

Silent Valley Waste Services Limited

Silent Valley Landfill

2022 Annual and Fourth Quarter Monitoring Report

Reference:

Issue | 31st January 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.

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1. Introduction

This 2022 Annual Monitoring Report presents the surface water, groundwater, landfill gas and leachate results for the monitoring undertaken in the period January to December 2022 in accordance with Silent Valley Environmental Permit (Permit no.MP3835SV ^[1]) and the Aftercare Phase Environmental and Infrastructure Monitoring Programme ^[6].

This report also includes the Fourth Quarter Monitoring results for the period October to December 2022.

The data has been collected as referenced in Schedule 3 of the Consolidated Permit ^[1]. This report makes reference to the 2021 Annual Monitoring Report ^[2] and the 2022 Third Quarter Monitoring Report ^[3].

1.1 Monitoring Regime

The monitoring regime is undertaken in accordance with the Aftercare Phase Environmental and Infrastructure Monitoring Programme ^[6] and in line with the Consolidated Permit ^[1], which is fully detailed within the 2019 Annual Report ^[4].

2. Discussion of Monitoring Results

2.1 Rainfall

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

Fourth Quarter Summary

Based on the available data, November recorded the highest monthly rainfall this quarter with a total of 294.3mm. November also had the highest daily rainfall recorded on the 23rd with a total of 45.2mm. December held the driest month with a total of 197.4mm with 9 consecutive days of no rainfall. Rainfall this quarter has been highest on record since 2008 with a quarterly total of 721.5mm.

Annual Summary

The combined rainfall total for the year 2022 is 1,408mm which is lower than the previous year of 1,551mm, however the annual total continues to exceed the long-term average for the region of 1,260mm^[10].

February, October, November, and December all recorded rainfall totals above 100mm with November recording the highest rainfall total of 294.3mm, the highest on record since 2008. July and August had significantly lower rainfall totals compared to previous years with the lowest volume recorded in July of 23.8mm and a total of 23 days with no 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 B, Table B1**.

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

Fourth Quarter Summary

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

- No samples were retrieved from L1A, LC1A and LC5A.
- All leachate wells remain compliant this quarter with exception of one exceedance in LC2A. LC2A exceeds AMC for Nickel (0.0681mg/l) with a value of 0.12mg/l. Nickel has continued to exceed the AMC all of 2022 in this well.
- LC2A has become compliant for Ammoniacal nitrogen with a value of 0.46mg/l for the first time in 2022 after having exceedances 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 QC/QA checks have been undertaken and there are no discrepancies. This well will be closely monitored in 2023.

Annual Summary

The overall average well concentrations for the monitored contaminants have been recorded below their respective AMCs throughout 2022.

LC2A continues to be the only well exceeding AMC throughout 2022. A technical note was appended to the 2021 Annual Monitoring Report^[2] discussing these elevated concentrations.

As discussed above, ammoniacal nitrogen will be monitored closely in the next quarter in LC2A as concentrations are significantly lower in the fourth quarter.

2.2.2 Leachate Head Monitoring

Leachate head monitoring results are presented in **Appendix A, Figure A2** and **Appendix B, Table B2**.

Fourth Quarter Summary

The monthly average level for all the wells remains below the required 3.0m, as per the Permit^[1].

Annual Summary

The average leachate head per year has increased by 0.01m from 2021 to 2022 as detailed in Table 1 below. This is considered insignificant.

Annual leachate head levels began decreasing in 2018. The driver for the higher average leachate heads previously was LC5A as other wells have remained relatively stable over the years. As LC5A has been inactive all through 2022 this trend may change when it is reinstalled and monitored again.

Table 1 Annual Leachate Head results

Year	Maximum leachate Head	Average leachate Head	Average Leachate Head <3m
2013	2.45m	1.01m	Yes
2014	3.95m	1.14m	Yes
2015	4.96m	1.84m	Yes
2016	4.83m	2.54m	Yes
2017	5.09m	2.70m	Yes
2018	5.36m	2.58m	Yes
2019	5.05m	2.74m	Yes
2020	4.89m	2.47m	Yes
2021	3.09m	1.94m	Yes
2022	3.09m	1.95m	Yes

2.3 Surface water Quality

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

Commentaries are provided for upstream and downstream monitoring points in the Nant Merddog, 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.

Fourth Quarter Summary

These wells were monitored this quarter and show all locations are compliant.

Annual Summary

Results show all upstream surface water locations have been compliant with the freshwater EQS concentrations during 2022 with exception of the second quarter where unionised ammoniacal nitrogen concentrations exceeded freshwater EQS in SWU and SWW1. These locations became compliant in the fourth quarter.

2.3.2 Downstream Surface Water

Fourth quarter Summary

The results show SWD and SWD1 remain compliant for this quarter.

Annual Summary

On review of results obtained this year, the second quarter identified exceedances in bioavailable nickel and chloride. These were not consecutive exceedances, and the downstream surface water results are currently compliant. Unionised ammoniacal nitrogen exceedances were reported in the first, second and third quarter but were not reported in the fourth quarter, this will be reviewed in the next quarter.

2.4 Groundwater

2.4.1 Groundwater Quality Monitoring

Groundwater quality monitoring results are presented graphically in **Appendix A, Figures A5 and A6** and in **Appendix B, Table B4**.

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

2.4.1.1 Upstream groundwater Wells

Fourth Quarter Summary

GW3A and GW4 monitor the sandstone strata classified as S3-East, and GW11B had been installed in the sandstone strata classified as S2-West. GW11B has not been sampled since the third quarter of 2019 as there has been not enough volume to take a sample.

GW3A remains compliant with the exception of ammoniacal nitrogen with a concentration of 1.80 mg/l. Ammoniacal nitrogen has exceeded control levels throughout 2022 but the concentration has decreased from the previous quarter.

GW4 continues to exceed manganese assessment level concentrations for the fourth consecutive quarter, however, the concentration has consistently decreased throughout 2022 (from 1.5mg/l to 1.1mg/l). 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.

Annual Summary

As discussed above, GW3A has exceeded all of 2022 with ammoniacal nitrogen after remaining compliant throughout 2021. Queries have been raised with the lab on testing procedures and quality control, it was concluded by the lab that there have been no issues with testing equipment or methodology. These values will be monitored closely into 2023. GW3A has been compliant for mercury concentrations throughout all of 2022 after exceeding all quarters the previous year.

Concentrations of manganese and ammoniacal nitrogen have remained elevated in GW4. Ammoniacal nitrogen has been fluctuating throughout the year above trigger level with no clear trend. These levels will be monitored closely into 2023. Manganese continues to exceed for the second consecutive year however has continued to decrease from 2021 levels.

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.

Fourth Quarter Summary

GW6 and GW7 have been installed in the centre of the valley in the sandstone strata classified as S1. GW6 remains compliant this quarter while GW7 exceeds assessment level concentrations for manganese (1mg/l) with a concentration of 1.8mg/l. Manganese levels have historically been known to fluctuate within this well,

and it is considered that the concentrations are also impacted by the upstream groundwater considering GW4 has also exhibited similar concentrations.

GW9 has been installed in the sandstone strata as S2-East. GW9 has become compliant for the first time since 2021 for ammoniacal nitrogen. The concentrations had not identified any clear trends but fluctuated throughout 2022. Control levels for zinc (0.02mg/l) have been exceeded this quarter (0.033mg/l), this is the first exceedance of 2022 and will be monitored closely next quarter.

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

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

Annual Summary

GW6 has remained compliant throughout 2022 with one exception of ammoniacal nitrogen in the first quarter. Manganese concentrations fluctuated in GW7 throughout 2022 exceeding assessment levels in the first and fourth quarter. These fluctuations were also noted in the 2021 Annual Monitoring Report^[2]. There were two additional ad hoc exceedances in individual determinants. However, no action is required at this stage due to the limited number of exceedances.

As discussed above, GW9 has remained compliant for ammoniacal nitrogen for the first time since 2021. These values will be monitored next quarter to identify any possible trend. GW9 has remained largely compliant in 2022 with exception of one exceedance in manganese in the first quarter and zinc in the fourth quarter. However, no action is required at this stage due to the limited number of exceedances.

GMW10 has remained compliant throughout 2022 with exception of Manganese. Manganese has fluctuated throughout 2022 and 2021. Upstream GW4 is also recording manganese concentrations of similar magnitudes. It is likely that the upstream well is influencing these exceedances.

GMW12 remained compliant throughout 2022 with exception to sulphate exceeding control levels (300mg/l) in the second and third quarter. The levels have now become compliant.

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 A, Figure A7**.

Fourth Quarter Summary

All water levels have remained consistent this quarter.

Annual Summary

Overall, the ground levels have remained constant over 2022. Small variations have been identified in the well levels over the year with the largest variation identified in GW7 with an increase in 1.32mOD from the third quarter to the fourth quarter of 2022. These changes may have been influenced by the drier and wetter seasons throughout 2022.

2.5 Landfill Gas

2.5.1 Landfill Gas Quality Monitoring

Landfill gas monitoring results are presented in **Appendix B, Table B5**.

Fourth Quarter Summary

Methane concentrations continue to be recorded below the respective Control and Trigger Levels (where available) in all monitoring locations.

Carbon dioxide concentrations were recorded below the respective Control and Trigger Levels, where available however carbon dioxide levels have been recorded above the Control and/or Trigger Levels in the following wells (valves):

Trigger Levels

- GMW6 (red) October and November.
- GMW7 (white) October.
- GMW14/14A (red) October, November, and December, (Yellow) November and (white) October.

GMW2 has become compliant after exceeding Trigger and Control Levels in the red valve in the third quarter.

GMW6 continued to exceed red Trigger Levels since the end of the second quarter, however it was compliant in December.

In GMW14/14A consecutive exceedances have been recorded in 2022. The gas concentrations have been fluctuating above Trigger Level this quarter. All valves in GMW14/14A are recording at least one Control and Trigger Level each month.

Annual Summary

Throughout 2022 methane levels have remain compliant and below their respective Control and Trigger Levels (where available) in all monitoring locations. Rare exceptions include GMW3 (yellow and white) in April exceeding Control Levels by 0.3% and 0.4%.

Carbon dioxide continues to record exceedances in Control and Trigger Levels across numerous wells.

GMW2 exceeded Control and Trigger Levels from June to September in the red valve (maximum value 2.3%). These readings coincide with previous years with higher recordings during the summer months.

GMW3 exceeded Control and Trigger levels in January, February, and April in the yellow valve, but have remained compliant since.

The Trigger Level was exceeded once in GMW4 with a concentration of 1.6% in the red valve in August. The well remained compliant the rest of the year. This exceedance also occurred in August 2021 in the same valve.

Both Control and Trigger Levels were exceeded in GMW5 throughout 2022 in the yellow and white valves, these levels do not show a clear trend and are compliant 10 months of the year.

GMW6 continues to exceed Trigger Level for red valve from June to November (maximum concentration 6.7%). These exceedances have occurred within similar months from 2018 - 2021, however the concentrations are compliant in December.

White valve was exceeded on two occasions (July and October) in GMW7 and once in the yellow valve (July), all exceeding Trigger Levels. No trend can be identified in these exceedances.

Following the frequent exceedances of Control and Trigger Levels in GMW12 in 2021, the well has become compliant with exception of two control level exceedances in the yellow valve in March and June (maximum 2.7%).

GMW13 exceeded Trigger Levels in July in the yellow valve with a concentration of 7.7%. The concentration only exceeded the Control level in August (5.6%) and remained compliant the remaining months of 2022.

GMW14/14A was installed in August 2019, since installation the well continues to record consecutive concentrations above Control and Trigger Levels. The red valve exceeded Trigger Levels in all quarters of 2022 (Maximum concentration 5.8% in December). Exceedances are typically higher in the winter months similar to previous years. The yellow valve has exceeded trigger levels in 9 of the 12 months (maximum concentration 8% in November). The white valve exceeds Trigger Levels from January to May and September and October (maximum concentration 6.7% in January). On review of the installation work,

repairs occurred in this well at the end of 2019. However, a full year of readings demonstrate the gassing regime of this well is still recording concentrations that exceed Trigger Levels. As stated by Golder Associates^[11], single exceedances do not require to be actioned. However, if ongoing exceedances are recorded then the relevant people require to be informed and appropriate measures of identification and solutions identified. Considering the ongoing exceedances in GMW14/14A, a technical note was prepared and appended to the 2021 Annual Monitoring Report^[2]. This will be reviewed and updated in 2023.

Levels of carbon dioxide continue to be recorded in GMW1, GMW8, GMW9, GMW10, GMW17 and GMW18. However, no control or Trigger Levels have been derived for these monitoring locations as they are not required by the Permit^[1].

Gas monitoring will continue in accordance with the agreed programme and the relevant Permit conditions.

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 for leachate, surface water 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 annual report has noted the following;

- Unionised ammoniacal nitrogen exceedances in SWD and SWD1 were reported in the first, second and third quarter but were not reported in the fourth quarter, this will be reviewed further next quarter.
- LC2A continues to exceed AMC concentrations for nickel, further investigation into this exceedance may be undertaken in 2023. LC2A has become compliant for ammoniacal nitrogen in the fourth quarter for the first time in 2022 however, the concentration is significantly lower than previous quarters. This should be further reviewed following receipt of next quarter's readings.
- GW3A and GW4 continue to exceed trigger levels for ammoniacal nitrogen throughout 2022. These wells should be monitored closely for the next six months, if there are any significant changes a review should be undertaken of the well with recommendations set out within a technical note.
- GW9 has become compliant in the fourth quarter for ammoniacal nitrogen for the first time since 2021. The concentrations have been significantly high throughout the previous two years. This should be monitored closely during 2023 following receipt of next quarter's readings.
- Queries have been communicated with the lab on testing procedures and quality control regarding ammoniacal nitrogen concentrations throughout 2022. No errors have been identified by the current laboratory and it was concluded by the lab that there have been no issues with testing equipment or methodology.
- GMW14/14A concentrations continue to exceed Trigger levels throughout 2022. A technical note was written in 2021 investigating these levels, this will be reviewed and updated in 2023.

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, 2021 Annual Monitoring Report, 31st January 2021.
- [3] Arup, Silent Valley Landfill, 2022 Third Quarter Monitoring Report, 29th October 2022.
- [4] Arup, Silent Valley Landfill, 2019 Annual Monitoring Report, 31st January 2020.
- [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] Golder Associates, Establishment of Trigger Levels at Silent Valley landfill site, letter report dated 21 December 2006.
- [12] Environment Agency, Guidance on the management of landfill gas, document reference LFTGN03, June 2014.
- [13] The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.
- [14] Water Framework Directive - United Kingdom Technical Advisory Group (WFD-UKTAG), “Metal Bioavailability Assessment Tool (M-BAT),” 2014.

Appendix A Monitoring Results - Graphs

Figure A1
Daily rainfall totals and sampling events (October 2015 - December 2022)

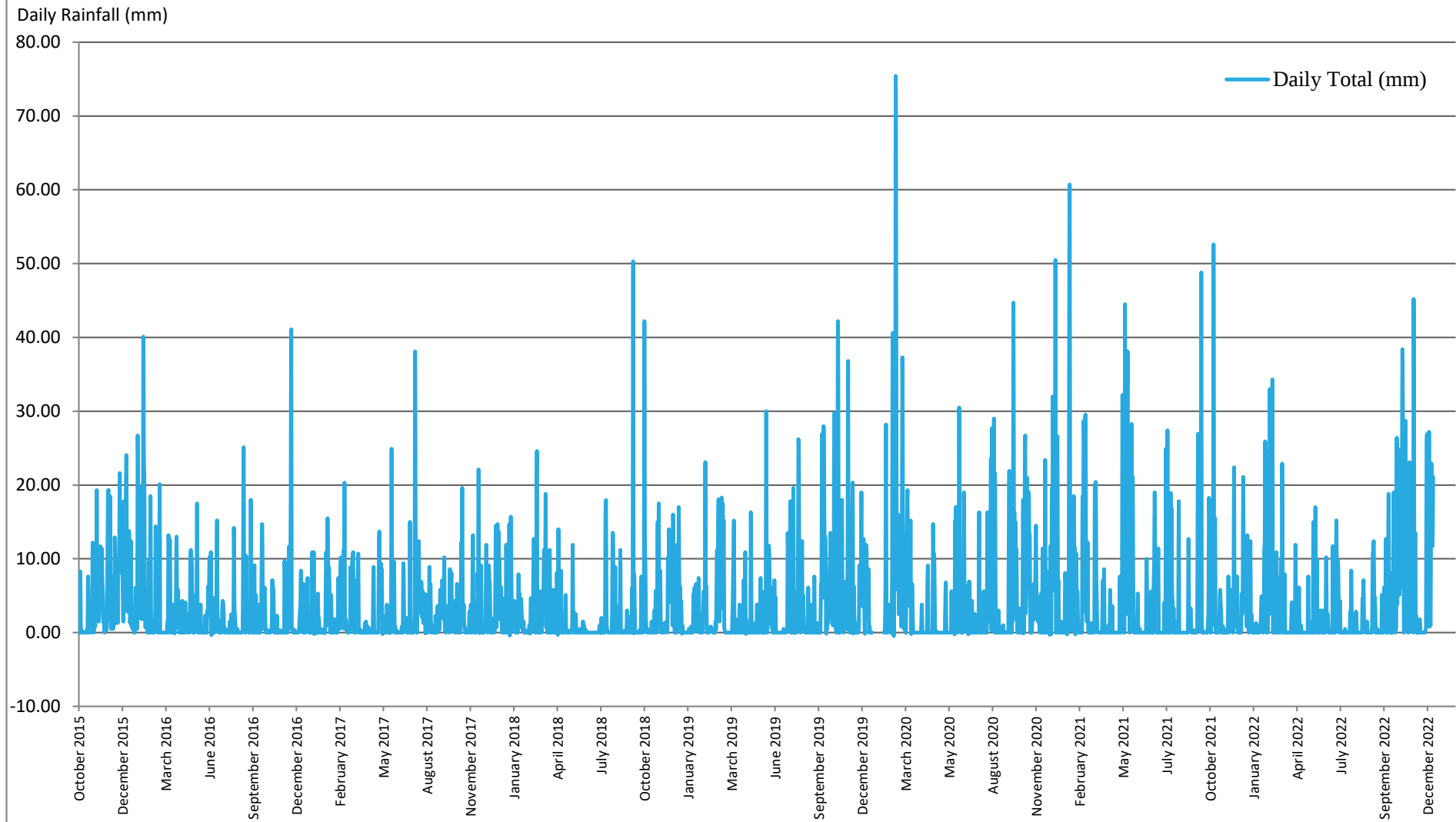


Figure A2
Monthly rainfall totals (October 2015 - December 2022)

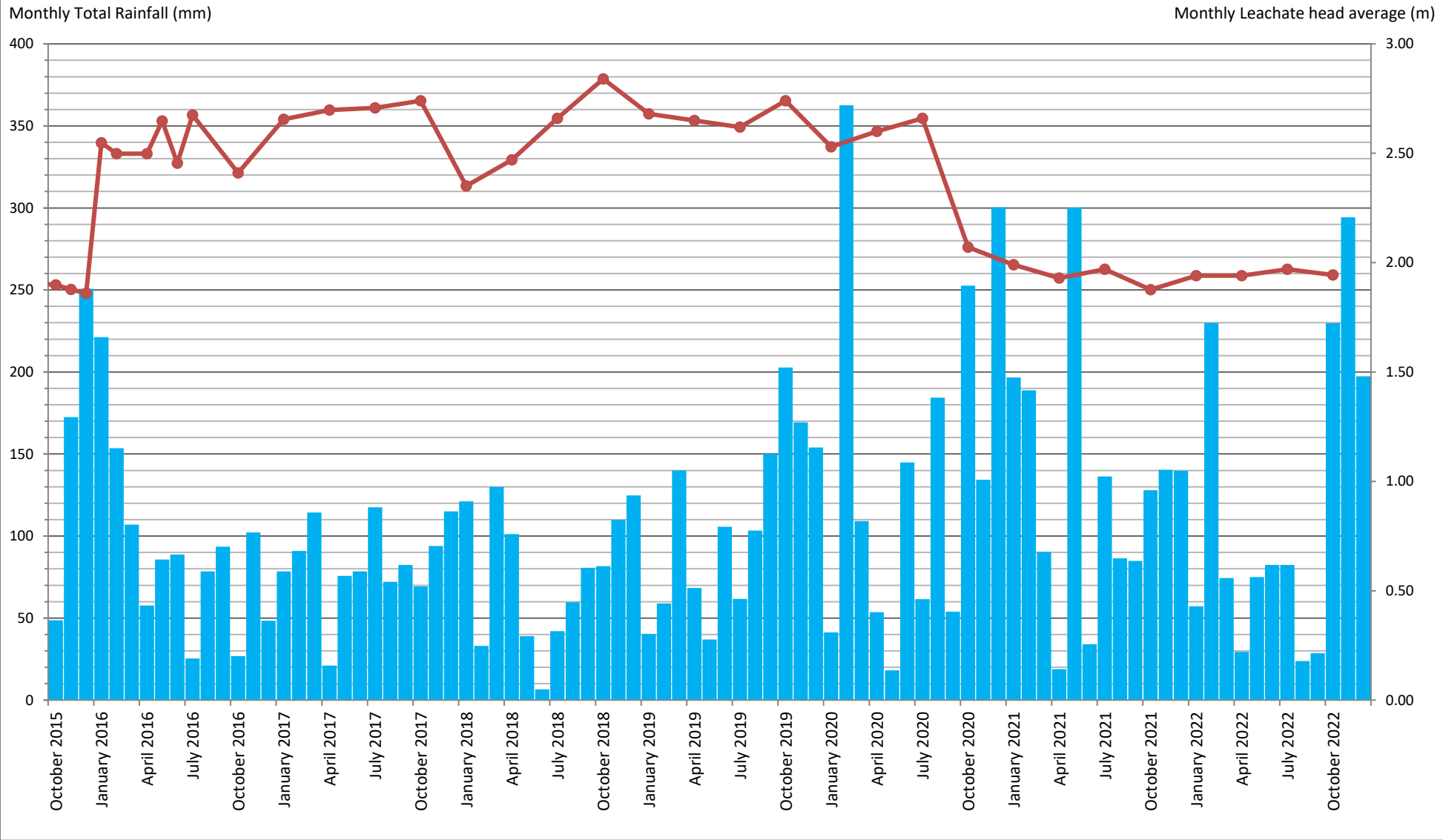


Figure A3
Monthly total rainfall (October 2015- December 2022)

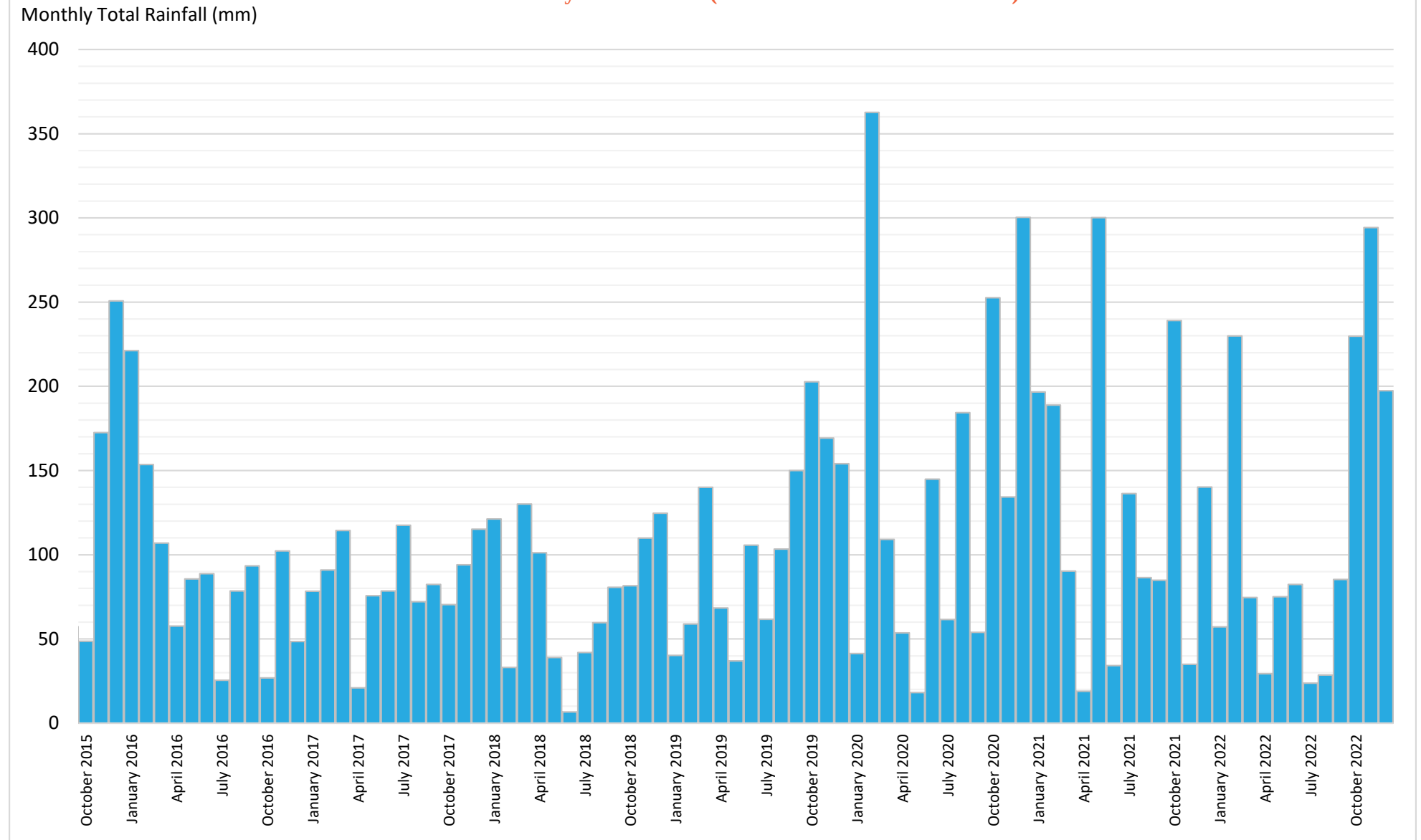


Figure A4
Surface water monitoring graphs

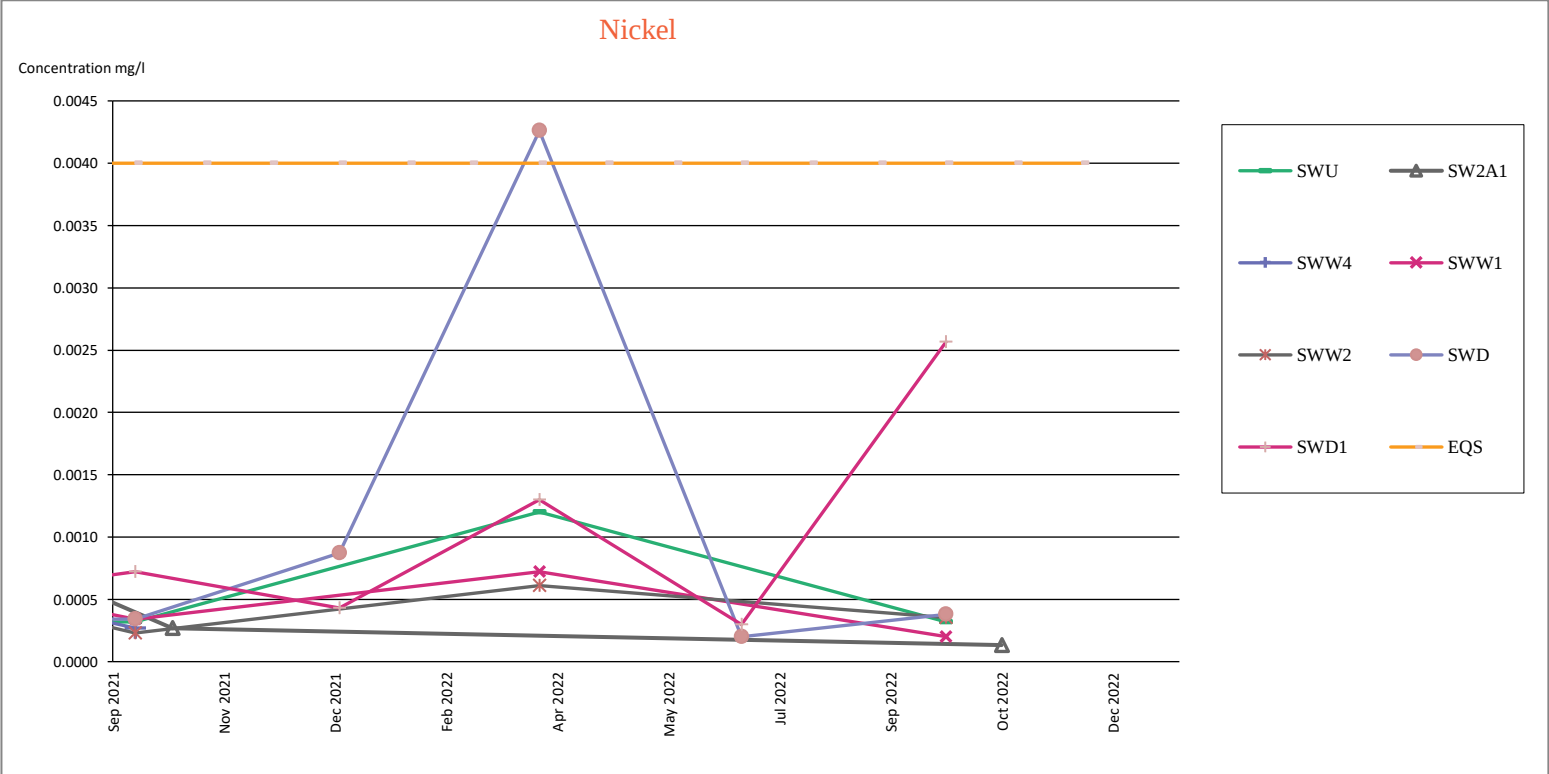
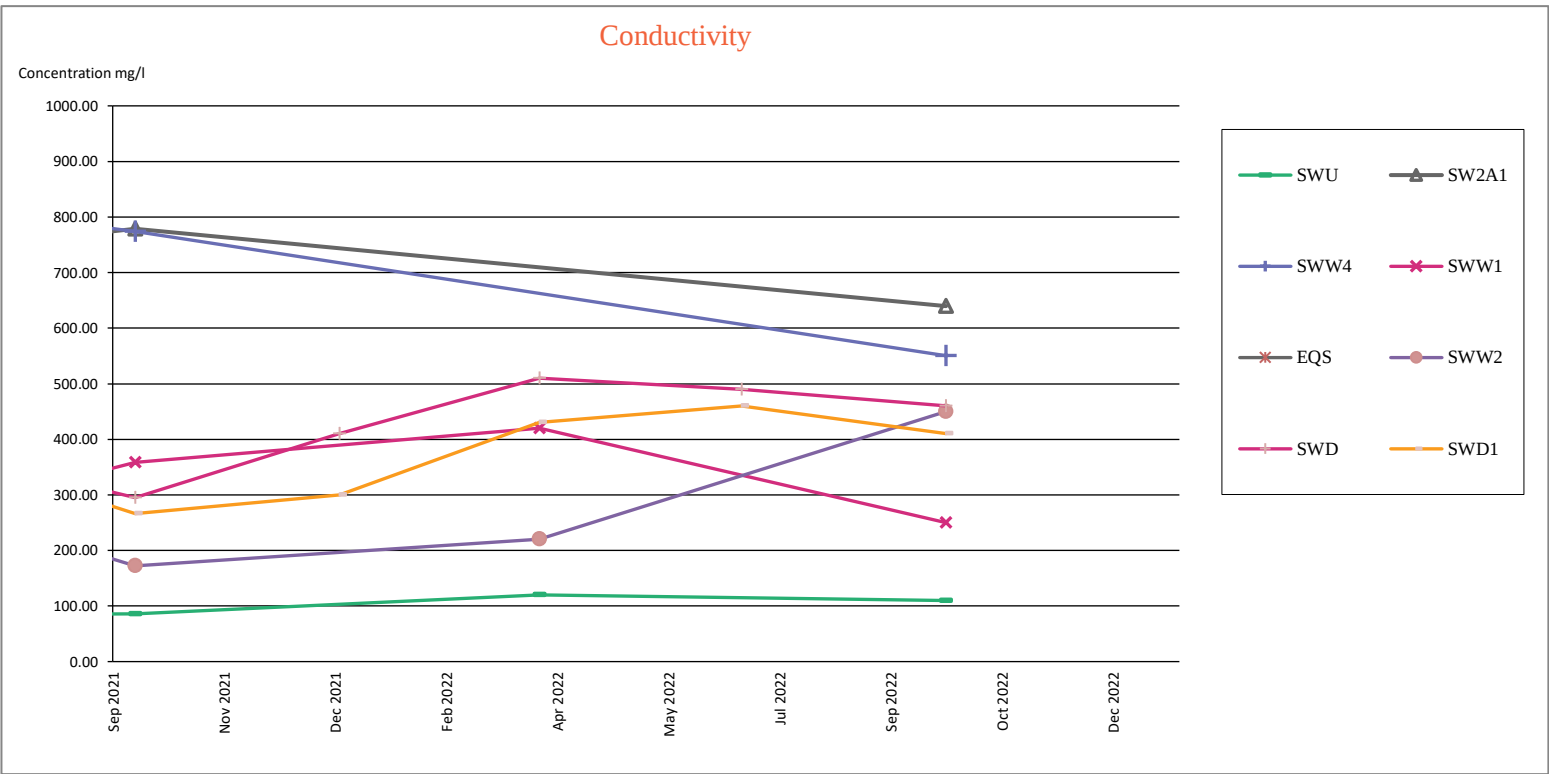
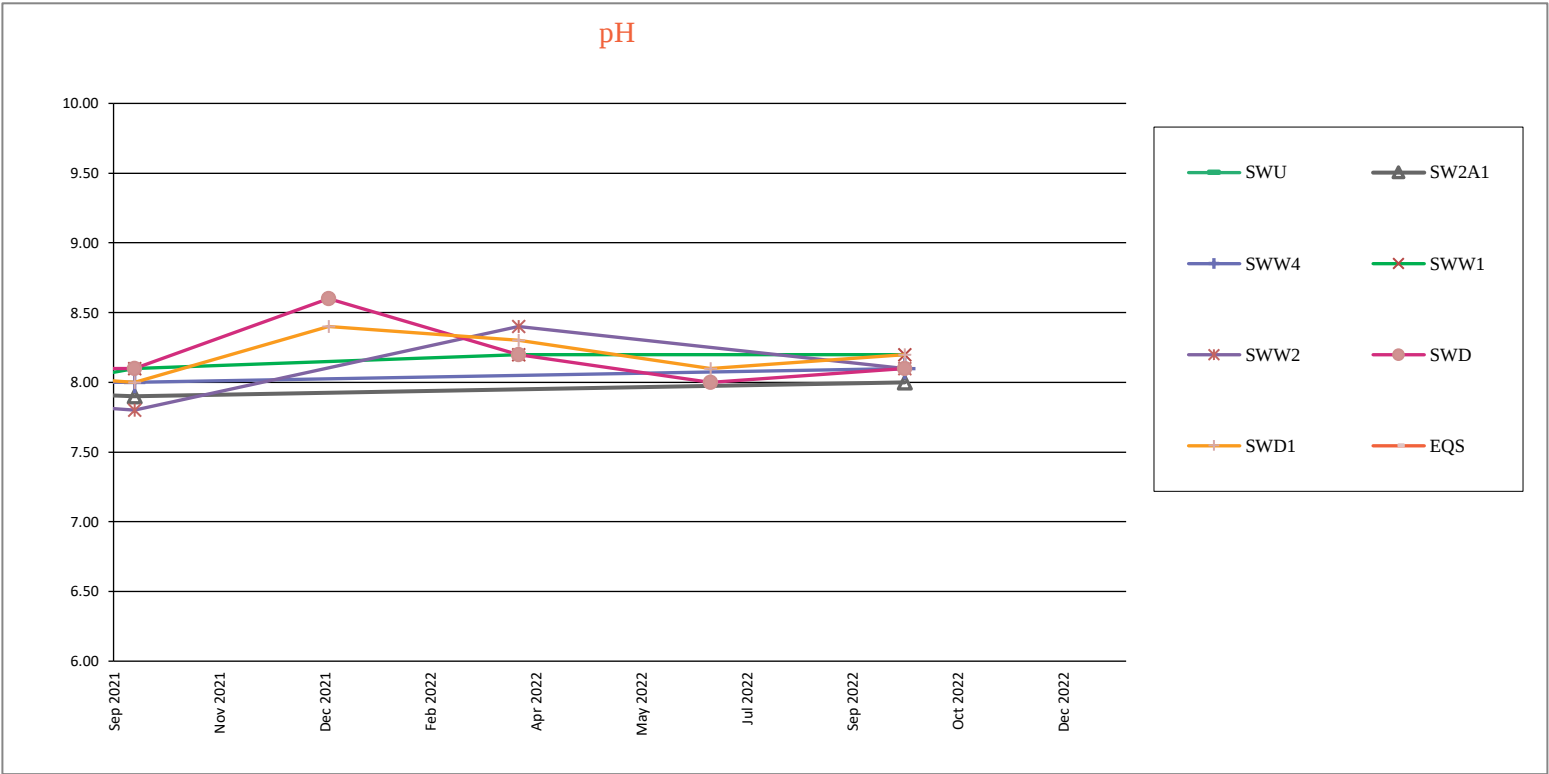


Figure A4
Surface water monitoring graphs

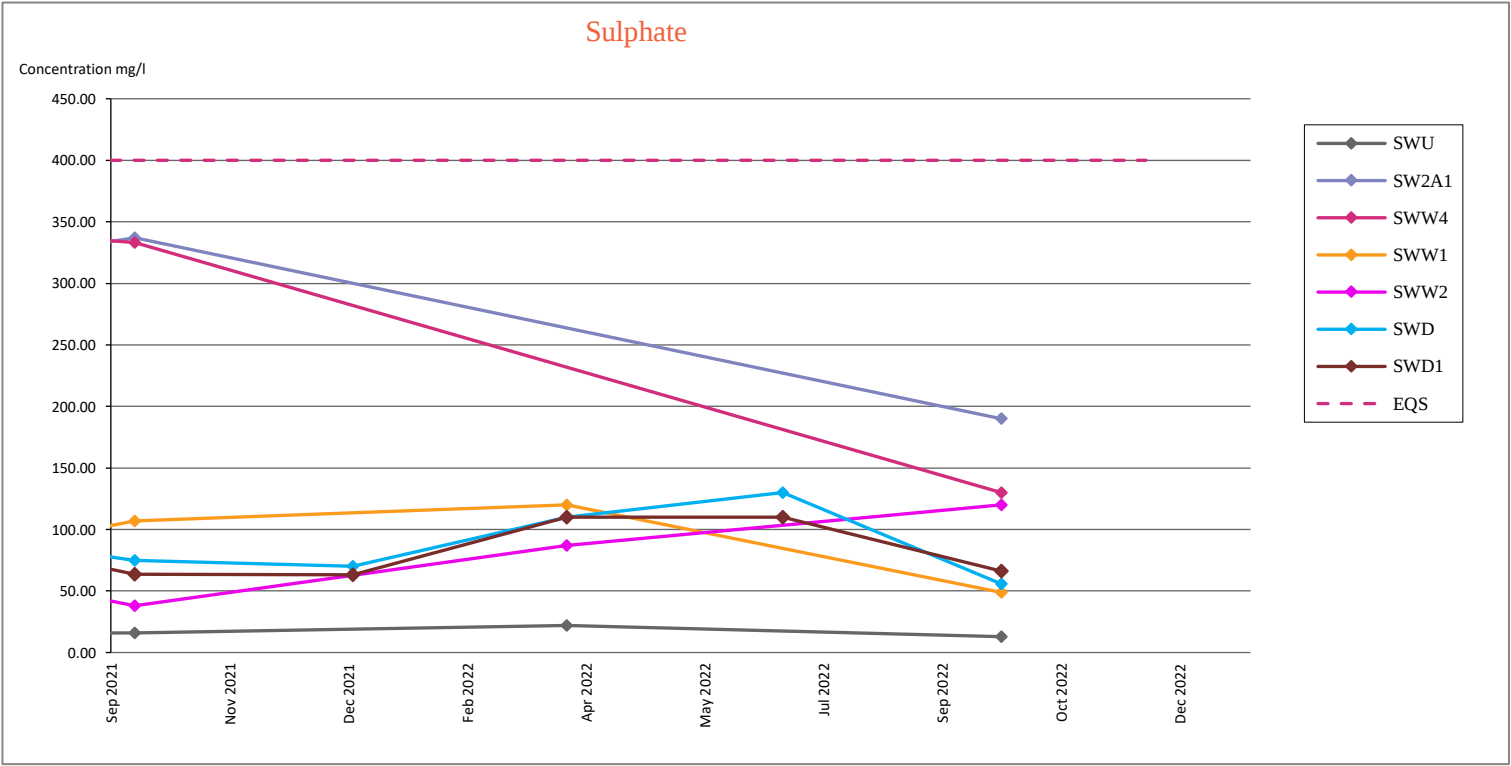
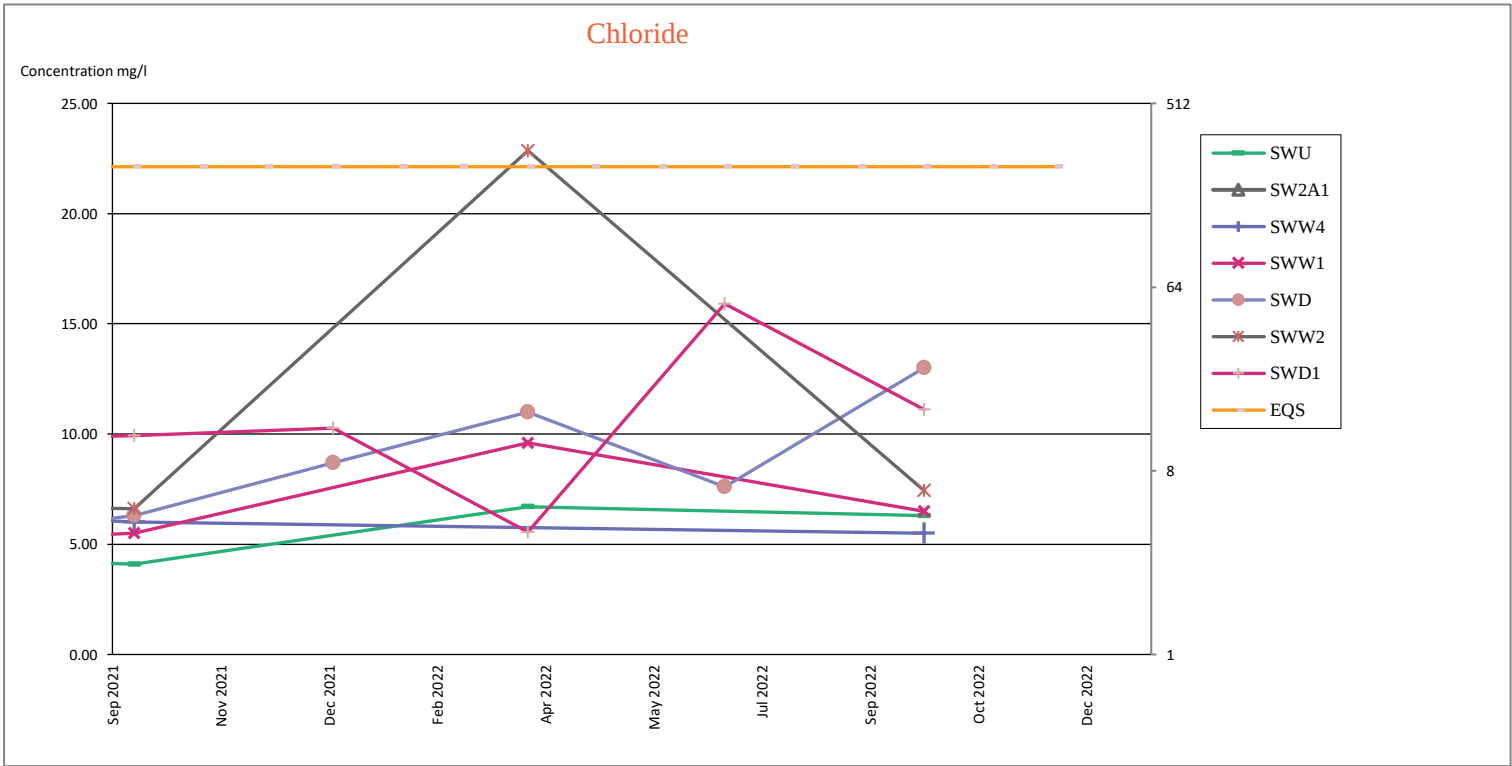
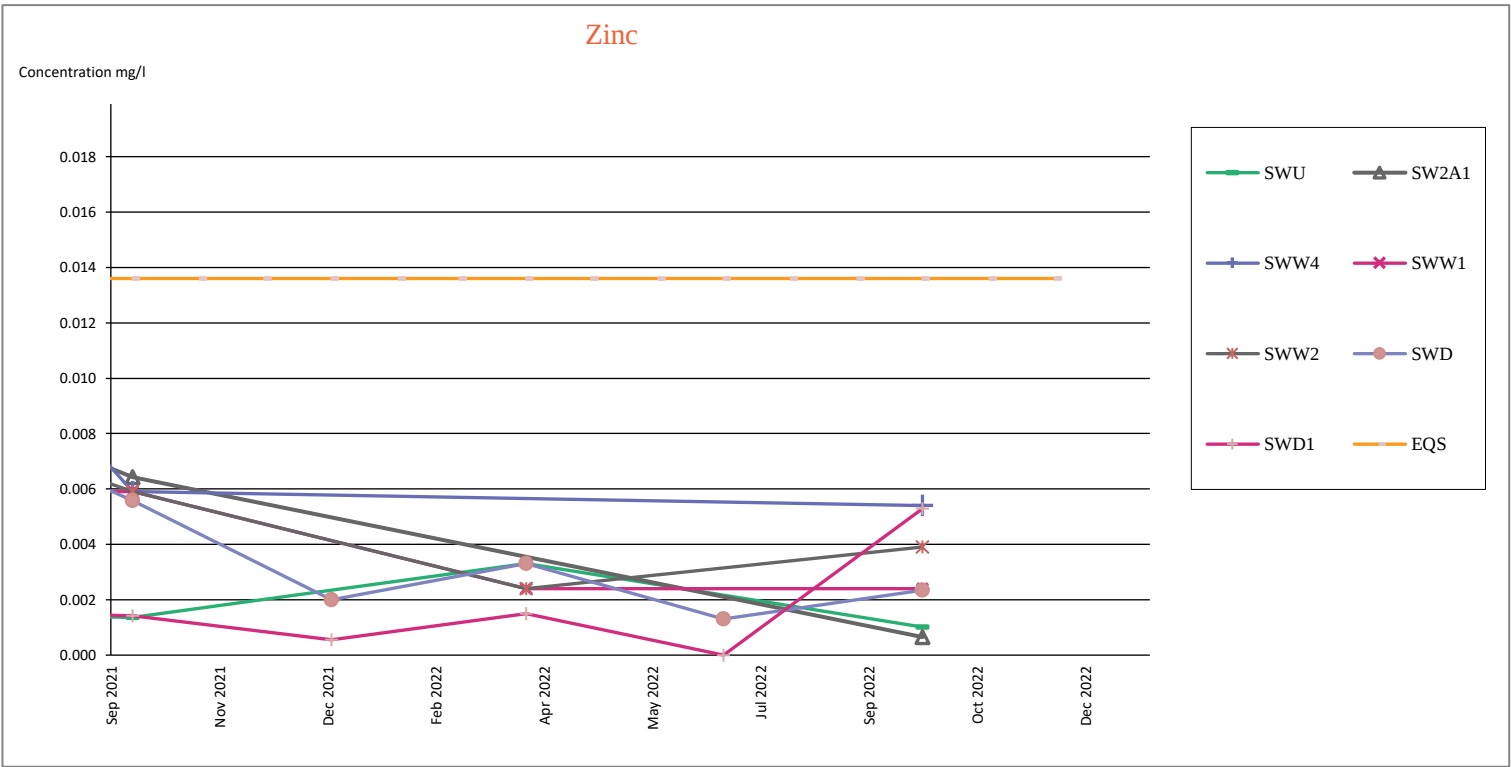
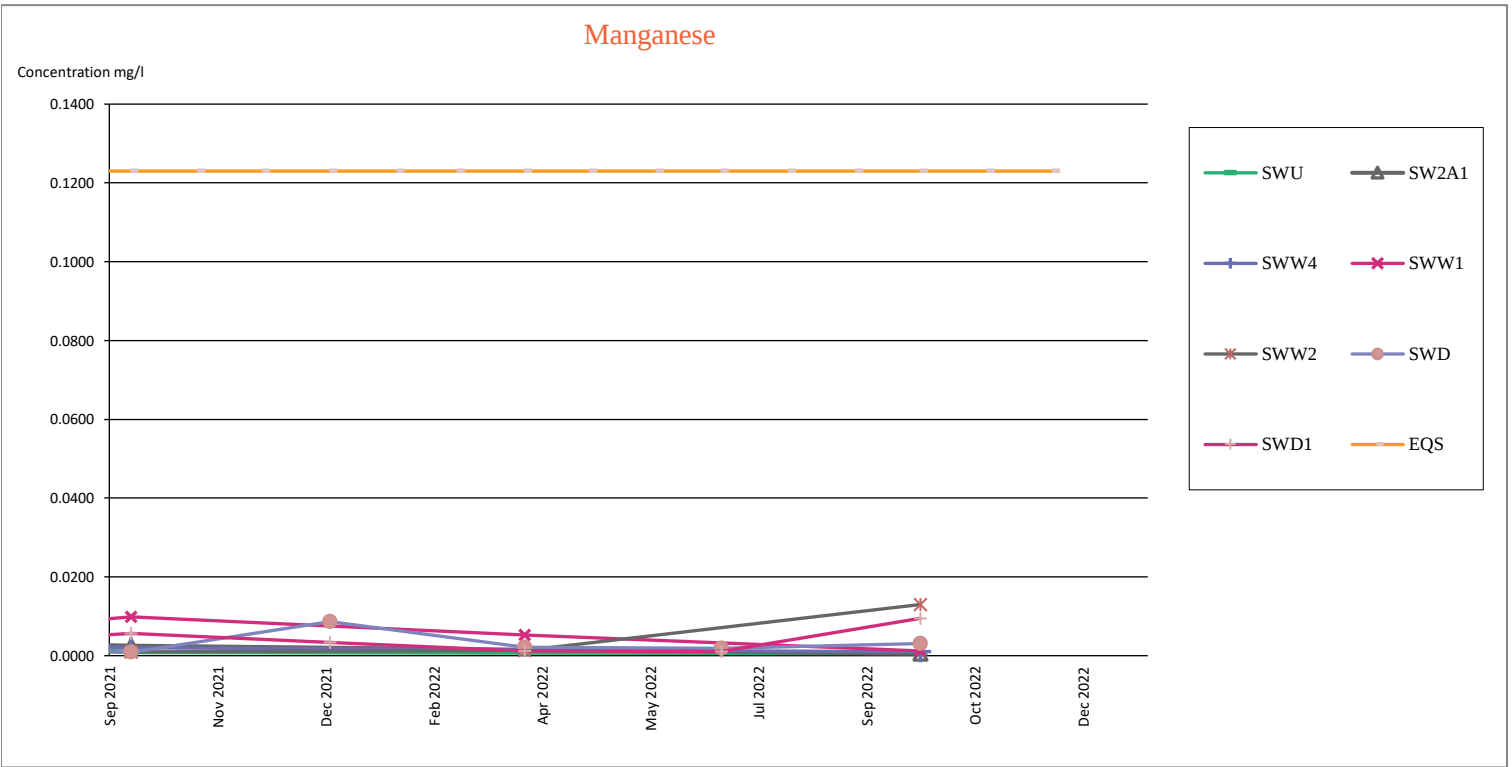


Figure A4
Surface water monitoring graphs

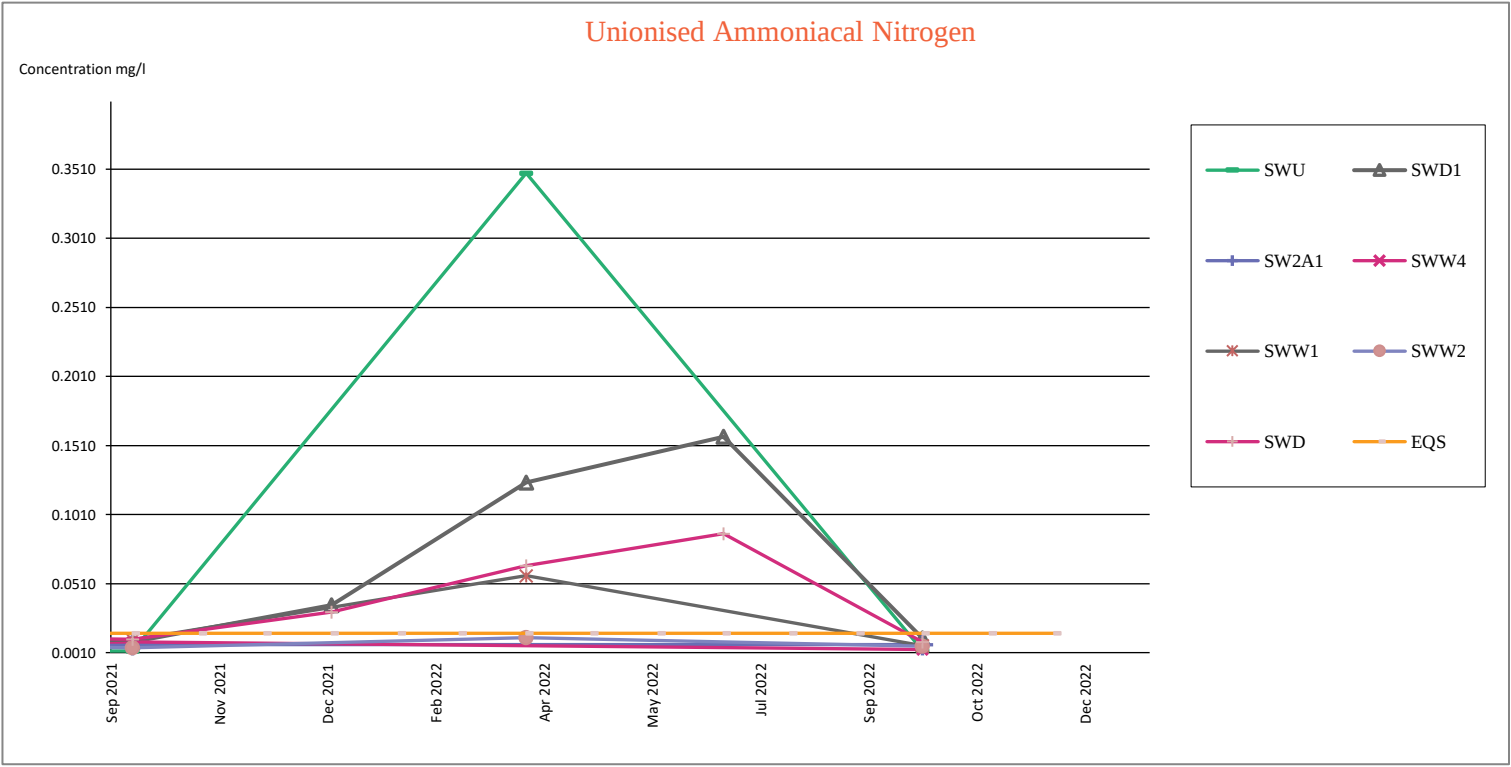
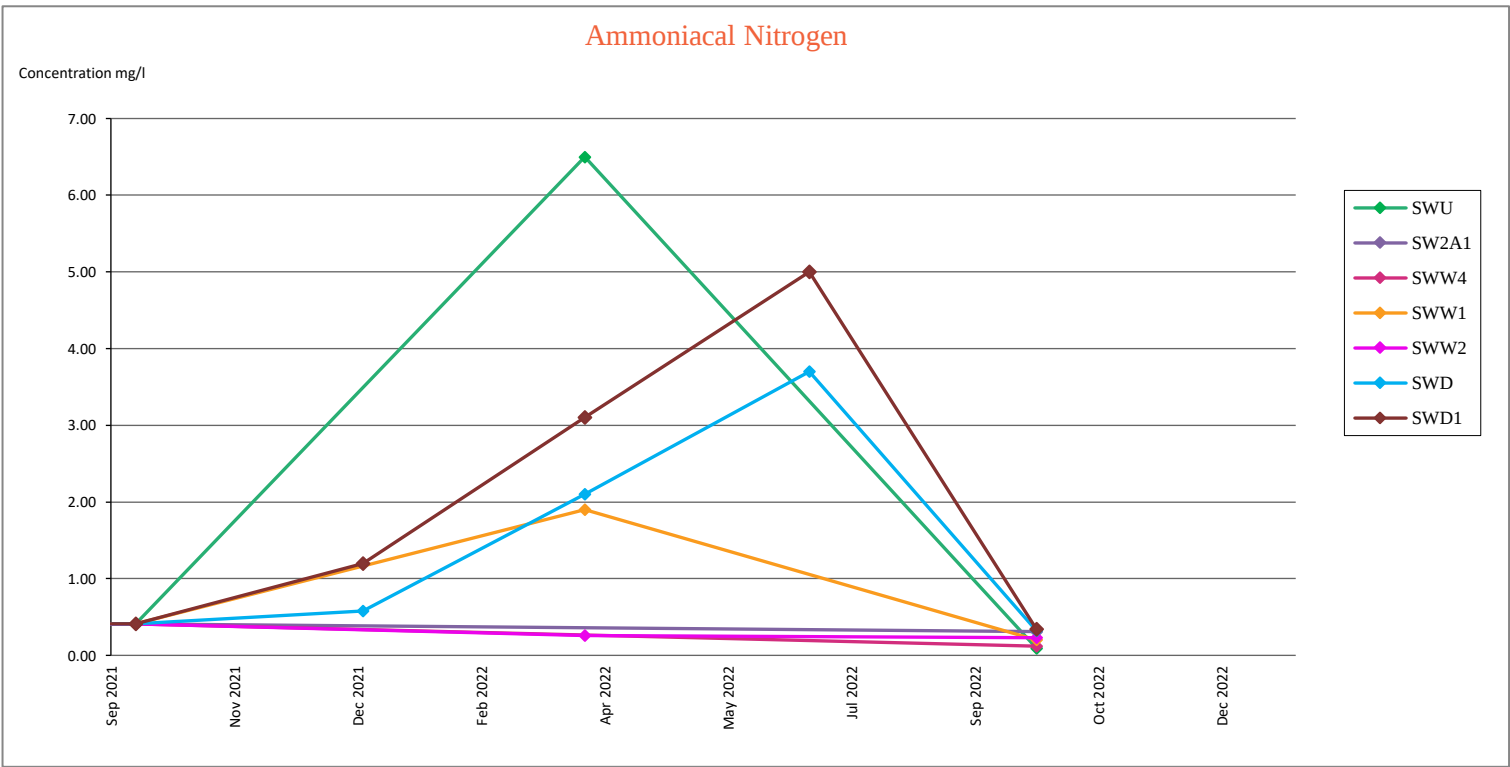


Figure A5
Groundwater quality monitoring results - Compliance wells graphs

Compliance wells graphs

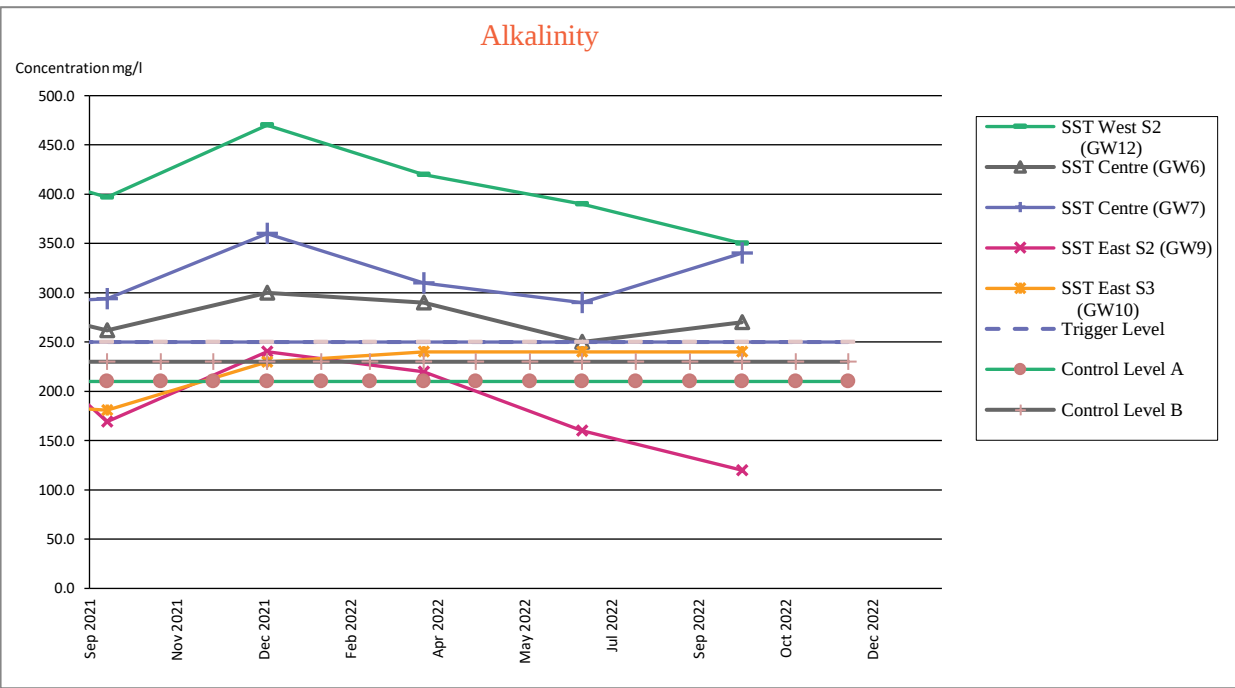
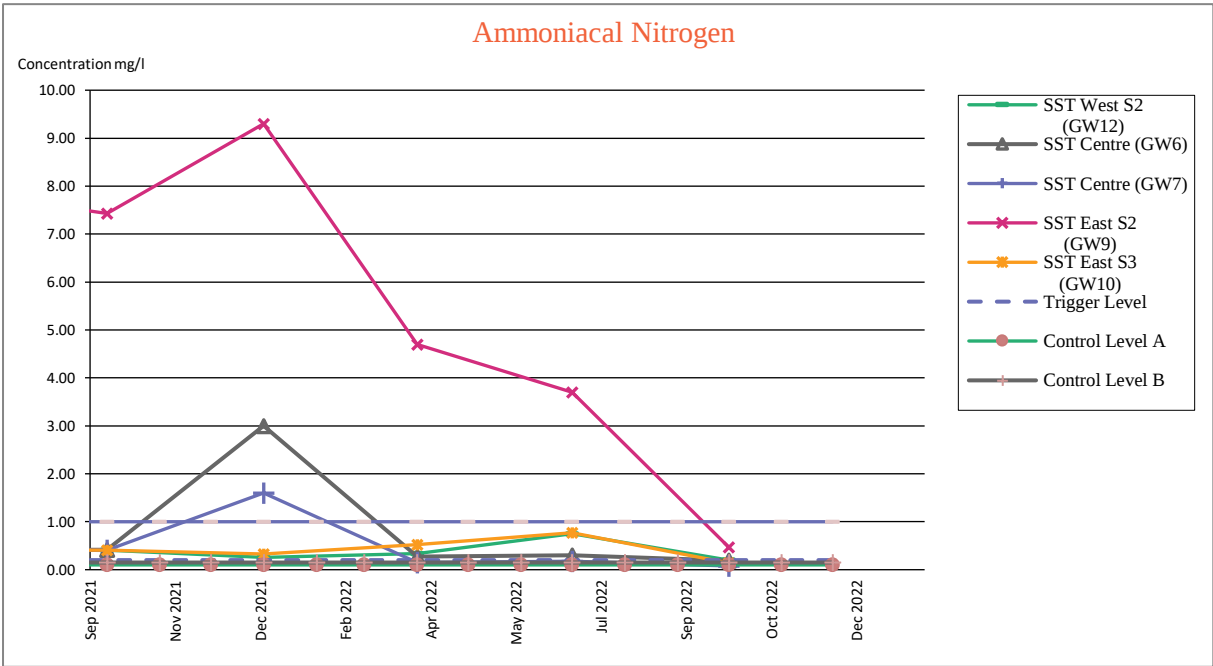
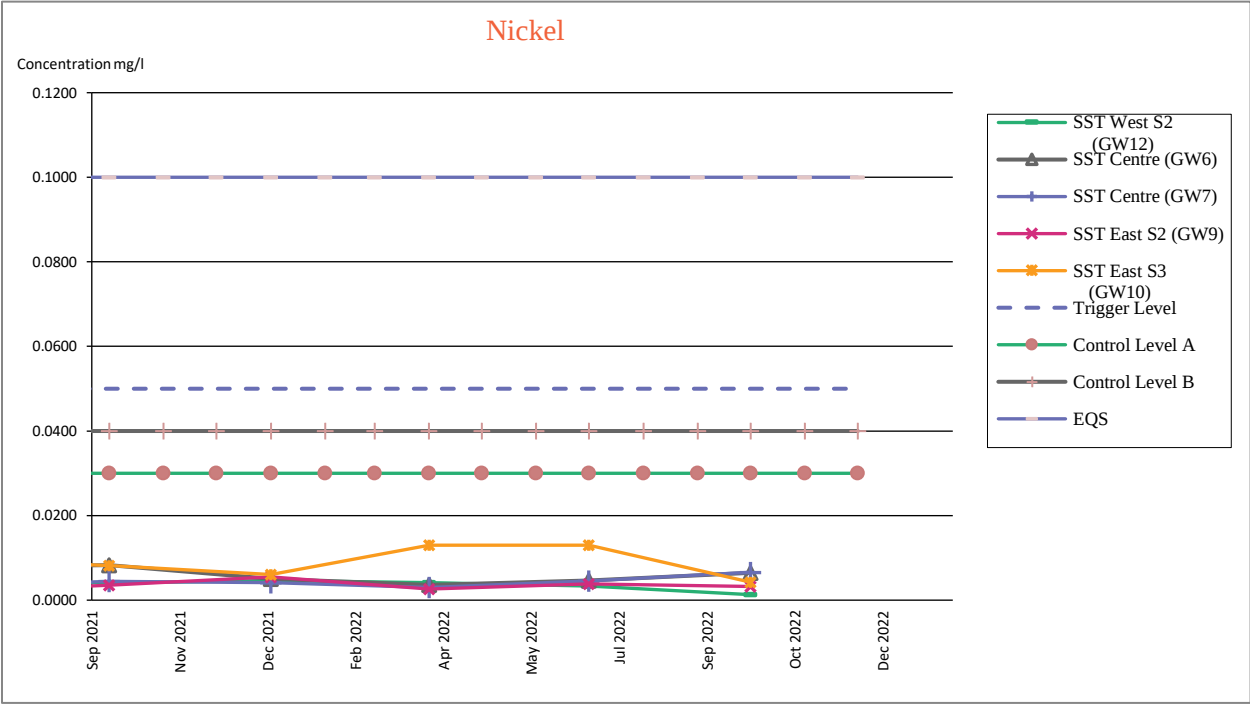
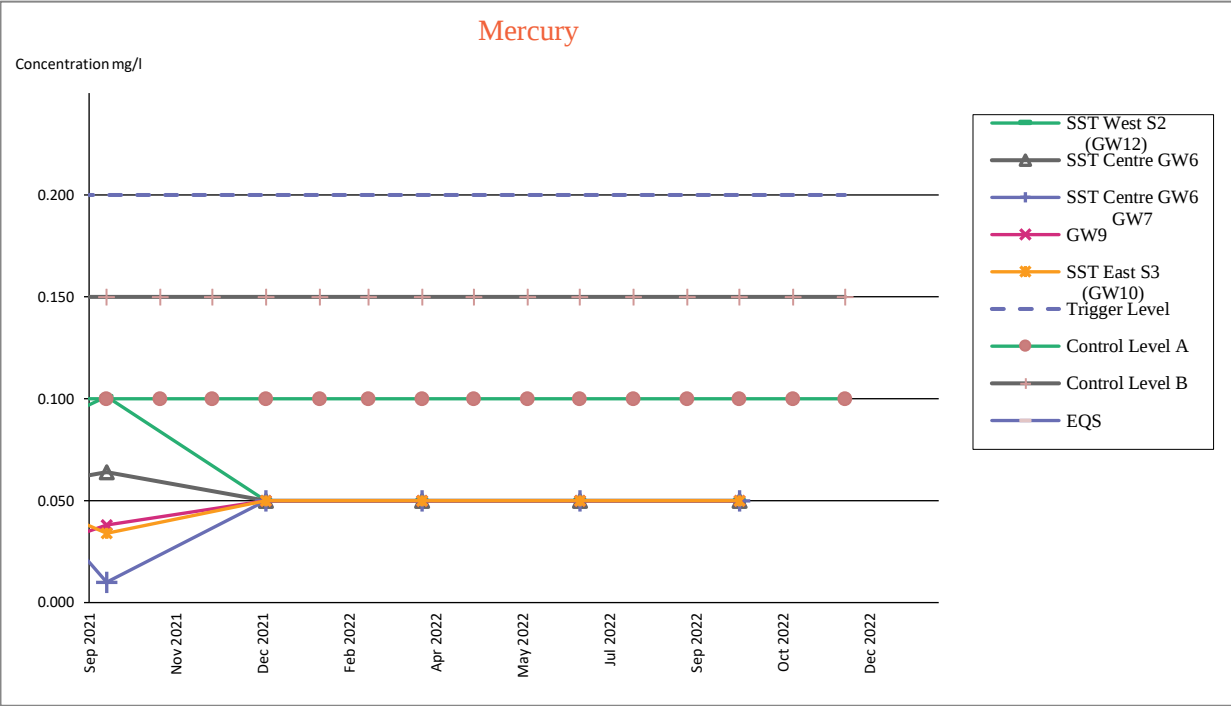


Figure A5
Groundwater quality monitoring results - Compliance wells graphs

Compliance wells graphs

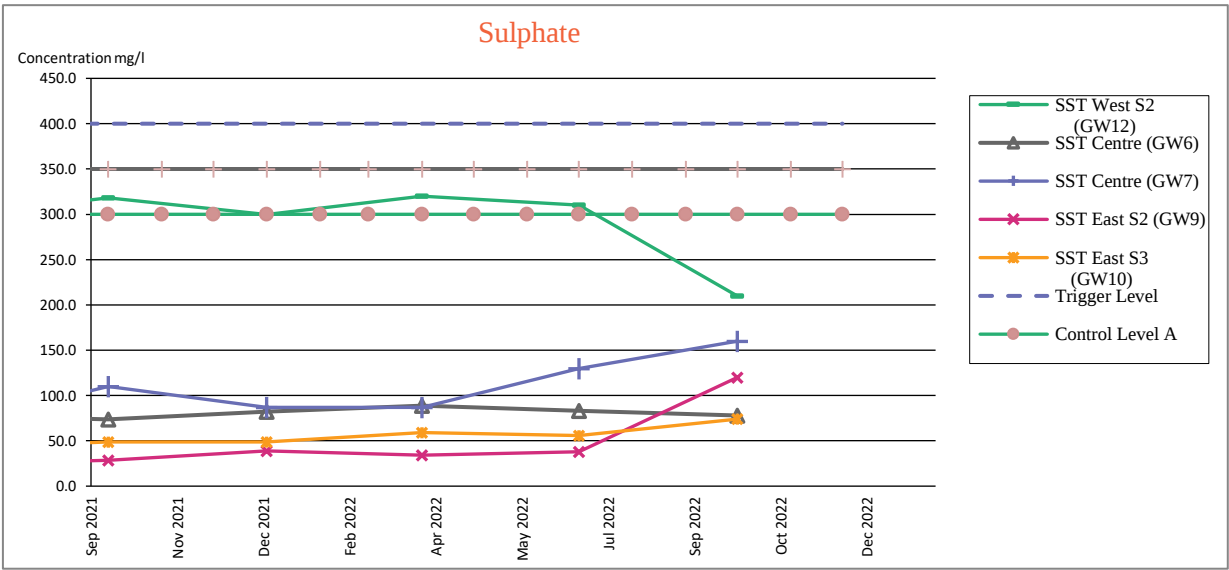
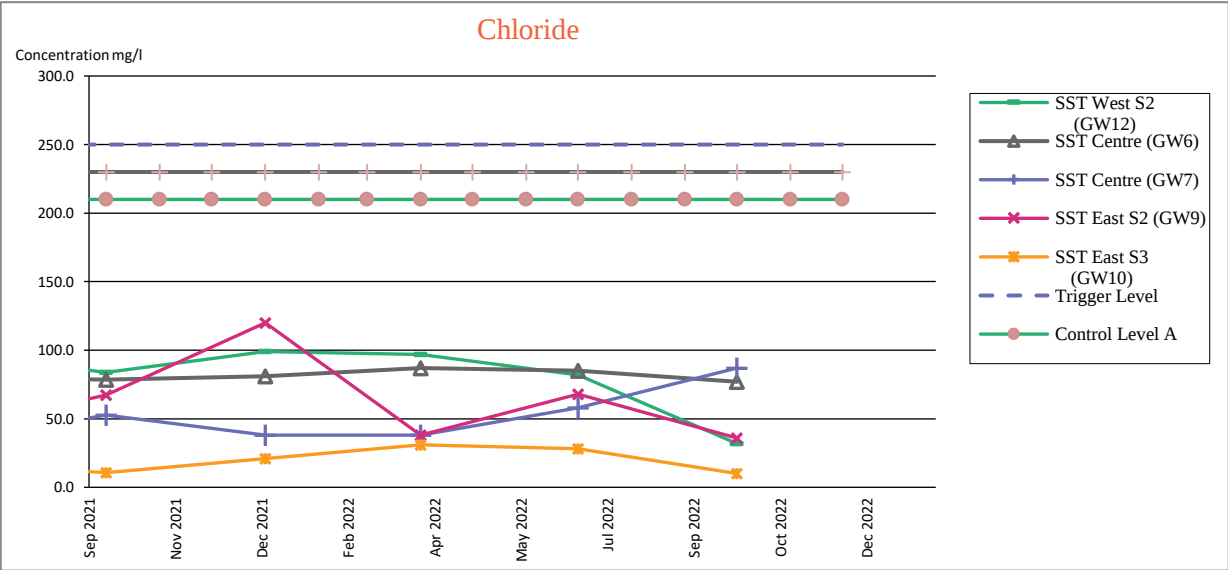
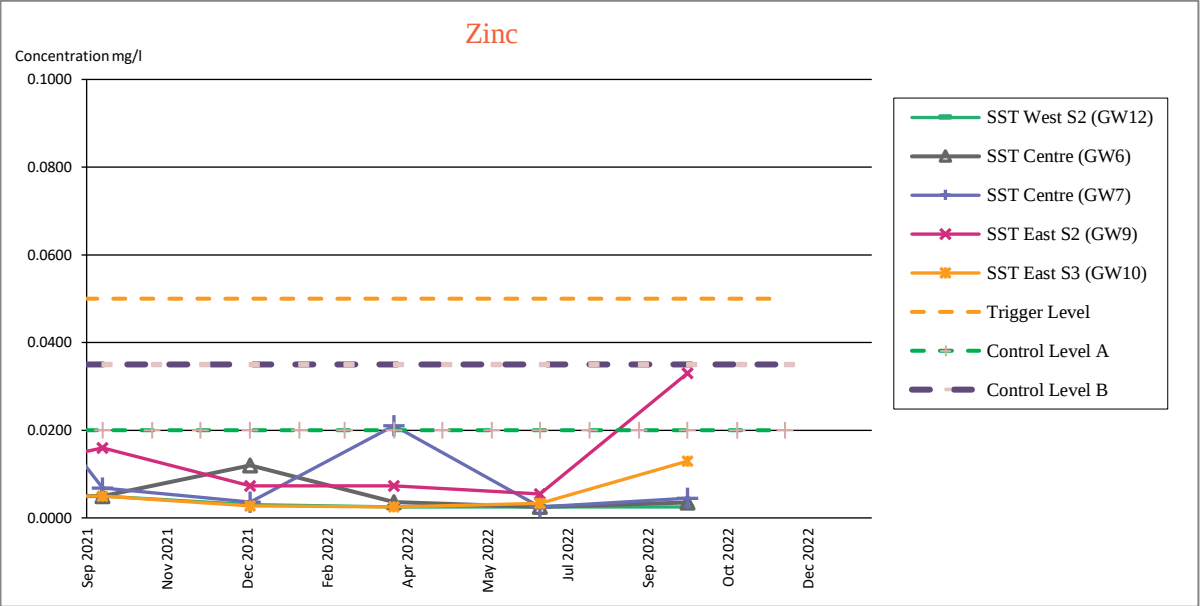
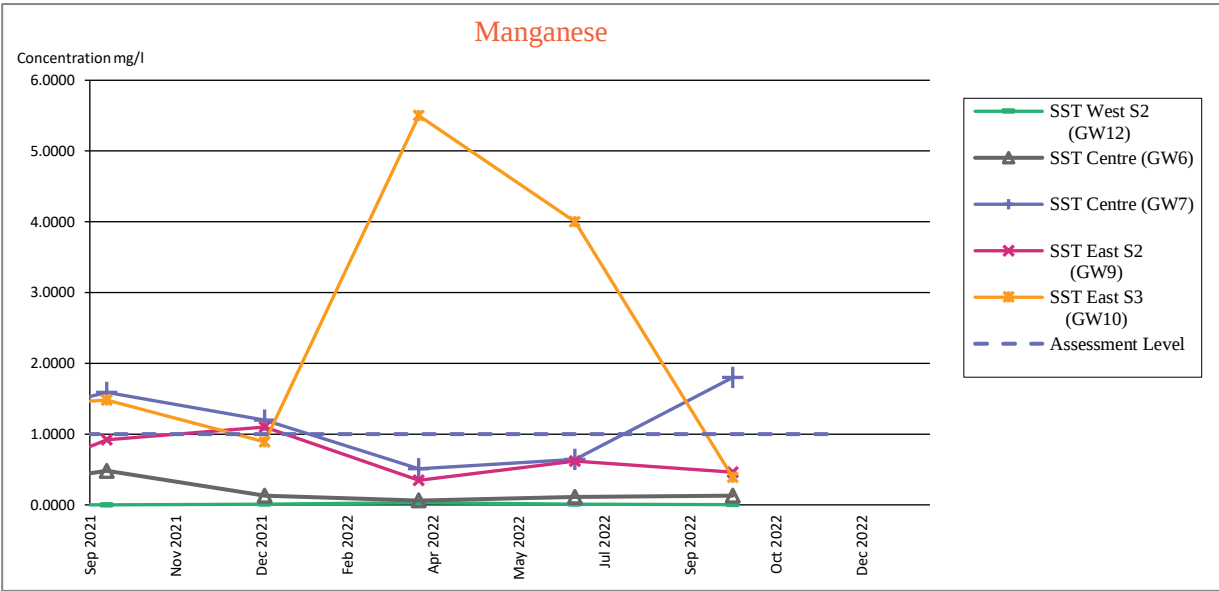


Figure A5
Groundwater quality monitoring results - Compliance wells graphs

Compliance wells graphs



Figure A6
Groundwater quality monitoring results - Upstream wells graphs

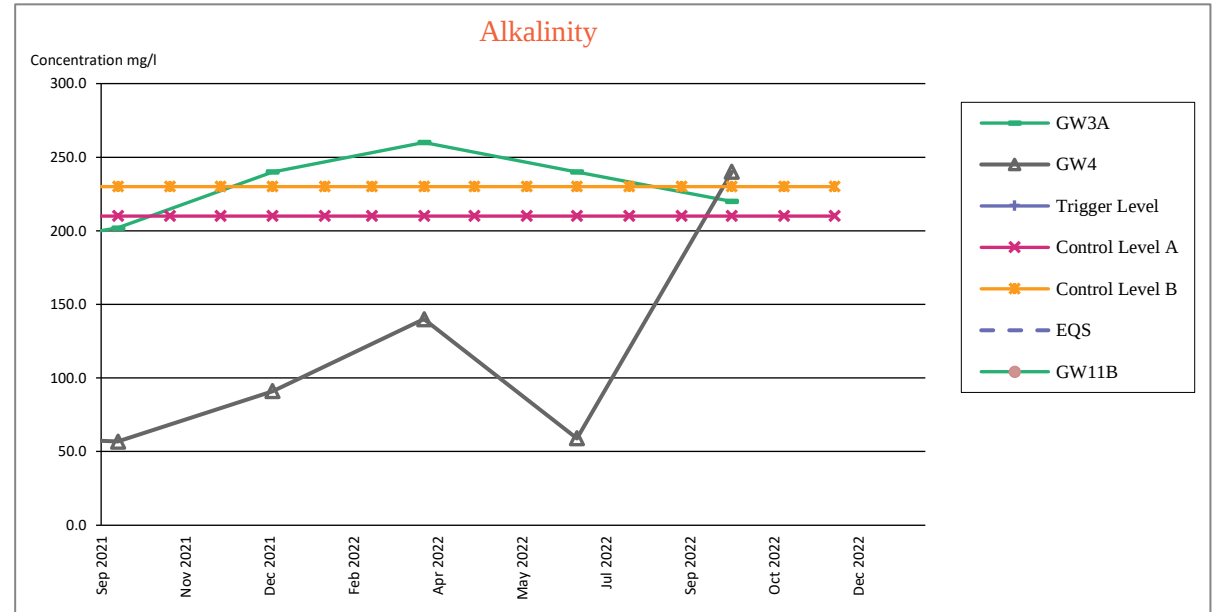
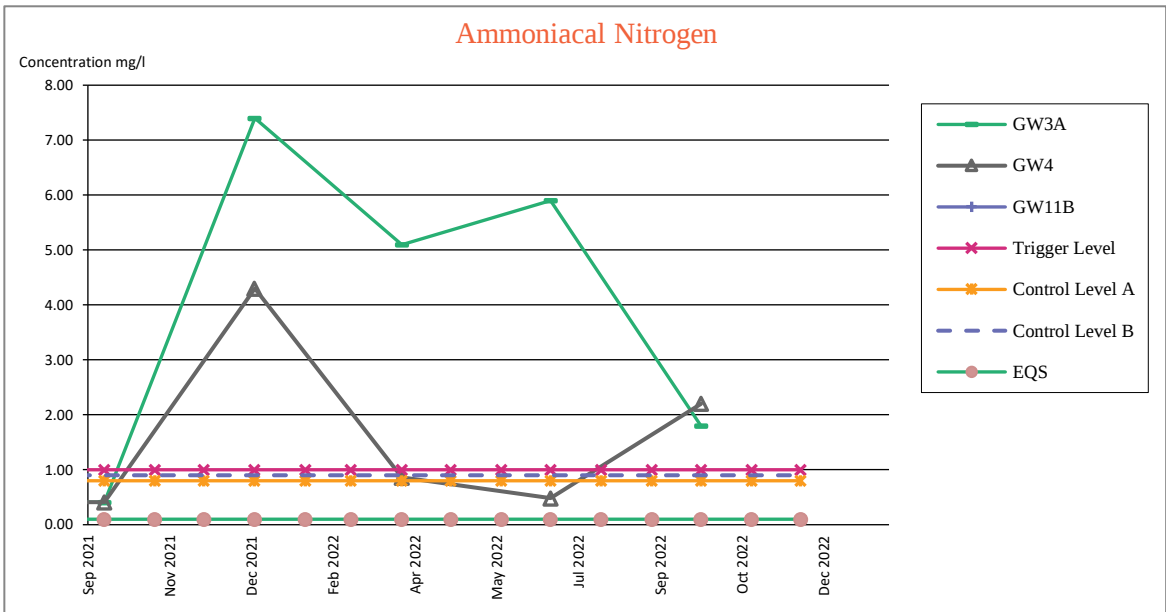
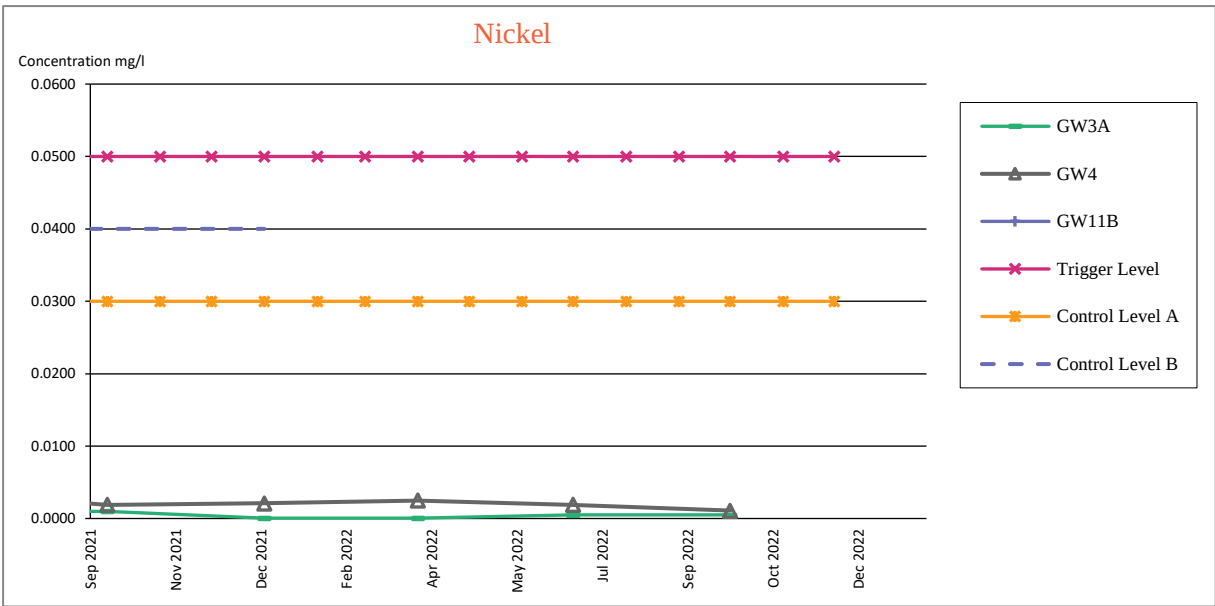
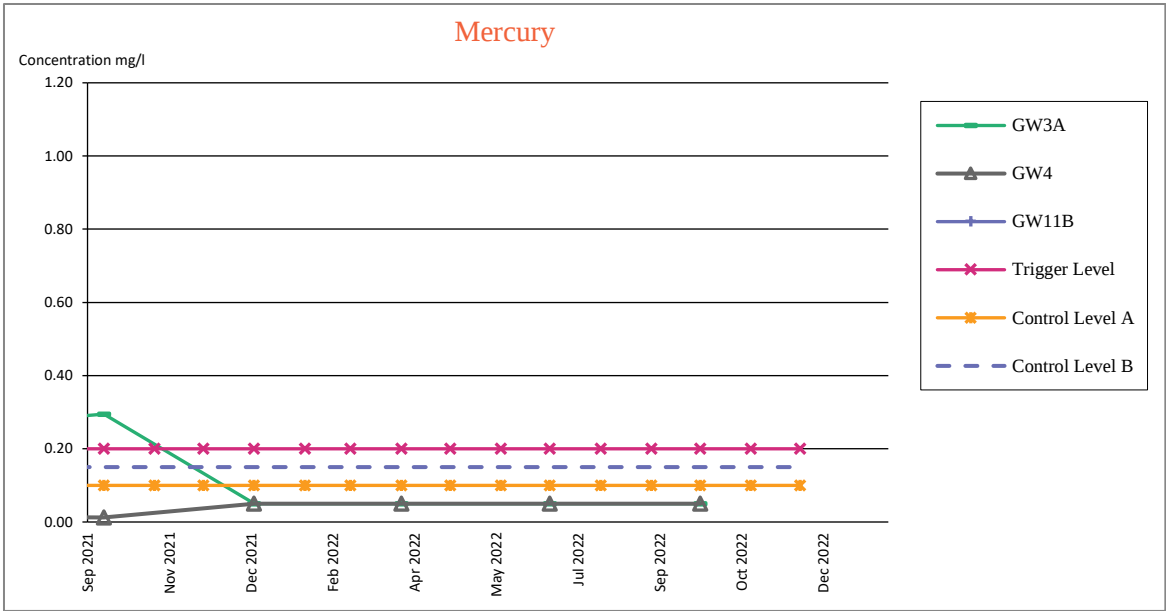


Figure A6
Groundwater quality monitoring results - Upstream wells graphs

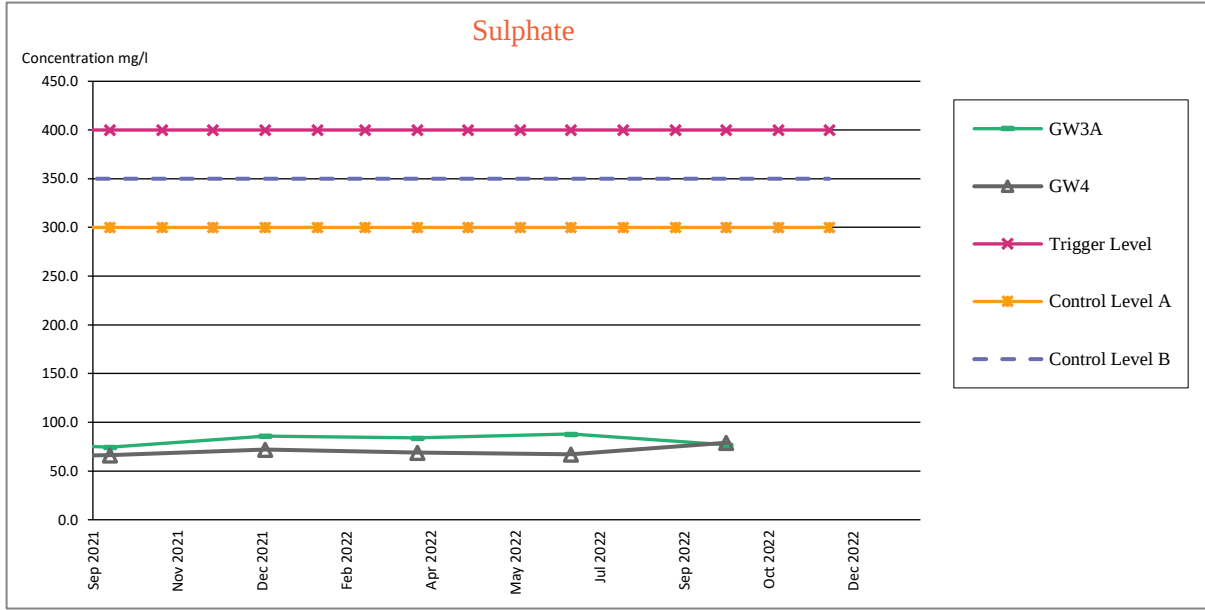
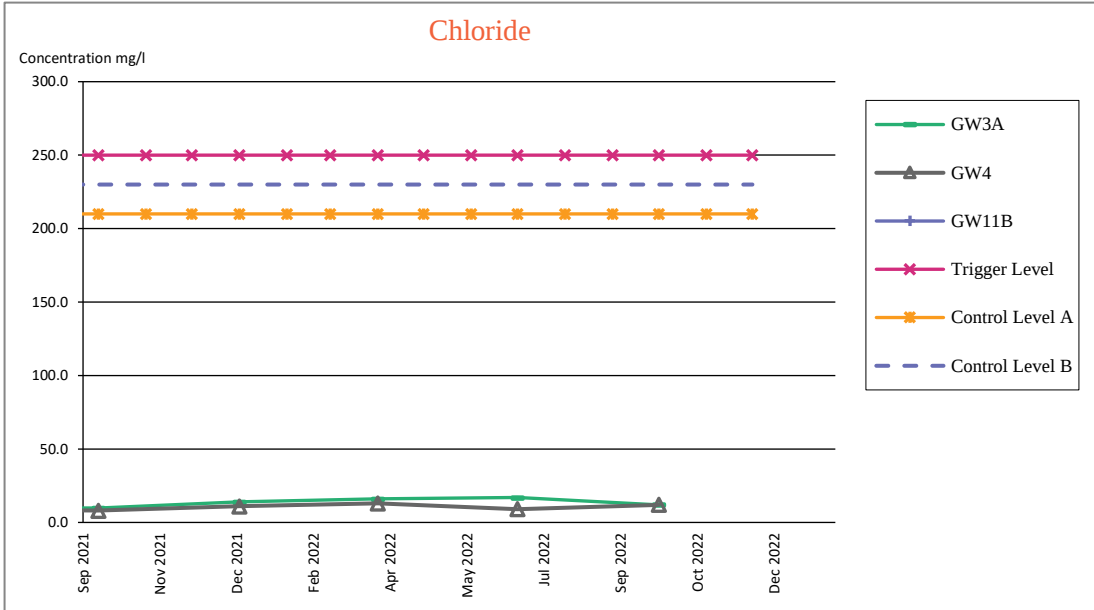
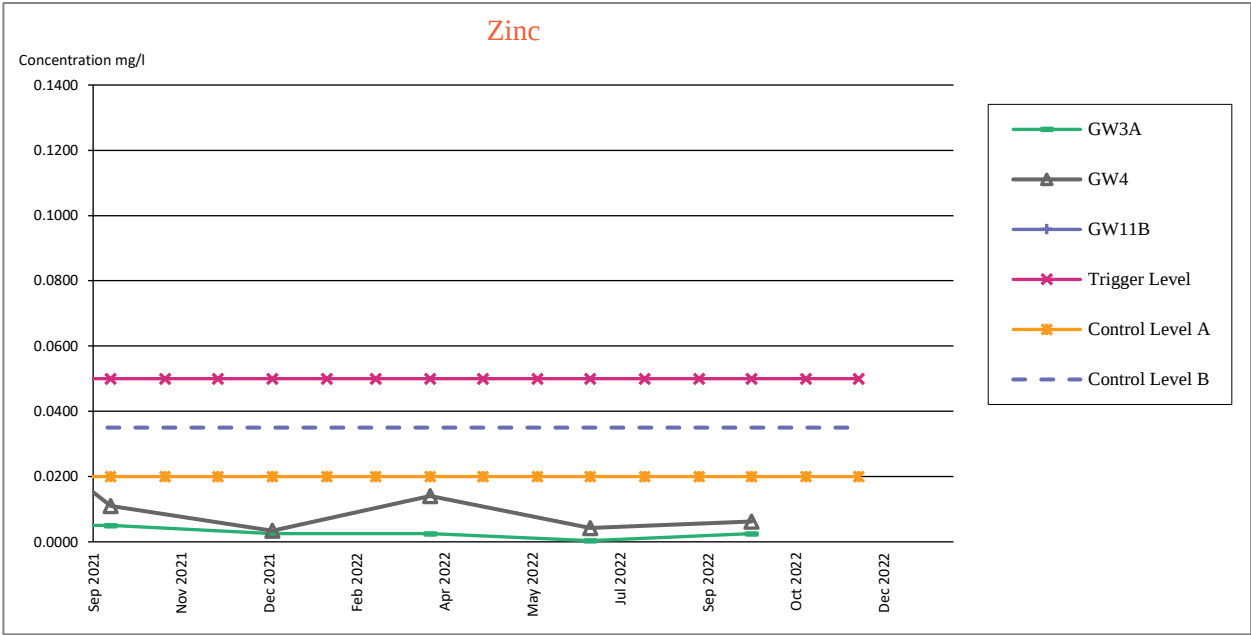
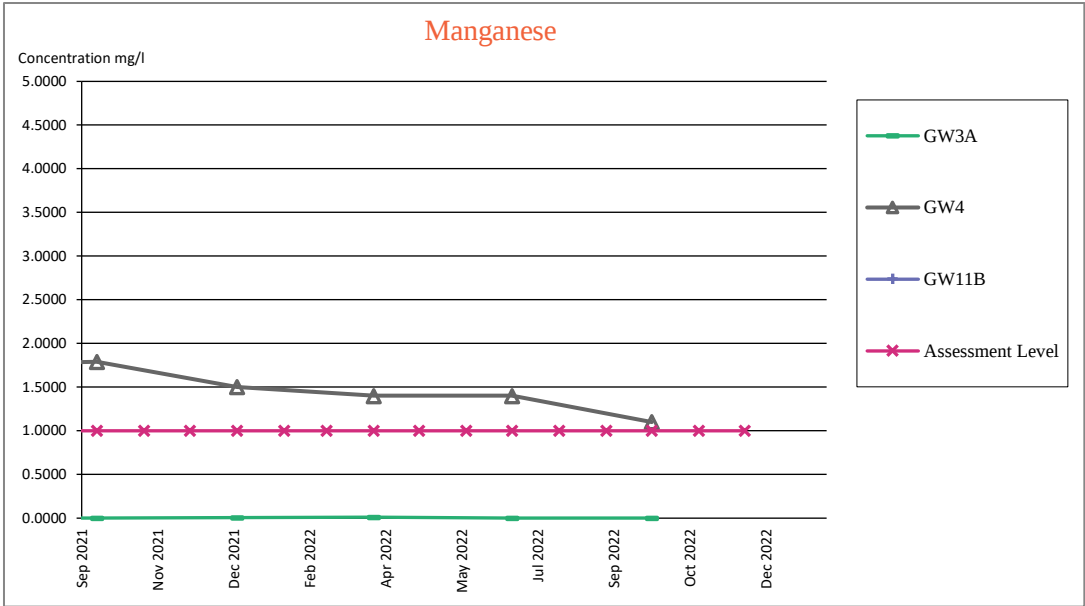


Figure A6
Groundwater quality monitoring results - Upstream wells graphs

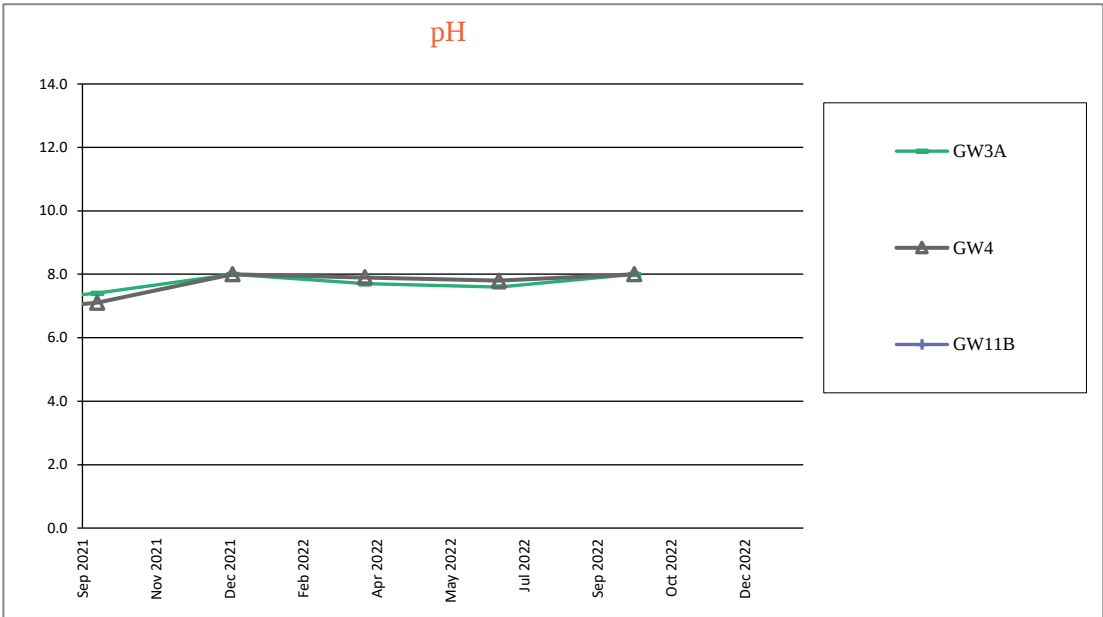
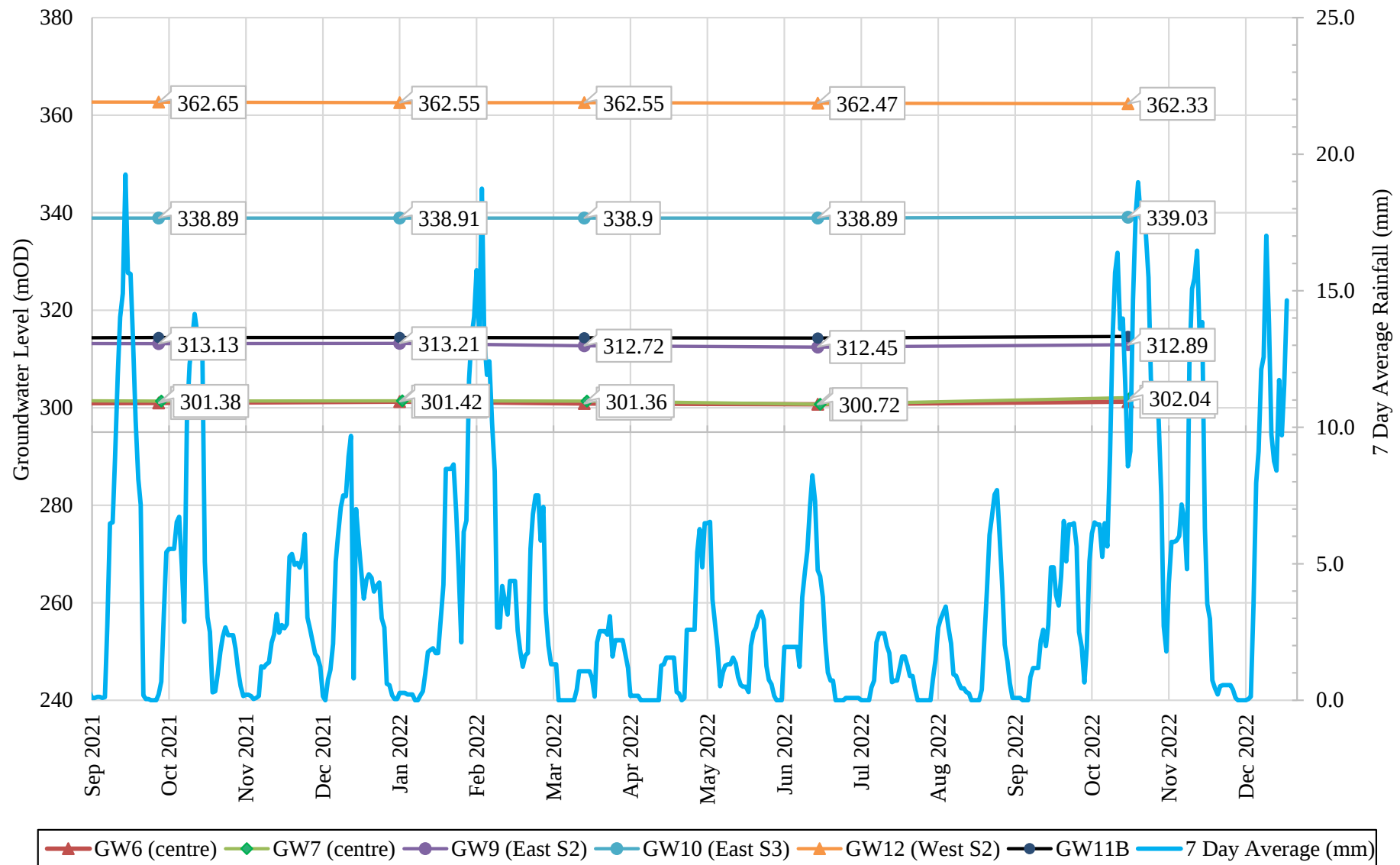


Figure A7
Groundwater monitoring levels downstream of compliance wells



Appendix B Monitoring Results - Tables

Table B1 October 2022

LOCATION	Units	L1A	L1B	LC1A	LC2A	LC4A	LC5A	Maximum concentration (mg/l)	Monthly Average (mg/l)	Acceptabl e Maximum Concentra tion (AMC)	LP3A	LP4
Date Sampled	-	-	27/10/22	-	27/10/22	27/10/22	-	-	-	-	27/10/22	27/10/22
Manganese in filtrate as Mn	mg/l	N/S	0.47	N/S	0.11	0.22	N/S	0.47	0.27	--	0.00092	0.017
Mercury, filt trace as Hg	mg/l	N/S	< 0.0001	N/S	0.00026	< 0.00005	N/S	< 0.00026	0.0001	0.00056	< 0.00005	< 0.00005
Nickel in filtrate as Ni	mg/l	N/S	0.017	N/S	0.12	0.014	N/S	0.120	0.05	0.0681	0.0044	0.0021
Zinc, ultra-low filtered as Zn	mg/l	N/S	0.023	N/S	0.068	0.011	N/S	0.068	0.03	1.38	0.014	0.0051
pH	pH Units	N/S	8.2	N/S	8.5	8	N/S	8.5	8.23	--	8.3	8.3
Conductivity- Electrical 20C	uS/cm	N/S	2900	N/S	11000	4600	N/S	11000	6167	--	1300	1000
Alkalinity as CaCO3	mg/l	N/S	550	N/S	4900	2100	N/S	4900	2517	--	360	400
Ammoniacal Nitrogen as N	mg/l	N/S	0.26	N/S	0.46	210	N/S	210	70	526	1	7.5
Chloride as Cl	mg/l	N/S	290	N/S	900	210	N/S	900	467	1408	88	30
Sulphate as SO4	mg/l	N/S	470	N/S	740	58	N/S	740	423	999	160	140
Redox Potential ^(see note 4)	mV	N/S	68	N/S	24	-51	N/S	68	14	--	59	61
Total Suspended Solids	mg/l	N/S	27	N/S	830	2300	N/S	2300	1052	--	21	7
Solids, Total Dissolved 180 deg C	mg/l	N/S	1900	N/S	7000	3000	N/S	7000	3967	--	870	660
Dissolved Oxygen, Fixed	mg/l	N/S	8.5	N/S	4.7	5.2	N/S	8.5	6	--	8.4	8.4
TOC (filtered)	mg/l	N/S	30	N/S	290	68	N/S	290	129.3	--	13	11

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)

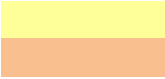


Table B2
Leachate Head Levels

		Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
LC1A	Elevation of base of landfill mAOD	357.62			357.62			357.62			357.62		
	Elevation at top of casing mAOD	398.85			398.85			398.85			398.85		
	Depth to leachate from top of casing (m)	40.34			40.32			40.38			40.32		
	Leachate elevation (mAOD)	358.51			358.53			358.47			358.53		
	Calculated leachate head (m)	0.89			0.91			0.85			0.91		
LC2A	Elevation of base of landfill mAOD	362.49			362.49			362.49			362.49		
	Elevation at top of casing mAOD	401.12			401.12			401.12			401.12		
	Depth to leachate from top of casing (m)	35.76			35.75			35.54			35.72		
	Leachate elevation (mAOD)	365.36			365.37			365.58			365.40		
	Calculated leachate head (m)	2.87			2.88			3.09			2.91		
LC4A	Elevation of base of landfill mAOD	372.27			372.27			372.27			372.27		
	Elevation at top of casing mAOD	401.14			401.14			401.14			401.14		
	Depth to leachate from top of casing (m)	26.81			26.84			26.90			26.86		
	Leachate elevation (mAOD)	374.33			374.30			374.24			374.28		
	Calculated leachate head (m)	2.06			2.03			1.97			2.01		
LC5A	Elevation of base of landfill mAOD	350.14			350.14			350.14			350.14		
	Elevation at top of casing mAOD	380.75			380.75			380.75			380.75		
	Depth to leachate from top of casing (m)	DAMAGED			DAMAGED			DAMAGED			DAMAGED		
	Leachate elevation (mAOD)												
	Calculated leachate head (m)												
L1	Casing height (mAOD)	357.00			357.00			357.00			357.00		
	Leachate (mbgl)	DRY			DRY			DRY			DRY		
	Leachate (m AOD)	-			-			-			-		
	Base of landfill (m AOD)	336.80			336.80			336.80			336.80		
	Depth of well from top of casing (m)	21.03			21.03			21.03			21.03		
	Base of well (m AOD)	335.97			335.97			335.97			335.97		
	Calculated leachate head (m)												
L1A*	Casing height (mAOD)	355.79			355.79			355.79			355.79		
	Leachate (mbgl)	DRY			20.90			20.90			DRY		
	Leachate (m AOD)	-			334.89			334.89			-		
	Base of landfill (m AOD)	316.64			316.64			316.64			316.64		
	Depth of well from top of casing (m)	20.89			20.91			20.91			20.90		
	Base of well (m AOD)	334.90			334.88			334.88			334.89		
	Calculated leachate head (m)				18.25			18.25					
L1B*	Casing height (mAOD)	354.80			354.80			354.80			354.80		
	Leachate (mbgl)	24.97			25.87			26.87			25.84		
	Leachate (m AOD)	329.83			328.93			327.93			328.96		
	Base of landfill (m AOD)	319.60			319.60			319.60			319.60		
	Depth of well from top of casing (m)	34.84			34.84			34.84			34.80		
	Base of well (m AOD)	319.96			319.96			319.96			319.96		
	Calculated leachate head (m)	10.23			9.33			8.33			9.36		

2022	Quarterly Leachate Head Averages (m)
January	1.94
February	
March	
April	1.94
May	
June	
July	1.97
August	
September	
October	1.94
November	
December	

Minimum monthly leachate head average

Maximum monthly leachate head average

- Notes:
- Top of casings were re-surveyed in August 2019
- LC1A top of casing is 1710mm above ground level.
 - LC2A top of casing is 820mm above GL.
 - LC4A top of casing is 1040mm above GL.
 - 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.

Table B3
Surface Water Monitoring Results

Month	Location	Date		Mercury, ultra-low total as Hg	Manganese in filtrate as Mn	Nickel in filtrate as Ni	Bioavailable Ni	Zinc, ultra-low total as Zn	Bioavailable Zn	pH	Conductivity-Electrical 20C	Ammoniacal Nitrogen as N	*Unionised Ammoniacal Nitrogen based on measured Temperature	Measured surface water temperature	Chloride as Cl	Sulphate as SO4	Total Suspended Soilds	Dissolved Oxygen, fixed	TOC, filtered	Redox Potential	Alkalinity as CaCO3	Calcium	
Freshwater EQS**				ug/l	mg/l	mg/l	mg/l	mg/l	mg/l		uS/cm	mg/l	mg/l	°C	mg/l	mg/l	mg/l	mg/l	mg/l	mV	mg/l	mg/l	
January	Upstream of Landfill	SWU	Six-monthly	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	
		SW2AI		N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	
		SWW4		N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	
	NW Ditch System	SWW1	Six-monthly	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	
		SWW2		N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	
	Downstream of Landfill	SWD SWD1	Quarterly	< 0.0500 < 0.0500	0.0086 0.0034	0.0009 0.0015	< 0.0009 < 0.0010	0.0032 0.0049	0.0021 < 0.0007	8.6 8.4	410 300	0.58 1.20	0.030 0.035	6.1 4.2	8.70 13.00	70.0 63.0	5 5	- -	2.0 17.0	51.00 56.00	91 75	31 26	
April	Upstream of Landfill	SWU	Six-monthly	< 0.050 N/S N/S	0.001 N/S N/S	0.001 N/S N/S	0.001 N/S N/S	0.004 N/S N/S	0.003 N/S N/S	8.5 N/S N/S	120 N/S N/S	6.50 N/S N/S	0.348 N/S N/S	9.5 N/S N/S	6.70 N/S N/S	22.0 N/S N/S	30 N/S N/S	- N/S N/S	2.0 N/S N/S	51.00 N/S N/S	130 N/S N/S	6 N/S N/S	
		SW2AI																					
		SWW4																					
	NW Ditch System	SWW1	Six-monthly	< 0.050 < 0.050	0.005 0.001	0.001 0.001	0.001 0.001	< 0.003 < 0.003	0.002 0.002	8.2 8.4	420 220	1.90 0.26	0.057 0.012	10.6 10.3	9.60 300.00	120.0 87.0	24 13	- -	2.0 2.0	74.00 72.00	180 140	37 16	
		SWW2																					
	Downstream of Landfill	SWD SWD1	Quarterly	< 0.0500 < 0.0500	0.0021 0.0012	0.0008 0.0013	0.0043 0.0013	0.0054 < 0.0025	0.0034 0.0016	8.2 8.3	510 430	2.10 3.10	0.064 0.124	10.9 11.6	11.00 4.00	110.0 110.0	47 92	- -	2.0 2.0	54.00 57.00	190 180	43 38	
July	Upstream of Landfill	SWU	Six-monthly	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	N/S N/S N/S	
		SW2AI																					
		SWW4																					
	NW Ditch System	SWW1	Six-monthly	N/S N/S	N/S N/S	N/S N/S	N/S N/S	N/S N/S	N/S N/S	N/S N/S	N/S N/S	N/S N/S	N/S N/S	N/S N/S	N/S N/S	N/S N/S	N/S N/S	N/S N/S	N/S N/S	N/S N/S	N/S N/S	N/S N/S	N/S N/S
		SWW2																					
	Downstream of Landfill	SWD SWD1	Quarterly	< 0.0500 < 0.0500	0.0019 0.0011	0.0006 0.0009	0.0002 0.0003	0.0052 0.0029	0.0014 0.0001	8.0 8.1	490 460	3.7000 5.0000	0.087 0.157	13.5 14.4	7.60 13.00	130.0 110.0	54 14	7.8 7.9	30.0 28.0	59.00 62.00	140 140	55 53	
October	Upstream of Landfill	SWU	Six-monthly	< 0.05 < 0.05	< 0.0005 < 0.0005	0.0010 < 0.0005	0.0003 0.0001	0.005 0.003	0.001 0.001	8.5 8.0	110 640	0.09 0.31	0.003 0.007	1.2 12.6	6.30 6.90	13.0 190.0	5 43	8.6 8.6	2.5 6.1	-11.00 4.90	19 140	5 110	
		SW2AI																					
		SWW4																					
	NW Ditch System	SWW1	Six-monthly	< 0.05 < 0.05	0.00 0.01	< 0.0005 0.0011	0.0002 0.0004	< 0.003 0.004	0.001 0.001	8.2 8.1	250 450	0.20 0.23	0.006 0.006	10.6 10.7	6.50 6.40	49.0 120.0	5 5	8.6 8.5	2.4 2.0	-2.60 11.00	55 86	26 62	
		SWW2																					
	Downstream of Landfill	SWD SWD1	Quarterly	< 0.050 < 0.050	0.003 0.010	0.0011 0.0064	0.0004 0.0026	0.0095 0.0210	0.0024 0.0054	8.1 8.2	460 410	0.32 0.34	0.009 0.012	12.7 12.4	13.00 16.00	56.0 66.0	16 7	8.5 8.5	5.1 4.3	-4.20 -3.10	130 110	54 50	
Minimum				< 0.0500	< 0.0005	< 0.0005	< 0.0001	< 0.0025	< 0.0001	8.0	110	< <	0.0027	1.2	4.0	13.0	5.0	7.8	2.0	-11.0	19.0000	4.8000	
Maximum				< 0.0500	< 0.0130	< 0.0064	< 0.0043	< 0.0210	< 0.0054	8.6	640	< <	0.3482	14.4	300	190	92	8.6	30	74	190	110	
Count				15	15	15	15	15	15	15	15	< <	15	15	15	15	15	8	15	15	15	15	

Exceedance of EQS

Upstream of Nant Merddog

Downstream of Nant Merddog

Notes

1.The redox potential was not measured on site and there is a possibility that it has changed between sampling and analysis

2.N/S - Not analysed

3.Unionised ammoniacal nitrogen based on measured

4.Environmental Quality Standard EQS 1 for freshwater is derived to protect the most sensitive aquatic life.

5.NW Ditch - North Western (ditch system)

Table B4
Groundwater monitoring results

Location	Month	Date	Test reference number	Redox Potential	Mercury, filtrate as Hg	Manganese in filtrate as Mn	Nickel in filtrate as Ni	Zinc, ultra-low filtered as Zn	pH	Electrical Conductivity 20C	Alkalinity as CaCO3	Ammoniacal Nitrogen as N	Unionised Ammoniacal Nitrogen ***	Measure water temperature	Chloride as Cl	Sulphate as SO4	Calcium	D.O. concentration	TOC (Filtered)
				mV	ug/l	mg/l	mg/l	mg/l	pH units	uS/cm	mg/l	mg/l	mg/l	°C	mg/l	mg/l	mg/l	mg/l	mg/l
	Trigger Level				(0.2 ^m)		0.05	(0.05 ^m)	--	--	--	1	--	--	250	400	--	--	--
	Control Level A				(0.1 ^m)	--	0.03	(0.02 ^m)	--	--	--	0.8	--	--	210	300	--	--	--
	Control Level B				(0.15 ^m)	--	0.04	(0.035 ^m)	--	--	--	0.9	--	--	230	350	--	--	--
	Assessment Level				--	(1.0 ^o)	--	--	--	--	--	--	--	--	--	--	--	--	--

UPSTREAM WELLS

SST East S3	GW3A	Jan-21	21/01/21	20069616	108	0.23		0.0089	0.0015	0.0067	6.7	519.0	203.0	<	0.41	0.0005	13.1	11.1	91.2	79.0	8.7	2.1			
		Feb-21		Quarterly																					
		Mar-21																							
		Apr-21	27/04/21	20384851	-26	0.39		0.019	<	0.0010	0.1200		7.0	514.0	205.0	<	0.41	0.0010	13.4	10.4	84.6	N/S	7.1	1.5	
		May-21		Quarterly																					
		Jun-21																							
		Jul-21	20/07/21	20670057	-318	0.26		0.0014	<	0.0010	<	0.0050	7.0	481.0	184.0	<	0.41	0.0010	13.8	10.2	80.5	60.0	8.0	1.7	
		Aug-21		Quarterly																					
		Sep-21																							
		Oct-21	18/10/21	20977670	-248	0.30		0.0016	<	0.0010	<	0.0050	7.4	487.0	202	<	0.41	0.0025	13.2	9.8	74.5	68.0	8.5	1.4	
		Nov-21		Quarterly																					
		Dec-21																							
	GW4	Jan-22	20/01/22	1357005	87	<	0.05	0.0085	<	0.00005	<	0.0025	8.0	680.0	240.0	7.40		0.1668	12.9	14.0	86.0	58.0	-	3.1	
		Feb-22		Quarterly																					
		Mar-22																							
		Apr-22	10/05/22	1430017	32	<	0.05	0.011	<	0.00005	<	0.0025	7.7	1100.0	260.0	5.10		0.0618	13.7	16.0	84.0	61.0	-	<	2.0
		May-22		Quarterly																					
		Jun-22																							
		Jul-22	11/08/22	1487914	50	0.05		0.0010	0.0005	0.0004	7.6	640.0	240.0	5.90		0.0646	15.4	17.0	88.0	67.0	8.0	51.0			
		Aug-22		Quarterly																					
		Sep-22																							
		Oct-22	26/10/22	1536795	-44	<	0.050	0.0027	<	0.0005	<	0.0025	8.0	720.0	220	1.80		0.0463	14.7	12.0	77.0	74.0	8.5	2.5	
		Nov-22		Quarterly																					
		Dec-22																							

Table B4

Location	Month	Date	Test reference number	Redox Potential	Mercury, nitrate	Manganese as Mn	Nickel nitrate as Ni	Zinc, ultra-low filtered as Zn	pH	Electrical Conductivity 20C	Alkalinity as CaCO3	Ammoniacal Nitrogen as N	Ammoniacal Nitrogen ***	Measure water temperature	Chloride as Cl	Sulphate as SO4	Calcium	D.O. concentration	TOC (Filtered)			
				mV	ug/l	mg/l	mg/l	mg/l	pH units	uS/cm	mg/l	mg/l	mg/l	°C	mg/l	mg/l	mg/l	mg/l	mg/l			
Trigger Level					(0.2°)		0.05	(0.05°)	--	--	--	1	--	--	250	400	--	--	--			
Control Level A					(0.1°)	--	0.03	(0.02°)	--	--	--	0.8	--	--	210	300	--	--	--			
Control Level B					(0.15°)		0.04	(0.035°)	--	--	--	0.9	--	--	230	350	--	--	--			
Assessment Level					--	(1.0°)	--	--	--	--	--	--	--	--	--	--	--	--	--			
DOWNSTREAM WELLS / COMPLIANCE WELLS																						
SST West S2																						
GW12	Jan-21	20/01/21	20069623	137	0.019	0.0081	0.0013	<	0.0050	7.0	454.0	184.0	<	0.41	0.0016	20.1	15.0	48.3	55.0	8.8	2.4	
	Feb-21	Quarterly																				
	Mar-21																					
	Apr-21	27/04/21	20384858	-173	0.15	0.0015	0.0051	0.1700	7.4	1530.0	420.0	<	0.41	0.0038	19.3	93.8	276.0	N/S	6.0	10.9		
	May-21	Quarterly																				
	Jun-21																					
	Jul-21	27/07/21	20670064	-271	0.06	0.0009	0.0050	<	0.0050	8.1	1620.0	444.0	<	0.41	0.0190	19.8	97.8	298.0	146.0	5.7	9.2	
	Aug-21	Quaterly																				
	Sep-21																					
	Oct-21	18/10/21	20977677	-296	0.10	0.0005	0.0040	<	0.0050	7.9	1520.0	397.0	<	0.41	0.0122	18.5	83.8	318.0	161.0	6.6	8.5	
	Nov-21	Quarterly																				
	Dec-21																					
	Jan-22	20/01/22	1357011	62	<	0.050	0.0100	0.0047	0.0030	8.5	1600.0	470.0	0.26	0.0265	18.8	99.0	300.0	130.0	-	<	2.0	
	Feb-22	Quarterly																				
	Mar-22																					
	Apr-22	10/05/22	1430023	70	<	0.050	0.032	0.0041	<	0.0025	7.6	1600.0	420.0	0.34	0.0044	17.6	97.0	320.0	130.0	-	7.1	
May-22	Quarterly																					
Jun-22																						
Jul-22	11/08/22	1487925	56	<	0.05	0.0081	0.0033	<	0.0025	7.5	1500.0	390.0	0.75	0.0076	17.5	82.0	310.0	110.0	7.8	100.0		
Aug-22	Quarterly																					
Sep-22																						
Oct-22	26/10/22	1536801	8.4	<	0.050	0.0037	0.0013	<	0.0025	7.6	1100.0	350	0.20	0.0025	17.4	32.0	210.0	130.0	8.5	6.5		
Nov-22	Quarterly																					
Dec-22																						
SST Centre																						
GW6	Jan-21	20/01/21	20069618	137	0.036	0.4410	0.0098	<	0.0050	6.6	901.0	303.0	<	0.41	0.0004	12.0	82.2	96.6	54.0	4.1	4.8	
	Feb-21	Quarterly																				
	Mar-21																					
	Apr-21	27/04/21	20384853	-94	0.05	0.3740	0.0140	0.0520	6.7	935.0	341.0	<	0.41	0.0004	11.8	77.9	85.5	N/S	3.2	4.7		
	May-21	Quarterly																				
	Jun-21																					
	Jul-21	27/07/21	20670059	-318	0.05	0.1480	0.0079	<	0.0050	6.5	879.0	301.0	<	0.41	0.0003	12.8	80.4	77.9	57.0	2.5	5.1	
	Aug-21	Quaterly																				
	Sep-21																					
	Oct-21	18/10/21	20977672	-252	0.06	0.4820	0.0083	<	0.0050	7.0	799.0	262.0	<	0.42	0.0009	12.4	78.6	73.7	54.0	2.6	3.6	
	Nov-21	Quarterly																				
	Dec-21																					
	Jan-22	20/02/22	1357007	62	<	0.05	0.1300	0.0051	0.0120	7.5	850.0	300.0	3.00	0.0193	11.3	81.0	82.0	33.0	-	3.9		
	Feb-22	Quarterly																				
	Mar-22																					
	Apr-22	10/05/22	1430019	62	<	0.050	0.061		0.0036	7.3	850.0	290.0	0.27	0.0012	12.0	87.0	89.0	46.0	-	3.3		
May-22	Quarterly																					
Jun-22																						
Jul-22	11/08/22	1487921	61	<	0.050	0.1100	0.0046	<	0.0025	7.4	780.0	250.0	0.30	0.0016	12.2	85.0	83.0	41.0	8.0	59.0		
Aug-22	Quarterly																					
Sep-22																						
Oct-22	26/10/22	1536797	-13	<	0.050	0.1300	0.0065	0.0035	7.3	890.0	270	0.19	0.0009	12.6	77.0	78.0	52.0	8.6	4.5			
Nov-22	Quarterly																					
Dec-22																						
GW7	Jan-21	20/01/21	20069619	111	<	0.010	0.0071	0.0052	0.0120	7.1	837.0	312.0	<	0.41	0.0011	11.8	46.9	80.6	85.0	4.1	5.3	
	Feb-21	Quarterly																				
	Mar-21																					
	Apr-21	27/04/21	20384854	-168	<	0.010	0.9050	0.0051	0.0097	7.2	736.0	263.0	<	0.41	0.0014	11.7	38.3	75.1	N/S	4.5	4.7	
	May-21	Quarterly																				
	Jun-21																					
	Jul-21	27/07/21	20670060	-321	<	0.10	1.0500	0.0031	<	0.0500	7.7	679.0	286.0	<	0.41	0.0048	13.2	32.7	67.5	84.0	3.5	5.2
	Aug-21	Quaterly																				
	Sep-21																					
	Oct-21	18/10/21	20977673	-254	<	0.01	1.5900	0.0044	0.0068	7.9	853.0	294.0	<	0.41	0.0075	12.0	52.7	110.0	85.0	3.6	5.9	
	Nov-21	Quarterly																				
	Dec-21																					
	Jan-22	20/01/22	1357008	54	<	0.05	1.2000	0.0041	0.0036	8.2	860.0	360.0	1.60	0.050	11.3	38.0	87.0	75.0	-	5.5		
	Feb-22	Quarterly																				
	Mar-22																					
	Apr-22	10/05/22	1430020	56	<	0.050	0.51	0.0030	0.0210	7.7	790.0	310.0	0.15	0.002	11.5	38.0	87.0	71.0	-	4.8		
May-22	Quarterly																					
Jun-22																						
Jul-22	11/08/22	1487922	61	<	0.050	0.6400	0.0045	<	0.0025	7.6	900.0	290.0	0.18	0.002	11.8	58.0	130.0	78.0	8.0	74.0		
Aug-22	Quarterly																					
Sep-22																						
Oct-22	26/10/22	1536798	-6.6	<	0.050	1.8000	0.0066	0.0045	7.4	1200.0	340	0.08	0.0004	12.4	87.0	160.0	120.0	8.6	8.9			
Nov-22	Quarterly																					
Dec-22																						

Table B4
Groundwater monitoring results

Location	Month	Date	Test reference number	Redox Potential	Mercury, filtrate as Hg	Manganese in filtrate as Mn	Nickel in filtrate as Ni	Zinc, ultra-low filtered as Zn	pH	Electrical Conductivity 20C	Alkalinity as CaCO3	Ammoniacal Nitrogen as N	Unionised Ammoniacal Nitrogen ***	Measure water temperature	Chloride as Cl	Sulphate as SO4	Calcium	D.O. concentration	TOC (Filtered)			
				mV	ug/l	mg/l	mg/l	mg/l	pH units	uS/cm	mg/l	mg/l	mg/l	°C	mg/l	mg/l	mg/l	mg/l	mg/l			
Trigger Level					(0.2 ^u)		0.05	(0.05 ^u)	--	--	--	1	--	--	250	400	--	--	--			
Control Level A					(0.1 ^{uu})	--	0.03	(0.02 ^{uu})	--	--	--	0.8	--	--	210	300	--	--	--			
Control Level B					(0.15 ^{uu})	--	0.04	(0.035 ^{uu})	--	--	--	0.9	--	--	230	350	--	--	--			
Assessment Level					--	(1.0 ^u)	--	--	--	--	--	--	--	--	--	--	--	--	--			
SST East S2	GW9	Jan-21	20069620	110	0.015	0.2920	0.0028	0.0050	6.6	376.0	129.0	5.85	0.0049	11.7	28.5	15.1	21.0	2.9	3.7			
		Feb-21	Quarterly																			
		Mar-21																				
		Apr-21	27/04/21	20384855	-170	0.10	0.6490	0.0046	0.0330	6.6	664.0	185.0	6.35	0.0054	11.8	49.9	24.9	N/S	2.5	5.6		
		May-21	Quarterly																			
		Jun-21																				
		Jul-21	27/07/21	20670061	-285	0.01	0.0347	0.0019	0.0087	7.3	926.0	317.0	7.90	0.0402	14.3	41.4	24.1	71.0	3.4	8.0		
		Aug-21	Quarterly																			
		Sep-21																				
		Oct-21	18/10/21	20977674	-307	0.04	0.9200	0.0035	0.0160	7.3	772.0	169.0	7.43	0.0378	12.7	67.4	28.6	45.0	1.8	4.7		
		Nov-21	Quarterly																			
		Dec-21																				
	GW9	Jan-22	20/01/22	1357009	66	<	0.05	1.1000	0.0055	8.1	1200.0	240.0	9.30	0.2	11.7	120.0	39.0	50.0	-	6.1		
		Feb-22	Quarterly																			
		Mar-22																				
		Apr-22	10/05/22	1430021	68	<	0.05	0.35	0.0026	7.2	550.0	220.0	4.70	0.016	12.4	38.0	34.0	23.0	-	2.9		
		May-22	Quarterly																			
		Jun-22																				
		Jul-22	11/08/22	1487923	67	0.05	0.6200	0.0038	0.0055	7.3	670.0	160.0	3.70	0.017	13.2	68.0	38.0	34.0	7.9	37.0		
		Aug-22	Quarterly																			
		Sep-22																				
		Oct-22	26/10/22	1536799	-5.9	<	0.050	0.4600	0.0032	0.0330	7.6	620.0	120	0.47	0.004	12.5	36.0	120.0	25.0	8.3	6.3	
		Nov-22	Quarterly																			
		Dec-22																				
SST East S3	GW10	Jan-21	20069621	104	0.07	0.2140	0.0027	<	0.0050	6.8	254.0	124.0	<	0.41	0.0006	13.1	5.5	19.5	45.0	9.2	2.3	
		Feb-21	Quarterly																			
		Mar-21																				
		Apr-21	27/04/21	20384856	-251	0.07	1.6800	0.0091	0.085	6.9	639.0	240.0	<	0.41	0.0006	10.1	27.1	41.1	N/S	2.9	7.0	
		May-21	Quarterly																			
		Jun-21																				
		Jul-21	27/07/21	20670062	-310	0.07	1.3500	0.0097	<	0.0050	7.1	480.0	191.0	<	0.41	0.0012	13.4	17.5	42.3	61.0	5.4	5.3
		Aug-21	Quarterly																			
		Sep-21																				
		Oct-21	18/10/21	20977675	-281	0.03	1.4800	0.0082	<	0.0050	7.7	439.0	181.0	<	0.41	0.0049	11.1	10.8	48.7	61	5.3	4.1
		Nov-21	Quarterly																			
		Dec-21																				
	GW10	Jan-22	20/01/22	1357010	71	<	0.05	0.8900	0.0061	0.0027	8.3	630.0	230.0	0.33	0.0123	10.6	21.0	49.0	61.0	-	5.2	
		Feb-22	Quarterly																			
		Mar-22																				
		Apr-22	10/05/22	1430022	74	<	0.05	5.5	0.0130	<	0.0025	7.4	630.0	240.0	0.52	0.0027	11.3	31.0	59.0	52.0	-	6.0
		May-22	Quarterly																			
		Jun-22																				
		Jul-22	11/08/22	1487924	60	<	0.05	4.0000	0.0130	0.0033	7.3	580.0	240.0	0.77	0.0033	12.1	28.0	56.0	55.0	7.8	54.0	
		Aug-22	Quarterly																			
		Sep-22																				
		Oct-22	26/10/22	1536800	-0.4	<	0.050	0.3900	0.0042	0.0130	7.4	580.0	240	0.14	0.0008	12.0	10.0	74.0	84.0	8.6	5.9	
		Nov-22	Quarterly																			
		Dec-22																				

Exceedance of Control Level

Exceedance of Trigger Level

Exceedance of Assessment Level

Notes

* The redox potential was not measured on site and there is a possibility that it has changed between sampling and analysis{*/}

** Unionised ammoniacal nitrogen based on measured Temperature and pH; unionised ammoniacal nitrogen = total ammonia/(1+10^{(10.055-(0.0324*°C)-pH)}), where T°C is measured water temperature.

^ Ammonia result confirmed on duplicate analysis.

Silent Valley Landfill

METHANE (% by Volume)														CARBON DIOXIDE (% by Volume)													
Location	Valve	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Comments	
Date monitored		18-Jan	02-Feb	01-Apr	21-Apr	16-May	12-Jul	05-Aug	01-Sep	06-Oct	25-Oct	28-Nov	28-Dec	18-Jan	02-Feb	01-Apr	21-Apr	16-May	12-Jul	05-Aug	01-Sep	06-Oct	25-Oct	28-Nov	28-Dec		
GMW2	Red Valve	0	0	0	0	0	0	0	0	0	0.1	0.1	0	0.7	0.7	0.4	0.7	0.1	2	2.3	1.6	1.3	0	0.5	0.1	Red Valve, 25.5m depth	
	Yellow Valve	0	0	0	0	0	0	0	0	0	0.1	0.1	0	0	0	0.2	0.4	0	1.4	0.9	0.6	1.1	0	0	0	Yellow Valve,14m depth	
	White Valve	0	0	0	0	0	0	0	0	0	0.1	0.1	0	0	0	0.1	2.2	1.7	2.4	0.7	0	3.3	0	0	10.5	White Valve, 4m 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	-	-	-	-	-	-	-	-	-	-	-	-	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	Trigger Level Red
	Trigger Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	Trigger Level Yellow	
	Trigger Level White	-	-	-	-	-	-	-	-	-	-	-	-	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	Trigger Level White	
	Control Level Red	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	Control Level Red
	Control Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	Control Level Yellow
Control Level White	-	-	-	-	-	-	-	-	-	-	-	-	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	Control Level White	
GMW3	Red Valve	0	0	0	0	0	0	0	0	0	0.1	0.1	0	2	2	4.9	4.8	6	4	2.6	2	0.4	2.1	4.5	0.4	Red Valve, 19m depth	
	Yellow Valve	0	0	0	0.8	0	0	0	0	0	0.1	0.1	0	3.8	3.9	1.1	2.6	0	2	1.5	1.6	0.3	0.6	0.3	0.1	Yellow Valve,9m depth	
	White Valve	0	0	0	0.9	0	0	0	0	0	0.1	0.1	0.1	4.3	4.5	0.9	2.7	0.5	2.1	4.8	1.9	0.4	0.7	0.4	21.5	White Valve, 3.5m 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	-	-	-	-	-	-	-	-	-	-	-	-	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	Trigger Level Red
	Trigger Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	Trigger Level Yellow	
	Trigger Level White	-	-	-	-	-	-	-	-	-	-	-	-	24.02	24.02	24.02	24.02	24.02	24.02	24.02	24.02	24.02	24.02	24.02	24.02	Trigger Level White	
	Control Level Red	-	-	-	-	-	-	-	-	-	-	-	-	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	Control Level Red
	Control Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	Control Level Yellow
Control Level White	-	-	-	-	-	-	-	-	-	-	-	-	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	Control Level White	
GMW4	Red Valve	0	0	0	0	0	0	0	0	0	0.1	0.1	0	0.2	0.1	0.1	0.1	0	0.8	1.6	0.8	0.2	0.1	0.1	0	Red Valve, 30m depth	
	Yellow Valve	0	0	0	0	0	0	0	0	0	0.1	0.1	0	0	0.1	0.1	0.2	0.1	0.2	0.9	0.1	0.1	0.1	0.1	0.1	Yellow Valve,20m depth	
	White Valve	0	0	0	0	0	0	0	0	0	nt	0.1	0	0	0	0	0.2	0	0.4	1	1.2	0.6	nt	0.1	1	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	-	-	-	-	-	-	-	-	-	-	-	-	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	Trigger Level Red
	Trigger Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	Trigger Level Yellow	
	Trigger Level White	-	-	-	-	-	-	-	-	-	-	-	-	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	Trigger Level White	
	Control Level Red	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	Control Level Red
	Control Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	Control Level Yellow
Control Level White	-	-	-	-	-	-	-	-	-	-	-	-	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	Control Level White	
GMW5	Red Valve	0	0	0	0	0	0	0	0	0	0.1	0.1	0	5.5	5.4	5.7	5.3	5	5.4	6.7	6.2	5.7	6	6.1	6.7	Red Valve, 26.3m depth	
	Yellow Valve	0	0	0	0	0	0	0	0	0	0.1	0.1	0	2.8	2.8	3.4	3.2	1.9	3.4	5.1	4.3	0.1	0.3	0.8	1.3	Yellow Valve,15m depth	
	White Valve	0	0	0	0	0	0	0	0	0	0.1	0.1	0	4.6	4.4	4	3.4	2.8	2.5	4	4.1	3	3.4	3.9	4	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	-	-	-	-	-	-	-	-	-	-	-	-	8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.48	Trigger Level Red
	Trigger Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	Trigger Level Yellow	
	Trigger Level White	-	-	-	-	-	-	-	-	-	-	-	-	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	Trigger Level White
	Control Level Red	-	-	-	-	-	-	-	-	-	-	-	-	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	Control Level Red
	Control Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	Control Level Yellow
Control Level White	-	-	-	-	-	-	-	-	-	-	-	-	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	Control Level White	
GMW6	Red Valve	0	0	0	0	0	0	0	0	0	0.1	0	0	4.2	4.2	3.6	3.9	2.8	5.7	5.3	5.6	6.7	5.3	4.5	3.2	Red Valve, 26.3m depth	
	Yellow Valve	0	0	0	0	0	0	0	0	0	0.1	0	0	2.1	1.6	2.1	2.1	2.8	1.5	2.6	1.8	1.1	2.2	4.5	2.2	Yellow Valve,15m depth	
	White Valve	0	0	0	0	0	0	0	0	0	0.1	0	0	1.7	1.8	1.8	1.6	1.1	1.6	2.1	1.4	1.7	1.5	1.3	1.6	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	-	-	-	-	-	-	-	-	-	-	-	-	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	Trigger Level Red
	Trigger Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5	5	5	5	5	5	5	5	5	5	Trigger Level Yellow	
	Trigger Level White	-	-	-	-	-	-	-	-	-	-	-	-	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	Trigger Level White	
	Control Level Red	-	-	-	-	-	-	-	-	-	-	-	-	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	Control Level Red
	Control Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	Control Level Yellow
Control Level White	-	-	-	-	-	-	-	-	-	-	-	-	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	Control Level White	

Table B5
Landfill Gas Monitoring Results

METHANE (% by Volume)														CARBON DIOXIDE (% by Volume)												
Location	Valve	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Comments
GMW7	Yellow Valve	0	0	0	0	0	0	0	0	0	0.1	0	0	0.3	0.2	0.1	0	0.9	0.8	2.2	0.9	0.4	0.1	0.3	1	Yellow Valve,12 depth
	White Valve	0	0	0	0	0	Tap broken	0	0	0	0.1	nt	nt	0.3	0	0	0.1	1	Tap broken	2.2	0.9	0	3.1	nt	nt	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 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 Yellow
	Trigger 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	Trigger Level White
	Control Level Yellow	-	-	-	-	-	-	-	-	-	-	-	-	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	Control Level Yellow
	Control Level White	-	-	-	-	-	-	-	-	-	-	-	-	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	Control Level White
GMW12	Red Valve	0	0	0	0	0	0	0	0	ntc	0	0.1	0	1.2	0	0	2	0.9	1.1	1	0.4	ntc	0.5	0.5	0.1	Red Valve, 26.3m depth
	Yellow Valve	0	0	0	0	0	0	0	0	ntc	0.1	0.1	0	0.7	0	2.7	1.5	1	2.6	1	0.6	ntc	0	0	0.4	Yellow Valve,15m depth
	White Valve	0	0	0	0	0	0	0	0	ntc	0.1	0.1	0	0.9	0	1	2.1	1	1	1.1	0.2	ntc	1.3	0.7	2.1	White Valve, 5m depth
	Trigger Level Red	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	Trigger Level Red
	Trigger Level Yellow	1	1	1	1	1	1	1	1	1	1	1	1	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	Trigger Level Yellow
	Trigger Level White	1	1	1	1	1	1	1	1	1	1	1	1	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	Trigger Level White
	Control Level Red	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	4	4	4	4	4	4	4	4	4	4	4	4	Control Level Red
	Control Level Yellow	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	Control Level Yellow
GMW13	Control Level White	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	5	5	5	5	5	5	5	5	5	5	Control Level White
	Red Valve	0	0	0	0	0	0	0	0	0	0.1	0.1	0	1.2	1.2	1.3	1.1	1.5	1.3	2.1	1.6	1.4	1.2	1.2	1.2	Red Valve, 26.3m depth
	Yellow Valve	0.1	0.1	0.1	0.1	0	0.1	0	0.1	0.1	0.2	0.2	0	4.5	4.4	4.8	4.5	4	4.9	6.7	5.6	5.1	5.4	4.7	2.1	Yellow Valve,15m depth
	White Valve	0	0	0	0	0	0	0	0.1	0	0.1	0.1	0	3.9	4	4	3	4.1	3.5	4.6	3.8	3.2	3.3	4.5	0	White Valve, 5m depth
	Trigger Level Red	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	Trigger Level Red
	Trigger Level Yellow	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6	6	6	6	6	6	6	6	6	6	6	6	Trigger Level Yellow
	Trigger Level White	1	1	1	1	1	1	1	1	1	1	1	1	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	Trigger Level White
	Control Level Red	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	Control Level Red
GMW14/14A	Control Level Yellow	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	Control Level Yellow
	Control Level White	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	Control Level White
	Red Valve	0	0	0	0	0	0	0	0	0	0.1	0.1	0	4.6	4.9	2.8	2.8	3.2	1.9	3.2	2.5	4.2	4.5	4.2	5.8	Red Valve, 26.3m depth
	Yellow Valve	0	0	0	0	0	0	0	0	0	0.1	0.1	0	5.9	6.5	6.4	6.2	6.1	7.1	5	6	8	4.8	8	1.5	Yellow Valve,15m depth
	White Valve	0	0	0	0	0	0	0	0	0	0	0.1	0	6.7	6.5	6.5	6.1	6.1	3.1	2.5	2.5	5.4	6.4	0.8	1.3	White Valve, 5m depth
	Trigger Level Red	1	1	1	1	1	1	1	1	1	1	1	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	Trigger Level Red
	Trigger Level Yellow	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	Trigger Level Yellow
	Trigger Level White	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	Trigger Level White
GMW1**	Control Level Red	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	1	1	1	1	1	1	1	1	1	1	1	Control Level Red
	Control Level Yellow	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	Control Level Yellow
	Control Level White	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	Control Level White
	Red Valve	1.7	0.1	nt	0.9	0.5	2.2	2.4	1.5	2.1	0.1	4.9	3.8	2.4	0.3	nt	2.2	2.5	1.9	7.8	5	2.7	0	1.4	1	Red Valve, 23.5m depth
GMW8*	Yellow Valve	0	17.3	nt	0	7.5	9.1	5.7	5.1	29.4	0.1	0.1	0	0	5.1	nt	0	4.2	10.9	11.5	10.7	11.6	0	0.1	0.1	Yellow Valve,14.7m depth
	White Valve	0	0	nt	0.2	0	0	0.1	0	0.2	0.1	0.3	0.4	0	0	nt	0.6	0	2.4	0.8	1	0.8	0	0.8	0.4	White Valve, 6.5m depth
	Yellow Valve	6.6	6.8	6.8	4	6.5	1.8	3.2	4.9	1.4	2.5	2.7	3.8	7.7	7.8	7.7	4.7	12	3.3	9.9	8	3.3	6.3	6	15.2	Yellow Valve,17.5m depth
GMW9*	White Valve	0	0	0	0	0	0	0	0.1	0	0	0.1	0	4.7	5	4.5	4.3	3.9	2.8	5.8	5.2	4.3	4.4	4.4	8	White Valve, 5.7m depth
	Red Valve	0	0	0	0	0	0	0	0	0	0.1	0.1	0.1	2	2	2.1	1.9	0.6	1.8	2.7	2	1.8	2	2	0.2	Red Valve, 27m depth
	Yellow Valve	20.2	18.3	18.5	17.4	20	11.7	9.9	12.1	14.2	13.4	18.1	19.1	8.4	8.8	8.3	9	10.4	10.3	9.5	10.1	10.5	11	8.4	6.2	Yellow Valve,15m depth
GMW10*	White Valve	0	0	0	0	0.1	0	0	0.1	0	0.1	0.1	0	0.1	0.1	0.1	0.1	0.2	0.1	1	0.3	4.2	0.2	0.1	0	White Valve, 8.5m depth
	Red Valve	0	0	20.4	0	0	20.7	16.5	12	30.3	24.5	2	1	4.4	4.2	5.1	6.3	6.5	7.9	13.1	15	9.4	9.2	4.9	3.5	Red Valve, 19.5m depth
	Yellow Valve	14.5	7	29.2	9.6	8.6	6.8	11.7	11.1	38.4	37.5	34	30	2.4	1.3	4.7	2	5.6	1.5	13.3	13	9.2	9.2	6.3	4	Yellow Valve,15m depth
GMW17**	White Valve	0	0	17.7	1.2	0	16.7	0	0	29.4	23.1	0.2	0	4.7	4.1	5	6.6	5.7	8.1	10	4.3	9.4	9.3	5.5	0.1	White Valve, 8m depth
	Red Valve	0	0	0	0	0	0	0	0	0	0	0	0	1.6	1.5	1.6	1.4	1.1	1.2	1.4	1.3	1.4	1.4	1.6	3.4	Red Valve, 26.3m depth
	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	5.9	5.3	5.3	4	4.2	3.8	3.8	3.4	4.7	5.3	6.3	3.4	Yellow Valve,15m depth
GMW18**	White Valve	0	0	0	0	0	0	0	0	0	0	0	0	3.3	4.6	4	4.2	4.5	3.9	4.3	3.4	2.6	3.3	3.5	0	White Valve, 5m depth
	Yellow Valve	0	0	0	0	0	0	0	0	0	0	0	0	0.1	1.6	0.1	1.7	0	2.3	1.6	2.2	2.1	1.1	2.4	0	Yellow Valve,12 depth
	White Valve	0	0	0	0	0	0	0.1	0	0	0	0	0	6	5.3	5.1	4.1	7.9	3.7	4.3	4.2	3.7	3.4	5.3	0	White Valve, 5m depth

Notes:
1. Water denotes 'water in well - reading abandoned'.
2. NT denotes 'reading not taken'.
3. NT in GMW14 is due to cattle quarantine paddock around well location.
4. Where the asterisc (*) is present, no trigger levels have been set, as high levels of methane and carbon dioxide gas are recorded. This is likely to be associated with the presence of bog/marshland.
5. Where two asteriscs (**) are present, no trigger levels have been set, as not require by the Permit (Reference [2]).
ntc - reading not taken due to cattle presence at location of the well

Exceedance of Trigger

Exceedance of Control