Waste Assets Management Corporation

Annual Ambient Groundwater Monitoring Report.

April 2026

Background

The Waste Assets Management Corporation (WAMC) has prepared this Annual Ambient Groundwater Monitoring Report for the Pasminco Containment Cell, Boolaroo ('the site') on behalf of the Hunter Central Coast Development Corporation (HCCDC).

An Environment Protection Licence (EPL 5042) applies to the site. Special condition E1 of EPL 5042 requires;

E1.1 The licensee to monitor in accordance with the report titled: "Pasminco Cockle Creek Smelter Site - Groundwater Monitoring and Management Plan (GMMP) - Revision 1" Report Number 137625003_232_R_Rev0, dated 17 June 2016.

Note: Revision 2, of the GMMP dated April 2019, supersedes GMMP (Revision 1 dated 2016)

E1.2 The licencee to submit an annual groundwater monitoring report that includes a trend analysis of monitored parameters in all sampling wells and sumps:

1. Tabulated results of all monitoring data, and
2. Graphical presentation of data in order to show variability and/or trends. This should include, at a minimum, all data since the final capping of the containment cell, and
3. Any statistically significant variations or anomalies in the data should to be highlighted and explained; and
4. Conclusions and any recommendations from the analysis and interpretation of the data.

Scope

To meet the requirements of special condition E1, the following works were undertaken:

1. Monitoring of the containment cell extraction trench including;
   - Gauging of the surface water level (SWL) within the groundwater and draining wells
   - Field measurement of the sumps for water quality parameters (pH, electrical conductivity redox potential, dissolved oxygen and temperature)
   - Collection and analysis of the containment cell sumps (Sump A to E)
   - Analysis on a quarterly basis for the contaminants of concern - cadmium, lead, nickel and zinc
2. Monitoring of the off-site groundwater monitoring wells including;
   - Gauging of the SWL within the groundwater monitoring wells (59-64)
   - Measurement of the groundwater parameters (pH, electrical conductivity redox potential, dissolved oxygen and temperature) as required by EPL 5042
   - Sampling of the groundwater wells using a 12V submersible pump
   - Analysis of the sample for the contaminants of concern as required by EPL 5042

Refer to **Appendix 1** for the location of groundwater monitoring points and sumps at the site.

Site Location and Regional Setting

The containment cell associated with the former Pasminco Cockle Creek Smelter, Boolaroo ('the site') occupies approximately 20 hectares (ha) at Munibung Road, 13 kilometres southwest of Newcastle. The site is 350 metres of east of Cockle Creek Station (Figure 1).

Figure 1

Historical use

The site was used as a lead and zinc smelter from 1897 to 2004. As a result of the smelting activities, the site and the nearby land was impacted by heavy metals, including lead and zinc. Remediation of the site commenced in 2008. The remediation works included placement of the contaminated soils within a specifically designed and constructed containment cell. The containment cell is approximately 20 ha in area and contains approximately 1.9 million cubic metres of impacted material.

Current use

Public access to the containment cell is restricted and the site is under the management of the NSW Government. The cell's surface is currently capped and vegetated to minimise erosion of the containment capping.

1. Tabulated results of all monitoring data,

Appendix 1 shows the location of Groundwater Monitoring Wells and Standing Water Level (SWL) points referred to in P1 and M2 of Environment Protection Licence (EPL) 5042 and the GMMP.

Condition M2 of EPL 5042 outlines the pollutants and frequency to be monitored at each off-site groundwater monitoring point. Sampling was conducted on - 15 May 2025 and 21 November 2025.

Monitoring Point 57: **Water Treatment Plant.**

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Aluminium	milligrams per litre	Prior to discharge	0	0	0	0
Arsenic	milligrams per litre	Prior to discharge	0	0	0	0
Cadmium	milligrams per litre	Prior to discharge	0	0	0	0
Lead	milligrams per litre	Prior to discharge	0	0	0	0
Mercury	milligrams per litre	Prior to discharge	0	0	0	0
pH	pH	Prior to discharge	0	0	0	0
Selenium	milligrams per litre	Prior to discharge	0	0	0	0
Standing Water Level	metres	Prior to discharge	0	0	0	0
Total suspended solids	milligrams per litre	Prior to discharge	0	0	0	0
Zinc	milligrams per litre	Prior to discharge	0	0	0	0

Condition M2.2 of EPL 5042 requires any discharge water from the water treatment plant to the creek to be sampled prior to discharge on a 24-hour basis. The water treatment plant was non-operational during this 2025/26 reporting period. No discharges occurred from the leachate plant with all liquid instead, disposed of to sewer under a trade waste agreement with Hunter Water. Sampling for monitoring points 58 to 64 can be found in Appendix 2

Standing Water Levels

a. Groundwater monitoring wells.

As per M2.2 of the EPL, the standing water levels (SWLs) for point 57 to 64 were measured two times over the reporting period and are tabled in Appendix 2

b. Cut-Off Trench Monitoring Wells

As required to comply with the objectives outlined in the GMMP, the cut-off/interception drains, and associated groundwater monitoring wells were investigated for standing water levels to assess the effectiveness of the sumps ensuring that impact groundwater does not migrate of the site.

The standing water levels reported over the sampling periods are summarised in Appendix 2. Where the wells were dry, the depth to the base of the well has been reported. It should be noted that only the shallow wells were reviewed to assess the compliance of Objective 2. Groundwater monitoring well groups A to D are located upgradient/cross-gradient of the containment cell. Groundwater monitoring well groups E to J are located down gradient of the containment cell.

Sumps

Sampling for Sumps A-E can be found in Appendix 2

2. Graphical presentation of data showing variability and/or trends.

Shallow groundwater trends

The shallow bores include BH62, BH63, and BH64S. BH65S was destroyed in November 2023 unbeknownst to WAMC by developers who had prepared the purchased site lots for re-development.

The historical result trends comparison for each shallow groundwater well for the chemicals of concern (cadmium, lead, nickel and zinc) are presented in Appendix 3. The following trends were observed.

<u>Cadmium</u>

Cadmium concentrations within all shallow groundwater wells were stable with no significant increasing trends observed.

<u>Lead</u>

Lead concentrations within all shallow groundwater wells were stable with no significant increasing trends observed.

<u>Nickel</u>

Nickel concentrations within all shallow groundwater wells were stable with no significant increasing trends observed.

Zinc

Zinc concentrations within all shallow groundwater wells were stable with no significant increasing trends observed.

Deep groundwater trends

The following trends were observed for BH65D:

Cadmium

Cadmium concentration within BH65D was either below or consistent with the previous monitoring rounds.

Lead

Lead concentrations within BH65D was either below or consistent with the previous monitoring rounds.

Nickel

Nickel concentrations within BH65D was stable with no significant increasing trends observed.

Zinc

Zinc concentrations within BH65D was either below or consistent with the previous monitoring rounds.

Sumps

The heavy metal (cadmium, lead, nickel, zinc) results for the groundwater sampling for sumps A,B,C,and D were generally consistent with or below historical sampling events except for Zinc.

For sump E, the results for the May, August, November 2025, and February 2026 sampling events for cadmium, lead, nickel and zinc against the Objective 3 criteria are presented below.

	Cadmium (mg/L)	Lead (mg/L)	Nickel (mg/L)	Zinc (mg/L)
16/05/2025	0.0046	0.005	0.009	**0.17**
15/08/2025	0.0058	0.002	0.008	**0.22**
21/11/2025	0.017	0.005	0.012	**0.64**
12/02/2026	0.019	0.007	0.014	**0.81**
Objective 3 Criteria	**0.034**	**0.027**	**0.043**	**0.092**

Bold indicates concentrations above the Objective 3 criteria

The pH values in the sumps were between 6.14 (Sump D) and 7.79 (Sump A). Most sumps showed salinity concentrations within freshwater standards with Sump C and Sump E being fresh to brackish. The redox levels were generally reducing and is considered consistent with the previous sampling events. The last year of monitoring has shown that the oxygen within the water in the sumps has been in line with averages from previous historical data.

A review of the cations and anions indicated that the results obtained from the sumps were consistent with historical concentrations reported at the site.

3. Statistically significant variations or anomalies in the data

Shallow groundwater

The concentrations of heavy metals reported in monitoring wells BH62, BH63 and BH64S (59, 60 and 61 respectively) were within or below historical ranges for each of these locations. Concentrations of calcium, sodium, magnesium, and potassium were consistent with previous sampling events for all shallow wells.

The pH values within the groundwater samples were slightly acidic to neutral ranging between 6.12 (BH64S) and 6.93 (BH62). All sampling events identified the groundwater downgradient of the containment cell as oxidising. All shallow wells were consistent with previous sampling events.

The electrical conductivity was reported as fresh to brackish and was consistent with previous sampling events. Electrical conductivity measurements in the shallow wells ranged from 535 uS/cm (BH63) to 6596 uS/cm (BH64S). The results of monitoring well BH63 and BH62 indicate that the well is likely sourced from surface water. This is evident through the low electrical conductivity compared to all other shallow water groundwater wells.

The standing water levels (SWL) increased in bores BH62 and BH63 and BH64S when compared to the previous monitoring year. There was a decrease of SWL between the October 2024 and May 2025 before a slight increase in November 2025.

The above trends are not considered to indicate impact to the downgradient groundwater caused by the containment cell.

Deep Groundwater

There is only one deep groundwater well remaining off site which is - BH65D. BH64D was destroyed in November 2023 along with BH65S.

Heavy metal concentrations reported in the May and November 2025 sampling events for BH65D were either lower than or consistent with the previous monitoring rounds. Concentrations of calcium, sodium and magnesium were higher in BH65D when compared to the previous monitoring rounds in 2022, although they were lower than historical maximums with the exception of magnesium which is at 160mg/L compared to the previous high of 140mg/L

The pH of BH65D was neutral at 7.17. The groundwater was brackish in BH65D. Redox was reported as reducing within BH65D. The basic parameter values were consistent with the previous reported values.

Standing water levels appear to have been relatively consistent in BH64D over the last year

Overall, the results indicated that the deeper groundwater aquifer is not impacted by the containment cell.

4. Conclusions and any recommendations from the analysis and interpretation of the data.

Based on the results of the data, the following conclusions are made:

- The elevated zinc concentrations reported in Sump E were above the criteria outlined within the GMMP in all 4 sampling rounds. However, they were within the historical ranges reported at this location and well below the previous maximum reported concentration.
- The monitoring data obtained from the Groundwater Monitoring Wells 59 to 64 remained limited given BH65S (63) and BH64D (64) had previously been destroyed in 2023.
- Variations in the results from the shallow groundwater monitoring are not considered to have been impacted by the downgradient groundwater from the containment cell.
- Overall, the results indicate that the deeper groundwater aquifer is not being impacted by the containment cell.

Based on the above conclusions, the following recommendations are made:

- Relocation and re-establishment of new GMWs is currently being investigated. It is recommended that BH65S and BH64D (63 and 64) are re-established on the Northern side of the railway line. Existing GMWs 59 to 62 are to be relocated as well given they are currently located on land parcels subject to re-development. The longevity of these GWM wells cannot be guaranteed once site preparation begins.
- Monitoring to be continued at existing GWM wells for as long as possible even as/when new GMWs have been installed. This will provide comparative data.
- Independent advice/review of the performance of the Pasminco containment cell against Objective 2 - Containment Cell Environmental Management Plan (CCEMP) is currently being undertaken and the recommendations/conclusions will be reviewed by WAMC and HCCDC.

- Complete the CCEMP review and update (currently being undertaken by RCA Australia) without Appendix D.
- Appendix D, Groundwater Monitoring and Management Plan (GMMP) is currently being updated separately given additional complexities arising from relocating off-site GMW's and additional issues identified by site auditor.
- The CCEMP (without Appendix D) is currently being reviewed by site auditor with site auditor statement on the revised CCEMP provided to the NSW EPA.
- Upon finalisation of Appendix D – GMMP of the CCEMP to be reviewed by site auditor with site auditor statement on the revised CCEMP provided to the NSW EPA.
- Pending outcomes to the CCEMP review, request EPL variation for condition E1.

Appendix 1: location of groundwater monitoring points referred to in the tables of P1 of Environment Protection Licence (EPL) 5042.

Appendix 2 – Tabulated Monitoring Results

Group	Well	Well Location	Sampling Date	SWL (mBTOC)	SWL (mAHD)	Notes
Group A	MW1S	(1) Inside Cell	16/05/2025	NF	NF	
Group A	SP10	(2) Cut-off Well	16/05/2025	NF	NF	
Group A	MW2S	(3) Outside Cell A	16/05/2025	NF	NF	
Group A	MW3S	(4) Outside Cell B	16/05/2025	Destroyed	Destroyed	
Group A	MW1S	(1) Inside Cell	15/08/2025	NF	NF	
Group A	SP10	(2) Cut-off Well	15/08/2025	NF	NF	
Group A	MW2S	(3) Outside Cell A	15/08/2025	NF	NF	
Group A	MW3S	(4) Outside Cell B	15/08/2025	Destroyed	Destroyed	
Group A	MW1S	(1) Inside Cell	21/11/2025	NF	NF	
Group A	SP10	(2) Cut-off Well	21/11/2025	NF	NF	
Group A	MW2S	(3) Outside Cell A	21/11/2025	NF	NF	
Group A	MW3S	(4) Outside Cell B	21/11/2025	Destroyed	Destroyed	
Group A	MW1S	(1) Inside Cell	12/02/2026	NF	NF	
Group A	SP10	(2) Cut-off Well	12/02/2026	NF	NF	
Group A	MW2S	(3) Outside Cell A	12/02/2026	NF	NF	
Group A	MW3S	(4) Outside Cell B	12/02/2026	Destroyed	Destroyed	
Group B	MW4S	(1) Inside Cell	16/05/2025	NF	NF	
Group B	SP11	(2) Cut-off Well	16/05/2025	NF	NF	
Group B	MW5S	(3) Outside Cell A	16/05/2025	0.00	26.38	Full of water
Group B	MW6S	(4) Outside Cell B	16/05/2025	NF	NF	
Group B	MW4S	(1) Inside Cell	15/08/2025	NF	NF	
Group B	SP11	(2) Cut-off Well	15/08/2025	NF	NF	
Group B	MW5S	(3) Outside Cell A	15/08/2025	0	26.38	
Group B	MW6S	(4) Outside Cell B	15/08/2025	NF	NF	
Group B	MW4S	(1) Inside Cell	21/11/2025	NF	NF	
Group B	SP11	(2) Cut-off Well	21/11/2025	NF	NF	
Group B	MW5S	(3) Outside Cell A	21/11/2025	0	26.38	
Group B	MW6S	(4) Outside Cell B	21/11/2025	NF	NF	
Group B	MW4S	(1) Inside Cell	12/02/2026	NF	NF	
Group B	SP11	(2) Cut-off Well	12/02/2026	NF	NF	
Group B	MW5S	(3) Outside Cell A	12/02/2026	0	26.38	Full of water
Group B	MW6S	(4) Outside Cell B	12/02/2026	NF	NF	
Group C	MW7S	(1) Inside Cell	16/05/2025	NF	NF	
Group C	SP12	(2) Cut-off Well	16/05/2025	7.10	20.30	
Group C	MW8S	(3) Outside Cell A	16/05/2025	2.15	25.25	
Group C	MW9S	(4) Outside Cell B	16/05/2025	Destroyed	Destroyed	
Group C	MW7S	(1) Inside Cell	15/08/2025	NF	NF	
Group C	SP12	(2) Cut-off Well	15/08/2025	7.05	20.35	
Group C	MW8S	(3) Outside Cell A	15/08/2025	1.7	25.70	
Group C	MW9S	(4) Outside Cell B	15/08/2025	Destroyed	Destroyed	
Group C	MW7S	(1) Inside Cell	21/11/2025	NF	NF	
Group C	SP12	(2) Cut-off Well	21/11/2025	7.07	20.33	
Group C	MW8S	(3) Outside Cell A	21/11/2025	2.83	24.57	
Group C	MW9S	(4) Outside Cell B	21/11/2025	Destroyed	Destroyed	
Group C	MW7S	(1) Inside Cell	12/02/2026	NF	NF	
Group C	SP12	(2) Cut-off Well	12/02/2026	7.06	20.34	
Group C	MW8S	(3) Outside Cell A	12/02/2026	2.38	25.02	
Group C	MW9S	(4) Outside Cell B	12/02/2026	Destroyed	Destroyed	
Group D	MW15S	(1) Inside Cell	16/05/2025	4.98	18.05	
Group D	IP87	(2) Cut-off Well	16/05/2025	Dry	19.58	
Group D	MW16S	(3) Outside Cell A	16/05/2025	Dry	18.09	
Group D	MW15S	(1) Inside Cell	15/08/2025	dry	17.49	
Group D	IP87	(2) Cut-off Well	15/08/2025	dry	19.58	
Group D	MW16S	(3) Outside Cell A	15/08/2025	dry	18.09	
Group D	MW15S	(1) Inside Cell	21/11/2025	NA	NA	Well PVC possibly too kinked
Group D	IP87	(2) Cut-off Well	21/11/2025	Dry	19.58	
Group D	MW16S	(3) Outside Cell A	21/11/2025	Dry	18.09	
Group D	MW15S	(1) Inside Cell	12/02/2026	Dry	17.49	
Group D	IP87	(2) Cut-off Well	12/02/2026	Dry	19.58	
Group D	MW16S	(3) Outside Cell A	12/02/2026	Dry	18.09	
Group E	MW19S	(1) Inside Cell	16/05/2025	5.94	10.80	
Group E	IP119	(2) Cut-off Well	16/05/2025	5.15	11.72	
Group E	MW20S	(3) Outside Cell A	16/05/2025	7.00	10.88	
Group E	MW19S	(1) Inside Cell	15/08/2025	5.94	10.80	
Group E	IP119	(2) Cut-off Well	15/08/2025	5.18	11.69	
Group E	MW20S	(3) Outside Cell A	15/08/2025	4.53	13.35	
Group E	MW19S	(1) Inside Cell	21/11/2025	5.95	10.79	
Group E	IP119	(2) Cut-off Well	21/11/2025	5.18	11.69	
Group E	MW20S	(3) Outside Cell A	21/11/2025	7.03	10.85	
Group E	MW19S	(1) Inside Cell	12/02/2026	5.95	10.79	
Group E	IP119	(2) Cut-off Well	12/02/2026	5.18	11.69	
Group E	MW20S	(3) Outside Cell A	12/02/2026	dry	10.55	
Group F	MW22S	(1) Inside Cell	16/05/2025	5.22	8.86	

Group	Well	Well Location	Sampling Date	SWL (mBTOC)	SWL (mAHD)	Notes
Group F	IP115	(2) Cut-off Well	16/05/2025	4.68	10.11	
Group F	MW23S	(3) Outside Cell A	16/05/2025	7.25	8.85	
Group F	MW22S	(1) Inside Cell	15/08/2025	4.97	9.11	
Group F	IP115	(2) Cut-off Well	15/08/2025	Dry	10.02	
Group F	MW23S	(3) Outside Cell A	15/08/2025	Dry	8.74	
Group F	MW22S	(1) Inside Cell	21/11/2025	5.05	9.03	
Group F	IP115	(2) Cut-off Well	21/11/2025	Dry	10.02	
Group F	MW23S	(3) Outside Cell A	21/11/2025	Dry	8.74	
Group F	MW22S	(1) Inside Cell	12/02/2026	Dry	8.62	
Group F	IP115	(2) Cut-off Well	12/02/2026	Dry	10.02	
Group F	MW23S	(3) Outside Cell A	12/02/2026	Dry	8.74	
Group G	MW25S	(1) Inside Cell	16/05/2025	5.50	7.19	
Group G	IP111	(2) Cut-off Well	16/05/2025	Dry	7.68	
Group G	MW26S	(3) Outside Cell A	16/05/2025	NF	NF	
Group G	MW25S	(1) Inside Cell	15/08/2025	5.47	7.22	
Group G	IP111	(2) Cut-off Well	15/08/2025	Dry	7.68	
Group G	MW26S	(3) Outside Cell A	15/08/2025	NF	NF	
Group G	MW25S	(1) Inside Cell	21/11/2025	5.75	6.94	
Group G	IP111	(2) Cut-off Well	21/11/2025	Dry	7.68	
Group G	MW26S	(3) Outside Cell A	21/11/2025	6.81	8.10	
Group G	MW25S	(1) Inside Cell	12/02/2026	5.75	6.94	
Group G	IP111	(2) Cut-off Well	12/02/2026	Dry	7.68	
Group G	MW26S	(3) Outside Cell A	12/02/2026	6.78	8.13	
Group H	MW28S	(1) Inside Cell	16/05/2025	Concreted	Concreted	
Group H	IP108	(2) Cut-off Well	16/05/2025	Dry	9.40	
Group H	MW29S	(3) Outside Cell A	16/05/2025	Concreted	Concreted	
Group H	MW28S	(1) Inside Cell	15/08/2025	Concreted	Concreted	
Group H	IP108	(2) Cut-off Well	15/08/2025	Dry	9.40	
Group H	MW29S	(3) Outside Cell A	15/08/2025	Concreted	Concreted	
Group H	MW28S	(1) Inside Cell	21/11/2025	Concreted	Concreted	
Group H	IP108	(2) Cut-off Well	21/11/2025	Dry	9.40	
Group H	MW29S	(3) Outside Cell A	21/11/2025	Concreted	Concreted	
Group H	MW28S	(1) Inside Cell	12/02/2026	Concreted	Concreted	
Group H	IP108	(2) Cut-off Well	12/02/2026	Dry	9.40	
Group H	MW29S	(3) Outside Cell A	12/02/2026	Concreted	Concreted	
Group I	MW31S	(1) Inside Cell	16/05/2025	0.31	10.12	
Group I	IP105A	(2) Cut-off Well	16/05/2025	6.11	5.10	
Group I	MW32S	(3) Outside Cell A	16/05/2025	7.27	4.99	
Group I	MW31S	(1) Inside Cell	15/08/2025	1.2	9.23	
Group I	IP105A	(2) Cut-off Well	15/08/2025	5.04	6.17	
Group I	MW32S	(3) Outside Cell A	15/08/2025	7.19	5.07	
Group I	MW31S	(1) Inside Cell	21/11/2025	3.66	6.77	
Group I	IP105A	(2) Cut-off Well	21/11/2025	Dry	3.91	
Group I	MW32S	(3) Outside Cell A	21/11/2025	7.81	4.45	
Group I	MW31S	(1) Inside Cell	12/02/2026	3.52	6.91	
Group I	IP105A	(2) Cut-off Well	12/02/2026	Dry	3.91	
Group I	MW32S	(3) Outside Cell A	12/02/2026	7.91	4.35	
Group J	MW35S	(1) Inside Cell	16/05/2025	6.22	7.26	
Group J	IP103	(2) Cut-off Well	16/05/2025	Dry	5.18	
Group J	MW34S	(3) Outside Cell A	16/05/2025	2.10	9.64	
Group J	MW35S	(1) Inside Cell	15/08/2025	6.02	7.46	
Group J	IP103	(2) Cut-off Well	15/08/2025	6.07	6.23	
Group J	MW34S	(3) Outside Cell A	15/08/2025	2.26	9.48	
Group J	MW35S	(1) Inside Cell	21/11/2025	6.63	6.85	
Group J	IP103	(2) Cut-off Well	21/11/2025	Dry	5.18	
Group J	MW34S	(3) Outside Cell A	21/11/2025	3.07	8.67	
Group J	MW35S	(1) Inside Cell	12/02/2026	6.56	6.92	
Group J	IP103	(2) Cut-off Well	12/02/2026	Dry	5.18	
Group J	MW34S	(3) Outside Cell A	12/02/2026	2.9	8.84	
Dry - Monitoring Well was dry at the time of sampling. Depth to base of well has been used.						
Concreted - Monitoring well was covered by concrete						
Note IP108 are Replacement wells sampled nearby to the south						
NF – Well Not Found						
NA – Well Not Accessible						
NS - Not Sampled						

			Field							Inorganics													
			DO % Saturation (Field)	DO (Field)	EC (field)	pH (Field)	Redox Potential (Field)	Standing Water Level	Temp (Field)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Carbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Chloride	Electrical Conductivity (Lab)	pH (Lab)	Redox Potential (Lab)	Sodium	Sulphate	Cadmium (filtered)	Calcium	Lead (filtered)
			%	mg/L	uS/cm	pH_Units	mV	m AHD	oC	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	-	mV	mg/L	mg/L	mg/L	mg/L	mg/L
EQL										20	20	20	20	1	10	0.1	1	0.5	2	0.0002	0.5	0.001
Location Code	Date	Field ID																					
SUMP A	16 May 2025	250516_SUMPA_NF	39.9	3.99	444	6.6	49.4	4.1	19.5	-	-	-	-	-	-	-	-	-	-	0.0036	-	0.007
	15 Aug 2025	250815-SUMPA-NF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0020	-	0.003
	21 Nov 2025	251121-SUMPA-NF	49.1	4.61	542	7.79	-77.1	6.66	20.3	50	<20	<20	50	74	590	7.3	410	80	95	<0.0002	14	<0.001
	12 Feb 2026	260212-SUMPA-NF	32.2	3.22	597	7.23	6	6.66	21.2	-	-	-	-	-	-	-	-	-	-	0.0018	-	<0.001
SUMP B	16 May 2025	250516_SUMPB_NF	39.4	3.94	386.6	6.55	65.9	4.77	19.2	-	-	-	-	-	-	-	-	-	-	0.0028	-	0.006
	15 Aug 2025	250815- SUMPB-*NF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0045	-	0.002
	21 Nov 2025	251121-SUMPB-NF	74.5	6.93	744	7.51	39.4	4.61	19.6	64	<20	<20	64	120	830	7.0	350	110	170	0.0018	20	<0.001
	12 Feb 2026	260212-SUMPB-NF	58	5.8	646	7.01	23.2	4.8	21.2	-	-	-	-	-	-	-	-	-	-	0.0024	-	0.033
SUMP C	16 May 2025	250516_SUMPC_NF	53.1	5.31	279.8	6.94	27.4	5.2	18.8	-	-	-	-	-	-	-	-	-	-	0.0031	-	0.009
	15 Aug 2025	250815- SUMPC-NF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0064	-	0.007
	21 Nov 2025	251121-SUMPC-NF	69	6.9	3,243	6.32	27.9	7.13	19.3	<20	<20	<20	<20	810	3,700	4.1	600	610	490	0.0019	25	0.016
	12 Feb 2026	260212-SUMPC-NF	63	6.3	3,386	5.04	127.6	7.33	20.1	-	-	-	-	-	-	-	-	-	-	0.0024	-	0.017
SUMP D	16 May 2025	250516_SUMPD_NF	57	5.7	240.3	7.04	66.4	4.15	18.9	-	-	-	-	-	-	-	-	-	-	0.0036	-	0.009
	15 Aug 2025	250815-SUMPD- NF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0044	-	0.006
	21 Nov 2025	251121-SUMPD-NF	88.7	8.1	2,211	6.14	255.8	8.42	19.4	37	<20	<20	37	580	2,500	6.7	360	400	540	0.0054	17	<0.001
	12 Feb 2026	260212-SUMPD-NF	76.7	7.67	2,360	5.67	188.1	8.4	20.4	-	-	-	-	-	-	-	-	-	-	0.0069	-	<0.001
SUMP E	16 May 2025	250516_SUMPE_NF	62.5	6.25	323.9	7.41	65.8	6.4	19.5	-	-	-	-	-	-	-	-	-	-	0.0046	-	0.005
	15 Aug 2025	250815-SUMPE- NF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0058	-	0.002
	21 Nov 2025	251121-SUMPE-NF	78.4	7.84	1,032	6.58	47.6	10.75	19.4	62	<20	<20	62	900	5,100	7.0	380	800	1,200	0.017	120	0.005
	12 Feb 2026	260212-SUMPE-NF	72.7	7.27	4,938	6.51	125.5	10.62	21.9	-	-	-	-	-	-	-	-	-	-	0.019	-	0.007

			Metals			
			Magnesium	Nickel (filtered)	Potassium	Zinc (filtered)
			mg/L	mg/L	mg/L	mg/L
EQL			0.5	0.001	0.5	0.005
Location Code	**Date**	**Field ID**				
SUMP A	16 May 2025	250516_SUMPA_NF	-	0.011	-	0.32
	15 Aug 2025	250815-SUMPA-NF	-	0.007	-	0.20
	21 Nov 2025	251121-SUMPA-NF	12	0.004	5.7	0.042
	12 Feb 2026	260212-SUMPA-NF	-	0.006	-	0.16
SUMP B	16 May 2025	250516_SUMPB_NF	-	0.014	-	0.27
	15 Aug 2025	250815- SUMPB-*NF	-	0.010	-	0.47
	21 Nov 2025	251121-SUMPB-NF	17	0.005	7.5	0.19
	12 Feb 2026	260212-SUMPB-NF	-	0.009	-	0.25
SUMP C	16 May 2025	250516_SUMPC_NF	-	0.013	-	0.19
	15 Aug 2025	250815- SUMPC-NF	-	0.011	-	0.60
	21 Nov 2025	251121-SUMPC-NF	78	0.028	8.7	2.9
	12 Feb 2026	260212-SUMPC-NF	-	0.027	-	2.6
SUMP D	16 May 2025	250516_SUMPD_NF	-	0.013	-	0.32
	15 Aug 2025	250815-SUMPD- NF	-	0.010	-	0.56
	21 Nov 2025	251121-SUMPD-NF	36	0.010	12	0.62
	12 Feb 2026	260212-SUMPD-NF	-	0.012	-	0.86
SUMP E	16 May 2025	250516_SUMPE_NF	-	0.009	-	0.17
	15 Aug 2025	250815-SUMPE- NF	-	0.008	-	0.22
	21 Nov 2025	251121-SUMPE-NF	71	0.012	40	0.64
	12 Feb 2026	260212-SUMPE-NF	-	0.014	-	0.81

					Metals																Inorganics			
					Calcium	Lead (filtered)	Zinc (filtered)	Magnesium	Nickel (filtered)	Potassium	DO (Field)	EC (field)	pH (Field)	Redox Potential (Field)	Standing Water Level	Temp (Field)	Alkalinity (total) as CaCO3	Chloride	Sodium	Sulphate
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	pH_Units	millivolts	m	oC	mg/L	mg/L	mg/L	mg/L
EQL																								
Field ID	**Date**	**Sample Type**	**Matrix Type**	**Depth**																				
BG2A	15 May 2025	Well Destroyed																						
BG2A	21 Nov 2025	Well Destroyed																						
Statistics																								
Number of Results Required					1	2	2	1	2	1	2	2	2	2	2	2	1	1	1	1				
Number of Results					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Minimum Concentration																								
Maximum Concentration																								
Average Concentration *																								

* A Non Detect Multiplier of 0.5 has been applied.

			Metals						Field						Inorganics			
			Calcium	Lead (filtered)	Zinc (filtered)	Magnesium	Nickel (filtered)	Potassium	DO (Field)	EC (field)	pH (Field)	Redox Potential (Field)	Standing Water Level	Temp (Field)	Alkalinity (total) as CaCO3	Chloride	Sodium	Sulphate
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	pH_Units	mV	mbTOC	oC	mg/L	mg/L	mg/L	mg/L
EQL			0.5	0.001	0.005	0.5	0.001	0.5							20	1	0.5	2
Location Code	Date	Field ID																
BH62	15 May 2025	250515_BH62_NF	-	0.002	0.033	-	0.012	-	6.38	535	7.07	-57.7	7.87	19.1	-	-	-	-
	21 Nov 2025	251121-BH62-NF	15	0.004	0.042	20	0.009	11	4.23	1,704	6.93	7.8	8.16	20.6	90	260	200	120
Statistics																		
Number of Results Required			1	2	2	1	2	1	2	2	2	2	2	2	1	1	1	1
Number of Results			1	2	2	1	2	1	2	2	2	2	2	2	1	1	1	1
Minimum Concentration			15	0.002	0.033	20	0.009	11	4.23	535	6.93	-57.7	7.87	19.1	90	260	200	120
Maximum Concentration			15	0.004	0.042	20	0.012	11	6.38	1,704	7.07	7.8	8.16	20.6	90	260	200	120
Average Concentration *				0.003	0.038		0.01		5.3	1,120	7	-25	8	20				

* A Non Detect Multiplier of 0.5 has been applied.

			Metals						Field						Inorganics			
			Calcium	Lead (filtered)	Zinc (filtered)	Magnesium	Nickel (filtered)	Potassium	DO (Field)	EC (field)	pH (Field)	Redox Potential (Field)	Standing Water Level	Temp (Field)	Alkalinity (total) as CaCO3	Chloride	Sodium	Sulphate
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	pH_Units	mV	mbTOC	oC	mg/L	mg/L	mg/L	mg/L
EQL			0.5	0.001	0.005	0.5	0.001	0.5							20	1	0.5	2
Location Code	**Date**	**Field ID**																
BH63	15 May 2025	250515_BH63_NF	-	0.004	0.015	-	<0.001	-	5.38	469.8	5.36	151.4	4.15	21.2	-	-	-	-
	21 Nov 2025	251121-BH63-NF	3.8	<0.001	0.006	17	0.002	5.1	6.35	550	6.15	-11.5	4.29	23.8	<20	89	110	86
Statistics																		
Number of Results Required			1	2	2	1	2	1	2	2	2	2	2	2	1	1	1	1
Number of Results			1	2	2	1	2	1	2	2	2	2	2	2	1	1	1	1
Minimum Concentration			3.8	<0.001	0.006	17	<0.001	5.1	5.38	469.8	5.36	-11.5	4.15	21.2	<20	89	110	86
Maximum Concentration			3.8	0.004	0.015	17	0.002	5.1	6.35	550	6.15	151.4	4.29	23.8	<20	89	110	86
Average Concentration *				0.0023	0.01		0.0012		5.9	510	5.8	70	4.2	22				

* A Non Detect Multiplier of 0.5 has been applied.

									Field						Inorganics			
			Calcium	Lead (filtered)	Zinc (filtered)	Magnesium	Nickel (filtered)	Potassium	DO (Field)	EC (field)	pH (Field)	Redox Potential (Field)	Standing Water Level	Temp (Field)	Alkalinity (total) as CaCO3	Chloride	Sodium	Sulphate
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	pH_Units	mV	m AHD	oC	mg/L	mg/L	mg/L	mg/L
EQL			0.5	0.001	0.005	0.5	0.001	0.5							20	1	0.5	2
Location Code	**Date**	**Field ID**																
BH64S	15 May 2025	250515_BH64S_NF	-	<0.001	0.015	-	0.015	-	3.25	5,242	6	60.8	2.8	19.4	-	-	-	-
	21 Nov 2025	251121-BH64S-NF	85	<0.001	0.017	180	0.016	11	5.5	6,596	6.12	66	3.11	19.2	130	1,500	1,100	1,200
Statistics																		
Number of Results Required			1	2	2	1	2	1	2	2	2	2	2	2	1	1	1	1
Number of Results			1	2	2	1	2	1	2	2	2	2	2	2	1	1	1	1
Minimum Concentration			85	<0.001	0.015	180	0.015	11	3.25	5,242	6	60.8	2.8	19.2	130	1,500	1,100	1,200
Maximum Concentration			85	<0.001	0.017	180	0.016	11	5.5	6,596	6.12	66	3.11	19.4	130	1,500	1,100	1,200
Average Concentration *				0.0005	0.016		0.016		4.4	5,919	6.1	63	3	19				

* A Non Detect Multiplier of 0.5 has been applied.

			Metals						Field						Inorganics			
			Calcium	Lead (filtered)	Zinc (filtered)	Magnesium	Nickel (filtered)	Potassium	DO (Field)	EC (field)	pH (Field)	Redox Potential (Field)	Standing Water Level	Temp (Field)	Alkalinity (total) as CaCO3	Chloride	Sodium	Sulphate
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	pH_Units	mV	m AHD	oC	mg/L	mg/L	mg/L	mg/L
EQL			0.5	0.001	0.005	0.5	0.001	0.5							20	1	0.5	2
Location Code	**Date**	**Field ID**																
BH65D	21 Nov 2025	251121-BH65D-NF	180	<0.001	<0.005	160	0.002	18	3.5	7,623	7.17	-114.8	3.82	20.2	400	2,200	1,300	470
			-	-	-	-	-	-							-	-	-	-
Statistics																		
Number of Results Required			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Results			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Minimum Concentration			180	<0.001	<0.005	160	0.002	18	3.5	7,623	7.17	-114.8	3.82	20.2	400	2,200	1,300	470
Maximum Concentration			180	<0.001	<0.005	160	0.002	18	3.5	7,623	7.17	-114.8	3.82	20.2	400	2,200	1,300	470
Average Concentration *																		

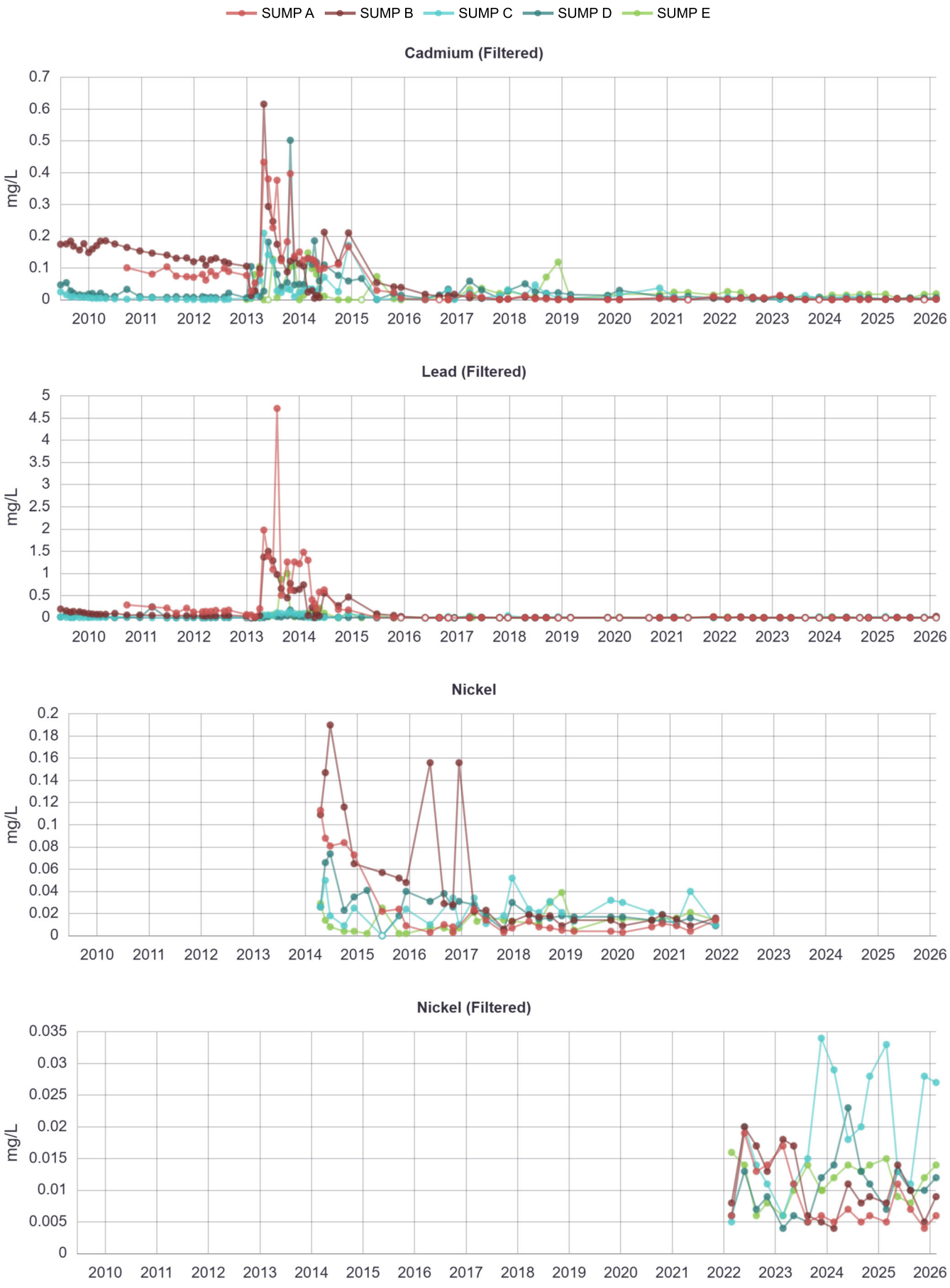
* A Non Detect Multiplier of 0.5 has been applied.

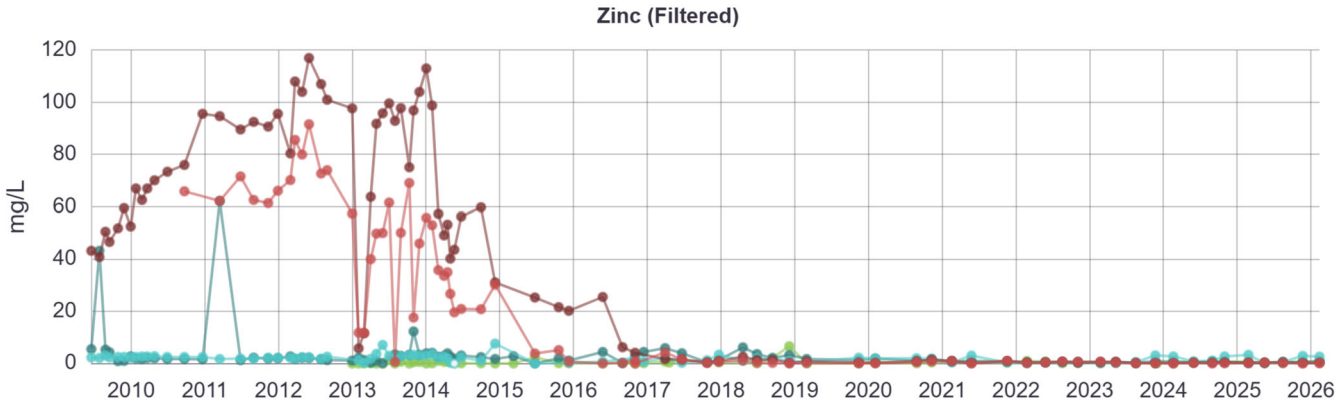
					Metals												Inorganics			
					Calcium	Lead (filtered)	Zinc (filtered)	Magnesium	Nickel (filtered)	Potassium	DO (Field)	EC (field)	pH (Field)	Redox Potential (Field)	Standing Water Level	Temp (Field)	Alkalinity (total) as CaCO3	Chloride	Sodium	Sulphate
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	pH_Units	millivolts	m	oC	mg/L	mg/L	mg/L	mg/L
EQL																				
Field ID	Date	Sample Type	Matrix Type	Depth																
BH65S	15 May 2025	Well Destroyed																		
BH65S	21 Nov 2025	Well Destroyed																		
Statistics																				
Number of Results Required					1	2	2	1	2	1	2	2	2	2	2	2	1	1	1	1
Number of Results					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration																				
Maximum Concentration																				
Average Concentration *																				

* A Non Detect Multiplier of 0.5 has been applied.

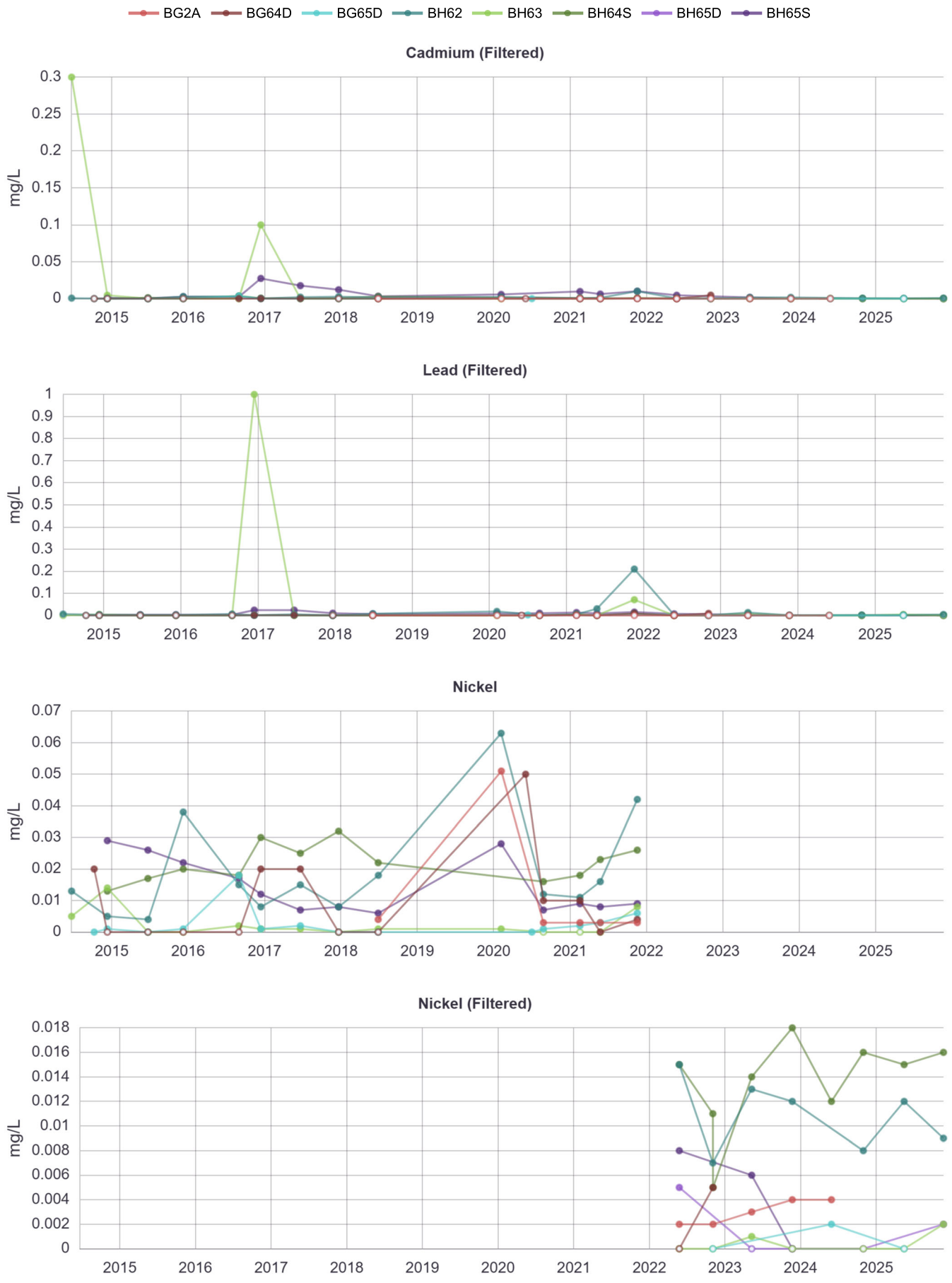
Appendix 3 – Historical graphical presentation of data for deep and shallow groundwater monitoring wells

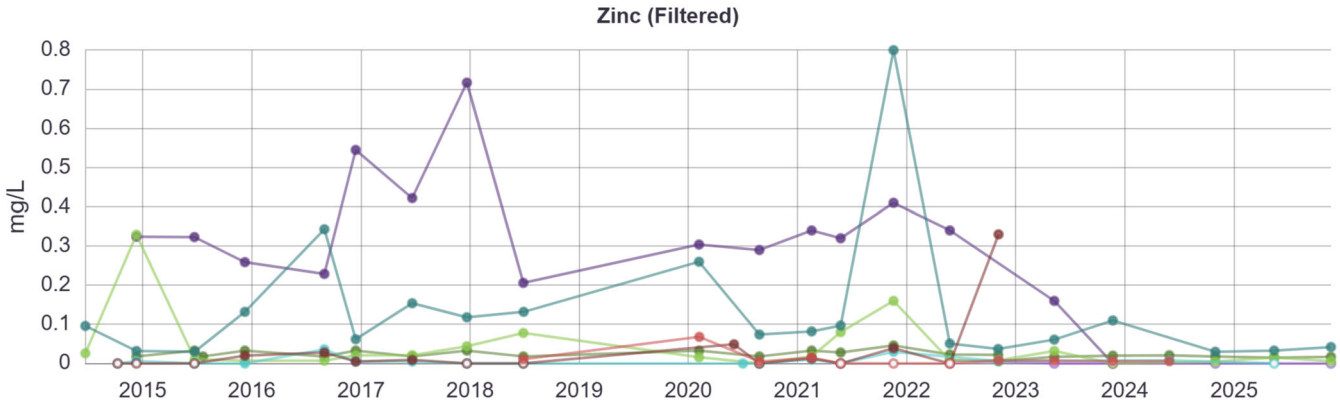
Chemistry Graph




Zinc (Filtered)
mg/L
120
100
80
60
40
20
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026

Chemistry Graph




Zinc (Filtered)
mg/L
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025