinity of the sewage ponds compared to the groundwater conductivity in wells located on the northern side of the landfill.

A plot of the March 2024 TDS contours is provided as Figure 7 in Appendix G.

5.9 Groundwater Field Observations

Records of groundwater gauging and purging are presented in Appendix E. In summary the following purging results were obtained:

	pH	Conductivity (μ S/cm)	Dissolved Oxygen (%) ¹⁰	Redox Potential (mV)	Odour	Dis-colouration	LNAPL
MW1	6.6	4520	-	-191	No	No	No
MW2	6.4	7320	-	-150	No	No	No
MW3	7.0	1436	-	-47	No	No	No
MW4A	6.5	8347	-	-210	No	No	No
MW5A	6.6	4900	-	-134	No	No	No
MW6A	6.6	3649	-	-96	No	No	No
MW7A	6.7	3644	-	-136	No	No	No
MW81	6.7	6290	-	-185	No	No	No
MW82	6.6	3920	-	-158	No	No	No
MW83	6.7	2185	-	-112	No	No	No
MW84	6.6	2257	-	-26	No	No	No
MW85	6.9	1654	-	24	No	No	No
MW86	6.6	3302	-	-85	No	No	No
MW87	6.5	6435	-	-123	No	No ¹¹	No

⁹ Groundwater contours are based on all wells except MW87 as no elevation data has been provided for this well.

¹⁰ Results for dissolved oxygen have not been included as there was an error with the probe making any obtained results unreliable.

¹¹ While there was no discolouration present in the water it was foaming due to the use of a drilling foam being added during drilling of the well. A Material Safety Data Sheet (MSDS) for the foam used is presented in Appendix J.

5.10 Groundwater Analytical Findings

Results for the analytes described in this section are presented in Appendix F. Original laboratory certificates are presented in Appendix L.

Groundwater results generally complied with assessment criteria with the following exceptions:

	Background between ponds and landfill		Background wells		Indicator Wells							Other Wells		
	MW2	MW4A	MW3	MW81	MW1	MW5A	MW6A	MW7A	MW85	MW86	MW87	MW82	MW83	MW84
Turbidity			✗						✗	✗	✗	✗	✗	✗
Ammonia				✗							✗			
Chloride	✗	✗		✗	✗	✗	✗	✗		✗	✗	✗		✗
Sodium	✗	✗		✗	✗	✗	✗	✗		✗	✗	✗		✗
Sulphate	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Hardness	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Copper	✗		✗	✗	✗	✗		✗	✗	✗	✗			✗
Iron				✗							✗			
Manganese		✗				✗					✗	✗		
Nickel											✗			
Analytes without criteria but of interest														
TRH C10-C16											✗			
TRH C16-C34											✗			
BOD											✗			
COD		✗		✗						✗	✗			
TOC		✗	✗	✗					✗		✗			✗

The observed exceedances in the above table for chloride, sodium, sulphate, hardness and copper are likely attributed to background conditions as exceeded concentrations are also present in background wells. These analytes have been shaded in the above table to highlight them. Discussion of the other analytes are as follows:

- Turbidity – With the exception of MW87 all the wells with high turbidity are on the northern side of the landfill and the high turbidity could be associated with the aquifer material on this side of the site. There does not appear to be any relationship to the landfill. MW87 however is the only well on the southern side of the site with high turbidity. This may be due to influence from the landfill however as this well was established just before sampling this would need to be confirmed with another round of monitoring with similar results.

- Ammonia and Iron – It is expected that the ammonia and iron in MW87 are from the landfill. Waste at this location was close to the standing water level. In contrast there are no ammonia or iron (or other landfill related impacts) impacts at MW6 (another well within the waste) as there is significant natural materials between the waste and standing water at this location. The ammonia at MW81 is an anomaly, there are no local influences in its vicinity (including the landfill) that would likely be causing the result. It should be noted that these results while exceeding a relevant criteria are relatively low in terms of leachate.
- Manganese – Results exceeding criteria were identified in a ‘background well between the ponds and the landfill’, ‘indicator wells’ (MW5A and MW87 within the filled zone) and an ‘other well’. The highest results were in MW5A and MW4A an ‘indicator well’ and a ‘background well between the ponds and the landfill’ respectively. There does not appear to be a link between these exceedances and the landfill however the reason is not apparent.
- Nickel – Nickel exceeding the ANZG Freshwater 95% criteria was only found in MW87 the new well within the filled zone. It is clearly different to all other results (except MW2) as it is one order of magnitude greater than other results (MW2 and MW87 are the same order of magnitude – 0.01mg/kg and 0.013mg/kg respectively). It appears that the exceedance is linked to the landfill however it should be noted the result does not exceed the health based criteria of 0.02mg/kg.
- TRH C₁₀ – C₁₆ and TRH C₁₆ – C₃₄ – TRH fractions were not found in any other wells. TRH was not believed to have been introduced by the drilling process as the foam used has C₄ and C₆ hydrocarbons present (which were not found in the samples), the air compressor used had a condenser to distil compressor oils from the air stream and the well was developed after installation. While no C₄ and C₆ hydrocarbons were present in the sample and the well was developed there was still some residual foaming of the recovered water. It is most likely that the TRH is present from a landfill source however this would need to be confirmed with another round of monitoring with similar results.
- BOD, COD and TOC – These analytes are good indicators of impact to groundwater from sources such as landfills or effluent. While COD is present in multiple wells including MW87 within the waste it is higher in MW87. In general it appears that the positive COD and TOC results in wells MW3, MW4A, MW81, MW84, MW85 and MW86 are not related to the landfill and maybe typical ambient results however the result in MW87 being higher stands out particularly when viewed in the groundwater trend analysis in Section 5.11.

5.11 Groundwater Trend Analysis

The concentration of selected analytes (listed below) detected in groundwater at each monitoring point has been plotted over time since February 2006 (where data is available). A graphical representation of this is provided in Appendix H. A review of the graphs identified the following:

- Alkalinity – Concentrations of total alkalinity have been measured since February 2014. Concentrations have generally been consistent with historical concentrations with the exception of MW81 and MW84 this year. Concentrations for MW81 and MW84 were significantly higher and lower than historical levels respectively. While MW81 is a background well its concentration is above historical ranges. Similarly MW84 is below historical ranges.
- Ammonia – Concentrations have generally been consistent since 2006 with the occasional outlier. This year MW81 was higher than recent years but below its past maximum and below the ANZG Freshwater 95% criteria. It should also be noted that MW81 is a background well and that the absolute values of ammonia for a landfill setting are low. MW87 plotted higher than all the other wells however as this is a new well long term trends can't be established.
- BOD – BOD levels have been measured since February 2006. Historically there has been some variance in BOD levels however concentrations have generally been consistent since February 2014 with the exception of a slight increase in two wells in August 2016 and an increase in three wells in 2023. This year all historic wells are consistent with long term trends. MW87 plotted higher than all the other wells however as this is a new well long term trends can't be established.

- Calcium – Concentrations have generally been consistent since February 2006.
- Chloride – Concentrations have generally been consistent since February 2014.
- Chromium – Concentrations have generally been consistent since February 2008. MW87 plotted higher than all the other wells however as this is a new well long term trends can't be established..
- COD – Concentrations measured since 2011 have varied between monitoring events however there is no trend that would appear associated with impacts with the landfill. It's noted that MW86 recorded a concentration higher than historical levels. MW87 plotted higher than all the other wells however as this is a new well long term trends can't be established.
- Conductivity – Results have been generally consistent since February 2006. MW87 plotted higher than all the other wells however as this is a new well long term trends can't be established.
- Copper – Concentrations varied between February 2006 and February 2012. Since 2012 concentrations have been generally consistent with the exception of 2019 where concentrations increased in five wells (two were background wells) and in 2023 where concentrations increased in one background well. In 2024 concentrations were slightly higher than historical in two wells.
- Iron – Concentrations varied between February 2006 and February 2009. Since 2009 concentrations have been low and generally consistent. MW87 plotted higher than all the other wells however as this is a new well long term trends can't be established.
- Lead – Concentrations have been generally consistent since February 2006 with a slight increase in four wells in 2019 and one well in 2022. This monitoring event concentrations were similar to the long term averages.
- Manganese – Concentrations have generally been consistent since February 2014 with exception of MW5A which increased up to August 2016 and has been decreasing since however concentrations have again increased this year. A slight increase in MW4A was observed in 2022 higher than the historical concentrations and has been increasing since. It should be noted that MW4A is considered a background well. MW87 plotted higher most wells with the exception of MW4A and MW5A. As this is a new well long term trends can't be established.
- Mercury – Concentrations have generally been consistent since February 2006, with the exception of MW1 and MW2 in 2018 and 2019 and MW2 in 2023 and 2024 when concentrations were reported slightly higher. It should be noted that MW2 is considered a background well and all results were below relevant criteria.
- Nickel – Concentrations have generally been consistent since February 2014. MW87 plotted slightly higher than all the other wells this year (less than last years maximum in MW2 though) however as this is a new well long term trends can't be established.
- pH – pH values have generally been consistent since February 2006, with the exception of MW3 which generally decreased until March 2018 and in 2021 when there was a slight increase in some of the wells. This monitoring event pH values were consistent with last two monitoring events and also historical levels.
- Selenium – Concentrations have generally been consistent with long term concentrations however spikes were observed in MW3 in 2018 and 2023.
- Sodium – Concentrations have generally been consistent with long term concentrations with the exception of MW4A this year which has recorded an increase in concentration higher than historical levels.
- Sulphate – Concentrations have generally been consistent with long term concentrations.
- Temperature – Observed temperatures are generally consistent with long term levels.
- TKN – Concentrations have generally been consistent since 2006 with the occasional outlier (MW7A and MW2 in March 2019 and February 2023 and May 2021 respectively).

- TOC – Concentrations have decreased since the last monitoring event with the exception of MW3 which has increased however all are the same order of magnitude. MW87 plotted higher than all the other wells however as this is a new well long term trends can't be established.
- Zinc – There have been some notable historical variations in concentrations however since 2020 zinc concentrations were generally consistent across all the wells and relatively low compared to the historic concentration ranges.

While no long term trends can be established for MW87 as it is a new well a trend of this well plotting higher than all the other wells for several analytes (ammonia, BOD, chromium, COD, conductivity, iron and TOC) has been established. As some of these analytes are key indicators of landfill leachate and that the well was constructed with the screen close to the base of the landfill it is likely that groundwater in MW87 is being impacted by the landfill.

For the other wells while there have been minor increases in some analytes, there does not appear to be a consistent increase (i.e. the concentration of analytes increasing in the same wells each time) or the presence of key landfill leachate analytes in these wells. In addition increases are generally within the range or similar to long term trends.

6 ENVIRONMENTAL MONITORING RECORD RESULTS

6.1 General

As part of the requirements of the LEMP for the landfill, Terra monitored the following aspects of the landfill during the annual site visit:

- surface water
- odour
- litter
- weeds
- pests
- landscaping
- erosion

In addition Low Ecological Services (on behalf of Council) monitored the following at regular intervals throughout the year:

- particulate matter less than 10 microns (PM₁₀)
- odour
- litter
- noise

Records of the monitoring activities are presented in Appendix K. A plan showing the locations where dust and noise monitoring activities were undertaken is provided as Figure 8 in Appendix A.

6.2 Surface Water

Stormwater pond SW2 contained a minor amount of water and ponds SW1, SW3, SW4 and SW5 were dry. The water in pond SW2 was slightly turbid with a brown colouration, it did not have any sheens and was not odorous. The water in the pond was almost gone as it remained in a series of depressions in the base of the pond. Water in the pond was sampled as part of the investigation works.

Drainage lines appeared to be in relatively good condition.

6.3 Odour

During Terra's site visits no landfill odours were noticed at the monitoring locations. There were odours in the vicinity of the sewage ponds but this was not related to the landfill.

Throughout the year Low Ecological Services undertook odour monitoring at monitoring locations around the landfill and near the offsite effluent ponds on 48 occasions. Landfill odour was observed on 3 of the 48 occasions and odour from the effluent ponds was observed on 8 of the 48 occasions.

6.4 Litter

During Terra's site visit the active filling area was small and material was compacted as it was placed. Recently filled areas were well covered with daily cover. The recycling area to the west of the filling area (where metals, concrete and timber are recycled) are relatively large however it is well ordered with clearly marked rows/piles of consistent material. There was minor litter observed on the landfill slopes, however it was not considered significant. No excessive litter caused by landfill activities was observed on adjacent properties.

In general the landfill is in neat and tidy condition and access roads are well maintained.

During the course of the year Low Ecological Services undertook monitoring of litter at either one or more locations (e.g. the landfill or dust monitoring locations) on 48 occasions. Litter was observed on 1 of the 47 occasions. It is unknown where the litter was observed or how much litter was observed.

6.5 Weeds and Landscaping

Weeds are generally quite wide spread likely due to the recent extensive rains. Side slopes and the top of the landfill are well vegetated with the top having mainly weeds. While weeds are dominant in some areas this does not seem to be an issue as it has stabilised the surface well. Weeds should not be removed unless a program of revegetation with alternate natives is proposed otherwise particularly on the side slopes increased erosion may occur.

6.6 Pests

Bird numbers (eagles and crows) were as in previous years low which is consistent with the fact that the active filling area is small and compacting and covering is continuous throughout the day.

6.7 Erosion

Erosion control appeared good. A healthy spread of vegetation on the side slopes appeared to be assisting the slope stability.

6.8 Particulate Matter

Throughout the year Low Ecological Services undertook monitoring of dust levels at three locations, i.e. West of Little Sisters Camp, East of Little Sisters Camp and on the landfill. Based on the information received the average particulate levels from March 2023 to March 2024 ranged from 0.001mg/m³ to 0.193mg/m³ and which is slightly higher than the 2021 to 2022 levels of 0.003mg/m³ to 0.11mg/m³. Average dust levels were observed to be below 0.05mg/m³ on the majority of occasions throughout the year with the exception of seven events where levels exceeded 0.05mg/m³, thereby not complying with the conformance criterion of no more than 5 exceedances per year. It should be noted that these were measured on average over a 6hr period and not a 24hr period. Typically results over a 24hr period are lower as the contribution from overnight (when works on site are not occurring) are included in the average concentration.

Low Ecological Services noted that there were negative values present in the data due to a fault with the dust monitor but noted that the positive readings from the machine are still correct.

Particulate matter monitoring records are presented in Appendix K.

6.9 Noise

Low Ecological Services monitored noise levels from locations situated around the landfill throughout the year on 48 occasions. For each monitoring event multiple readings were taken over an approximate 6hr period and then the percentage of the readings that were recorded to be above either 65dB, 80dB and 95dB was noted. Based on data provided the following was observed:

- On 13 occasions readings were found to exceed 95dB. The percentage of readings recorded over 95dB ranged from 0.2% to 2.6%.
- On 43 of the 48 occasions readings were found to exceed 80dB. The percentage of readings recorded over 80dB ranged from 0.2% to 60.
- Noise levels were observed to be over 65dB on all but 1 occasion. The percentage of readings recorded above 65dB ranged from 0.3% to 74%.

Noise monitoring records are presented in Appendix K.

7 SUMMARY AND RECOMMENDATIONS

7.1 Summary

On the basis of information contained in this report (i.e. observations made during site presence, field and analytical testing), the following conditions are summarised:

- On average methane levels measured in wells were generally consistent with the previous year, however slight decreases were noted in MW12(M), MW12(L), MW23(U) and slight increases were noted in MW9, MW10(M&L), MW23(L), MW24(U) and MW25(M).
- The highest concentrations of methane were measured in wells MW23(L) and MW25(M) both located within the filled area.
- Concentrations of methane were not detected in perimeter bores MW26, MW27, MW28, MW29, MW30, MW31 and MW32.
- Concentrations of methane were measured within the explosive limit in wells MW12(M) and MW34.
- The concentration of CO₂ in perimeter bores MW26, MW29 and MW30 was above the criterion of 1.5%. This can occur in natural soils and in the absence of any methane are unlikely to be associated with the landfill.
- Monitoring of potential accumulation points during this monitoring visit did not find levels of methane above the instrument's limit of detection.
- Surface water samples from detention basin SW2 were collected and analysed. Results from the surface water samples exceeded assessment criteria for hardness and copper. Acetone was also reported at the laboratory's limits of reporting but below the ADWG criteria for health and aesthetic criteria. Results for other chemical substances complied with assessment criteria where available.
- No leachate was detected in MW37 and MW38 (noting that these were only just installed approximately 1 week prior to gauging for the presence of liquid).
- Groundwater level survey results indicated that the effluent ponds to the south of the site affect groundwater levels with a groundwater mound being created and natural groundwater gradients being altered in the vicinity of the effluent ponds.
- Analytical results for groundwater samples generally complied with assessment criteria with the exception of the following exceedances turbidity, ammonia, chloride, sodium, sulphate, hardness, copper, iron, manganese and nickel. Exceedances of ammonia, iron, and nickel were observed in the new well MW87 and likely due to influence from the landfill while the remainder of the exceedances are likely attributed to background conditions. Analytes without criteria but with positive results were TRH, BOD, COD and TOC. While there were positive results in wells MW3, MW4A, MW81, MW84, MW85 and MW86 which do not appear to be related to the landfill the increased concentration in MW87 is likely associated with the landfill. It should be noted that while there appears to be some contribution from the landfill at MW87 (a well with little natural ground between the waste and the standing water level) there is no indication of landfill impact at MW6A (also in the landfill but with more natural ground below the waste) and there is no impact to any other wells and significantly no impact in perimeter wells.
- From the trend analysis of the groundwater data base it appears that concentrations are generally within the range or similar to long term trends with the exception of MW87 which plotted concentrations for multiple analytes which exceeded historical levels recorded by other wells.
- Drainage lines appeared to be in relatively good condition. Surface water in SW2 was brown in colour but did not have any sheens or odours.
- During Tierra's site visit no landfill odours were noticed however odours were observed in the vicinity of the offsite sewage ponds. Low Ecological's monitoring throughout the year identified landfill odours on 6% of the occasions and sewage pond odours on 17% of the occasions.

- In general the landfill is in neat and tidy condition and access roads are well maintained.
- Bird numbers (eagles and crows) were low, consistent with previous years likely due to the active filling area being small and compacting and covering being continuous throughout the day.
- Vegetation while healthy and abundant contained a high percentage of weeds which appears to be stabilising the landfill. Until such time as final capping and revegetation is proposed the current vegetation should not be disturbed.
- Particulate matter was observed to be below 0.05mg/m^3 on the majority of occasions throughout the year with the exception of seven events where levels exceeded 0.05mg/m^3 , thereby not complying with the conformance criterion of no more than 5 exceedances per year. It should be noted that these were measured on average over a 6hr period and not a 24hr period. Typically results over a 24hr period are lower as the contribution from overnight (when works on site are not occurring) are included in the average concentration.
- Noise monitoring results complied with the assessment criteria for the year.

7.2 Recommendations

Environmental monitoring conducted at the landfill provided sufficient data to allow a reasonably thorough assessment of the landfill's environmental performance in terms of groundwater, landfill gas and general environmental issues.

On the basis of monitoring results available to date the following is recommended:

- Landfill gas accumulation in enclosed spaces on and adjacent to the landfill should continue to be monitored to ensure that safety limits of methane concentrations are not exceeded.
- Monitoring of landfill gas within the landfill should be continued as described in the Landfill Environmental Management Plan.
- MW24(L) and MW25(L) should be repaired or replaced prior to the next monitoring event to allow the collection of reliable LFG data in this location.
- Groundwater monitoring should be continued as described in the Landfill Environmental Management Plan.
- Well MW87 should be monitored in the future to further investigate the presence of elevated analytes associated with leachate.
- The active face of the landfill should continue to be kept small to minimise litter, odour and pests.

8 LIMITATIONS OF USE

Site contamination is generally a product of man-made processes and therefore exhibits characteristics and properties that vary from place to place and can change with time. Contamination assessments involve gathering and assimilating limited facts about these characteristics and properties in order to better understand or predict the status of contamination on a particular site under certain conditions.

The facts reported and utilised in this document were obtained by inspection, excavation, sampling, testing, and other means of investigation or from the client. They are directly relevant only to the ground at the place where and time when an investigation was carried out.

Any interpretation or recommendation given in this report is based on judgment and experience and not on greater knowledge of the facts than the sources of information indicate. The interpretations and recommendations are opinions provided for the sole use by Alice Springs Town Council and in accordance with a specific brief.

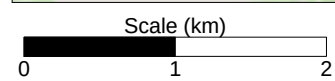
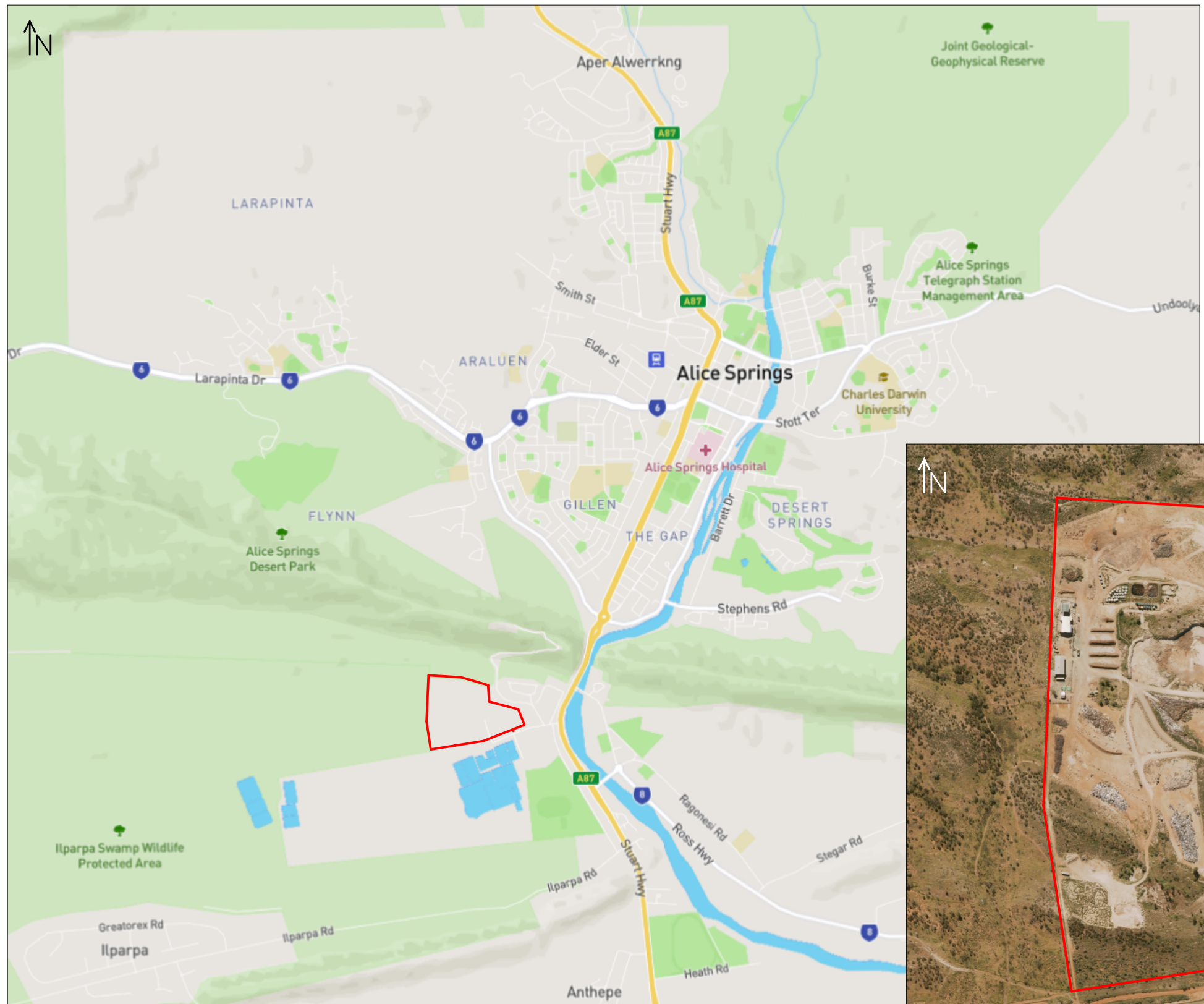
Tierra Environment does not represent that the information or interpretation contained in this document addresses completely existing features such as surface and subsurface contamination, groundwater and geotechnical conditions or ground or contamination behaviour on a subject site or of particular materials.

The responsibility of Tierra Environment Pty Ltd is solely to Alice Springs Town Council. It is not intended that this document be relied upon by any third party. Tierra Environment does not undertake any duty or accept any responsibility to any other parties who may rely upon this document.

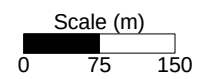
Consulting Engineers and Scientists



APPENDIX A
SITE PLANS



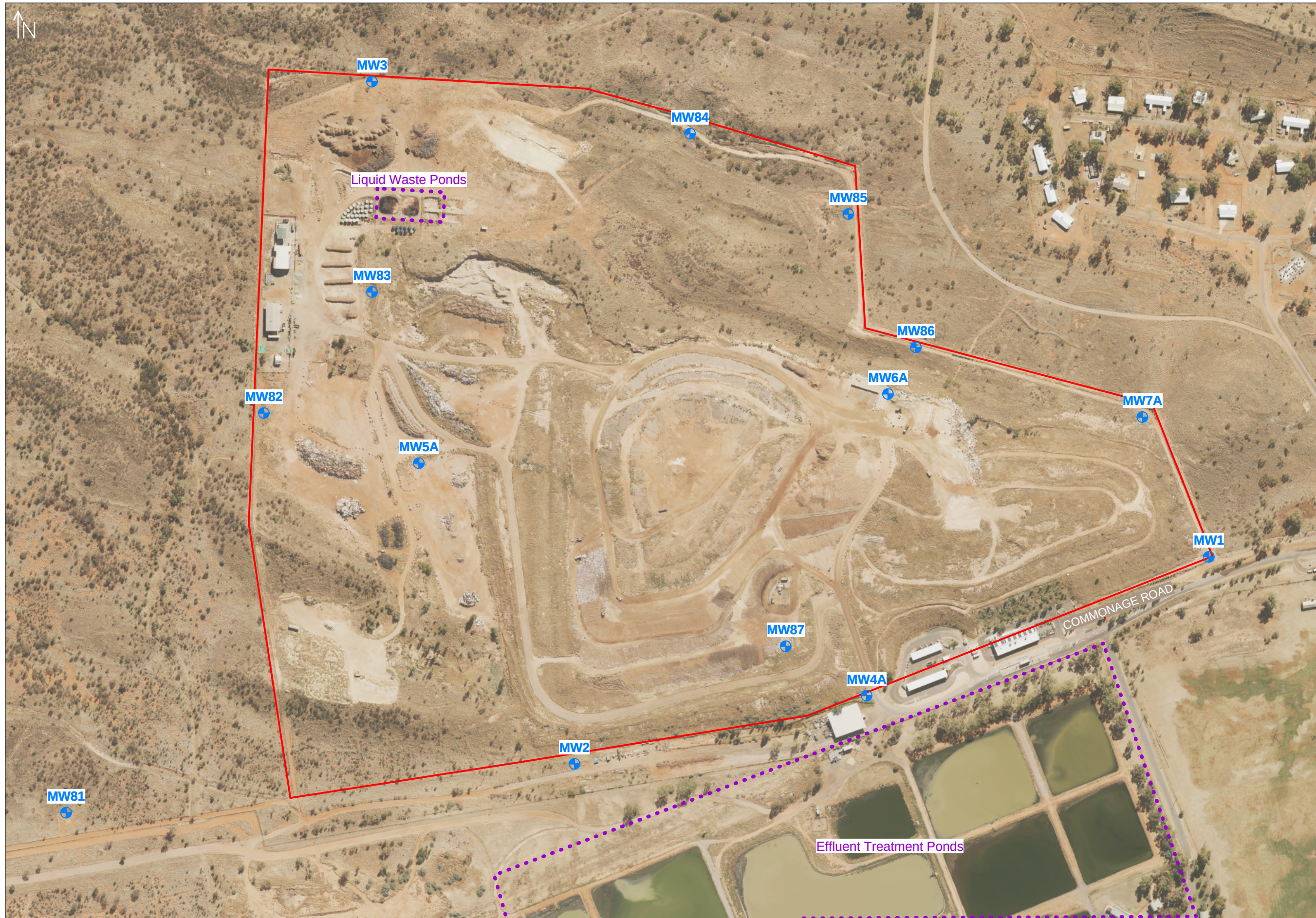
Landfill boundary



Notes:

1. Base aerial photo from Aerometrex dated 16 May 2024.
2. Landfill boundary is based on a client provided survey.

Figure 1 - Site Location Plan
Alice Springs Town Council Regional Waste Management Facility
Monitoring Report - March 2024



Scale (m)
0 50 100

Notes:

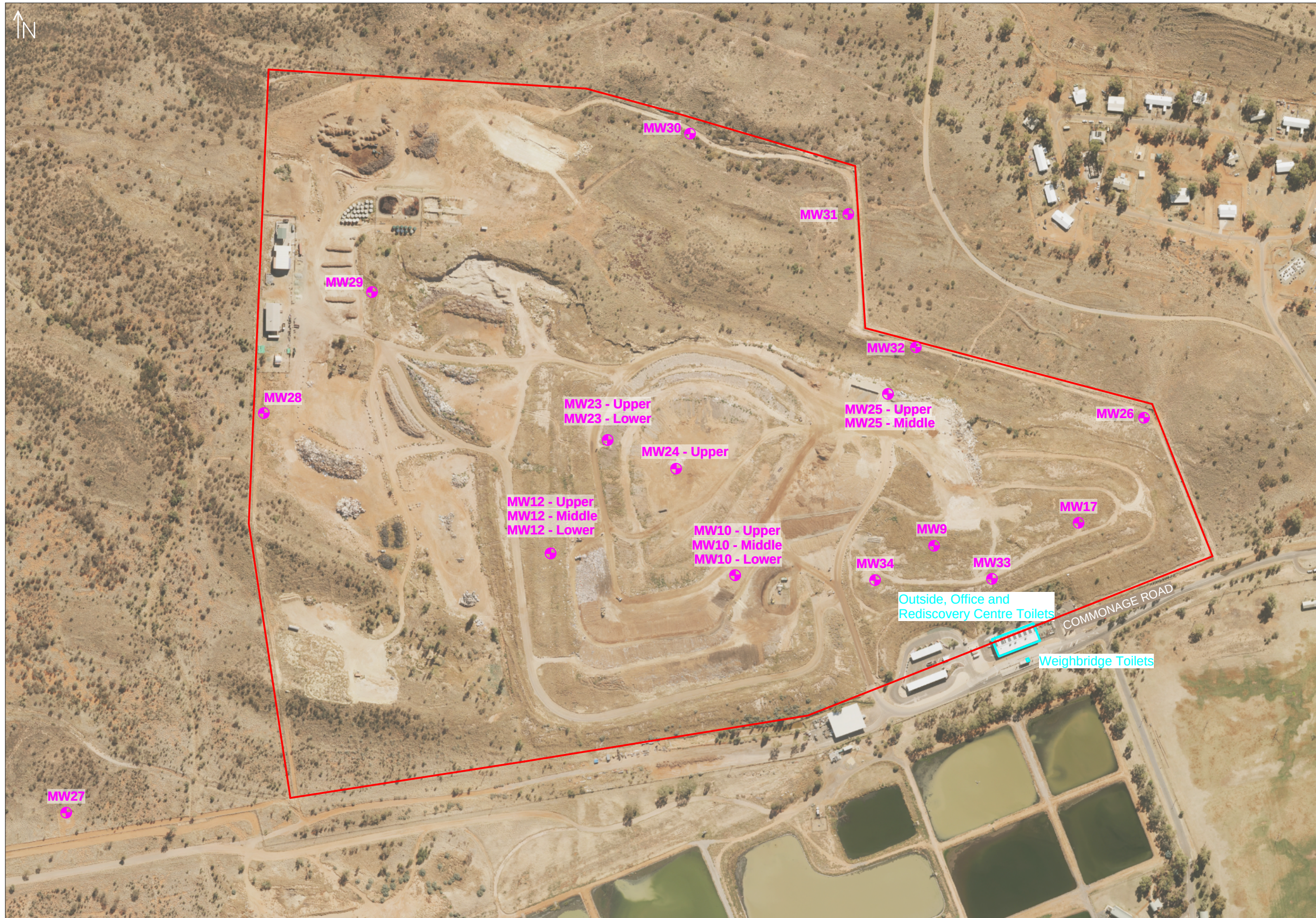
1. Base aerial photo from Aerometrex dated June 2023.

Legend

- MW2**  Groundwater monitoring well
-  Landfill boundary

Figure 2 - Groundwater Monitoring Well Locations
Alice Springs Town Council Regional Waste Management Facility
Monitoring Report - March 2024

Revision A, 17 June 2024



Notes:

1. Base aerial photo from Aerometrex dated June 2023.

Legend

- MW2 Gas monitoring bore
- Landfill boundary

Figure 3 - Gas Monitoring Bore Locations
Alice Springs Town Council Regional Waste Management Facility
Monitoring Report - March 2024



Notes:
1. Base aerial photo from Aerometrex dated June 2023.

- Legend**
- **MW38** Leachate monitoring bore
 - Landfill boundary

Figure 4 - Leachate Bore Monitoring Location
Alice Springs Town Council Regional Waste Management Facility
Monitoring Report - March 2024



Scale (m)
0 50 100

Notes:

1. Base aerial photo from Aerometrex dated June 2023.

Legend

- SW2 Surface water monitoring location
- Landfill boundary

Figure 5 - Surface Water Monitoring Locations
Alice Springs Town Council Regional Waste Management Facility
Monitoring Report - March 2024

Revision A, 17 June 2024



Notes:

1. Base aerial photo from Aerometrex dated June 2023.
2. Noise and dust monitoring locations are approximate and based on locations shown in the 2011 LEMP and 2000 LEMP.

Legend

- N2/D2** Noise or Dust Monitoring Location
- Landfill boundary

Figure 8 - Noise & Dust Monitoring Locations
Alice Springs Town Council Regional Waste Management Facility
Monitoring Report - March 2024

Revision A, 17 June 2024

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APPENDIX B
WELL CONSTRUCTION LOGS

PROJECT NUMBER: AAQ 06 023.06	TOTAL DEPTH: 14m	COORDINATES:
PROJECT NAME: Alice Springs RWMF	DIAMETER:	COORD SYS:
CLIENT: ASTC	CASING: 0-11m	WELL TOC:
PERMIT NO.:	SCREEN: 11-14m	LOGGED BY: DPB
DRILLING DATE:	COMPLETION: Standpipe	

PID	Water	Depth (m)	Graphic Log	Material Description	Additional Observations	Well Diagram	
						MW37	MW33
		0.5		Redrilling of existing borehole			
		1					
		1.5					
		2					
		2.5					
		3					
		3.5					
		4					
		4.5					
		5					
		5.5					
		6					
		6.5					
		7					

PID	Water	Depth (m)	Graphic Log	Material Description	Additional Observations	Well Diagram	
						MW37	MW33
		7.5					
		8					
		8.5					
		9		some collapsing sands			
		9.5					
		10					
		10.5					
		11					
		11.5					
		12		white sands collapsing			
		12.5					
		13					
		13.5					
		14		End of hole			
		14.5					

PROJECT NUMBER: AAQ 06 023.06				TOTAL DEPTH: 12.4m		COORDINATES:	
PROJECT NAME: Alice Springs RWMF				DIAMETER:		COORD SYS:	
CLIENT: ASTC				CASING: 0-9.4m		WELL TOC:	
PERMIT NO.:				SCREEN: 9.4-12.4m		LOGGED BY: DPB	
DRILLING DATE:				COMPLETION: Standpipe			
PID	Water	Depth (m)	Graphic Log	Material Description	Additional Observations	Well Diagram	
						MW38	MW34
		0.5		redrilling of existing borehole			
		1					
		1.5					
		2					
		2.5					
		3					
		3.5					
		4					
		4.5					
		5					
		5.5		hard drilling possible tyre			
		6					
		6.5					

PID	Water	Depth (m)	Graphic Log	Material Description	Additional Observations	Well Diagram	
						MW38	MW34
		7.5					
		8					
		8.5					
		9					
		9.5		Silty CLAY, brown, slightly moist (possible crushed shale)	Possible Natural		
		10					
		10.5					
		11		harder layer			
		11.5					
		12					
		12.5		End of hole			
		13					
		13.5					
		14					
		14.5					

PROJECT NUMBER: AAQ 06 023.06	TOTAL DEPTH: 4m	COORDINATES:
PROJECT NAME: Alice Springs RWMF	DIAMETER:	COORD SYS:
CLIENT: ASTC	CASING: 0-1m	WELL TOC:
PERMIT NO.:	SCREEN: 1-4m	LOGGED BY: DPB
DRILLING DATE:	COMPLETION: Standpipe	

PID	Water	Depth (m)	Graphic Log	Material Description	Additional Observations	Well Diagram
		0.5		ROCK (cap stone) well consolidated shale, grey cream, dry		
		1		ROCK, conglomerate, pink, dry, hard		
		1.5		colour change tan		
		2		ROCK, shale, tan, moderately hard, dry		
		2.5		colour change cream tan		
		3				
		3.5		colour change red tan		
		4		End of hole		
		4.5				
		5				
		5.5				
		6				
		6.5				

PROJECT NUMBER: AAQ 06 023.06	TOTAL DEPTH: 16m	COORDINATES:
PROJECT NAME: Alice Springs RWMF	DIAMETER:	COORD SYS:
CLIENT: ASTC	CASING:	WELL TOC:
PERMIT NO.:	SCREEN:	LOGGED BY: DPB
DRILLING DATE:	COMPLETION: Standpipe	

PID	Water	Depth (m)	Graphic Log	Material Description	Additional Observations	Well Diagram
		0.5		Gravelly Sandy SILT, orange tan, dry, sand variable fine to very coarse grained, gravel subangular to 20mm	Natural/Fill interface not determined	
				colour change cream		
		1		colour change grey		
				Fill - Waste		
		1.5				
		2				
		2.5				
		3			not much sand around pipe due to blockage	
		3.5				
		4				
		4.5				
		5				
		5.5				
		6				
		6.5				
		7				
		7.5				
		8				

PID	Water	Depth (m)	Graphic Log	Material Description	Additional Observations	Well Diagram
		8				
		8.5				
		9		organic rich material, dark grey		
		9.5		hard drilling - concrete and glass		
		10				
		10.5				
		11				
		11.5				
		12		through concrete into sand and organic material, minor waste		
		12.5				
		13		possible soft plastic		
		13.5				
		14				
		14.5				
		15				
		15.5				
		16		End of hole		
		16.5				

Consulting Engineers and Scientists



APPENDIX C
GAS MONITORING RECORDS

ASTC Regional Waste Management Facility Landfill Gas Monitoring Records
Environmental Performance
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Landfill Gas Monitoring Point MW17 (previously referred as MW7)

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	35	42.1	37.7	26.2	30.4	29.6	3.1	0.8	12.2	945	951	940	3.9	18.1	8.7
1	37.9	42.5	38	8.3	30.8	30.7	0.2	0.2	0.3	945	951	940	5.0	20.8	11.2
2	37.8	42.1	38.5	28.5	30.7	30.9	0.1	0	0.1	945	951	940	5.3	20.3	13
3	37.6	42.1	39.1	28.6	30.8	30.9	0	0	0	945	951	940	5.5	18.5	14.1
4	37.8	42.1	39.2	28.1	30.7	30.9	0	0	0	945	951	940	5.6	16.5	14.1
5	38.1	42.1	39.2	28.4	30.7	30.9	0	0	0	945	951	940	5.8	16	14.1
7	38.4	42.1	39.2	28.7	30.9	30.9	0	0	0	945	951	940	5.8	14.8	14
9	37.9	42.1	39.2	28.5	30.7	30.9	0	0	0	945	951	940	5.9	14.4	14
11	38.1	42.1	39.2	28.5	30.7	30.9	0	0	0	945	951	940	5.9	13.7	14
13	38.2	-	-	28.6	-	-	0	-	-	945	-	-	5.9	-	-
15	38.2	42.1	39.2	28.6	30.6	30.9	0	0	0	945	951	940	5.9	13.5	13.9

Landfill Gas Monitoring Point MW9

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	35.1	47.5	55.7	26.2	30.5	33.5	1.9	5.9	1.7	946	951	949	2.7	5.2	3.2
1	35.6	47.9	56.2	26.7	31	34.1	0.4	0.4	0.1	946	951	949	2.8	6.4	3.4
2	35.8	48	56.3	26.7	32.2	34.2	0.2	0.2	0	946	951	949	2.8	6.8	3.5
3	35.9	48.1	56.4	26.7	31.3	34.2	0	0.2	0	946	951	949	2.9	6.9	3.7
4	35.9	48.1	56.4	26.7	31.2	34.2	0	0	0	946	951	949	2.9	6.7	3.7
5	35.9	48.1	56.5	26.7	31.2	34.2	0	0	0	946	951	949	2.9	6.6	3.7
7	35.9	48.1	56.5	26.7	31.2	34	0	0	0	946	951	949	3.0	6.6	3.7
9	35.9	48.1	56.6	26.7	31.2	34.2	0	0	0	946	951	949	3.0	6.6	3.8
11	35.9	48.1	56.6	26.7	31.3	34.2	0	0	0	946	951	949	3.0	6.6	3.7
13	35.9	-	-	26.8	-	-	0	-	-	946	-	-	3.0	-	-
15	35.9	48.1	56.6	26.8	31.2	34.2	0	0	0	946	951	949	3.0	6.6	3.7

Landfill Gas Monitoring Point MW10 (lower)

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	29.5	13.4	3.3	25.5	20.4	27.2	9.9	7.2	0.8	945	951	948	2.3	0.5	4
1	30.5	18	6.8	27.3	28.4	32.3	3.4	2.9	0.2	945	951	948	1.8	0.7	6.6
2	32.5	29.6	16.9	29.8	39.1	35.7	2.2	0.2	0.1	945	951	948	1.4	3	6.6
3	31.5	32.3	27.5	31.1	40.2	37.3	0.8	0	0.1	945	951	948	1	3.2	5.3
4	35.7	34.2	42.5	33.2	41.1	39.6	0	0	0	945	951	948	1.6	3.3	6.3
5	43.1	40.5	49.1	33.6	40.8	41	0	0	0	945	951	948	1.8	5.1	5.9
7	50.2	53.1	54.6	34.3	39.4	41.6	0	0	0	945	951	948	2.4	10.3	6.8
9	51.7	55	59.1	34.9	40.3	42.8	0	0	0	945	951	948	2.5	11.1	7.3
11	51.8	55.2	59.7	34.9	40.5	42.9	0	0	0	945	951	948	2.5	11.1	7.6
13	51.9	-	-	34.9	-	-	0	-	-	945	-	-	2.6	-	-
15	51.9	55.2	59.6	34.9	40.3	42.9	0	0	0	945	951	948	2.6	11.2	7.4

Landfill Gas Monitoring Point MW10 (middle - formerly upper)

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	55	53.7	60	36.7	42	41.8	7.5	4.3	12.1	944	951	948	1.8	0.6	2.5
1	53.3	53.4	60.9	36	42.8	43.6	0.1	0.4	0.1	944	951	948	2.3	0.2	3.9
2	53.4	53.4	61.1	36.1	43.6	4.38	0	0	0	944	951	948	2.3	0.7	5
3	53.5	53.3	61.1	36.1	44	44.2	0	0	0	944	951	948	2.3	4.7	6.1
4	53.2	53.1	61.8	35.9	44.3	44.7	0	0	0	944	951	948	2.3	5.1	7.1
5	53.1	52.9	62.2	35.9	44.5	45	0	0	0	944	951	948	2.4	5.5	7.3
7	53.1	52.5	63.1	35.9	45.1	45.2	0	0	0	944	951	948	2.4	6.8	7.1
9	53.1	52.3	63.3	35.9	45.5	45.1	0	0	0	944	951	948	2.4	7	7.3
11	53.1	52.2	63.4	35.9	45.6	45.1	0	0	0	944	951	948	2.4	6.7	7.4
13	53.1	-	-	35.9	-	-	0	-	-	944	-	-	2.4	-	-
15	53.1	52.2	63.4	35.9	45.5	45.1	0	0	0	944	951	948	2.4	6.1	7.5

Landfill Gas Monitoring Point MW12 (lower)

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	39.4	33.7	15	38.5	32.1	14.9	3.1	0.2	13.2	947	949	948	1.2	9	10.2
1	43.9	33.2	19.2	34.9	32	26	0.1	0.1	0	947	949	948	2.4	9.3	11.6
2	42.5	33.2	19.1	34.8	32	26.2	0	0	0	947	949	948	2.8	9.5	13
3	42.5	33	18.9	34.8	32	25.9	0	0	0	947	949	948	2.9	9.9	13.6
4	42.5	33	18.8	34.8	31.9	25.8	0	0	0	947	949	948	2.9	10	13.6
5	42.4	33	18.7	34.8	31.9	25.8	0	0	0	947	949	948	2.8	10.3	13.6
7	42.4	32.8	18.6	34.8	31.8	25.8	0	0	0	947	949	948	2.9	10.9	13.7
9	42.5	32.9	18.6	34.9	31.9	25.7	0	0	0	947	949	948	2.9	11	13.8
11	42.4	32.9	18.5	34.8	31.8	25.7	0	0	0	947	949	948	2.8	11	13.9
13	42.5	-	-	34.8	-	-	0	-	-	947	-	-	3	-	-
15	42.4	33	18.5	34.8	31.9	25.7	0	0	0	947	949	948	3	10.9	14

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Landfill Gas Monitoring Point MW12 (middle) (previously upper)

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	41.7	28.1	15.9	33.9	29.6	23.8	9.4	3.3	0.8	947	949	948	2.1	13.3	9.9
1	41.4	27.9	15.5	34.2	29.9	23.8	0.2	0.2	0.3	947	949	948	2.5	14	10.5
2	41.2	27.8	15.4	34.2	29.9	23.7	0	0	0.3	947	949	948	2.6	16	11
3	41.2	27.8	15.8	34.3	29.9	23.8	0	0	0.2	947	949	948	2.6	14.1	10.8
4	41.2	27.9	15.5	34.3	30	23.7	0	0	0.1	947	949	948	2.6	12.6	11.2
5	41.3	27.9	15.3	34.3	30	23.7	0	0	0	947	949	948	2.7	9.1	11.3
7	41.2	28.2	15.6	34.2	30	23.8	0	0	0	947	949	948	2.6	6.1	11.3
9	41	28.2	14.8	34.2	30	23.5	0	0	0	947	949	948	2.7	4.4	11.9
11	39.5	28.1	14.6	32.8	30	23.3	0	0	0	947	949	948	2.6	4.8	11.9
13	41.5	-	-	34.4	-	-	0	-	-	947	-	-	2.6	-	-
15	41.5	28	14.2	34.5	30	23.3	0	0	0	947	949	948	2.6	4.2	11.9

Landfill Gas Monitoring Point MW12 (upper)

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	53.8	49.5	41.7	39.3	34.5	30.6	9.3	8.6	2.2	947	949	948	0.8	1.8	0.5
1	51.7	49.8	41.6	36.3	35.5	34.3	0.1	0.5	0.4	947	949	948	1	2	0.9
2	50.6	49.1	41.9	36.1	35.8	33.6	0	0.2	0	947	949	948	1	2.5	1
3	50.7	49.3	41.3	36.1	35.7	34.2	0	0	0	947	949	948	1	3	0.8
4	50.8	49.4	46.1	36.1	35.7	34.6	0	0	0	947	949	948	1	3.5	0.7
5	50.9	19.4	46.6	36.1	35.7	34.7	0	0	0	947	949	948	1	3.6	0.8
7	50.9	49.3	47.5	36.1	35.6	34.9	0	0	0	947	949	948	1	2.1	0.8
9	50.8	49.3	47.9	36.1	35.7	35	0	0	0	947	949	948	1	1.9	0.8
11	50.8	49.2	48.1	36.1	35.8	35.1	0	0	0	947	949	948	1	1.9	0.8
13	50.9	-	-	36.2	-	-	0	-	-	947	-	-	1	-	-
15	50.8	49.1	48	36.2	35.8	35.1	0	0	0	947	949	948	1	2	0.8

Landfill Gas Monitoring Point MW23 (Upper)

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	43	56.5	18.9	38.1	40.5	27.5	2.7	1.6	3.7	946	950	948	0.2	3.2	3.7
1	45.1	56.8	18.2	41.4	41.3	27.4	0.7	0.1	1.6	946	950	948	0.6	1.6	3.2
2	44.9	57.1	21.9	41.3	41.6	33	0	0	0.1	946	950	948	1.1	1.7	3.8
3	44.7	57.3	21.6	41.2	41.8	33.3	0	0	0	946	950	948	1.3	2.1	4.6
4	44.6	57.4	21.1	41.2	41.9	33.1	0	0	0	946	950	948	1.6	2.5	4.9
5	44.7	57.4	20.7	41.1	42	32.9	0	0	0	946	950	948	1.7	2.6	5
7	44.6	57.6	20.2	41.1	42.1	32.5	0	0	0	946	950	948	1.8	2.6	5.2
9	44.7	57.7	19.9	41.1	42.2	32.3	0	0	0	946	950	948	1.8	2.6	5.4
11	44.6	57.8	19.6	41.1	42.1	32	0	0	0	946	950	948	1.8	2.5	5.6
13	44.7	-	-	41.1	-	-	0	-	-	946	-	-	1.8	-	-
15	44.7	57.8	19.5	41.1	42.2	31.9	0	0	0	946	950	948	1.8	2.6	5.7

Landfill Gas Monitoring Point MW23 (Lower)

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	56.4	57.4	61.4	42.4	39	41.5	0.6	6.7	1.6	947	950	948	0	1.7	0.6
1	56.9	30.9	62	43.1	35.5	42.1	0	0.8	0.3	947	950	948	0.6	1.6	0.6
2	57.4	30.5	62	43.4	36.1	42.3	0	0	0.1	947	950	948	0.8	3.5	1.2
3	57.7	28.7	62.6	43	36	42.8	0	0	0	947	950	948	0.9	4.1	2.1
4	57.8	28.1	63.3	43.4	35.7	43.4	0	0	0	947	950	948	1	4.6	2.2
5	57.9	27.3	63.5	43.4	35.5	43.6	0	0	0	947	950	948	1	4.5	2.1
7	57.6	27	63.7	43.5	35.4	43.7	0	0	0	947	950	948	1	4.4	2.1
9	57.9	26.7	63.6	43.5	35.1	43.7	0	0	0	947	950	948	1	4.5	2.2
11	57.8	26.6	63.7	43.5	35	43.7	0	0	0	947	950	948	1	4.5	2.2
13	58	-	-	43.5	-	-	0	-	-	947	-	-	1	-	-
15	57.9	26.5	63.7	43.5	35	43.7	0	0	0	947	950	948	1	4.5	2.2

Landfill Gas Monitoring Point MW24 (upper)

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	54.5	56.7	60.9	44.8	41.9	44.9	0.3	5.7	7.8	943	950	947	4.2	5.8	3.4
1	54.7	57.2	61.9	45.1	42.7	46.6	0.1	0.2	0.1	943	950	947	4.5	6.2	3.6
2	54.9	57.2	62.1	45	42.8	46.8	0	0	0	943	950	947	4.7	6.3	3.7
3	55	57.5	62.1	45.1	42.9	46.7	0	0	0	943	950	947	4.9	6.3	3.7
4	55.2	57.7	62.3	45.1	43.1	46.8	0	0	0	943	950	947	5.1	6.2	3.6
5	55.3	57.8	62.4	45.1	43	46.8	0	0	0	943	950	947	5.2	6.1	3.6
7	59	57.7	62.5	44.9	43.1	46.9	0	0	0	943	950	947	5	6	3.6
9	55.1	57.8	62.5	45	43	46.8	0	0	0	943	950	947	5	5.9	3.6
11	55.1	57.8	62.5	45	43.1	46.8	0	0	0	943	950	947	4.9	5.9	3.6
13	55.1	-	-	45	-	-	0	-	-	943	-	-	4.9	-	-
15	55.2	57.9	62.5	45	43.1	46.8	0	0	0	943	950	947	4.5	5.8	3.6

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Landfill Gas Monitoring Point MW24 (lower)

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0															
1															
2															
3															
4															
5															
7															
9															
11															
13															
15															

Landfill Gas Monitoring Point MW25 (lower)

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	44.2			29.8			9.5			945			1.2		
1	46.3			30.3			1.7			945			1.2		
2	52.2			34.3			0.3			945			1.3		
3	52.8			34.5			0.2			945			1.4		
4	53.1			34.6			0.1			945			1.4		
5	53.2			34.5			0			945			1.4		
7	53.5			34.7			0			945			1.5		
9	53.6			34.7			0			945			1.5		
11	53.7			34.7			0			945			1.5		
13	54.3			34.9			0			945			1.5		
15	54.3			34.7			0			945			1.5		

Landfill Gas Monitoring Point MW25 (middle) (previously upper)

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	2.3	57.8	60.7	3.1	35.3	38.52	14.9	6.5	0.7	945	950	910	4	1.2	0.1
1	0.4	57.8	61.3	0.4	36.1	38.8	19.4	0.5	0.3	945	950	940	4	1.3	0.3
2	0.3	58.3	62.2	0.2	36.4	39.1	19.7	0.3	0.1	945	950	940	3.6	2.5	0.5
3	0.7	58.2	63.2	0.5	36.6	39.6	19.5	0	0	945	950	940	3.8	2.4	0.9
4	0.6	58.3	63.7	0.4	36.5	39.9	19.5	0	0	945	950	940	3.9	2.5	1.1
5	0.6	58.3	63.7	0.5	36.6	39.8	19.4	0	0	945	950	940	4	2.6	1.2
7	-	58.2	63.8	-	36.5	39.9	-	0	0	-	950	940	-	2.6	1.2
9	-	58.3	63.7	-	36.6	39.8	-	0	0	-	950	940	-	2.6	1.1
11	-	58.3	63.7	-	36.5	39.8	-	0	0	-	950	940	-	2.5	1.1
13	-	58.2	-	-	36.5	-	-	0	-	-	950	-	-	2.5	-
15	-	58.2	63.7	-	36.5	39.8	-	0	0	-	950	940	-	2.4	1.2

Landfill Gas Monitoring Point MW26

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	0	0	0	2.4	2.2	2.3	16.8	17.7	17.2	948	950	949	0	2.4	0.1
1	0	0	0	2.5	2.3	2.5	16.7	18	16.9	948	950	949	0	2.2	0.1
2	0	0	0	2.5	2.3	2.6	16.6	18	16.9	948	950	949	0	2.1	0.2
3	0	0	0	2.5	2.4	2.6	16.6	17.9	16.9	948	950	949	0	2	0.2
4	0	0	0	2.5	2.4	2.6	16.6	17.9	16.9	948	950	949	0	2.1	0.2
5	0	0	0	2.5	2.4	2.6	16.6	17.8	16.9	948	950	949	0	2	0.2
7	0	0	0	2.5	2.4	2.6	16.6	17.8	16.8	948	950	949	0	2	0.2
9	0	0	0	2.5	2.4	2.6	16.7	17.9	16.8	948	950	949	0	2	0.2
11	0	0	0	2.5	2.4	2.6	16.7	17.9	16.8	948	950	949	0	2	0.2
13	0	-	-	2.5	-	-	16.7	-	-	948	950	-	0	-	-
15	0	0	0	2.5	2.4	2.6	16.7	17.9	16.8	948	950	949	0	2	0.2

Landfill Gas Monitoring Point MW27

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	0	0	0	0.6	0.8	0.5	18.8	19	18.8	948	949	949	0	0.8	0.6
1	0	0	0	0.7	0.8	0.6	18.5	18.9	18.7	948	949	949	0	0.7	0.4
2	0	0	0	0.7	0.8	0.6	18.4	18.9	18.6	948	949	949	0	0.6	0.2
3	0	0	0	0.7	0.8	0.6	18.2	18.9	18.5	948	949	949	0	0.6	0.1
4	0	0	0	0.8	0.8	0.6	18.2	18.9	18.5	948	949	949	0	1	0
5	0	0	0	0.8	0.8	0.7	18.3	18.9	18.5	948	949	949	0	1.3	0
7	0	0	0	0.8	0.9	0.7	18.3	19	18.6	948	949	949	0	1.6	0
9	0	0	0	0.8	0.9	0.7	18.4	19.2	18.6	948	949	949	0	1.6	0
11	0	0	0	0.8	0.9	0.7	18.4	19.2	18.6	948	949	949	0	1.6	0
13	0	-	-	0.8	-	-	18.4	-	-	948	-	-	0	-	-
15	0	0	0	0.8	0.9	0.7	18.4	19.2	18.6	948	949	949	0	1.6	0

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Landfill Gas Monitoring Point MW28

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	0	0	0.1	0.2	0.3	0.2	16.5	12.2	10.5	948	951	949	0.5	7.3	16.7
1	0	0	0.1	0.2	0.1	0.2	17.3	13.4	10.8	948	951	949	0.5	8.1	13
2	0	0	0.1	0.2	0.1	0.2	17.5	14	10.9	948	951	949	0.5	6.6	11.6
3	0	0	0	0.2	0.2	0.3	18	14.2	10.9	948	951	949	0.4	6.2	9.9
4	0	0	0	0.2	0.2	0.3	18	14.2	11	948	951	949	0.4	5.6	7.7
5	0	0	0	0.2	0.2	0.3	18.1	14.3	11.1	948	951	949	0.4	5.1	6.5
7	0	0	0	0.2	0.3	0.4	18.4	14.2	11.4	948	951	949	0.4	5.3	4.6
9	0	0	0	0.2	0.3	0.5	18.6	14.2	11.8	948	951	949	0.4	4.9	3.1
11	0	0	0	0.2	0.4	0.6	18.7	14.2	11.9	948	951	949	0.4	4.8	2.2
13	0	-	-	0.2	-	-	18.8	-	-	948	-	-	0.4	-	-
15	0	0	0	0.2	0.4	0.6	18.8	14.3	11.9	948	951	949	0.5	4.5	1.7

Landfill Gas Monitoring Point MW29/MW29A

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	0		0	0.1		1.5	18.2		18.8	948		947	0		0.9
1	0		0	0		1.6	18.2		18.7	948		947	0		0.8
2	0		0	0		1.6	18.3		18.6	948		947	0		0.7
3	0		0	0		1.7	18.4		18.6	948		947	0		1.2
4	0		0	0		1.7	18.6		18.5	948		947	0		1.6
5	0		0	0		1.7	18.6		18.5	948		947	0		1.8
7	0		0	0		1.7	18.7		18.4	948		947	0		1.9
9	0		0	0		1.7	18.7		18.4	948		947	0		2
11	0		0	0		1.7	18.8		18.4	948		947	0		2.4
13	0		-	0		-	18.9		-	948		-	0		-
15	0		0	0		1.7	18.9		18.4	948		947	0		2.6

Landfill Gas Monitoring Point MW30

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	0	0	0	1	0.9	0.8	15.5	17.2	18.8	947	950	948	0.5	2.2	2.4
1	0	0	0	1	1	1.1	15.7	17.3	18.5	947	950	948	0.4	1.9	2.1
2	0	0	0	1.1	1.3	1.3	15.6	17.5	18.4	947	950	948	0.4	1.6	1.8
3	0	0	0	1.3	1.5	1.6	15.7	17.6	18.1	947	950	948	0.3	1.1	1.5
4	0	0	0	1.5	1.6	1.7	15.9	17.6	18	947	950	948	0.2	1	1.3
5	0	0	0	1.5	1.6	1.7	15.9	17.6	18	947	950	948	0.4	1	1.4
7	0	0	0	1.6	1.6	1.8	16	17.7	18	947	950	948	0.5	1	1.2
9	0	0	0	1.6	1.6	1.8	16.1	17.7	17.9	947	950	948	0.5	1	1
11	0	0	0	1.6	1.6	1.8	16.1	17.7	17.9	947	950	948	0.5	1	1
13	0	-	-	1.6	-	-	16.1	-	-	947	-	-	0.4	-	-
15	0	0	0	1.6	1.6	1.8	16.1	17.7	17.9	947	950	948	0.4	1	1

Landfill Gas Monitoring Point MW31

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	0	0	0	0.8	0.1	0.5	17.8	13.6	18.4	947	950	949	0.5	5	1.9
1	0	0	0	0.8	0.1	0.5	17.8	11.6	18.4	947	950	949	0.5	3.6	2
2	0	0	0	0.8	0.1	0.6	17.8	12.3	18.3	947	950	949	0.5	3.3	2.1
3	0	0	0	0.8	0.2	0.6	17.9	12.8	18.2	947	950	949	0.6	3.2	2
4	0	0	0	0.8	0.2	0.6	17.9	13.1	18.2	947	950	949	0.6	3.2	1.9
5	0	0	0	0.8	0.2	0.6	17.9	13.1	18.1	947	950	949	0.7	3.1	1.9
7	0	0	0	0.8	0.2	0.7	17.9	13.3	18.1	947	950	949	0.7	3.1	1.6
9	0	0	0	0.7	0.2	0.7	17.9	13.3	18.1	947	950	949	0.7	3	1.4
11	0	0	0	0.7	0.2	0.7	18.3	13.4	18.1	947	950	949	0.7	3	1.2
13	0	-	-	0.7	-	-	18.5	-	-	947	-	-	0.8	-	-
15	0	0	0	0.7	0.2	0.7	18.5	13.4	18.1	947	950	949	0.8	2.9	1.1

Landfill Gas Monitoring Point MW32

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	0	0	0	0.5	0.3	0.6	16.8	18.3	13	948	950	947	0.5	1.8	2.4
1	0	0	0	0.5	0.4	0.6	16.4	16	12	948	950	947	0.5	1.6	2.3
2	0	0	0	0.5	0.4	0.6	16.4	15.8	12	948	950	947	0.5	1.3	2.1
3	0	0	0	0.5	0.4	0.6	16.4	15.7	12.1	948	950	947	0.6	1.2	1.9
4	0	0	0	0.5	0.4	0.6	16.4	15.7	12	948	950	947	0.6	1.2	2
5	0	0	0	0.5	0.4	0.6	16.4	15.7	12.1	948	950	947	0.7	1.2	2
7	0	0	0	0.5	0.4	0.6	16.9	15.9	12.3	948	950	947	0.7	1.1	2
9	0	0	0	0.6	0.4	0.6	18	15.9	13.2	948	950	947	0.4	1.1	1.9
11	0	0	0	0.6	0.4	0.6	18.2	16	14.3	948	950	947	0.4	1.1	1.8
13	0	-	-	0.6	-	-	18.2	-	-	948	-	-	0.4	-	-
15	0	0	0	0.6	0.4	0.6	18.3	16.1	16.1	948	950	947	0.4	1.1	1.7

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Landfill Gas Monitoring Point MW33

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	-	-	28.4	-	-	25.4	-	-	4.1	-	-	946	-	-	2
1	-	-	31.3	-	-	27.2	-	-	0.2	-	-	946	-	-	4.4
2	-	-	31.8	-	-	27.1	-	-	0.1	-	-	946	-	-	5.6
3	-	-	31.7	-	-	26.8	-	-	0.1	-	-	946	-	-	6.6
4	-	-	31.7	-	-	26.7	-	-	0	-	-	946	-	-	7.1
5	-	-	31.6	-	-	26.7	-	-	0	-	-	946	-	-	7.3
7	-	-	31.3	-	-	26.3	-	-	0	-	-	946	-	-	8.1
9	-	-	31.1	-	-	26.2	-	-	0	-	-	946	-	-	8.9
11	-	-	31.1	-	-	26.2	-	-	0	-	-	946	-	-	9
13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	31.1	-	-	26.2	-	-	0	-	-	946	-	-	9.1

Landfill Gas Monitoring Point MW34

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	-	-	9.7	-	-	15.1	-	-	4.1	-	-	946	-	-	13.5
1	-	-	5.5	-	-	8.6	-	-	9.1	-	-	946	-	-	17.7
2	-	-	5.2	-	-	8.2	-	-	9.4	-	-	946	-	-	12.7
3	-	-	6.8	-	-	10.3	-	-	6.1	-	-	946	-	-	13.9
4	-	-	6.9	-	-	11	-	-	5.9	-	-	946	-	-	13.6
5	-	-	8.7	-	-	15.2	-	-	1.4	-	-	946	-	-	13.9
7	-	-	7.9	-	-	16.4	-	-	1.8	-	-	946	-	-	14.2
9	-	-	6.6	-	-	15.7	-	-	3.5	-	-	946	-	-	13.6
11	-	-	6.5	-	-	15.6	-	-	3.8	-	-	946	-	-	13.1
13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	6.4	-	-	15.5	-	-	4	-	-	946	-	-	12.8

Landfill Gas Accumulation Point Outside Toilet (west)

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	0	0	0	0	0	0	19.1	20.4	19.9	944	-	-	0	0	0

Landfill Gas Accumulation Point Female Toilets

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	0	0	0	0	0	0	19.1	20.4	19.7	944	-	-	0	0	0

Landfill Gas Accumulation Point Male Toilets

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	0	0	0	0	0	0	19.1	20.4	19.7	944	-	-	0	0	0

Landfill Gas Accumulation Point Weighbridge Toilet

Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	0	0	0	0	0	0	19.1	20.4	19.8	0	-	-	0	0	0

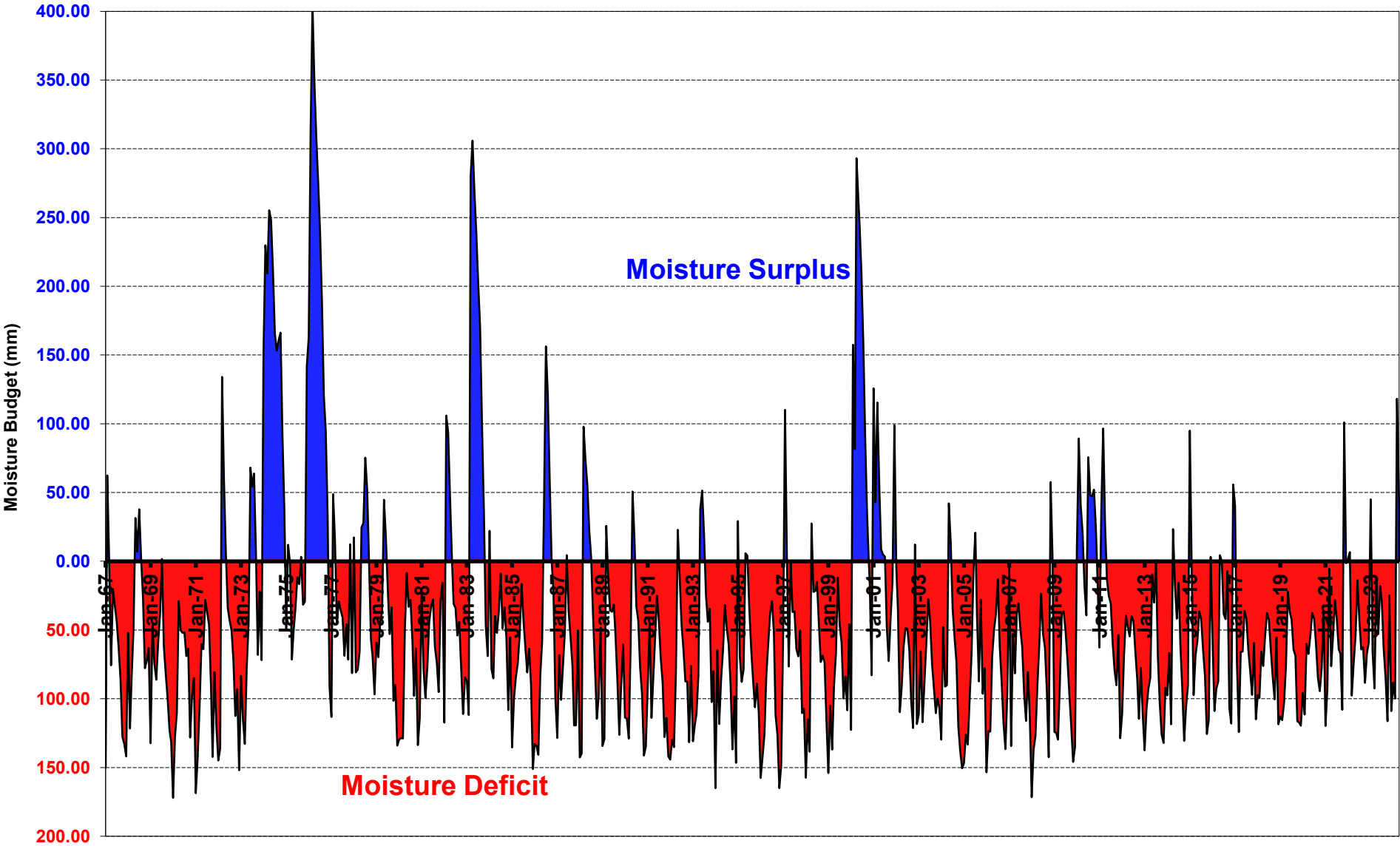
Landfill Gas Accumulation Point Rediscovery Centre Toilet

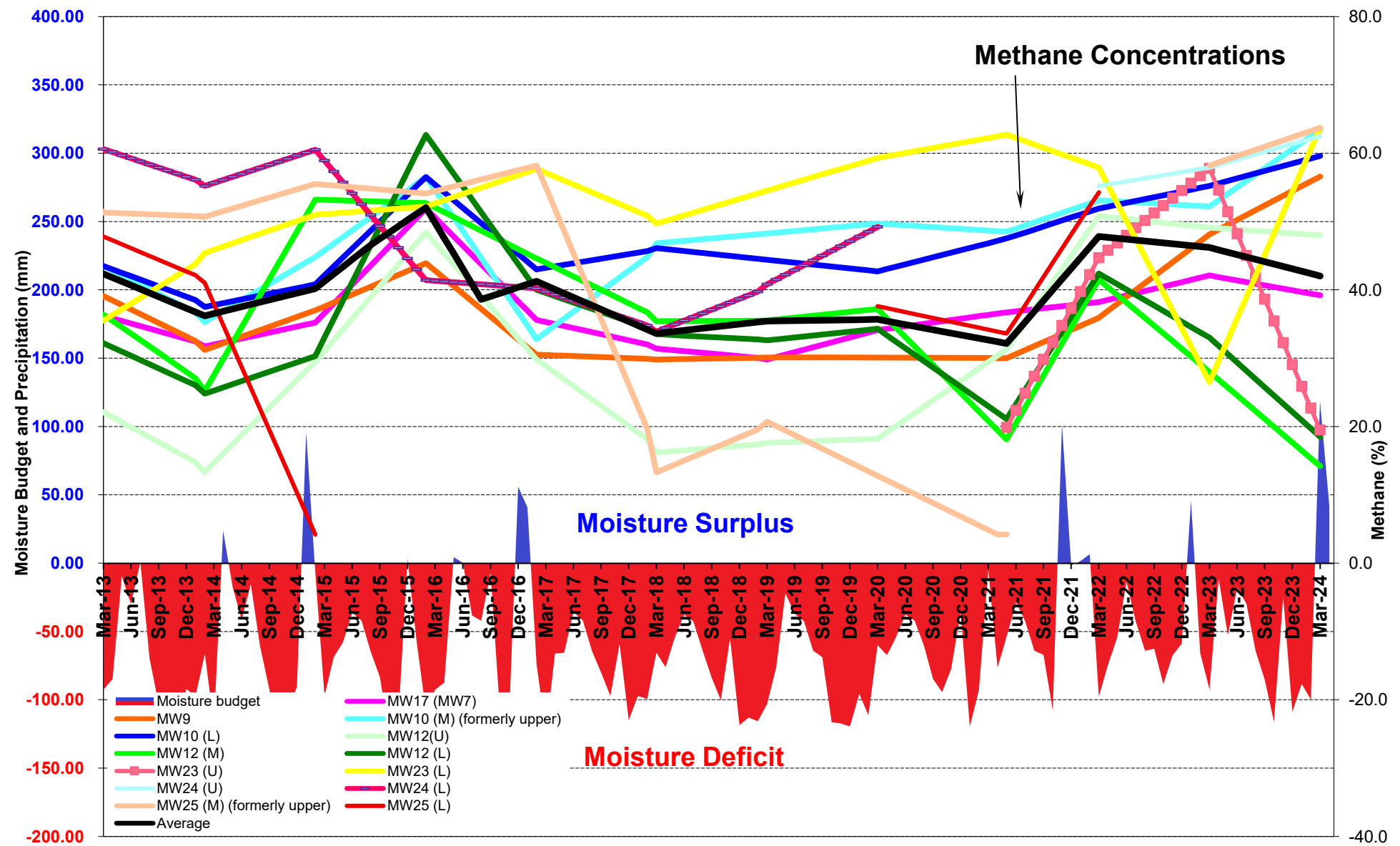
Time Pumping (minutes)	CH ₄			CO ₂			O ₂			Pressure			PID		
	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24	Mar-22	Mar-23	Mar-24
0	0	0	0	0	0	0	19.1	20.4	19.7	0	-	-	0	0	0

Consulting Engineers and Scientists



APPENDIX D
MOISTURE AND METHANE CHARTS





APPENDIX E
GROUNDWATER GAUGING AND PURGING RECORDS

**Alice Springs Landfill
Environmental Performance
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Groundwater Gauging Summary



Well No	Date	Well depth (m)	Depth to Water (m)	Well Elevation (mAHD)	Reduced Water Level (mAHD)	Metres of water in well (m)	Volume of water removed (L)
MW1	3/03/2024	25.5	7.177	565.96	558.78	18.32	80
MW2	3/03/2024	12.0	4.472	565.41	560.94	7.53	90
MW3	3/03/2024	37.0	21.051	579.93	558.88	15.95	60*
MW4A	3/03/2024	8.0	3.306	565.03	561.72	4.69	70
MW5A	3/03/2024	18.0	12.277	571.00	558.73	5.72	80
MW6A	3/03/2024	28.6	25.753	584.39	558.63	2.81	90
MW7A	3/03/2024	14.5	10.343	569.08	558.74	4.16	110
MW81	3/03/2024	30.1	7.917	567.04	559.12	22.16	80
MW82	3/03/2024	18.3	13.614	572.24	558.63	4.69	80
MW83	3/03/2024	39.5	15.870	574.50	558.63	23.63	100
MW84	3/03/2024	28.4	20.833	579.50	558.67	7.57	90
MW85	3/03/2024	23.4	15.331	573.94	558.61	8.07	100
MW86	3/03/2024	36.2	21.628	-	-	14.57	90
MW87	3/03/2024	15.8	-	-	-	-	130

Purging of water from well continued until temperature, DO, conductivity, pH and redox parameters are stabilised

*well ran dry prior to stabilisation

	Date	Bore and Elevation (m AHD)													
		MW1	MW2	MW3	MW4A	MW5A	MW6A	MW7A	MW81	MW82	MW83	MW84	MW85	MW86	MW87
		565.96	565.41	579.93	565.03	571.05	577.13	569.08	567.04	572.24	574.50	579.50	573.94	580.36	-
Depth to Water	Feb-14	6.41	4.37	20.17	3.59	11.42	22.55	9.53	7.17	-	-	-	-	-	-
	Feb-15	5.44	2.62	19.82	2.23	10.62	21.69	8.67	7.41	-	-	-	-	-	-
	Aug-15	6.12	3.62	20.01	2.91	11.17	22.29	9.25	6.82	-	-	-	-	-	-
	Feb-16	6.23	3.75	20.17	3.18	11.28	22.37	9.34	7.24	-	-	-	-	-	-
	Aug-16	6.19	3.48	20.17	2.82	11.26	22.34	9.31	7.47	-	-	-	-	-	-
	Feb-17	5.57	3.27	19.77	2.62	10.72	21.77	8.71	7.48	-	-	-	-	-	-
	Mar-18	6.73	4.38	20.61	3.57	11.79	22.90	9.87	7.80	-	-	-	-	-	-
	Mar-19	7.27	5.01	21.33	3.63	12.49	23.58	10.55	8.39	-	-	-	-	-	-
	Mar-20	8.19	5.53	22.12	3.50	13.27	23.81	11.34	8.90	14.61	16.88	21.87	16.33	22.62	-
	May-21	7.96	4.63	22.16	3.29	13.08	23.61	11.12	9.28	14.44	16.70	21.77	16.12	22.42	-
	Mar-22	5.89	1.93	20.29	1.99	11.32	21.81	9.31	9.09	12.70	14.94	20.31	14.33	20.62	-
	Mar-23	6.44	2.95	20.60	2.76	11.55	25.95	9.58	7.82	12.30	15.15	20.25	14.58	20.87	-
	Mar-24	7.18	4.47	21.05	3.31	12.28	25.75	10.34	7.92	13.61	15.87	20.83	15.33	21.63	-
Reduced Water Level	Feb-14	559.55	561.04	559.76	561.44	559.59	559.76	559.55	559.87	-	-	-	-	-	-
	Feb-15	560.52	562.79	560.11	562.80	560.38	560.62	560.41	559.63	-	-	-	-	-	-
	Aug-15	559.84	561.79	559.93	562.12	559.84	560.02	559.83	560.22	-	-	-	-	-	-
	Feb-16	559.73	561.67	559.76	561.85	559.73	559.94	559.75	559.80	-	-	-	-	-	-
	Aug-16	559.78	561.93	559.77	562.21	559.74	559.97	559.77	559.57	-	-	-	-	-	-
	Feb-17	560.40	562.14	560.17	562.41	560.29	560.54	560.37	559.56	-	-	-	-	-	-
	Mar-18	559.23	561.03	559.33	561.46	559.21	559.41	559.21	559.23	-	-	-	-	-	-
	Mar-19	558.69	560.40	558.61	561.40	558.51	558.73	558.53	558.65	-	-	-	-	-	-
	Mar-20	557.78	559.88	557.81	561.53	557.73	558.50	557.74	558.14	557.64	557.62	557.63	557.61	557.74	-
	May-21	558.00	560.78	557.78	561.74	557.92	558.70	557.96	557.76	557.81	557.81	557.73	557.82	557.94	-
	Mar-22	560.07	563.48	559.64	563.05	559.68	560.49	559.77	557.95	559.54	559.56	559.19	559.61	559.74	-
	Mar-23	559.52	562.46	559.33	562.27	559.45	558.44	559.50	559.21	559.94	559.35	559.25	559.36	559.48	-
	Mar-24	558.78	560.94	558.88	561.72	558.73	558.63	558.74	559.12	558.63	558.63	558.67	558.61	558.73	-
Water Level Change	Feb-14 to Feb-15	0.97	1.75	0.35	1.36	0.80	0.86	0.86	-0.24	-	-	-	-	-	-
	Feb-15 to Aug-15	-0.68	-1.00	-0.19	-0.68	-0.55	-0.59	-0.58	0.59	-	-	-	-	-	-
	Aug-15 to Feb-16	-0.11	-0.13	-0.16	-0.27	-0.11	-0.08	-0.08	-0.42	-	-	-	-	-	-
	Feb-16 to Aug-16	0.04	0.26	0.00	0.36	0.01	0.03	0.03	-0.23	-	-	-	-	-	-
	Aug-16 to Feb-17	0.62	0.21	0.40	0.20	0.55	0.57	0.59	-0.01	-	-	-	-	-	-
	Feb-17 to Mar-18	-1.16	-1.11	-0.84	-0.95	-1.08	-1.13	-1.16	-0.32	-	-	-	-	-	-
	Mar-18 to Mar-19	-0.54	-0.63	-0.72	-0.07	-0.70	-0.69	-0.68	-0.58	-	-	-	-	-	-
	Mar-19 to Mar-20	-0.91	-0.52	-0.80	0.14	-0.78	-0.23	-0.79	-0.51	-	-	-	-	-	-
	Mar-20 to May-21	0.22	0.89	-0.03	0.20	0.19	0.20	0.22	-0.38	0.17	0.18	0.10	0.21	0.20	-
	May-21 to Mar-22	2.07	2.70	1.87	1.31	1.76	1.79	1.81	0.19	1.73	1.75	1.46	1.79	1.79	-
	Mar-22 to Mar-23	-0.55	-1.02	-0.31	-0.78	-0.23	-2.06	-0.27	1.27	0.40	-0.21	0.06	-0.25	-0.25	-
	Mar-23 to Mar-24	-0.74	-1.52	-0.45	-0.54	-0.72	0.19	-0.76	-0.10	-1.31	-0.72	-0.58	-0.75	-0.75	-

Groundwater Purging Record Sheet



Client: Alice Springs Town Council Project: ASTC Landfill Monitoring - March 2024 Location: SE Corner	Job no: AAQ 06 023.26 Date: 4/03/2024 Logged: DPB	Well No. MW1
Depth to Groundwater: 7.177m Weather: Overcast & 25°C Purging Method: Waterra Tube & Footvalve Purging Equipment: Pump Start Time: 6:38am Finish Time: 7:25am	Comments: 	

Time	Depth (m)	Purged (L)	Temp (°C)	DO (%)	DO (mg/L)	SPC (µs/cm)	Cond (µs/cm)	TDS (ppm)	pH	Redox (mV)	Appearance (colour, turbidity, odour, sheen)
6:39	-	0	26.2	58.5	4.47	4583	4723	-	6.57	-280.1	colourless, slightly cloudy, no odour, no sheen
6:45	-	10	26.8	0	0	4546	4693	-	6.57	-160.8	colourless, slightly cloudy, no odour, no sheen
6:50	-	20	26.7	0	0	4531	4678	-	6.57	-179.1	colourless, very slightly cloudy, no odour, no sheen
6:55	-	30	26.8	0	0	4542	4687	-	6.57	-186.3	colourless, very slightly cloudy, no odour, no sheen
7:00	-	40	26.8	0	0	4528	4684	-	6.57	-188.8	colourless, very slightly cloudy, no odour, no sheen
7:05	-	50	26.9	0	0	4525	4699	-	6.57	-189.9	colourless, very slightly cloudy, no odour, no sheen
7:10	-	60	26.9	0	0	4508	4670	-	6.57	-189.6	colourless, very slightly cloudy, no odour, no sheen
7:15	-	70	26.9	0	0	4517	4679	-	6.57	-190.2	colourless, very slightly cloudy, no odour, no sheen
7:20	-	80	26.9	0	0	4520	4683	-	6.57	-191.2	colourless, very slightly cloudy, no odour, no sheen
Sampled											

Purging should continue until measurements for pH are within 0.05 pH unit; conductivity within 3%; DO within 10%; Redox within 10mV and Temperature within 0.5 °C over three successive measurements

Groundwater Purging Record Sheet



Client: Alice Springs Town Council Project: ASTC Landfill Monitoring - March 2024 Location: Road between ponds and landfill south	Job no: AAQ 06 023.26 Date: 3/03/2024 Logged: DPB	Well No. MW2XY
Depth to Groundwater: 4.472m Weather: Cloudy & 25°C Purging Method: Waterra Tube & Footvalve Purging Equipment: Pump Start Time: 7:39am Finish Time: 8:30am	Comments: 	

Time	Depth (m)	Purged (L)	Temp (°C)	DO (%)	DO (mg/L)	SPC (µs/cm)	Cond (µs/cm)	TDS (ppm)	pH	Redox (mV)	Appearance (colour, turbidity, odour, sheen)
7:40	-	0	26.4	315.8	24.6	7287	7477	-	6.45	-87.9	slightly tan, slightly cloudy, no odour, no sheen
7:45	-	10	26	96.5	7.68	7341	7484	-	6.44	-174.1	slightly tan, slightly cloudy, no odour, no sheen
7:50	-	20	26.1	99.3	7.76	7347	7490	-	6.44	-178.5	very slightly tan, very slightly cloudy, no odour, no sheen
7:55	-	30	26.1	61.2	4.09	7347	7493	-	6.44	-178.8	very slightly tan, very slightly cloudy, no odour, no sheen
8:00	-	40	26.1	53.3	3.9	7339	7497	-	6.44	-176.6	very slightly tan, very slightly cloudy, no odour, no sheen
8:05	-	50	26.2	51	4	7337	7499	-	6.44	-169.4	very slightly tan, very slightly cloudy, no odour, no sheen
8:10	-	60	26.2	31.5	3.09	7328	7486	-	6.44	-163.3	colourless, very slightly cloudy, no odour, no sheen
8:15	-	70	26.2	28.5	2.25	7312	7480	-	6.44	-158.2	colourless, very slightly cloudy, no odour, no sheen
8:20	-	80	26.3	24	1.84	7316	7500	-	6.44	-152.4	colourless, very slightly cloudy, no odour, no sheen
8:25	-	90	26.3	23.6	1.86	7320	7498	-	6.44	-150.3	colourless, very slightly cloudy, no odour, no sheen
Sampled											

Purging should continue until measurements for pH are within 0.05 pH unit; conductivity within 3%; DO within 10%; Redox within 10mV and Temperature within 0.5 °C over three successive measurements

Groundwater Purging Record Sheet



Client:	Alice Springs Town Council	Job no:	AAQ 06 023.26	Well No. MW3
Project:	ASTC Landfill Monitoring - March 2024	Date:	5/03/2024	
Location:	North west corner	Logged:	DPB	
Depth to Groundwater:	21.051m	Comments:		
Weather:	Slightly cloudy & 32C			
Purging Method:	Waterra Tube & Footvalve			
Purging Equipment:	Pump			
Start Time:	8:58am			
Finish Time:	9:40am			

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Groundwater Purging Record Sheet



Client: Alice Springs Town Council	Job no: AAQ 06 023.26	Well No. MW4A
Project: ASTC Landfill Monitoring - March 2024	Date: 3/03/2024	
Location: Near front gate	Logged: DPB	
Depth to Groundwater: 3.306m	Comments: 	
Weather: Cloudy & 25°C		
Purging Method: Waterra Tube & Footvalve		
Purging Equipment: Pump		
Start Time: 6:36am		
Finish Time: 7:15am		

Time	Depth (m)	Purged (L)	Temp (°C)	DO (%)	DO (mg/L)	SPC (µs/cm)	Cond (µs/cm)	TDS (ppm)	pH	Redox (mV)	Appearance (colour, turbidity, odour, sheen)
6:38	-	0	26.5	354.9	24.42	8496	8720	-	6.54	-195.4	slightly tan, slightly cloudy, no odour, no sheen
6:43	-	10	26.7	321	22.2	8326	8596	-	6.54	-194.7	slightly tan, slightly cloudy, no odour, no sheen
6:48	-	20	26.7	114.9	12.87	8323	8593	-	6.54	-198	slightly tan, slightly cloudy, no odour, no sheen
6:53	-	30	26.7	103	8.7	8325	8585	-	6.54	-201.8	slightly tan, slightly cloudy, no odour, no sheen
6:58	-	40	26.7	74.3	5.6	8315	8574	-	6.54	-204.5	very slightly tan, very slightly cloudy, no odour, no sheen
7:03	-	50	26.7	47.3	4.06	8337	8610	-	6.54	-206.6	very slightly tan, very slightly cloudy, no odour, no sheen
7:08	-	60	26.7	49.8	4.08	8325	8607	-	6.53	-208.7	very slightly tan, very slightly cloudy, no odour, no sheen
7:13	-	70	26.7	44.6	3.83	8347	8624	-	6.53	-209.7	very slightly tan, very slightly cloudy, no odour, no sheen
Sampled											

Purging should continue until measurements for pH are within 0.05 pH unit; conductivity within 3%; DO within 10%; Redox within 10mV and Temperature within 0.5 °C over three successive measurements

Groundwater Purging Record Sheet



Client: Alice Springs Town Council	Job no: AAQ 06 023.26	Well No. MW5A
Project: ASTC Landfill Monitoring - March 2024	Date: 3/03/2024	
Location: West side amongst recycling	Logged: DPB	
Depth to Groundwater: 12.277m	Comments: 	
Weather: Overcast & 32°C		
Purging Method: Waterra Tube & Footvalve		
Purging Equipment: Pump		
Start Time: 10:50am		
Finish Time: 11:30am		

Time	Depth (m)	Purged (L)	Temp (°C)	DO (%)	DO (mg/L)	SPC (µs/cm)	Cond (µs/cm)	TDS (ppm)	pH	Redox (mV)	Appearance (colour, turbidity, odour, sheen)
10:51	-	0	26.8	204	16.5	5114	5276	-	6.57	-87.1	very slightly tan, very slightly cloudy, no odour, no sheen
10:54	-	10	26.5	99.5	7.18	5028	5174	-	6.59	-95.3	very slightly tan, very slightly cloudy, no odour, no sheen
10:58	-	20	26.4	66.6	4.49	4984	5099	-	6.6	-111	very slightly tan, very slightly cloudy, no odour, no sheen
11:02	-	30	26.4	42.9	2.98	4955	5089	-	6.59	-123.6	colourless, clear, no odour, no sheen
11:07	-	40	26.4	24.2	1.75	4931	5061	-	6.59	-130.5	colourless, clear, no odour, no sheen
11:11	-	50	26.5	25.7	1.96	4920	5048	-	6.59	-132.2	colourless, clear, no odour, no sheen
11:15	-	60	26.5	17.3	1.67	4909	5047	-	6.59	-132.2	colourless, clear, no odour, no sheen
11:20	-	70	26.5	20.4	1.78	4901	5038	-	6.59	-133.5	colourless, clear, no odour, no sheen
11:25	-	80	26.5	19.6	1.71	4900	5040	-	6.59	-133.9	colourless, clear, no odour, no sheen
Sampled											

Purging should continue until measurements for pH are within 0.05 pH unit; conductivity within 3%; DO within 10%; Redox within 10mV and Temperature within 0.5 °C over three successive measurements

Groundwater Purging Record Sheet



Client: Alice Springs Town Council Project: ASTC Landfill Monitoring - March 2024 Location: In fill	Job no: AAQ 06 023.26 Date: 3/03/2024 Logged: DPB	Well No. MW6A
Depth to Groundwater: 25.753m Weather: Overcast & 29°C Purging Method: Waterra Tube & Footvalve Purging Equipment: Pump Start Time: 9:43am Finish Time: 10:30am	Comments: 	

Time	Depth (m)	Purged (L)	Temp (°C)	DO (%)	DO (mg/L)	SPC (µs/cm)	Cond (µs/cm)	TDS (ppm)	pH	Redox (mV)	Appearance (colour, turbidity, odour, sheen)
9:47	-	0	29.9	193.6	15.6	3760	4126	-	6.67	-304	dark grey, cloudy, lots of dead ants
9:51	-	10	29.2	71.3	5.67	3673	3963	-	6.72	-297	slightly grey, slightly cloudy, less ants
9:56	-	20	29.1	38.3	2.86	3698	3990	-	6.62	-291	slightly grey, slightly cloudy, less ants
10:00	-	30	29.2	35.5	2.64	3686	3987	-	6.59	-232.1	slightly grey, slightly cloudy, less ants
10:05	-	40	29.2	32.2	2.45	3678	3967	-	6.58	-198.7	very slightly grey, very slightly cloudy, no ants
10:09	-	50	29.2	31.4	2.38	3670	3964	-	6.58	-160.2	very slightly grey, very slightly cloudy, no ants
10:14	-	60	29.1	29.2	2.22	3661	3948	-	6.58	-134.3	very slightly grey, very slightly cloudy, no ants
10:18	-	70	29.2	30.6	2.3	3658	3956	-	6.57	-121.7	very slightly grey, very slightly cloudy, no ants
10:23	-	80	29.2	31	2.39	3653	3950	-	6.57	-104.2	very slightly grey, very slightly cloudy, no ants
10:27	-	90	29.2	31.4	2.4	3649	3941	-	6.57	-95.6	very slightly grey, very slightly cloudy, no ants
Sampled											

Purging should continue until measurements for pH are within 0.05 pH unit; conductivity within 3%; DO within 10%; Redox within 10mV and Temperature within 0.5 °C over three successive measurements

Groundwater Purging Record Sheet



Client: Alice Springs Town Council Project: ASTC Landfill Monitoring - March 2024 Location: North east corner	Job no: AAQ 06 023.26 Date: 4/03/2024 Logged: DPB	Well No. MW7A
Depth to Groundwater: 10.343m Weather: Fine & 28°C Purging Method: Waterra Tube & Footvalve Purging Equipment: Pump Start Time: 7:50am Finish Time: 8:50am	Comments: 	

Time	Depth (m)	Purged (L)	Temp (°C)	DO (%)	DO (mg/L)	SPC (µs/cm)	Cond (µs/cm)	TDS (ppm)	pH	Redox (mV)	Appearance (colour, turbidity, odour, sheen)
7:51	-	0	27.2	60	4.88	3715	3846	-	6.86	-213.9	colourless, very slightly cloudy, no odour, no sheen
7:56	-	10	26.6	-	-	3598	3709	-	6.76	-248.7	colourless, very slightly cloudy, no odour, no sheen
8:00	-	20	26.8	-	-	3588	3713	-	6.74	-238.7	colourless, very slightly cloudy, no odour, no sheen
8:05	-	30	26.8	-	-	3574	3703	-	6.72	-221.2	colourless, very slightly cloudy, no odour, no sheen
8:10	-	40	26.8	-	-	3561	3700	-	6.72	-198.8	colourless, very slightly cloudy, no odour, no sheen
8:15	-	50	26.8	-	-	3561	3703	-	6.72	-175.2	slightly tan, slightly cloudy, no odour, no sheen
8:20	-	60	26.8	-	-	3582	3722	-	6.72	-155.4	slightly tan, slightly cloudy, no odour, no sheen
8:25	-	70	26.8	-	-	3608	3760	-	6.72	-142.9	slightly tan, slightly cloudy, no odour, no sheen
8:30	-	80	26.8	-	-	3627	3776	-	6.72	-134.7	slightly tan, slightly cloudy, no odour, no sheen
8:35	-	90	26.8	-	-	3638	3786	-	6.72	-134.1	colourless, very slightly cloudy, no odour, no sheen
8:40	-	100	26.8	-	-	3641	3788	-	6.72	-135.2	colourless, very slightly cloudy, no odour, no sheen
8:45	-	110	26.8	-	-	3644	3790	-	6.72	-136.3	colourless, very slightly cloudy, no odour, no sheen
Sampled											

Purging should continue until measurements for pH are within 0.05 pH unit; conductivity within 3%; DO within 10%; Redox within 10mV and Temperature within 0.5 °C over three successive measurements

Groundwater Purging Record Sheet



Client: Project: Location:	Alice Springs Town Council ASTC Landfill Monitoring - March 2024 Western well	Job no: Date: Logged:	AAQ 06 023.26 5/03/2024 DPB	Well No. MW81
Depth to Groundwater: Weather: Purging Method: Purging Equipment: Start Time: Finish Time:	7.917m Cloudy & 34°C Waterra Tube & Footvalve Pump 10:49am 11:30am	Comments:		

Time	Depth (m)	Purged (L)	Temp (°C)	DO (%)	DO (mg/L)	SPC (µs/cm)	Cond (µs/cm)	TDS (ppm)	pH	Redox (mV)	Appearance (colour, turbidity, odour, sheen)
10:50	-	0	27.3	68.6	4.83	6313	6576	-	6.69	-272.9	cream, cloudy, no odour, no sheen
10:55	-	10	26.9	-	-	6290	6521	-	6.68	-266.5	light cream, slightly cloudy, no odour, no sheen
11:00	-	20	27.2	-	-	6260	6563	-	6.68	-266.4	light cream, slightly cloudy, no odour, no sheen
11:05	-	30	27.2	-	-	6272	6557	-	6.68	-263.7	light cream, slightly cloudy, no odour, no sheen
11:10	-	40	27.2	-	-	6294	6532	-	6.68	-199.8	light cream, slightly cloudy, no odour, no sheen
11:14	-	50	27.2	-	-	6297	6571	-	6.72	-145.8	light cream, slightly cloudy, no odour, no sheen
11:18	-	60	27.2	-	-	6293	6577	-	6.69	-181.4	light cream, slightly cloudy, no odour, no sheen
11:22	-	70	27.2	-	-	6288	6575	-	6.69	-182.3	light cream, slightly cloudy, no odour, no sheen
11:27	-	80	27.2	-	-	6290	6576	-	6.69	-184.7	light cream, slightly cloudy, no odour, no sheen
Sampled											

Purging should continue until measurements for pH are within 0.05 pH unit; conductivity within 3%; DO within 10%; Redox within 10mV and Temperature within 0.5 °C over three successive measurements

Groundwater Purging Record Sheet



Client: Alice Springs Town Council Project: ASTC Landfill Monitoring - March 2024 Location: West boundary west of MW5	Job no: AAQ 06 023.26 Date: 3/03/2024 Logged: DPB	Well No. MW82
Depth to Groundwater: 13.614m Weather: Overcast & 31°C Purging Method: Waterra Tube & Footvalve Purging Equipment: Pump Start Time: 11:45am Finish Time: 12:23pm	Comments: 	

Time	Depth (m)	Purged (L)	Temp (°C)	DO (%)	DO (mg/L)	SPC (µs/cm)	Cond (µs/cm)	TDS (ppm)	pH	Redox (mV)	Appearance (colour, turbidity, odour, sheen)
11:46	-	0	27.9	41.7	3.5	4024	4240	-	6.59	-139.9	light tan, cloudy, no odour, no sheen
11:51	-	10	27.5	0	0	3976	4164	-	6.59	-139.2	light tan, cloudy, no odour, no sheen
11:56	-	20	27.4	0	0	3961	4144	-	6.59	-149.2	light tan, cloudy, no odour, no sheen
12:00	-	30	27.3	0	0	3944	4115	-	6.59	-155	light tan, cloudy, no odour, no sheen
12:04	-	40	27.3	0	0	3943	4115	-	6.59	-155.3	light tan, cloudy, no odour, no sheen
12:09	-	50	27.3	0	0	3930	4106	-	6.59	-156.4	light tan, cloudy, no odour, no sheen
12:13	-	60	27.3	0	0	3925	4097	-	6.59	-156.8	light tan, cloudy, no odour, no sheen
12:18	-	70	27.3	0	0	3921	4092	-	6.59	-157.5	light tan, cloudy, no odour, no sheen
12:23	-	80	27.3	0	0	3920	4090	-	6.59	-158.1	light tan, cloudy, no odour, no sheen
Sampled											

Purging should continue until measurements for pH are within 0.05 pH unit; conductivity within 3%; DO within 10%; Redox within 10mV and Temperature within 0.5 °C over three successive measurements

Groundwater Purging Record Sheet



Client: Alice Springs Town Council Project: ASTC Landfill Monitoring - March 2024 Location: In rows of mulch	Job no: AAQ 06 023.26 Date: 3/03/2024 Logged: DPB	Well No. MW83
Depth to Groundwater: 15.870m Weather: Cloudy & 33°C Purging Method: Waterra Tube & Footvalve Purging Equipment: Pump Start Time: 1:55pm Finish Time: 2:48pm	Comments: Footvalve blocked with grit and flow stopped. Cleared blockage and resumed. Footvalve fell off, replaced and resumed. 	

Time	Depth (m)	Purged (L)	Temp (°C)	DO (%)	DO (mg/L)	SPC (µs/cm)	Cond (µs/cm)	TDS (ppm)	pH	Redox (mV)	Appearance (colour, turbidity, odour, sheen)
1:55	-	0	26.9	32	1.54	2212	2286	-	6.68	-196.8	light tan, slightly cloudy, no odour, no sheen
1:59	-	10	27.1	0	0	2200	2287	-	6.68	-153.8	light tan, slightly cloudy, no odour, no sheen
2:03	-	20	27.1	0	0	2199	2287	-	6.68	-151.2	very slightly tan, very slightly cloudy, no odour, no sheen
2:07	-	30	27.1	0	0	2199	2287	-	6.68	-155.9	colourless, almost clear, no odour, no sheen
2:11	-	40	27.1	0	0	2197	2284	-	6.68	-151.7	colourless, almost clear, no odour, no sheen
2:15	-	50	27.2	2.2	0.21	2193	2289	-	6.68	-134.7	colourless, almost clear, no odour, no sheen
2:19	-	60	27.2	2.2	0.22	2192	2284	-	6.68	-132	colourless, almost clear, no odour, no sheen
2:35	-	70	27.3	3.3	0.28	2192	2294	-	6.68	-100.3	colourless, almost clear, no odour, no sheen
2:39	-	80	27.3	2.4	0.25	2190	2286	-	6.68	-106.9	colourless, almost clear, no odour, no sheen
2:43	-	90	27.3	2.3	0.23	2187	2283	-	6.68	-109.4	colourless, almost clear, no odour, no sheen
2:48	-	100	27.3	2.3	0.25	2185	2279	-	6.68	-112	colourless, almost clear, no odour, no sheen
Sampled											

Purging should continue until measurements for pH are within 0.05 pH unit; conductivity within 3%; DO within 10%; Redox within 10mV and Temperature within 0.5 °C over three successive measurements

Groundwater Purging Record Sheet



Client: Alice Springs Town Council Project: ASTC Landfill Monitoring - March 2024 Location: 1st east of MW3	Job no: AAQ 06 023.26 Date: 5/03/2024 Logged: DPB	Well No. MW84
Depth to Groundwater: 20.833m Weather: Fine & 26°C Purging Method: Waterra Tube & Footvalve Purging Equipment: Pump Start Time: 6:23am Finish Time: 7:15am	Comments: 	

Time	Depth (m)	Purged (L)	Temp (°C)	DO (%)	DO (mg/L)	SPC (µs/cm)	Cond (µs/cm)	TDS (ppm)	pH	Redox (mV)	Appearance (colour, turbidity, odour, sheen)
6:25	-	0	26.1	47.4	4.9	2273	2315	-	6.27	-70.2	colourless, very slightly cloudy, no odour, no sheen
6:30	-	10	26.3	30.2	2.42	2265	2321	-	6.53	-114.7	colourless, very slightly cloudy, no odour, no sheen
6:35	-	20	26.4	25	2.21	2263	2321	-	6.54	-111.5	colourless, very slightly cloudy, no odour, no sheen
6:40	-	30	26.3	41.4	3.32	2262	2321	-	6.55	-89.9	colourless, very slightly cloudy, no odour, no sheen
6:45	-	40	26.4	51.9	4.2	2261	2320	-	6.57	-68.2	colourless, very slightly cloudy, no odour, no sheen
6:50	-	50	26.4	70.4	6.9	2258	2320	-	6.53	-49.8	colourless, very slightly cloudy, no odour, no sheen
6:55	-	60	26.4	118.3	9.66	2256	2315	-	6.59	-37.8	colourless, very slightly cloudy, no odour, no sheen
7:00	-	70	26.4	149.1	11.62	2254	2317	-	6.6	-27.9	colourless, very slightly cloudy, no odour, no sheen
7:05	-	80	26.4	169.6	12.63	2258	2318	-	6.6	-26.5	colourless, very slightly cloudy, no odour, no sheen
7:10	-	90	26.4	155.7	11.91	2257	2318	-	6.6	-26.3	colourless, very slightly cloudy, no odour, no sheen
Sampled											

Purging should continue until measurements for pH are within 0.05 pH unit; conductivity within 3%; DO within 10%; Redox within 10mV and Temperature within 0.5 °C over three successive measurements

Groundwater Purging Record Sheet



Client: Alice Springs Town Council Project: ASTC Landfill Monitoring - March 2024 Location: Fence east side	Job no: AAQ 06 023.26 Date: 5/03/2024 Logged: DPB	Well No. MW85
Depth to Groundwater: 15.331m Weather: Fine & 27°C Purging Method: Waterra Tube & Footvalve Purging Equipment: Pump Start Time: 7:35am Finish Time: 8:30am	Comments: 	

Time	Depth (m)	Purged (L)	Temp (°C)	DO (%)	DO (mg/L)	SPC (µs/cm)	Cond (µs/cm)	TDS (ppm)	pH	Redox (mV)	Appearance (colour, turbidity, odour, sheen)
7:36	-	0	26.7	80.4	6.72	1223	1438	-	6.61	-42	light tan, slightly cloudy, no odour, no sheen
7:41	-	10	26.4	157	12.42	2367	2420	-	6.74	-82.7	light tan, slightly cloudy, no odour, no sheen
7:46	-	20	26.3	265	30.4	1767	1806	-	6.83	-8.4	light tan, slightly cloudy, no odour, no sheen
7:51	-	30	26.3	261	29.9	1747	1786	-	6.83	-4.5	slightly light tan, slightly cloudy, no odour, no sheen
7:56	-	40	26.4	-	-	1701	1744	-	6.84	2.6	slightly light tan, slightly cloudy, no odour, no sheen
8:01	-	50	26.3	-	-	1676	1719	-	6.85	6.7	slightly light tan, slightly cloudy, no odour, no sheen
8:06	-	60	26.3	-	-	1669	1710	-	6.85	10.8	slightly light tan, slightly cloudy, no odour, no sheen
8:11	-	70	26.3	-	-	1662	1705	-	6.85	14.2	slightly light tan, slightly cloudy, no odour, no sheen
8:16	-	80	26.3	-	-	1656	1699	-	6.85	19.3	slightly light tan, slightly cloudy, no odour, no sheen
8:21	-	90	26.3	-	-	1652	1696	-	6.85	22.1	slightly light tan, slightly cloudy, no odour, no sheen
8:26	-	100	26.3	-	-	1654	1697	-	6.85	23.7	slightly light tan, slightly cloudy, no odour, no sheen
Sampled											

Purging should continue until measurements for pH are within 0.05 pH unit; conductivity within 3%; DO within 10%; Redox within 10mV and Temperature within 0.5 °C over three successive measurements

Groundwater Purging Record Sheet



Client: Alice Springs Town Council Project: ASTC Landfill Monitoring - March 2024 Location: North of MW6A	Job no: AAQ 06 023.26 Date: 4/03/2024 Logged: DPB	Well No. MW86
Depth to Groundwater: 21.628m Weather: Overcast & 30°C Purging Method: Waterra Tube & Footvalve Purging Equipment: Pump Start Time: 9:04am Finish Time: 10:00am	Comments: 	

Time	Depth (m)	Purged (L)	Temp (°C)	DO (%)	DO (mg/L)	SPC (µs/cm)	Cond (µs/cm)	TDS (ppm)	pH	Redox (mV)	Appearance (colour, turbidity, odour, sheen)
9:05	-	0	27.2	20	1.57	3600	3761	-	6.64	-213.2	tan, cloudy, no odour, no sheen
9:10	-	10	27.1	-	-	3540	3685	-	6.64	-167.2	tan, cloudy, no odour, no sheen
9:15	-	15	27.1	6.5	0.51	3451	3592	-	6.65	-142.8	slightly tan, slightly cloudy, no odour, no sheen
9:20	-	20	27.1	14.7	1.24	3420	3570	-	6.65	-128.8	slightly tan, slightly cloudy, no odour, no sheen
9:25	-	30	27.1	9.8	0.77	3384	3511	-	6.65	-114.3	slightly tan, slightly cloudy, no odour, no sheen
9:30	-	40	27.1	19.5	1.53	3364	3491	-	6.65	-103.7	slightly tan, slightly cloudy, no odour, no sheen
9:35	-	50	27.1	19.6	1.55	3347	3492	-	6.65	-100.9	slightly tan, slightly cloudy, no odour, no sheen
9:40	-	60	27.1	19.3	1.5	3328	3481	-	6.64	-94.8	slightly tan, slightly cloudy, no odour, no sheen
9:45	-	70	27.1	26.6	2.1	3314	3460	-	6.64	-86.8	slightly tan, slightly cloudy, no odour, no sheen
9:50	-	80	27.1	26.3	2.09	3307	3452	-	6.64	-85.1	slightly tan, slightly cloudy, no odour, no sheen
9:55	-	90	27.1	25.8	2.03	3302	3450	-	6.64	-84.7	slightly tan, slightly cloudy, no odour, no sheen
Sampled											

Purging should continue until measurements for pH are within 0.05 pH unit; conductivity within 3%; DO within 10%; Redox within 10mV and Temperature within 0.5 °C over three successive measurements

Groundwater Purging Record Sheet



Client: Alice Springs Town Council Project: ASTC Landfill Monitoring - March 2024 Location: West of access ramp in fill	Job no: AAQ 06 023.26 Date: 5/03/2024 Logged: DPB	Well No. MW87
Depth to Groundwater: Weather: Overcast & 30°C Purging Method: Waterra Tube & Footvalve Purging Equipment: Pump Start Time: 12:17pm Finish Time: 1:25pm	Comments: Although approx. 100L removed during development drilling foam (North Star Foam Ultra Star) still present. Website says biodegradable and will not contaminate. Ran pump for longer than required before sampling to remove more foam.	

Time	Depth (m)	Purged (L)	Temp (°C)	DO (%)	DO (mg/L)	SPC (µs/cm)	Cond (µs/cm)	TDS (ppm)	pH	Redox (mV)	Appearance (colour, turbidity, odour, sheen)
12:18	-	0	30.9	15.4	1.04	6557	7649	-	6.5	-125.6	slightly tan, slightly cloudy, foaming, no odour
12:23	-	10	30.7	-	-	6492	7205	-	6.52	-116.6	slightly tan, slightly cloudy, foaming, no odour
12:28	-	20	30.6	-	-	6465	7156	-	6.53	-110.6	slightly tan, slightly cloudy, foaming, no odour
12:33	-	30	30.7	-	-	6443	7168	-	6.53	-105.4	slightly tan, slightly cloudy, foaming, no odour
12:38	-	40	30.7	-	-	6423	7137	-	6.52	-110.7	slightly tan, slightly cloudy, foaming, no odour
12:43	-	50	30.7	-	-	6426	7140	-	6.52	-118.2	slightly tan, slightly cloudy, foaming, no odour
12:48	-	60	30.7	-	-	6432	7145	-	6.52	-124.6	slightly tan, slightly cloudy, foaming, no odour
12:53	-	70	30.7	-	-	6431	7149	-	6.51	-124.6	slightly tan, slightly cloudy, foaming, no odour
12:58	-	80	30.7	-	-	6438	7142	-	6.51	-123	slightly tan, slightly cloudy, foaming, no odour
1:03	-	90	30.7	-	-	6442	7145	-	6.51	-120.9	slightly tan, slightly cloudy, foaming, no odour
1:08	-	100	30.7	-	-	6438	7144	-	6.5	-124.7	slightly tan, slightly cloudy, foaming, no odour
1:13	-	110	30.7	-	-	6436	7141	-	6.5	-124.4	slightly tan, slightly cloudy, foaming, no odour
1:18	-	120	30.7	-	-	6434	7140	-	6.5	-123.7	slightly tan, slightly cloudy, foaming, no odour
1:23	-	130	30.7	-	-	6435	7142	-	6.5	-122.9	slightly tan, slightly cloudy, foaming, no odour
Sampled											

Purging should continue until measurements for pH are within 0.05 pH unit; conductivity within 3%; DO within 10%; Redox within 10mV and Temperature within 0.5 °C over three successive measurements

Groundwater Purging Record Sheet



Client:	Alice Springs Town Council	Job no:	AAQ 06 023.26	Well No. SW2
Project:	ASTC Landfill Monitoring - March 2024	Date:	3/03/2024	
Location:	Pond next to hazardous waste shelter	Logged:	DPB	
Depth to Groundwater:	NA	Comments:		
Weather:	Fine & 30°C			
Purging Method:	NA			
Purging Equipment:	NA			
Start Time:	8:20am			
Finish Time:	8:45am			

[illegible]

Purging should continue until measurements for pH are within 0.05 pH unit; conductivity within 3%; DO within 10%; Redox within 10mV and Temperature within 0.5 °C over three successive measurements

APPENDIX F
RESULTS TABLES



	Inorganics																	Metals																									
	Turbidity	Alkalinity (Bicarbonate as CaCO3)	Carbonate as CaCO3	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Ammonia as N	Ammonia as HN3 (calculated)	BOD	Chloride	COD	Ferrous Iron	Kjeldahl Nitrogen Total	Nitrogen (Organic)	Sodium	Sulphate	TOC	Hardness as CaCO3	Antimony (Filtered)	Arsenic (Filtered)	Barium (Filtered)	Beryllium (Filtered)	Cadmium (Filtered)	Calcium	Chromium (hexavalent) (Filtered)	Chromium (III+VI) (Filtered)	Chromium (Trivalent) (Filtered)	Cobalt (Filtered)	Copper (Filtered)	Ferric Iron	Iron (Filtered)	Lead (Filtered)	Magnesium	Manganese (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Potassium	Selenium (Filtered)	Silver (Filtered)	Thallium (Filtered)	Vanadium (Filtered)	Zinc (Filtered)	4,4-DDE	a-BHC
EQL	1	20	10	20	20	0.01	mg/L	5	1	25	0.05	0.2	0.2	0.5	5	5	5	0.005	0.001	0.02	0.001	0.0002	0.5	0.005	0.001	0.005	0.001	0.001	0.05	0.05	0.001	0.5	0.005	0.0001	0.001	0.5	0.001	0.005	0.005	0.005	0.005	5	5
ADWG Health & Aesthetic	5						0.5		250					180	250		200	0.003	0.01	2	0.06	0.002		0.05				1	0.4		0.3	0.01		0.1		0.01	0.1			3			
ANZECC Livestock																			0.5				0.01			1		1			0.1			0.002	1		0.02			20			
ANZG Freshwater 95%						0.9																0.0002		0.0004				0.0014			0.0034		1.9	0.0006	0.011		0.011	0.00005		0.008			

Location	Sample Date																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			</
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Number of Results	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15</



	Phenols (non-Halogenated)								Phenols (Halogenated)							Polychlorinated Biphenyls							TRH													
	2,4-dimethylphenol	2,4-dinitrophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4,6-Dinitro-2-methylphenol	4-nitrophenol	Phenol	2,3,4,6-tetrachlorophenol	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,6-dichlorophenol	2-chlorophenol	4-chloro-3-methylphenol	Pentachlorophenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	C6-C10	C6-C10 less BTEX (F1)	C10-C16	C10-C16 less NAPHTHALENE (F2)	C16-C34	C34-C40	C10 - C40 (Sum of total)	C6 - C9	C10 - C14	C15 - C28	C29-C36	+C10 - C36 (Sum of total)
	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
EQL	3	0.03	3	10	6	30	30	3	10	10	10	3	3	3	10	10	5	5	5	5	5	5	5	5	0.02	0.02	0.05	0.05	0.1	0.1	100	20	50	100	100	100
ADWG Health & Aesthetic											2	0.3		0.1		10																				
ANZECC Livestock																																				
ANZG Freshwater 95%	0.045						320	20	20	20	160		490		10				0.6		0.03															

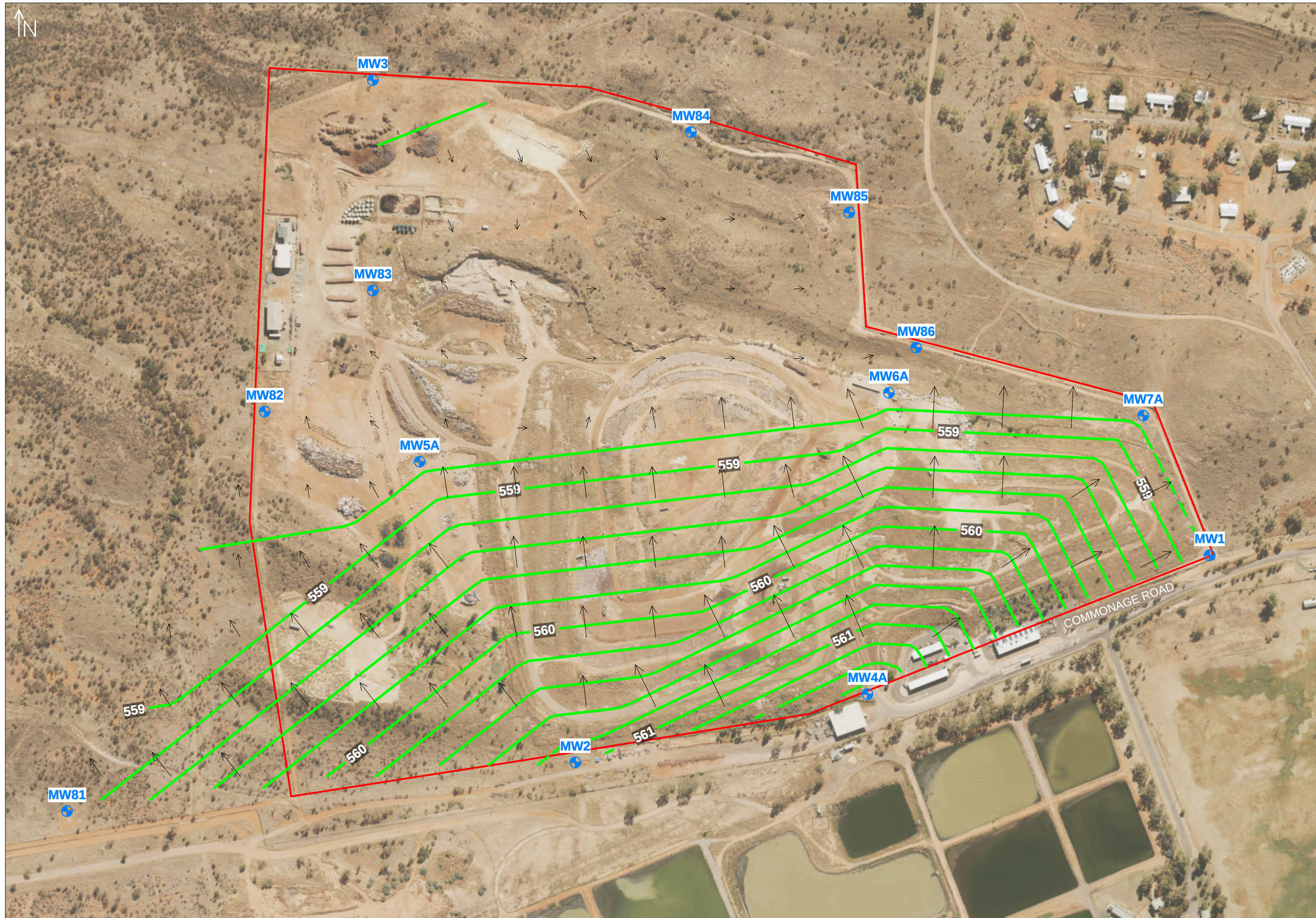
Location	Sample Date	<3	<0.03	<3	<10	<6	<30	<30	<3	<10	<10	<10	<3	<3	<3	<10	<10	<5	<5	<5	<5	<5	<5	<5	<0.02	<0.02	<0.05	<0.05	<0.1	<0.1	<100	<20	<50	<100	<100	<100
MW1	4/03/2024	<3	<0.03	<3	<10	<6	<30	<30	<3	<10	<10	<10	<3	<3	<3	<10	<10	<5	<5	<5	<5	<5	<5	<5	<0.02	<0.02	<0.05	<0.05	<0.1	<0.1	<100	<20	<50	<100	<100	<100
MW2	4/03/2024	<3	<0.03	<3	<10	<6	<30	<30	<3	<10	<10	<10	<3	<3	<3	<10	<10	<5	<5	<5	<5	<5	<5	<5	<0.02	<0.02	<0.05	<0.05	<0.1	<0.1	<100	<20	<50	<100	<100	<100
MW3	5/03/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	
MW4A	4/03/2024	<3	<0.03	<3	<10	<6	<30	<30	<3	<10	<10	<10	<3	<3	<3	<10	<10	<5	<5	<5	<5	<5	<5	<5	<0.02	<0.02	<0.05	<0.05	<0.1	<0.1	<100	<20	<50	<100	<100	<100
MW5A	4/03/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	
MW6A	4/03/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	
MW7A	4/03/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	
MW81	5/03/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	
MW82	4/03/2024	<3	<0.03	<3	<10	<6	<30	<30	<3	<10	<10	<10	<3	<3	<3	<10	<10	<5	<5	<5	<5	<5	<5	<5	<0.02	<0.02	<0.05	<0.05	<0.1	<0.1	<100	<20	<50	<100	<100	<100
MW83	4/03/2024	<3	<0.03	<3	<10	<6	<30	<30	<3	<10	<10	<10	<3	<3	<3	<10	<10	<5	<5	<5	<5	<5	<5	<5	<0.02	<0.02	<0.05	<0.05	<0.1	<0.1	<100	<20	<50	<100	<100	<100
MW84	5/03/2024	<3	<0.03	<3	<10	<6	<30	<30	<3	<10	<10	<10	<3	<3	<3	<10	<10	<5	<5	<5	<5	<5	<5	<5	<0.02	<0.02	<0.05	<0.05	<0.1	<0.1	<100	<20	<50	<100	<100	<100
MW85	5/03/2024	<3	<0.03	<3	<10	<6	<30	<30	<3	<10	<10	<10	<3	<3	<3	<10	<10	<5	<5	<5	<5	<5	<5	<5	<0.02	<0.02	<0.05	<0.05	<0.1	<0.1	<100	<20	<50	<100	<100	<100
MW86	4/03/2024	<3	<0.03	<3	<10	<6	<30	<30	<3	<10	<10	<10	<3	<3	<3	<10	<10	<5	<5	<5	<5	<5	<5	<5	<0.02	<0.02	<0.05	<0.05	<0.1	<0.1	<100	<20	<50	<100	<100	<100
MW87	5/03/2024	<3	<0.03	<3	<10	<6	<30	<30	<3	<10	<10	<10	<3	<3	<3	<10	<10	<5	<5	<5	<5	<5	<5	<5	<0.2	<0.2	5.7	5.7	1.1	<0.1	6,800	<200	5,600	1,200	200	7,000
SW2	4/03/2024	<3	<0.03	<3	<10	<6	<30	<30	<3	<10	<10	<10	<3	<3	<3	<10	<10	<5	<5	<5	<5	<5	<5	<5	<0.02	<0.02	<0.05	<0.05	<0.1	<0.1	<100	<20	<50	<100	<100	<100

Statistical Summary																																				
Number of Results	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	15	15	15	15	15	15	15	15	10	10	10	10	10	10	10	10	10	10	10	10
Maximum Concentration	<3	<0.03	<3	<10	<6	<30	<30	<3	<10	<10	<10	<3	<3	<3	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5	<0.2	<0.2	5.7	5.7	1.1	<0.1	6800	<200	5600	1200	200	7000



		SVOCs																																															
		Benzyl chloride	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	Bis(2-chloroethoxy) methane	Bis(2-chloroisopropyl) ether	Dibenz(a,i)acridine	Dibenzofuran	N-nitrosopiperidine	N-nitrosodi-n-butylamine	N-nitrosodi-n-propylamine	1-naphthylamine	2-naphthylamine	Diphenylamine	2-nitroaniline	Aniline	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	1,2,3,4-tetrachlorobenzene	1,2,3,5-Tetrachlorobenzene	1,2,3-trichlorobenzene	1,2,4,5-tetrachlorobenzene	1,2,4-trichlorobenzene	1,3,5-Trichlorobenzene	Pentachlorobenzene	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	1-Chloronaphthalene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	Pronamide	Trifluralin			
		mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L			
EQL		0.005	5	5	5	5	5	5	5	5	5	0.005	5	5	5	5	5	5	5	5	5	5	5	50	0.005	0.005	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0.005	
ADWG Health & Aesthetic			0.7																																											70	0.09		
ANZECC Livestock																																																	
ANZG Freshwater 95%					360																250	65		550				10		170								1000	3700	26									0.0044
Location	Sample Date																																																
MW1	4/03/2024	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.005	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.005			
MW2	4/03/2024	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.005	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.005		
MW3	5/03/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
MW4A	4/03/2024	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.005	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.005		
MW5A	4/03/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
MW6A	4/03/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
MW7A	4/03/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
MW81	5/03/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
MW82	4/03/2024	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.005	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.005		
MW83	4/03/2024	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.005	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.005		
MW84	5/03/2024	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.005	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.005		
MW85	5/03/2024	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.005	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.005		
MW86	4/03/2024	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.005	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.005		
MW87	5/03/2024	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.005	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.005		
SW2	4/03/2024	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.005	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.005		
Statistical Summary																																																	
Number of Results		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10			
Maximum Concentration		<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.005	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.005		

APPENDIX G
GROUNDWATER LEVELS AND CONTOURS

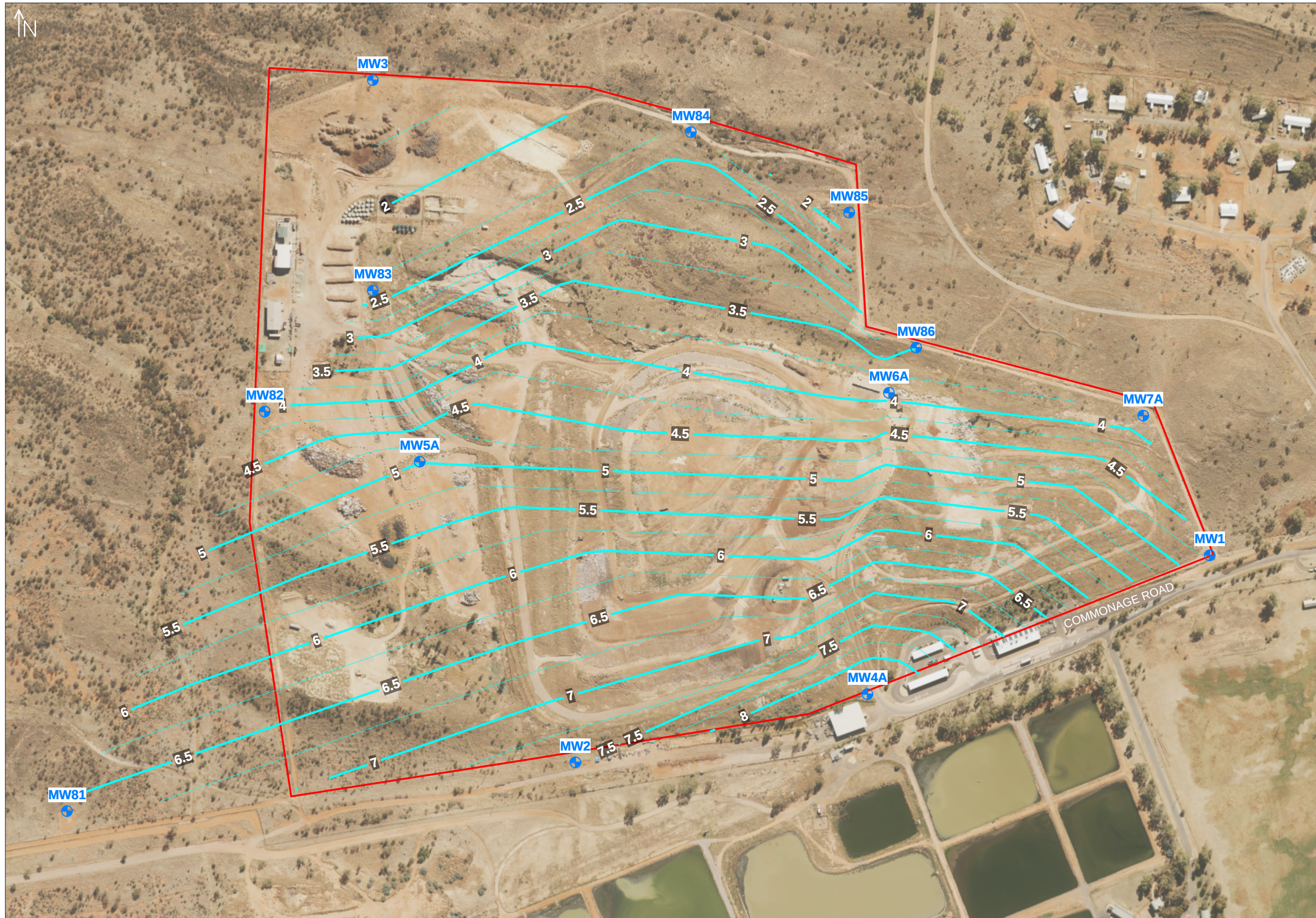


- Notes:
1. Groundwater contours generated by Surfer software with a grid generated using triangulation with linear interpolation.
 2. Base aerial photo from Aerometrex dated June 2023.
 3. MW86 was omitted from the contours as no water level data was obtained for this well.

Legend

- MW2  Groundwater monitoring well
- 560 — Groundwater level contour (m AHD)
- Landfill boundary

Figure 6 - Groundwater Level Contours
Alice Springs Town Council Regional Waste Management Facility
Monitoring Report - March 2024



Notes:
1. Salinity contours generated by Surfer software with a grid generated using triangulation with linear interpolation.
2. Base aerial photo from Aerometrex dated June 2023.

Legend

- MW2 Groundwater monitoring well
- 2000— Salinity contour (ppm)
- Landfill boundary

Figure 7 - Groundwater Salinity Contours
Alice Springs Town Council Regional Waste Management Facility
Monitoring Report - March 2024

Revision A, 17 June 2024

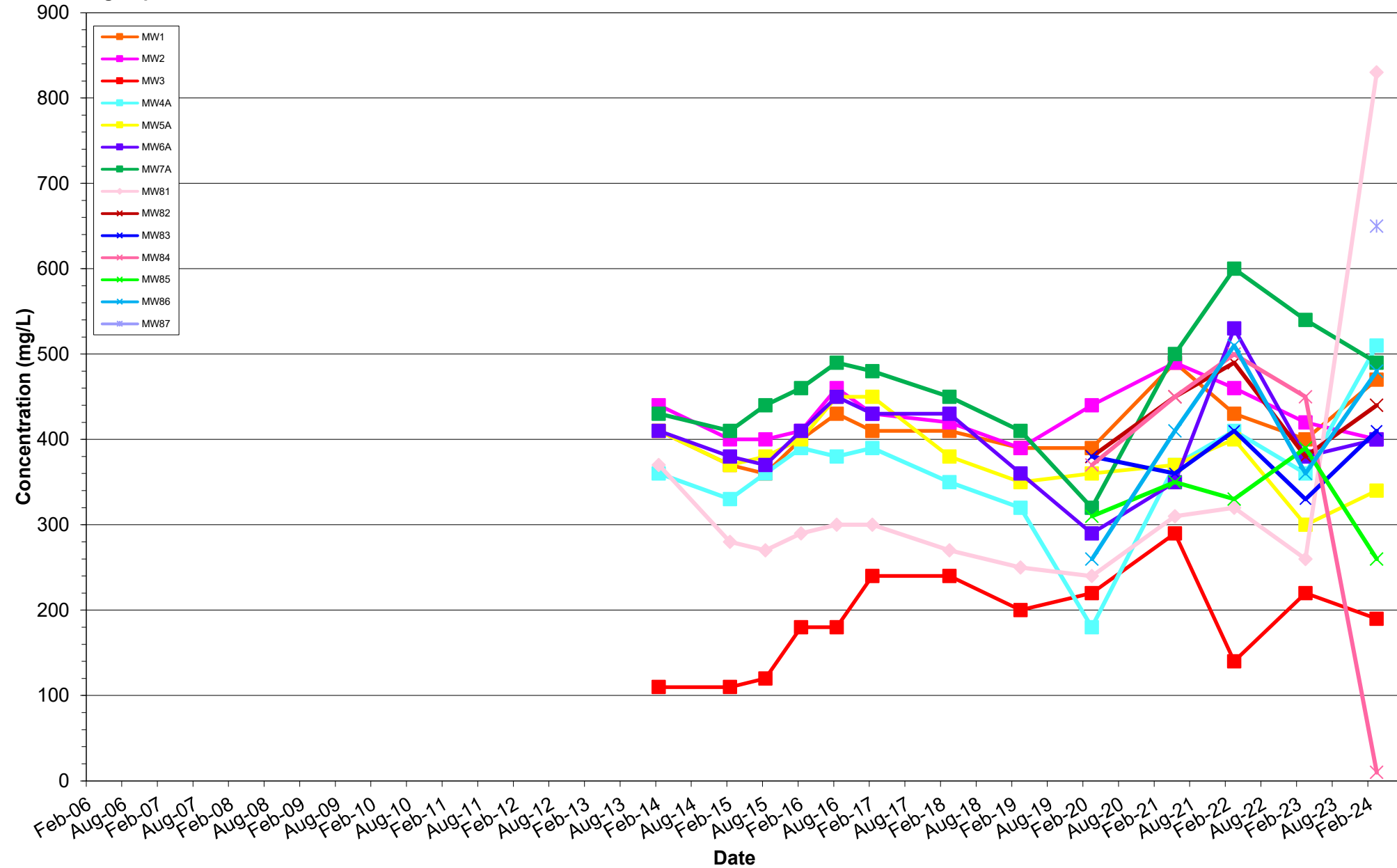
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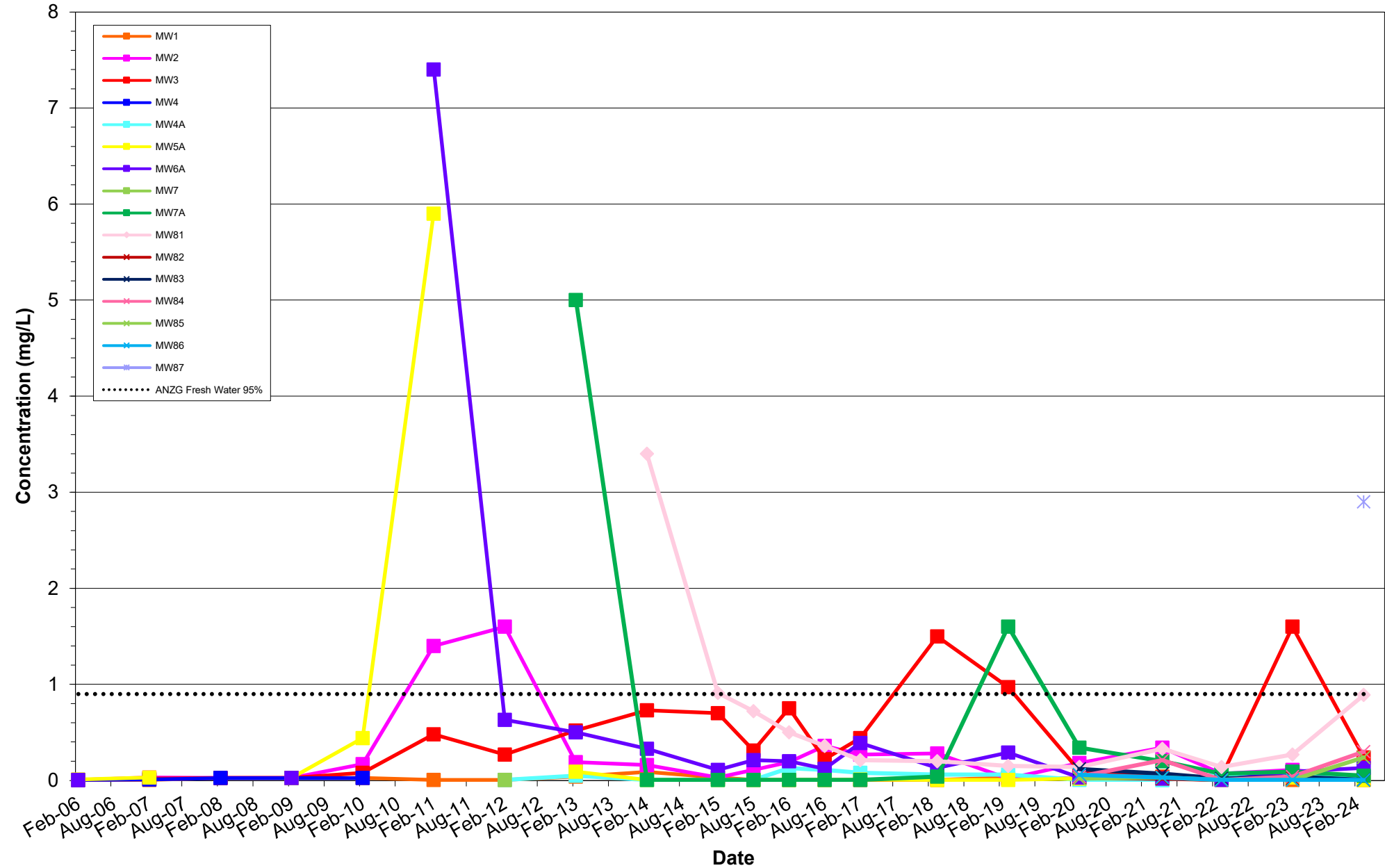


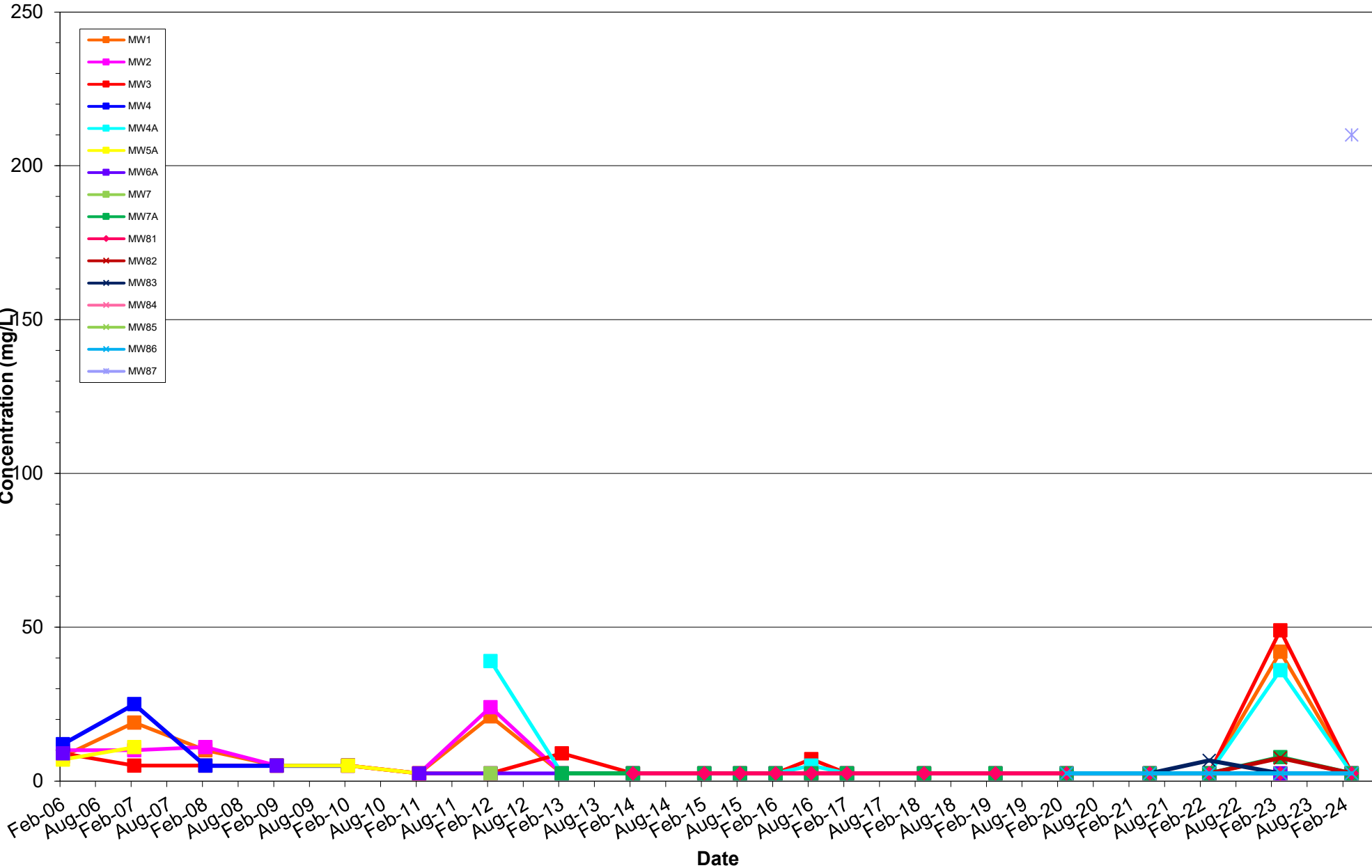
APPENDIX H
GROUNDWATER TRENDS

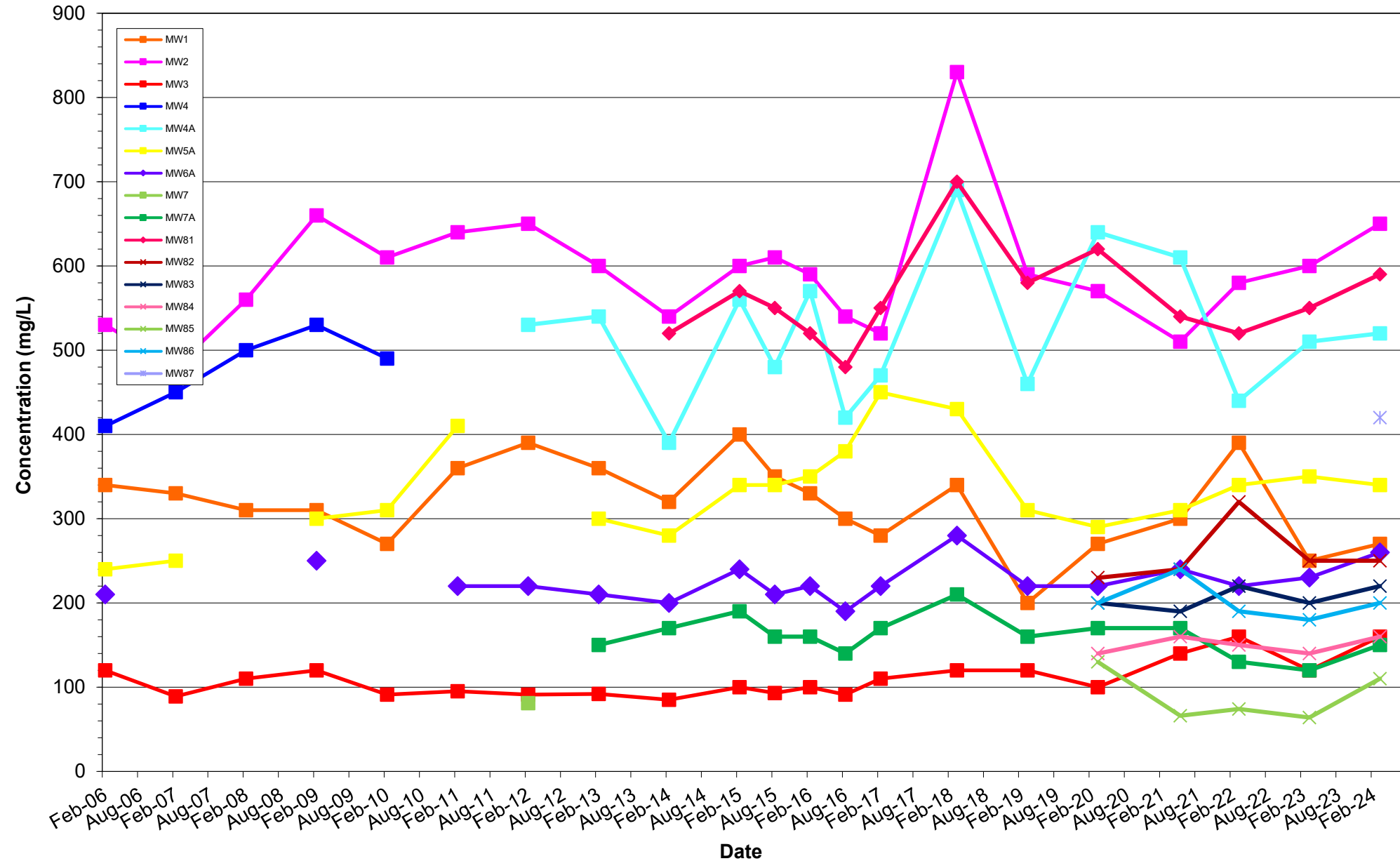
ASTC Regional Waste Management Facility
Environmental Performance
Monitoring Report - March 2024

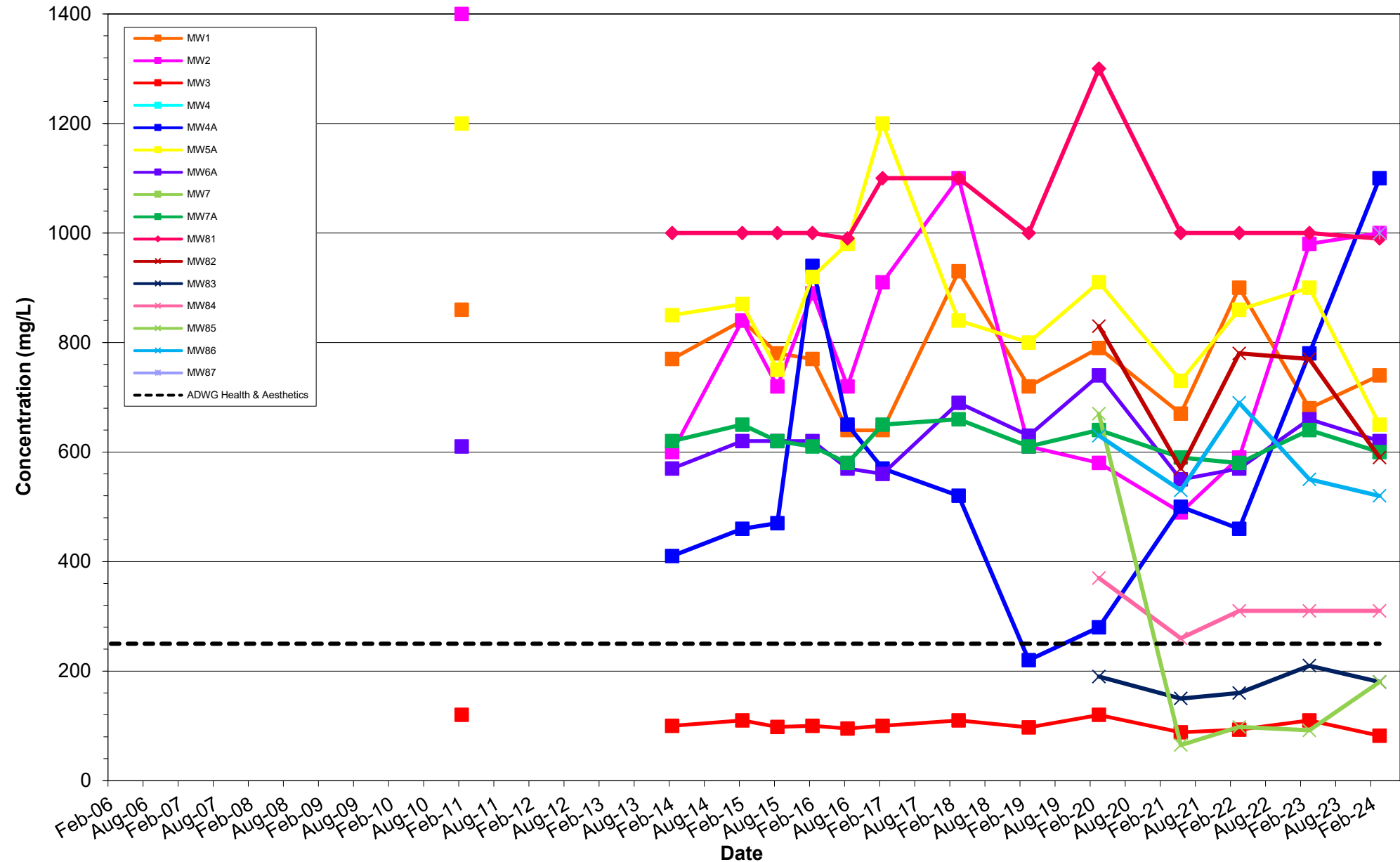
Alkalinity
Time Series

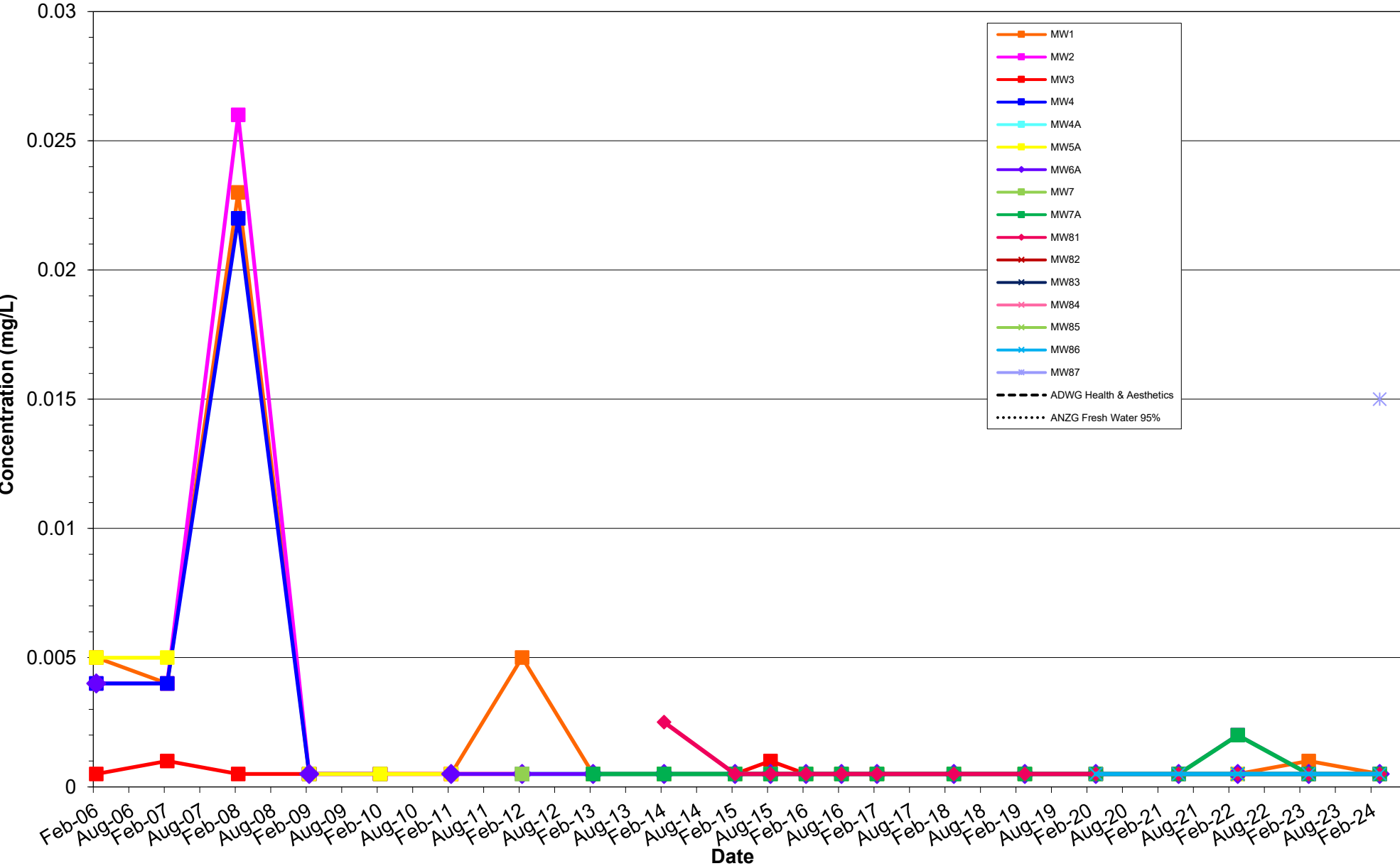






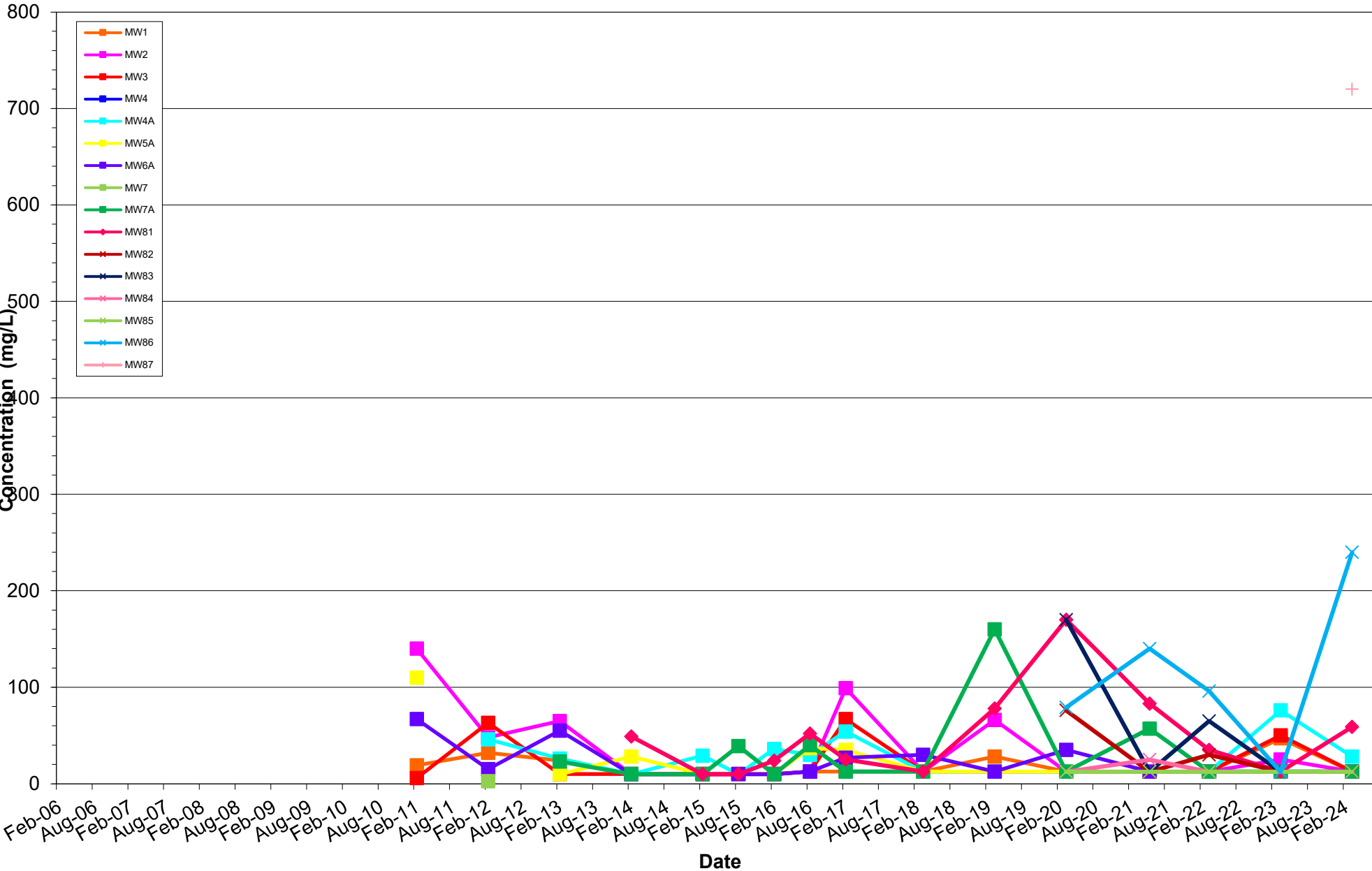


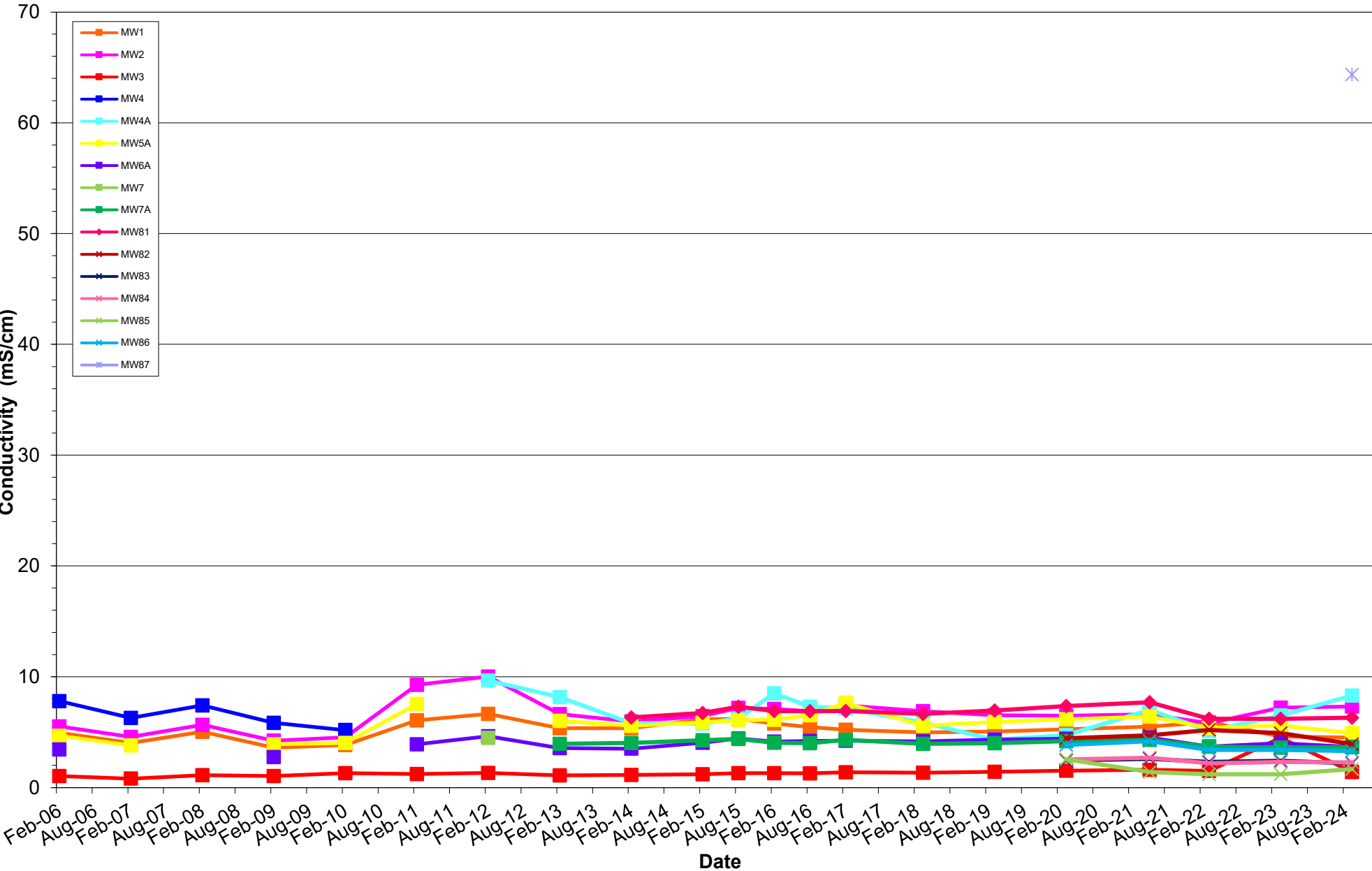


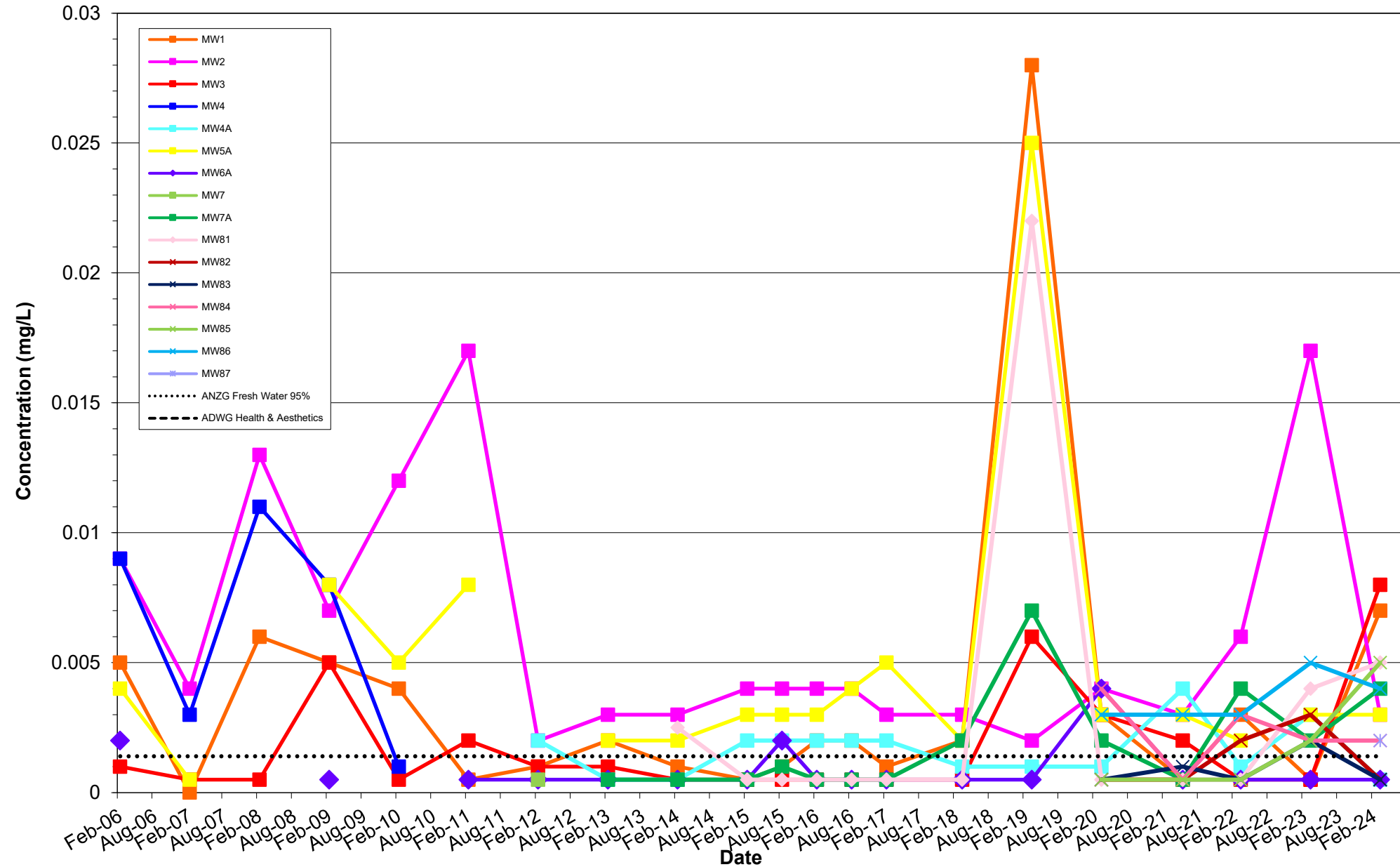


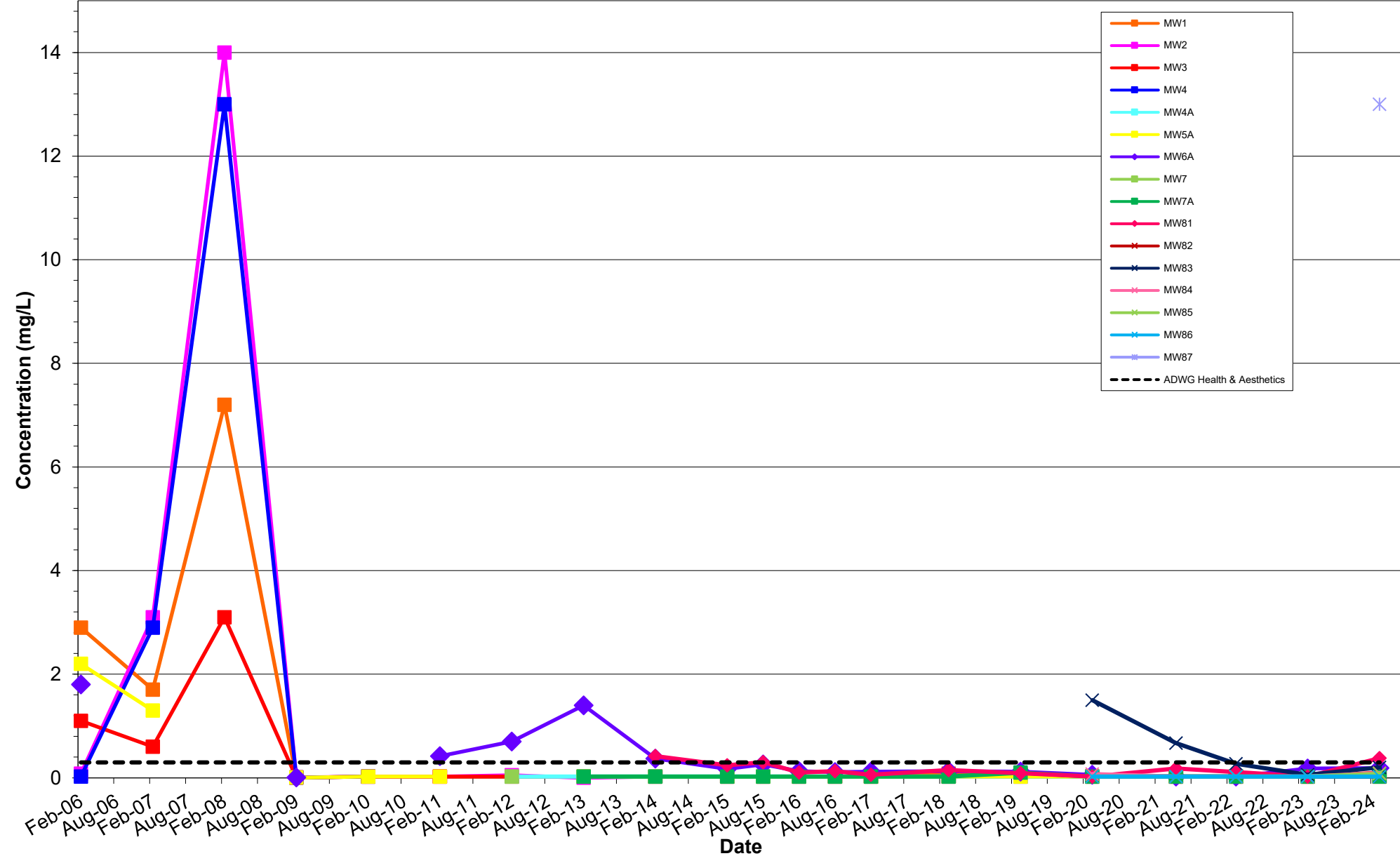
ASTC Regional Waste Management Facility
Environmental Performance
Monitoring Report - March 2024

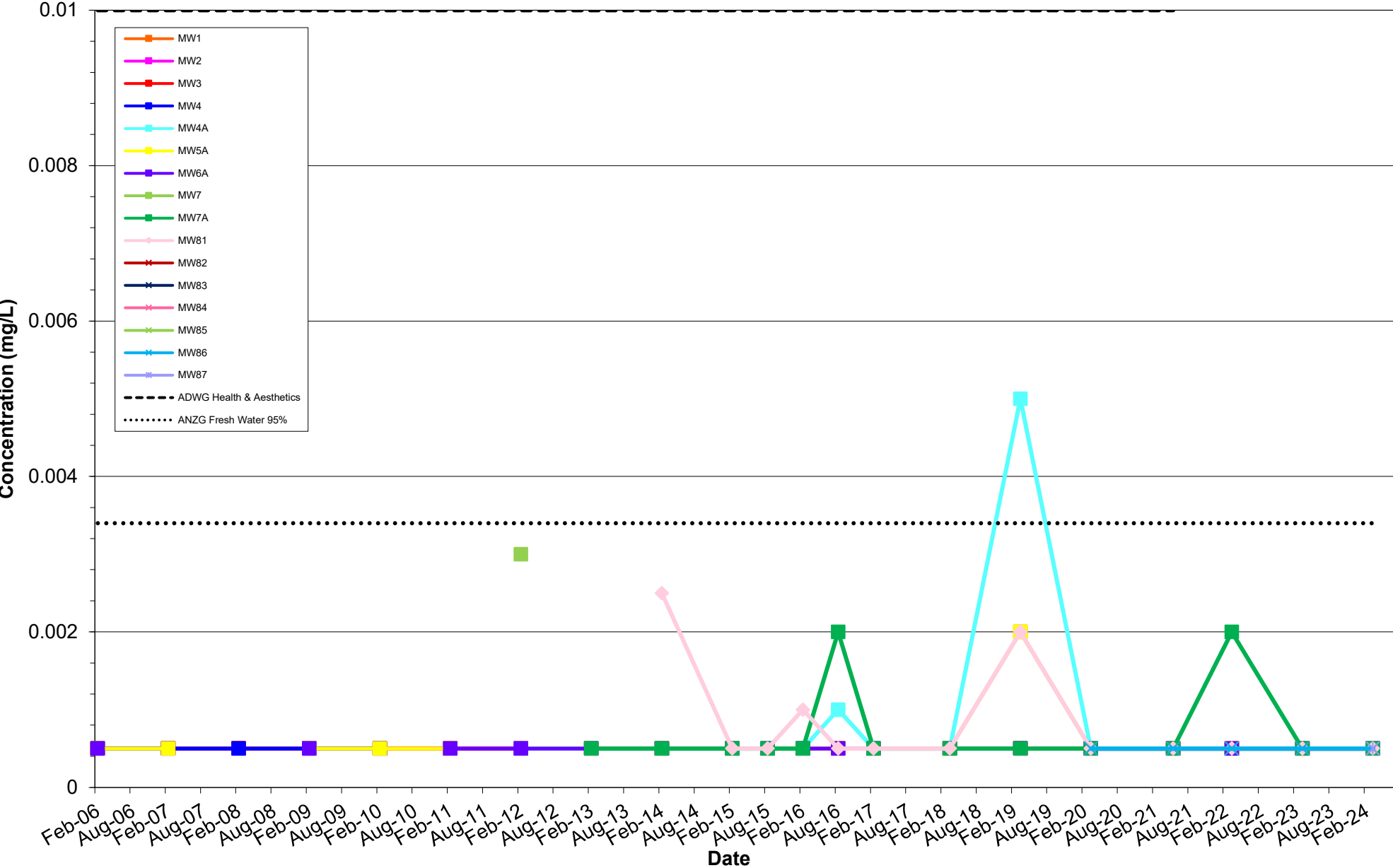
COD
Time Series

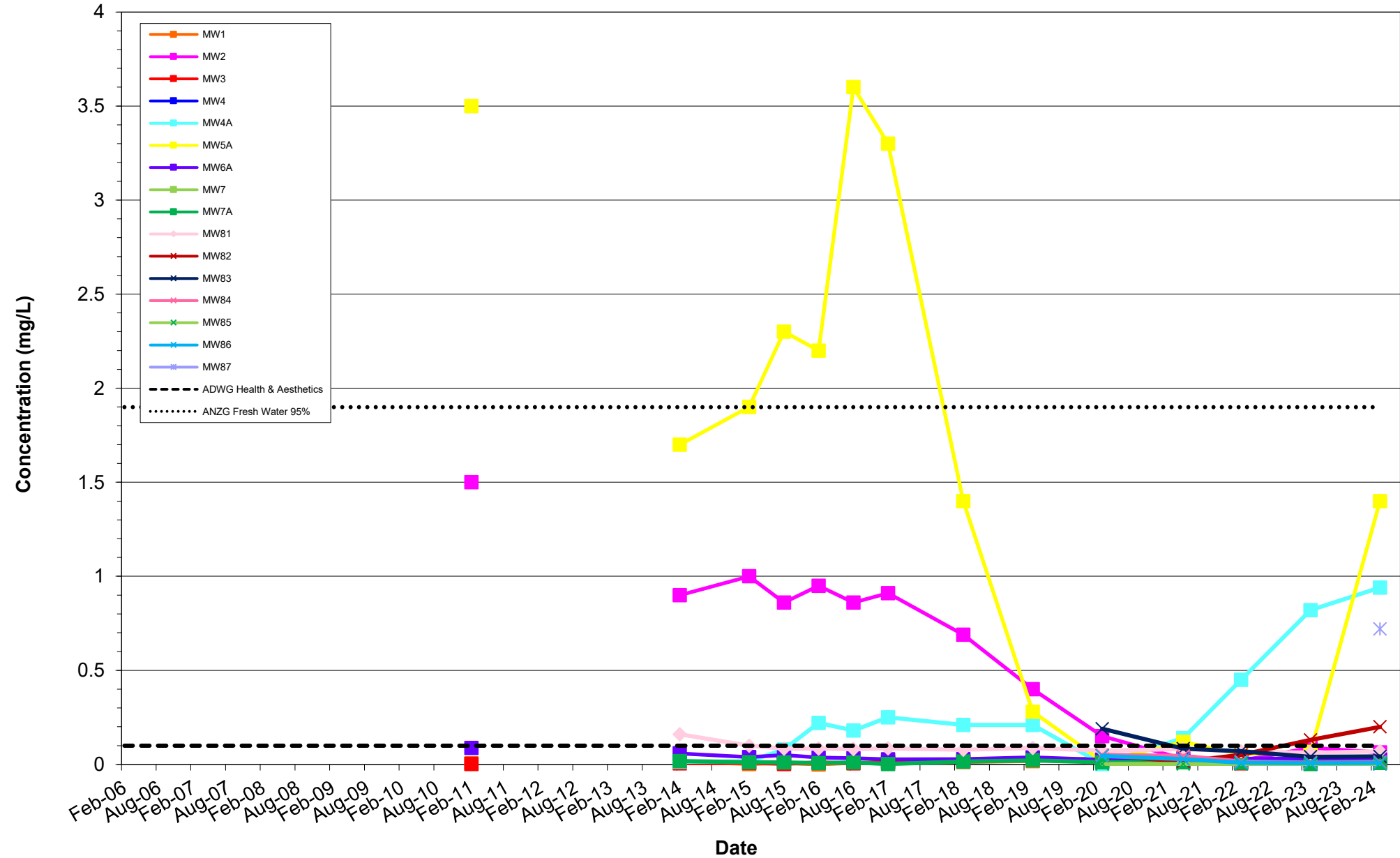


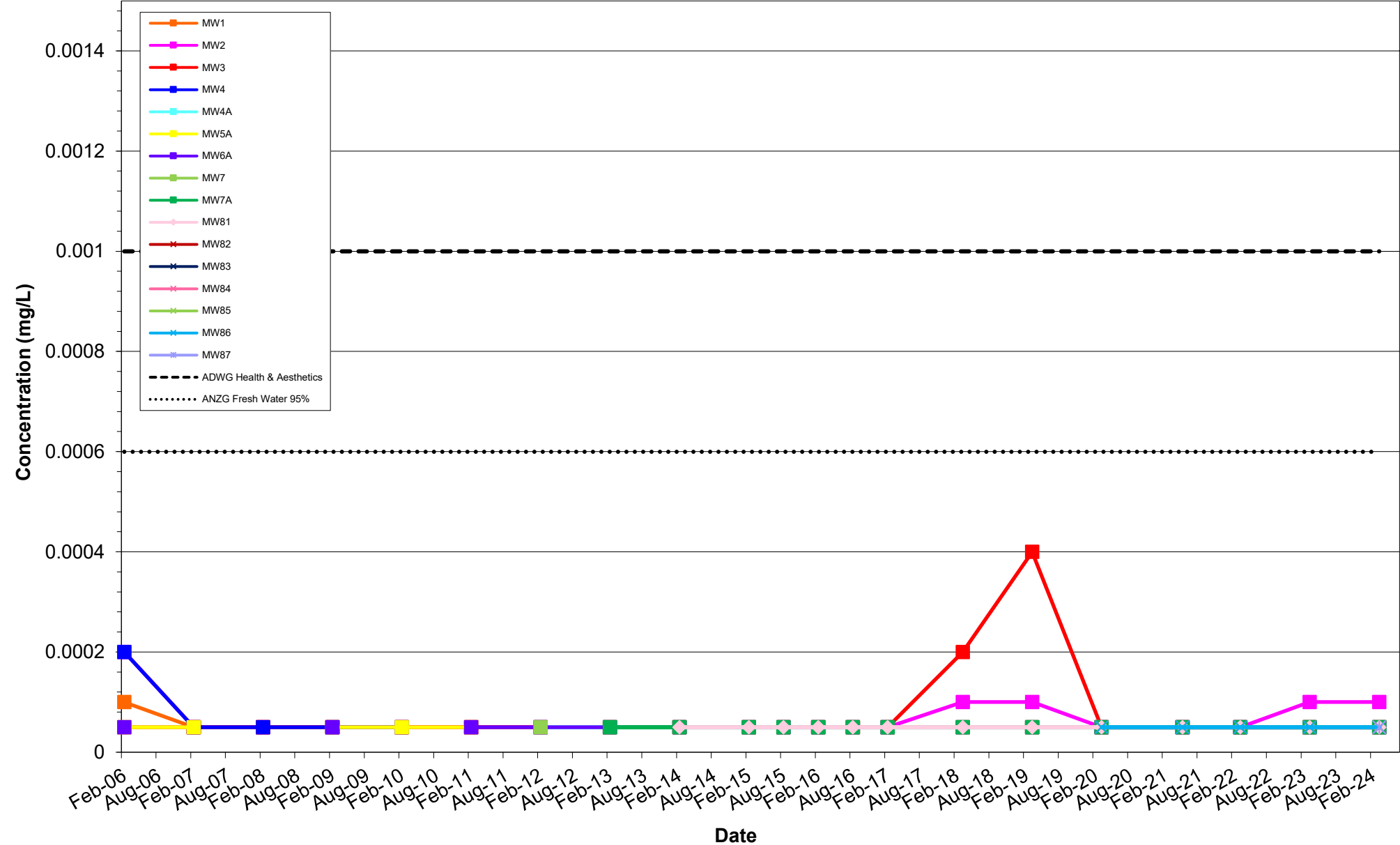


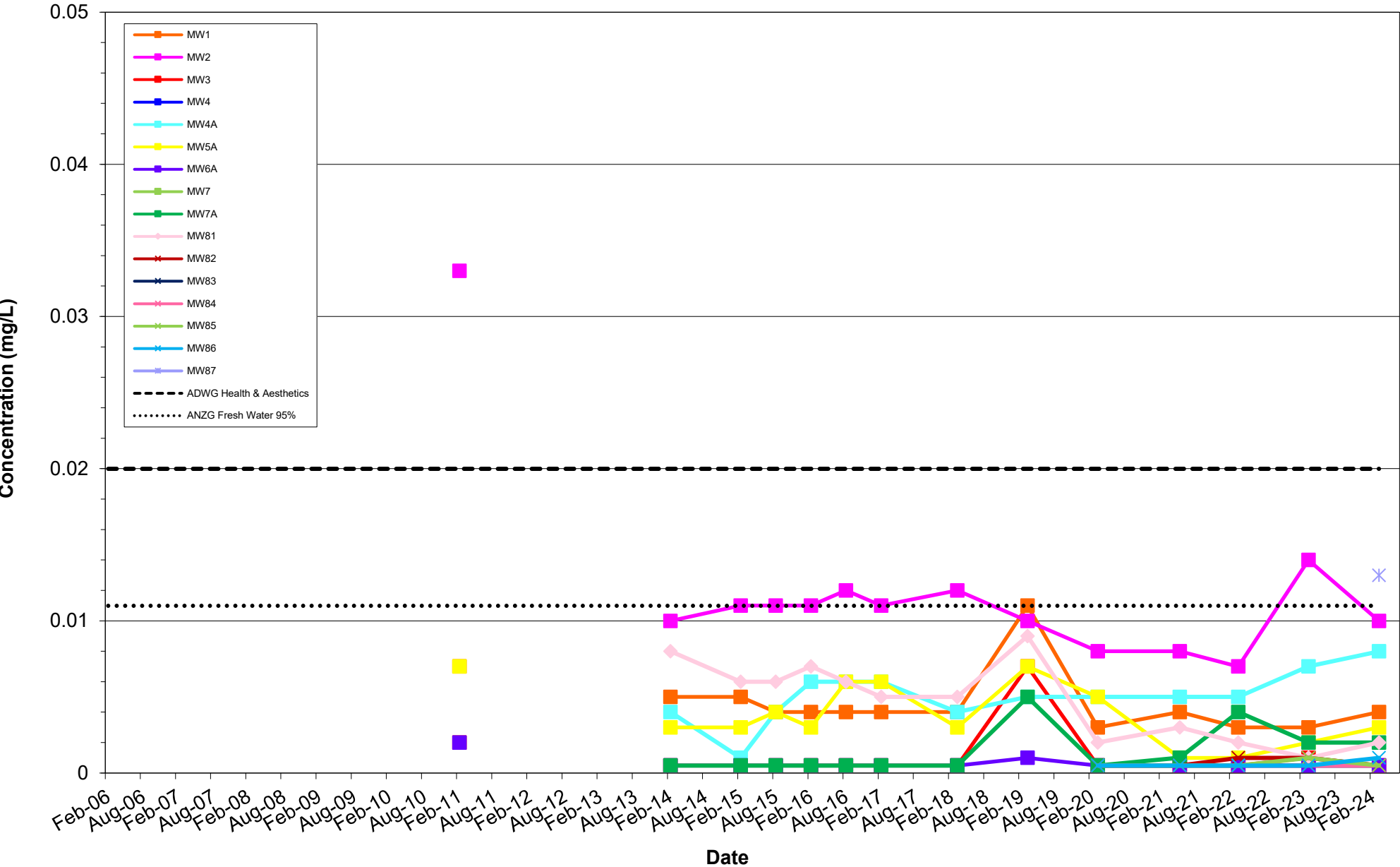


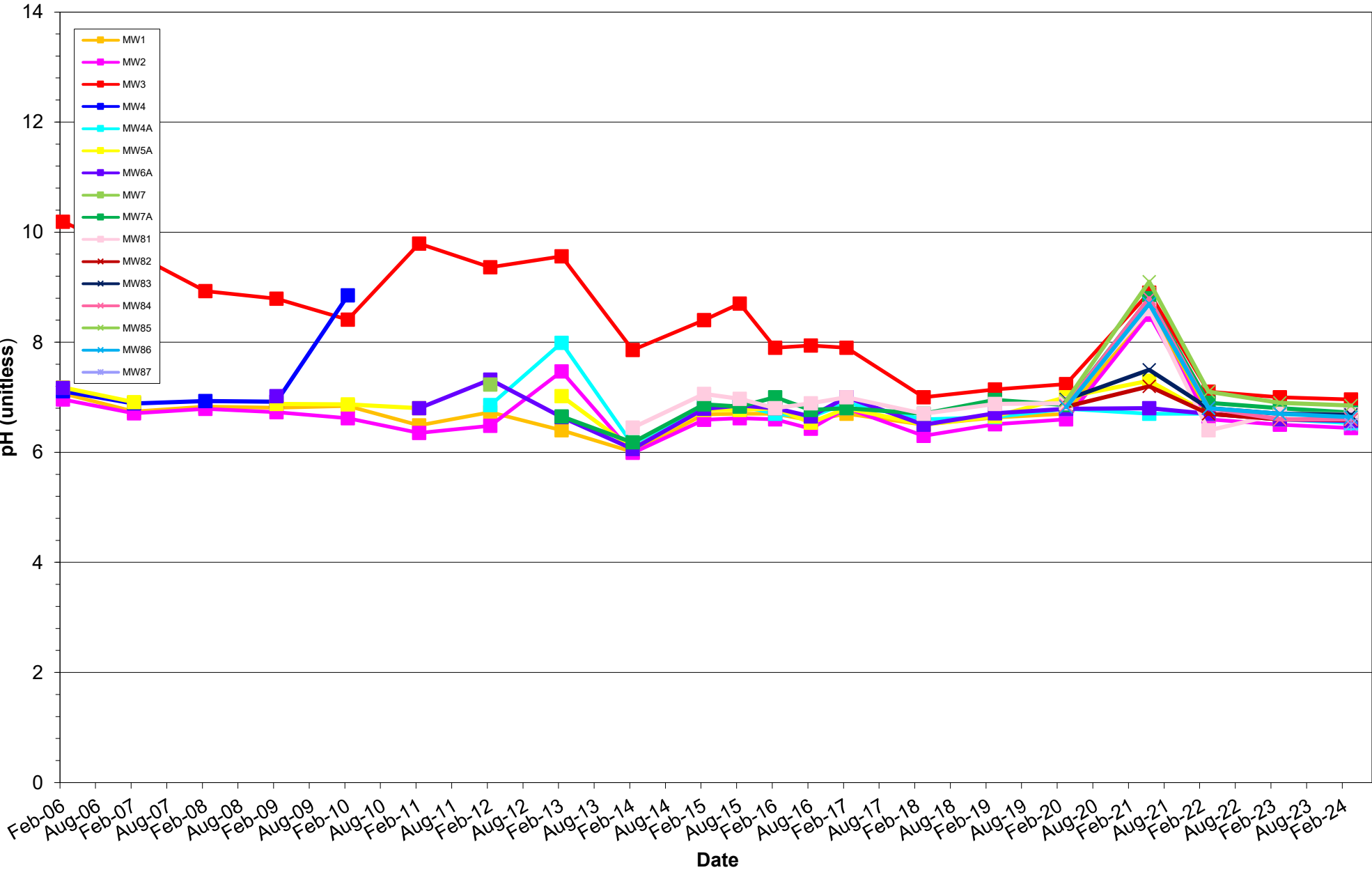


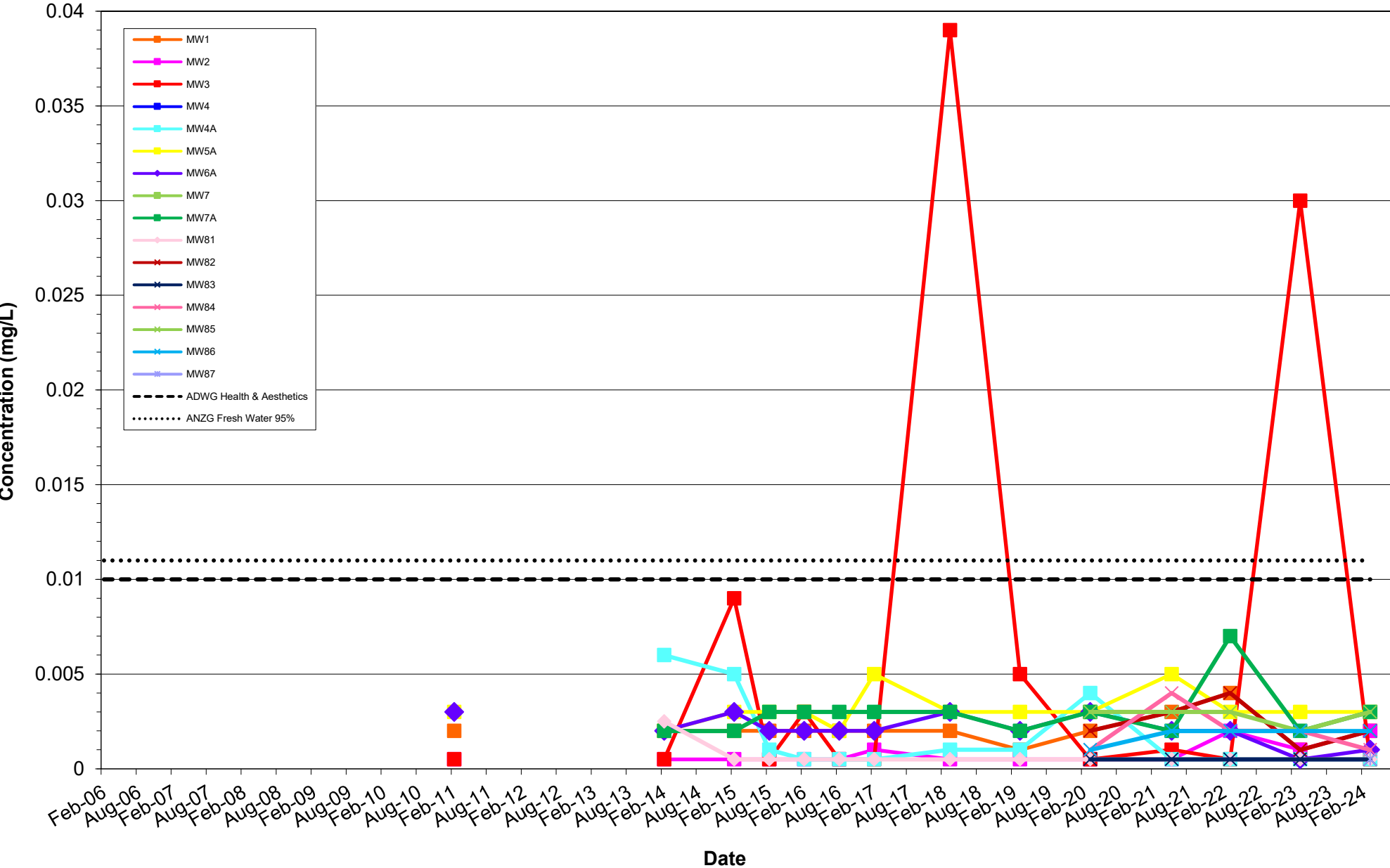


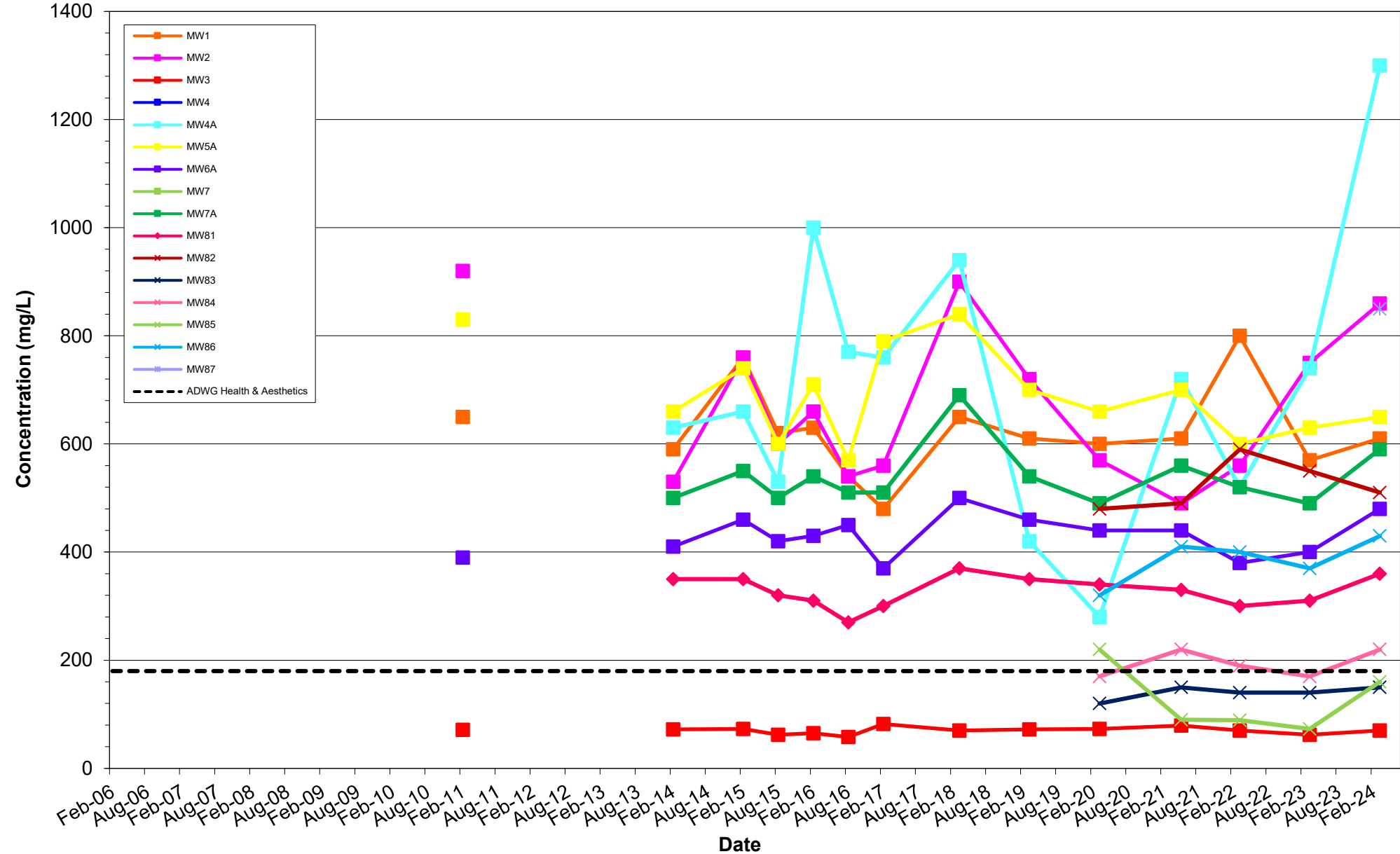


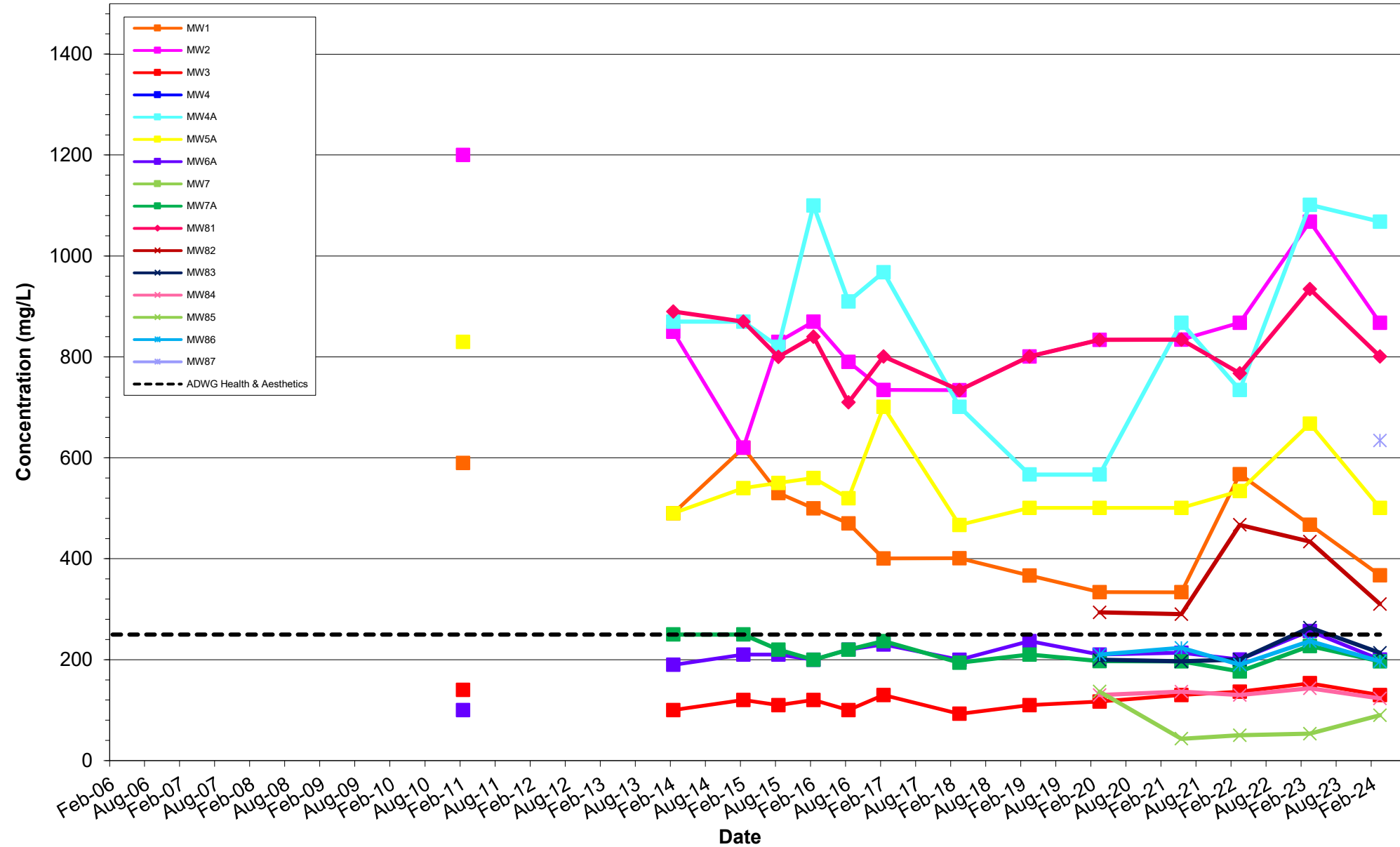


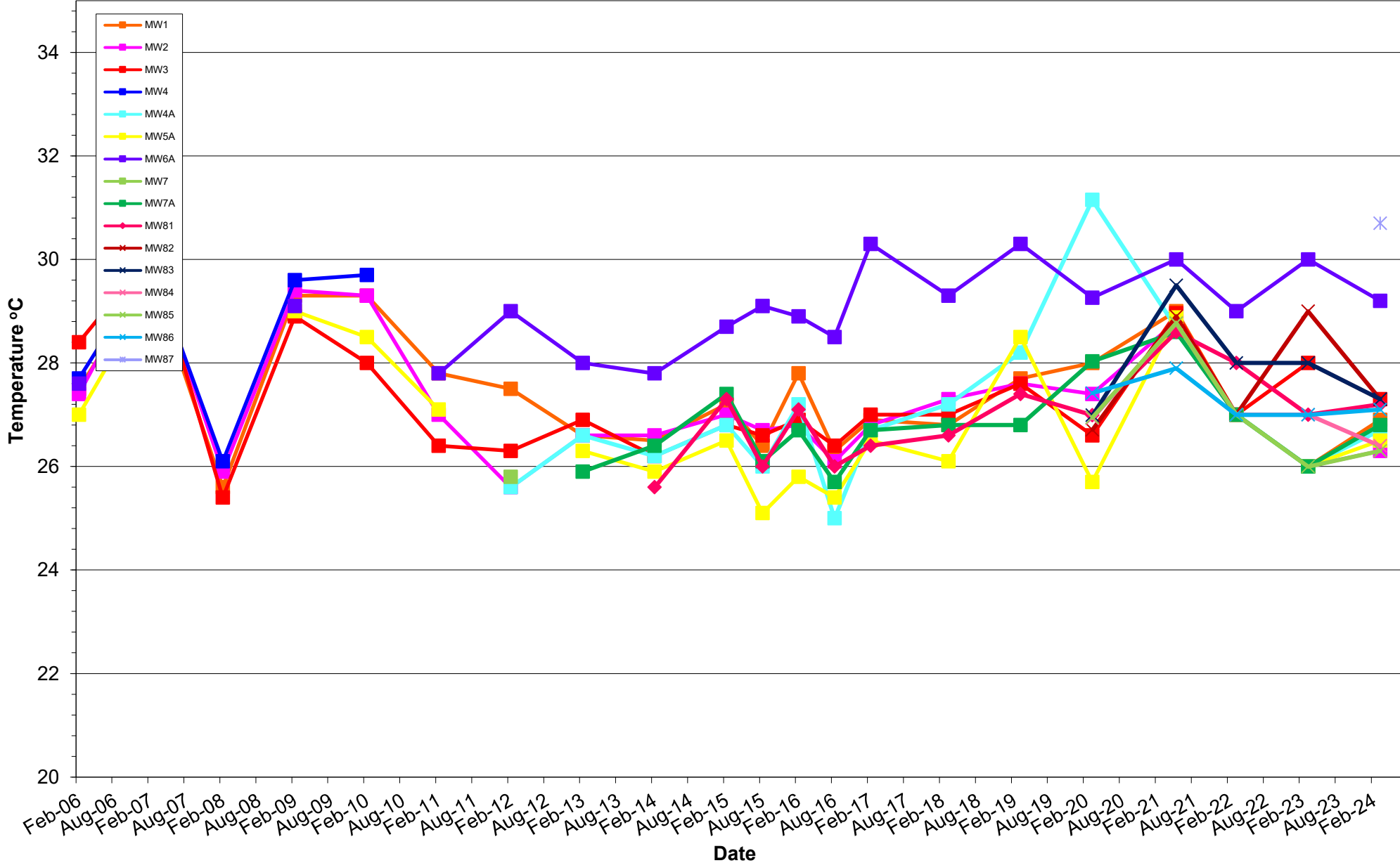






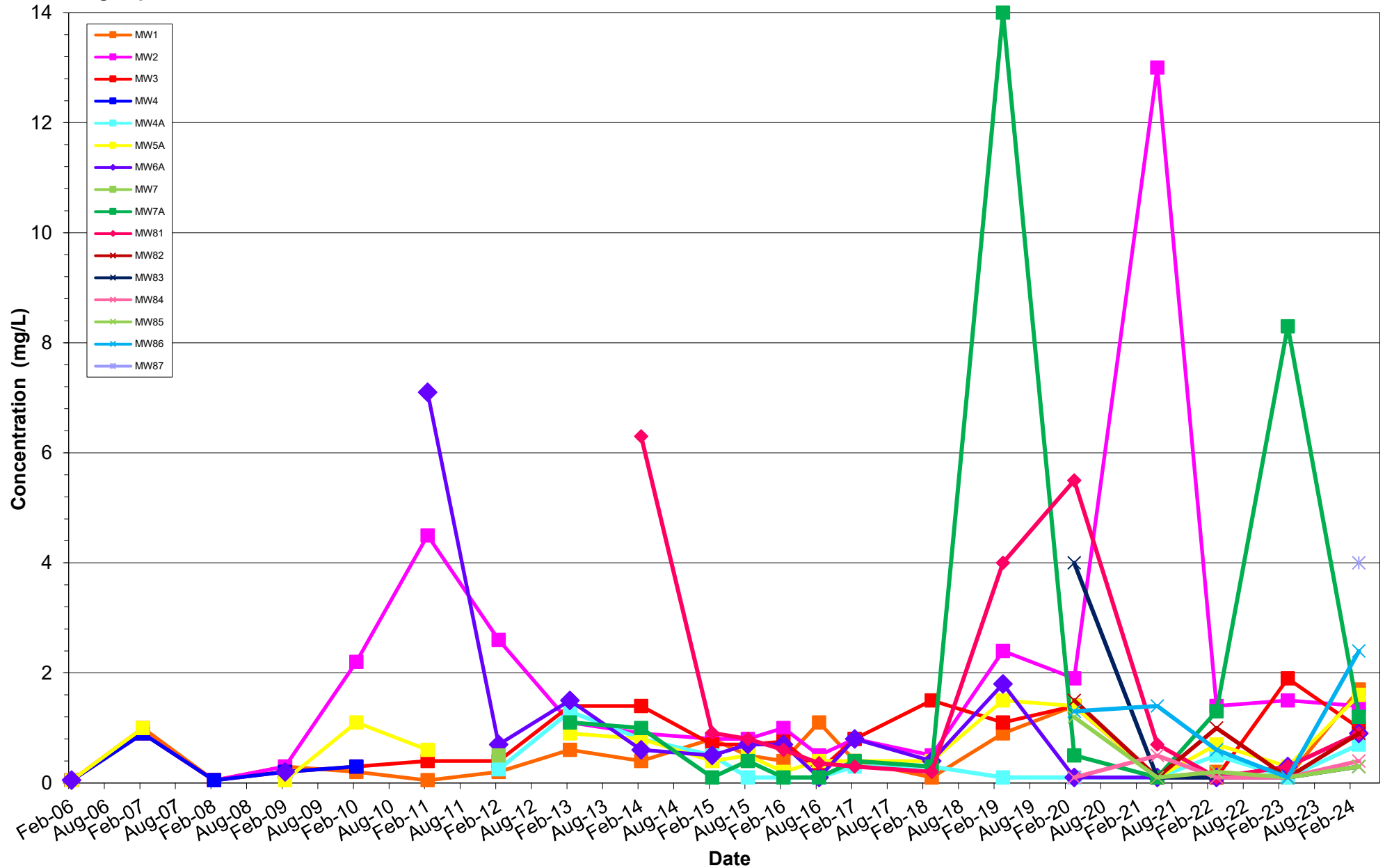


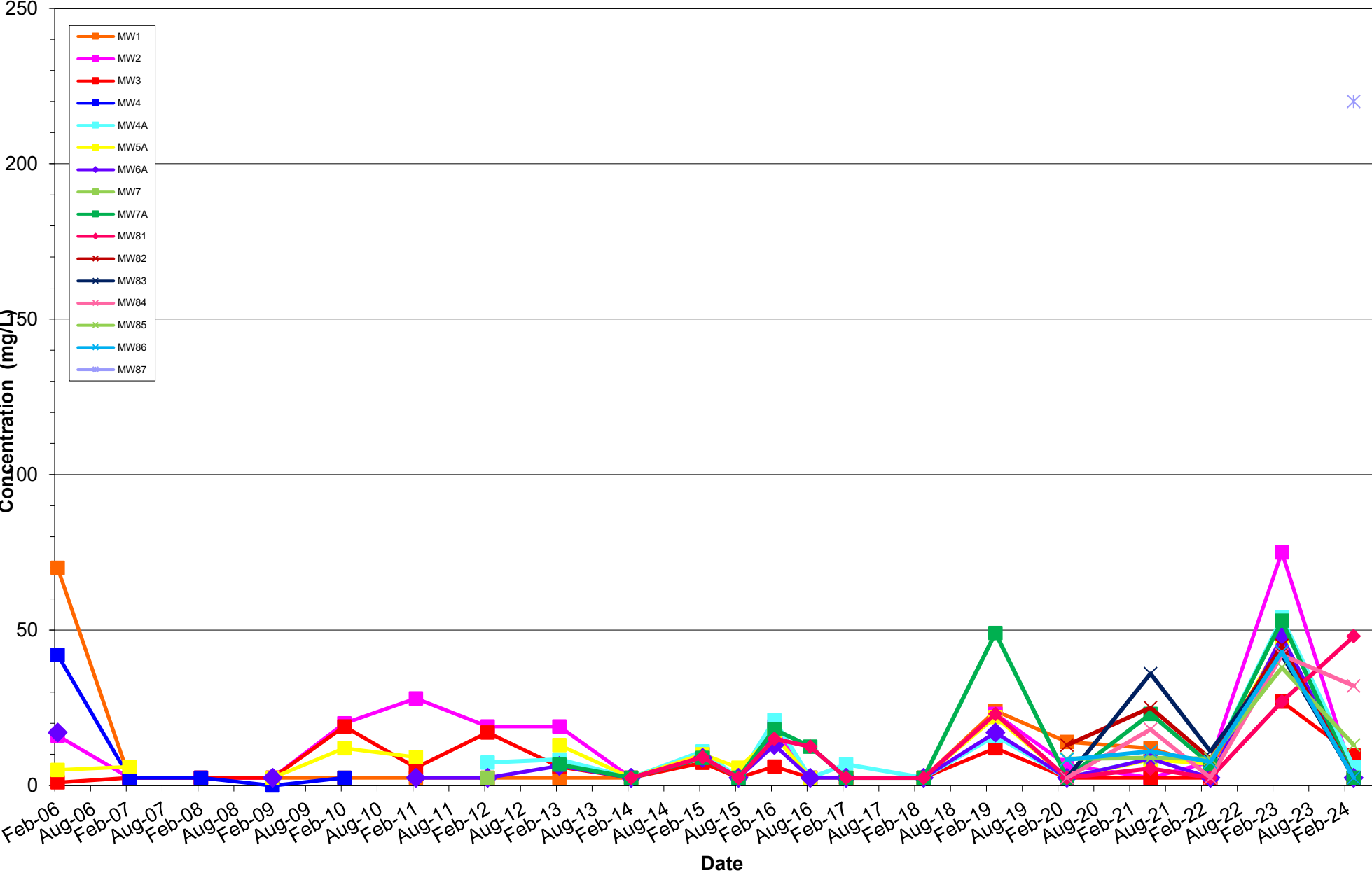


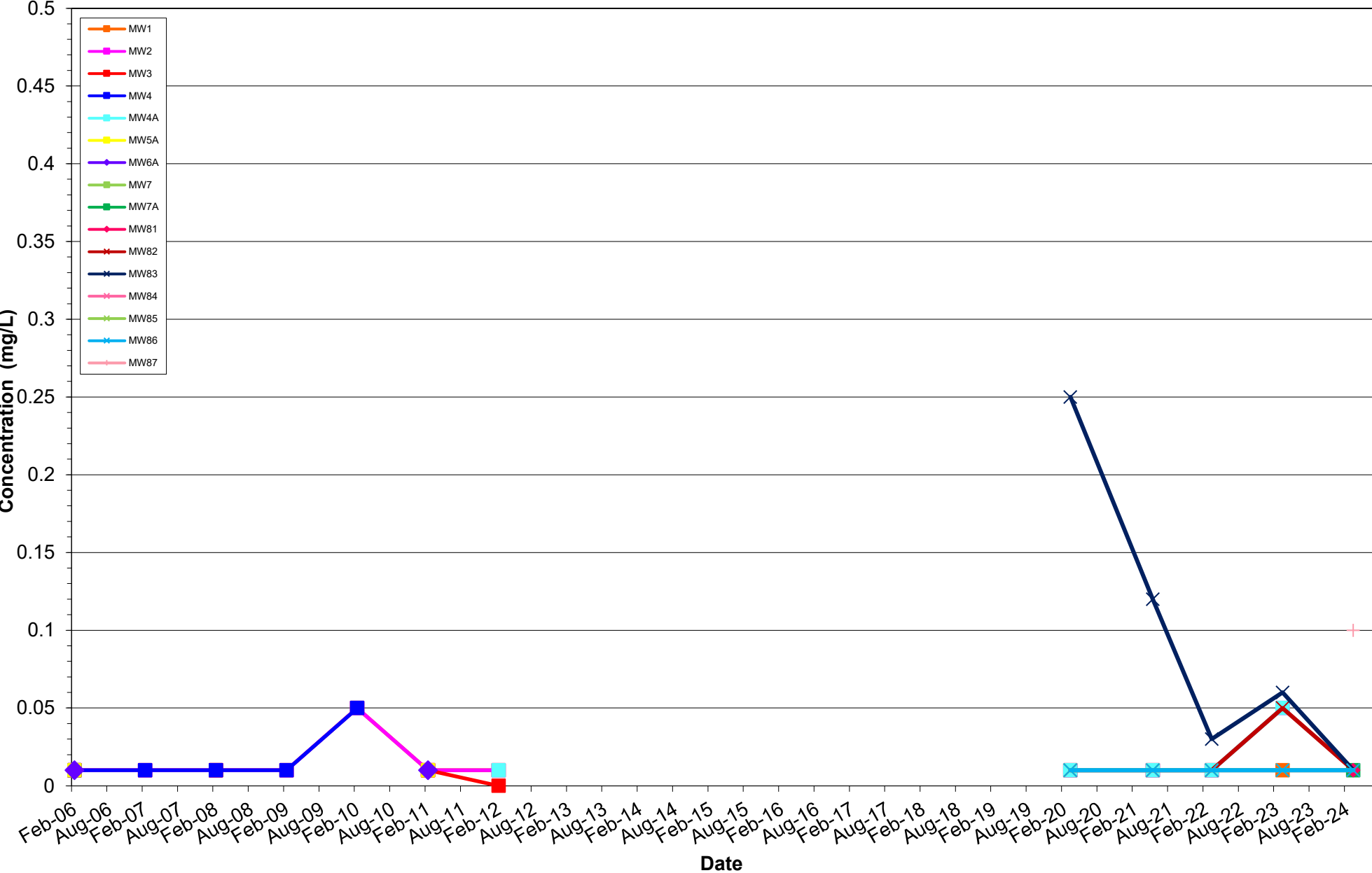


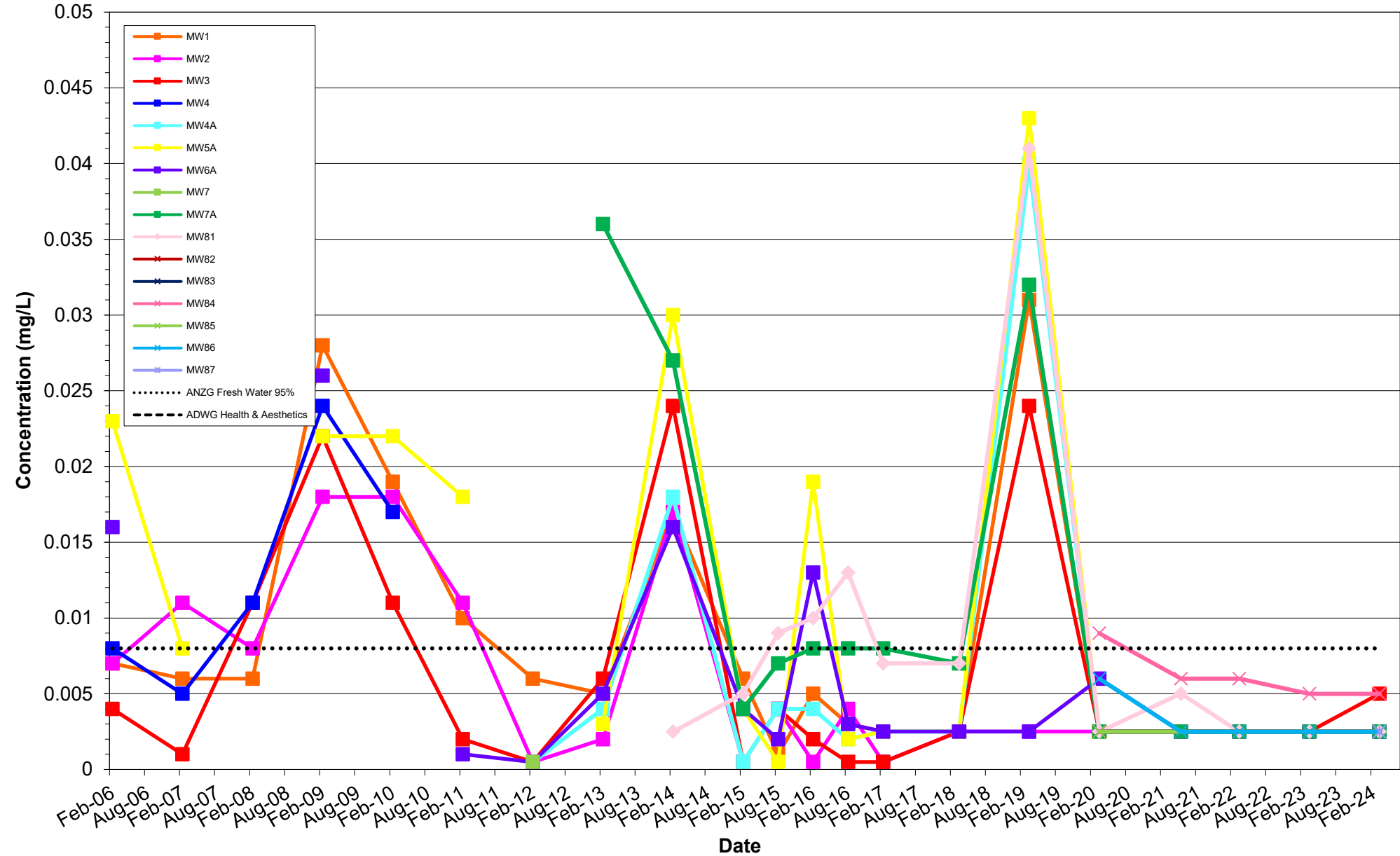
ASTC Regional Waste Management Facility
Environmental Performance
Monitoring Report - March 2024

TKN
Time Series









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APPENDIX I
QA/QC ASSESSMENT

I.1 Field QA/QC Procedures

Field methodology

The field methodology described in Section 2 is considered appropriate and applicable to site conditions encountered during field works and water characteristics reported by the laboratories.

Sample preservation

The primary laboratory supplied clean bottles for groundwater samples and rinsate and field blank samples. The bottles were labelled prior to field work based on a predetermined sampling program. On site, the bottles were filled with water and stored in an esky with ice. At the end of the day samples were stored in a refrigerator if not sent to the laboratories. During transportation to the laboratories the samples were packed in eskies with ice and packaging to avoid damage.

Field Equipment Calibration

An Ion Phocheck Tiger PID with a 10.6eV gas discharge lamp was used on 6 and 7 March 2024. Fresh air calibrations and span calibrations using 100ppm isobutylene were performed at the start of the day and then when required.

Kennards Hire provided a Smart Troll multi parameter water quality meter (WQM) which was used on 3, 4 and 5 March 2024 and a GA5000 landfill gas analyser which was used on 6 and 7 March 2024.

Kennards calibrated all equipment prior to delivery. Copies of the calibration certificates for each instrument is provided in Appendix J.

I.2 Data Quality Indicators

I.2.1 Completeness

Completeness is expressed as a percentage of usable data from a data collection activity. The following factors were considered and assessed:

Field and laboratory considerations	Achieved
All critical locations samples	Yes
All samples collected (e.g. all available wells, detention basins, leachate)	Groundwater – Yes Gas – No (four wells were not in service) Leachate – No (wells were dry) Surface Water – No (four ponds were dry)
Standard operating practices (SOPs) listed in Section 2 appropriate and complied with	Yes
Experienced field personnel utilised	Yes
Field documentation appropriate and complete	Yes
All critical samples analysed	Yes
All critical analytes analysed	Yes
Appropriate methods and practical quantification limits	Yes
Sample documentation complete	Yes
Sample holding times complied with	Generally (see below)

A review of reports provided by Eurofins indicated that sample holding times as specified by the laboratory were adhered to with the following exception:

- BOD exceeded their respective maximum stipulated laboratory holding time of 2 days due to transport time restrictions from Alice Springs to the laboratory (consistent with previous rounds of investigation at Alice Springs).

Delayed analysis would not have significantly altered the BOD results and hence the delayed analysis for BOD is considered acceptable.

Completeness is influenced by field performance issues (e.g. access, site restrictions, damage to sampling infrastructure) and laboratory performance issues (e.g. matrix interference, holding times). A percentage completeness of 95% is considered acceptable. The above assessment indicates that the achieved percentage completeness is over 95%.

1.2.2 Comparability

Comparability is expressed qualitatively to indicate that data may be considered to be equivalent for each sampling and analytical event.

Field and laboratory considerations	Results
Same SOPs used on each occasion	Standard operating practices as listed in Section 2
Experienced sampler	Environmental scientist with 26 years of experience
Climatic conditions (temperature, rainfall, wind)	No climatic influences
Same types of samples collected	Yes, specific laboratory prepared water bottles
Same analytical methods used (including clean-up)	Yes
Sample PQLs	Standard
Same laboratories	Yes
Same units	Yes

The above assessment indicates that data will be comparable to future sampling events conducted under similar conditions.

1.2.3 Representativeness

Representativeness is expressed qualitatively to indicate that data is representative of each medium present on the site.

Field and laboratory considerations	Achieved
Appropriate media sampled according to field observations	Yes
All media identified during field work sampled	Yes
All samples analysed according to field observations	Yes
Samples were reasonably homogeneous	Yes

The above assessment indicates that data is representative of each medium encountered on the site.

I.2.4 Precision

Precision is a quantitative measure of the variability of data.

Field and laboratory considerations	Achieved
Standard operating procedure appropriate and complied with	Yes
Analysis of intra and inter laboratory duplicates	Yes
Analysis of laboratory duplicates	Yes, refer below

Duplicate samples were collected to provide an indication of the reliability of the sampling and analysis process. Duplicate groundwater samples were analysed for the majority of parameters. Duplicate sample results are presented in the quality assessment data provided below.

Relative Percentage Differences (RPDs) for intra-laboratory (or field) and inter-laboratory duplicate samples were calculated and are also presented below.

All calculated RPDs were within the acceptable limits of 0% to 50% for concentrations 10 to 30 times the limits of reporting and 0% to 30% for concentrations 30 times greater than the limits of reporting.

The above assessment indicates that observed data variability (or reproducibility) is acceptable.

I.2.5 Accuracy

Accuracy is a quantitative measure of the closeness of reported data to the true value. Bias could be introduced by chemicals during collection/handling or transport, from contaminated equipment, from contaminated reagent, during laboratory analysis, during laboratory preparation, during preparation or by the analytical method.

Field and laboratory considerations	Achieved
Standard operating procedure appropriate and complied with	Yes
Analysis of rinsates, field blanks and trip blanks	Yes
Analysis of laboratory method blanks, control samples, spike samples and duplicates	Yes, refer below
Analysis of laboratory prepared volatile trip spikes	No

Rinsate, field blank and trip blank samples were collected as follows:

Date	Rinsate collected from	Field blank collected	Trip blank used	Trip spike used
4/03/24	Filter & Syringe	Yes	Yes	No

The rinsate, field blank and trip blank results were all below the limits of reporting for all analytes. A summary table of the results is provided at the end of this appendix.

During the analysis of samples, Eurofins conducted internal QA/QC procedures including the analysis of laboratory method blanks, control samples, spike samples and duplicates. Results of these QA/QC procedures complied with the laboratory's acceptance criteria as presented in its reports.

Laboratory reports with results for method blanks, control samples, spike samples and duplicates are provided in Appendix L.

I.3 Field QA/QC

The following information on field QA/QC is provided.

Issue	Achieved
Replicate samples are split in the field and submitted to two separate laboratories in accordance with the requirements of NEPM Schedule B3	Yes, refer to Section 2.6
The sampling program includes assessment of all relevant environmental media, i.e. groundwater	Yes
Sample collection, handling and transportation procedures are documented and appropriate	Yes, refer to Section 2.2
Sampling is representative of site conditions, based on the selection of appropriate numbers of sampling points and of samples from each relevant strata and material type	Yes, refer to Section 2
Experienced field team members	Yes, refer to Section 1.2.2
Sampling methods	Yes, refer to Section 2.2
Evidence of appropriate decontamination procedures carried out between sampling events	Yes, refer to Section 1.2.2
Completed purging records for each well, showing time, location, initials of sampler, duplicate locations, duplicate type, site observations and weather conditions	Yes, refer to Appendix E
Completed chain-of-custody documentation	Yes, refer to Section 2.7
A statement of duplicate frequency for intra-laboratory and inter-laboratory duplicate samples, appropriate splitting techniques and duplicate sample results	Yes, refer to Section 2.6
Field blank results, background sample results, rinsate sample results, laboratory-prepared trip spike results for volatile analytes and trip blank results	Results presented as tables in this appendix and on original lab reports in Appendix L. Background and trip spike samples were not analysed.

I.4 Laboratory QA/QC

The following information on laboratory QA/QC is provided.

Issue	Achieved
Appropriate methodologies for each potential contaminant in the matrix in laboratories accredited for those analyses by NATA	Yes, refer to Section 2.8
Appropriate practical quantitation limits (PQLs) for the chemicals of concern for use in the assessment of risk	Yes, refer to Section 2.8 and below
COCs, comparison of holding times, analytical methods, laboratory accreditation, laboratory performance	Yes, refer to Appendix
Results of blind duplicate samples (intra laboratory duplicates)	Yes, refer Section 1.2.4

The laboratory's limits of reporting for selected analytes (antimony, Cr⁶⁺, silver, OCPs, benzo(a)pyrene, phenols, PCB and some VOCs and SVOCs) were above ANZG 95% fresh water criteria and/or ANZECC livestock and/or ADWG health and aesthetic criteria. The results for these parameters were below the laboratory's limits of reporting. The higher limits of reporting are considered acceptable given that:

- All wells (background, down gradient of the sewage ponds and down gradient of the landfill) have the same results.

- There is no indication of leachate contamination in the water (discolouration, odour, ammonia, COD, ferrous iron, heavy metals) so it is unlikely that these less common chemicals would be present due to the landfill.
- OCPs, Phenols, PCB and B(a)P have very low solubilities and mobilities compared to more soluble common leachate chemicals such as ammonia, ferrous iron and heavy metals.

I.5 QA/QC Discussion

Quality assurance and quality control was conducted based upon Terra Environment's environmental investigation principles to ensure that data of known quality is reported. The required scope of sample numbers, analytical testing and quality testing was achieved. Specific aspects of the investigation used to achieve appropriate QA/QC results are summarised below:

Field Procedures	The investigations, including the collection of duplicates, are of a standard that provides confidence in the quality of the samples collected. Field procedures were undertaken in accordance with NEPM requirements and EPA guidelines.
Analytical Procedures	The laboratories used for analytical work are NATA registered for the analyses undertaken. The laboratories' internal QA/QC results indicate that analytical information provided by the laboratories is reliable.
Sample Tracking	Chain of Custody documentation was used for the transport of all samples to the laboratories.
Sample Preservation and Storage	Samples were placed in containers supplied by the laboratories and placed in chilled eskies for transport to the laboratories.
Sample Holding Times	The required holding times were generally adhered to. Where exceedances were observed for BOD they were considered acceptable.
Data Transcription	Summary tables were generated from laboratory supplied CSV files using ESDAT software.
Laboratory Limits of Reporting	Some limits of reporting are above ANZG, ANZECC and ADWG criteria but they are considered acceptable as per Section I.4.
Field Equipment Calibration	The field equipment used was appropriately calibrated.
Intra Laboratory Duplicate Sample	The primary laboratory's processes by which its results are obtained are considered to be acceptable in terms of the precision /repeatability of those results.
Inter Laboratory Duplicate Sample	The primary laboratory's processes by which its results are obtained are considered to be acceptable in terms of their accuracy of those results (i.e. in terms of how close the results are to their 'true' value).
Rinsate and Field Blank Samples	The results for rinsates indicate that the equipment used for the collection of samples did not impact upon results.
Laboratory Internal Quality Control	Results obtained from laboratory internal quality control samples were within the acceptable limits of repeatability, chemical extraction and detection. Details of laboratory quality control measures are provided on laboratory certificates.

Based on the QA/QC information listed in this report, the results are considered to be of an appropriate standard and it is concluded that:

- field investigation and sample preservation methods are appropriate for the investigations reported
- the analytical methods used for site assessment are of appropriate precision and accuracy, and that the sensitivity and selectivity of the analytical methods are appropriate for the assessment of risks

- the precision and accuracy criteria set out in the QA/QC plan, for a given method and matrix, meet the performance expected of the reference method
- the quality of data supplied by the analytical laboratory meets the objectives of the testing laboratory's quality plan for blanks, spikes, control samples, laboratory duplicates and holding times

SDG	3/05/2024	3/05/2024		3/05/2024	Interlab_D	
Sample ID	MW2-A	MW2-X	RPD	MW2-A	MW2-Y	RPD
Sample Date	4/03/2024	4/03/2024		4/03/2024	4/03/2024	

ChemName	Units	EQL						
BTEX								
Benzene	µg/l	1	<1.0	<1.0	0	<1.0		
Ethylbenzene	µg/l	1	<1.0	<1.0	0	<1.0		
Toluene	µg/l	1	<1.0	<1.0	0	<1.0		
Xylene (m & p)	µg/l	2	<2.0	<2.0	0	<2.0		
Xylene (o)	µg/l	1	<1.0	<1.0	0	<1.0		
Xylene Total	µg/l	3	<3.0	<3.0	0	<3.0		
Field								
Turbidity	NTU	1	<1.0	<1.0	0	<1.0		
Inorganics								
Alkalinity (Bicarbonate as CaCO3)	mg/l	20 (Primary): 5 (Interlab)	400.0	490.0	20	400.0	430.0	7
Alkalinity (Hydroxide) as CaCO3	mg/l	20	<20.0	<20.0	0	<20.0		
Carbonate as CaCO3	mg/l	10	<10.0	<10.0	0	<10.0		
Alkalinity (total) as CaCO3	mg/l	20	400.0	490.0	20	400.0		
Ammonia as N	mg/l	0.01 (Primary): 0.005 (Interlab)	0.03	0.01	100	0.03	0.04	29
BOD	mg/l	5	<5.0	<5.0	0	<5.0		
Chloride	mg/l	1	1000.0	1100.0	10	1000.0	1200.0	18
COD	mg/l	25	<25.0	<25.0	0	<25.0		
Ferrous Iron	mg/l	0.05	<0.05	<0.05	0	<0.05		
Kjeldahl Nitrogen Total	mg/l	0.2 (Primary): 0.1 (Interlab)	1.4	1.1	24	1.4	0.5	95
Nitrogen (Organic)	mg/l	0.2	1.37	1.09	23	1.37	0.46	99
Sodium	mg/l	0.5	860.0	850.0	1	860.0	780.0	10
Sulphate	mg/l	5 (Primary): 1 (Interlab)	2600.0	2700.0	4	2600.0	2800.0	7
TOC	mg/l	5 (Primary): 1 (Interlab)	<5.0	<5.0	0	<5.0	4.0	0
Hardness as CaCO3	mg/l	5	3000.0	2900.0	3	3000.0		
MAH								
Total MAH	mg/l	0.003	<0.003	<0.003	0	<0.003		
Metals								
Antimony (Filtered)	mg/l	0.005 (Primary): 0.001 (Interlab)	<0.005	<0.005	0	<0.005	<0.001	0
Arsenic (Filtered)	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
Barium (Filtered)	mg/l	0.02 (Primary): 0.001 (Interlab)	<0.02	<0.02	0	<0.02	0.011	0
Beryllium (Filtered)	mg/l	0.001 (Primary): 0.0005 (Interlab)	<0.001	<0.001	0	<0.001	<0.0005	0
Cadmium (Filtered)	mg/l	0.0002 (Primary): 0.0001 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.0001	0
Calcium	mg/l	0.5	650.0	650.0	0	650.0	660.0	2
Chromium (hexavalent) (Filtered)	mg/l	0.005	<0.005	<0.005	0	<0.005		
Chromium (III+VI) (Filtered)	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
Chromium (Trivalent) (Filtered)	mg/l	0.005	<0.005	<0.005	0	<0.005		
Cobalt (Filtered)	mg/l	0.001	0.002	0.002	0	0.002	0.002	0
Copper (Filtered)	mg/l	0.001	0.003	0.006	67	0.003	0.001	100
Ferric Iron	mg/l	0.05	<0.05	<0.05	0	<0.05		
Iron (Filtered)	mg/l	0.05	<0.05	<0.05	0	<0.05		
Lead (Filtered)	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
Magnesium	mg/l	0.5	330.0	320.0	3	330.0	340.0	3
Manganese (Filtered)	mg/l	0.005	0.064	0.063	2	0.064	0.072	12
Mercury (Filtered)	mg/l	0.0001 (Primary): 0.00005 (Interlab)	0.0001	<0.0001	0	0.0001	0.0002	67
Nickel (Filtered)	mg/l	0.001	0.01	0.01	0	0.01	0.011	10
Potassium	mg/l	0.5	32.0	31.0	3	32.0	34.0	6
Selenium (Filtered)	mg/l	0.001	0.002	0.003	40	0.002	0.003	40
Silver (Filtered)	mg/l	0.005 (Primary): 0.001 (Interlab)	<0.005	<0.005	0	<0.005	<0.001	0
Thallium (Filtered)	mg/l	0.005 (Primary): 0.001 (Interlab)	<0.005	<0.005	0	<0.005	<0.001	0
Vanadium (Filtered)	mg/l	0.005 (Primary): 0.001 (Interlab)	<0.005	<0.005	0	<0.005	0.004	0
Zinc (Filtered)	mg/l	0.005 (Primary): 0.001 (Interlab)	<0.005	<0.005	0	<0.005	<0.001	0
Organochlorine Pesticides								
4,4-DDE	µg/l	5	<5.0	<5.0	0	<5.0		
a-BHC	µg/l	5	<5.0	<5.0	0	<5.0		
Aldrin	µg/l	5	<5.0	<5.0	0	<5.0		
Aldrin + Dieldrin	µg/l	0.1	<5.0	<5.0	0	<5.0		
b-BHC	µg/l	5	<5.0	<5.0	0	<5.0		
d-BHC	µg/l	5	<5.0	<5.0	0	<5.0		
DDD	µg/l	5	<5.0	<5.0	0	<5.0		
DDT	µg/l	5	<5.0	<5.0	0	<5.0		
DDT+DDE+DDD	µg/l	0.1	<5.0	<5.0	0	<5.0		
Dieldrin	µg/l	5	<5.0	<5.0	0	<5.0		
Endosulfan I	µg/l	5	<5.0	<5.0	0	<5.0		
Endosulfan II	µg/l	5	<5.0	<5.0	0	<5.0		
Endosulfan sulphate	µg/l	5	<5.0	<5.0	0	<5.0		
Endrin	µg/l	5	<5.0	<5.0	0	<5.0		
Endrin aldehyde	µg/l	5	<5.0	<5.0	0	<5.0		
Endrin ketone	µg/l	5	<5.0	<5.0	0	<5.0		
g-BHC (Lindane)	µg/l	5	<5.0	<5.0	0	<5.0		
Heptachlor	µg/l	5	<5.0	<5.0	0	<5.0		
Heptachlor epoxide	µg/l	5	<5.0	<5.0	0	<5.0		
Hexachlorobenzene	µg/l	5	<5.0	<5.0	0	<5.0		
Methoxychlor	µg/l	5	<5.0	<5.0	0	<5.0		

SDG	3/05/2024	3/05/2024		3/05/2024	Interlab_D	
Sample ID	MW2-A	MW2-X	RPD	MW2-A	MW2-Y	RPD
Sample Date	4/03/2024	4/03/2024		4/03/2024	4/03/2024	

ChemName	Units	EQL						
VOCs								
1,1,1,2-tetrachloroethane	µg/l	1	<1.0	<1.0	0	<1.0		
1,1,1-trichloroethane	µg/l	1	<1.0	<1.0	0	<1.0		
1,1,2,2-tetrachloroethane	µg/l	1	<1.0	<1.0	0	<1.0		
1,1,2-trichloroethane	µg/l	1	<1.0	<1.0	0	<1.0		
1,1-dichloroethane	µg/l	1	<1.0	<1.0	0	<1.0		
1,1-dichloroethene	µg/l	1	<1.0	<1.0	0	<1.0		
1,2,3-trichloropropane	µg/l	1	<1.0	<1.0	0	<1.0		
1,2,4-trimethylbenzene	µg/l	1	<1.0	<1.0	0	<1.0		
1,2-dibromoethane	µg/l	1	<1.0	<1.0	0	<1.0		
1,2-dichlorobenzene	µg/l	5	<5.0	<5.0	0	<5.0		
1,2-dichlorobenzene	µg/l	1	<1.0	<1.0	0	<1.0		
1,2-dichloroethane	µg/l	1	<1.0	<1.0	0	<1.0		
1,2-dichloropropane	µg/l	1	<1.0	<1.0	0	<1.0		
1,3,5-trimethylbenzene	µg/l	1	<1.0	<1.0	0	<1.0		
1,3-dichlorobenzene	µg/l	5	<5.0	<5.0	0	<5.0		
1,3-dichlorobenzene	µg/l	1	<1.0	<1.0	0	<1.0		
1,3-dichloropropane	µg/l	1	<1.0	<1.0	0	<1.0		
1,4-dichlorobenzene	µg/l	5	<5.0	<5.0	0	<5.0		
1,4-dichlorobenzene	µg/l	1	<1.0	<1.0	0	<1.0		
Methyl Ethyl Ketone	µg/l	5	<5.0	<5.0	0	<5.0		
4-chlorotoluene	µg/l	1	<1.0	<1.0	0	<1.0		
4-Methyl-2-pentanone	µg/l	5	<5.0	<5.0	0	<5.0		
Acetone	mg/l	0.005	<0.005	<0.005	0	<0.005		
Allyl chloride	mg/l	0.001	<0.001	<0.001	0	<0.001		
Bromobenzene	µg/l	1	<1.0	<1.0	0	<1.0		
Bromochloromethane	µg/l	1	<1.0	<1.0	0	<1.0		
Bromodichloromethane	µg/l	1	<1.0	<1.0	0	<1.0		
Bromoform	µg/l	1	<1.0	<1.0	0	<1.0		
Bromomethane	µg/l	5	<5.0	<5.0	0	<5.0		
Carbon disulfide	µg/l	1	<1.0	<1.0	0	<1.0		
Carbon tetrachloride	µg/l	1	<1.0	<1.0	0	<1.0		
Chlorobenzene	µg/l	1	<1.0	<1.0	0	<1.0		
Chlorodibromomethane	µg/l	1	<1.0	<1.0	0	<1.0		
Chloroethane	µg/l	5	<5.0	<5.0	0	<5.0		
Chloroform	µg/l	5	<5.0	<5.0	0	<5.0		
Chloromethane	µg/l	5	<5.0	<5.0	0	<5.0		
cis-1,2-dichloroethene	µg/l	1	<1.0	<1.0	0	<1.0		
cis-1,3-dichloropropene	µg/l	1	<1.0	<1.0	0	<1.0		
Dibromomethane	µg/l	1	<1.0	<1.0	0	<1.0		
Dichlorodifluoromethane	µg/l	5	<5.0	<5.0	0	<5.0		
Dichloromethane	µg/l	5	<5.0	<5.0	0	<5.0		
Iodomethane	µg/l	1	<1.0	<1.0	0	<1.0		
Isopropylbenzene	µg/l	1	<1.0	<1.0	0	<1.0		
Styrene	µg/l	1	<1.0	<1.0	0	<1.0		
Trichloroethene	µg/l	1	<1.0	<1.0	0	<1.0		
Tetrachloroethene	µg/l	1	<1.0	<1.0	0	<1.0		
trans-1,2-dichloroethene	µg/l	1	<1.0	<1.0	0	<1.0		
trans-1,3-dichloropropene	µg/l	1	<1.0	<1.0	0	<1.0		
Trichlorofluoromethane	µg/l	5	<5.0	<5.0	0	<5.0		
Vinyl chloride	µg/l	5	<5.0	<5.0	0	<5.0		
Vic EPA IWRG 621 CHC (Total)*	mg/l	0.005	<0.005	<0.005	0	<0.005		
Vic EPA IWRG 621 Other CHC (Total)*	mg/l	0.005	<0.005	<0.005	0	<0.005		

***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

ASTC Regional Waste
Management Facility
Environmental Performance Monitoring - 2024

Rinsate, Field Blank
& Trip Blank
Sample Results



SDG	3/05/2024	3/05/2024	3/05/2024
Field_ID	20240303FB1	20240303R1	20240303TB1
Sampled_Date	4/03/2024	4/03/2024	4/03/2024
Sample_Type	Field_B	Rinsate	Trip_B

ChemName	Units	EQL			
Vic EPA IWRG 621 CHC (Total)*	mg/l	0.005			<0.005
Vic EPA IWRG 621 Other CHC (Total)*	mg/l	0.005			<0.005
BTEX					
Benzene	µg/l	1			<1
Ethylbenzene	µg/l	1			<1
Toluene	µg/l	1			<1
Xylene (m & p)	µg/l	2			<2
Xylene (o)	µg/l	1			<1
Xylene Total	µg/l	3			<3
MAH					
Total MAH	mg/l	0.003			<0.003
Metals					
Arsenic (Filtered)	mg/l	0.001	<0.001	<0.001	
Barium (Filtered)	mg/l	0.02	<0.02	<0.02	
Beryllium (Filtered)	mg/l	0.001	<0.001	<0.001	
Cadmium (Filtered)	mg/l	0.0002	<0.0002	<0.0002	
Chromium (hexavalent) (Filtered)	mg/l	0.005	<0.005	<0.005	
Chromium (III+VI) (Filtered)	mg/l	0.001	<0.001	<0.001	
Chromium (Trivalent) (Filtered)	mg/l	0.005	<0.005	<0.005	
Cobalt (Filtered)	mg/l	0.001	<0.001	<0.001	
Copper (Filtered)	mg/l	0.001	<0.001	<0.001	
Iron (Filtered)	mg/l	0.05	<0.05	<0.05	
Lead (Filtered)	mg/l	0.001	<0.001	<0.001	
Manganese (Filtered)	mg/l	0.005	<0.005	<0.005	
Mercury (Filtered)	mg/l	0.0001	<0.0001	<0.0001	
Nickel (Filtered)	mg/l	0.001	<0.001	<0.001	
Selenium (Filtered)	mg/l	0.001	<0.001	<0.001	
Silver (Filtered)	mg/l	0.005	<0.005	<0.005	
Thallium (Filtered)	mg/l	0.005	<0.005	<0.005	
Vanadium (Filtered)	mg/l	0.005	<0.005	<0.005	
Zinc (Filtered)	mg/l	0.005	<0.005	<0.005	
VOCs					
1,1,1,2-tetrachloroethane	µg/l	1			<1
1,1,1-trichloroethane	µg/l	1			<1
1,1,2,2-tetrachloroethane	µg/l	1			<1
1,1,2-trichloroethane	µg/l	1			<1
1,1-dichloroethane	µg/l	1			<1
1,1-dichloroethene	µg/l	1			<1
1,2,3-trichloropropane	µg/l	1			<1
1,2,4-trimethylbenzene	µg/l	1			<1
1,2-dibromoethane	µg/l	1			<1
1,2-dichlorobenzene	µg/l	1			<1
1,2-dichloroethane	µg/l	1			<1
1,2-dichloropropane	µg/l	1			<1
1,3,5-trimethylbenzene	µg/l	1			<1
1,3-dichlorobenzene	µg/l	1			<1
1,3-dichloropropane	µg/l	1			<1
1,4-dichlorobenzene	µg/l	1			<1
Methyl Ethyl Ketone	µg/l	5			<5
4-chlorotoluene	µg/l	1			<1
4-Methyl-2-pentanone	µg/l	5			<5
Acetone	mg/l	0.005			<0.005
Allyl chloride	mg/l	0.001			<0.001
Bromobenzene	µg/l	1			<1
Bromochloromethane	µg/l	1			<1
Bromodichloromethane	µg/l	1			<1
Bromodiform	µg/l	1			<1
Bromomethane	µg/l	5			<5
Carbon disulfide	µg/l	1			<1
Carbon tetrachloride	µg/l	1			<1
Chlorobenzene	µg/l	1			<1
Chlorodibromomethane	µg/l	1			<1
Chloroethane	µg/l	5			<5
Chloroform	µg/l	5			<5
Chloromethane	µg/l	5			<5
cis-1,2-dichloroethene	µg/l	1			<1
cis-1,3-dichloropropene	µg/l	1			<1
Dibromomethane	µg/l	1			<1
Dichlorodifluoromethane	µg/l	5			<5
Dichloromethane	µg/l	5			<5
Iodomethane	µg/l	1			<1
Isopropylbenzene	µg/l	1			<1
Styrene	µg/l	1			<1
Trichloroethene	µg/l	1			<1
Tetrachloroethene	µg/l	1			<1
trans-1,2-dichloroethene	µg/l	1			<1
trans-1,3-dichloropropene	µg/l	1			<1
Trichlorofluoromethane	µg/l	5			<5
Vinyl chloride	µg/l	5			<5

Consulting Engineers and Scientists



APPENDIX J
CALIBRATION CERTIFICATES AND MSDS

EQUIPMENT CERTIFICATION REPORT

PGN9003871 WATER QUALITY METER – MULTIFUNCTION (YSI PRO PLUS)

Plant Number: 1088644 Serial Number: 21H104345

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
pH	pH 7.00 / pH 4.00	7.00 pH	4.00 pH	330737 380327	☒
Conductivity	12.88 mS/cm	12.88 mS/cm	—	364457	☒
Dissolved Oxygen	Sodium Sulphite / Air	0.0% in Sodium Sulphite	% Saturation in Air	10465	☒
ORP	240mV @ 20°C	240mV	—	337308 338782	☒

Battery Status <u>70</u> %	Temperature <u>21.5</u> °C
Electrodes Cleaned and Checked	

Note: Calibration solution traceability information is available upon request.

Checked By: Wilma Fouché Date: 3/3/23 Signed: [Signature]

Accessories List:

User's Manual	pH Sensor	Conductivity/ Temp Sensor
Dissolved Oxygen Sensor	Redox (ORP) Sensor	Flow Cell
User Guide	Stainless Steel Restrictor	Spare Batteries
Calibration Cup		



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KENNARDS**HIRE****EQUIPMENT CERTIFICATION REPORT**

PGN9003823 GAS ANALYSER – LANDFILL

GA5000 / GEM5000

Plant Number: 234906 Serial Number: G502371

SENSOR	CONCENTRATION	INSTRUMENT READING	TRACEABILITY	PASS
CH4	60%	<u>60</u> %	Lot # <u>1485461</u>	☒
CO2	40%	<u>40</u> %	Lot # <u>1485461</u>	☒
O2	20.9%	<u>20.9</u> %	FRESH AIR	☒
CO	60ppm	<u>60</u> ppm	Lot # <u>271163</u>	☒
H2S	20ppm	<u>20</u> ppm	Lot # <u>271163</u>	☒

Data Cleared ☒

Battery Status <u>100</u> (%)	Temperature <u> </u> °C
Electrical Test & Tag (AS/NZS 3760)	Inlet Filter Cleaned/Replaced

Note: Calibration traceability information is available upon request.Checked By: Wilma Fouché Date: 3/3/23 Signed: *[Signature]***Accessories List:**

User's Manual & USB	1x Gas Inlet Hoses	1X Gas Inlet Hose With Filter
1x Gas Inlet Hose & Clip Fitting	2x Spare Inlet Filters	1x Flow Through Desiccant
1x Wall Charger	Carry Pouch With Neck Strap	1x USB Comms Cable
Carry Transit Case	Calibration Certificate	

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EQUIPMENT CERTIFICATION REPORT

KENNARDS

HIRE

PGN9003827 GAS DETECTOR - PID

Plant Number: 234959 Serial Number: 592-919103

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
PID Isobutylene	100ppm	0	100ppm	Lot #	☒
		0,0	100,0	1293468	

Data Cleared ☒

Battery Status <u>100 (%)</u>	Temperature <u> </u> °C
Electrical Test & Tag (AS/NZS 3760)	Inlet Filter Checked/Changed

Note: Calibration traceability information is available upon request.

Checked By: Nilma Fouché Date: 3/3/23 Signed: [Signature]

Accessories List:

User's Manual	Charger / Comms Adaptor	Wall Charger
2x Spare Air Filters	1x Spare Rechargeable Battery	Carry Transit Case
	Calibration Report	

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Safety Data Sheet

Foam-Star Ultra

SDS Revision Date: 01/18/2023

1. Identification

1.1. Product identifier

Product Identity

Foam-Star Ultra

Alternate Names

Drilling Foam

1.2. Relevant identified uses of the substance or mixture and application method

Intended use

Drilling Foam

Application Method

See Technical Data Sheet.

1.3. Details of the supplier of the safety data sheet

Company Name

NorthStar Fluid Solutions
P.O. Box 271036
Louisville, Colorado 80027, USA

Emergency

CHEMTREC (USA)

(800) 424-9300

24 hour Emergency Telephone No.

International +1-703-527-3887

Customer Service: NorthStar Fluid Solutions

(303) 495-3130

2. Hazard(s) identification

2.1. Classification of the substance or mixture

Combustible dust

2.2. Label elements

Hazard Pictograms



Signal Word

Warning

Hazard Statements

Harmful if swallowed
May be harmful in contact with skin
Causes skin irritation
Causes serious eye irritation
Toxic to aquatic life with long lasting effects

Precautionary Statements

[Prevention]: Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment.



Safety Data Sheet

Foam-Star Ultra

SDS Revision Date: 01/18/2023

[Response]: Specific Treatment (See Section 4 on the SDS).

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If irritation persists, call a physician.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Induce vomiting, but only if victim is fully conscious.

[Storage]: Keep away from heat, sparks and open flame. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of reach of children.

[Disposal]: Dispose of contents/container to an approved waste disposal plant.

Contains Substances

CAS Number

2-butoxyethanol

111-76-2

Diethylene Glycol

111-46-6

2.3 Hazards not otherwise classified

Unknown Acute Toxicity

0% of the mixture consists of ingredient(s) of unknown toxicity

3. Composition/information on ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - US
2-butoxyethanol	111-76-2	10-30%	Liquid
Diethylene Glycol	111-46-6	3-7%	Liquid

In accordance with paragraph (i) of §1910.1200, the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

[1] Substance classified with a health or environmental hazard.

[2] Substance with a workplace exposure limit.

[3] PBT-substance or vPvB-substance.

*The full texts of the phrases are shown in Section 16.

4. First aid measures

4.1. Description of first aid measures

Inhalation

If mists/vapors are formed or irritation occurs, leave area and do not return until mists/vapors have dissipated. If irritation persists, see a physician. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get medical attention immediately.

Eyes

Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Call a physician immediately.

Skin

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. If skin irritation persists, see a physician.



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Ingestion Induce vomiting, but only if victim is fully conscious. Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

May cause irritation and/or burning to eyes and skin. May cause headache, dizziness, blurred vision, nausea and vomiting. May cause respiratory irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. Fire-fighting measures

5.1. Extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2. Special hazards arising from the substance or mixture

No Information available.

5.3. Advice for fire-fighters

Full protective clothing and approved self-contained breathing apparatus required for firefighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation, especially in confined areas.

See Section 8 for additional information

6.2. Environmental precautions

See Section 12 for additional ecological information.

6.3. Methods and material for containment and cleaning up

Prevent further leakage or spillage if safe to do so.

Methods for cleaning up

Small Spill

Use a non-combustible material like vermiculite or sand to soak up the product and place into a container for later disposal.

Large Spill

Dike the spill area and recover as much as possible in drums or salvage tanks. Use a non-combustible material like vermiculite or sand to soak up the remaining product and place into a container for later disposal.

7. Handling and storage

7.1. Precautions for safe handling

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children.

Incompatible materials

None known based on information supplied.

7.3. Specific end use(s)

None known.

8. Exposure controls and personal protection

8.1. Control parameters

Exposure

Substances	ACGIH TLV	OSHA PEL-TWA	ACGIH TLV-TWA
2-butoxyethanol 111-76-2	TWA: 20 ppm	TWA: 50 ppm TWA: 240 mg/m ³ (vacated) TWA: 25 pm (vacated) TWA: 120 mg/m ³ (vacated) S* S*	IDLH: 700 ppm TWA: 5 ppm TWA: 24 mg/m ³

NIOSH IDLH Immediately Dangerous to Life or Health

8.2. Exposure controls

Respiratory

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators or air purifying respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Eyes

Tight sealing safety goggles.

Skin

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Engineering Controls

Use in a well ventilated area.

Other Work Practices

Handle in accordance with good industrial hygiene and safety practice. Wash face, hands and any exposed skin thoroughly after handling. Keep away from food, drink and animal feeding stuffs. Wear suitable gloves and eye/face protection.



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See section 2 for further details. - [Prevention]:

9. Physical and chemical properties

Appearance	Colorless to Light Yellow Liquid
Odor	Lemon
Odor threshold	No information available
pH	7.5 - 8.5
Melting point / freezing point	No information available
Initial boiling point and boiling range	210 ° F
Flash Point	> 202 ° F Pensky-Martens Closed Cup (PMCC)
Evaporation rate (Ether = 1)	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapor pressure (Pa)	No data available
Vapor Density	No data available
Specific Gravity	1.042
Solubility in Water	Partially soluble
Partition coefficient n-octanol/water (Log Kow)	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity (cSt)	No data available
Density (lbs/gal)	No data available
9.2. Other information	
VOC Content (%)	24
Bulk Density	No data available

10. Stability and reactivity

10.1. Reactivity

No data available

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

None under normal processing.

10.4. Conditions to avoid

No special precautions beyond standard safe industrial practices.

10.5. Incompatible materials

None known based on information supplied.

10.6. Hazardous decomposition products

Oxides of carbon and nitrogen

11. Toxicological information

11.1 Information on likely routes of exposure

Principle Route of Exposure Eye or skin contact.

11.2 Symptoms related to the physical, chemical and toxicological characteristics

Acute Toxicity

Inhalation	None known.
Eye Contact	Severely irritating to eyes.
Skin Contact	May be harmful in contact with skin.
Ingestion	Harmful if swallowed.

Chronic toxicity

May cause adverse effects on the bone marrow and blood-forming system. May cause adverse liver effects.

Target organ effects

Blood, Central nervous system, EYES, hematopoietic system, Kidney, Liver, Respiratory system, Skin.

Carcinogenicity

Chemical Name	ACGIH	IARC	NTP	OSHA
2-butoxyethanol 111-76-2	A3	Group 3	-	-

ACGIH (American Conference of Governmental Industrial Hygienists)

A3 - Animal Carcinogen

IARC (International Agency for Research on Cancer)

Not classifiable as a human carcinogen

11.3 Toxicity data

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
2-butoxyethanol	111-76-2	= 470 mg/kg (Rat)	= 435 mg/kg (Rabbit)	= 450 ppm (Rat) 4 h
Sodium Alpha Olefin Sulfonate	111-76-2	= 2220 mg/kg (Rat)	> 740 mg/kg (Rabbit)	= 52 mg/L (Rat) 4 h
Water	111-76-2	>90 mL/kg (Rat)	-	-
Sodium Chloride	111-76-2	= 3 g/kg (Rat)	= 10 g/kg (Rabbit)	> 42 mg/L (Rat) 4 h
Diethylene Glycol	111-76-2	= 12565 mg/kg (Rat)	= 11890 mg/kg (Rabbit)	= 4600 mg/m ³ (Rat) 4 h
Sodium Sulfate	111-76-2	= 10000 mg/kg (Rat)	-	> 2.4 mg/L (Rat) 4 h

12. Ecological information

12.1. Toxicity

Ecotoxicity Effects

Product Ecotoxicity Data

No data available

Substance Ecotoxicity Data

0% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Sodium Alpha Olefin Sulfonate 68439-57-6	-	1.0 - 10.0: 96 h Brachydanio rerio mg/L LC50 static 12.2: 96 h Brachydanio rerio mg/L LC50 semi-static	-
2-butoxyethanol 111-76-2	-	1490: 96 h Lepomis macrochirus mg/L LC50 static 2950: 96 h Lepomis macrochirus mg/L LC50	1000: 48 h Daphnia magna mg/L EC50 1698 - 1940: 24 h Daphnia magna mg/L EC50
Diethylene Glycol 111-46-6	-	75200: 96 h Pimephales promelas mg/L LC50 flow-through	84000: 48 h Daphnia magna mg/L EC50
Sodium Chloride 7647-14-5	-	5560 - 6080: 96 h Lepomis macrochirus mg/L LC50 flow-through 12946: 96 h Lepomis macrochirus mg/L LC50 static 6020 - 7070: 96 h Pimephales promelas mg/L LC50 static 7050: 96 h Pimephales promelas mg/L LC50 semi-static 6420 - 6700: 96 h Pimephales promelas mg/L LC50 static 4747 - 7824: 96 h Oncorhynchus mykiss mg/L LC50 flow-through	1000: 48 h Daphnia magna mg/L EC50 340.7 - 469.2: 48 h Daphnia magna mg/L EC50 Static
Sodium Sulfate 7757-82-6	-	3040 - 4380: 96 h Lepomis macrochirus mg/L LC50 static 13500: 96 h Lepomis macrochirus mg/L LC50 13500 - 14500: 96 h Pimephales promelas mg/L LC50 6800: 96 h Pimephales promelas mg/ L LC50 static	2564: 48 h Daphnia magna mg/L EC50 630: 96 h Daphnia magna mg/L EC50

12.2. Persistence and degradability:

This product is readily biodegradable

12.3. Bioaccumulative potential

Chemical Name	Partition coefficient
2-butoxyethanol 111-76-2	0.81
Diethylene Glycol 111-46-6	-1.98



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12.4. Mobility in soil

No information available

12.5. Results of PBT and vPvB assessment

No information available

13. Disposal considerations

13.1. Waste treatment methods

Disposal of wastes

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging

Do not reuse container.

US EPA Waste Number

U122

14. Transport information

The shipping classification information in this section (Section 14) is meant as a guide to the overall classification of the product. However, transportation classifications may be subject to change with changes in package size.

TDG-Not regulated as dangerous goods.

IATA-Not regulated as dangerous goods.

IMDG-Not regulated as dangerous goods.

15. Regulatory information

US TSCA Inventory

All components listed on inventory or are exempt.

EPA SARA Title III Extremely Hazardous Substances

Not applicable

EPA SARA (311,312) Hazard Class

None

EPA SARA (313) Chemicals

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.



Safety Data Sheet

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EPA CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations			
Chemical Name	New Jersey	Massachusetts	Pennsylvania
2-butoxyethanol 111-76-2	X	X	X
Diethylene Glycol 111-46-6	-	-	X
Sodium Sulfate 7757-82-6	-	X	X

Canadian Regulations

Canadian DSL Inventory

All components listed on inventory or are exempt.

16. Other information

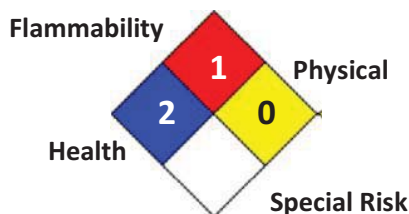
This is the first version in the GHS SDS format. Listings of changes from previous versions in other formats are not applicable.

The information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. Buyer assumes all risk of use, storage and handling of the product in compliance with applicable Federal, State and local law and regulations. NorthStar Fluid Solutions makes no warranty of any kind, express or implied, concerning the accuracy or completeness of the information and data herein. The implied warranties of merchantability and fitness for a particular purpose are specifically excluded. NorthStar Fluid Solutions will not be liable for claims relating to any use of this product.

Emergency Overview:

Risk Classification System:

HEALTH	2
FLAMMABILITY	1
PHYSICAL	0
PPE	X



End of Document

Consulting Engineers and Scientists



APPENDIX K
LANDFILL ENVIRONMENTAL RECORDS

**ASTC Regional Waste
Management Facility
Environmental Performance
Monitoring Report - March 2024**

**Particulate (PM10)
Monitoring Data**



Date	Day of week	Location	Particulate Monitoring Results (mg/m ³)				Site Condition
			Average	Minimum	Maximum	Time in hrs	Wind Direction
5/04/2023	Wed	D2	0.010	-0.011	0.303	05:26	NW
3/05/2023	Wed	D2	0.193	-0.050	12.800	05:59	E
4/05/2023	Thurs	D1	0.040	-0.021	0.313	05:59	E
9/05/2023	Tue	D3	0.002	-0.068	0.106	04:39	ESE
11/05/2023	Thurs	D2	0.034	-0.031	1.610	05:05	
16/05/2023	Tue	D3	0.001	-0.037	0.100	05:59	WNW
19/05/2023	Fri	D1	-0.002	-0.056	0.126	05:54	ESE
24/05/2023	Wed	D3	0.004	0.000	0.258	05:59	
30/05/2023	Tue	D2	0.032	-0.048	1.460	05:00	ESE
7/05/2023	Wed	D2	0.021	-0.036	0.100	05:28	W
15/05/2023	Thurs	D3	0.001	-0.064	0.331	05:46	WNW
12/07/2023	Wed	D2	0.003	-0.069	0.186	5:24	NA
20/07/2023	Thu	D3	0.002	-0.051	0.081	6:00	NNW
2/08/2023	Wed	D2	0.052	-0.057	3.550	5:21	E
4/08/2023	Fri	D2	0.057	-0.020	8.130	5:09	ESE
10/08/2023	Thu	D3	-0.004	-0.073	0.103	6:00	E
16/08/2023	Wed	D1	0.006	0.047	0.091	5:53	NW
29/08/2023	Tue	D3	-0.002	-0.068	0.124	6:00	S
6/09/2023	wed	D2	0.115	-0.046	3.640	5:52	E
19/09/2023	Tue	D3	0.017	-0.060	0.100	6:00	NW
26/09/2023	Tue	D2	0.028	-0.012	0.185	5:00	S
4/10/2023	Wed	D1	-0.003	-0.075	0.224	5:34	SSE
11/10/2023	Wed	D1	0.009	-0.058	0.236	5:49	ESE
18/10/2023	Wed	D3	-0.021	-0.077	0.061	5:52	E
26/10/2023	Thu	D2	0.024	-0.081	2.860	5:28	ESE
31/10/2023	Tue		0.008	-0.069	0.334	6:00	ENE
3/11/2023	Fri	D1	0.081	-0.010	0.154	6:00	E
8/11/2023	Wed	D3	0.032	-0.072	0.237	4:45	N
10/11/2023	Fri	D2	0.082	0.000	0.182	5:08	NNE
16/11/2023	Thu	D2	0.056	-0.065	0.507	5:13	ENE
23/11/2023	Thu	D3	-0.008	-0.071	0.085	6:00	E
6/12/2023	Wed	D2	0.020	-0.023	0.264	5:27	NNE
14/12/2023	Thu	D1	0.025	-0.005	0.065	6:00	SE
19/12/2023	Tue	D1	-0.003	-0.076	0.020	5:58	SSE
3/01/2024	Wed	D3	0.033	-0.027	0.296	6:00	WSW
11/01/2024	Thu	D2	0.020	-0.031	1.070	6:00	NE
18/01/2024	Thu	D1	0.009	-0.058	0.054	6:00	E
25/01/2024	Thu	D2	0.006	-0.029	0.046	6:00	W
2/02/2024	Fri	D3	0.006	-0.047	0.113	5:47	ESE
9/02/2024	Fri	D2	0.009	-0.080	1.020	5:55	ESE
14/02/2024	Wed	D1	0.004	-0.028	0.167	6:00	SE
22/02/2024	Thu	D1	0.005	-0.025	0.055	5:22	SW
1/03/2024	Fri	D2	0.001	-0.024	0.172	5:50	E
6/03/2024	Wed	D3	0.018	-0.041	0.075	6:00	E
13/03/2024	Wed	D2	0.014	-0.022	0.354	6:00	ENE
15/03/2024	Fri	D3	0.015	-0.036	0.203	6:00	E
21/03/2024	Thu	D1	-0.002	-0.064	0.106	6:00	E
28/03/2024	Thu	D2	-0.002	-0.081	0.232	6:00	E

Landfill Environmental Monitoring Record

General

Tierra Project Number AAQ-06-023.26

Summary of Inspection of Stormwater Ponds⁽²⁾

The water in pond SW2 was slightly turbid with a brown colouration, it did not have any sheens and was not odorous. The water in the pond was almost gone as it remained in a series of depressions in the base of the pond. Water in the pond was sampled as part of the investigation works. Drainage lines appeared to be in relatively good condition.

NA

Date

Landfill Environmental Monitoring Record

Date of Monitoring⁽⁴⁾**Inspection:** 2 March 2024 9:00amPerson conducting monitoring: Daryl BurrowsOrganisation/Position: Tierra Principal Scientist

Observations⁽²⁾: Location N1: No odour
Wind from north east

Location N2: No odour

Location N3: No odour

Location N4: No odour

Inspection: 2 March 2024 11:30amPerson conducting monitoring: Daryl BurrowsOrganisation/Position: Tierra Principal Scientist

Observations⁽²⁾: Location N1: No odour
Wind from north east

Location N2: No odour

Location N3: No odour

Location N4: No odour

Inspection: 2 March 2024 3:00pmPerson conducting monitoring: Daryl BurrowsOrganisation/Position: Tierra Principal Scientist

Observations⁽²⁾: Location N1: No odour
Wind from north east

Location N2: No odour

Location N3: No odour

Location N4: No odour

Notes:

1. Monitoring to be conducted at random intervals averaging 12 monitoring events per year.
2. Classify odours as either 'No Odour', 'Slight Odour' or 'Strong Odour'.

**Monitoring Record
Completed by:**Signature2 March 2024Date**Monitoring Record Received
by Tierra Environment**SignatureNADate

Landfill Environmental Monitoring Record

GeneralPerson conducting monitoring: Daryl BurrowsOrganisation/Position: Tierra Principal ScientistDate of monitoring⁽¹⁾: 2 March 2024Tierra project Number AAQ-06-023.26**Inspection of Site**

The active filling area is suitably small and being pushed out and compacted as material is placed. Recently filled areas have been well covered with daily cover. The recycling area to the west of the filling area (where metals, concrete and timber are recycled) are relatively large however it is well ordered with clearly marked rows/piles of consistent material.

Other observations

In general the landfill is in neat and tidy condition and access roads are well maintained. There was however in the vicinity of well MW6A filling using concrete that had not been crushed. This has resulted in large voids in the waste and poor utilisation of air space. Large material should be crushed and large material such as concrete should be diverted from filling for crushing and re-use.

Inspection of Boundary Fence

Minor litter on landfill slopes. Does not appear to be significant and is old (deteriorated) and stuck in vegetation (so not blowing around).

Inspection of Adjacent Properties

Observations No significant litter associated with the landfill operations (i.e. no significant windblown debris).

Note: 1. Monitoring to be conducted during annual monitoring event.

**Monitoring Record
Completed by:**

Signature2 March 2024Date

**Monitoring Record Received
by Tierra Environment**

Not applicableSignatureNADate

Landfill Environmental Monitoring Record

General

Person conducting monitoring: Daryl Burrows

Organisation/Position: Tierra Principal Scientist

Date of Monitoring⁽¹⁾: 2 March 2024

Tierra Project Number AAQ-06-023.26

Weeds are generally quite wide spread likely due to the recent extensive rains. Side slopes of the landfill are well vegetated with the top having mainly weeds. While weeds are dominant in the top, erosion does not seem to be an issue as it has stabilised the surface well.

Bird numbers (eagles and crows) were again low which is consistent with the fact that the nesting area is small and compacting and covering is continuous throughout the day.

Vegetation on side slopes and the top surface is likely a mix of native vegetation and weeds that are healthy and would appear to be adequately stabilising the surface cover. Weeds should not be removed as a program of revegetation with alternate natives is proposed otherwise particularly on the south side of the road where increased erosion may occur.

Erosion control at present appears good. A healthy spread of vegetation on the side slopes assisting the slope stability.

Monitoring Record
Completed by:

Signature

2 March 2024

Date _____

Monitoring Record Received by Tierra Environment

Not applicable

Signature

NA

Date _____

Consulting Engineers and Scientists



APPENDIX L
LABORATORY REPORTS

FS1075112 5107124

CHAIN OF CUSTODY RECORD



mgt

CLIENT DETAILS

Company Name : Tierra Environment				Contact Name : Daryl Burrows				Purchase Order : NA				COC Number : T1976																																																																																																										
Office Address :				Project Manager : Daryl Burrows				Project Number : AAQ 06 023.26				QUOTE ID : 231130TIES																																																																																																										
				Email for results : general@tierra.com.au				Project Name : Alice Springs Landfill				Esdat																																																																																																										
Special Directions & Comments : *Metals to consist of Sb, As, Ba, Be, Cd, Cr, Cr3+, Cr6+, Co, Cu, Fe (total) Pb, Mn, Hg, Ni, Se, Ag, TI, V, Zn				Analytes												Laboratory Address																																																																																																						
				Eurofins - Melbourne 6 Monterey Road, Dandenong South, VIC 3175 Phone: 03 8584 5000 Fax: 03 8564 5090 Email: EnviroSampleVic@eurofins.com <table border="1"> <thead> <tr> <th colspan="7">Containers</th> <th rowspan="2">Sample Comments</th> </tr> <tr> <th>500P</th> <th>250A</th> <th>50P</th> <th>250A</th> <th>VIAL</th> <th>125mL A</th> <th>Jar</th> </tr> </thead> <tbody> <tr><td>2</td><td>1</td><td>4</td><td></td><td>2</td><td>1</td><td></td><td></td></tr> <tr><td>2</td><td>1</td><td>4</td><td></td><td>2</td><td>1</td><td></td><td></td></tr> <tr><td>2</td><td>1</td><td>4</td><td></td><td>2</td><td>1</td><td></td><td></td></tr> <tr><td>2</td><td>1</td><td>4</td><td></td><td></td><td>1</td><td></td><td></td></tr> <tr><td>2</td><td>1</td><td>4</td><td></td><td></td><td>1</td><td></td><td></td></tr> <tr><td>2</td><td>1</td><td>4</td><td></td><td>2</td><td>1</td><td></td><td></td></tr> <tr><td>2</td><td>1</td><td>4</td><td></td><td>2</td><td>1</td><td></td><td></td></tr> <tr><td>2</td><td>1</td><td>4</td><td></td><td>2</td><td>1</td><td></td><td></td></tr> <tr><td></td><td></td><td>2</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td>2</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td></tr> </tbody> </table>												Containers							Sample Comments	500P	250A	50P	250A	VIAL	125mL A	Jar	2	1	4		2	1			2	1	4		2	1			2	1	4		2	1			2	1	4			1			2	1	4			1			2	1	4		2	1			2	1	4		2	1			2	1	4		2	1					2								2										1			
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Turbidity	B11E: Anion Suite - Chloride, SO4, Alkalinity	B11D: Cation Suite - NA, K, Ca, Mg, Organic N (Ammonia, TKN, Organic N)	TOC	BOD 5 Day	COD	M13 - Metals*	Ferrous/Ferric Fe Speciation	PAH	PCB	TRH	SW: SVOC, VOC	VOC																																																																																																										
1	MW1	3&4 Mar 2024	Water	x	x	x	x	x	x	x	x	x	x																																																																																																									
2	MW2-A	3&4 Mar 2024	Water	x	x	x	x	x	x	x	x	x	x																																																																																																									
3	MW2-X	3&4 Mar 2024	Water	x	x	x	x	x	x	x	x	x	x																																																																																																									
4	MW4	3&4 Mar 2024	Water	x	x	x	x	x	x	x	x	x	x																																																																																																									
5	MW5	3&4 Mar 2024	Water	x	x	x	x	x	x	x	x	x	x																																																																																																									
6	MW6	3&4 Mar 2024	Water	x	x	x	x	x	x	x	x	x	x																																																																																																									
7	MW7	3&4 Mar 2024	Water	x	x	x	x	x	x	x	x	x	x																																																																																																									
8	MW82	3&4 Mar 2024	Water	x	x	x	x	x	x	x	x	x	x																																																																																																									
9	MW83	3&4 Mar 2024	Water	x	x	x	x	x	x	x	x	x	x																																																																																																									
10	MW86	3&4 Mar 2024	Water	x	x	x	x	x	x	x	x	x	x																																																																																																									
11	SW2	3&4 Mar 2024	Water	x	x	x	x	x	x	x	x	x	x																																																																																																									
12	20240303R1	3&4 Mar 2024	Water																																																																																																																			
13	20240303FB1	3&4 Mar 2024	Water																																																																																																																			
14	20240303TB1	3&4 Mar 2024	Water																																																																																																																			
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Relinquished By: Daryl Burrows		Received By:		Received By:		Turn around Time		Method Of Shipment	
Date & Time : 04/03/24 2pm		Date & Time :		Date & Time :		24 Hrs 48 Hrs		☒ Courier ☐ Hand Delivered ☐ Postal	
Signature:		Signature:		Signature:		5 Days 10 Days			
Report Number :		Report Number :		Report Number :					

Tierra Environmental Pty Ltd
PO Box 360
Mitcham
SA 5062



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: **Daryl Burrows**

Report **1075112-W**
Project name **ALICE SPRINGS LANDFILL**
Project ID **AAQ 06 023.26**
Received Date **Mar 05, 2024**

Client Sample ID			MW1	MW2-A	MW2-X	MW4
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24- Ma0010259	M24- Ma0010260	M24- Ma0010261	M24- Ma0010262
Date Sampled			Mar 04, 2024	Mar 04, 2024	Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID Sample Matrix Eurofins Sample No. Date Sampled Test/Reference	LOR	Unit	MW1 Water M24- Ma0010259 Mar 04, 2024	MW2-A Water M24- Ma0010260 Mar 04, 2024	MW2-X Water M24- Ma0010261 Mar 04, 2024	MW4 Water M24- Ma0010262 Mar 04, 2024
Volatile Organics						
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	87	93	92	87
Toluene-d8 (surr.)	1	%	99	96	98	93
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID Sample Matrix Eurofins Sample No. Date Sampled Test/Reference	LOR	Unit	MW1 Water M24- Ma0010259 Mar 04, 2024	MW2-A Water M24- Ma0010260 Mar 04, 2024	MW2-X Water M24- Ma0010261 Mar 04, 2024	MW4 Water M24- Ma0010262 Mar 04, 2024
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	76	53	60	51
p-Terphenyl-d14 (surr.)	1	%	77	65	81	81
Polychlorinated Biphenyls						
Aroclor-1016	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1221	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1232	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1242	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1248	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1254	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1260	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Total PCB*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibutylchloredate (surr.)	1	%	66	91	62	68
Tetrachloro-m-xylene (surr.)	1	%	68	93	77	70
Semivolatile Organics						
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	76	53	60	51
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03

Client Sample ID Sample Matrix Eurofins Sample No. Date Sampled Test/Reference	LOR	Unit	MW1 Water M24- Ma0010259 Mar 04, 2024	MW2-A Water M24- Ma0010260 Mar 04, 2024	MW2-X Water M24- Ma0010261 Mar 04, 2024	MW4 Water M24- Ma0010262 Mar 04, 2024
Semivolatile Organics						
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	51	67	67	57
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
a-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a,j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			MW1	MW2-A	MW2-X	MW4
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24- Ma0010259	M24- Ma0010260	M24- Ma0010261	M24- Ma0010262
Date Sampled			Mar 04, 2024	Mar 04, 2024	Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit				
Semivolatile Organics						
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene-d5 (surr.)	1	%	66	91	51	52
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	92	92	63	77
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Haloethers						
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ammonia (as N)	0.01	mg/L	< 0.01	0.03	0.01	0.04
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	< 5	< 5	< 5	< 5
Chemical Oxygen Demand (COD)	25	mg/L	< 25	< 25	< 25	28
Chloride	1	mg/L	740	1000	1100	1100
Chromium (trivalent filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferric Iron - Fe3+	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Ferrous Iron - Fe2+	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Organic Nitrogen (as N)*	0.2	mg/L	1.7	1.37	1.09	0.66
Sulphate (as SO4)	5	mg/L	1100	2600	2700	3200
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	1.7	1.4	1.1	0.7
Total Organic Carbon	5	mg/L	< 5	< 5	< 5	5.9
Turbidity	1	NTU	< 1	< 1	< 1	< 1
Hardness mg equivalent CaCO3/L	5	mg/L	1200	3000	2900	2700

Client Sample ID			MW1	MW2-A	MW2-X	MW4
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ma0010259	M24-Ma0010260	M24-Ma0010261	M24-Ma0010262
Date Sampled			Mar 04, 2024	Mar 04, 2024	Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit				
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO ₃)	20	mg/L	470	400	490	510
Carbonate Alkalinity (as CaCO ₃)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO ₃)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO ₃)	20	mg/L	470	400	490	510
Hexavalent Chromium Set (filtered)						
Chromium (hexavalent filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heavy Metals						
Antimony (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Barium (filtered)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Beryllium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt (filtered)	0.001	mg/L	< 0.001	0.002	0.002	0.009
Copper (filtered)	0.001	mg/L	0.007	0.003	0.006	< 0.001
Iron (filtered)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.028	0.064	0.063	0.94
Mercury (filtered)	0.0001	mg/L	< 0.0001	0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.004	0.010	0.010	0.008
Selenium (filtered)	0.001	mg/L	0.002	0.002	0.003	< 0.001
Silver (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Thallium (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Alkali Metals						
Calcium	0.5	mg/L	270	650	650	520
Magnesium	0.5	mg/L	120	330	320	340
Potassium	0.5	mg/L	15	32	31	25
Sodium	0.5	mg/L	610	860	850	1300

Client Sample ID			MW5	MW6	MW7	MW82
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ma0010263	M24-Ma0010264	M24-Ma0010265	M24-Ma0010266
Date Sampled			Mar 04, 2024	Mar 04, 2024	Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	-	-	-	< 0.02
TRH C10-C14	0.05	mg/L	-	-	-	< 0.05
TRH C15-C28	0.1	mg/L	-	-	-	< 0.1
TRH C29-C36	0.1	mg/L	-	-	-	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	-	-	-	< 0.1
TRH C6-C10	0.02	mg/L	-	-	-	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	-	-	-	< 0.02
TRH >C10-C16	0.05	mg/L	-	-	-	< 0.05
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	-	-	-	< 0.05
TRH >C16-C34	0.1	mg/L	-	-	-	< 0.1

Client Sample ID			MW5	MW6	MW7	MW82
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ma0010263	M24-Ma0010264	M24-Ma0010265	M24-Ma0010266
Date Sampled			Mar 04, 2024	Mar 04, 2024	Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH >C34-C40	0.1	mg/L	-	-	-	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	-	-	-	< 0.1
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	-	-	-	< 0.001
1.1-Dichloroethene	0.001	mg/L	-	-	-	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	-	-	-	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	-	-	-	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	-	-	-	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	-	-	-	< 0.001
1.2-Dibromoethane	0.001	mg/L	-	-	-	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	-	-	-	< 0.001
1.2-Dichloroethane	0.001	mg/L	-	-	-	< 0.001
1.2-Dichloropropane	0.001	mg/L	-	-	-	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	-	-	-	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	-	-	-	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	-	-	-	< 0.001
1.3-Dichloropropane	0.001	mg/L	-	-	-	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	-	-	-	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	-	-	-	< 0.001
2-Butanone (MEK)	0.005	mg/L	-	-	-	< 0.005
2-Propanone (Acetone)	0.005	mg/L	-	-	-	< 0.005
4-Chlorotoluene	0.001	mg/L	-	-	-	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	-	-	-	< 0.005
Allyl chloride	0.001	mg/L	-	-	-	< 0.001
Benzene	0.001	mg/L	-	-	-	< 0.001
Bromobenzene	0.001	mg/L	-	-	-	< 0.001
Bromochloromethane	0.001	mg/L	-	-	-	< 0.001
Bromodichloromethane	0.001	mg/L	-	-	-	< 0.001
Bromoform	0.001	mg/L	-	-	-	< 0.001
Bromomethane	0.005	mg/L	-	-	-	< 0.005
Carbon disulfide	0.001	mg/L	-	-	-	< 0.001
Carbon Tetrachloride	0.001	mg/L	-	-	-	< 0.001
Chlorobenzene	0.001	mg/L	-	-	-	< 0.001
Chloroethane	0.005	mg/L	-	-	-	< 0.005
Chloroform	0.005	mg/L	-	-	-	< 0.005
Chloromethane	0.005	mg/L	-	-	-	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	-	-	-	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	-	-	-	< 0.001
Dibromochloromethane	0.001	mg/L	-	-	-	< 0.001
Dibromomethane	0.001	mg/L	-	-	-	< 0.001
Dichlorodifluoromethane	0.005	mg/L	-	-	-	< 0.005
Ethylbenzene	0.001	mg/L	-	-	-	< 0.001
Iodomethane	0.001	mg/L	-	-	-	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	-	-	-	< 0.001
m&p-Xylenes	0.002	mg/L	-	-	-	< 0.002
Methylene Chloride	0.005	mg/L	-	-	-	< 0.005
o-Xylene	0.001	mg/L	-	-	-	< 0.001
Styrene	0.001	mg/L	-	-	-	< 0.001
Tetrachloroethene	0.001	mg/L	-	-	-	< 0.001

Client Sample ID			MW5	MW6	MW7	MW82
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24- Ma0010263	M24- Ma0010264	M24- Ma0010265	M24- Ma0010266
Date Sampled			Mar 04, 2024	Mar 04, 2024	Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit				
Volatile Organics						
Toluene	0.001	mg/L	-	-	-	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	-	-	-	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	-	-	-	< 0.001
Trichloroethene	0.001	mg/L	-	-	-	< 0.001
Trichlorofluoromethane	0.005	mg/L	-	-	-	< 0.005
Vinyl chloride	0.005	mg/L	-	-	-	< 0.005
Xylenes - Total*	0.003	mg/L	-	-	-	< 0.003
Total MAH*	0.003	mg/L	-	-	-	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	-	-	-	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	-	-	-	< 0.005
4-Bromofluorobenzene (surr.)	1	%	-	-	-	92
Toluene-d8 (surr.)	1	%	-	-	-	99
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{NO2}	0.01	mg/L	-	-	-	< 0.01
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b,j)fluoranthene ^{NO7}	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	81	80	74	64
p-Terphenyl-d14 (surr.)	1	%	63	64	90	50
Polychlorinated Biphenyls						
Aroclor-1016	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1221	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1232	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1242	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1248	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1254	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1260	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Total PCB*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibutylchlorendate (surr.)	1	%	80	99	94	75
Tetrachloro-m-xylene (surr.)	1	%	109	124	81	53

Client Sample ID			MW5	MW6	MW7	MW82
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ma0010263	M24-Ma0010264	M24-Ma0010265	M24-Ma0010266
Date Sampled			Mar 04, 2024	Mar 04, 2024	Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit				
Semivolatile Organics						
Aldrin and Dieldrin (Total)*	0.0001	mg/L	-	-	-	< 0.005
DDT + DDE + DDD (Total)*	0.0001	mg/L	-	-	-	< 0.005
Total PAH*	0.001	mg/L	-	-	-	< 0.001
2-Methyl-4,6-dinitrophenol	0.03	mg/L	-	-	-	< 0.03
1-Chloronaphthalene	0.005	mg/L	-	-	-	< 0.005
1-Naphthylamine	0.005	mg/L	-	-	-	< 0.005
1,2-Dichlorobenzene	0.005	mg/L	-	-	-	< 0.005
1,2,3-Trichlorobenzene	0.005	mg/L	-	-	-	< 0.005
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	-	-	-	< 0.005
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	-	-	-	< 0.005
1,2,4-Trichlorobenzene	0.005	mg/L	-	-	-	< 0.005
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	-	-	-	< 0.005
1,3-Dichlorobenzene	0.005	mg/L	-	-	-	< 0.005
1,3,5-Trichlorobenzene	0.005	mg/L	-	-	-	< 0.005
1,4-Dichlorobenzene	0.005	mg/L	-	-	-	< 0.005
2-Chloronaphthalene	0.005	mg/L	-	-	-	< 0.005
2-Chlorophenol	0.003	mg/L	-	-	-	< 0.003
2-Fluorobiphenyl (surr.)	1	%	-	-	-	64
2-Methylnaphthalene	0.005	mg/L	-	-	-	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	-	-	-	< 0.003
2-Naphthylamine	0.005	mg/L	-	-	-	< 0.005
2-Nitroaniline	0.005	mg/L	-	-	-	< 0.005
2-Nitrophenol	0.01	mg/L	-	-	-	< 0.01
2-Picoline	0.005	mg/L	-	-	-	< 0.005
2,3,4,6-Tetrachlorophenol	0.01	mg/L	-	-	-	< 0.01
2,4-Dichlorophenol	0.003	mg/L	-	-	-	< 0.003
2,4-Dimethylphenol	0.003	mg/L	-	-	-	< 0.003
2,4-Dinitrophenol	0.03	mg/L	-	-	-	< 0.03
2,4-Dinitrotoluene	0.005	mg/L	-	-	-	< 0.005
2,4,5-Trichlorophenol	0.01	mg/L	-	-	-	< 0.01
2,4,6-Tribromophenol (surr.)	1	%	-	-	-	56
2,4,6-Trichlorophenol	0.01	mg/L	-	-	-	< 0.01
2,6-Dichlorophenol	0.003	mg/L	-	-	-	< 0.003
2,6-Dinitrotoluene	0.005	mg/L	-	-	-	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	-	-	-	< 0.006
3-Methylcholanthrene	0.005	mg/L	-	-	-	< 0.005
3,3'-Dichlorobenzidine	0.005	mg/L	-	-	-	< 0.005
4-Aminobiphenyl	0.005	mg/L	-	-	-	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	-	-	-	< 0.01
4-Nitrophenol	0.03	mg/L	-	-	-	< 0.03
4,4'-DDD	0.005	mg/L	-	-	-	< 0.005
4,4'-DDE	0.005	mg/L	-	-	-	< 0.005
4,4'-DDT	0.005	mg/L	-	-	-	< 0.005
7,12-Dimethylbenz(a)anthracene	0.005	mg/L	-	-	-	< 0.005
a-HCH	0.005	mg/L	-	-	-	< 0.005
Acenaphthene	0.001	mg/L	-	-	-	< 0.001
Acenaphthylene	0.001	mg/L	-	-	-	< 0.001
Acetophenone	0.005	mg/L	-	-	-	< 0.005
Aldrin	0.005	mg/L	-	-	-	< 0.005

Client Sample ID			MW5	MW6	MW7	MW82
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24- Ma0010263	M24- Ma0010264	M24- Ma0010265	M24- Ma0010266
Date Sampled			Mar 04, 2024	Mar 04, 2024	Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit				
Semivolatile Organics						
Aniline	0.005	mg/L	-	-	-	< 0.005
Anthracene	0.001	mg/L	-	-	-	< 0.001
b-HCH	0.005	mg/L	-	-	-	< 0.005
Benz(a)anthracene	0.001	mg/L	-	-	-	< 0.001
Benzo(a)pyrene	0.001	mg/L	-	-	-	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	-	-	-	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	-	-	-	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	-	-	-	< 0.001
Benzyl chloride	0.005	mg/L	-	-	-	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	-	-	-	< 0.005
Butyl benzyl phthalate	0.005	mg/L	-	-	-	< 0.005
Chrysene	0.001	mg/L	-	-	-	< 0.001
d-HCH	0.005	mg/L	-	-	-	< 0.005
Di-n-butyl phthalate	0.005	mg/L	-	-	-	< 0.005
Di-n-octyl phthalate	0.005	mg/L	-	-	-	< 0.005
Dibenz(a,h)anthracene	0.001	mg/L	-	-	-	< 0.001
Dibenz(a,j)acridine	0.005	mg/L	-	-	-	< 0.005
Dibenzofuran	0.005	mg/L	-	-	-	< 0.005
Dieldrin	0.005	mg/L	-	-	-	< 0.005
Diethyl phthalate	0.005	mg/L	-	-	-	< 0.005
Dimethyl phthalate	0.005	mg/L	-	-	-	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	-	-	-	< 0.005
Diphenylamine	0.005	mg/L	-	-	-	< 0.005
Endosulfan I	0.005	mg/L	-	-	-	< 0.005
Endosulfan II	0.005	mg/L	-	-	-	< 0.005
Endosulfan sulphate	0.005	mg/L	-	-	-	< 0.005
Endrin	0.005	mg/L	-	-	-	< 0.005
Endrin aldehyde	0.005	mg/L	-	-	-	< 0.005
Endrin ketone	0.005	mg/L	-	-	-	< 0.005
Fluoranthene	0.001	mg/L	-	-	-	< 0.001
Fluorene	0.001	mg/L	-	-	-	< 0.001
g-HCH (Lindane)	0.005	mg/L	-	-	-	< 0.005
Heptachlor	0.005	mg/L	-	-	-	< 0.005
Heptachlor epoxide	0.005	mg/L	-	-	-	< 0.005
Hexachlorobenzene	0.005	mg/L	-	-	-	< 0.005
Hexachlorobutadiene	0.005	mg/L	-	-	-	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	-	-	-	< 0.005
Hexachloroethane	0.005	mg/L	-	-	-	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	-	-	-	< 0.001
Methoxychlor	0.005	mg/L	-	-	-	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	-	-	-	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	-	-	-	< 0.005
N-Nitrosopiperidine	0.005	mg/L	-	-	-	< 0.005
Naphthalene	0.001	mg/L	-	-	-	< 0.001
Nitrobenzene	0.05	mg/L	-	-	-	< 0.05
Nitrobenzene-d5 (surr.)	1	%	-	-	-	64
Pentachlorobenzene	0.005	mg/L	-	-	-	< 0.005
Pentachloronitrobenzene	0.005	mg/L	-	-	-	< 0.005
Pentachlorophenol	0.01	mg/L	-	-	-	< 0.01

Client Sample ID			MW5	MW6	MW7	MW82
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ma0010263	M24-Ma0010264	M24-Ma0010265	M24-Ma0010266
Date Sampled			Mar 04, 2024	Mar 04, 2024	Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit				
Semivolatile Organics						
Phenanthrene	0.001	mg/L	-	-	-	< 0.001
Phenol	0.003	mg/L	-	-	-	< 0.003
Phenol-d6 (surr.)	1	%	-	-	-	75
Pronamide	0.005	mg/L	-	-	-	< 0.005
Pyrene	0.001	mg/L	-	-	-	< 0.001
Trifluralin	0.005	mg/L	-	-	-	< 0.005
Haloethers						
4-Bromophenyl phenyl ether	0.005	mg/L	-	-	-	< 0.005
4-Chlorophenyl phenyl ether	0.005	mg/L	-	-	-	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	-	-	-	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	-	-	-	< 0.005
Ammonia (as N)	0.01	mg/L	< 0.01	0.13	0.05	< 0.01
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	< 5	< 5	< 5	< 5
Chemical Oxygen Demand (COD)	25	mg/L	< 25	< 25	< 25	< 25
Chloride	1	mg/L	650	620	600	590
Chromium (trivalent filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferric Iron - Fe3+	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Ferrous Iron - Fe2+	0.05	mg/L	< 0.05	0.16	< 0.05	< 0.05
Organic Nitrogen (as N)*	0.2	mg/L	1.6	0.77	1.15	0.9
Sulphate (as SO4)	5	mg/L	1500	600	590	930
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	1.6	0.9	1.2	0.9
Total Organic Carbon	5	mg/L	< 5	< 5	< 5	< 5
Turbidity	1	NTU	< 1	2.8	1.4	500
Hardness mg equivalent CaCO3/L	5	mg/L	1700	1100	720	1200
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	340	400	490	440
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	340	400	490	440
Hexavalent Chromium Set (filtered)						
Chromium (hexavalent filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heavy Metals						
Antimony (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Arsenic (filtered)	0.001	mg/L	< 0.001	0.009	< 0.001	< 0.001
Barium (filtered)	0.02	mg/L	< 0.02	0.04	0.02	< 0.02
Beryllium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.003	< 0.001	0.004	< 0.001
Iron (filtered)	0.05	mg/L	< 0.05	0.19	< 0.05	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	1.4	0.023	0.008	0.20
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.003	< 0.001	0.002	< 0.001
Selenium (filtered)	0.001	mg/L	0.003	0.001	0.003	0.002
Silver (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			MW5	MW6	MW7	MW82
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ma0010263	M24-Ma0010264	M24-Ma0010265	M24-Ma0010266
Date Sampled			Mar 04, 2024	Mar 04, 2024	Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit				
Heavy Metals						
Thallium (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Alkali Metals						
Calcium	0.5	mg/L	340	260	150	250
Magnesium	0.5	mg/L	200	120	86	130
Potassium	0.5	mg/L	20	11	11	13
Sodium	0.5	mg/L	650	480	590	510

Client Sample ID			MW83	MW86	SW2	20240303R1
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ma0010267	M24-Ma0010268	M24-Ma0010269	M24-Ma0010270
Date Sampled			Mar 04, 2024	Mar 04, 2024	Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	0.020	-
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-

Client Sample ID			MW83	MW86	SW2	20240303R1
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ma0010267	M24-Ma0010268	M24-Ma0010269	M24-Ma0010270
Date Sampled			Mar 04, 2024	Mar 04, 2024	Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit				
Volatile Organics						
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
4-Bromofluorobenzene (surr.)	1	%	75	91	95	-
Toluene-d8 (surr.)	1	%	74	104	84	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-

Client Sample ID			MW83	MW86	SW2	20240303R1
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ma0010267	M24-Ma0010268	M24-Ma0010269	M24-Ma0010270
Date Sampled			Mar 04, 2024	Mar 04, 2024	Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
2-Fluorobiphenyl (surr.)	1	%	85	56	89	-
p-Terphenyl-d14 (surr.)	1	%	70	92	60	-
Polychlorinated Biphenyls						
Aroclor-1016	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Aroclor-1221	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Aroclor-1232	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Aroclor-1242	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Aroclor-1248	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Aroclor-1254	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Aroclor-1260	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Total PCB*	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Dibutylchlorendate (surr.)	1	%	59	64	59	-
Tetrachloro-m-xylene (surr.)	1	%	60	75	56	-
Semivolatile Organics						
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.005	< 0.005	< 0.005	-
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.005	< 0.005	< 0.005	-
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
2-Methyl-4,6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	-
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
1-Naphthylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
1,2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
1,2,4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
1,3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
1,3,5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
1,4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
2-Fluorobiphenyl (surr.)	1	%	85	56	89	-
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
2-Naphthylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
2,3,4,6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	-

Client Sample ID			MW83	MW86	SW2	20240303R1
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ma0010267	M24-Ma0010268	M24-Ma0010269	M24-Ma0010270
Date Sampled			Mar 04, 2024	Mar 04, 2024	Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit				
Semivolatile Organics						
2,4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
2,4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
2,4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	-
2,4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
2,4,5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
2,4,6-Tribromophenol (surr.)	1	%	91	55	82	-
2,4,6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
2,6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
2,6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	-
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
3,3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	-
4,4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
4,4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
4,4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
7,12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
a-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
b-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
d-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dibenz(a,j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	-

Client Sample ID			MW83	MW86	SW2	20240303R1
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ma0010267	M24-Ma0010268	M24-Ma0010269	M24-Ma0010270
Date Sampled			Mar 04, 2024	Mar 04, 2024	Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit				
Semivolatile Organics						
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Nitrobenzene	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
Nitrobenzene-d5 (surr.)	1	%	82	60	72	-
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
Phenol-d6 (surr.)	1	%	56	59	56	-
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Haloethers						
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	< 5	< 5	9.9	-
Chemical Oxygen Demand (COD)	25	mg/L	< 25	240	91	-
Chloride	1	mg/L	180	520	72	-
Chromium (trivalent filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferric Iron - Fe3+	0.05	mg/L	0.2	< 0.05	< 0.05	-
Ferrous Iron - Fe2+	0.05	mg/L	< 0.05	< 0.05	0.06	-
Organic Nitrogen (as N)*	0.2	mg/L	0.3	2.4	1.8	-
Sulphate (as SO4)	5	mg/L	640	590	200	-
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.3	2.4	1.8	-
Total Organic Carbon	5	mg/L	< 5	< 5	34	-
Turbidity	1	NTU	470	1200	2.1	-
Hardness mg equivalent CaCO3/L	5	mg/L	970	920	280	-

Client Sample ID			MW83	MW86	SW2	20240303R1
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ma0010267	M24-Ma0010268	M24-Ma0010269	M24-Ma0010270
Date Sampled			Mar 04, 2024	Mar 04, 2024	Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit				
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO ₃)	20	mg/L	410	480	120	-
Carbonate Alkalinity (as CaCO ₃)	10	mg/L	< 10	< 10	< 10	-
Hydroxide Alkalinity (as CaCO ₃)	20	mg/L	< 20	< 20	< 20	-
Total Alkalinity (as CaCO ₃)	20	mg/L	410	480	120	-
Hexavalent Chromium Set (filtered)						
Chromium (hexavalent filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heavy Metals						
Antimony (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Arsenic (filtered)	0.001	mg/L	0.006	< 0.001	0.002	< 0.001
Barium (filtered)	0.02	mg/L	0.02	0.03	0.09	< 0.02
Beryllium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	0.004	0.014	< 0.001
Iron (filtered)	0.05	mg/L	0.20	< 0.05	< 0.05	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.042	0.008	0.071	< 0.005
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	0.001	0.003	< 0.001
Selenium (filtered)	0.001	mg/L	< 0.001	0.002	< 0.001	< 0.001
Silver (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Thallium (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	0.007	< 0.005
Alkali Metals						
Calcium	0.5	mg/L	220	200	90	-
Magnesium	0.5	mg/L	100	100	13	-
Potassium	0.5	mg/L	12	10	17	-
Sodium	0.5	mg/L	150	430	63	-

Client Sample ID			20240303FB1	20240303TB1
Sample Matrix			Water	Water
Eurofins Sample No.			M24-Ma0010271	M24-Ma0010272
Date Sampled			Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit		
Volatile Organics				
1.1-Dichloroethane	0.001	mg/L	-	< 0.001
1.1-Dichloroethene	0.001	mg/L	-	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	-	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	-	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	-	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	-	< 0.001
1.2-Dibromoethane	0.001	mg/L	-	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	-	< 0.001
1.2-Dichloroethane	0.001	mg/L	-	< 0.001
1.2-Dichloropropane	0.001	mg/L	-	< 0.001

Client Sample ID			20240303FB1	20240303TB1
Sample Matrix			Water	Water
Eurofins Sample No.			M24-Ma0010271	M24-Ma0010272
Date Sampled			Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit		
Volatile Organics				
1.2.3-Trichloropropane	0.001	mg/L	-	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	-	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	-	< 0.001
1.3-Dichloropropane	0.001	mg/L	-	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	-	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	-	< 0.001
2-Butanone (MEK)	0.005	mg/L	-	< 0.005
2-Propanone (Acetone)	0.005	mg/L	-	< 0.005
4-Chlorotoluene	0.001	mg/L	-	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	-	< 0.005
Allyl chloride	0.001	mg/L	-	< 0.001
Benzene	0.001	mg/L	-	< 0.001
Bromobenzene	0.001	mg/L	-	< 0.001
Bromochloromethane	0.001	mg/L	-	< 0.001
Bromodichloromethane	0.001	mg/L	-	< 0.001
Bromoform	0.001	mg/L	-	< 0.001
Bromomethane	0.005	mg/L	-	< 0.005
Carbon disulfide	0.001	mg/L	-	< 0.001
Carbon Tetrachloride	0.001	mg/L	-	< 0.001
Chlorobenzene	0.001	mg/L	-	< 0.001
Chloroethane	0.005	mg/L	-	< 0.005
Chloroform	0.005	mg/L	-	< 0.005
Chloromethane	0.005	mg/L	-	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	-	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	-	< 0.001
Dibromochloromethane	0.001	mg/L	-	< 0.001
Dibromomethane	0.001	mg/L	-	< 0.001
Dichlorodifluoromethane	0.005	mg/L	-	< 0.005
Ethylbenzene	0.001	mg/L	-	< 0.001
Iodomethane	0.001	mg/L	-	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	-	< 0.001
m&p-Xylenes	0.002	mg/L	-	< 0.002
Methylene Chloride	0.005	mg/L	-	< 0.005
o-Xylene	0.001	mg/L	-	< 0.001
Styrene	0.001	mg/L	-	< 0.001
Tetrachloroethene	0.001	mg/L	-	< 0.001
Toluene	0.001	mg/L	-	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	-	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	-	< 0.001
Trichloroethene	0.001	mg/L	-	< 0.001
Trichlorofluoromethane	0.005	mg/L	-	< 0.005
Vinyl chloride	0.005	mg/L	-	< 0.005
Xylenes - Total*	0.003	mg/L	-	< 0.003
Total MAH*	0.003	mg/L	-	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	-	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	-	< 0.005
4-Bromofluorobenzene (surr.)	1	%	-	84
Toluene-d8 (surr.)	1	%	-	98
Chromium (trivalent filtered)	0.005	mg/L	< 0.005	-

Client Sample ID			20240303FB1	20240303TB1
Sample Matrix			Water	Water
Eurofins Sample No.			M24-Ma0010271	M24-Ma0010272
Date Sampled			Mar 04, 2024	Mar 04, 2024
Test/Reference	LOR	Unit		
Hexavalent Chromium Set (filtered)				
Chromium (hexavalent filtered)	0.005	mg/L	< 0.005	-
Heavy Metals				
Arsenic (filtered)	0.001	mg/L	< 0.001	-
Barium (filtered)	0.02	mg/L	< 0.02	-
Beryllium (filtered)	0.001	mg/L	< 0.001	-
Cadmium (filtered)	0.0002	mg/L	< 0.0002	-
Chromium (filtered)	0.001	mg/L	< 0.001	-
Cobalt (filtered)	0.001	mg/L	< 0.001	-
Copper (filtered)	0.001	mg/L	< 0.001	-
Iron (filtered)	0.05	mg/L	< 0.05	-
Lead (filtered)	0.001	mg/L	< 0.001	-
Manganese (filtered)	0.005	mg/L	< 0.005	-
Mercury (filtered)	0.0001	mg/L	< 0.0001	-
Nickel (filtered)	0.001	mg/L	< 0.001	-
Selenium (filtered)	0.001	mg/L	< 0.001	-
Silver (filtered)	0.005	mg/L	< 0.005	-
Thallium (filtered)	0.005	mg/L	< 0.005	-
Vanadium (filtered)	0.005	mg/L	< 0.005	-
Zinc (filtered)	0.005	mg/L	< 0.005	-

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
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Mar 07, 2024	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Mar 07, 2024	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Mar 07, 2024	7 Days
Volatile Organics - Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices (USEPA 8260)	Melbourne	Mar 07, 2024	7 Days
Semivolatile Organics - Method: USEPA SW 846 8270	Melbourne	Mar 07, 2024	7 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Melbourne	Mar 07, 2024	7 Days
Polychlorinated Biphenyls - Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8082)	Melbourne	Mar 07, 2024	7 Days
Biochemical Oxygen Demand (BOD-5 Day) - Method: LTM-INO-4010 Biochemical Oxygen Demand (BOD5) in Water	Melbourne	Mar 07, 2024	2 Days
Chemical Oxygen Demand (COD) - Method: LTM-INO-4220 Determination of COD in Water	Melbourne	Mar 07, 2024	28 Days
Total Organic Carbon - Method: LTM-INO-4060 Total Organic Carbon in water and soil	Melbourne	Mar 07, 2024	28 Days
Turbidity - Method: Turbidity by classical using APHA 2130B (LTM-INO-4140)	Melbourne	Mar 07, 2024	28 Days
Hexavalent Chromium Set (filtered) - Method: LTM-INO-4100 Hexavalent Chromium by Spectrometric detection	Melbourne	Mar 07, 2024	28 Days
Heavy Metals (filtered) - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Melbourne	Mar 08, 2024	180 Days
Mobil Metals : Metals M15 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Melbourne	Mar 07, 2024	28 Days
Ammonia (as N) - Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser	Melbourne	Mar 07, 2024	28 Days
Organic Nitrogen (as N)* - Method: APHA 4500 Organic Nitrogen (N)	Melbourne	Mar 05, 2024	7 Days
Total Kjeldahl Nitrogen (as N) - Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA	Melbourne	Mar 07, 2024	28 Days
Eurofins Suite B11E: Cl/SO4/Alkalinity			
Chloride - Method: LTM-INO-4270 Anions by Ion Chromatography	Melbourne	Mar 07, 2024	28 Days
Sulphate (as SO4) - Method: LTM-INO-4270 Anions by Ion Chromatography	Melbourne	Mar 07, 2024	28 Days
Alkalinity (speciated) - Method: LTM-INO-4250 Alkalinity by Electrometric Titration	Melbourne	Mar 07, 2024	14 Days
Iron (speciated) (filtered Fe)			
Ferrous Iron - Fe2+ - Method: LTM-INO-4190 Ferrous Iron in Water by Discrete Analyser	Melbourne	Mar 07, 2024	7 Days
Eurofins Suite B11D: Na/K/Ca/Mg and Hardness			
Hardness mg equivalent CaCO3/L - Method: APHA 2340B Hardness by Calculation	Melbourne	Mar 07, 2024	28 Days
Alkali Metals - Method: LTM-MET-3010 Alkali Metals Sulfur Silicon Phosphorus by ICP-AES	Melbourne	Mar 07, 2024	180 Days



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

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

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
+61 3 8564 5000
NATA# 1261
Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
+61 2 9900 8400
NATA# 1261
Site# 18217

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
+61 2 6113 8091
NATA# 1261
Site# 25466

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

Newcastle
1/2 Frost Drive
Mayfield West
NSW 2304
+61 2 4968 8448
NATA# 1261
Site# 25079 & 25289

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

Auckland
35 O'Rourke Road
Penrose,
Auckland 1061
+64 9 526 4551
IANZ# 1327

Auckland (Asb)
Unit C1/4 Pacific Rise,
Mount Wellington,
Auckland 1061
+64 9 525 0568
IANZ# 1308

Christchurch
43 Detroit Drive
Rolleston,
Christchurch 7675
+64 3 343 5201
IANZ# 1290

Tauranga
1277 Cameron Road,
Gate Pa,
Tauranga 3112
+64 9 525 0568
IANZ# 1402

Company Name: Tierra Environmental Pty Ltd
Address: PO Box 360
Mitcham
SA 5062

Project Name: ALICE SPRINGS LANDFILL
Project ID: AAQ 06 023.26

Order No.:
Report #: 1075112
Phone: 08 8373 2512
Fax: 08 8373 2515

Received: Mar 5, 2024 11:05 AM
Due: Mar 13, 2024
Priority: 5 Day
Contact Name: Daryl Burrows

Eurofins Analytical Services Manager : Amy Meunier

Sample Detail						Eurofins Suite B11E: Cl/SO4/Alkalinity		Eurofins Suite B11D: Na/K/Ca/Mg and Hardness		Eurofins Suite SVV: SVOCC/OC		Total Recoverable Hydrocarbons		Volatile Organics		Iron (speciated) (filtered Fe)		Organic Nitrogen Set (as N)		Polychlorinated Biphenyls		Polycyclic Aromatic Hydrocarbons		Zinc (filtered)		Vanadium (filtered)		Turbidity		Total Organic Carbon		Thallium (filtered)		Silver (filtered)		Selenium (filtered)		Nickel (filtered)		Mercury (filtered)		Manganese (filtered)		Lead (filtered)		Iron (filtered)		Copper (filtered)		Cobalt (filtered)		Chromium (trivalent filtered)		Chromium (hexavalent filtered)		Chromium (filtered)		Chemical Oxygen Demand (COD)		Cadmium (filtered)		Biochemical Oxygen Demand (BOD-5 Day)		Beryllium (filtered)		Barium (filtered)		Arsenic (filtered)		Antimony (filtered)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										



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

ABN: 50 005 085 521

Melbourne 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079 & 25289
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ABN: 91 05 0159 898

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

NZBN: 9429046024954

Auckland 35 O'Roke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Auckland (Asb) Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	Tauranga 1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402
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Company Name:	Tierra Environmental Pty Ltd	Order No.:		Received:	Mar 5, 2024 11:05 AM
Address:	PO Box 360 Mitcham SA 5062	Report #:	1075112	Due:	Mar 13, 2024
		Phone:	08 8373 2512	Priority:	5 Day
		Fax:	08 8373 2515	Contact Name:	Daryl Burrows
Project Name:	ALICE SPRINGS LANDFILL				
Project ID:	AAQ 06 023.26				

Eurofins Analytical Services Manager : Amy Meunier

Sample Detail					Eurofins Suite B11E: Cl/SO4/Alkalinity		Eurofins Suite B11D: Na/K/Ca/Mg and Hardness		Eurofins Suite SVV: SVOCNOC		Total Recoverable Hydrocarbons		Volatile Organics		Iron (speciated) (filtered Fe)		Organic Nitrogen Set (as N)		Polychlorinated Biphenyls		Polycyclic Aromatic Hydrocarbons		Zinc (filtered)		Vanadium (filtered)		Turbidity		Total Organic Carbon		Thallium (filtered)		Silver (filtered)		Selenium (filtered)		Nickel (filtered)		Mercury (filtered)		Manganese (filtered)		Lead (filtered)		Iron (filtered)		Copper (filtered)		Cobalt (filtered)		Chromium (trivalent filtered)		Chromium (hexavalent filtered)		Chromium (filtered)		Chemical Oxygen Demand (COD)		Cadmium (filtered)		Biochemical Oxygen Demand (BOD-5 Day)		Beryllium (filtered)		Barium (filtered)		Arsenic (filtered)		Antimony (filtered)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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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.
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 date of sampling; 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	

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 (<i>bis</i> -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 70 – 130%

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							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.1-Dichloroethene	mg/L	< 0.001			0.001	Pass	
1.1.1-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.1.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dibromoethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.3-Trichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.4-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.3.5-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.4-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
2-Butanone (MEK)	mg/L	< 0.005			0.005	Pass	
2-Propanone (Acetone)	mg/L	< 0.005			0.005	Pass	
4-Chlorotoluene	mg/L	< 0.001			0.001	Pass	
4-Methyl-2-pentanone (MIBK)	mg/L	< 0.005			0.005	Pass	
Allyl chloride	mg/L	< 0.001			0.001	Pass	
Benzene	mg/L	< 0.001			0.001	Pass	
Bromobenzene	mg/L	< 0.001			0.001	Pass	
Bromochloromethane	mg/L	< 0.001			0.001	Pass	
Bromodichloromethane	mg/L	< 0.001			0.001	Pass	
Bromoform	mg/L	< 0.001			0.001	Pass	
Bromomethane	mg/L	< 0.005			0.005	Pass	
Carbon disulfide	mg/L	< 0.001			0.001	Pass	
Carbon Tetrachloride	mg/L	< 0.001			0.001	Pass	
Chlorobenzene	mg/L	< 0.001			0.001	Pass	
Chloroethane	mg/L	< 0.005			0.005	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.005			0.005	Pass	
cis-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
cis-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Dibromochloromethane	mg/L	< 0.001			0.001	Pass	
Dibromomethane	mg/L	< 0.001			0.001	Pass	
Dichlorodifluoromethane	mg/L	< 0.005			0.005	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
Iodomethane	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Isopropyl benzene (Cumene)	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
Methylene Chloride	mg/L	< 0.005			0.005	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
trans-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene	mg/L	< 0.001			0.001	Pass	
Trichlorofluoromethane	mg/L	< 0.005			0.005	Pass	
Vinyl chloride	mg/L	< 0.005			0.005	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g,h,i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a,h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/L	< 0.005			0.005	Pass	
Aroclor-1221	mg/L	< 0.005			0.005	Pass	
Aroclor-1232	mg/L	< 0.005			0.005	Pass	
Aroclor-1242	mg/L	< 0.005			0.005	Pass	
Aroclor-1248	mg/L	< 0.005			0.005	Pass	
Aroclor-1254	mg/L	< 0.005			0.005	Pass	
Aroclor-1260	mg/L	< 0.005			0.005	Pass	
Total PCB*	mg/L	< 0.005			0.005	Pass	
Method Blank							
Semivolatile Organics							
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
1-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
1-Naphthylamine	mg/L	< 0.005			0.005	Pass	
1.2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3.4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3.5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1.2.4.5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.3.5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
2-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2-Methylnaphthalene	mg/L	< 0.005			0.005	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Naphthylamine	mg/L	< 0.005			0.005	Pass	
2-Nitroaniline	mg/L	< 0.005			0.005	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2-Picoline	mg/L	< 0.005			0.005	Pass	
2.3.4.6-Tetrachlorophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
2.4-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.6-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
3-Methylcholanthrene	mg/L	< 0.005			0.005	Pass	
3.3'-Dichlorobenzidine	mg/L	< 0.005			0.005	Pass	
4-Aminobiphenyl	mg/L	< 0.005			0.005	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
4.4'-DDD	mg/L	< 0.005			0.005	Pass	
4.4'-DDE	mg/L	< 0.005			0.005	Pass	
4.4'-DDT	mg/L	< 0.005			0.005	Pass	
7.12-Dimethylbenz(a)anthracene	mg/L	< 0.005			0.005	Pass	
a-HCH	mg/L	< 0.005			0.005	Pass	
Acetophenone	mg/L	< 0.005			0.005	Pass	
Aldrin	mg/L	< 0.005			0.005	Pass	
Aniline	mg/L	< 0.005			0.005	Pass	
b-HCH	mg/L	< 0.005			0.005	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Bis(2-ethylhexyl)phthalate	mg/L	< 0.005			0.005	Pass	
Butyl benzyl phthalate	mg/L	< 0.005			0.005	Pass	
d-HCH	mg/L	< 0.005			0.005	Pass	
Di-n-butyl phthalate	mg/L	< 0.005			0.005	Pass	
Di-n-octyl phthalate	mg/L	< 0.005			0.005	Pass	
Dibenz(a,j)acridine	mg/L	< 0.005			0.005	Pass	
Dibenzofuran	mg/L	< 0.005			0.005	Pass	
Dieldrin	mg/L	< 0.005			0.005	Pass	
Diethyl phthalate	mg/L	< 0.005			0.005	Pass	
Dimethyl phthalate	mg/L	< 0.005			0.005	Pass	
Dimethylaminoazobenzene	mg/L	< 0.005			0.005	Pass	
Diphenylamine	mg/L	< 0.005			0.005	Pass	
Endosulfan I	mg/L	< 0.005			0.005	Pass	
Endosulfan II	mg/L	< 0.005			0.005	Pass	
Endosulfan sulphate	mg/L	< 0.005			0.005	Pass	
Endrin	mg/L	< 0.005			0.005	Pass	
Endrin aldehyde	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	mg/L	< 0.005			0.005	Pass	
g-HCH (Lindane)	mg/L	< 0.005			0.005	Pass	
Heptachlor	mg/L	< 0.005			0.005	Pass	
Heptachlor epoxide	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Methoxychlor	mg/L	< 0.005			0.005	Pass	
N-Nitrosodibutylamine	mg/L	< 0.005			0.005	Pass	
N-Nitrosodipropylamine	mg/L	< 0.005			0.005	Pass	
N-Nitrosopiperidine	mg/L	< 0.005			0.005	Pass	
Nitrobenzene	mg/L	< 0.05			0.05	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Pentachloronitrobenzene	mg/L	< 0.005			0.005	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Pronamide	mg/L	< 0.005			0.005	Pass	
Trifluralin	mg/L	< 0.005			0.005	Pass	
Method Blank							
Haloethers							
4-Bromophenyl phenyl ether	mg/L	< 0.005			0.005	Pass	
4-Chlorophenyl phenyl ether	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroethoxy)methane	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroisopropyl)ether	mg/L	< 0.005			0.005	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Biochemical Oxygen Demand (BOD-5 Day)	mg/L	< 5			5	Pass	
Chemical Oxygen Demand (COD)	mg/L	< 25			25	Pass	
Chloride	mg/L	< 1			1	Pass	
Ferrous Iron - Fe2+	mg/L	< 0.05			0.05	Pass	
Sulphate (as SO4)	mg/L	< 5			5	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Turbidity	NTU	< 1			1	Pass	
Hardness mg equivalent CaCO3/L	mg/L	< 5			5	Pass	
Method Blank							
Hexavalent Chromium Set (filtered)							
Chromium (hexavalent filtered)	mg/L	< 0.005			0.005	Pass	
Method Blank							
Heavy Metals							
Antimony (filtered)	mg/L	< 0.005			0.005	Pass	
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Barium (filtered)	mg/L	< 0.02			0.02	Pass	
Beryllium (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Cobalt (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Iron (filtered)	mg/L	< 0.05			0.05	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Selenium (filtered)	mg/L	< 0.001			0.001	Pass	
Silver (filtered)	mg/L	< 0.005			0.005	Pass	
Thallium (filtered)	mg/L	< 0.005			0.005	Pass	
Vanadium (filtered)	mg/L	< 0.005			0.005	Pass	
Zinc (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	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	90			70-130	Pass	
TRH C10-C14	%	118			70-130	Pass	
TRH C6-C10	%	88			70-130	Pass	
TRH >C10-C16	%	110			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	78			70-130	Pass	
1.2-Dichlorobenzene	%	85			70-130	Pass	
1.2-Dichloroethane	%	94			70-130	Pass	
Benzene	%	81			70-130	Pass	
Ethylbenzene	%	81			70-130	Pass	
m&p-Xylenes	%	78			70-130	Pass	
Toluene	%	75			70-130	Pass	
Trichloroethene	%	89			70-130	Pass	
Xylenes - Total*	%	78			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	89			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	104			70-130	Pass	
Acenaphthylene	%	93			70-130	Pass	
Anthracene	%	119			70-130	Pass	
Benz(a)anthracene	%	93			70-130	Pass	
Benzo(a)pyrene	%	90			70-130	Pass	
Benzo(b&j)fluoranthene	%	90			70-130	Pass	
Benzo(g,h,i)perylene	%	72			70-130	Pass	
Benzo(k)fluoranthene	%	102			70-130	Pass	
Chrysene	%	99			70-130	Pass	
Dibenz(a,h)anthracene	%	78			70-130	Pass	
Fluoranthene	%	101			70-130	Pass	
Fluorene	%	102			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	82			70-130	Pass	
Naphthalene	%	119			70-130	Pass	
Phenanthrene	%	95			70-130	Pass	
Pyrene	%	77			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	83			70-130	Pass	
LCS - % Recovery							
Semivolatile Organics							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-Methyl-4,6-dinitrophenol	%	91			25-140	Pass	
1,2,4-Trichlorobenzene	%	72			70-130	Pass	
1,4-Dichlorobenzene	%	72			70-130	Pass	
2-Chlorophenol	%	67			25-140	Pass	
2-Methylphenol (o-Cresol)	%	104			25-140	Pass	
2-Nitrophenol	%	122			25-140	Pass	
2,4-Dichlorophenol	%	76			25-140	Pass	
2,4-Dimethylphenol	%	112			25-140	Pass	
2,4-Dinitrophenol	%	66			25-140	Pass	
2,4-Dinitrotoluene	%	80			70-130	Pass	
2,4,5-Trichlorophenol	%	80			25-140	Pass	
2,4,6-Trichlorophenol	%	73			25-140	Pass	
2,6-Dichlorophenol	%	80			25-140	Pass	
3&4-Methylphenol (m&p-Cresol)	%	92			25-140	Pass	
4-Chloro-3-methylphenol	%	66			25-140	Pass	
4-Nitrophenol	%	34			25-140	Pass	
N-Nitrosodipropylamine	%	98			70-130	Pass	
Pentachlorophenol	%	114			25-140	Pass	
Phenol	%	107			25-140	Pass	
LCS - % Recovery							
Ammonia (as N)	%	115			70-130	Pass	
Biochemical Oxygen Demand (BOD-5 Day)	%	86			85-115	Pass	
Chemical Oxygen Demand (COD)	%	93			70-130	Pass	
Chloride	%	100			70-130	Pass	
Ferrous Iron - Fe2+	%	95			70-130	Pass	
Sulphate (as SO4)	%	118			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	115			70-130	Pass	
Total Organic Carbon	%	109			70-130	Pass	
Turbidity	%	94			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO3)	%	78			70-130	Pass	
Total Alkalinity (as CaCO3)	%	81			70-130	Pass	
LCS - % Recovery							
Hexavalent Chromium Set (filtered)							
Chromium (hexavalent filtered)	%	85			80-120	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	95			80-120	Pass	
Cadmium (filtered)	%	98			80-120	Pass	
Chromium (filtered)	%	98			80-120	Pass	
Cobalt (filtered)	%	97			80-120	Pass	
Copper (filtered)	%	97			80-120	Pass	
Iron (filtered)	%	101			80-120	Pass	
Lead (filtered)	%	101			80-120	Pass	
Manganese (filtered)	%	98			80-120	Pass	
Mercury (filtered)	%	107			80-120	Pass	
Nickel (filtered)	%	99			80-120	Pass	
Selenium (filtered)	%	97			80-120	Pass	
Silver (filtered)	%	99			80-120	Pass	
Thallium (filtered)	%	99			80-120	Pass	
Zinc (filtered)	%	99			80-120	Pass	
LCS - % Recovery							
Alkali Metals							

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Calcium			%	105			80-120	Pass	
Magnesium			%	103			80-120	Pass	
Potassium			%	96			80-120	Pass	
Sodium			%	102			80-120	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	M24-Ma0011948	NCP	%	103			70-130	Pass	
TRH C10-C14	M24-Ma0010847	NCP	%	98			70-130	Pass	
TRH C6-C10	M24-Ma0011948	NCP	%	102			70-130	Pass	
TRH >C10-C16	M24-Ma0010847	NCP	%	93			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	M24-Ma0011948	NCP	%	108			70-130	Pass	
1.2-Dichlorobenzene	M24-Ma0011948	NCP	%	100			70-130	Pass	
1.2-Dichloroethane	M24-Ma0011948	NCP	%	114			70-130	Pass	
Benzene	M24-Ma0011948	NCP	%	116			70-130	Pass	
Ethylbenzene	M24-Ma0011948	NCP	%	117			70-130	Pass	
m&p-Xylenes	M24-Ma0011948	NCP	%	110			70-130	Pass	
o-Xylene	M24-Ma0011948	NCP	%	116			70-130	Pass	
Toluene	M24-Ma0011948	NCP	%	104			70-130	Pass	
Trichloroethene	M24-Ma0011948	NCP	%	97			70-130	Pass	
Xylenes - Total*	M24-Ma0011948	NCP	%	112			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M24-Ma0011948	NCP	%	103			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M24-Ma0016855	NCP	%	96			70-130	Pass	
Acenaphthylene	M24-Ma0014344	NCP	%	90			70-130	Pass	
Anthracene	M24-Ma0014344	NCP	%	106			70-130	Pass	
Benz(a)anthracene	M24-Ma0014344	NCP	%	123			70-130	Pass	
Benzo(a)pyrene	M24-Ma0014344	NCP	%	125			70-130	Pass	
Benzo(b&j)fluoranthene	M24-Ma0014344	NCP	%	115			70-130	Pass	
Benzo(g,h,i)perylene	M24-Ma0014344	NCP	%	109			70-130	Pass	
Benzo(k)fluoranthene	M24-Ma0014344	NCP	%	99			70-130	Pass	
Chrysene	M24-Ma0014344	NCP	%	92			70-130	Pass	
Dibenz(a,h)anthracene	M24-Ma0014344	NCP	%	110			70-130	Pass	
Fluoranthene	M24-Ma0014344	NCP	%	124			70-130	Pass	
Fluorene	M24-Ma0014344	NCP	%	98			70-130	Pass	
Indeno(1,2,3-cd)pyrene	M24-Ma0014344	NCP	%	114			70-130	Pass	
Naphthalene	M24-Ma0014344	NCP	%	110			70-130	Pass	
Phenanthrene	M24-Ma0014344	NCP	%	126			70-130	Pass	
Pyrene	M24-Ma0016855	NCP	%	115			70-130	Pass	
Spike - % Recovery									
Semivolatile Organics				Result 1					
2-Methyl-4,6-dinitrophenol	M24-Ma0014344	NCP	%	73			30-130	Pass	
1,2,4-Trichlorobenzene	M24-Ma0016855	NCP	%	71			70-130	Pass	
1,4-Dichlorobenzene	M24-Ma0016855	NCP	%	76			70-130	Pass	
2-Chlorophenol	M24-Ma0016855	NCP	%	92			30-130	Pass	
2-Methylphenol (o-Cresol)	M24-Ma0014344	NCP	%	108			30-130	Pass	
2-Nitrophenol	M24-Ma0014344	NCP	%	118			30-130	Pass	
2,4-Dichlorophenol	M24-Ma0014344	NCP	%	114			30-130	Pass	
2,4-Dimethylphenol	M24-Ma0014344	NCP	%	106			30-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2,4-Dinitrophenol	M24-Ma0014344	NCP	%	58			30-130	Pass	
2,4-Dinitrotoluene	M24-Ma0016855	NCP	%	78			70-130	Pass	
2,4,5-Trichlorophenol	M24-Ma0014344	NCP	%	111			30-130	Pass	
2,4,6-Trichlorophenol	M24-Ma0014344	NCP	%	107			30-130	Pass	
2,6-Dichlorophenol	M24-Ma0014344	NCP	%	116			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M24-Ma0014344	NCP	%	99			30-130	Pass	
4-Chloro-3-methylphenol	M24-Ma0016855	NCP	%	51			30-130	Pass	
4-Nitrophenol	M24-Ma0014344	NCP	%	33			30-130	Pass	
N-Nitrosodipropylamine	M24-Ma0016855	NCP	%	91			70-130	Pass	
Pentachlorophenol	M24-Ma0014344	NCP	%	88			30-130	Pass	
Phenol	M24-Ma0016855	NCP	%	50			30-130	Pass	
Spike - % Recovery									
				Result 1					
Chemical Oxygen Demand (COD)	M24-Ma0012502	NCP	%	73			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M24-Ma0010259	CP	%	102			75-125	Pass	
Magnesium	M24-Ma0010259	CP	%	106			75-125	Pass	
Potassium	M24-Ma0010259	CP	%	100			75-125	Pass	
Sodium	M24-Ma0010259	CP	%	104			75-125	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Antimony (filtered)	M24-Ma0010264	CP	%	92			75-125	Pass	
Arsenic (filtered)	M24-Ma0010264	CP	%	92			75-125	Pass	
Barium (filtered)	M24-Ma0010264	CP	%	86			75-125	Pass	
Beryllium (filtered)	M24-Ma0010264	CP	%	94			75-125	Pass	
Cadmium (filtered)	M24-Ma0010264	CP	%	90			75-125	Pass	
Chromium (filtered)	M24-Ma0010264	CP	%	89			75-125	Pass	
Cobalt (filtered)	M24-Ma0010264	CP	%	87			75-125	Pass	
Copper (filtered)	M24-Ma0010264	CP	%	86			75-125	Pass	
Iron (filtered)	M24-Ma0010264	CP	%	89			75-125	Pass	
Lead (filtered)	M24-Ma0010264	CP	%	91			75-125	Pass	
Manganese (filtered)	M24-Ma0010264	CP	%	88			75-125	Pass	
Mercury (filtered)	M24-Ma0010264	CP	%	87			75-125	Pass	
Nickel (filtered)	M24-Ma0010264	CP	%	87			75-125	Pass	
Selenium (filtered)	M24-Ma0010264	CP	%	93			75-125	Pass	
Silver (filtered)	M24-Ma0010264	CP	%	86			75-125	Pass	
Thallium (filtered)	M24-Ma0010264	CP	%	84			75-125	Pass	
Vanadium (filtered)	M24-Ma0010264	CP	%	89			75-125	Pass	
Zinc (filtered)	M24-Ma0010264	CP	%	89			75-125	Pass	
Spike - % Recovery									
				Result 1					
Total Kjeldahl Nitrogen (as N)	M24-Ma0010269	CP	%	109			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	M24-Ma0011946	NCP	mg/L	0.04	0.04	10	30%	Pass	
TRH C6-C10	M24-Ma0011946	NCP	mg/L	0.03	0.03	14	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1,1-Dichloroethane	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1,1-Dichloroethene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1,1,1-Trichloroethane	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1,1,1,2-Tetrachloroethane	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Volatile Organics				Result 1	Result 2	RPD		
1.1.2-Trichloroethane	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.1.2.2-Tetrachloroethane	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2-Dibromoethane	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2-Dichlorobenzene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2-Dichloroethane	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2-Dichloropropane	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2.3-Trichloropropane	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2.4-Trimethylbenzene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.3-Dichlorobenzene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.3-Dichloropropane	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.3.5-Trimethylbenzene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.4-Dichlorobenzene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
2-Butanone (MEK)	M24-Ma0011946	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Propanone (Acetone)	M24-Ma0011946	NCP	mg/L	0.032	0.034	4.5	30%	Pass
4-Chlorotoluene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
4-Methyl-2-pentanone (MIBK)	M24-Ma0011946	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Allyl chloride	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromobenzene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromochloromethane	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromodichloromethane	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromoform	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromomethane	M24-Ma0011946	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Carbon disulfide	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Carbon Tetrachloride	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chlorobenzene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chloroethane	M24-Ma0011946	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Chloroform	M24-Ma0011946	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Chloromethane	M24-Ma0011946	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
cis-1.2-Dichloroethene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
cis-1.3-Dichloropropene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibromochloromethane	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibromomethane	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dichlorodifluoromethane	M24-Ma0011946	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Ethylbenzene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Iodomethane	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Isopropyl benzene (Cumene)	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
m&p-Xylenes	M24-Ma0011946	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Methylene Chloride	M24-Ma0011946	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
o-Xylene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Styrene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Tetrachloroethene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Toluene	M24-Ma0011946	NCP	mg/L	0.029	0.027	5.1	30%	Pass
trans-1.2-Dichloroethene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
trans-1.3-Dichloropropene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Trichloroethene	M24-Ma0011946	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Trichlorofluoromethane	M24-Ma0011946	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Vinyl chloride	M24-Ma0011946	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Xylenes - Total*	M24-Ma0011946	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	M24-Ma0011946	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass

Duplicate								
				Result 1	Result 2	RPD		
Ammonia (as N)	M24-Fe0069204	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Biochemical Oxygen Demand (BOD-5 Day)	M24-Ma0010259	CP	mg/L	< 5	< 5	<1	30%	Pass
Chemical Oxygen Demand (COD)	M24-Ma0010259	CP	mg/L	< 25	< 25	<1	30%	Pass
Chloride	M24-Ma0013508	NCP	mg/L	130	130	<1	30%	Pass
Sulphate (as SO ₄)	M24-Ma0011989	NCP	mg/L	29	29	<1	30%	Pass
Total Kjeldahl Nitrogen (as N)	M24-Ma0010259	CP	mg/L	1.7	1.4	19	30%	Pass
Total Organic Carbon	M24-Ma0010259	CP	mg/L	< 5	< 5	<1	30%	Pass
Turbidity	M24-Ma0015946	NCP	NTU	1.3	1.2	<1	30%	Pass
Hardness mg equivalent CaCO ₃ /L	M24-Ma0010259	CP	mg/L	1200	1200	3.0	30%	Pass
Duplicate								
Alkali Metals				Result 1	Result 2	RPD		
Calcium	M24-Ma0010259	CP	mg/L	270	280	2.9	30%	Pass
Magnesium	M24-Ma0010259	CP	mg/L	120	130	3.0	30%	Pass
Potassium	M24-Ma0010259	CP	mg/L	15	15	2.2	30%	Pass
Sodium	M24-Ma0010259	CP	mg/L	610	620	2.2	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD		
TRH C10-C14	M24-Ma0010262	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH C15-C28	M24-Ma0010262	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH C29-C36	M24-Ma0010262	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH >C10-C16	M24-Ma0010262	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH >C16-C34	M24-Ma0010262	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH >C34-C40	M24-Ma0010262	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Benzo(a)pyrene	M24-Ma0010262	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls				Result 1	Result 2	RPD		
Aroclor-1016	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1221	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1232	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1242	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1248	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1254	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1260	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Total PCB*	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Semivolatile Organics				Result 1	Result 2	RPD		
1-Chloronaphthalene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1-Naphthylamine	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2-Dichlorobenzene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3-Trichlorobenzene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3,4-Tetrachlorobenzene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3,5-Tetrachlorobenzene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,4-Trichlorobenzene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,4,5-Tetrachlorobenzene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,3-Dichlorobenzene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,3,5-Trichlorobenzene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,4-Dichlorobenzene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Chloronaphthalene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Methylnaphthalene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Naphthylamine	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Nitroaniline	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass

Duplicate								
Semivolatile Organics				Result 1	Result 2	RPD		
2-Picoline	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2,4-Dinitrotoluene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2,6-Dinitrotoluene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
3-Methylcholanthrene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
3,3'-Dichlorobenzidine	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Aminobiphenyl	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDD	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDE	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDT	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
7,12-Dimethylbenz(a)anthracene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
a-HCH	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Acetophenone	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aldrin	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aniline	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
b-HCH	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Benzyl chloride	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-ethylhexyl)phthalate	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Butyl benzyl phthalate	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
d-HCH	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Di-n-butyl phthalate	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Di-n-octyl phthalate	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dibenz(a,j)acridine	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dibenzofuran	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dieldrin	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Diethyl phthalate	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dimethyl phthalate	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dimethylaminoazobenzene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Diphenylamine	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan I	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan II	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan sulphate	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin aldehyde	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin ketone	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
g-HCH (Lindane)	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Heptachlor	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Heptachlor epoxide	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobenzene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobutadiene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorocyclopentadiene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachloroethane	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Methoxychlor	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosodibutylamine	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosodipropylamine	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosopiperidine	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Nitrobenzene	M24-Ma0010262	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Pentachlorobenzene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Pentachloronitrobenzene	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Pronamide	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Trifluralin	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass

Duplicate								
Haloethers				Result 1	Result 2	RPD		
4-Bromophenyl phenyl ether	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Chlorophenyl phenyl ether	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-chloroethoxy)methane	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-chloroisopropyl)ether	M24-Ma0010262	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Ferrous Iron - Fe2+	M24-Ma0010262	CP	mg/L	< 0.05	0.05	<1	30%	Pass
Duplicate								
Alkalinity (speciated)				Result 1	Result 2	RPD		
Bicarbonate Alkalinity (as CaCO3)	M24-Ma0010264	CP	mg/L	400	490	20	30%	Pass
Carbonate Alkalinity (as CaCO3)	M24-Ma0010264	CP	mg/L	< 10	< 10	<1	30%	Pass
Hydroxide Alkalinity (as CaCO3)	M24-Ma0010264	CP	mg/L	< 20	< 20	<1	30%	Pass
Total Alkalinity (as CaCO3)	M24-Ma0010264	CP	mg/L	400	490	20	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Antimony (filtered)	M24-Ma0010264	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Arsenic (filtered)	M24-Ma0010264	CP	mg/L	0.009	0.009	1.1	30%	Pass
Barium (filtered)	M24-Ma0010264	CP	mg/L	0.04	0.04	1.2	30%	Pass
Beryllium (filtered)	M24-Ma0010264	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Cadmium (filtered)	M24-Ma0010264	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium (filtered)	M24-Ma0010264	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Cobalt (filtered)	M24-Ma0010264	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper (filtered)	M24-Ma0010264	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Iron (filtered)	M24-Ma0010264	CP	mg/L	0.19	0.19	1.8	30%	Pass
Lead (filtered)	M24-Ma0010264	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Manganese (filtered)	M24-Ma0010264	CP	mg/L	0.023	0.023	<1	30%	Pass
Mercury (filtered)	M24-Ma0010264	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel (filtered)	M24-Ma0010264	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Selenium (filtered)	M24-Ma0010264	CP	mg/L	0.001	0.001	4.5	30%	Pass
Silver (filtered)	M24-Ma0010264	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Thallium (filtered)	M24-Ma0010264	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Vanadium (filtered)	M24-Ma0010264	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Zinc (filtered)	M24-Ma0010264	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Chemical Oxygen Demand (COD)	M24-Ma0010265	CP	mg/L	< 25	< 25	<1	30%	Pass
Duplicate								
Alkalinity (speciated)				Result 1	Result 2	RPD		
Bicarbonate Alkalinity (as CaCO3)	M24-Ma0010265	CP	mg/L	490	610	21	30%	Pass
Carbonate Alkalinity (as CaCO3)	M24-Ma0010265	CP	mg/L	< 10	< 10	<1	30%	Pass
Hydroxide Alkalinity (as CaCO3)	M24-Ma0010265	CP	mg/L	< 20	< 20	<1	30%	Pass
Total Alkalinity (as CaCO3)	M24-Ma0010265	CP	mg/L	490	610	21	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Ferrous Iron - Fe2+	M24-Ma0010266	CP	mg/L	< 0.05	0.13	1.7	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Total Kjeldahl Nitrogen (as N)	M24-Ma0010268	CP	mg/L	2.4	2.2	11	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Biochemical Oxygen Demand (BOD-5 Day)	M24-Ma0010269	CP	mg/L	9.9	9.4	5.8	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
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Amy Meunier	Analytical Services Manager
Caitlin Breeze	Senior Analyst-Inorganic
Caitlin Breeze	Senior Analyst-Metal
Edward Lee	Senior Analyst-Organic
Joseph Edouard	Senior Analyst-Organic
Joseph Edouard	Senior Analyst-Volatile
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](#).

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CHAIN OF CUSTODY RECORD



mgt

CLIENT DETAILS

Page 1 of 1

Company Name : Tierra Environment				Contact Name : Daryl Burrows				Purchase Order : NA				COC Number : T1978													
Office Address :				Project Manager : Daryl Burrows				Project Number : AAQ 06 023.26				QUOTE ID : 231130TIES													
				Email for results : general@tierra.com.au				Project Name : Alice Springs Landfill				Esdat													
Special Directions & Comments : *Metals to consist of Sb, As, Ba, Be, Cd, Cr, Cr3+, Cr6+, Co, Cu, Fe (total) Pb, Mn, Hg, Ni, Se, Ag, TI, V, Zn				Analytes												Laboratory Address									
				Turbidity B11E: Anion Suite - Chloride, SO4, Alkalinity B11D: Cation Suite - NA, K, Ca, Mg, Organic N (Ammonia, TKN, Organic N) TOC BOD 5 Day COD M13 - Metals* Ferrous/Ferric Fe Speciation PAH PCB TRH SW: SVOC, VOC VOC												Eurofins - Melbourne 6 Monterey Road, Dandenong South, VIC 3175 Phone: 03 8584 5000 Fax: 03 8564 5090 Email: EnviroSampleVic@eurofins.com									
																Containers								Sample Comments	
																500P	250A	50P	250A	VIAL	125mL A	Jar			
1	MW3	05-Mar-24	Water	x	x	x	x	x	x	x	x	x	x	x	2	1	4		1						
2	MW81	05-Mar-24	Water	x	x	x	x	x	x	x	x	x	x	x	2	1	4		1						
3	MW37	05-Mar-24	Water	x	x	x	x	x	x	x	x	x	x	x	2	1	4		2	1					
4	MW84	05-Mar-24	Water	x	x	x	x	x	x	x	x	x	x	x	2	1	4		2	1					
5	MW85	05-Mar-24	Water	x	x	x	x	x	x	x	x	x	x	x	2	1	4		2	1					
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Relinquished By: Daryl Burrows		Laboratory Staff Adelaide		Laboratory Staff Melbourne		Turn around Time		Method Of Shipment	
Received By:		Received By:		Received By:		24 Hrs 48 Hrs		☒ Courier ☐ Hand Delivered ☐ Postal	
Date & Time : 06/03/24 12pm		Date & Time :		Date & Time :					
Signature:		Signature:		Signature:		5 Days 10 Days			
		Report Number :		Report Number :					

Report: 1076022
7/3 BF

Tierra Environmental Pty Ltd
PO Box 360
Mitcham
SA 5062



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: **Daryl Burrows**

Report **1076022-W**
Project name **ALICE SPRINGS LANDFILL**
Project ID **AAQ 06 023.26**
Received Date **Mar 07, 2024**

Client Sample ID			MW3	MW81	MW37	MW84
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24- Ma0017324	M24- Ma0017325	M24- Ma0017326	M24- Ma0017327
Date Sampled			Mar 05, 2024	Mar 05, 2024	Mar 05, 2024	Mar 05, 2024
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	55	58	50	60
p-Terphenyl-d14 (surr.)	1	%	100	137	57	64
Polychlorinated Biphenyls						
Aroclor-1016	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1221	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1232	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1242	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1248	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1254	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1260	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Total PCB*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibutylchloredate (surr.)	1	%	93	74	79	95
Tetrachloro-m-xylene (surr.)	1	%	62	105	59	72
Ammonia (as N)	0.01	mg/L	0.24	0.89	2.9	0.30
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	< 5	< 5	210	< 5
Chemical Oxygen Demand (COD)	25	mg/L	< 25	59	720	< 25
Chloride	1	mg/L	82	990	1000	310

Client Sample ID			MW3	MW81	MW37	MW84
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ma0017324	M24-Ma0017325	M24-Ma0017326	M24-Ma0017327
Date Sampled			Mar 05, 2024	Mar 05, 2024	Mar 05, 2024	Mar 05, 2024
Test/Reference	LOR	Unit				
Chromium (hexavalent)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chromium (trivalent)	0.005	mg/L	< 0.005	< 0.005	0.015	< 0.005
Ferric Iron - Fe3+	0.05	mg/L	< 0.05	< 0.05	13	< 0.05
Ferrous Iron - Fe2+	0.05	mg/L	0.10	0.36	0.15	0.09
Organic Nitrogen (as N)*	0.2	mg/L	0.76	< 0.2	1.1	< 0.2
Sulphate (as SO4)	5	mg/L	390	2400	1900	370
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	1.0	0.9	4.0	0.4
Total Organic Carbon	5	mg/L	9.7	48	220	32
Turbidity	1	NTU	17	2.7	980	16
Hardness mg equivalent CaCO3/L	5	mg/L	460	3400	2200	780
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	190	830	650	< 20
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	190	830	650	< 20
Heavy Metals						
Antimony (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	0.004	< 0.001
Barium (filtered)	0.02	mg/L	0.03	< 0.02	0.03	0.04
Beryllium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Boron (filtered)	0.05	mg/L	< 0.05	0.19	1.00	0.10
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium	0.001	mg/L	< 0.001	< 0.001	0.015	< 0.001
Cobalt (filtered)	0.001	mg/L	< 0.001	< 0.001	0.004	< 0.001
Copper (filtered)	0.001	mg/L	0.008	0.005	0.002	0.002
Iron	0.05	mg/L	0.10	0.38	13	0.09
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.009	0.070	0.72	0.013
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	0.002	0.013	< 0.001
Selenium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	0.001
Silver (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Thallium (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Zinc (filtered)	0.005	mg/L	0.005	< 0.005	< 0.005	0.005
Alkali Metals						
Calcium	0.5	mg/L	160	590	420	160
Magnesium	0.5	mg/L	15	470	280	90
Potassium	0.5	mg/L	7.7	21	5.3	5.5
Sodium	0.5	mg/L	70	360	850	220
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	-	-	< 0.2	< 0.02
TRH C10-C14	0.05	mg/L	-	-	5.6	< 0.05
TRH C15-C28	0.1	mg/L	-	-	1.2	< 0.1
TRH C29-C36	0.1	mg/L	-	-	0.2	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	-	-	7	< 0.1
TRH C6-C10	0.02	mg/L	-	-	< 0.2	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	-	-	< 0.2	< 0.02

Client Sample ID			MW3	MW81	MW37	MW84
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M24-Ma0017324	M24-Ma0017325	M24-Ma0017326	M24-Ma0017327
Date Sampled			Mar 05, 2024	Mar 05, 2024	Mar 05, 2024	Mar 05, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH >C10-C16	0.05	mg/L	-	-	5.7	< 0.05
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	-	-	5.7	< 0.05
TRH >C16-C34	0.1	mg/L	-	-	1.1	< 0.1
TRH >C34-C40	0.1	mg/L	-	-	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	-	-	6.8	< 0.1
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	-	-	< 0.01	< 0.001
1.1-Dichloroethene	0.001	mg/L	-	-	< 0.01	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	-	-	< 0.01	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	-	-	< 0.01	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	-	-	< 0.01	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	-	-	< 0.01	< 0.001
1.2-Dibromoethane	0.001	mg/L	-	-	< 0.01	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	-	-	< 0.01	< 0.001
1.2-Dichloroethane	0.001	mg/L	-	-	< 0.01	< 0.001
1.2-Dichloropropane	0.001	mg/L	-	-	< 0.01	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	-	-	< 0.01	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	-	-	< 0.01	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	-	-	< 0.01	< 0.001
1.3-Dichloropropane	0.001	mg/L	-	-	< 0.01	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	-	-	< 0.01	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	-	-	< 0.01	< 0.001
2-Butanone (MEK)	0.005	mg/L	-	-	< 0.05	< 0.005
2-Propanone (Acetone)	0.005	mg/L	-	-	< 0.05	< 0.005
4-Chlorotoluene	0.001	mg/L	-	-	< 0.01	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	-	-	< 0.05	< 0.005
Allyl chloride	0.001	mg/L	-	-	< 0.01	< 0.001
Benzene	0.001	mg/L	-	-	< 0.01	< 0.001
Bromobenzene	0.001	mg/L	-	-	< 0.01	< 0.001
Bromochloromethane	0.001	mg/L	-	-	< 0.01	< 0.001
Bromodichloromethane	0.001	mg/L	-	-	< 0.01	< 0.001
Bromoform	0.001	mg/L	-	-	< 0.01	< 0.001
Bromomethane	0.005	mg/L	-	-	< 0.05	< 0.005
Carbon disulfide	0.001	mg/L	-	-	< 0.01	< 0.001
Carbon Tetrachloride	0.001	mg/L	-	-	< 0.01	< 0.001
Chlorobenzene	0.001	mg/L	-	-	< 0.01	< 0.001
Chloroethane	0.005	mg/L	-	-	< 0.05	< 0.005
Chloroform	0.005	mg/L	-	-	< 0.01	< 0.005
Chloromethane	0.005	mg/L	-	-	< 0.05	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	-	-	< 0.01	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	-	-	< 0.01	< 0.001
Dibromochloromethane	0.001	mg/L	-	-	< 0.01	< 0.001
Dibromomethane	0.001	mg/L	-	-	< 0.01	< 0.001
Dichlorodifluoromethane	0.005	mg/L	-	-	< 0.05	< 0.005
Ethylbenzene	0.001	mg/L	-	-	< 0.01	< 0.001
Iodomethane	0.001	mg/L	-	-	< 0.01	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	-	-	< 0.01	< 0.001
m&p-Xylenes	0.002	mg/L	-	-	< 0.02	< 0.002
Methylene Chloride	0.005	mg/L	-	-	< 0.05	< 0.005

Client Sample ID Sample Matrix Eurofins Sample No. Date Sampled Test/Reference	LOR	Unit	MW3 Water M24- Ma0017324 Mar 05, 2024	MW81 Water M24- Ma0017325 Mar 05, 2024	MW37 Water M24- Ma0017326 Mar 05, 2024	MW84 Water M24- Ma0017327 Mar 05, 2024
Volatile Organics						
o-Xylene	0.001	mg/L	-	-	< 0.01	< 0.001
Styrene	0.001	mg/L	-	-	< 0.01	< 0.001
Tetrachloroethene	0.001	mg/L	-	-	< 0.01	< 0.001
Toluene	0.001	mg/L	-	-	< 0.01	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	-	-	< 0.01	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	-	-	< 0.01	< 0.001
Trichloroethene	0.001	mg/L	-	-	< 0.01	< 0.001
Trichlorofluoromethane	0.005	mg/L	-	-	< 0.05	< 0.005
Vinyl chloride	0.005	mg/L	-	-	< 0.05	< 0.005
Xylenes - Total*	0.003	mg/L	-	-	< 0.03	< 0.003
Total MAH*	0.003	mg/L	-	-	< 0.02	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	-	-	< 0.05	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	-	-	< 0.05	< 0.005
4-Bromofluorobenzene (surr.)	1	%	-	-	89	74
Toluene-d8 (surr.)	1	%	-	-	85	75
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{NO2}	0.01	mg/L	-	-	< 0.01	< 0.01
Semivolatile Organics						
Aldrin and Dieldrin (Total)*	0.0001	mg/L	-	-	< 0.005	< 0.005
DDT + DDE + DDD (Total)*	0.0001	mg/L	-	-	< 0.005	< 0.005
Total PAH*	0.001	mg/L	-	-	< 0.001	< 0.001
2-Methyl-4.6-dinitrophenol	0.03	mg/L	-	-	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	-	-	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	-	-	< 0.005	< 0.005
1.2-Dichlorobenzene	0.005	mg/L	-	-	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	-	-	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	-	-	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	-	-	< 0.005	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	-	-	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	-	-	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	-	-	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	-	-	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	-	-	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	-	-	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	-	-	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	-	-	50	60
2-Methylnaphthalene	0.005	mg/L	-	-	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	-	-	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	-	-	< 0.005	< 0.005
2-Nitroaniline	0.005	mg/L	-	-	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	-	-	< 0.01	< 0.01
2-Picoline	0.005	mg/L	-	-	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	-	-	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	-	-	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	-	-	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	-	-	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	-	-	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	-	-	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	-	-	72	54

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Semivolatile Organics						
2,4,6-Trichlorophenol	0.01	mg/L	-	-	< 0.01	< 0.01
2,6-Dichlorophenol	0.003	mg/L	-	-	< 0.003	< 0.003
2,6-Dinitrotoluene	0.005	mg/L	-	-	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	-	-	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	-	-	< 0.005	< 0.005
3,3'-Dichlorobenzidine	0.005	mg/L	-	-	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	-	-	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	-	-	< 0.01	< 0.01
4-Nitrophenol	0.03	mg/L	-	-	< 0.03	< 0.03
4,4'-DDD	0.005	mg/L	-	-	< 0.005	< 0.005
4,4'-DDE	0.005	mg/L	-	-	< 0.005	< 0.005
4,4'-DDT	0.005	mg/L	-	-	< 0.005	< 0.005
7,12-Dimethylbenz(a)anthracene	0.005	mg/L	-	-	< 0.005	< 0.005
a-HCH	0.005	mg/L	-	-	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	-	-	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	-	-	< 0.001	< 0.001
Acetophenone	0.005	mg/L	-	-	< 0.005	< 0.005
Aldrin	0.005	mg/L	-	-	< 0.005	< 0.005
Aniline	0.005	mg/L	-	-	< 0.005	< 0.005
Anthracene	0.001	mg/L	-	-	< 0.001	< 0.001
b-HCH	0.005	mg/L	-	-	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	-	-	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	-	-	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	-	-	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	-	-	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	-	-	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	-	-	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	-	-	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	-	-	< 0.005	< 0.005
Chrysene	0.001	mg/L	-	-	< 0.001	< 0.001
d-HCH	0.005	mg/L	-	-	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	-	-	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	-	-	< 0.005	< 0.005
Dibenz(a,h)anthracene	0.001	mg/L	-	-	< 0.001	< 0.001
Dibenz(a,j)acridine	0.005	mg/L	-	-	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	-	-	< 0.005	< 0.005
Dieldrin	0.005	mg/L	-	-	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	-	-	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	-	-	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	-	-	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	-	-	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	-	-	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	-	-	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	-	-	< 0.005	< 0.005
Endrin	0.005	mg/L	-	-	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	-	-	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	-	-	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	-	-	< 0.001	< 0.001
Fluorene	0.001	mg/L	-	-	< 0.001	< 0.001

Client Sample ID Sample Matrix Eurofins Sample No. Date Sampled Test/Reference	LOR	Unit	MW3 Water M24- Ma0017324 Mar 05, 2024	MW81 Water M24- Ma0017325 Mar 05, 2024	MW37 Water M24- Ma0017326 Mar 05, 2024	MW84 Water M24- Ma0017327 Mar 05, 2024
Semivolatile Organics						
g-HCH (Lindane)	0.005	mg/L	-	-	< 0.005	< 0.005
Heptachlor	0.005	mg/L	-	-	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	-	-	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	-	-	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	-	-	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	-	-	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	-	-	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	-	-	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	-	-	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	-	-	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	-	-	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	-	-	< 0.005	< 0.005
Naphthalene	0.001	mg/L	-	-	< 0.001	< 0.001
Nitrobenzene	0.05	mg/L	-	-	< 0.05	< 0.05
Nitrobenzene-d5 (surr.)	1	%	-	-	70	78
Pentachlorobenzene	0.005	mg/L	-	-	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	-	-	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	-	-	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	-	-	< 0.001	< 0.001
Phenol	0.003	mg/L	-	-	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	-	-	126	79
Pronamide	0.005	mg/L	-	-	< 0.005	< 0.005
Pyrene	0.001	mg/L	-	-	< 0.001	< 0.001
Trifluralin	0.005	mg/L	-	-	< 0.005	< 0.005
Haloethers						
4-Bromophenyl phenyl ether	0.005	mg/L	-	-	< 0.005	< 0.005
4-Chlorophenyl phenyl ether	0.005	mg/L	-	-	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	-	-	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	-	-	< 0.005	< 0.005

Client Sample ID Sample Matrix Eurofins Sample No. Date Sampled Test/Reference	LOR	Unit	MW85 Water M24- Ma0017328 Mar 05, 2024
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001

Client Sample ID			MW85
Sample Matrix			Water
Eurofins Sample No.			M24-Ma0017328
Date Sampled			Mar 05, 2024
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Fluorene	0.001	mg/L	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	51
p-Terphenyl-d14 (surr.)	1	%	59
Polychlorinated Biphenyls			
Aroclor-1016	0.005	mg/L	< 0.005
Aroclor-1221	0.005	mg/L	< 0.005
Aroclor-1232	0.005	mg/L	< 0.005
Aroclor-1242	0.005	mg/L	< 0.005
Aroclor-1248	0.005	mg/L	< 0.005
Aroclor-1254	0.005	mg/L	< 0.005
Aroclor-1260	0.005	mg/L	< 0.005
Total PCB*	0.005	mg/L	< 0.005
Dibutylchloredate (surr.)	1	%	94
Tetrachloro-m-xylene (surr.)	1	%	62
Ammonia (as N)	0.01	mg/L	0.24
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	< 5
Chemical Oxygen Demand (COD)	25	mg/L	< 25
Chloride	1	mg/L	180
Chromium (hexavalent)	0.005	mg/L	< 0.005
Chromium (trivalent)	0.005	mg/L	< 0.005
Ferric Iron - Fe ³⁺	0.05	mg/L	< 0.05
Ferrous Iron - Fe ²⁺	0.05	mg/L	0.08
Organic Nitrogen (as N)*	0.2	mg/L	< 0.2
Sulphate (as SO ₄)	5	mg/L	270
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.3
Total Organic Carbon	5	mg/L	13
Turbidity	1	NTU	8.7
Hardness mg equivalent CaCO ₃ /L	5	mg/L	550
Alkalinity (speciated)			
Bicarbonate Alkalinity (as CaCO ₃)	20	mg/L	260
Carbonate Alkalinity (as CaCO ₃)	10	mg/L	< 10
Hydroxide Alkalinity (as CaCO ₃)	20	mg/L	< 20
Total Alkalinity (as CaCO ₃)	20	mg/L	260
Heavy Metals			
Antimony (filtered)	0.005	mg/L	< 0.005
Arsenic (filtered)	0.001	mg/L	< 0.001
Barium (filtered)	0.02	mg/L	0.05
Beryllium (filtered)	0.001	mg/L	< 0.001
Boron (filtered)	0.05	mg/L	0.41
Cadmium (filtered)	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	< 0.001
Cobalt (filtered)	0.001	mg/L	< 0.001

Client Sample ID			MW85
Sample Matrix			Water
Eurofins Sample No.			M24-Ma0017328
Date Sampled			Mar 05, 2024
Test/Reference	LOR	Unit	
Heavy Metals			
Copper (filtered)	0.001	mg/L	0.005
Iron	0.05	mg/L	0.08
Lead (filtered)	0.001	mg/L	< 0.001
Manganese (filtered)	0.005	mg/L	< 0.005
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001
Selenium (filtered)	0.001	mg/L	0.003
Silver (filtered)	0.005	mg/L	< 0.005
Thallium (filtered)	0.005	mg/L	< 0.005
Vanadium (filtered)	0.005	mg/L	< 0.005
Zinc (filtered)	0.005	mg/L	< 0.005
Alkali Metals			
Calcium	0.5	mg/L	110
Magnesium	0.5	mg/L	70
Potassium	0.5	mg/L	15
Sodium	0.5	mg/L	160
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
Volatile Organics			
1.1-Dichloroethane	0.001	mg/L	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001

Client Sample ID			MW85
Sample Matrix			Water
Eurofins Sample No.			M24-Ma0017328
Date Sampled			Mar 05, 2024
Test/Reference	LOR	Unit	
Volatile Organics			
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005
Allyl chloride	0.001	mg/L	< 0.001
Benzene	0.001	mg/L	< 0.001
Bromobenzene	0.001	mg/L	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001
Bromoform	0.001	mg/L	< 0.001
Bromomethane	0.005	mg/L	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001
Chloroethane	0.005	mg/L	< 0.005
Chloroform	0.005	mg/L	< 0.005
Chloromethane	0.005	mg/L	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001
Dibromomethane	0.001	mg/L	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001
Iodomethane	0.001	mg/L	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005
o-Xylene	0.001	mg/L	< 0.001
Styrene	0.001	mg/L	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001
Trichloroethene	0.001	mg/L	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003
Total MAH*	0.003	mg/L	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005
4-Bromofluorobenzene (surr.)	1	%	75
Toluene-d8 (surr.)	1	%	76
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene ^{NO2}	0.01	mg/L	< 0.01
Semivolatile Organics			
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.005
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.005
Total PAH*	0.001	mg/L	< 0.001
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.005
1.2-Dichlorobenzene	0.005	mg/L	< 0.005

Client Sample ID			MW85
Sample Matrix			Water
Eurofins Sample No.			M24-Ma0017328
Date Sampled			Mar 05, 2024
Test/Reference	LOR	Unit	
Semivolatile Organics			
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003
2-Fluorobiphenyl (surr.)	1	%	51
2-Methylnaphthalene	0.005	mg/L	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.005
2-Nitroaniline	0.005	mg/L	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01
2-Picoline	0.005	mg/L	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	66
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005
3,3'-Dichlorobenzidine	0.005	mg/L	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01
4-Nitrophenol	0.03	mg/L	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.005
a-HCH	0.005	mg/L	< 0.005
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Acetophenone	0.005	mg/L	< 0.005
Aldrin	0.005	mg/L	< 0.005
Aniline	0.005	mg/L	< 0.005
Anthracene	0.001	mg/L	< 0.001
b-HCH	0.005	mg/L	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001

Client Sample ID			MW85
Sample Matrix			Water
Eurofins Sample No.			M24-Ma0017328
Date Sampled			Mar 05, 2024
Test/Reference	LOR	Unit	
Semivolatile Organics			
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005
Chrysene	0.001	mg/L	< 0.001
d-HCH	0.005	mg/L	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001
Dibenz(a,j)acridine	0.005	mg/L	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005
Dieldrin	0.005	mg/L	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005
Diphenylamine	0.005	mg/L	< 0.005
Endosulfan I	0.005	mg/L	< 0.005
Endosulfan II	0.005	mg/L	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005
Endrin	0.005	mg/L	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005
Endrin ketone	0.005	mg/L	< 0.005
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005
Heptachlor	0.005	mg/L	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Methoxychlor	0.005	mg/L	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005
Naphthalene	0.001	mg/L	< 0.001
Nitrobenzene	0.05	mg/L	< 0.05
Nitrobenzene-d5 (surr.)	1	%	67
Pentachlorobenzene	0.005	mg/L	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01
Phenanthrene	0.001	mg/L	< 0.001
Phenol	0.003	mg/L	< 0.003
Phenol-d6 (surr.)	1	%	83
Pronamide	0.005	mg/L	< 0.005
Pyrene	0.001	mg/L	< 0.001
Trifluralin	0.005	mg/L	< 0.005

Client Sample ID			MW85
Sample Matrix			Water
Eurofins Sample No.			M24-Ma0017328
Date Sampled			Mar 05, 2024
Test/Reference	LOR	Unit	
Haloethers			
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005

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
Polycyclic Aromatic Hydrocarbons	Melbourne	Mar 08, 2024	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Polychlorinated Biphenyls	Melbourne	Mar 08, 2024	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8082)			
Biochemical Oxygen Demand (BOD-5 Day)	Melbourne	Mar 08, 2024	2 Days
- Method: LTM-INO-4010 Biochemical Oxygen Demand (BOD5) in Water			
Chemical Oxygen Demand (COD)	Melbourne	Mar 08, 2024	28 Days
- Method: LTM-INO-4220 Determination of COD in Water			
Total Organic Carbon	Melbourne	Mar 08, 2024	28 Days
- Method: LTM-INO-4060 Total Organic Carbon in water and soil			
Turbidity	Melbourne	Mar 08, 2024	28 Days
- Method: Turbidity by classical using APHA 2130B (LTM-INO-4140)			
Heavy Metals (filtered)	Melbourne	Mar 13, 2024	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Ammonia (as N)	Melbourne	Mar 08, 2024	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Organic Nitrogen (as N)*	Melbourne	Mar 07, 2024	7 Days
- Method: APHA 4500 Organic Nitrogen (N)			
Total Kjeldahl Nitrogen (as N)	Melbourne	Mar 08, 2024	28 Days
- Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA			
Eurofins Suite B11E: Cl/SO4/Alkalinity			
Chloride	Melbourne	Mar 08, 2024	28 Days
- Method: LTM-INO-4270 Anions by Ion Chromatography			
Sulphate (as SO4)	Melbourne	Mar 08, 2024	28 Days
- Method: LTM-INO-4270 Anions by Ion Chromatography			
Alkalinity (speciated)	Melbourne	Mar 08, 2024	14 Days
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			
Chromium (hexavalent)	Melbourne	Mar 08, 2024	28 Days
- Method: LTM-INO-4100 Hexavalent Chromium by Spectrometric detection			
Mobil Metals : Metals M15	Melbourne	Mar 08, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Chromium (speciated)			
Heavy Metals	Melbourne	Mar 13, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Iron (speciated)			
Ferrous Iron - Fe2+	Melbourne	Mar 08, 2024	7 Days
- Method: LTM-INO-4190 Ferrous Iron in Water by Discrete Analyser			
Eurofins Suite B11D: Na/K/Ca/Mg and Hardness			
Hardness mg equivalent CaCO3/L	Melbourne	Mar 08, 2024	28 Days
- Method: APHA 2340B Hardness by Calculation			
Alkali Metals	Melbourne	Mar 08, 2024	180 Days
- Method: LTM-MET-3010 Alkali Metals Sulfur Silicon Phosphorus by ICP-AES			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Mar 08, 2024	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Mar 08, 2024	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Mar 08, 2024	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Volatile Organics	Melbourne	Mar 08, 2024	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices (USEPA 8260)			
Semivolatile Organics	Melbourne	Mar 08, 2024	7 Days
- Method: USEPA SW 846 8270			



Melbourne 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079 & 25289
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Perth 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370

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

Address:

Project Name:

Project ID:

Tierra Environmental Pty Ltd

PO Box 360

Mitcham

SA 5062

ALICE SPRINGS LANDFILL

AAQ 06 023.26

Order No.:

Report #:

Phone:

Fax:

1076022

08 8373 2512

08 8373 2515

Received:

Due:

Priority:

Contact Name:

Mar 7, 2024 11:32 AM

Mar 13, 2024

5 Day

Daryl Burrows

Eurofins Analytical Services Manager : Amy Meunier

Sample Detail						Antimony (filtered)	Barium (filtered)	Biochemical Oxygen Demand (BOD-5 Day)	Chemical Oxygen Demand (COD)	Silver (filtered)	Thallium (filtered)	Total Organic Carbon	Turbidity	Vanadium (filtered)	Polycyclic Aromatic Hydrocarbons	Polychlorinated Biphenyls	Iron (speciated)	Organic Nitrogen Set (as N)	Chromium (speciated)	NEPM 2013 Metals : Metals M13 filtered	Total Recoverable Hydrocarbons	Eurofins Suite SVV: SVOC/VOC	Eurofins Suite B11D: Na/K/Ca/Mg and Hardness	Eurofins Suite B11E: Cl/SO4/Alkalinity
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	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	MW3	Mar 05, 2024		Water	M24-Ma0017324	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X
2	MW81	Mar 05, 2024		Water	M24-Ma0017325	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X
3	MW37	Mar 05, 2024		Water	M24-Ma0017326	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	MW84	Mar 05, 2024		Water	M24-Ma0017327	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	MW85	Mar 05, 2024		Water	M24-Ma0017328	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts						5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	3	5	5

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.
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 date of sampling; 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	

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 (<i>bis</i> -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 70 – 130%

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							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g,h,i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a,h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1,2,3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/L	< 0.005			0.005	Pass	
Aroclor-1221	mg/L	< 0.005			0.005	Pass	
Aroclor-1232	mg/L	< 0.005			0.005	Pass	
Aroclor-1242	mg/L	< 0.005			0.005	Pass	
Aroclor-1248	mg/L	< 0.005			0.005	Pass	
Aroclor-1254	mg/L	< 0.005			0.005	Pass	
Aroclor-1260	mg/L	< 0.005			0.005	Pass	
Total PCB*	mg/L	< 0.005			0.005	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Biochemical Oxygen Demand (BOD-5 Day)	mg/L	< 5			5	Pass	
Chemical Oxygen Demand (COD)	mg/L	< 25			25	Pass	
Chloride	mg/L	< 1			1	Pass	
Chromium (hexavalent)	mg/L	< 0.005			0.005	Pass	
Ferrous Iron - Fe ²⁺	mg/L	< 0.05			0.05	Pass	
Sulphate (as SO ₄)	mg/L	< 5			5	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Turbidity	NTU	< 1			1	Pass	
Hardness mg equivalent CaCO ₃ /L	mg/L	< 5			5	Pass	
Method Blank							
Heavy Metals							
Antimony (filtered)	mg/L	< 0.005			0.005	Pass	
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Barium (filtered)	mg/L	< 0.02			0.02	Pass	
Beryllium (filtered)	mg/L	< 0.001			0.001	Pass	
Boron (filtered)	mg/L	< 0.05			0.05	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Cobalt (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Iron	mg/L	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Selenium (filtered)	mg/L	< 0.001			0.001	Pass	
Silver (filtered)	mg/L	< 0.005			0.005	Pass	
Thallium (filtered)	mg/L	< 0.005			0.005	Pass	
Vanadium (filtered)	mg/L	< 0.005			0.005	Pass	
Zinc (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							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.1-Dichloroethene	mg/L	< 0.001			0.001	Pass	
1.1.1-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.1.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dibromoethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.3-Trichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.4-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.3.5-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.4-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
2-Butanone (MEK)	mg/L	< 0.005			0.005	Pass	
2-Propanone (Acetone)	mg/L	< 0.005			0.005	Pass	
4-Chlorotoluene	mg/L	< 0.001			0.001	Pass	
4-Methyl-2-pentanone (MIBK)	mg/L	< 0.005			0.005	Pass	
Allyl chloride	mg/L	< 0.001			0.001	Pass	
Benzene	mg/L	< 0.001			0.001	Pass	
Bromobenzene	mg/L	< 0.001			0.001	Pass	
Bromochloromethane	mg/L	< 0.001			0.001	Pass	
Bromodichloromethane	mg/L	< 0.001			0.001	Pass	
Bromoform	mg/L	< 0.001			0.001	Pass	
Bromomethane	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Carbon disulfide	mg/L	< 0.001			0.001	Pass	
Carbon Tetrachloride	mg/L	< 0.001			0.001	Pass	
Chlorobenzene	mg/L	< 0.001			0.001	Pass	
Chloroethane	mg/L	< 0.005			0.005	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.005			0.005	Pass	
cis-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
cis-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Dibromochloromethane	mg/L	< 0.001			0.001	Pass	
Dibromomethane	mg/L	< 0.001			0.001	Pass	
Dichlorodifluoromethane	mg/L	< 0.005			0.005	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
Iodomethane	mg/L	< 0.001			0.001	Pass	
Isopropyl benzene (Cumene)	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
Methylene Chloride	mg/L	< 0.005			0.005	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
trans-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene	mg/L	< 0.001			0.001	Pass	
Trichlorofluoromethane	mg/L	< 0.005			0.005	Pass	
Vinyl chloride	mg/L	< 0.005			0.005	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Semivolatile Organics							
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
1-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
1-Naphthylamine	mg/L	< 0.005			0.005	Pass	
1.2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3.4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3.5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.4.5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.3.5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
2-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2-Methylnaphthalene	mg/L	< 0.005			0.005	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Naphthylamine	mg/L	< 0.005			0.005	Pass	
2-Nitroaniline	mg/L	< 0.005			0.005	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2-Picoline	mg/L	< 0.005			0.005	Pass	
2.3.4.6-Tetrachlorophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2,4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
2,4-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
2,4,5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2,4,6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2,6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2,6-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
3-Methylcholanthrene	mg/L	< 0.005			0.005	Pass	
3,3'-Dichlorobenzidine	mg/L	< 0.005			0.005	Pass	
4-Aminobiphenyl	mg/L	< 0.005			0.005	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
4,4'-DDD	mg/L	< 0.005			0.005	Pass	
4,4'-DDE	mg/L	< 0.005			0.005	Pass	
4,4'-DDT	mg/L	< 0.005			0.005	Pass	
7,12-Dimethylbenz(a)anthracene	mg/L	< 0.005			0.005	Pass	
a-HCH	mg/L	< 0.005			0.005	Pass	
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Acetophenone	mg/L	< 0.005			0.005	Pass	
Aldrin	mg/L	< 0.005			0.005	Pass	
Aniline	mg/L	< 0.005			0.005	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
b-HCH	mg/L	< 0.005			0.005	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g,h,i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Bis(2-ethylhexyl)phthalate	mg/L	< 0.005			0.005	Pass	
Butyl benzyl phthalate	mg/L	< 0.005			0.005	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
d-HCH	mg/L	< 0.005			0.005	Pass	
Di-n-butyl phthalate	mg/L	< 0.005			0.005	Pass	
Di-n-octyl phthalate	mg/L	< 0.005			0.005	Pass	
Dibenz(a,h)anthracene	mg/L	< 0.001			0.001	Pass	
Dibenz(a,j)acridine	mg/L	< 0.005			0.005	Pass	
Dibenzofuran	mg/L	< 0.005			0.005	Pass	
Dieldrin	mg/L	< 0.005			0.005	Pass	
Diethyl phthalate	mg/L	< 0.005			0.005	Pass	
Dimethyl phthalate	mg/L	< 0.005			0.005	Pass	
Dimethylaminoazobenzene	mg/L	< 0.005			0.005	Pass	
Diphenylamine	mg/L	< 0.005			0.005	Pass	
Endosulfan I	mg/L	< 0.005			0.005	Pass	
Endosulfan II	mg/L	< 0.005			0.005	Pass	
Endosulfan sulphate	mg/L	< 0.005			0.005	Pass	
Endrin	mg/L	< 0.005			0.005	Pass	
Endrin aldehyde	mg/L	< 0.005			0.005	Pass	
Endrin ketone	mg/L	< 0.005			0.005	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
g-HCH (Lindane)	mg/L	< 0.005			0.005	Pass	
Heptachlor	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heptachlor epoxide	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Methoxychlor	mg/L	< 0.005			0.005	Pass	
N-Nitrosodibutylamine	mg/L	< 0.005			0.005	Pass	
N-Nitrosodipropylamine	mg/L	< 0.005			0.005	Pass	
N-Nitrosopiperidine	mg/L	< 0.005			0.005	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Nitrobenzene	mg/L	< 0.05			0.05	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Pentachloronitrobenzene	mg/L	< 0.005			0.005	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Pronamide	mg/L	< 0.005			0.005	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Trifluralin	mg/L	< 0.005			0.005	Pass	
Method Blank							
Haloethers							
4-Bromophenyl phenyl ether	mg/L	< 0.005			0.005	Pass	
4-Chlorophenyl phenyl ether	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroethoxy)methane	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroisopropyl)ether	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	127			70-130	Pass	
Acenaphthylene	%	90			70-130	Pass	
Anthracene	%	73			70-130	Pass	
Benz(a)anthracene	%	102			70-130	Pass	
Benzo(a)pyrene	%	99			70-130	Pass	
Benzo(b&j)fluoranthene	%	84			70-130	Pass	
Benzo(g,h,i)perylene	%	81			70-130	Pass	
Benzo(k)fluoranthene	%	87			70-130	Pass	
Chrysene	%	122			70-130	Pass	
Dibenz(a,h)anthracene	%	100			70-130	Pass	
Fluoranthene	%	129			70-130	Pass	
Fluorene	%	91			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	102			70-130	Pass	
Naphthalene	%	106			70-130	Pass	
Phenanthrene	%	115			70-130	Pass	
Pyrene	%	90			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	92			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	113			70-130	Pass	
Biochemical Oxygen Demand (BOD-5 Day)	%	87			85-115	Pass	
Chemical Oxygen Demand (COD)	%	98			70-130	Pass	
Chloride	%	100			70-130	Pass	
Chromium (hexavalent)	%	111			70-130	Pass	
Ferrous Iron - Fe2+	%	121			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Sulphate (as SO ₄)	%	114			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	115			70-130	Pass	
Total Organic Carbon	%	86			70-130	Pass	
Turbidity	%	94			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO ₃)	%	78			70-130	Pass	
Total Alkalinity (as CaCO ₃)	%	81			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	98			80-120	Pass	
Boron (filtered)	%	109			80-120	Pass	
Cadmium (filtered)	%	96			80-120	Pass	
Chromium	%	103			80-120	Pass	
Cobalt (filtered)	%	97			80-120	Pass	
Copper (filtered)	%	96			80-120	Pass	
Iron	%	104			80-120	Pass	
Lead (filtered)	%	94			80-120	Pass	
Manganese (filtered)	%	99			80-120	Pass	
Mercury (filtered)	%	101			80-120	Pass	
Nickel (filtered)	%	103			80-120	Pass	
Selenium (filtered)	%	97			80-120	Pass	
Silver (filtered)	%	95			80-120	Pass	
Thallium (filtered)	%	98			80-120	Pass	
Zinc (filtered)	%	99			80-120	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	107			80-120	Pass	
Magnesium	%	107			80-120	Pass	
Potassium	%	100			80-120	Pass	
Sodium	%	109			80-120	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	75			70-130	Pass	
TRH C10-C14	%	82			70-130	Pass	
TRH C6-C10	%	87			70-130	Pass	
TRH >C10-C16	%	81			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1,1-Dichloroethene	%	90			70-130	Pass	
1,2-Dichlorobenzene	%	82			70-130	Pass	
1,2-Dichloroethane	%	81			70-130	Pass	
Benzene	%	88			70-130	Pass	
Ethylbenzene	%	95			70-130	Pass	
m&p-Xylenes	%	88			70-130	Pass	
Toluene	%	84			70-130	Pass	
Trichloroethene	%	77			70-130	Pass	
Xylenes - Total*	%	89			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	98			70-130	Pass	
LCS - % Recovery							
Semivolatile Organics							
2-Methyl-4,6-dinitrophenol	%	63			25-140	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1.2.4-Trichlorobenzene			%	72			70-130	Pass	
1.4-Dichlorobenzene			%	72			70-130	Pass	
2-Chlorophenol			%	87			25-140	Pass	
2-Methylphenol (o-Cresol)			%	89			25-140	Pass	
2-Nitrophenol			%	104			25-140	Pass	
2.4-Dichlorophenol			%	101			25-140	Pass	
2.4-Dimethylphenol			%	112			25-140	Pass	
2.4-Dinitrophenol			%	48			25-140	Pass	
2.4-Dinitrotoluene			%	80			70-130	Pass	
2.4.5-Trichlorophenol			%	97			25-140	Pass	
2.4.6-Trichlorophenol			%	95			25-140	Pass	
2.6-Dichlorophenol			%	103			25-140	Pass	
3&4-Methylphenol (m&p-Cresol)			%	78			25-140	Pass	
4-Chloro-3-methylphenol			%	123			25-140	Pass	
4-Nitrophenol			%	36			25-140	Pass	
N-Nitrosodipropylamine			%	98			70-130	Pass	
Pentachlorophenol			%	86			25-140	Pass	
Phenol			%	35			25-140	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M24-Ma0013890	NCP	%	105			70-130	Pass	
Acenaphthylene	M24-Ma0013890	NCP	%	116			70-130	Pass	
Anthracene	M24-Ma0013890	NCP	%	99			70-130	Pass	
Benz(a)anthracene	M24-Ma0013890	NCP	%	112			70-130	Pass	
Benzo(a)pyrene	M24-Ma0013890	NCP	%	102			70-130	Pass	
Benzo(b&j)fluoranthene	M24-Ma0013890	NCP	%	103			70-130	Pass	
Benzo(g,h,i)perylene	M24-Ma0013890	NCP	%	92			70-130	Pass	
Benzo(k)fluoranthene	M24-Ma0013890	NCP	%	125			70-130	Pass	
Chrysene	M24-Ma0013890	NCP	%	127			70-130	Pass	
Dibenz(a,h)anthracene	M24-Ma0013890	NCP	%	90			70-130	Pass	
Fluoranthene	M24-Ma0013890	NCP	%	125			70-130	Pass	
Fluorene	M24-Ma0013890	NCP	%	117			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M24-Ma0013890	NCP	%	95			70-130	Pass	
Naphthalene	M24-Ma0013890	NCP	%	118			70-130	Pass	
Phenanthrene	M24-Ma0013890	NCP	%	112			70-130	Pass	
Pyrene	M24-Ma0013890	NCP	%	124			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chemical Oxygen Demand (COD)	M24-Ma0013898	NCP	%	83			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	M24-Ma0019882	NCP	%	98			70-130	Pass	
Total Organic Carbon	N24-Ma0011555	NCP	%	95			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Antimony (filtered)	M24-Ma0018914	NCP	%	118			75-125	Pass	
Arsenic (filtered)	M24-Ma0018914	NCP	%	118			75-125	Pass	
Barium (filtered)	M24-Ma0018914	NCP	%	117			75-125	Pass	
Beryllium (filtered)	M24-Ma0018914	NCP	%	114			75-125	Pass	
Boron (filtered)	M24-Ma0018914	NCP	%	81			75-125	Pass	
Cadmium (filtered)	M24-Ma0018914	NCP	%	113			75-125	Pass	
Chromium	B24-Ma0005596	NCP	%	114			75-125	Pass	
Cobalt (filtered)	M24-Ma0018914	NCP	%	115			75-125	Pass	
Copper (filtered)	M24-Ma0018914	NCP	%	111			75-125	Pass	
Iron	B24-Ma0005596	NCP	%	99			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead (filtered)	M24-Ma0018914	NCP	%	111			75-125	Pass	
Manganese (filtered)	M24-Ma0018914	NCP	%	116			75-125	Pass	
Mercury (filtered)	M24-Ma0018914	NCP	%	111			75-125	Pass	
Nickel (filtered)	M24-Ma0018914	NCP	%	111			75-125	Pass	
Selenium (filtered)	M24-Ma0018914	NCP	%	114			75-125	Pass	
Silver (filtered)	M24-Ma0018914	NCP	%	109			75-125	Pass	
Thallium (filtered)	M24-Ma0018914	NCP	%	115			75-125	Pass	
Vanadium (filtered)	B24-Fe0072003	NCP	%	90			75-125	Pass	
Zinc (filtered)	M24-Ma0018914	NCP	%	120			75-125	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M24-Ma0017324	CP	%	98			75-125	Pass	
Magnesium	M24-Ma0017324	CP	%	99			75-125	Pass	
Potassium	M24-Ma0017324	CP	%	98			75-125	Pass	
Sodium	M24-Ma0017324	CP	%	99			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	M24-Ma0018427	NCP	%	76			70-130	Pass	
TRH C10-C14	M24-Ma0014003	NCP	%	103			70-130	Pass	
TRH C6-C10	M24-Ma0018427	NCP	%	73			70-130	Pass	
TRH >C10-C16	M24-Ma0014003	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1,1-Dichloroethene	M24-Ma0018427	NCP	%	107			70-130	Pass	
1,2-Dichlorobenzene	M24-Ma0018427	NCP	%	91			70-130	Pass	
1,2-Dichloroethane	M24-Ma0018427	NCP	%	124			70-130	Pass	
Benzene	M24-Ma0018427	NCP	%	86			70-130	Pass	
Ethylbenzene	M24-Ma0018427	NCP	%	88			70-130	Pass	
m&p-Xylenes	M24-Ma0018427	NCP	%	82			70-130	Pass	
o-Xylene	M24-Ma0018427	NCP	%	87			70-130	Pass	
Toluene	M24-Ma0018427	NCP	%	76			70-130	Pass	
Trichloroethene	M24-Ma0018427	NCP	%	72			70-130	Pass	
Xylenes - Total*	M24-Ma0018427	NCP	%	83			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M24-Ma0018427	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Semivolatile Organics				Result 1					
2-Methyl-4,6-dinitrophenol	M24-Ma0014344	NCP	%	73			30-130	Pass	
1,2,4-Trichlorobenzene	M24-Ma0016855	NCP	%	71			70-130	Pass	
1,4-Dichlorobenzene	M24-Ma0016855	NCP	%	76			70-130	Pass	
2-Chlorophenol	M24-Ma0016855	NCP	%	92			30-130	Pass	
2-Methylphenol (o-Cresol)	M24-Ma0014344	NCP	%	108			30-130	Pass	
2-Nitrophenol	M24-Ma0014344	NCP	%	118			30-130	Pass	
2,4-Dichlorophenol	M24-Ma0014344	NCP	%	114			30-130	Pass	
2,4-Dimethylphenol	M24-Ma0014344	NCP	%	106			30-130	Pass	
2,4-Dinitrophenol	M24-Ma0014344	NCP	%	58			30-130	Pass	
2,4-Dinitrotoluene	M24-Ma0016855	NCP	%	78			70-130	Pass	
2,4,5-Trichlorophenol	M24-Ma0014344	NCP	%	111			30-130	Pass	
2,4,6-Trichlorophenol	M24-Ma0014344	NCP	%	107			30-130	Pass	
2,6-Dichlorophenol	M24-Ma0014344	NCP	%	116			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M24-Ma0014344	NCP	%	99			30-130	Pass	
4-Chloro-3-methylphenol	M24-Ma0016855	NCP	%	51			30-130	Pass	
4-Nitrophenol	M24-Ma0014344	NCP	%	33			30-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-Nitrosodipropylamine	M24-Ma0016855	NCP	%	91			70-130	Pass	
Pentachlorophenol	M24-Ma0014344	NCP	%	88			30-130	Pass	
Phenol	M24-Ma0016855	NCP	%	50			30-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthylene	M24-Ma0019116	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M24-Ma0019116	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	M24-Ma0019116	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	M24-Ma0019116	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M24-Ma0019116	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g,h,i)perylene	M24-Ma0019116	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	M24-Ma0019116	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	M24-Ma0019116	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a,h)anthracene	M24-Ma0019116	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	M24-Ma0019116	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	M24-Ma0019116	NCP	mg/L	0.002	0.002	17	30%	Pass	
Indeno(1,2,3-cd)pyrene	M24-Ma0019116	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	M24-Ma0019116	NCP	mg/L	0.024	0.024	<1	30%	Pass	
Phenanthrene	M24-Ma0019116	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	M24-Ma0019116	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	M24-Ma0019116	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Aroclor-1221	M24-Ma0019116	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Aroclor-1232	M24-Ma0019116	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Aroclor-1242	M24-Ma0019116	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Aroclor-1248	M24-Ma0019116	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Aroclor-1254	M24-Ma0019116	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Aroclor-1260	M24-Ma0019116	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Total PCB*	M24-Ma0019116	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M24-Ma0017383	NCP	mg/L	0.15	0.13	12	30%	Pass	
Biochemical Oxygen Demand (BOD-5 Day)	M24-Ma0017324	CP	mg/L	< 5	< 5	<1	30%	Pass	
Chemical Oxygen Demand (COD)	M24-Ma0017324	CP	mg/L	< 25	< 25	<1	30%	Pass	
Chromium (hexavalent)	M24-Ma0012940	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Sulphate (as SO ₄)	M24-Ma0010840	NCP	mg/L	14	14	1.2	30%	Pass	
Total Organic Carbon	N24-Ma0011554	NCP	mg/L	7.4	6.9	6.8	30%	Pass	
Turbidity	M24-Ma0016777	NCP	NTU	300	290	<1	30%	Pass	
Hardness mg equivalent CaCO ₃ /L	M24-Ma0017324	CP	mg/L	460	470	2.1	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO ₃)	M24-Ma0015778	NCP	mg/L	75	88	16	30%	Pass	
Carbonate Alkalinity (as CaCO ₃)	M24-Ma0015778	NCP	mg/L	< 10	< 10	<1	30%	Pass	
Hydroxide Alkalinity (as CaCO ₃)	M24-Ma0015778	NCP	mg/L	< 20	< 20	<1	30%	Pass	
Total Alkalinity (as CaCO ₃)	M24-Ma0015778	NCP	mg/L	75	88	16	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Antimony (filtered)	M24-Ma0018914	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Arsenic (filtered)	M24-Ma0018914	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Barium (filtered)	M24-Ma0018914	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Beryllium (filtered)	M24-Ma0018914	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Boron (filtered)	M24-Ma0018914	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Cadmium (filtered)	M24-Ma0018914	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium	B24-Ma0005596	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Cobalt (filtered)	M24-Ma0018914	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper (filtered)	M24-Ma0018914	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Iron	B24-Ma0005596	NCP	mg/L	0.66	0.67	<1	30%	Pass
Lead (filtered)	M24-Ma0018914	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Manganese (filtered)	M24-Ma0018914	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Mercury (filtered)	M24-Ma0018914	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel (filtered)	M24-Ma0018914	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Selenium (filtered)	M24-Ma0018914	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Silver (filtered)	M24-Ma0018914	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Thallium (filtered)	M24-Ma0018914	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Vanadium (filtered)	B24-Fe0072003	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Zinc (filtered)	M24-Ma0018914	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Alkali Metals				Result 1	Result 2	RPD		
Calcium	M24-Ma0017324	CP	mg/L	160	160	2.1	30%	Pass
Magnesium	M24-Ma0017324	CP	mg/L	15	16	2.0	30%	Pass
Potassium	M24-Ma0017324	CP	mg/L	7.7	7.9	2.5	30%	Pass
Sodium	M24-Ma0017324	CP	mg/L	70	71	2.1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD		
TRH C6-C9	M24-Ma0018426	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
TRH C10-C14	M24-Ma0016854	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH C15-C28	M24-Ma0016854	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH C29-C36	M24-Ma0016854	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH C6-C10	M24-Ma0018426	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
TRH >C10-C16	M24-Ma0016854	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH >C16-C34	M24-Ma0016854	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH >C34-C40	M24-Ma0016854	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Volatile Organics				Result 1	Result 2	RPD		
1.1-Dichloroethane	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.1-Dichloroethene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.1.1-Trichloroethane	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.1.1.2-Tetrachloroethane	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.1.2-Trichloroethane	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.1.2.2-Tetrachloroethane	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2-Dibromoethane	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2-Dichlorobenzene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2-Dichloroethane	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2-Dichloropropane	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2.3-Trichloropropane	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2.4-Trimethylbenzene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.3-Dichlorobenzene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.3-Dichloropropane	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.3.5-Trimethylbenzene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.4-Dichlorobenzene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
2-Butanone (MEK)	M24-Ma0018426	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Propanone (Acetone)	M24-Ma0018426	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Chlorotoluene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
4-Methyl-2-pentanone (MIBK)	M24-Ma0018426	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Allyl chloride	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass

Duplicate								
Volatile Organics				Result 1	Result 2	RPD		
Benzene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromobenzene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromochloromethane	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromodichloromethane	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromoform	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromomethane	M24-Ma0018426	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Carbon disulfide	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Carbon Tetrachloride	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chlorobenzene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chloroethane	M24-Ma0018426	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Chloroform	M24-Ma0018426	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Chloromethane	M24-Ma0018426	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
cis-1,2-Dichloroethene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
cis-1,3-Dichloropropene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibromochloromethane	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibromomethane	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dichlorodifluoromethane	M24-Ma0018426	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Ethylbenzene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Iodomethane	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Isopropyl benzene (Cumene)	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
m&p-Xylenes	M24-Ma0018426	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Methylene Chloride	M24-Ma0018426	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
o-Xylene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Styrene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Tetrachloroethene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Toluene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
trans-1,2-Dichloroethene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
trans-1,3-Dichloropropene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Trichloroethene	M24-Ma0018426	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Trichlorofluoromethane	M24-Ma0018426	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Vinyl chloride	M24-Ma0018426	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Xylenes - Total*	M24-Ma0018426	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	M24-Ma0018426	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Semivolatile Organics				Result 1	Result 2	RPD		
2-Methyl-4,6-dinitrophenol	M24-Ma0016854	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass
1-Chloronaphthalene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1-Naphthylamine	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2-Dichlorobenzene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3-Trichlorobenzene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3,4-Tetrachlorobenzene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3,5-Tetrachlorobenzene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,4-Trichlorobenzene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,4,5-Tetrachlorobenzene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,3-Dichlorobenzene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,3,5-Trichlorobenzene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,4-Dichlorobenzene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Chloronaphthalene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Chlorophenol	M24-Ma0016854	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2-Methylnaphthalene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Methylphenol (o-Cresol)	M24-Ma0016854	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2-Naphthylamine	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass

Duplicate								
Semivolatile Organics				Result 1	Result 2	RPD		
2-Nitroaniline	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Nitrophenol	M24-Ma0016854	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2-Picoline	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2,3,4,6-Tetrachlorophenol	M24-Ma0016854	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,4-Dichlorophenol	M24-Ma0016854	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2,4-Dimethylphenol	M24-Ma0016854	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2,4-Dinitrophenol	M24-Ma0016854	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass
2,4-Dinitrotoluene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2,4,5-Trichlorophenol	M24-Ma0016854	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,4,6-Trichlorophenol	M24-Ma0016854	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,6-Dichlorophenol	M24-Ma0016854	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2,6-Dinitrotoluene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
3&4-Methylphenol (m&p-Cresol)	M24-Ma0016854	NCP	mg/L	< 0.006	< 0.006	<1	30%	Pass
3-Methylcholanthrene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
3,3'-Dichlorobenzidine	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Aminobiphenyl	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Chloro-3-methylphenol	M24-Ma0016854	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
4-Nitrophenol	M24-Ma0016854	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass
4,4'-DDD	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDE	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDT	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
7,12-Dimethylbenz(a)anthracene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
a-HCH	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Acetophenone	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aldrin	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aniline	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
b-HCH	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Benzyl chloride	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-ethylhexyl)phthalate	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Butyl benzyl phthalate	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
d-HCH	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Di-n-butyl phthalate	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Di-n-octyl phthalate	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dibenz(a,j)acridine	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dibenzofuran	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dieldrin	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Diethyl phthalate	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dimethyl phthalate	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dimethylaminoazobenzene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Diphenylamine	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan I	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan II	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan sulphate	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin aldehyde	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin ketone	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
g-HCH (Lindane)	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Heptachlor	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Heptachlor epoxide	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobenzene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobutadiene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorocyclopentadiene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachloroethane	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Methoxychlor	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass

Duplicate								
Semivolatile Organics				Result 1	Result 2	RPD		
N-Nitrosodibutylamine	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosodipropylamine	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosopiperidine	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Nitrobenzene	M24-Ma0016854	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Pentachlorobenzene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Pentachloronitrobenzene	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Pentachlorophenol	M24-Ma0016854	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Phenol	M24-Ma0016854	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
Pronamide	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Trifluralin	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Haloethers				Result 1	Result 2	RPD		
4-Bromophenyl phenyl ether	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Chlorophenyl phenyl ether	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-chloroethoxy)methane	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-chloroisopropyl)ether	M24-Ma0016854	NCP	mg/L	< 0.005	< 0.005	<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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Amy Meunier	Analytical Services Manager
Caitlin Breeze	Senior Analyst-Inorganic
Caitlin Breeze	Senior Analyst-Metal
Edward Lee	Senior Analyst-Organic
Harry Bacalis	Senior Analyst-Volatile
Joseph Edouard	Senior Analyst-Organic
Joseph Edouard	Senior Analyst-Volatile
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](#).

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CHAIN OF CUSTODY RECORD

REINQUISHED BY
NIKKI BALATERO ET
04/03/24 6:03 AM

CERTIFICATE OF ANALYSIS 42402

Client Details

Client	Tierra Environment
Attention	Daryl Burrows
Address	31 Hauteville Tce, EASTWOOD, SA, 5062

Sample Details

Your Reference	<u>AAQ 06 023.26 Alice Springs Landfill</u>
Number of Samples	1 Water
Date samples received	06/03/2024
Date completed instructions received	06/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	14/03/2024
Date of Issue	14/03/2024
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Chris De Luca, Assistant Lab Manager
Tara White, Metals Supervisor

Authorised By

Pamela Adams, Laboratory Manager

All metals in water-dissolved		
Our Reference		42402-1
Your Reference	UNITS	MW2-Y
Date Sampled		04/03/2024
Type of sample		Water
Date prepared	-	07/03/2024
Date analysed	-	07/03/2024
Antimony-Dissolved	µg/L	<1
Arsenic-Dissolved	µg/L	<1
Barium-Dissolved	µg/L	11
Beryllium-Dissolved	µg/L	<0.5
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Cobalt-Dissolved	µg/L	2
Copper-Dissolved	µg/L	1
Lead-Dissolved	µg/L	<1
Manganese-Dissolved	µg/L	72
Mercury-Dissolved	µg/L	0.2
Nickel-Dissolved	µg/L	11
Selenium-Dissolved	µg/L	3
Silver-Dissolved	µg/L	<1
Thallium-Dissolved	µg/L	<1
Vanadium-Dissolved	µg/L	4
Zinc-Dissolved	µg/L	<1
Trivalent Chromium, Cr ³⁺ (dissolved)	mg/L	<0.005

Ion Balance		
Our Reference		42402-1
Your Reference	UNITS	MW2-Y
Date Sampled		04/03/2024
Type of sample		Water
Date prepared	-	07/03/2024
Date analysed	-	07/03/2024
Calcium - Dissolved	mg/L	660
Potassium - Dissolved	mg/L	34
Sodium - Dissolved	mg/L	780
Magnesium - Dissolved	mg/L	340
Hydroxide Alkalinity (OH ⁻) as CaCO ₃	mg/L	<5
Bicarbonate Alkalinity as CaCO ₃	mg/L	430
Carbonate Alkalinity as CaCO ₃	mg/L	<5
Total Alkalinity as CaCO ₃	mg/L	430
Sulphate, SO ₄	mg/L	2,800
Chloride, Cl	mg/L	1,200
Hardness	mgCaCO ₃ /L	3,100
Ionic Balance	%	-3.4

Miscellaneous Inorganics		
Our Reference		42402-1
Your Reference	UNITS	MW2-Y
Date Sampled		04/03/2024
Type of sample		Water
Date prepared	-	12/03/2024
Date analysed	-	12/03/2024
TKN in water	mg/L	0.5
Ammonia as N in water	mg/L	0.040
Total Organic Carbon	mg/L	4
Organic Nitrogen as N	mg/L	0.46
Hexavalent Chromium, Cr ⁶⁺	mg/L	<0.005

Method ID	Methodology Summary
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
Inorg-057	Ammonia - determined colourimetrically. Water samples are filtered on receipt prior to analysis. Soils and OHS media are analysed following a water extraction. Alternatively, Ammonia can be extracted from soil using 1M KCl.
Inorg-062	TKN - determined colourimetrically. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-079	TOC determined using a TOC analyser using the combustion method. DOC is filtered prior to determination. Analysis using APHA latest edition 5310B. DIC/TIC determine by calculation.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA 22nd ED, 4110-B. Water samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Metals-022 ICP-MS	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements.

Client Reference: AAQ 06 023.26 Alice Springs Landfill

QUALITY CONTROL: All metals in water-dissolved					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	42402-1
Date prepared	-			07/03/2024	[NT]	[NT]	[NT]	[NT]	07/03/2024	07/03/2024
Date analysed	-			07/03/2024	[NT]	[NT]	[NT]	[NT]	07/03/2024	07/03/2024
Antimony-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	98	114
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	105	108
Barium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	100	92
Beryllium-Dissolved	µg/L	0.5	Metals-022 ICP-MS	<0.5	[NT]	[NT]	[NT]	[NT]	105	105
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	[NT]	[NT]	104	101
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	106	104
Cobalt-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	98	94
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	102	93
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	105	92
Manganese-Dissolved	µg/L	5	Metals-022 ICP-MS	<5	[NT]	[NT]	[NT]	[NT]	107	109
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	[NT]	[NT]	[NT]	[NT]	108	121
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	104	96
Selenium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	102	96
Silver-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	116	105
Thallium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	107	92
Vanadium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	107	108
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	106	100

Client Reference: AAQ 06 023.26 Alice Springs Landfill

QUALITY CONTROL: Ion Balance					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			07/03/2024	[NT]	[NT]	[NT]	[NT]	07/03/2024	[NT]
Date analysed	-			07/03/2024	[NT]	[NT]	[NT]	[NT]	07/03/2024	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	[NT]	[NT]	108	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	[NT]	[NT]	111	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	[NT]	[NT]	111	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	[NT]	[NT]	109	[NT]
Hydroxide Alkalinity (OH ⁻) as CaCO ₃	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bicarbonate Alkalinity as CaCO ₃	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	100	[NT]
Carbonate Alkalinity as CaCO ₃	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Total Alkalinity as CaCO ₃	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	100	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	117	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	117	[NT]

Client Reference: AAQ 06 023.26 Alice Springs Landfill

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			12/03/2024	[NT]	[NT]	[NT]	[NT]	12/03/2024	[NT]
Date analysed	-			12/03/2024	[NT]	[NT]	[NT]	[NT]	12/03/2024	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	[NT]	[NT]	[NT]	[NT]	107	[NT]
Total Organic Carbon	mg/L	1	Inorg-079	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-062	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexavalent Chromium, Cr ⁶⁺	mg/L	0.005	INORG-118	<0.005	[NT]	[NT]	[NT]	[NT]	82	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.