

Silent Valley Waste Services Limited

Silent Valley Landfill

2023 First Quarter Monitoring Report

Reference: 4-50

Issue | 28 April 2023



This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 115825-00

Ove Arup & Partners Limited

Bedford House

3rd Floor

16-22 Bedford Street

Belfast BT2 7FD

United Kingdom

arup.com

Document Verification

Project title	Silent Valley Landfill
Document title	2023 First Quarter Monitoring Report
Job number	115825-00
Document ref	4-50
File reference	GEO

Revision	Date	Filename	2023 First Quarter Monitoring Report Draft
Draft 01	27 th April 2023	Description	Draft Report

	Prepared by	Checked by	Approved by
Name			
Signature			

Issue	28 th April 2023	Filename	2023 First Quarter Monitoring Report Issue
		Description	For Issue

	Prepared by	Checked by	Approved by
Name			
Signature			

Filename	Description
----------	-------------

	Prepared by	Checked by	Approved by
Name			
Signature			

Issue Document Verification with Document



Contents

1.	Introduction	1
1.1	Monitoring Regime	1
2.	Discussion of Monitoring Results	2
2.1	Rainfall	2
2.2	Leachate	2
2.3	Surface Water	2
2.4	Groundwater	3
2.5	Landfill Gas	4
3.	Conclusion	5
 Appendices		
A.1	Monitoring Results - Graphs	7
A.2	Monitoring Results - Table	8

1. Introduction

This 2023 First Quarter Monitoring Report is a consolidated report detailing the findings of this quarter's results from the surface water, groundwater, landfill gas and leachate results for the monitoring undertaken in the period January to March 2023 in accordance with the Silent Valley Environmental Permit^[1] (Permit no. MP3835SV) and the Aftercare Phase Environmental and Infrastructure Monitoring Program^[6].

The data has been collected as referenced in Schedule 3 of the Consolidated Permit^[1]. This report refers to the 2022 Annual and Fourth Quarter Monitoring Report^[3].

1.1 Monitoring Regime

The monitoring regime is undertaken in accordance with the Aftercare Phase Environmental and Infrastructure Monitoring Program^[6] and in line with the Consolidated Permit^[1], which is fully detailed within the 2019 Annual Report^[2].

2. Discussion of Monitoring Results

2.1 Rainfall

Measured rainfall data is illustrated in **Appendix A1, Figures A1 to A3**.

Based on the available data the following summary has been provided:

- January recorded the highest monthly rainfall of the quarter (215.7mm) and the highest daily rainfall total (35.1mm on 11th January).
- February recorded the lowest monthly rainfall of the quarter (16.3mm) and recorded 10 consecutive days of no rain and 16 non-consecutive days with no rainfall. This is the lowest rainfall for February since records began in 2008.
- March reported the highest volume of rainfall since 2008, and recorded 205mm of rainfall with 13 days of consecutive rainfall.

2.2 Leachate

2.2.1 Leachate Quality Monitoring

Leachate quality monitoring results from within the waste body and from leachate standpipes are presented in **Appendix A2, Table B1**.

The Acceptable Maximum Concentrations (AMC) have been compared with the overall average (mean) concentrations from the wells. Exceedance of an AMC will trigger contingency actions.

No quarterly average leachate levels were above the AMC. Individual well trends are discussed below;

- LC2A well continues to exceed the AMC for nickel (0.0681mg/l) with a concentration of 0.13mg/l, this has increased from the previous quarter (0.12mg/l). This exceedance has been recorded continuously throughout 2021 and 2022.
- LC2A is again compliant for ammoniacal nitrogen with a value of 0.40mg/l, concentrations dropped significantly in the last quarter to 0.46mg/l after previously exceeding at concentrations of 860mg/l, 530mg/l and 660mg/l. The significant reduction from previous quarters has been queried with the laboratory and their response is that no errors were identified during testing or reporting. All QA/QC checks have been undertaken and there are no discrepancies.

2.2.2 Leachate Level Monitoring

Leachate head level monitoring results are presented in **Appendix A2, Table B2**. The monthly average level for all the wells remains below the required 3.0m, as per the Permit^[1].

2.2.3 BSC Pipe

Leachate head measurements are undertaken in BH1 to BH4 which are located along the alignment of the BSC pipe. Leachate levels have remained relatively consistent indicating no rise in leachate levels therefore the pipe is working as required. Results are included **Appendix A.1 Figure A8 and Appendix A.2 Table B6**.

2.3 Surface Water

The surface water quality monitoring results are presented in **Appendix A2, Table B3**, and graphically in **Appendix A1, Figure A4**.

Commentaries are provided for upstream and downstream monitoring points in the Nant Merddog, including locations SW1 to SW10 located downstream of the landfill, as discussed below.

2.3.1 Upstream Surface Water

Surface water monitoring locations, SWU, SW2A1, SWW4, SWW1 and SWW2 are located downstream of the landfill and monitored on a six-monthly basis in accordance with the Permit requirements. They are not monitored this quarter.

2.3.2 Downstream Surface Water

SWD and SWD1

Results show both SWD and SWD1 are compliant with the exception of unionised ammoniacal nitrogen which recorded an exceedance of 0.03mg/l in SWD. Unionised ammoniacal nitrogen was non-compliant the first three quarters of 2022 in SWD but became compliant in the final quarter. In this quarter SWD is now again non-compliant and will be monitored closely next quarter and it is recommended that a study is undertaken to review the possible source and implications of this ongoing non-compliance.

2.4 Groundwater

2.4.1 Groundwater Quality Monitoring

Groundwater quality monitoring results are presented in **Appendix A1, Figures A5 and A6** and in **Appendix A2, Table B4**.

Any non-compliances for both upstream and downstream wells are discussed in the following sections.

2.4.1.1 Upstream Groundwater Wells

Well GW3A and GW4

GW3A and GW4 monitor the sandstone strata classified as S3-East, and GW11B are installed in the sandstone strata classified as S2-West.

GW3A remains compliant with the exception of ammoniacal nitrogen with a concentration of 3.0 mg/l. Ammoniacal nitrogen has exceeded control levels for the downstream wells of 0.8mg/l throughout 2022 and has increased from the previous quarter.

GW4 continues to exceed manganese assessment level concentrations and has increased from the previous quarter (from 1.1mg/l to 1.7mg/l). These exceedances have continued to fluctuate above assessment level of downstream wells throughout all of 2021 and 2022. The elevated concentrations recorded upstream are likely to be from steel works waste deposited to the north of the landfill and old mine workings in the area. Manganese is also a typical contaminant of mine drainage, which is considered to be impacting the groundwater in the locale of the landfill.

2.4.1.2 Downstream Groundwater Wells

The results from the compliance wells indicate that generally the pumping system at the toe of the landfill is continuing to successfully control the potential egress of leachate from the landfill. No issues associated with pump failure within the cut-off system have been recorded during 2022.

Wells GW6 and GW7

GW6 and GW7 have been installed in the centre of the valley in the sandstone strata classified as S1. Both wells remain compliant this quarter.

Well GW9

GW9 is installed in the sandstone strata classified as S2-East.

GW9 has again exceeded the trigger level for ammoniacal nitrogen after being compliant last quarter. The concentration of ammoniacal nitrogen has increased with a value of 16mg/l after ranging between 0.47mg/l and 9.3mg/l throughout 2022.

Well GW10

GW10 has been installed in the sandstone strata classified as S3-East and has remained compliant this quarter.

Well GW12

GW12 has been installed in the sandstone strata classified as S2-West and has remained compliant this quarter.

2.4.2 Groundwater Levels Monitoring

Groundwater levels are monitored on a quarterly basis in the compliance and upstream wells. The monitoring results are illustrated graphically in **Appendix A1, Figure A7**. Water levels have remained relatively consistent this quarter with no significant differences from the 2022 readings^[3].

2.5 Landfill Gas

2.5.1 Methane

The landfill gas monitoring results are presented in **Appendix A2, Table B5**.

Methane concentrations continue to be recorded below the respective control and trigger levels (where available) in all monitoring locations.

2.5.2 Carbon Dioxide

All monitoring wells remained compliant this quarter with exception of GMW3 and GMW14/14A

There were several exceedances throughout this quarter of both control and trigger levels including:

- GMW3 yellow valve (3.1%) exceeded trigger level 2.67% in February only. This is similar to 2022 where this valve also exceeded the trigger level on one occasion.
- GMW14/14A
 - Red valve January (3.2%) and February (3.6%) exceeded the trigger level of 1.5%.
 - Red valve March (1.4%) exceeded control level of 1.0%.
 - Notably gas exceedances have been decreasing in concentration since the fourth quarter of 2022, the yellow and white valves are now compliant.

3. Conclusion

The monitoring data and interpretation produced in this report has not identified any significant issues relating to contaminant levels recorded above the screening criteria within the leachate and groundwater. Where limited minor exceedances have been identified there is no evidence to suggest they are having a discernible impact on the surrounding environment and the landfill continues to comply with the requirements of the permit.

The first quarterly report of 2023 has noted the following:

- GW9 continues to be non-compliant for ammoniacal nitrogen concentrations, this well has historically been investigated with its exceeding concentrations.
- It is recommended a study is undertaken into SWD's ammoniacal nitrogen exceedances to review the possible source and implications of this ongoing non-compliance.

It should be noted that since a change of laboratory in early 2022 there have been a number of ongoing issues with quality control and inaccurate results, and as a consequence we do not feel it appropriate to rely on the ammoniacal nitrogen results. A new laboratory is being trialled for the second quarter of 2023 and will hopefully confirm that the ammoniacal nitrogen exceedances have been a lab quality error and are not an issue with the landfill.

- GMW14/14A continues to exceed the Trigger Levels for carbon dioxide however has decreased in concentration over the past two quarters. This well is currently being monitored closely.

References

- [1] Environment Agency, Silent Valley Landfill Site, Pollution Prevention and Control (England and Wales) Regulations 2000, Landfill (England and Wales) Regulations 2002, Permit number MP3835SV, November 2005, Permit amended as of 04/03/16.
- [2] Arup, Silent Valley Landfill, 2019 Annual Monitoring Report, 31st January 2020.
- [3] Arup, Silent Valley Landfill, 2022 Annual and Fourth Quarter Monitoring Report, Issue 31st January 2023.
- [4] Arup, Silent Valley Landfill, 2021 Annual and Fourth Quarter Monitoring Report, Issue 31st January 2022.
- [5] Arup, Silent Valley Landfill, Interim GW9 and Nant Merddog W, Issue May 2015.
- [6] Arup, Silent Valley Landfill, Aftercare Phase Environmental and Infrastructure Monitoring Program, Issue June 2013.
- [7] Arup, Silent Valley Landfill, Hydrogeological Risk Assessment, document reference 04/6363, November 2004.
- [8] Arup, Silent Valley Landfill, Investigation into the Western Flank of the Cut-off System. Compliance Well GW9 and GW10, document reference 115825, August 2011.
- [9] Environment Agency, Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water, report reference LFTGN02, June 2014.
- [10] Arup, Silent Valley Landfill, Hydrogeological Risk Assessment (Supplementary Revision May 2009), document reference 09/7543, June 2009.
- [11] Environment Agency, Guidance on the management of landfill gas, document reference LFTGN03, June 2014.
- [12] The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.
- [13] Water Framework Directive - United Kingdom Technical Advisory Group (WFD-UKTAG), "Metal Bioavailability Assessment Tool (M-BAT)," 2014.
- [14] Arup, Silent Valley Landfill, Hydrogeological Risk assessment, document reference 2019/9559, July 2019.

A.1 Monitoring Results - Graphs

Figure A1
Daily rainfall totals and sampling events (January 2018 - March 2023)

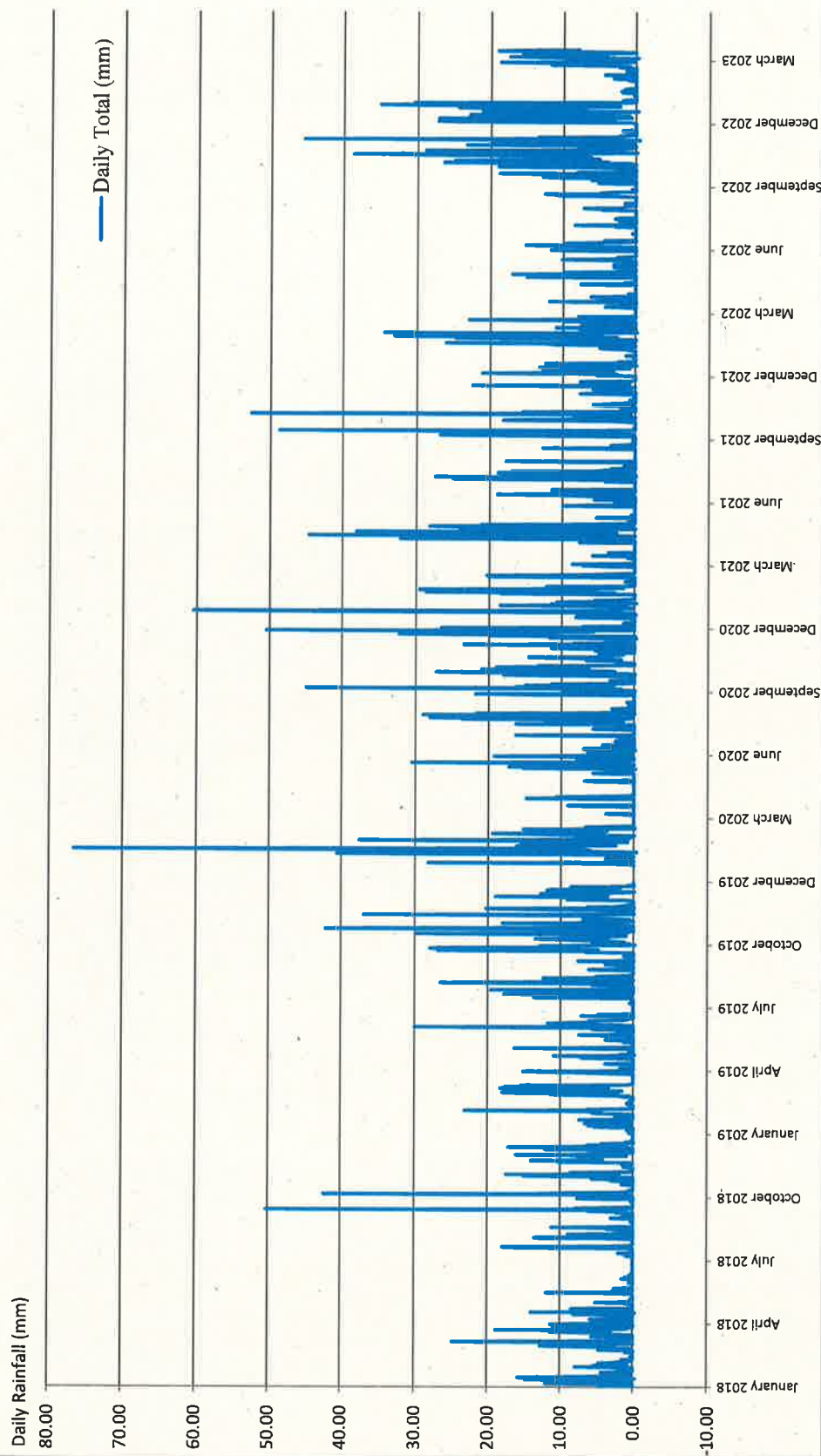


Figure A2
Monthly rainfall totals (January 2018- March 2023)

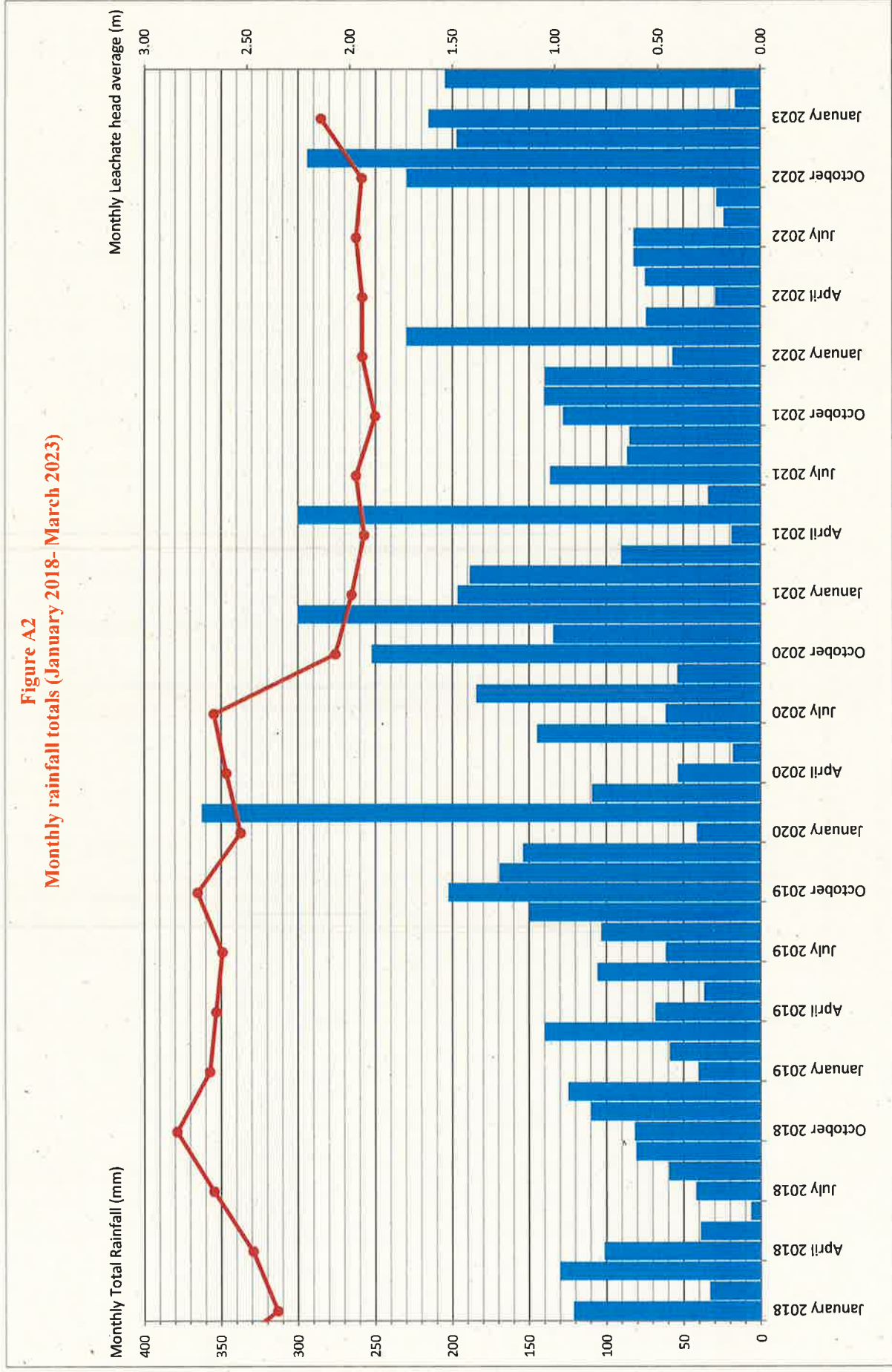


Figure A3
Monthly total rainfall (January 2018 - March 2023)

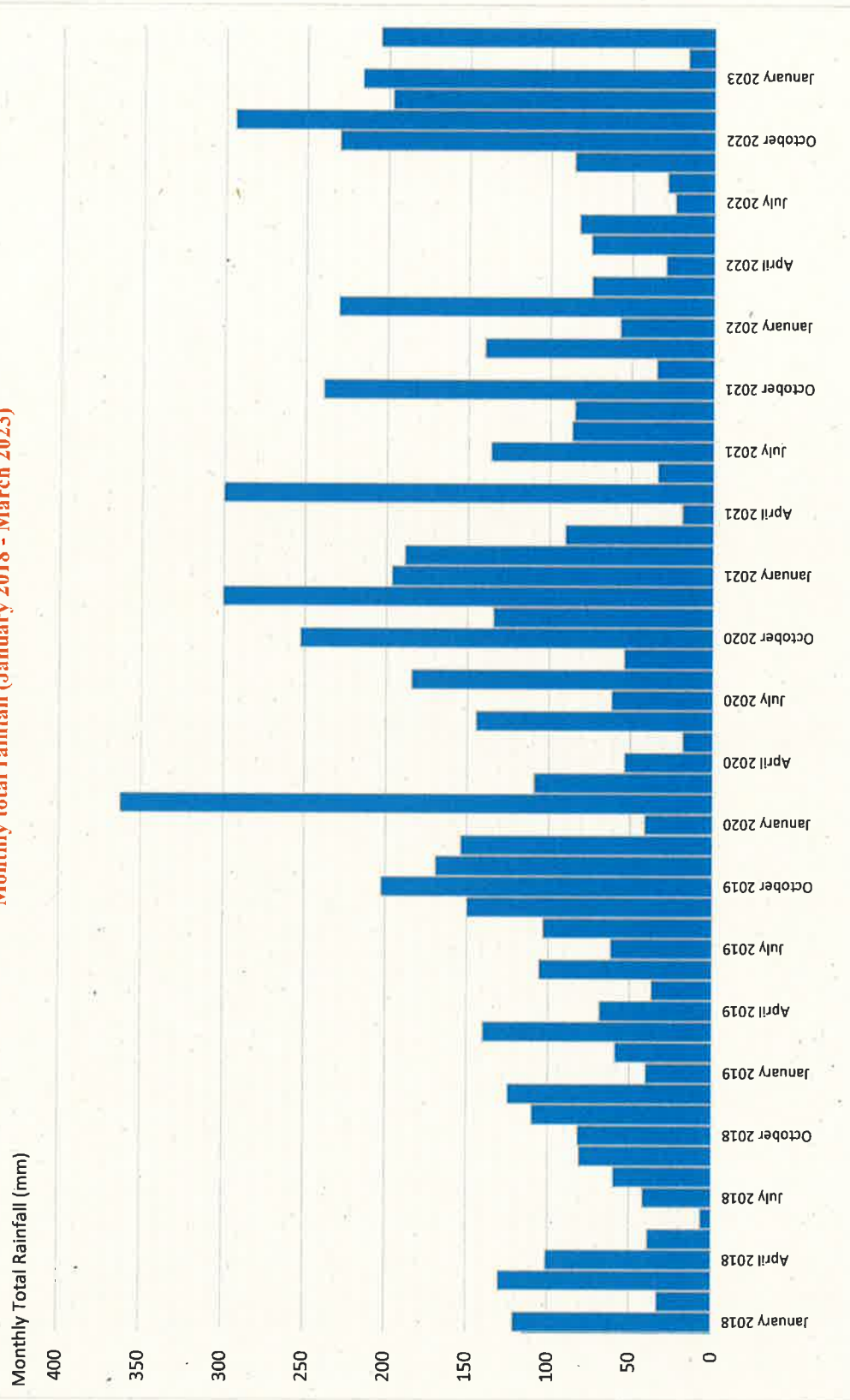


Figure A.4
Surface water monitoring graphs

115825

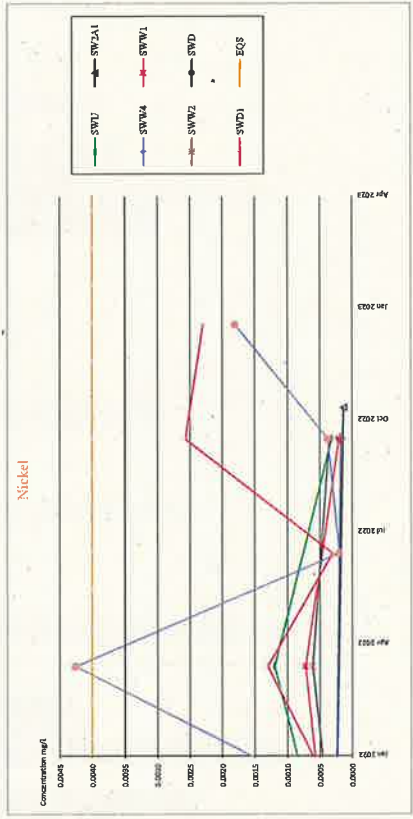
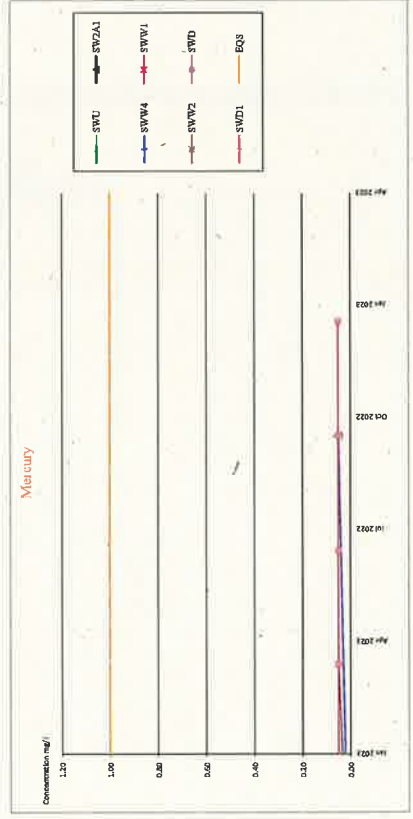
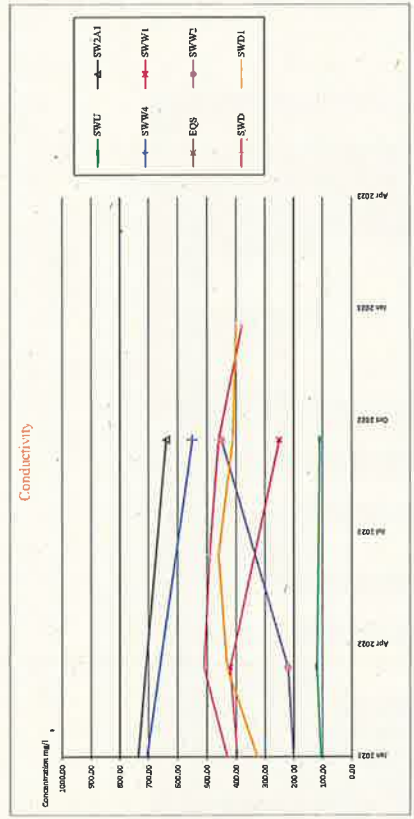
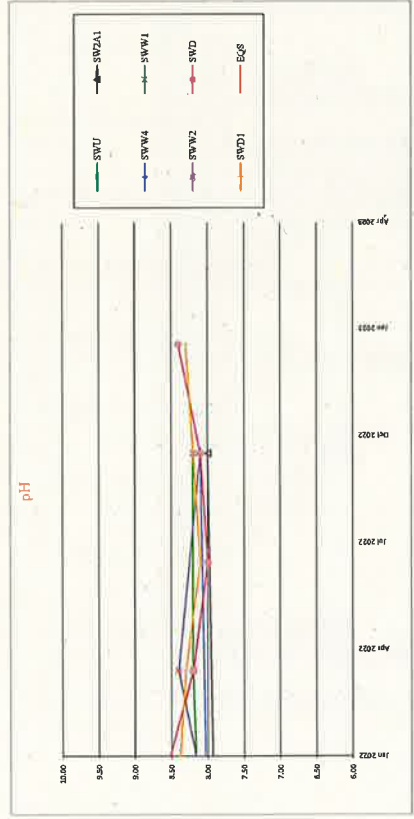


Figure A4
Surface water monitoring graphs

115825

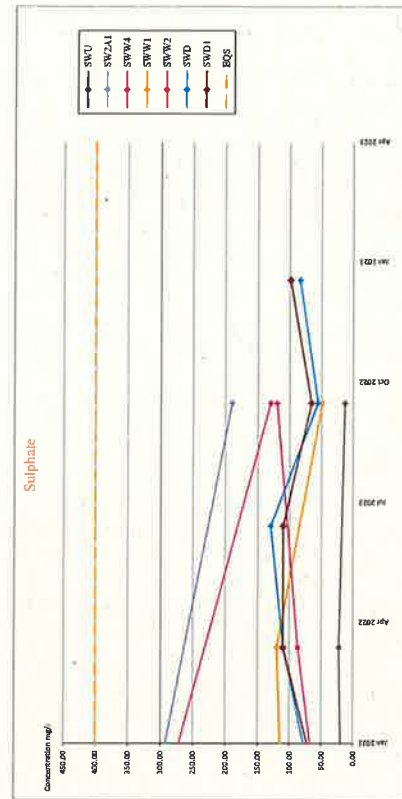
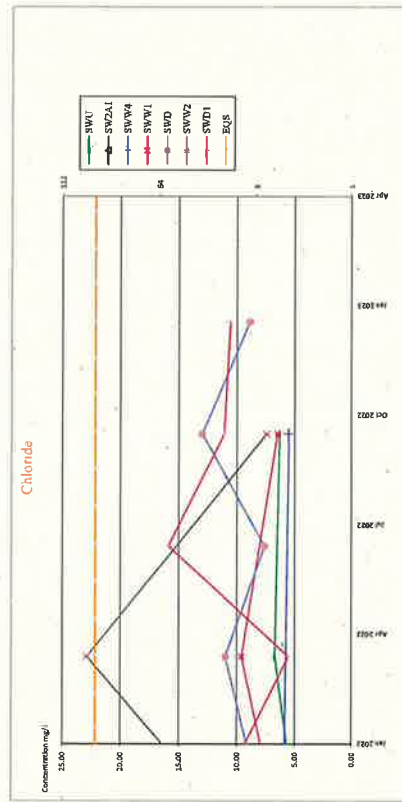
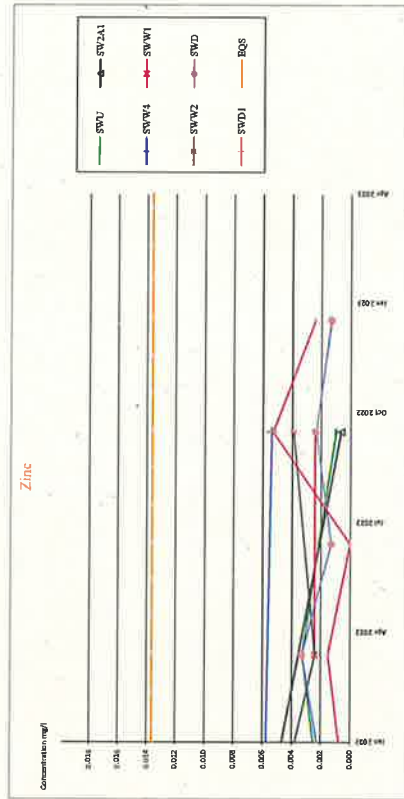
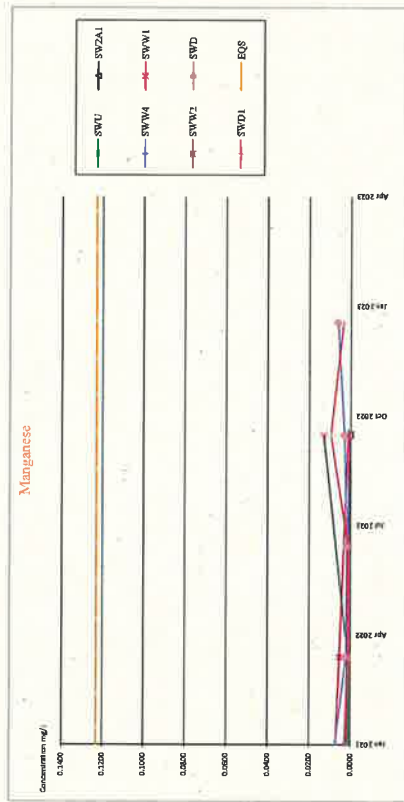


Figure 44
Surface water monitoring graphs

115825

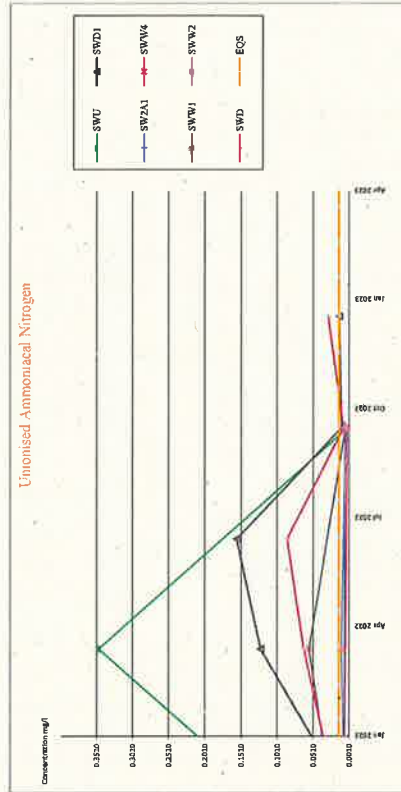
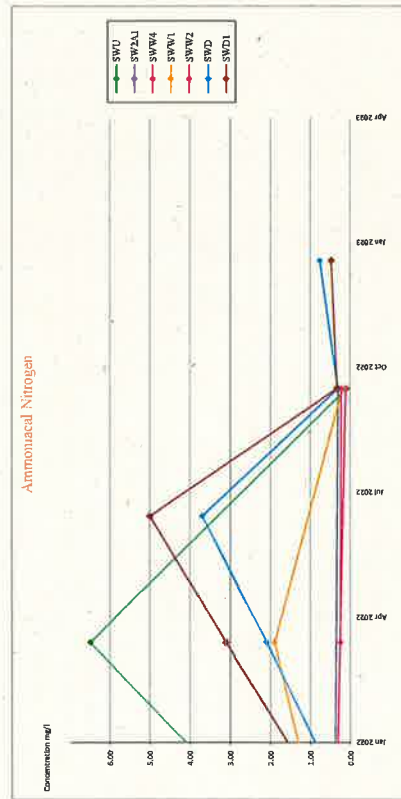


Figure A5
Groundwater quality monitoring results - Compliance wells graphs

115825

Compliance wells graphs

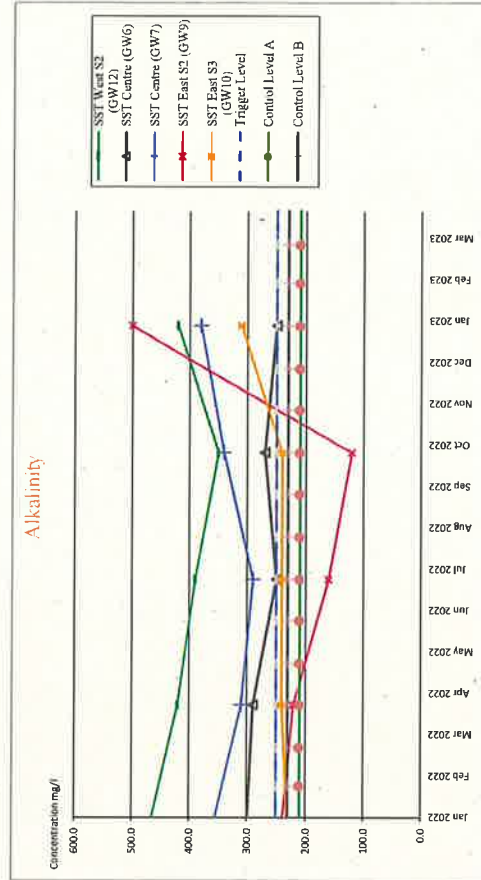
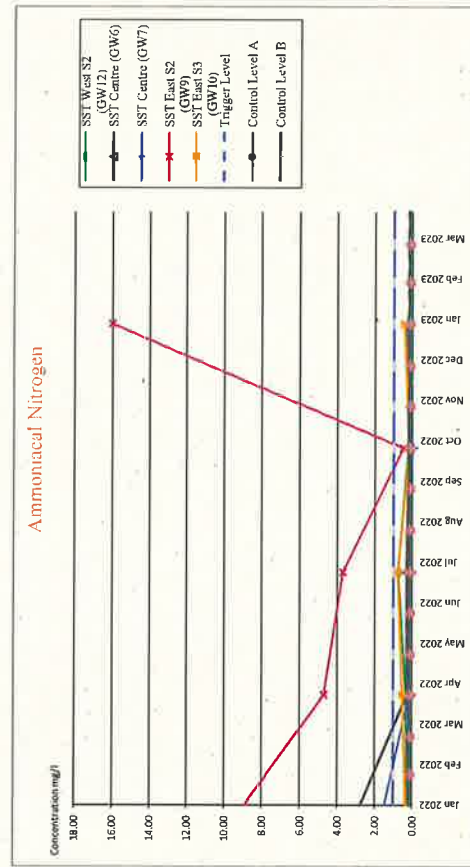
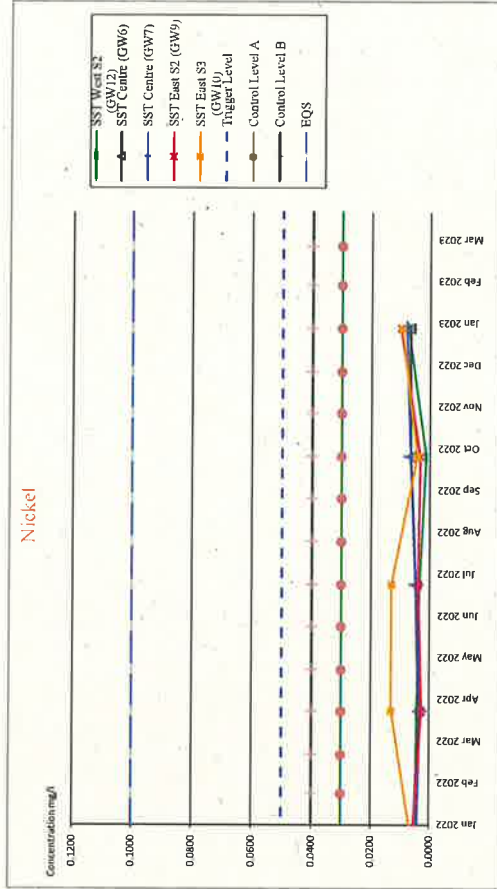
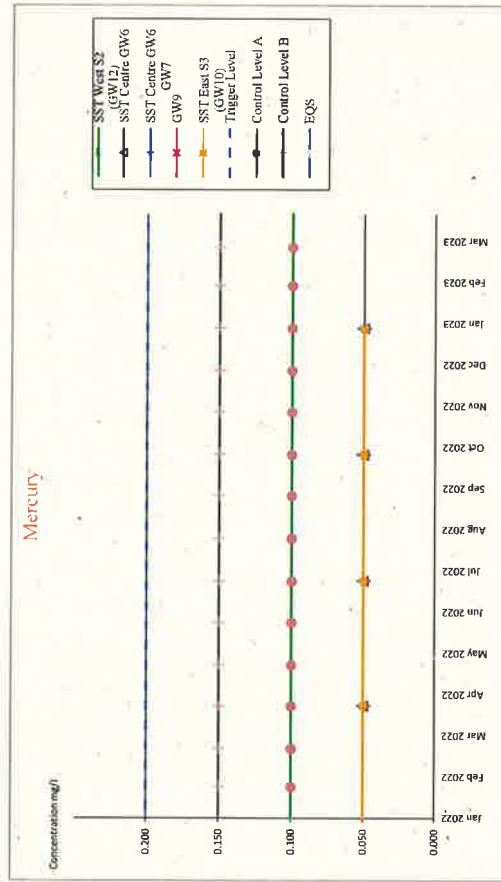
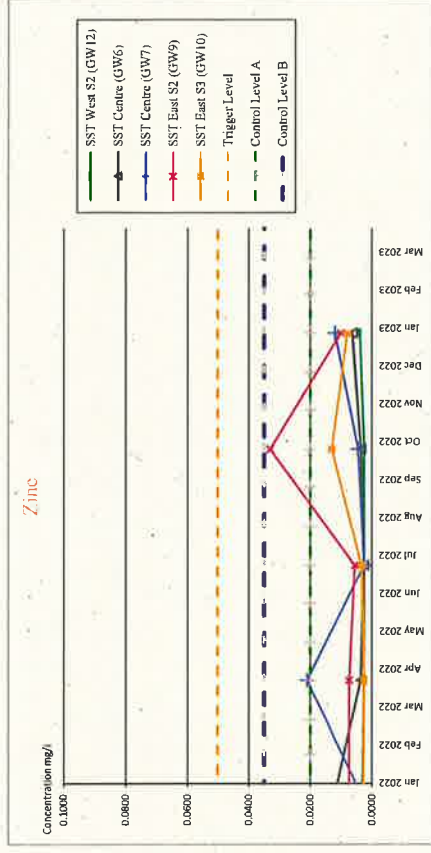
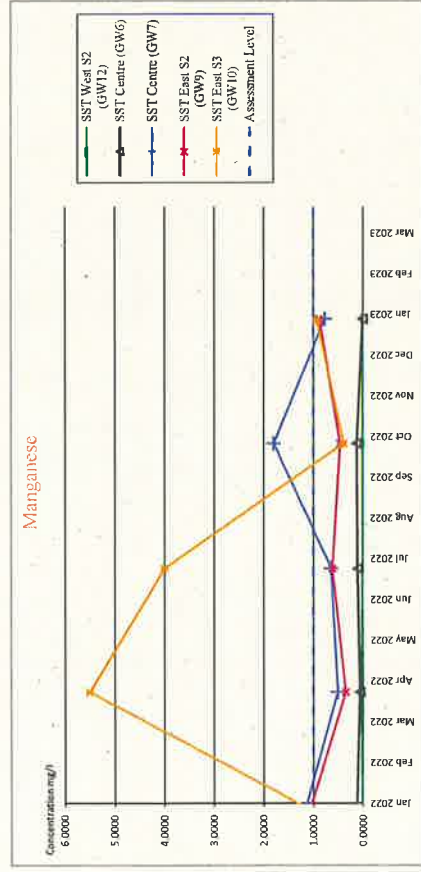


Figure A5
Groundwater quality monitoring results - Compliance wells graphs

Compliance wells graphs



Compliance wells graphs

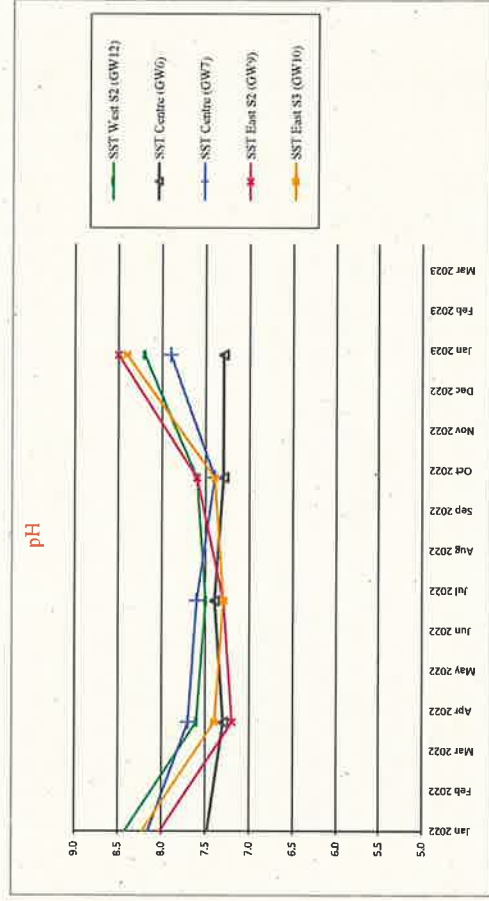


Figure A6
Groundwater quality monitoring results - Upstream wells graphs

115825

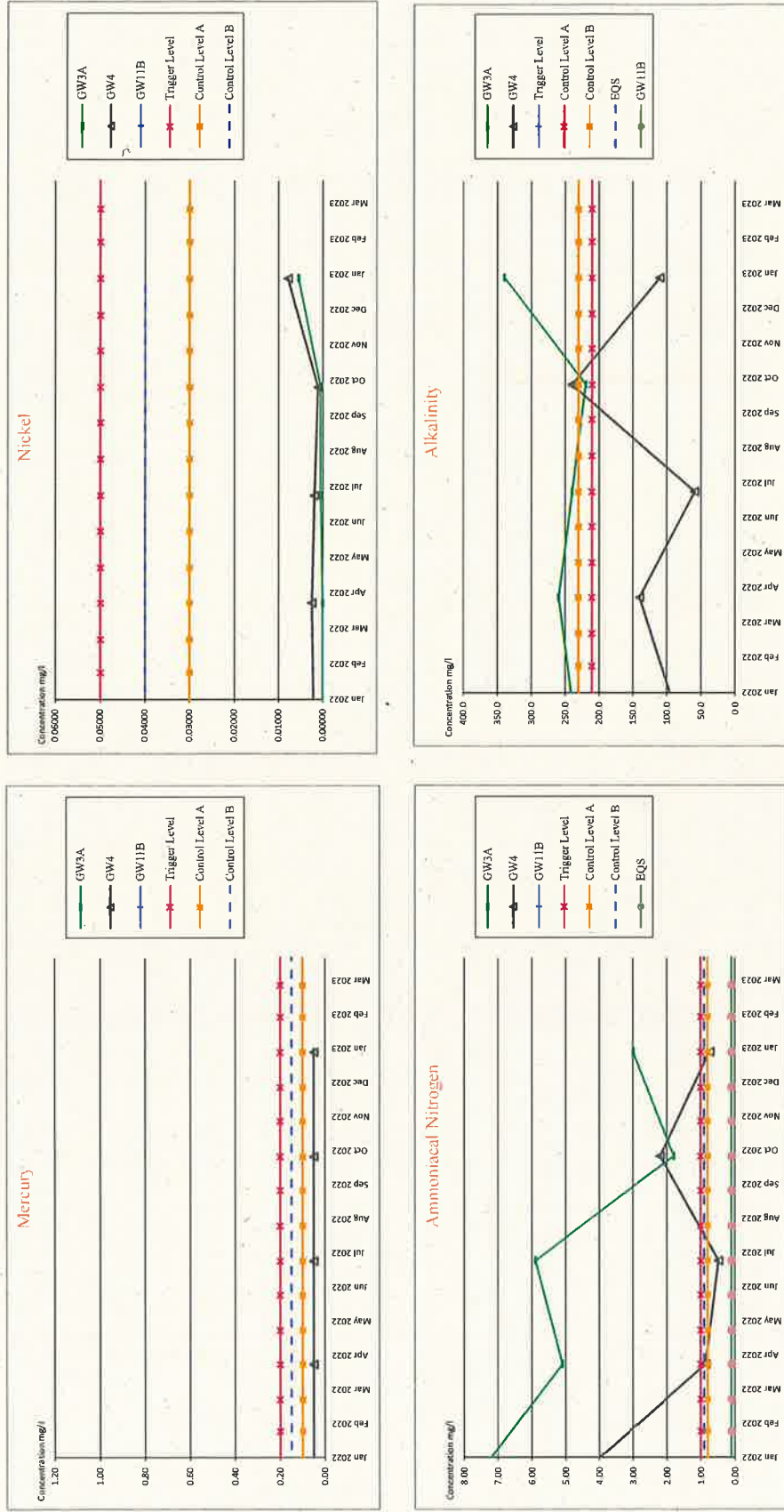


Figure A6
Groundwater quality monitoring results - Upstream wells graphs

115825

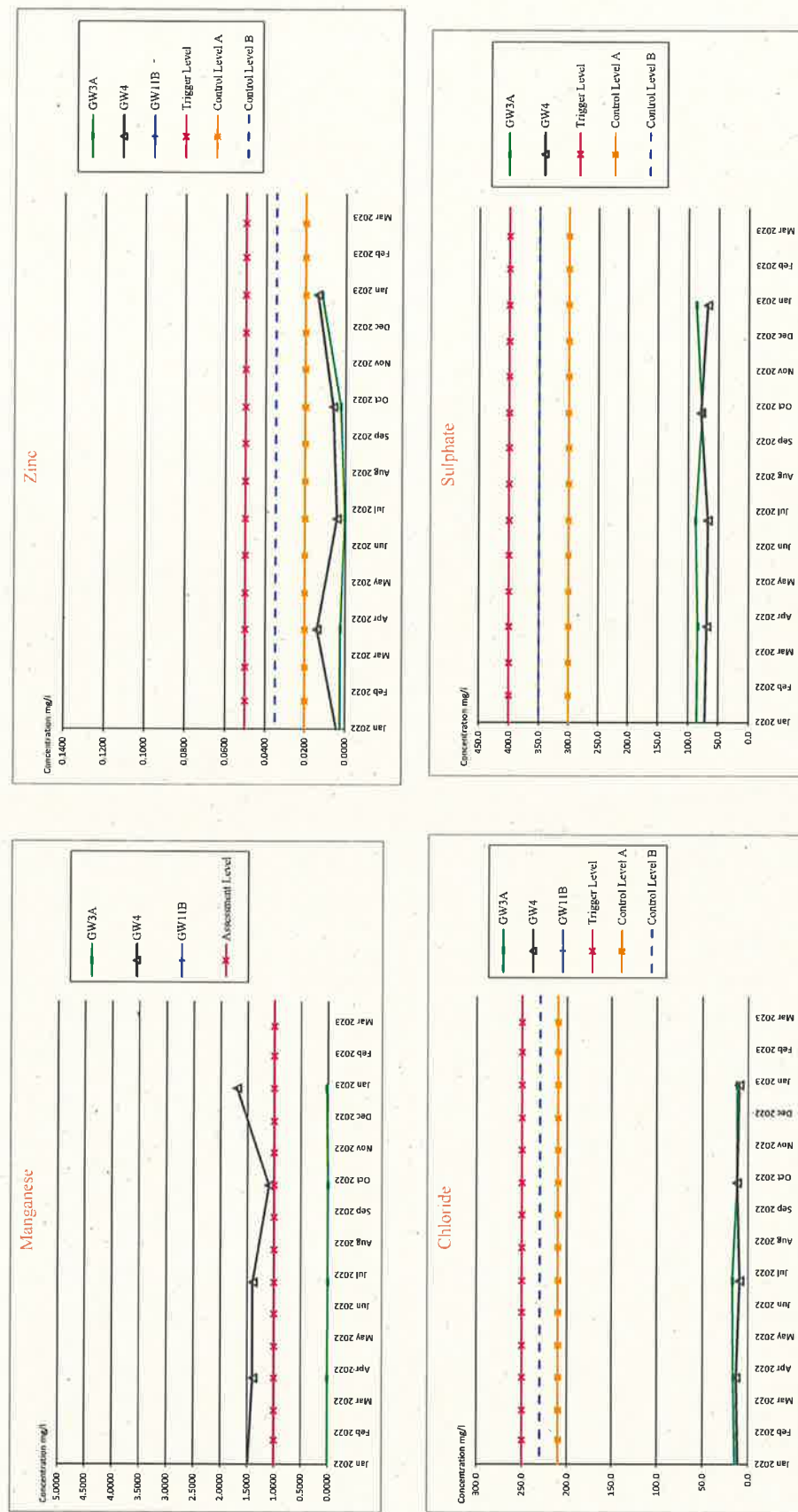


Figure A6
Groundwater quality monitoring results - Upstream wells graphs

115825

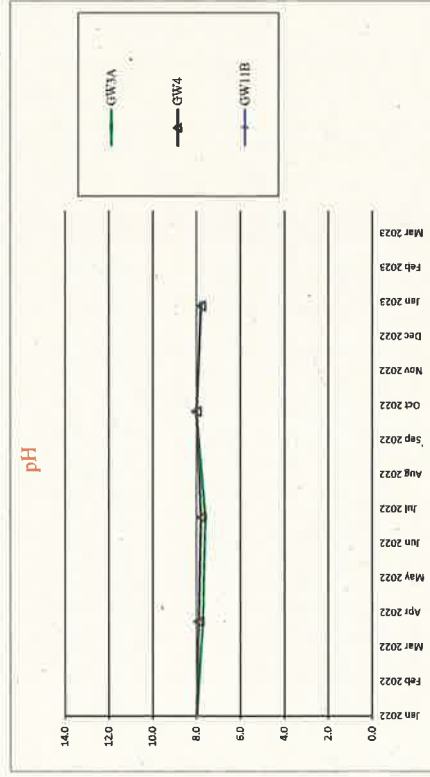
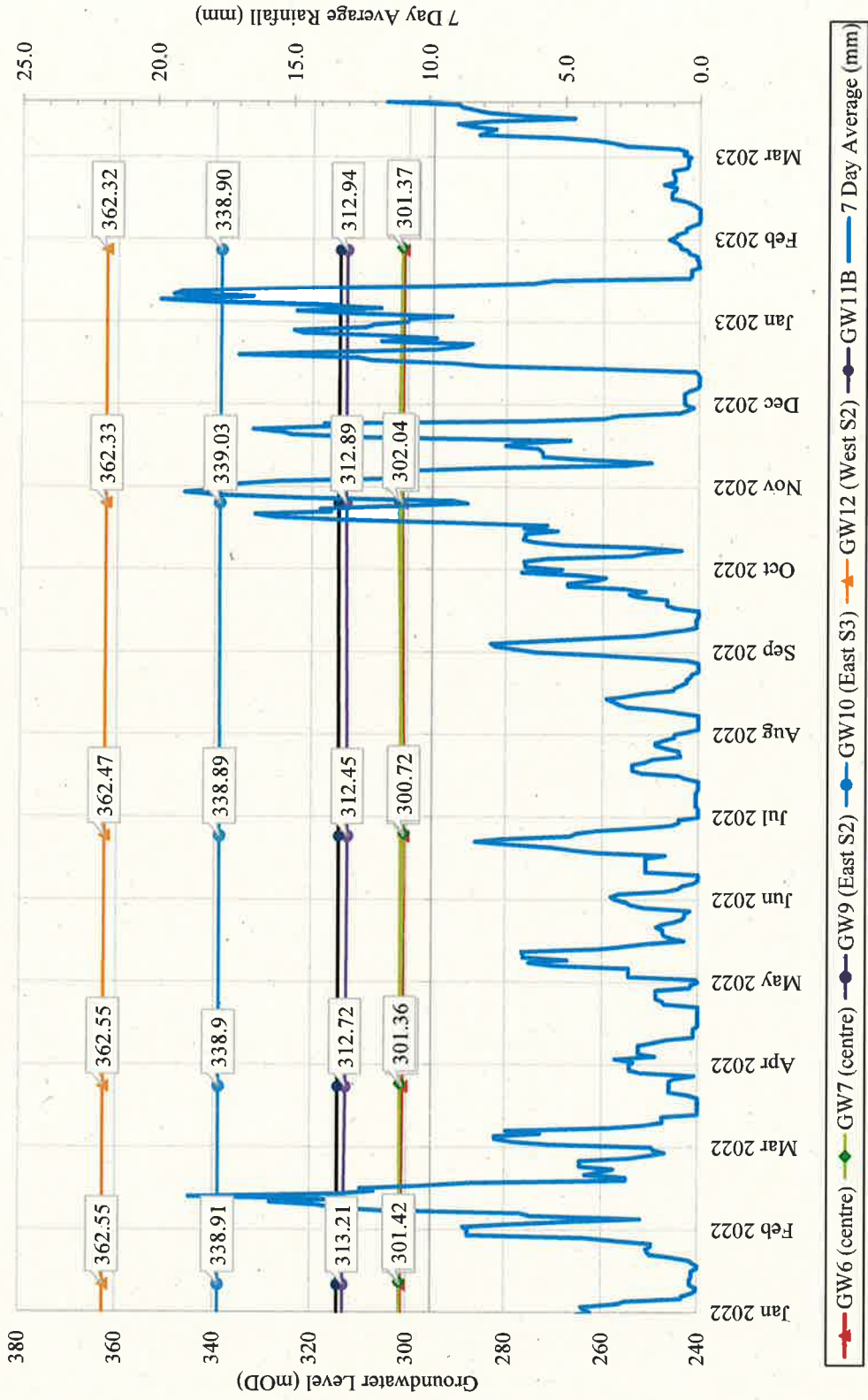
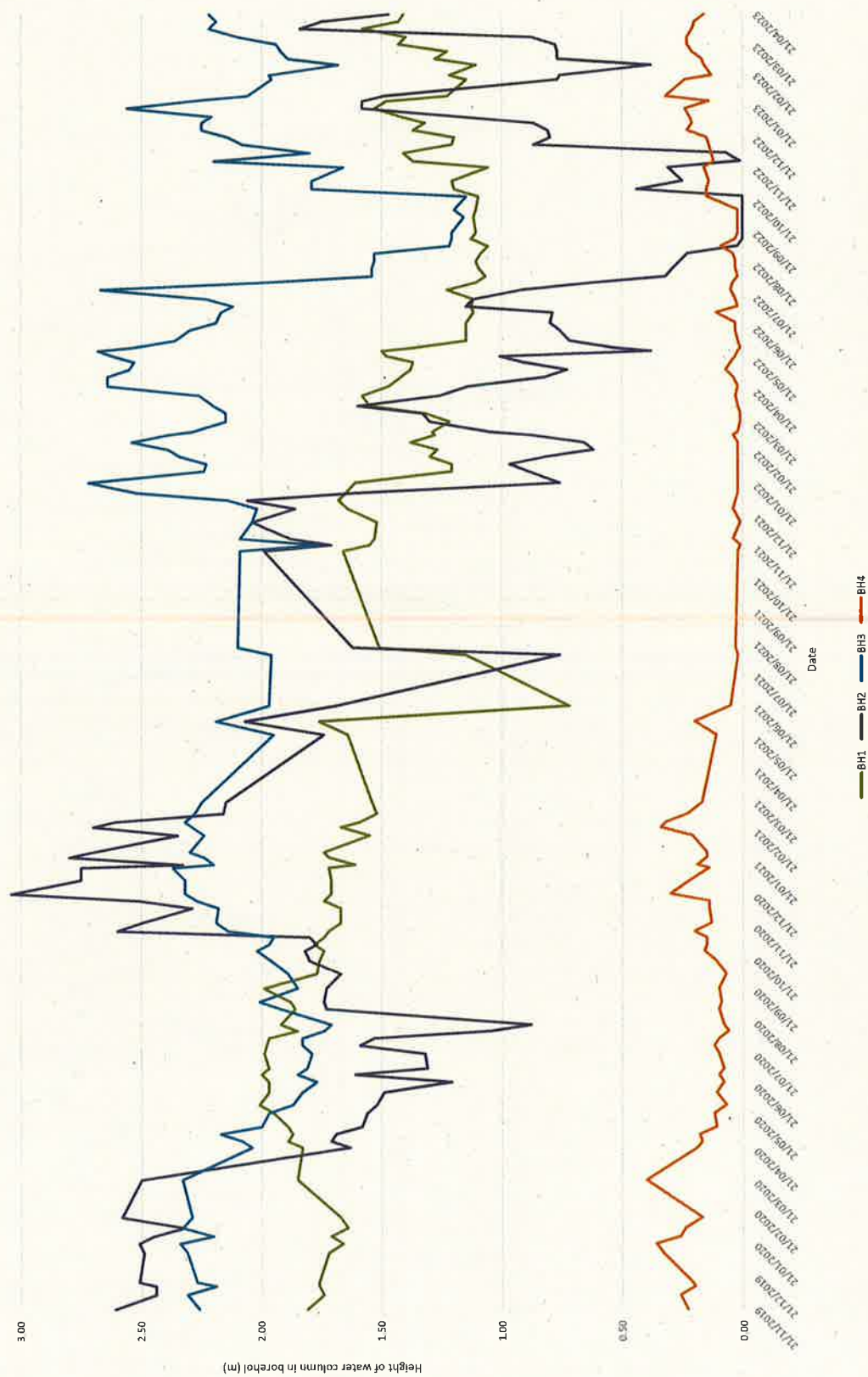


Figure A7
Groundwater monitoring levels downstream of compliance wells



Height of water column (m) from base of well in boreholes BH1 to BH 4



A.2 Monitoring Results - Tables

January 2023												
LOCATION	Units	L1A	L1B	LC1A	LC2A	LC4A	LC5A	Maximum concentration (mg/l)	Monthly Average (mg/l)	Acceptable - Maximum Concentration (AMC) (mg/l)	LP3A	LP4
Date Sampled												
Manganese in filtrate as Mn	mg/l	N/S	0.59	N/S	0.11	0.58	N/S	0.59	0.43	--	0.011	0.095
Mercury, filt trace as Hg	mg/l	N/S	< 0.0001	N/S	0.00016	< 0.00005	N/S	0.00016	0.0001	0.00056	0.00005	< 0.00005
Nickel in filtrate as Ni	mg/l	N/S	0.019	N/S	0.13	0.023	N/S	0.13	0.06	0.0681	0.014	0.015
Zinc, ultra-low filtered as Zn	mg/l	N/S	0.033	N/S	0.074	0.0098	N/S	0.074	0.04	1.38	0.021	0.026
pH	pH Units	N/S	7.7	N/S	8.3	7.4	N/S	8.3	7.80	--	7.9	8.2
Conductivity- Electrical 20C	uS/cm	N/S	1400	N/S	1000	4000	N/S	4000	2133	--	1600	1600
Alkalinity as CaCO3	mg/l	N/S	410	N/S	5400	2100	N/S	5400	2637	--	510	770
Ammoniacal Nitrogen as N	mg/l	N/S	0.38	N/S	0.4	190	N/S	190	64	526	0.93	29
Chloride as Cl	mg/l	N/S	110	N/S	870	200	N/S	870	393	1408	120	140
Sulphate as SO4	mg/l	N/S	290	N/S	780	56	N/S	780	375	999	220	200
Redox Potential ^(see note 4)	mV	N/S	35	N/S	-42	-130	N/S	35	-46	--	-9.1	-24
Total Suspended Solids	mg/l	N/S	7	N/S	250	720	N/S	720	326	--	53	5
Solids, Total Dissolved 180 deg C	mg/l	N/S	920	N/S	660	2600	N/S	2600	1393	--	1000	1100
Dissolved Oxygen, Fixed*	mg/l	N/S	10	N/S	6.7	5.7	N/S	-	-	--	10	10
TOC (filtered)	mg/l	N/S	16	N/S	330	67	N/S	330	137.7	--	13	19

Notes

1. < denotes 'less than'
2. L1A, L1B, LC1A, LC2A, LC4A, LC5A: Wells in Waste.
3. — denotes 'no acceptable maximum concentration available'.
4. The redox potential was not measured on site and there is a possibility that it has changed between sampling and analysis
5. LC5A is a replacement for LC5 well.
6. N/S denotes 'not sampled'.

Exceedance of AMC (per well)

Exceedance of AMC (monthly average)

Table B2
Leachate Head Levels

	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23
LC1A	Elevation of base of landfill mAOD											
	Elevation at top of casing mAOD	357.62										
	Depth to leachate from top of casing (m)	398.85										
	Leachate elevation (mAOD)	40.30										
LC2A	Leachate elevation (mAOD)	358.55										
	Calculated leachate head (m)	0.93										
	Elevation of base of landfill mAOD	362.49										
	Elevation at top of casing mAOD	401.12										
LC4A	Depth to leachate from top of casing (m)	35.20										
	Leachate elevation (mAOD)	365.92										
	Calculated leachate head (m)	3.43										
	Elevation of base of landfill mAOD	372.27										
LC5A	Elevation at top of casing mAOD	401.14										
	Depth to leachate from top of casing (m)	26.81										
	Leachate elevation (mAOD)	374.33										
	Calculated leachate head (m)	2.06										
LC6A	Elevation of base of landfill mAOD	350.14										
	Elevation at top of casing mAOD	380.75										
	Depth to leachate from top of casing (m)	DAMAGED										
	Leachate elevation (mAOD)											
LJ	Calculated leachate head (m)											
	Casing height (mAOD)	357.00										
	Leachate (mbgl)	DRY										
	Leachate (m AOD)											
LJA*	Base of landfill (m AOD)	336.80										
	Depth of well from top of casing (m)	21.03										
	Base of well (m AOD)	355.97										
	Calculated leachate head (m)											
LIB*	Casing height (mAOD)	355.79										
	Leachate (mbgl)	DRY										
	Leachate (m AOD)											
	Base of landfill (m AOD)	316.64										
LIB*	Depth of well from top of casing (m)	20.89										
	Base of well (m AOD)	354.60										
	Calculated leachate head (m)											
	Casing height (mAOD)	354.80										
LIB*	Leachate (mbgl)	25.77										
	Leachate (m AOD)	329.03										
	Base of landfill (m AOD)	319.60										
	Depth of well from top of casing (m)	34.84										
LIB*	Base of well (m AOD)	319.96										
	Calculated leachate head (m)	9.43										

2023	Quarterly Leachate Head Averages (m)
January	
February	2.14
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	

Minimum monthly leachate head average
Maximum monthly leachate head average

Notes:

Top of casings were re-surveyed in August 2019

1. LC1A top of casing is 1710mm above ground level

2. LC2A top of casing is 820mm above GL

3. LC4A top of casing is 1040mm above GL

4. LC5A top of casing is 1050mm above GL

* Well not included in monthly average

Note: L1 is generally dry or with very little water in it

Notes:
1. The redox potential was not measured on the sand there is a possibility that it has changed between sampling and analysis.
2. N/S - Not analysed
3. Unfiltered dissolved inorganic nitrogen based on measured
4. European Environmental Quality Standard EQS 1 for freshwater is defined to protect the most sensitive aquatic life.
5. NW Ditch - North Wasters (ditch system)

Table 14
Groundwater monitoring results

115925

3

Location	Month	Date	Test reference number	Potential	Redox	Mercury, Methylmercury, Hg	Manganese in filtrate as Mn	Nickel in filtrate as Ni	Zinc, extracted from filtrate as Zn	pH	Electrical Conductivity, $\mu\text{mS/cm}$	Alkalinity as CaCO_3	Ammoniacal Nitrogen as N	Estimated Ammoniacal Nitrogen as N	Mercury, methylmercury	Chloride as Cl	Sulfate as SO_4	Calcium	D.O. concentration	IFQC (Filterch)
LP-TREAS WELLS NOT Test 53	Jan-22	20/1/22	137605	Quantity	87	< 0.05	0.0835	< 0.0005	< 0.0025	8.0	480.0	240.0	7.8	0.1648	12.9	14.0	84.0	58.0	-	3.1
	Feb-22																			
	Mar-22																			
	Apr-22	10/5/22	140017	Quantity	33	0.05	0.011	0.0005	0.0025	7.7	1100.0	200.0	9.4	0.0618	13.7	16.0	84.0	61.0	-	2.0
	May-22																			
	Jun-22																			
	Jul-22	14/6/22	140794	Quantity	30	0.05	0.0010	0.0005	0.0004	7.6	440.0	240.0	9.4	0.0646	15.4	17.0	86.0	67.0	8.0	51.0
	Aug-22																			
	Sep-22																			
	Oct-22	26/10/22	154795	Quantity	-44	< 0.050	0.0027	< 0.0005	0.0025	8.0	700.0	220	9.4	0.0403	14.7	13.0	77.0	74.0	8.5	2.5
	Nov-22																			
	Dec-22	21/02/23	159713	Quantity	-130	< 0.050	0.0040	0.0050	0.0120	7.8	340.0	340.0	9.4	0.0414	17.0	12.0	87.0	76.0	8.7	4.9
GW-1	Jan-22	20/1/22	137606	Quantity	39	< 0.05	1.50	0.0021	0.0024	8.0	320.0	91.0	9.4	0.0745	9.3	11.0	72.0	15.0	-	2.0
	Feb-22																			
	Mar-22																			
	Apr-22	10/5/22	140018	Quantity	34	< 0.050	1.4	0.0025	0.0140	7.9	280.0	140.0	9.4	0.0721	9.5	13.0	69.0	14.0	-	2.0
	May-22																			
	Jun-22																			
	Jul-22	11/6/22	140790	Quantity	66	0.05	1.4000	0.0019	0.0042	7.8	320.0	59.0	9.4	0.0599	10.9	9.1	67.0	16.0	8.0	16.0
	Aug-22																			
	Sep-22																			
	Oct-22	26/10/22	154796	Quantity	-24	< 0.050	1.1000	0.0011	0.0065	8.0	310.0	260	9.4	0.0422	10.7	12.0	79.0	19.0	8.6	2.7
	Nov-22																			
	Dec-22	21/02/23	159714	Quantity	-140	< 0.050	1.70	0.0079	0.0140	7.8	280.0	150.0	0.74	0.0053	9.3	9.0	68.0	21.0	7.5	3.3
GW-2	Jan-22																			
	Feb-22																			
	Mar-22																			
	Apr-22																			
	May-22																			
	Jun-22																			
	Jul-22																			
	Aug-22																			
	Sep-22																			
	Oct-22																			
	Nov-22																			
	Dec-22																			

Table 104
Groundwater monitoring results

115035

Location	Depth	Test reference number	Radius (m)	Vertical distance to bedrock (m)	Vertical distance to water table (m)	Distance to bedrock (m)	pH	Electrical Conductivity (µS/cm)	Alkalinity as CaCO ₃ (mg/L)	Estimated Abnormality Score (0-5)	Monitored water temperature (°C)	Chloride (mg/L)	Sulfate as SO ₄ (mg/L)	Cadmium (mg/L)	D.O. concentration (mg/L)	TDS (mg/L)
CWA-2	ESB Well A	1357011	62	0.050	0.000	0.000	8.5	1600.0	470.0	0.26	18.8	99.0	300.0	130.0	-	2.0
	Feb-22	Quarterly														
	Mar-22	1430023	70	0.050	0.000	0.000	7.6	1600.0	420.0	0.34	17.6	97.0	320.0	130.0	-	7.1
	Apr-22	Quarterly														
	May-22	1430023	56	0.050	0.000	0.000	7.5	1500.0	390.0	0.75	17.5	82.0	370.0	110.0	7.8	100.0
	Jun-22	Quarterly														
	Jul-22	1487923	61	0.050	0.000	0.000	7.6	1100.0	350	0.20	17.4	32.0	210.0	130.0	8.3	6.5
	Aug-22	Quarterly														
	Sep-22	1524001	72	0.050	0.000	0.000	8.2	1600.0	420.0	0.20	19.2	80.0	270.0	150.0	7.3	10.0
	Oct-22	Quarterly														
	Nov-22	1597115	62	0.050	0.000	0.000	7.5	850.0	300.0	0.00	11.3	81.0	60.0	23.0	-	3.9
CWA-4	ESB Well B	1357007	62	0.050	0.000	0.000	7.5	850.0	300.0	0.00	11.3	81.0	60.0	23.0	-	3.9
	Feb-22	Quarterly														
	Mar-22	1430019	62	0.050	0.000	0.000	7.5	850.0	290.0	0.27	12.0	87.0	89.0	46.0	-	3.3
	Apr-22	Quarterly														
	May-22	1487921	61	0.050	0.000	0.000	7.4	780.0	250.0	0.30	12.2	86.0	83.0	41.0	8.0	96.0
	Jun-22	Quarterly														
	Jul-22	1507997	43	0.050	0.000	0.000	7.5	600.0	270	0.19	12.6	77.0	78.0	52.0	8.6	4.3
	Aug-22	Quarterly														
	Sep-22	1597146	120	0.050	0.000	0.000	7.5	770.0	250.0	0.12	11.9	75.0	60.0	34.0	8.3	6.3
	Oct-22	Quarterly														
	Nov-22	1597146	120	0.050	0.000	0.000	7.5	770.0	250.0	0.12	11.9	75.0	60.0	34.0	8.3	6.3
CWA-7	ESB Well C	1357008	34	0.050	0.000	0.000	8.2	800.0	360.0	0.00	11.3	38.0	67.0	75.0	-	3.3
	Feb-22	Quarterly														
	Mar-22	1430020	56	0.050	0.000	0.000	7.7	790.0	310.0	0.15	11.5	38.0	67.0	71.0	-	4.8
	Apr-22	Quarterly														
	May-22	1487922	61	0.050	0.000	0.000	7.6	900.0	290.0	0.18	11.8	58.0	130.0	78.0	8.0	74.0
	Jun-22	Quarterly														
	Jul-22	1507998	46	0.050	0.000	0.000	7.4	1200.0	340	0.08	12.4	87.0	160.0	120.0	8.6	8.9
	Aug-22	Quarterly														
	Sep-22	1597150	45	0.050	0.000	0.000	7.9	830.0	380.0	0.26	11.7	46.0	118.0	76.0	7.8	8.2
	Oct-22	Quarterly														
	Nov-22	1597150	45	0.050	0.000	0.000	7.9	830.0	380.0	0.26	11.7	46.0	118.0	76.0	7.8	8.2
	Dec-22	Quarterly														

[illegible]

Location	Value	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Comments
GMW2	Red Valve	0	0	0	0	0	0	0	0	0	0	0	0	Red Valve, 25.5m depth
	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	Yellow Valve, 15m depth
	White Valve	0	0	0	0	0	0	0	0	0	0	0	0	White Valve, 3m depth
	Trigger Levels	1	1	1	1	1	1	1	1	1	1	1	1	Trigger Levels
	Control Levels	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Control Levels
	Trigger Level Red	-	-	-	-	-	-	-	-	-	-	-	-	Trigger Level Red
	Trigger Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	Trigger Level Yellow
	Trigger Level White	-	-	-	-	-	-	-	-	-	-	-	-	Trigger Level White
	Control Level Red	-	-	-	-	-	-	-	-	-	-	-	-	Control Level Red
	Control Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	Control Level Yellow
GMW3	Red Valve	0	0	0	0	0	0	0	0	0	0	0	0	Red Valve, 15m depth
	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	Yellow Valve, 5m depth
	White Valve	0	0	0	0	0	0	0	0	0	0	0	0	White Valve, 3m depth
	Trigger Levels	1	1	1	1	1	1	1	1	1	1	1	1	Trigger Levels
	Control Levels	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Control Levels
	Trigger Level Red	-	-	-	-	-	-	-	-	-	-	-	-	Trigger Level Red
	Trigger Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	Trigger Level Yellow
	Trigger Level White	-	-	-	-	-	-	-	-	-	-	-	-	Trigger Level White
	Control Level Red	-	-	-	-	-	-	-	-	-	-	-	-	Control Level Red
	Control Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	Control Level Yellow
GMW4	Red Valve	0	0	0	0	0	0	0	0	0	0	0	0	Red Valve, 30m depth
	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	Yellow Valve, 20m depth
	White Valve	0	0	0	0	0	0	0	0	0	0	0	0	White Valve, 5m depth
	Trigger Levels	1	1	1	1	1	1	1	1	1	1	1	1	Trigger Levels
	Control Levels	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Control Levels
	Trigger Level Red	-	-	-	-	-	-	-	-	-	-	-	-	Trigger Level Red
	Trigger Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	Trigger Level Yellow
	Trigger Level White	-	-	-	-	-	-	-	-	-	-	-	-	Trigger Level White
	Control Level Red	-	-	-	-	-	-	-	-	-	-	-	-	Control Level Red
	Control Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	Control Level Yellow
GMW5	Red Valve	0	0	0	0	0	0	0	0	0	0	0	0	Red Valve, 25.5m depth
	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	Yellow Valve, 15m depth
	White Valve	0	0	0	0	0	0	0	0	0	0	0	0	White Valve, 3m depth
	Trigger Levels	1	1	1	1	1	1	1	1	1	1	1	1	Trigger Levels
	Control Levels	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Control Levels
	Trigger Level Red	-	-	-	-	-	-	-	-	-	-	-	-	Trigger Level Red
	Trigger Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	Trigger Level Yellow
	Trigger Level White	-	-	-	-	-	-	-	-	-	-	-	-	Trigger Level White
	Control Level Red	-	-	-	-	-	-	-	-	-	-	-	-	Control Level Red
	Control Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	Control Level Yellow
GMW6	Red Valve	0	0	0	0	0	0	0	0	0	0	0	0	Red Valve, 25.5m depth
	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	Yellow Valve, 15m depth
	White Valve	0	0	0	0	0	0	0	0	0	0	0	0	White Valve, 3m depth
	Trigger Levels	1	1	1	1	1	1	1	1	1	1	1	1	Trigger Levels
	Control Levels	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Control Levels
	Trigger Level Red	-	-	-	-	-	-	-	-	-	-	-	-	Trigger Level Red
	Trigger Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	Trigger Level Yellow
	Trigger Level White	-	-	-	-	-	-	-	-	-	-	-	-	Trigger Level White
	Control Level Red	-	-	-	-	-	-	-	-	-	-	-	-	Control Level Red
	Control Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	Control Level Yellow

Table B5
Landfill Gas Monitoring Results

ADRIANSE (% by Volume) CARBON DIOXIDE (% by Volume)

Location	Year	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Comments
GAW7	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	Yellow Valve, 12 depth
	White Valve	0	0	0	0	0	0	0	0	0	0	0	0	White Valve, 5m depth
	Trigger Level Yellow	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Trigger Level
	Control Level Yellow	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	Control Level
	Control Level White	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level White
GAW12	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	Yellow Valve, 26.3m depth
	White Valve	0	0	0	0	0	0	0	0	0	0	0	0	White Valve, 15m depth
	Trigger Level Yellow	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	Trigger Level
	Control Level Yellow	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level
	Control Level White	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level White
GAW13	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	Yellow Valve, 26.3m depth
	White Valve	0	0	0	0	0	0	0	0	0	0	0	0	White Valve, 15m depth
	Trigger Level Yellow	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	Trigger Level
	Control Level Yellow	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level
	Control Level White	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level White
GAW14	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	Yellow Valve, 26.3m depth
	White Valve	0	0	0	0	0	0	0	0	0	0	0	0	White Valve, 15m depth
	Trigger Level Yellow	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	Trigger Level
	Control Level Yellow	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level
	Control Level White	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level White
GAW15	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	Yellow Valve, 26.3m depth
	White Valve	0	0	0	0	0	0	0	0	0	0	0	0	White Valve, 15m depth
	Trigger Level Yellow	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	Trigger Level
	Control Level Yellow	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level
	Control Level White	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level White
GAW16	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	Yellow Valve, 26.3m depth
	White Valve	0	0	0	0	0	0	0	0	0	0	0	0	White Valve, 15m depth
	Trigger Level Yellow	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	Trigger Level
	Control Level Yellow	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level
	Control Level White	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level White
GAW17	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	Yellow Valve, 26.3m depth
	White Valve	0	0	0	0	0	0	0	0	0	0	0	0	White Valve, 15m depth
	Trigger Level Yellow	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	Trigger Level
	Control Level Yellow	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level
	Control Level White	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level White
GAW18	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	Yellow Valve, 26.3m depth
	White Valve	0	0	0	0	0	0	0	0	0	0	0	0	White Valve, 15m depth
	Trigger Level Yellow	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	Trigger Level
	Control Level Yellow	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level
	Control Level White	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level White
GAW19	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	Yellow Valve, 26.3m depth
	White Valve	0	0	0	0	0	0	0	0	0	0	0	0	White Valve, 15m depth
	Trigger Level Yellow	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	Trigger Level
	Control Level Yellow	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level
	Control Level White	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level White
GAW20	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	Yellow Valve, 26.3m depth
	White Valve	0	0	0	0	0	0	0	0	0	0	0	0	White Valve, 15m depth
	Trigger Level Yellow	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	Trigger Level
	Control Level Yellow	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level
	Control Level White	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	Control Level White

Notes:
 1. Water denotes 'water in well' - reading abandoned
 2. NT denotes 'noting and value'
 3. NT in GAW14 is due to cattle quarantine paddock around well location
 4. Where the asterisk (*) is present, no trigger level have been set, as high levels of methane and carbon dioxide gas are recorded. This is likely to be associated with the presence of fog/marshland
 5. Where two asterisks (**) are present, no trigger levels have been set, as not required by the Permit (Reference: 2D)
 6. Where two asterisks (**) are present, no trigger levels have been set, as not required by the Permit (Reference: 2D)
 7. Exceedance of Trigger
 8. Exceedance of Control

BSC Pipe Monitoring B6

Date	BH1		BH2		BH3		BH4		Water column (m)			
	Water level depth (m)	Well depth to base (m)	Water level depth (m)	Well depth to base (m)	Water level depth (m)	Well depth to base (m)	Water level depth (m)	Well depth to base (m)	BH1	BH2	BH3	BH4
21/11/2019	18.24	20.05	6.11	8.72	4.51	6.77	9.89	10.12	1.81	2.61	2.26	0.23
05/12/2019	18.31	20.05	6.26	8.70	4.44	6.75	9.86	10.12	1.74	2.44	2.31	0.26
13/12/2019	18.28	20.04	6.26	8.70	4.57	6.76	9.91	10.11	1.76	2.44	2.19	0.20
17/12/2019	18.28	20.04	6.19	8.70	4.49	6.76	9.90	10.11	1.76	2.51	2.27	0.21
14/01/2020	18.32	20.04	6.21	8.70	4.45	6.76	9.79	10.12	1.72	2.49	2.31	0.33
23/01/2020	18.38	20.04	6.19	8.70	4.42	6.76	9.76	10.12	1.66	2.51	2.34	0.36
30/01/2020	18.33	20.04	6.27	8.72	4.57	6.77	9.86	10.12	1.71	2.45	2.20	0.26
07/02/2020	18.40	20.04	6.40	8.72	4.44	6.77	9.88	10.12	1.64	2.32	2.33	0.24
17/02/2020	18.37	20.04	6.14	8.72	4.48	6.77	9.95	10.12	1.67	2.58	2.29	0.17
24/03/2020	18.19	20.04	6.22	8.72	4.44	6.77	9.72	10.12	1.85	2.50	2.33	0.40
24/04/2020	18.20	20.03	7.08	8.71	4.73	6.77	9.93	10.12	1.83	1.63	2.04	0.19
30/04/2020	18.14	20.03	7.00	8.71	4.69	6.77	9.95	10.12	1.89	1.71	2.08	0.17
07/05/2020	18.16	20.03	7.02	8.71	4.60	6.77	9.94	10.12	1.87	1.69	2.17	0.18
14/05/2020	18.14	20.03	7.13	8.71	4.77	6.77	10.01	10.12	1.89	1.58	2.00	0.11
27/05/2020	18.08	20.03	7.15	8.71	4.80	6.77	10.00	10.12	1.95	1.56	1.97	0.12
04/06/2020	18.08	20.09	7.20	8.72	4.90	6.77	10.05	10.12	2.01	1.52	1.87	0.07
16/06/2020	18.07	20.04	7.24	8.73	4.94	6.77	10.02	10.13	1.97	1.49	1.83	0.11
26/06/2020	18.12	20.09	7.51	8.72	5.00	6.77	10.04	10.12	1.97	1.21	1.77	0.08
03/07/2020	18.09	20.09	7.10	8.71	4.92	6.77	10.02	10.12	2.00	1.61	1.85	0.10
09/07/2020	18.07	20.04	7.41	8.72	4.96	6.77	10.04	10.12	1.97	1.31	1.81	0.08
23/07/2020	18.05	20.04	7.40	8.72	4.98	6.77	10.02	10.12	1.99	1.32	1.79	0.10
31/07/2020	18.06	20.04	7.13	8.72	4.94	6.77	10.02	10.14	1.98	1.59	1.83	0.12
07/08/2020	18.07	20.04	7.19	8.72	4.94	6.77	10.02	10.12	1.97	1.53	1.83	0.10
14/08/2020	18.19	20.04	7.67	8.72	5.03	6.77	10.06	10.12	1.85	1.05	1.74	0.06
20/08/2020	18.17	20.09	7.83	8.71	5.06	6.77	10.05	10.13	1.92	0.88	1.71	0.08
04/09/2020	18.18	20.04	6.99	8.72	4.85	6.77	10.02	10.12	1.86	1.73	1.92	0.10
11/09/2020	18.21	20.09	6.97	8.71	4.76	6.77	10.03	10.12	1.88	1.74	2.01	0.09
24/09/2020	18.10	20.09	6.98	8.71	4.92	6.77	10.02	10.12	1.99	1.73	1.85	0.10
08/10/2020	18.28	20.05	7.05	8.72	4.88	6.77	10.06	10.13	1.77	1.67	1.89	0.07
20/10/2020	18.29	20.05	6.92	8.72	4.81	6.77	10.01	10.12	1.76	1.80	1.96	0.11
30/10/2020	18.30	20.04	6.90	8.72	4.75	6.77	9.96	10.12	1.74	1.82	2.02	0.16

BSC Pipe Monitoring B6

Date	BH1		BH2		BH3		BH4		Water column (m)			
	Water level depth (m)	Well depth to base (m)	Water level depth (m)	Well depth to base (m)	Water level depth (m)	Well depth to base (m)	Water level depth (m)	Well depth to base (m)	BH1	BH2	BH3	BH4
05/11/2020	18.26	20.04	6.94	8.71	4.80	6.77	9.97	10.12	1.78	1.77	1.97	0.15
12/11/2020	18.30	20.04	6.92	8.72	4.82	6.77	9.98	10.13	1.74	1.80	1.95	0.15
18/11/2020	18.32	20.04	6.12	8.72	4.63	6.77	9.93	10.13	1.72	2.60	2.14	0.20
26/11/2020	18.37	20.04	6.22	8.72	4.58	6.77	9.99	10.12	1.67	2.50	2.19	0.13
10/12/2020	18.37	20.04	6.43	8.72	4.59	6.77	9.98	10.12	1.67	2.29	2.18	0.14
17/12/2020	18.30	20.04	6.21	8.72	4.50	6.77	9.98	10.12	1.74	2.51	2.27	0.14
24/12/2020	18.33	20.04	5.68	8.72	4.45	6.77	9.82	10.12	1.71	3.04	2.32	0.30
06/01/2021	18.35	20.06	5.97	8.72	4.45	6.77	9.90	10.12	1.71	2.75	2.32	0.22
18/01/2021	18.30	20.02	5.97	8.72	4.40	6.77	9.98	10.12	1.72	2.75	2.37	0.14
21/01/2021	18.42	20.03	6.37	8.70	4.56	6.76	9.93	10.12	1.61	2.33	2.20	0.19
28/01/2021	18.32	20.04	5.90	8.70	4.53	6.77	9.97	10.12	1.72	2.80	2.24	0.15
02/02/2021	18.30	20.04	6.00	8.70	4.47	6.77	9.97	10.12	1.74	2.70	2.30	0.15
18/02/2021	18.49	20.04	6.37	8.72	4.53	6.77	9.92	10.13	1.55	2.35	2.24	0.21
26/02/2021	18.35	20.02	6.00	8.70	4.48	6.77	9.77	10.11	1.67	2.70	2.29	0.34
03/03/2021	18.43	20.02	6.09	8.70	4.45	6.77	9.79	10.11	1.59	2.61	2.32	0.32
11/03/2021	18.50	20.02	6.55	8.71	4.49	6.77	9.89	10.12	1.52	2.16	2.28	0.23
22/03/2021	18.49	20.03	6.55	8.70	4.52	6.77	9.94	10.11	1.54	2.15	2.25	0.17
26/05/2021	18.40	20.04	6.98	8.72	4.82	6.77	10.02	10.13	1.64	1.74	1.95	0.11
08/06/2021	18.28	20.04	6.64	8.71	4.58	6.77	9.92	10.12	1.76	2.07	2.19	0.20
23/06/2021	19.32	20.04	7.02	8.71	4.80	6.77	10.07	10.12	0.72	1.69	1.97	0.05
11/08/2021	18.87	20.02	7.92	8.68	4.79	6.75	10.09	10.11	1.15	0.76	1.96	0.02
18/08/2021	18.51	20.02	7.10	8.72	4.65	6.75	10.09	10.12	1.51	1.62	2.10	0.03
19/11/2021	18.37	20.03	6.70	8.69	4.67	6.76	10.09	10.11	1.66	1.99	2.09	0.02
25/11/2021	18.48	20.03	7.01	8.72	4.98	6.74	10.11	10.12	1.55	1.71	1.76	0.01
01/12/2021	18.49	20.02	6.79	8.67	4.65	6.74	10.08	10.12	1.53	1.88	2.09	0.04
17/12/2021	18.50	20.02	6.64	8.68	4.70	6.74	10.11	10.12	1.52	2.04	2.04	0.01
30/12/2021	18.39	20.03	6.85	8.71	4.71	6.73	10.09	10.13	1.64	1.86	2.02	0.04
07/01/2022	18.35	20.03	6.65	8.71	4.59	6.73	10.09	10.12	1.68	2.06	2.14	0.03
14/01/2022	18.38	20.03	7.10	8.71	4.21	6.73	10.10	10.12	1.65	1.61	2.52	0.02
24/01/2022	18.41	20.02	7.95	8.71	4.01	6.73	10.10	10.12	1.61	0.76	2.72	0.02
04/02/2022	18.81	20.02	7.83	8.72	4.50	6.74	10.10	10.12	1.21	0.89	2.24	0.02

BSC Pipe Monitoring B6

Date	BH1		BH2		BH3		BH4		Water column (m)			
	Water level depth (m)	Well depth to base (m)	Water level depth (m)	Well depth to base (m)	Water level depth (m)	Well depth to base (m)	Water level depth (m)	Well depth to base (m)	BH1	BH2	BH3	BH4
11/02/2022	18.82	20.03	7.75	8.72	4.51	6.74	10.10	10.12	1.21	0.97	2.23	0.02
18/02/2022	18.73	20.03	7.90	8.72	4.40	6.74	10.10	10.12	1.30	0.82	2.34	0.02
25/02/2022	18.75	20.02	8.10	8.72	4.35	6.74	10.1	10.12	1.27	0.62	2.39	0.02
04/03/2022	18.65	20.03	8.06	8.72	4.20	6.74	10.11	10.13	1.38	0.66	2.54	0.02
11/03/2022	18.75	20.03	7.84	8.72	4.35	6.74	10.09	10.13	1.28	0.88	2.39	0.04
14/03/2022	18.73	20.02	7.68	8.73	4.45	6.74	10.09	10.11	1.29	1.05	2.29	0.02
24/03/2022	18.81	20.03	7.41	8.71	4.61	6.76	10.11	10.12	1.22	1.30	2.15	0.01
01/04/2022	18.71	20.03	7.38	8.71	4.60	6.75	10.11	10.12	1.32	1.33	2.15	0.01
08/04/2022	18.48	20.03	7.10	8.7	4.54	6.74	10.1	10.12	1.55	1.60	2.20	0.02
18/04/2022	18.44	20.02	7.45	8.71	4.48	6.74	10.09	10.12	1.58	1.26	2.26	0.03
27/04/2022	18.55	20.02	7.58	8.72	4.10	6.74	10.09	10.11	1.47	1.14	2.64	0.02
06/05/2022	18.60	20.02	7.90	8.72	4.11	6.75	10.07	10.11	1.42	0.82	2.64	0.04
13/05/2022	18.65	20.03	7.99	8.72	4.20	6.75	10.05	10.12	1.38	0.73	2.55	0.07
20/05/2022	18.66	20.03	7.81	8.72	4.21	6.74	10.07	10.12	1.37	0.91	2.53	0.05
26/05/2022	18.55	20.03	7.71	8.72	4.12	6.74	10.09	10.12	1.48	1.01	2.62	0.03
31/05/2022	18.53	20.03	8.34	8.72	4.06	6.74	10.11	10.13	1.50	0.38	2.68	0.02
03/06/2022	18.65	20.02	8.19	8.72	4.20	6.74	10.11	10.12	1.37	0.53	2.54	0.01
10/06/2022	18.88	20.03	7.99	8.71	4.40	6.76	10.11	10.13	1.15	0.72	2.36	0.02
20/06/2022	18.88	20.03	7.95	8.71	4.45	6.75	10.09	10.12	1.15	0.76	2.30	0.03
27/06/2022	18.87	20.02	7.90	8.70	4.55	6.74	10.09	10.12	1.15	0.80	2.19	0.03
07/07/2022	18.91	20.03	7.91	8.70	4.57	6.74	10.01	10.12	1.12	0.79	2.17	0.11
13/07/2022	18.90	20.03	7.57	8.72	4.62	6.74	10.11	10.13	1.13	1.15	2.12	0.02
20/07/2022	18.91	20.03	7.60	8.72	4.51	6.74	10.10	10.13	1.12	1.12	2.23	0.03
29/07/2022	18.80	20.03	7.80	8.72	4.07	6.74	10.08	10.13	1.23	0.92	2.67	0.05
05/08/2022	18.92	20.03	8.10	8.72	4.75	6.74	10.09	10.13	1.11	0.62	1.99	0.04
11/08/2022	18.95	20.02	8.39	8.71	5.20	6.74	10.11	10.13	1.07	0.32	1.54	0.02
19/08/2022	18.92	20.02	8.42	8.71	5.20	6.74	10.10	10.13	1.10	0.29	1.54	0.03
26/08/2022	18.91	20.02	8.46	8.72	5.21	6.74	10.09	10.12	1.11	0.26	1.53	0.03
02/09/2022	18.93	20.02	8.49	8.72	5.21	6.74	10.09	10.13	1.09	0.23	1.53	0.04
09/09/2022	18.97	20.03	8.69	8.71	5.52	6.74	10.09	10.18	1.06	0.02	1.22	0.09
16/09/2022	18.90	20.03	8.71	8.71	5.53	6.74	10.11	10.14	1.13	0.00	1.21	0.03

BSC Pipe Monitoring B6

Date	BH1		BH2		BH3		BH4		Water column (m)			
	Water level depth (m)	Well depth to base (m)	Water level depth (m)	Well depth to base (m)	Water level depth (m)	Well depth to base (m)	Water level depth (m)	Well depth to base (m)	BH1	BH2	BH3	BH4
22/09/2022	18.91	20.02	8.71	8.71	5.53	6.74	10.10	10.12	1.11	0.00	1.21	0.02
07/10/2022	18.90	20.02	8.71	8.71	5.58	6.74	10.10	10.12	1.12	0.00	1.16	0.02
14/10/2022	18.92	20.03	8.68	8.68	5.56	6.76	10.11	10.13	1.11	0.00	1.20	0.02
27/10/2022	18.92	20.02	8.68	8.68	5.61	6.76	9.98	10.13	1.10	0.00	1.15	0.15
03/11/2022	18.82	20.02	8.24	8.68	4.97	6.76	9.97	10.12	1.20	0.44	1.79	0.15
11/11/2022	18.80	20.01	8.40	8.65	4.97	6.76	9.98	10.12	1.21	0.25	1.79	0.14
24/11/2022	18.95	20.01	8.36	8.67	5.10	6.76	9.97	10.13	1.06	0.31	1.66	0.16
30/11/2022	18.64	20.01	8.69	8.70	4.56	6.76	10.01	10.13	1.37	0.01	2.20	0.12
08/12/2022	18.60	20.01	8.61	8.68	4.97	6.77	9.99	10.12	1.41	0.07	1.80	0.13
16/12/2022	18.82	20.03	7.80	8.67	4.67	6.75	9.98	10.12	1.21	0.87	2.08	0.14
23/12/2022	18.82	20.02	7.87	8.67	4.63	6.77	9.97	10.12	1.20	0.80	2.14	0.15
30/12/2022	18.65	20.02	7.81	8.62	4.51	6.76	9.90	10.13	1.37	0.81	2.25	0.23
06/01/2023	18.70	20.02	7.81	8.68	4.51	6.76	9.91	10.12	1.32	0.87	2.25	0.21
12/01/2023	18.60	20.02	7.50	8.68	4.55	6.76	9.90	10.12	1.42	1.18	2.21	0.22
20/01/2023	18.50	20.03	7.10	8.68	4.20	6.76	9.89	10.13	1.53	1.58	2.56	0.24
27/01/2023	18.55	20.03	7.10	8.68	4.46	6.76	9.98	10.12	1.48	1.58	2.30	0.14
01/02/2023	18.80	20.03	7.19	8.68	4.70	6.76	9.80	10.12	1.23	1.49	2.06	0.32
17/02/2023	18.87	20.02	7.91	8.68	4.80	6.76	9.88	10.12	1.15	0.77	1.96	0.24
21/02/2023	18.81	20.03	7.90	8.66	4.80	6.77	9.99	10.12	1.22	0.76	1.97	0.13
03/03/2023	18.91	20.02	8.30	8.68	5.08	6.76	9.95	10.11	1.11	0.38	1.68	0.16
09/03/2023	18.75	20.03	7.90	8.67	4.88	6.77	9.94	10.11	1.28	0.77	1.89	0.17
16/03/2023	18.80	20.03	7.90	8.67	4.85	6.77	9.91	10.12	1.23	0.77	1.92	0.21
23/03/2023	18.60	20.03	7.90	8.68	4.80	6.74	9.90	10.13	1.43	0.78	1.94	0.23
30/03/2023	18.62	20.02	7.80	8.68	4.64	6.74	9.89	10.12	1.40	0.88	2.10	0.23
07/04/2023	18.45	20.03	6.83	8.67	4.52	6.74	9.92	10.13	1.58	1.84	2.22	0.21
14/04/2023	18.59	20.02	6.92	8.67	4.55	6.74	9.92	10.12	1.43	1.75	2.19	0.20
21/04/2023	18.61	20.02	7.15	8.62	4.52	6.74	9.96	10.12	1.41	1.47	2.22	0.16
Averages	18.53		7.32		4.67		10.00		1.50	1.38	2.08	0.12
Max	19.32		8.71		5.61		10.11		2.01	3.04	2.72	0.40

BSC Pipe Monitoring B6

Date	BH1		BH2		BH3		BH4		Water column (m)			
	Water level depth (m)	Well depth to base (m)	Water level depth (m)	Well depth to base(m)	Water level depth (m)	Well depth to base (m)	Water level depth (m)	Well depth to base (m)	BH1	BH2	BH3	BH4
Min	18.05		5.68		4.01		9.72		0.72	0.00	1.15	0.01