TECHNICAL MEMORANDUM

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TO Joan Plant
Nalunaq A/S

CC

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NALUNAQ GOLD MINE, GREENLAND: PRELIMINARY GEOCHEMICAL TESTING RESULTS FROM 2022 TAILINGS ANALYSIS PROGRAMME

1.0 INTRODUCTION

Golder, a member of WSP, is pleased to submit this technical memorandum to AEX regarding an ongoing geochemical characterisation programme on tailings samples from the Nalunaq Gold Project (the Project). Kinetic testing of the tailings has been requested by EMRA following a programme of static testing in 2021. The kinetic humidity cell tests are ongoing, whilst the intermittent bottle roll tests have concluded. This technical memorandum summarises interim static & kinetic testing results received to date (June 2022)

2.0 SAMPLE SELECTION AND PREPARATION

Tailings samples were generated in 2020 and 2021 for testing at SGS Lakefield in Ontario, Canada. One historic flotation sample was provided and 7 rock core samples were subjected to gravity and flotation processing, generating an additional 14 samples (7 gravity, 7 flotation). It is noted that the Project intends to move forward with flotation processing methodology for the mine planning, however, sometimes discharge of gravity tailings to the Dry Tailings Stack Facility (DTSF) may be required due to operational constraints. Therefore, both flotation and gravity tailings are being tested using static and kinetic test methods to assess the range of variability in these tailings types for future planning.

In early 2022, four composite samples were prepared from the available samples as part of the current phase of work to allow for sufficient sample volume for a range of further testing (Gr3+4, Fl_3+4, Gr_6+7+8, Fl_6+7+8; see Table 1). In addition, four individual samples (Gr_2, Fl_2, Gr_5, Fl_5; see Table 1) were also submitted for further testing.

3.0 TEST METHODS

Updated static testing was recommended to assess the characteristics of the samples after prolonged storage and the bulk properties of the composite samples generated for this programme. Humidity cell testing was recommended to assess the drainage chemistry of the dry stack filtered tailings. Bottle roll testing was recommended on the basis of the site setting, as the test method is suitable for assessing solute release rates from tailings that end up in an aqueous setting subject to mechanical abrasion (such as tailings in a stream). The current status of testing results at the time of reporting (analytical results to early June 2022) is summarised in Table 1.

Table 1 : Nalunaq Tailings Test Work Programme as of 9th June 2022

Sample ID	Sample Name	Sample Details	Humidity Cell Option B (Ambient)	Bottle Roll Test	Static Testing – ABA, NAG test, Trace Element Analysis
Gr_6+7+8	Gravity 'South Block' Composite	Composite of GRG-6 Knelson Tl, GRG-7 Knelson Tl and GRG-8 Knelson Tl	c. 50 % complete	100% complete	100% complete
Fl_6+7+8	Flotation 'South Block' Composite	Composite of F6 Ro Tl, F7 Ro Tl and F8 Ro Tl	c. 50 % complete	100% complete	100% complete
Gr_3+4	Gravity MB/TB Composite	Composite of GRG-3 Knelson Tl and GRG-4 Knelson Tl	c. 50 % complete	100% complete	100% complete
Fl_3+4	Flotation MB/TB Composite	Composite of F3 RoTl and F4 RoTl	c. 50 % complete	Insufficient sample, not tested	100% complete
Gr_2	Gravity Sample 2	GRG-2 Knelson Tl	c. 50 % complete	100% complete	100% complete
Fl_2	Flotation Sample 2	F2 Ro Tl	c. 50 % complete	100% complete	100% complete
Gr_5	Gravity Sample 5	GRG-5 Knelson Tl	c. 50 % complete	100% complete	100% complete
Fl_5	Flotation Sample 5	F5 Ro Tl	c. 50 % complete	Insufficient sample, not tested	100% complete

3.1 Chemical Composition Test Methods

Whole rock analyses were conducted using borate fusion by x-ray fluorescence (XRF). The pulverised sample (<75 µm fraction) was roasted at 1,000°C for three hours to oxidise Fe^{2+} and sulphur (S) and to determine the loss of ignition (LOI). Borate glass disks were then prepared from the milled and roasted samples by fusing two grams of sample with eight grams of 12 to 22 flux (consisting of 35% $LiBO_2$ and 64.71% $Li_2B_4O_7$) at 1,050°C. The glass disks were analysed using a PANalytical Axios X-ray fluorescence spectrometer equipped with a

4 kW Rh tube. The following parameters were then determined: SiO_2, Al_2O_3, Fe_2O_3, MgO, CaO, Na_2O, K_2O, TiO_2, P_2O_5, MnO, Cr_2O_3, and V_2O_5.

A bulk-metals scan using inductively coupled plasma–mass spectrometry (ICP-MS) and inductively coupled plasma-optical emission spectroscopy (ICP-OES) was conducted on the solid samples following four-acid digest with microwave assist for a near-total digest. The scan included the determination of major and trace metal composition. Due to interferences in the inductively coupled plasma (ICP), mercury was analysed using cold vapour atomic absorption spectroscopy (CVAAS).

3.2 Acid Base Accounting Methods

Analysis for acid-base accounting (ABA) comprised measurement of:

- Sulphur species;
- Neutralisation potential (NP), including measurement of carbon compounds that affect NP; and
- Paste pH.

Analysis of total sulphur and total carbon was conducted by C/S analyser, acid leachable sulphate using hydrochloric acid (HCl) leach. Sulphide was analysed using the Modified Sobek method described by American Society for Testing and Material (ASTM) E1915 Standard Test Method for Analysis of Metal Bearing Ores and Related Materials for Carbon, Sulfur, and Acid-Base Characteristics (Price, 1997) with nitric acid digestion, and total inorganic carbon by coulometry.

The bulk NP of the samples was determined by treating the samples with a known excess of HCl, and back-titrating the amount of unconsumed acid with sodium hydroxide.

Paste pH was determined by mixing the solid with a fixed amount of distilled water and measuring the pH of the resulting slurry. An acidic paste pH value (<5.5) indicates that the sample is acid generating at the time of analysis.

Net Acid Generation (NAG) Test

For the NAG test, 250 millilitres (mL) of 15% hydrogen peroxide was added to 2.5 grams (g) of sample in order to rapidly oxidise any sulphide minerals. Upon completion of the reaction, the reaction pulp was titrated to pH 4.5 and to pH 7.0 with a standardised sodium hydroxide solution. The NAG pH was measured prior to the titration with sodium hydroxide. For NAG pH, a sample is considered potentially acid forming (PAF) if the pH of the test solution falls below pH 4.5 due to net acidity.

3.3 Kinetic Tests

3.3.1 Intermittent Bottle Roll Tests

The intermittent bottle roll (IBR) test is designed to assess the solute release rates from tailings that end up in an aqueous setting subject to mechanical abrasion (such as tailings in a stream). A representative 500 g subsample was weighed out and placed into a 4 L container with 1,000 mL of deionized water (liquid-to-solid ratio of 2:1). The slurry was shaken, and the initial pH recorded. The container was placed on inclined rollers and slowly rotated at 15 revolutions per minute for the duration of the test.

Intermediate samples were taken after 1, 3, 7, 14, and 28 days during the 56-day test period (final sample at Day 56) by removing the vessels from the inclined rolls and allowing the leachate solution to form a supernatant before removing a sample. The leachate was analysed for pH, alkalinity, acidity, conductivity, sulphate and dissolved metals. The tailings slurry was then be topped up with a volume of DI water equivalent to the leachate volume removed and placed back onto the inclined rollers. The leachates were measured for a suite of dissolved

metals (Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, P, Pb, Sb, Se, Si, Sn, Sr, Th, Ti, Tl, U, V, W, Y, Zn and Hg).

3.3.2 Humidity Cell Tests

All samples (Table 1) were submitted for humidity cell testing using ASTM Option B, ambient air, with SGS Lakefield in Ontario, Canada. One kilogram of sample was loaded into the standard humidity cell (8” ID by 4” height for tailings), with a minimum sampling period of 20 weeks to be completed.

As per the ASTM D5744 Option B protocols, the lid of the humidity cells are not fitted with an NPT fitting and the test cells are not subjected to the dry air/humid air cycles. Instead, the centre hole is left open to allow for exchange of ambient air during the 6-day portion of the weekly cycle. This test method was chosen as it is more representative of the depositional environment. On the last day of the cycle, 1000 mL of deionized (DI) water is added through the top of the cell and allowed to flood the cell for one hour. Leachate is collected after the flooding, the volume of the recovered leachate is recorded, and the solution is submitted for analysis for general parameters (pH, acidity, alkalinity, electrical conductivity and sulphate), and a suite of dissolved metals (Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, P, Pb, Sb, Se, Si, Sn, Sr, Th, Ti, Tl, U, V, W, Y, Zn and Hg).

4.0 RESULTS

4.1 Chemical Composition

The extent of elemental enrichment in the samples was assessed with the aid of the geochemical abundance index (GAI), which compares the measured concentration of a particular element with the estimated average crustal abundance (INAP, 2014) using the following equation:

$$GAI = \log_2 \left[\frac{Cn}{1.5 \times S} \right]$$

where Cn *is the concentration of the element in the sample, and* S *is the average crustal abundance of that element*

The GAI is expressed in integer increments starting from 0; where a GAI of 0 indicates the element is present at a concentration similar to, or less than, average abundance and a GAI of 6 indicates approximately a 100-fold, or greater, enrichment above average abundance. A GAI of 2 equates to an exceedance of six to 12 times the average crustal abundance and is commonly used as a significant GAI value (e.g. above a GAI of 2 is considered of interest). The results from the major and trace element analysis were compared to the average crustal abundance in the earth's crust reported by Smith and Huyck (1999). Results reported at less than detection have been set at LOD for purposes of calculation of average concentrations.

In general, the trace metal concentrations and major oxides (Table 2 & Table 3) were similar to or below the crustal abundances, with the exception of arsenic (As) and bismuth (Bi), which greatly exceed the crustal abundance in one or more samples. For all the flotation samples analysed the GAI was between four to five for arsenic, whilst for the gravity samples the GAI is between six to seven (Table 3). Bismuth has a GAI of three in sample FL_3+4 and ranges between three to five in the gravity samples (Table 3). Both silver (Ag) and selenium (Se) have limits of detection which are at least six times above the crustal abundances with a GAI of two across all samples when results are set at the LOD (Table 3). The trace element content of specific rock types is a control on background concentrations in soils, sediments and waters which will impact the ability of these elements to mobilise in the environment. The potential mobilisation of these trace elements will be assessed in the kinetic testing programme.

Table 2: Summary of Chemical Composition - Major Oxides

	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	TiO_2	P_2O_5	MnO	Cr_2O_3	V_2O_5	LOI
	%	%	%	%	%	%	%	%	%	%	%	%	%
Crustal Abundance	57.8	15.1	7.15	3.48	4.2	3.24	3.13	0.83	0.23	0.12	0.03	0.03	-
Flotation													
Fl_2	49.6	12.90	9.0	5.73	16.00	1.73	0.48	0.83	0.08	0.18	0.05	0.05	3.09
Fl_3+4	56.7	12.20	9.2	6.50	11.20	1.60	0.29	0.76	0.05	0.16	0.06	0.04	1.43
Fl_5	56.2	10.90	9.4	5.34	13.30	1.83	0.45	0.77	0.06	0.19	0.05	0.05	1.31
Fl_6+7+8	54.9	11.50	9.4	7.04	11.90	1.76	0.42	0.72	0.09	0.16	0.04	0.04	1.30
Gravity													
Gr_2	49.2	12.9	9.7	5.76	16.00	1.73	0.49	0.83	0.07	0.18	0.06	0.05	3.12
Gr_3+4	55.6	12.0	9.8	6.65	11.10	1.57	0.29	0.79	0.05	0.16	0.07	0.05	1.59
Gr_5	55.1	10.8	10.5	5.21	13.10	1.81	0.44	0.77	0.06	0.19	0.07	0.05	1.58
Gr_6+7+8	55.2	11.5	9.7	6.96	11.80	1.76	0.43	0.71	0.10	0.16	0.04	0.04	1.75

Notes: Typical crustal abundance for continental rocks taken from Smith and Huyck (1999).
Values exceeding, or potentially exceeding, six times the crustal abundance are highlighted in bold red italicised font (i.e. GAI ≥2), and bold blue italicised font where at LOD.
% = percent; < = less than.
Values have been reported to the number of decimal places as provided by the laboratory

Table 3: Summary of Chemical Composition - Trace Metals (Ag – Li)

	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Hg	K	Li
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Crustal Abundance	0.07	80,000	2	430	3	0.2	30,000	0.18	25	200	60	50,000	0.08	26,000	30
Flotation															
Fl_2	***<0.5***	69,000	***78***	110	4.00	1.0	130,000	0.23	23	140	22	68,000	< 0.05	4,100	86
Fl_3+4	***<0.5***	63,000	***41***	51	0.9	***2.0***	85,000	0.14	31	240	21	68,000	< 0.05	2,400	57
Fl_5	***<0.5***	56,000	***100***	84	2.0	1.0	99,000	0.25	17	170	14	68,000	< 0.05	3,500	49
Fl_6+7+8	***<0.5***	59,000	***46***	80	1.0	0.7	91,000	0.21	28	150	28	69,000	< 0.05	3,400	36
Gravity															
Gr_2	***<0.5***	64,000	***310***	99	3.0	***3.0***	120,000	0.27	38	190	140	67,000	< 0.05	3,800	82
Gr_3+4	***<0.5***	62,000	***200***	53	1.0	***7.0***	85,000	0.19	41	200	150	72,000	< 0.05	2,400	62
Gr_5	***<0.5***	55,000	***450***	83	2.0	***2.0***	97,000	0.30	31	140	170	75,000	< 0.05	3,500	48
Gr_6+7+8	***<0.5***	58,000	***230***	85	1.0	***2.0***	87,000	0.29	38	130	130	69,000	< 0.05	3,500	38

Notes: Typical crustal abundance for continental rocks taken from Smith and Huyck (1999).
Values exceeding, or potentially exceeding, six times the crustal abundance are highlighted in bold red italicised font (i.e. GAI ≥2), and bold blue italicised font where at LOD.
% = percent; < = less than.
Values have been reported to the number of decimal places as provided by the laboratory

Table 4 continued: Summary of Chemical Composition - Trace Metals (Mg – Zn)

	Mg	Mn	Mo	Na	Ni	Pb	Sb	Se	Sn	Sr	Ti	Tl	U	V	Y	Zn
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Crustal Abundance	21,000	900	2	24,000	80	16	1	0.09	2.5	350	5,000	1	3	150	30	70
Flotation																
Fl_2	35,000	1500	5.4	13,000	94	2	2.4	***<0.7***	11.0	150	4,900	0.6	0.65	250	19.2	75
Fl_3+4	39,000	1200	6	11,000	110	2	2.3	***<0.7***	<6	130	4,200	0.3	0.1	240	16.5	64
Fl_5	31,000	1500	8.0	13,000	74	1	1.6	***<0.7***	7.4	140	4,400	0.8	0.4	230	18.2	73
Fl_6+7+8	41,000	1300	2.8	12,000	91	4	1.9	***<0.7***	6.0	150	4,000	0.4	0.61	210	17.8	70
Gravity																
Gr_2	32,000	1400	7.7	12,000	140	4	3	***<0.7***	11.0	130	4,600	0.6	0.78	220	18.2	84
Gr_3+4	39,000	1200	9.6	11,000	160	1	5	***<0.7***	<6	120	4,400	0.3	0.15	230	17.0	71
Gr_5	30,000	1400	11.0	12,000	130	1	2	***<0.7***	7.2	140	4,400	0.7	0.49	220	17.7	78
Gr_6+7+8	40,000	1300	3.2	12,000	130	7	2	***<0.7***	<6	150	3,900	0.4	0.66	200	16.9	82

Notes: Typical crustal abundance for continental rocks taken from Smith and Huyck (1999).

Values exceeding, or potentially exceeding, six times the crustal abundance are highlighted in bold red italicised font (i.e. GAI ≥2), and bold blue italicised font where at LOD.

% = percent; < = less than.

Values have been reported to the number of decimal places as provided by the laboratory

4.2 Acid-Base Accounting

Acid-base accounting (ABA) results are used to determine the potential for acid generation. No single standard exists for interpretation of ARD potential using ABA results. An evaluation of the likelihood that such acid generation would indeed occur and the rate at which it takes place may require use of additional long-term tests such as humidity cell testing or column testing.

Typical classification criteria are defined in MEND (2009) and INAP (2014) based on the:

- Neutralisation potential ratio (NPR) (= NP/AP) and carbonate neutralisation potential ratio (CaNPR) (= CaNP/AP);
- Net neutralisation potential (NNP); and
- Net Acid Generation (NAG) pH.

There are three classifications: potentially acid forming (PAF, worst case); non-acid forming (NAF, best case); and uncertain. Each sample was individually assessed based on the three sets of criteria defined in (Table 5). Any samples classified as PAF were identified.

Table 5: Typical Classification Criteria of Acid Formation Potential Based on NPR, NNP and NAG Test Data

Geochemical Classification of Acid Formation Potential	NPR and CaNPR	NNP	NAG pH
Potentially Acid Forming (PAF)	< 1	< -20	< 4.5
Non-Acid Forming (NAF)	> 2	> 20	≥ 4.5
Uncertain	1 < NPR < 2	-20 < NNP < 20	

CaNPR = carbonate neutralisation potential ratio: NAG = Net Acid Generation; NNP = net neutralisation potential; NPR = neutralisation potential ratio.
Shaded cell indicates there is no uncertain value for NAG pH testing.

Paste pH, which represents readily available properties of the sample/material, ranged from 9.43 to 10.09 (Table 6). Paste pH is considered acidic at pH <5.5, and so no samples are considered to be acidic.

Total sulphur concentrations range between 0.016 to 0.482% (Table 6). Flotation samples are all <0.027%, with higher concentrations in gravity samples between 0.110 to 0.482% (Table 6).

Sulphide concentrations are similarly lower in flotation samples, with all of these samples showing a less than detection concentration (<0.04%), (Table 6). The highest concentration is 0.36% in gravity sample Gr_5, with a range between 0.07% to 0.36% across the gravity samples. Sulphides may generate acidity upon oxidation, depending on the nature of sulphide minerals present.

The AP values (calculated from sulphide sulphur) range from 1.25 kg $CaCO_3$/t (in all of the flotation samples) to 11.2 kg $CaCO_3$/t (Gr_2), (Table 6). The average AP for all the gravity samples is 6.01 kg $CaCO_3$/t.

The bulk NP reported by the laboratory ranges from 16.6 kg $CaCO_3$/t (Gr_3+4) to 48.5 kg $CaCO_3$/t (Fl_2) with an average of 26.95 kg $CaCO_3$/t for all the samples (Table 6) and similar averages for gravity (27.20 kg $CaCO_3$/t) and flotation samples (26.73 kg $CaCO_3$/t).

Carbonate NP (CaNP) ranges between 7.42 to 38.70 kg $CaCO_3$/t, with samples Fl_2 and GR_2 both higher than the others, each above 34.86 kg $CaCO_3$/t compared to <13.66 kg $CaCO_3$/t in the other samples (Table 6). Carbonate NP is lower than bulk NP in all samples. This indicates that the readily available neutralisation potential from carbonates is lower than the bulk NP measurement, which may include neutralisation from silicate minerals which have slower mineral reaction kinetics.

The NNP range is from 12.30 kg $CaCO_3$/t (Gr_5) to 47.25 kg $CaCO_3$/t (Fl_2). The average NNP for all the samples is 23.32 kg $CaCO_3$/t, with a higher average for flotational samples (25.5 kg $CaCO_3$/t) than gravity samples (21.17 kg $CaCO_3$/t).

4.2.1 NAG pH

The NAG pH of all samples is greater than 8.44 and so they are considered to be non-acid forming (NAF), (Table 6 & Table 7). The NAG pH ranges from 8.42 (Fl_3+4) to 10.74 (Fl_2), with an average of 9.44. The NAG pH is more indicative of long-term conditions and represents complete oxidation of reactive sulphide combined with simultaneous buffering through dissolution of neutralising minerals if present.

Table 6: Summary of Acid Base Accounting Results

Sample ID	Paste pH	NAG pH	Total Sulphur	Acid Soluble SO_4-S	Sulphide-S	Total Carbon	Carbonate (CO_3)	Carbonate NP	AP	Bulk NP	NNP	NPR	CaNPR
	units	*units*	*%*	*%*	*%*	*%*	*%*	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*	*ratio*	*ratio*
	Flotation (n=4)												
Fl_2	9.81	10.74	0.027	<0.04	<0.04	0.553	2.320	38.70	1.25	48.50	47.25	38.80	30.96
Fl_3+4	9.73	8.42	0.016	<0.04	<0.04	0.153	0.455	7.59	1.25	19.10	17.85	15.28	6.07
Fl_5	10.09	8.76	0.019	<0.04	<0.04	0.224	0.819	13.66	1.25	22.20	20.95	17.76	10.93
Fl_6+7+8	9.64	8.44	0.023	<0.04	<0.04	0.149	0.455	7.42	1.25	17.10	15.85	13.68	5.94
	Gravity (n=4)												
Gr_2	9.46	10.34	0.295	0.08	0.22	0.570	2.090	34.86	6.88	48.00	41.12	6.98	5.07
Gr_3+4	9.52	9.85	0.110	0.04	0.07	0.166	0.485	8.09	2.19	16.60	14.41	7.58	3.69
Gr_5	9.50	9.16	0.482	0.12	0.36	0.267	0.779	12.99	11.20	23.50	12.00	2.10	1.16
Gr_6+7+8	9.43	9.78	0.164	0.04	0.12	0.184	0.500	8.34	3.75	20.60	16.85	5.49	2.22

Notes:
Carbonate NP (kg $CaCO_3$/t) = (%TIC) x (100.09/12.01) x (10).
AP (Acid Potential) = %Sulphide Sulphur x 31.25.
Where NP <0 kg $CaCO_3$/t, a value of 0 was used for calculation of NNP and NPR.
NNP (Net Neutralisation Potential) = Bulk NP - AP
NPR (NP/AP ratio) = Bulk NP/AP.
kg = kilogram; < = less than.
Values have been reported to the number of decimal places as provided by the laboratory.

4.2.2 Assessment of ARD Potential

The first criterion for assessment of ARD potential is based on NPR[1]. All samples have an NPR greater than two (Table 6; Figure 1) and are therefore classified as NAF (Table 7). The NPR ranges between 2.10 (Gr_5) to 38.80 (Fl_2), with flotation samples generally having higher NPR (average 21.38) compared to gravity samples (average 5.54).

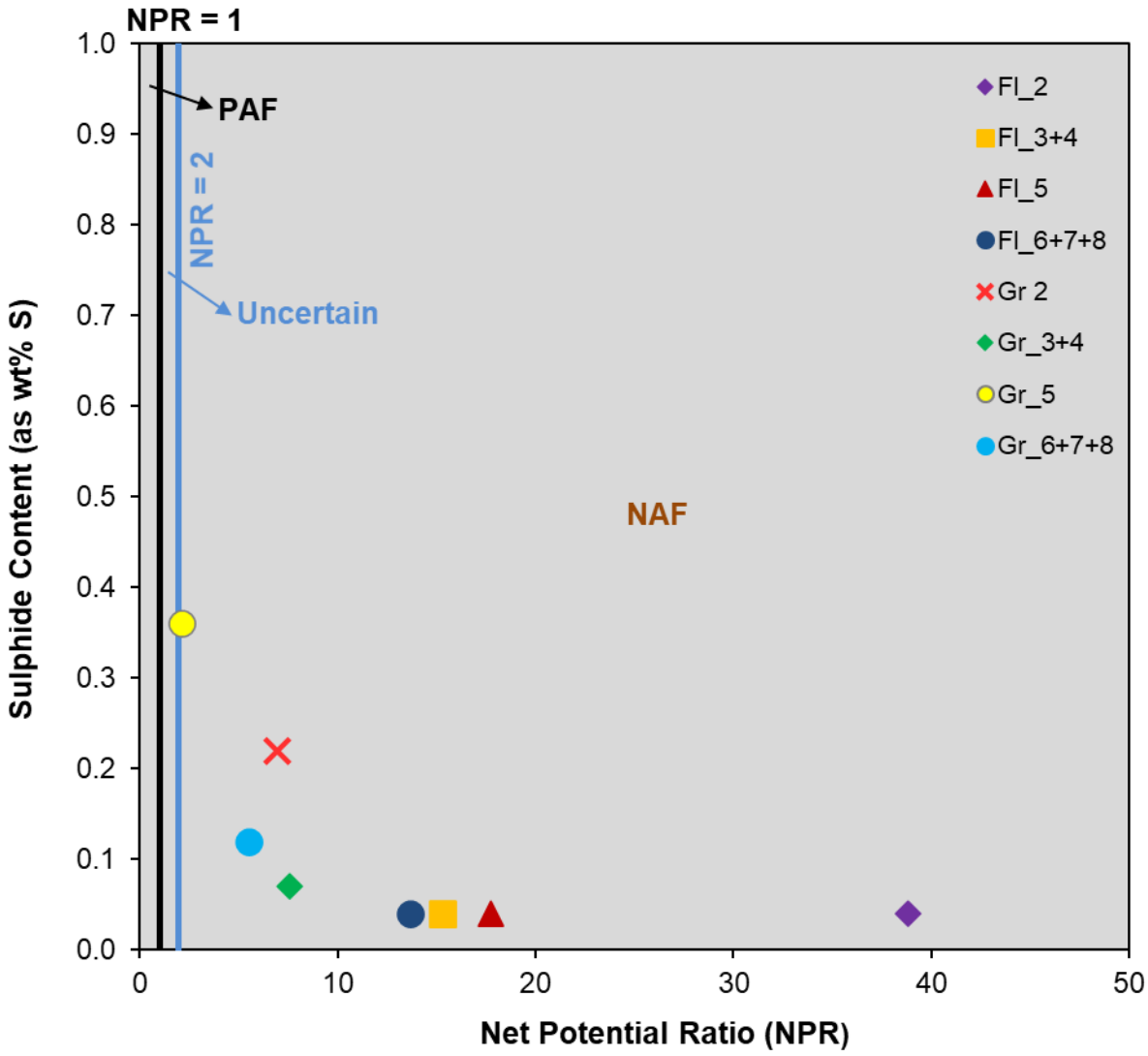

Figure 1. Total sulphur content versus Net Potential Ratio (NPR).

A second criterion for assessing ARD potential is based on the NNP (INAP, 2014). The following screening criteria are included in this classification:

- net neutralisation potential (NNP) < -20 kg $CaCO_3$/t: potentially acid forming (PAF);
- -20 < NNP < 20 kg $CaCO_3$/t: uncertain AP; and
- net neutralisation potential (NNP) > 20 kg $CaCO_3$/t: non-acid forming (NAF).

[1] Net Potential Ratio (NPR = neutralisation potential (NP)/acid potential (AP)

Five of the eight samples fall within the uncertain acid forming potential range based on NNP of -20 kg $CaCO_3$/t < NNP < 20 kg $CaCO_3$/t (Table 6 & Table 7; Figure 2). Three samples (Fl_2, Fl_5,Gr_2) fall above the NNP 20 kg $CaCO_3$/t classification, denoting they are non-acid forming (Table 6 & Table 7; Figure 2).

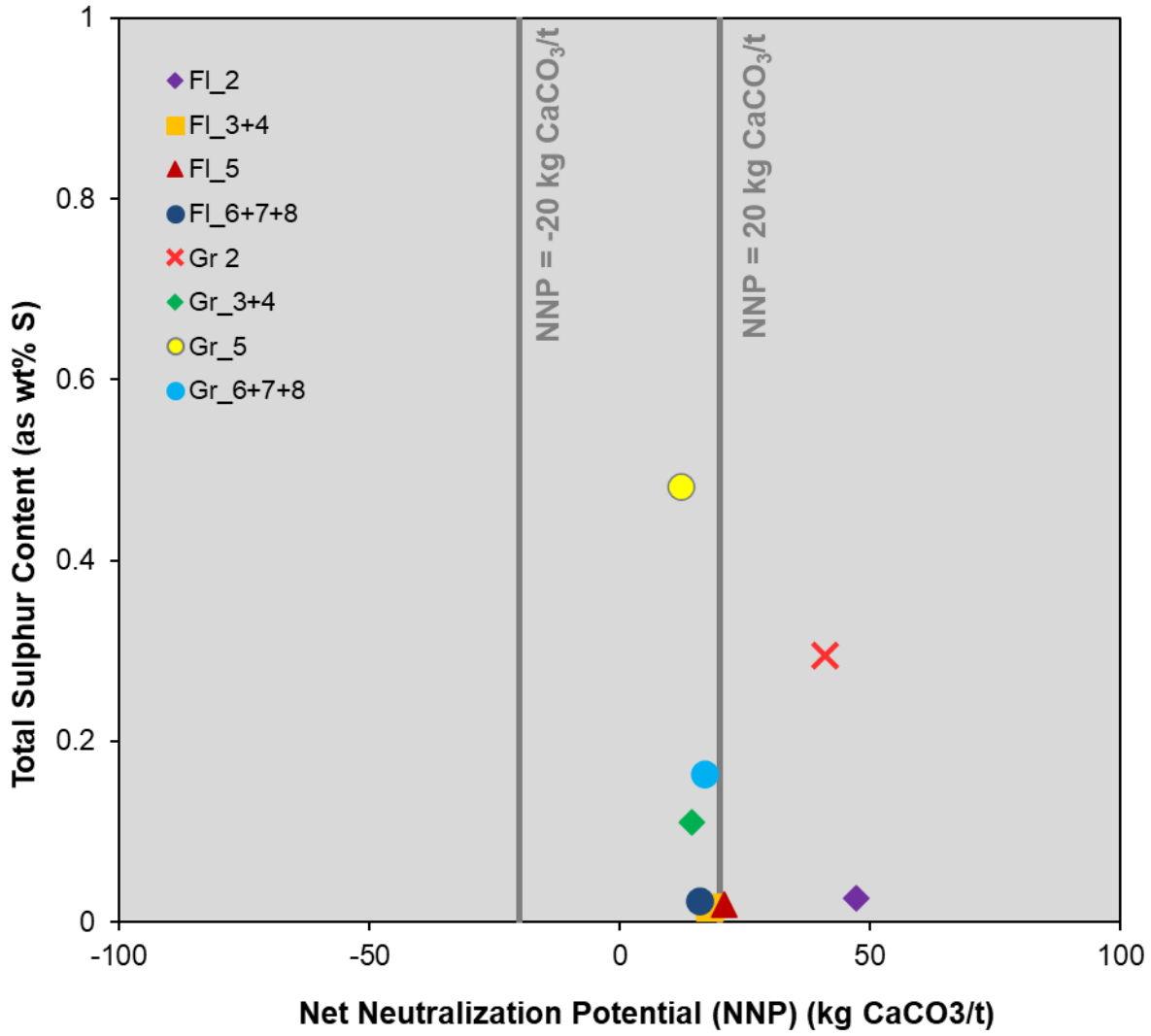

Figure 2. Total sulphur content versus Net Neutralisation Potential (NNP).

A final set of criteria for assessment of ARD potential is based on the NAG test. The commonly accepted pH threshold between net acid-forming and net acid-consuming is pH 4.5 (AMIRA, 2002). If the material is net acid-forming the NAG capacity value provides an estimate of the net acid generation potential. Unlike ABA the NAG results provide an indication of the intrinsic ARD potential of a material as the test accounts for both acid generation and simultaneous neutralisation by available NP. All samples analysed with the NAG test have a NAG pH greater than 4.5, suggesting they are NAF (Table 6 & Table 7; Figure 3).

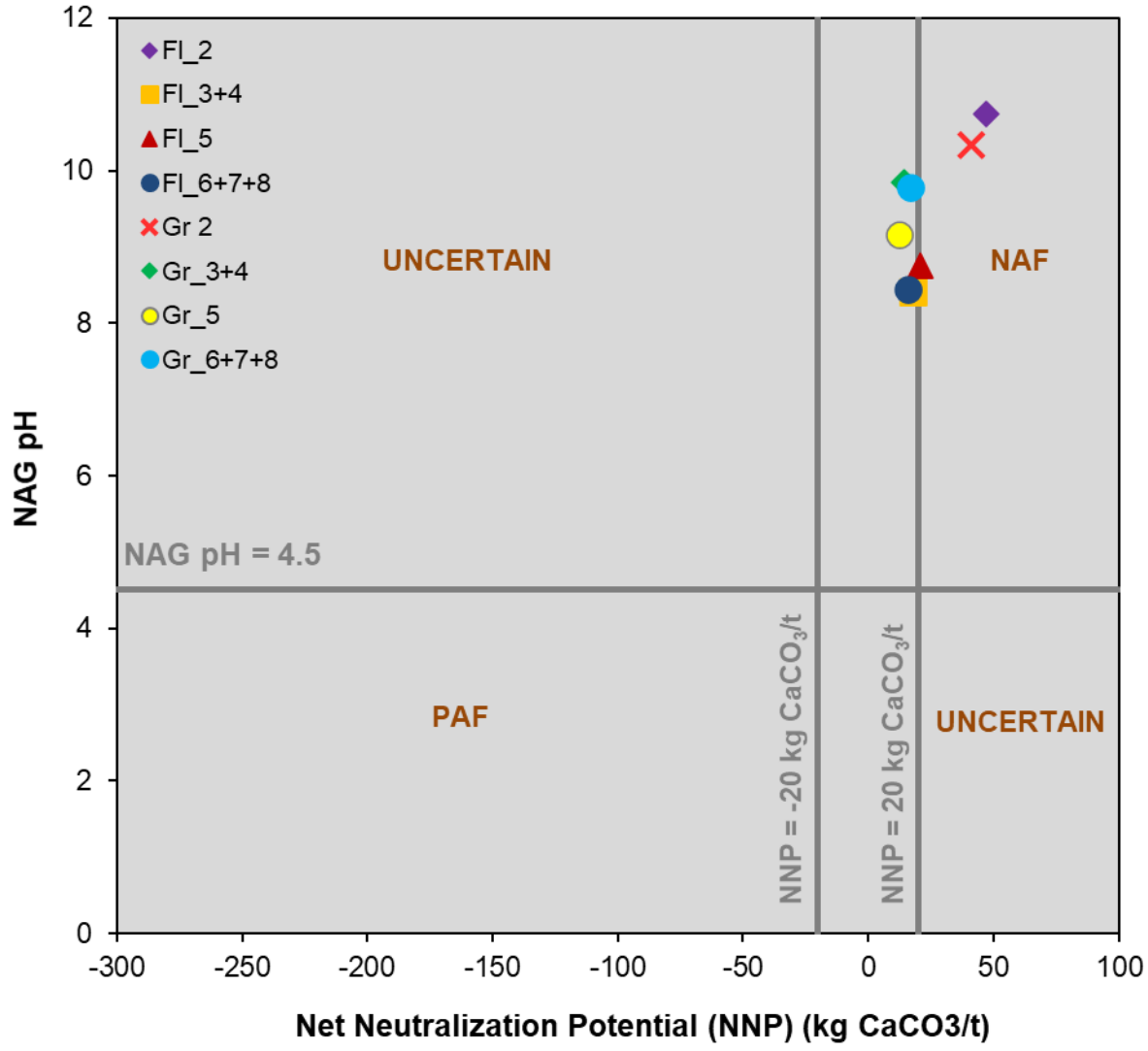

Figure 3. NAG pH versus Net Neutralisation Potential (NNP).

Table 7: Summary of Screening Assessment Results for Acid Rock Drainage Potential

Sample ID	Net Potential Ratio (NPR) Assessment	Net Neutralisation Potential (NNP) Assessment	Net Acid Generation (NAG) Assessment
Flotation			
Fl_2	NAF	NAF	NAF
Fl_3+4	NAF	Uncertain	NAF
Fl_5	NAF	NAF	NAF
Fl_6+7+8	NAF	Uncertain	NAF

Sample ID	Net Potential Ratio (NPR) Assessment	Net Neutralisation Potential (NNP) Assessment	Net Acid Generation (NAG) Assessment
Gravity			
Gr_2	NAF	NAF	NAF
Gr_3+4	NAF	Uncertain	NAF
Gr_5	NAF	Uncertain	NAF
Gr_6+7+8	NAF	Uncertain	NAF

4.3 Kinetic Testing

4.3.1 Water Quality Criteria Comparison

The results for both the HCT and intermittent bottle roll tests were screened against water quality guideline values as outlined in Table 8. Comparison against water quality guideline values is provided as an indication of preliminary constituents of potential concern (COPCs) to be considered for future assessment. Exceedance in kinetic testing does not necessarily translate directly to exceedances in the natural environment as environmental behaviour in the depositional environment is subject to a number of factors.

Freshwater Greenland Water Quality Criteria (GWQC) values took precedence where one or more guideline values were available, followed by the Danish Environmental Quality Standards (EQS), and lastly the European Union Drinking Water Standards (EU DWS) where no values are listed for the GWQC (Table 8).

Table 8: Summary of Water Quality Guidelines

Parameter	Units	Freshwater GWQC	EU DWS	Danish EQS[1]
Aluminium, Al	mg/L	-	0.2	-
Antimony, Sb	mg/L	-	0.01	0.133
Arsenic, As	mg/L	0.004	0.01	0.0043
Barium, Ba	mg/L	-	-	0.0093
Boron, B	mg/L	-	1.5	-
Cadmium, Cd	mg/L	0.0001	0.005	<0.00008
Chloride, Cl	mg/L	-	250	-
Chromium, Cr	mg/L	0.003	0.025	0.0034
Cobalt, Co	mg/L	-	-	0.00028
Copper, Cu	mg/L	0.002	-	-
Iron, Fe	mg/L	0.3	0.2	-
Lead, Pb	mg/L	0.001	0.005	-
Magnesium, Mg	mg/L	-	-	0.15
Manganese, Mn	mg/L	-	0.05	-

Parameter	Units	Freshwater GWQC	EU DWS	Danish EQS[1]
Mercury (total), Hg	mg/L	0.00005	-	-
Nickel, Ni	mg/L	0.005	0.02	0.0023
Phosphorus, P	mg/L	0.02	-	-
Selenium, Se	mg/L	-	0.02	-
Sodium, Na	mg/L	-	200	-
Sulphate, SO_4^{2-}	mg/L	-	250	-
Thallium, Tl	mg/L	-	-	0.00048
Uranium, U	mg/L	-	0.03	-
Zinc, Zn	mg/L	0.01	-	0.0078

[1]*General Quality Requirements for Fresh Water*

4.3.2 Intermittent Bottle Roll Tests

Laboratory results from Intermittent Bottle Roll Tests are shown in Table A.1 to Table A.6, and Figure A.1 to A.37, in Appendix A. Laboratory results below the limit of detection (LOD) are presented at their respective limits of detections in the graphs contained within Appendix A.

Intermittent bottle roll tests are conducted over a 56-day period, with all results complete and included within this report. Samples are measured on Day 1, Day 3, Day 7, Day 14, Day 28, and Day 56 for a range of parameters.

The pH is generally alkaline (Figure A.1) in all samples ranging from 7.99 (Gr_2) to 8.18 (Fl_6+7+8). Alkalinity and conductivity both increase towards Day 56 (Figures A.2 & A.4). No acidity is detected in any sample (Figure A.3). Sulphate remains low across the monitoring period but increases gradually towards Day 56 also (Figure A.5).

Results to date show that a range of parameters exceed water quality guidelines (Table 8), including aluminium (Al), arsenic (As), barium (Ba), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), magnesium (Mg), nickel (Ni), phosphorus (P), and zinc (Zn).

- *Aluminium:* Three samples exceed the European Drinking Water Standard (EU DWS) for aluminium in the first 7 days of the bottle roll tests, including two flotation samples (Fl_2 and Fl_6+7+8) and one gravity sample (Gr_6+7+8) which decrease in concentration by Day 14 to under the water quality guidelines (Figure A.11).
- *Arsenic:* All samples exceed the Greenland Water Quality Criteria (GWQC) value of 0.004 mg/L across the 56-day time period (Figure A.13). Sample Fl_2 decreases in concentration between Day 1 and Day 28 before stabilising, whilst samples Gr_2, and Gr_6+7+8 show gradual increase in concentrations across the measurement period.
- *Barium:* One sample, Gr_2, exceeds the Danish Environmental Quality Standards (EQS) value of 0.0093 mg/L from Week 28 (Figure A.14), and sample Gr_6+7+8 exceeds at Day 56. Barium concentrations in all other samples are below this guideline value.

- *Cadmium:* Two samples exceed the GWQC value of 0.0001 mg/L (Figure A.18). Sample Gr_5 exceeds on Day 14 only, with a spike in concentrations before falling again at Day 28. Sample Fl_2 decreases in concentration towards Day 14, before increasing considerably at Day 28. All samples are below the GWQC value at Day 56.
- *Chromium:* One sample, Gr_2, exceeds the 0.003 mg/L GWQC value for chromium on Day 1 before decreasing in concentration rapidly (Figure A.19). All samples are below the GWQC for chromium from Day 3.
- *Cobalt:* All samples exceed the Danish EQS value of 0.00028 mg/L for cobalt at one or more Days measured to date (Figure A.20). Sample Fl_2 only exceeds this value on Day 7 before decreasing, whilst samples Gr_2 and Gr_5 show increasing concentrations of cobalt up to Day 56.
- *Copper:* All samples exceed the GWQC value of 0.002 mg/L on one or more occasions across the 28 Day time period, and from Day 28 are all in exceedance of the GWQC value (Figure A.21).
- *Iron:* Two samples (Fl_2 and Gr_6+7+8) are initially in exceedance of the GWQC value for iron (Figure A.22). Both samples decrease in concentration by Day 3 to below the GWQC. One further sample, Fl_6+7+8, shows a peak at Day 7 but remains at a concentration less than the GWQC.
- *Magnesium:* All samples exceed the Danish EQS value of 0.15 mg/L for magnesium from Day 1 to Day 56 but remain at relatively stable concentrations (Figure A.7).
- *Nickel:* Flotation samples do not exceed the GWQC value of 0.005 mg/L across the time period measured (Figure A.27). All gravity samples exceed the GWQC in one or more measurements in the first 7 days; however, only Gr_2 and Gr_5 remain in exceedance from Day 14 continuing to increase in concentration to Day 56.
- *Phosphorus:* Flotation samples have higher concentrations of phosphorus than gravity samples (Figure A.6). Sample Fl_2 exceeds the GWQC value of 0.02 mg/L across the time period measured, with Fl_6+7+8 also exceeding from Day 3. Gravity sample, Gr_6+7+8, exceeds the GWQC at Day 1 but decreases in concentration by Day 3 to less than the GWQC.
- *Zinc:* All samples exceed the GWQC value of 0.01 mg/L in one or more measurements up to Day 7 (Figure A.37). From Day 28, only sample Fl_2 exceeds the GWQC value, having decreased from Day 3 to Day 7 before forming a peak at Day 28.

All other metals remain below the recommended limits where applicable.

4.3.3 Humidity Cell Tests

Laboratory results from Humidity Cell Tests are shown in Table B.1 to Table B.8 and Figure B.1 to B.38, in Appendix B. Laboratory results below the limit of detection (LOD) are presented at their respective limits of detections in the graphs contained within Appendix B.

4.3.3.1 Early Leachate Results (Weeks 0 to 5)

Leachate results obtained in the first few weeks of testing are typically interpreted separately from the longer-term leachate results, as they generally represent the flushing of pre-existing oxidation products and highly soluble mineral phases from the surface of the tested material.

Early term leachate results show generally circum-neutral to alkaline pH conditions during the first five weeks (Figure B.1). Flotation samples show more alkaline pH during the initial three weeks (pH 7.98 to 8.86; Fl_6+7+8), when compared to the gravity samples which have a lower pH range of pH 7.55 (Gr_3+4) to 8.02 (Gr_5). From

Week 3, Gr_2 shows an increase in pH up to Week 4 where other gravity samples Gr_6+7+8, and Gr_3+4 also increase before returning to pH values generally lower than in flotation samples in Week 5 (Figure B.1).

Acidity is only measured in one sample (GR_2) in week 0 and is less than detect in all other samples over the testing period (Fig. B.3). Conductivity falls rapidly from Week 0 to Week 2 before stabilising. The alkalinity is higher in flotation samples (except Fl_6+7+8) and shows a decrease across all the samples between Week 0 and Week 5 (Fig. B.4).

Elevated concentrations above guideline values as listed in Table 8, for sulphate (SO_4), aluminium (Al), arsenic (As), cobalt (Co), copper (Cu), magnesium (Mg), manganese (Mn), nickel (Ni), and phosphorus (P) were recorded in the first few weeks of testing.

- *Sulphate (SO_4):* Sample Gr_5 has an initially high concentration of 340 mg/L exceeding the European Union Drinking Water Standards (EU DWS), with concentrations of sulphate higher in all gravity samples higher than those in flotation samples (Figure B.5). Both gravity and flotation samples show a decrease in sulphate concentrations between Week 0 and Week 3 before becoming more stable across all samples (Figure B.5).
- *Aluminium (Al):* Flotation samples have higher concentrations of aluminium than gravity samples (Figure B.11). Gravity samples show a decreasing trend in aluminium concentrations between Week 0 to 5 whilst flotation samples (except Fl_6+7+8) show an increasing trend with samples Fl_3+4, and Fl_5 both exceeding the EU DWS.
- *Arsenic (As):* Flotation samples are generally higher in arsenic compared to gravity samples (Figure B.13) with the exception of Fl_6+7+8. All samples are above the Greenland Water Quality Criteria (GWQC) value of 0.004 mg/L, although all samples additionally show a trend of decreasing concentrations towards Week 5. Arsenic was identified as a COPC from static testing due to its crustal abundance (Section 4.1).
- *Cobalt (Co):* Five samples are initially above the Danish Environmental Quality Standards (EQS) value of 0.00028 mg/L from Week 0 including Fl_2, Fl_3+4, Fl_5, Gr_2, and Gr_5 (Figure B.20). The samples generally show a decreasing trend in concentrations towards week 5, when all samples fall below the Danish EQS value.
- *Copper (Cu):* Three samples exceed the GWQC value of 0.002 mg/L from Week 0, including Fl_3+4, Gr_5, and Gr_3+4 (Figure B.21). There is a decreasing trend in concentrations towards Week 4 for all samples from which the concentrations are more stable, with all samples under the GWQC value from Week 2.
- *Magnesium (Mg): All samples exceed the Danish EQS value of* 0.15 mg/L of magnesium across the first five weeks, although all additionally show a decrease in concentration across this time period.
- *Manganese (Mn):* One sample (Gr_5) initially exceeds the EU DWS value of 0.05 mg/L in Week 0 but decreases in Week 2 to beneath the EU DWS along with all other samples (Figure B.26).
- *Nickel (Ni): S*amples Gr_2 and Gr_5 exceed the GWQC value of 0.005 mg/L initially, but both nickel concentrations in both samples fall beneath the GWQC value from Week 2 for Gr_5 and Week 3 for Gr_5 (Figure B.28).
- *Phosphorus (P):* Concentrations of phosphorus are elevated above the GWQC value of 0.02 mg/L in all flotation samples from week 0, decreasing in concentration towards Week 4 when all samples are below the GWQC limit (Figure B.6). Sample Gr_6+7+8 additionally exceeds the GWQC value in Week 2.

Generally initial high concentrations in most parameters decrease towards Week 5, representing the flushing of pre-existing oxidation products and highly soluble mineral phases from the surface of the tested material. Beryllium (Be) has a notable spike in concentrations at Week 4 in all samples, which otherwise are at the limit of detection. This may represent an analytical error.

4.3.3.2 Later Leachate Results (Week 5 onwards)

Later term leach results (week five onwards) are interpreted to be more indicative of long-term water quality that can be expected after periods of weathering and leaching. The leachate results to date are discussed in this section, with further longer-term results to be reported when completed after a minimum of 20 weeks.

The pH between Weeks 5 and 12 remains relatively steady as in earlier weeks, in the circum-neutral to alkaline range. Conductivity is stable between Week 5 and Week 12 (Figure B.1) and there is no acidity detected (Figure B.3). Alkalinity is steady in the gravity samples, whilst in the flotation samples alkalinity continues to decrease slowly, except Fl_6+7+8 (Figure B.4).

Sulphate concentrations are stable after Week 5 and remain below the recommended EU DWS limit (Figure B.5). Phosphorus concentrations also remain more stable, and all samples fall the GWQC value of 0.02 mg/L by Week 10 (Figure B.6).

Metal concentrations were measured in Week 10 and are generally lower and steadier than they were in the earlier weeks. Only aluminium (Al), arsenic (As), cobalt (Co), and magnesium (Mg) remain above recommended limits in Week 10 samples.

- *Aluminium (Al):* Flotation samples continue to have higher concentrations of aluminium than gravity samples (Figure B.11). Gravity samples show a steadier concentration in aluminium from Week 5 whilst flotation samples (except Fl_2) show an increase in concentration with samples Fl_3+4, and Fl_5 both exceeding the EU DWS at Week 10.
- *Arsenic (As):* Flotation samples continue to be higher in arsenic compared to gravity samples (Figure B.13) with the exception of Fl_6+7+8. All samples are above the Greenland Water Quality Criteria (GWQC) value of 0.004 mg/L, although arsenic concentrations in all samples continue to decrease towards Week 10.
- *Cobalt (Co):* From Week 5, concentrations of cobalt are more stable, however, sample Gr_2 shows a small increase in concentration pushing it above the Danish EQS value of 0.00028 mg/L (Figure B.20).
- *Magnesium (Mg):* All samples exceed the Danish EQS value of 0.15 mg/L, although are steady in concentration beyond Week 5 (Figure B.8).

Zinc, which was mobilised in the Intermittent Bottle Roll tests, is less than detect in early and later stage humidity cell leachates (Figure B.38).

5.0 PRELIMINARY SOURCE TERM COMPARISON

Results of short-term leaching tests on processed gravity and flotation tailings for eight CoPCs were used as a source term for a previous seepage assessment (Golder, 2021). Zinc and cadmium concentrations were taken as 50% of the method detection limit in these source terms as a conservative assumption. These 2021 source terms are compared here with the minimum, maximum, and average results of the 10 week HCT tests (most recent analysis) presented in Appendix B of this report, as humidity cell leachates are considered more representative of longer term seepage quality.

The maximum Week 10 concentrations in the HCT tests for the CoPCs are generally lower than the Golder (2021) source term values previously used for all COPCs except arsenic in the flotation tailings and cadmium in the gravity tailings (Table 9). Although the maximum concentration for arsenic (0.0835 mg/L) in the Week 10 flotation HCT exceeds the Golder (2021) source term concentration of 0.0646 mg/L, the average arsenic value across the four samples analysed is less than the concentration used in the Golder (2021) source term. Similarly, the maximum concentration for cadmium (0.00003 mg/L) in the week 10 gravity HCT exceeds the Golder (2021) source term concentration of 0.000015 mg/L but the average concentration is less. Zinc concentrations in humidity cell leachates are at the limit of detection as a conservative assumption but are lower than the Golder (2021) source term.

Table 9: Source term comparison, Golder 2022 vs Golder 2021

		Units	As	Cd	Co	Cr	Cu	Fe	Ni	Zn
Gravity Tailings Source Term (Golder, 2021)		mg/L	0.154	0.000015	0.00115	0.00908	0.0064	0.909	0.0037	0.01
Gravity Tailings HCT (Week 10)	Maximum	mg/L	0.0188	**0.00003**	0.000312	0.00048	0.0008	0.035	0.0019	0.002
	Average	mg/L	0.0103	0.0000145	0.00018475	0.000355	0.000475	0.02725	0.001175	0.002
	Minimum	mg/L	0.006	0.000006	0.000118	0.00025	0.0003	0.019	0.0007	0.002
Flotation Tailings Source Term (Golder, 2021)		mg/L	0.0646	0.000015	0.0014	0.00726	0.0053	1.13	0.0035	0.01
Flotation Tailings HCT (Week 10)	Maximum	mg/L	**0.0835**	0.000008	0.000115	0.00067	0.0005	0.095	0.0008	0.002
	Average	mg/L	0.0533	0.0000065	0.000072	0.0004725	0.0004	0.042	0.0006	0.002
	Minimum	mg/L	0.0115	0.000005	0.000049	0.00034	0.0003	0.011	0.0003	0.002

NOTE: Measurements at the limit of detection are at value.

*Values in **bold** exceed the Golder 2021 source term concentration*

Based on the results of the HCT tests in is considered that the source term used for the risk assessment (Golder, 2021) remains valid given that the average concentrations of all the HCT tests are below the assumptions used for the assessment of risks to the Kirkespir River.

6.0 ASSESSMENT OF SAMPLE STORAGE

The ABA results for the samples before and after storage were compared using relative percent difference (RPD). The RPD is routinely used as a measure of the repeatability of an analysis for a substance in two identical samples. Typically, an RPD of 30% is considered to be an acceptable deviation between two identical solid matrix samples. For purposes of comparison, results below detection have been set at detection limit. It is noted that RPD can provide misleading results on negative numbers. Therefore, where negative numbers are involved, a comparison noting a negative or positive change has been documented.

$$RPD\ \% = \frac{(primary\ sample\ measurement - duplicate\ sample\ measurement)}{(primary\ sample\ measurement + duplicate\ sample\ measurement)/2} \times 100$$

The updated static testing (acid base account, NAG pH, and elemental analysis) for 2022 has been compared against the static testing results for these samples in 2021. In cases where composite samples have been used an average of the initial samples was used for comparison.

The samples assessed for the static study had been stored between 2021 and 20202 before starting the tests. Comparison of ABA results from initial analysis before and subsequent analysis after the samples were stored showed that, for the majority of samples, NP had increased between 10.29% to 67.22% (Table 10 & Table 11). The most notable change is in sample Fl_2, where the increase in NP, NNP and NP/AP ratio (NPR) is in excess of 67 % RSD. Two samples (Fl_6+7+8, Gr_6+7+8) show a decrease in NP and NNP between -1 to -3.89%. Sample GR_8 further has a decrease in NP/AP ratio of -20.15% (Table 11).

The paste pH increased to be less acidic in 2022 analysis versus 2021. The range of RPD values for paste pH between 5.49 to 13.10% indicates that the sample was less acid generating following a period of storage but within 30% of deviation (Table 10 & Table 11).

It is noted that in Fl_3+4 (56%) and Fl_6+7+8 (42.11%) total sulphur was higher in the post-storage analysis than in the initial analysis, 56% in Fl_3+4 (Table 10). In the gravity samples, GR_5 also shows an increase in both sulphide (52.63%) and AP (52.25%), (Table 11). This is considered to be due to natural variability within the sample material and the fact that updated testing was carried out composites. Similarly, acid-leachable SO4-S has changed by over 30% in all gravity samples, decreasing by -34.48% to -88.37% between 2021 and 2022 (Table 11).

Overall, the changes in the ABA characteristics of the samples while in storage indicate that sample storage has not resulted in significant negative changes to the neutralisation potential of the samples, i.e., they have not weathered significantly. Therefore, the testing of the samples is considered suitable for assessment of initial response to oxygen and water after disturbance as well as informative of long-term leaching behaviour.

Table 10: Acid-Base Accounting Comparison for Flotation Static Test Samples, 2021 vs 2022.

Sample ID		Fl_2			Fl_3+4			Fl_5			Fl_6+7+8		
Analysis	Units	2021	2022	RPD*	2021 (av)	2022	RPD*	2021	2022	RPD*	2021 (av)	2022	RPD*
Paste pH	s.u.	8.85	9.81	10.29%	8.80	9.73	9.99%	8.85	10.09	13.09%	9.13	9.64	5.49%
NP	t $CaCO_3$/1000 t	24.1	48.5	**67.22%**	13.15	19.1	**47.25%**	18.8	22.2	16.59%	17.33	17.1	-1.36%
AP	t $CaCO_3$/1000 t	1.25	1.25	0.00%	1.25	1.25	0.00%	1.25	1.25	0.00%	1.25	1.25	0.00%
NNP	t $CaCO_3$/1000 t	22.8	47.2	**69.71%**	11.90	17.8	**50.70%**	17.6	21.0	17.62%	16.13	15.8	-2.09%
NP/AP	ratio	19.3	38.8	**67.13%**	10.52	15.3	**47.37%**	15.0	17.8	17.07%	13.87	13.7	-1.26%
Total Sulphur	%	0.023	0.027	16.00%	0.01	0.016	**56.00%**	0.020	0.019	-5.13%	0.02	0.023	**42.11%**
Acid Leachable SO4-S	%	< 0.04	<0.04	N/A	<0.04	<0.04	N/A	< 0.04	<0.04	N/A	<0.04	<0.04	N/A
Sulphide S	%	< 0.04	< 0.04	N/A	<0.04	< 0.04	N/A	< 0.04	< 0.04	N/A	< 0.04	< 0.04	N/A
Total Carbon	%	0.436	0.553	23.66%	0.12	0.153	27.51%	0.190	0.224	16.43%	0.13	0.149	10.35%
Carbonate	%	2.00	2.32	14.81%	0.52	0.455	3.35%	0.804	0.819	1.85%	0.42	0.445	5.38%
NAG pH	s.u.	10.74	11.11	-3.39%	9.75	8.42	-14.65%	10.13	8.76	-14.51%	8.37	8.44	0.83%

Notes: Values exceeding a RPD value of 30% are highlighted in bold red font.
% = percent; < = less than.

Table 11: Acid-Base Accounting Comparison for Gravity Static Test Samples, 2021 vs 2022.

Sample ID		Gr_2			Gr_3+4			Gr_5			Gr_6+7+8		
Analysis	Units	2021	2022	RPD*	2021 (av)	2022	RPD*	2021	2022	RPD*	2021 (av)	2022	RPD*
Paste pH	s.u.	8.51	9.46	10.57%	8.35	9.52	13.10%	8.51	9.50	10.99%	8.84	9.43	6.45%
NP	t $CaCO_3$/1000 t	43.1	48.0	10.76%	13.35	16.6	21.70%	21.2	23.5	10.29%	20.90	20.6	-1.45%
AP	t $CaCO_3$/1000 t	5.94	6.88	14.66%	2.19	2.19	0.23%	6.56	11.2	**52.25%**	3.44	3.75	8.72%
NNP	t $CaCO_3$/1000 t	37.2	41.1	9.96%	11.20	14.4	25.00%	14.6	12.2	-17.91%	17.47	16.8	-3.89%
NP/AP	ratio	7.26	6.98	-3.93%	7.06	7.59	7.31%	3.23	2.09	**-42.86%**	6.72	5.49	-20.15%
Total Sulphur	%	0.346	0.295	-15.91%	0.141	0.110	-24.35%	0.521	0.482	-7.78%	0.17	0.164	-2.41%
Acid Leachable SO4-S	%	0.16	0.08	**-66.67%**	0.07	0.04	**-54.55%**	0.31	0.12	**-88.37%**	0.06	0.04	**-34.48%**
Sulphide S	%	0.19	0.22	14.63%	0.07	0.07	0.00%	0.21	0.36	**52.63%**	0.11	0.12	8.70%
Total Carbon	%	0.447	0.570	24.19%	0.133	0.166	22.45%	0.222	0.267	18.40%	0.18	0.184	5.01%
Carbonate	%	3.02	2.09	**-36.40%**	0.5	0.485	-3.05%	0.909	0.779	-15.40%	0.52	0.500	-3.54%
NAG pH	s.u.	10.74	10.34	-3.80%	10.15	9.85	-3.05%	10.05	9.16	-9.27%	10.13	9.78	-3.49%

Notes: Values exceeding a RPD value of 30% are highlighted in bold red font.
% = percent; < = less than.

7.0 SUMMARY

The preliminary static testing results received including chemical composition and acid base accounting are summarised in this technical memorandum. Elemental analyses indicate that the majority of elements are less than six times above the average crustal abundance (Smith & Huyck, 1999). Arsenic and bismuth are noted to be in exceedance of six times the average crustal abundance. Acid-Base accounting indicates that on the basis of assessment against NP and NAG pH all samples are likely to be NAF. The NNP indicates that for some flotation and gravity samples the acid generation potential is uncertain.

The metal leaching and acid rock drainage potential will continue to be assessed through the ongoing kinetic testing, which will be reported fully when complete. Initial results show that the pH values are alkaline. Some common CoPCs are identified between both the HCT and Intermittent Bottle Roll Tests including; aluminium, arsenic, cobalt, copper, magnesium, nickel, and phosphorus, however ongoing tests may further variation in concentrations.

The Intermittent Bottle Roll Tests show initial or further exceedances above assessed limits for barium, cadmium, chromium, iron, and zinc. Sulphate and manganese also initially exceed limits in the HCT tests before decreasing in concentration. Flotation samples are elevated in phosphorus and aluminium in both the HCT and Intermittent Bottle Roll Tests when compared to gravity samples. Arsenic, as with the static testing, is consistently elevated in both the HCT and Intermittent Bottle Roll Tests.

Later stage HCT results indicate that fewer metals exceed limits, with only aluminium, arsenic, cobalt, and magnesium exceeding limits. The pH remains alkaline in the results up to Week 12, with the metals generally becoming more stable in concentration.

It should be noted that results in excess of the selected Water Quality Criteria does not indicate that there will be a negative impact on the environment as the potential for an impact is controlled by presence and characteristics of any transport pathways (seepage from the tailings facility and subsequent transport in groundwater) from the contaminant source (tailings) and the presence and characteristics of any receptor (in this case the Kirkespir River).

It is considered that the source term assumptions used in the seepage risk assessment (Golder, 2021) remain valid on the basis that the average concentrations of all the HCT tests are below the assumptions used for the assessment of risks to the Kirkespir River.

8.0 REFERENCES

- AMIRA International Ltd. 2002. *ARD Test Handbook – Prediction and Kinetic Control of Acid Mine Drainage.* Environmental Geochemistry International Pty. Ltd. and Ian Wark Institute, University of South Australia.
- ASTM International. *E1915 Standard Test Methods for Analysis of Metal Bearing Ores and Related Materials for Carbon, Sulfur, and Acid-Base Characteristics,* ASTM International, West Conshohocken, PA, 2013, www.astm.org
- Golder, 2021. Nalunaq Gold Project: Tailings Seepage Assessment. Report reference 20136781.608.A3, dated 20th January 2021.
- INAP (International Network for Acid Prevention). 2014. *Global Acid Rock Drainage Guide (GARD Guide)*. http://www.gardguide.com/
- MEND (Mine Environment Neutral Drainage). 2009. *Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials.* Report No 1.20.1, CANMET – Mining and Mineral Sciences Laboratories, Smithers, British Columbia, Canada, December 2009.
- Price, W.A. 1997. *Draft Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Mine sites in British Columbia*. Reclamation Section, Energy and Minerals Division, April 1997.
- Smith, K.S. and H.L.O. Huyck. 1999. *An Overview of the Abundance, Relative Mobility, Bioavailability and Human Toxicity of Metals.* In: Filipek, L.H. and G.S. Plumlee (Eds). 1999. *Reviews in Economic Geology, Volume 6A, The Environmental Geochemistry of Mineral Deposits* – Part A: Processes, techniques and Health Issues, Society of Economic Geologists, Inc.

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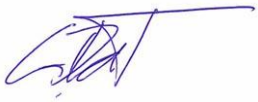

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Technical Director (Hydrogeology & Mining)

APPENDIX A

Intermittent Bottle Roll Tests – Results (Days 0 to 56)

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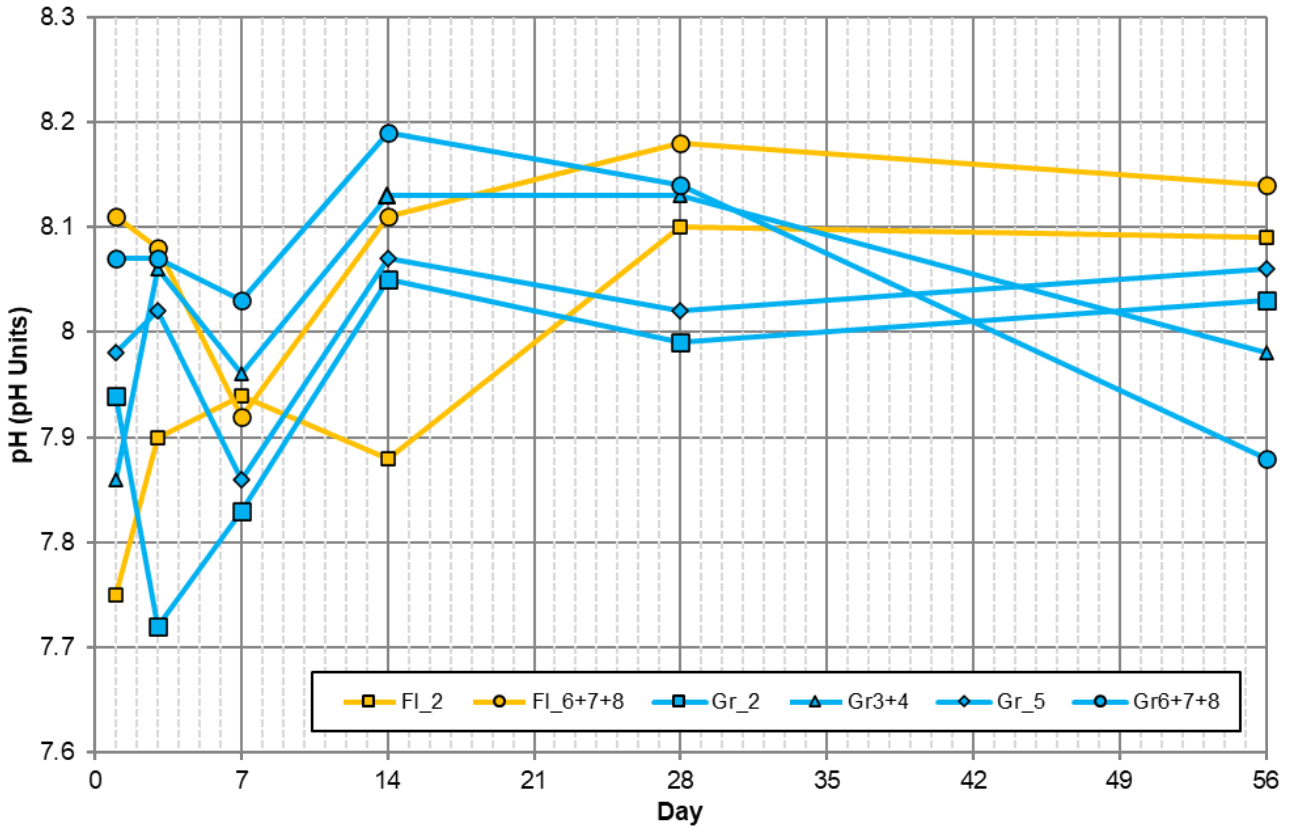

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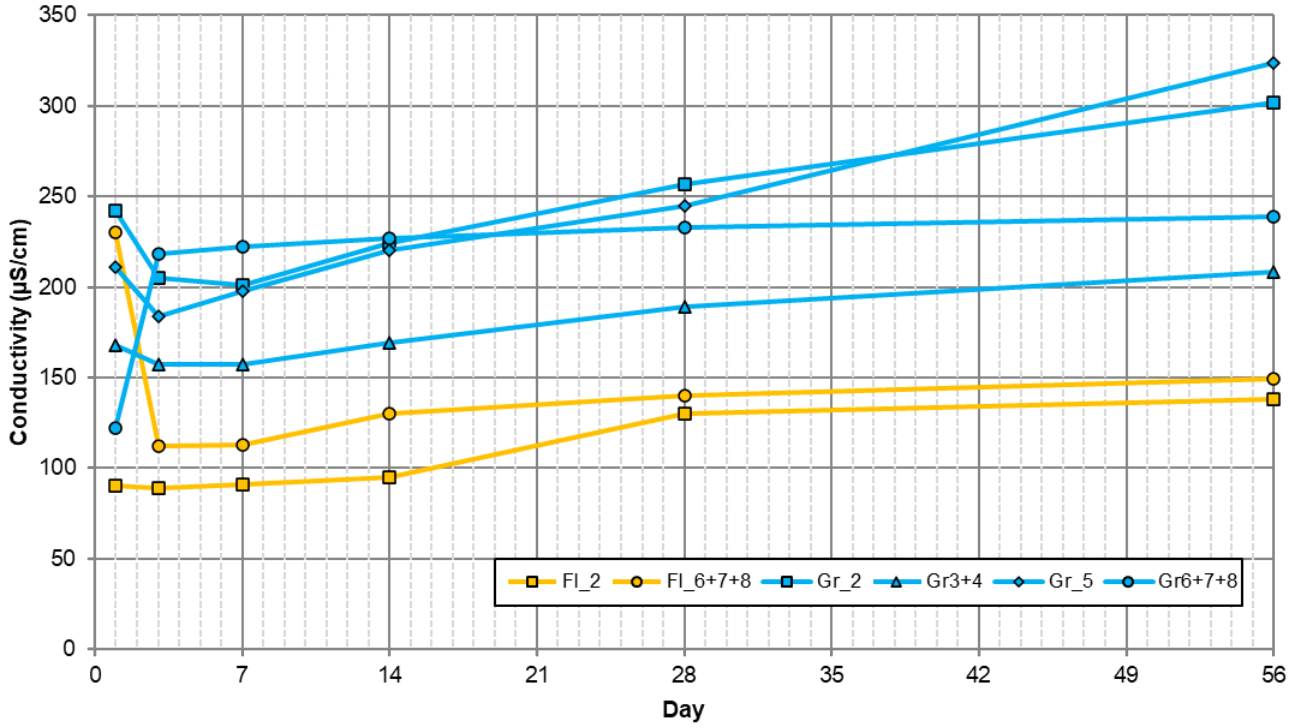

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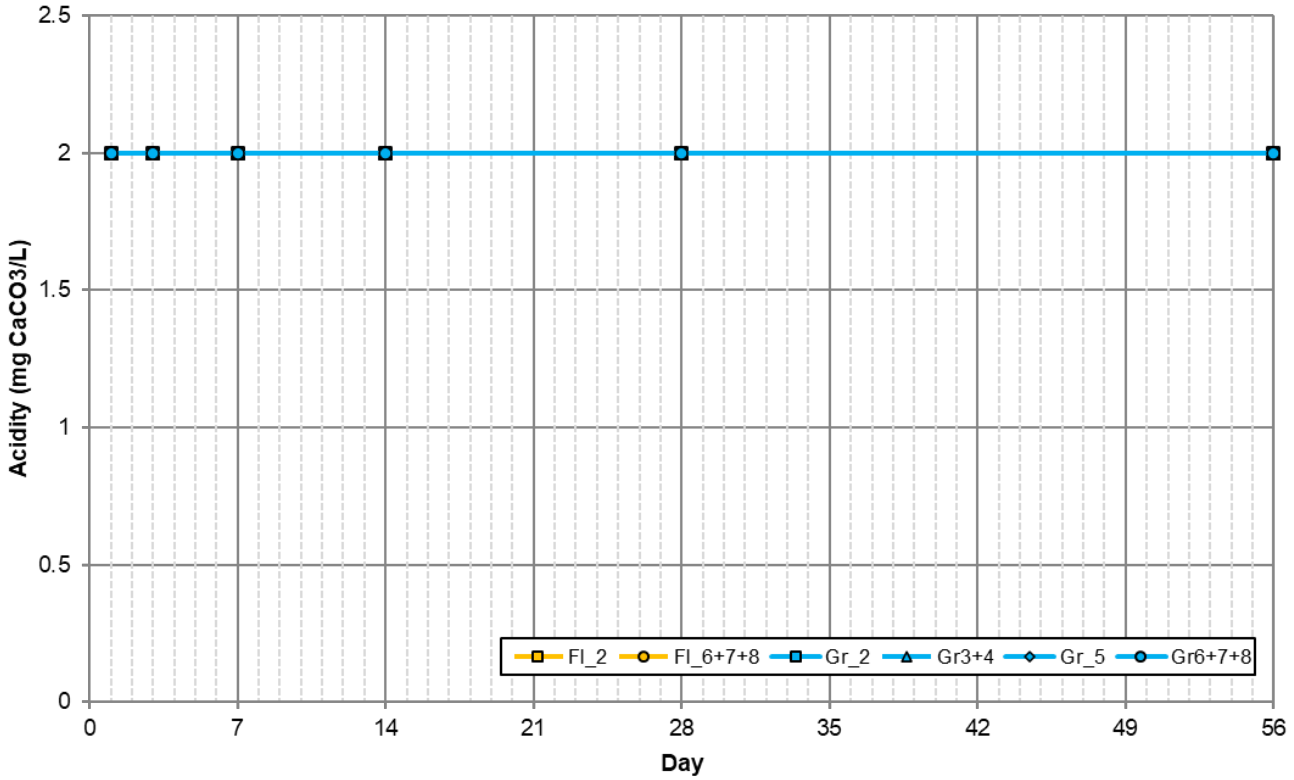

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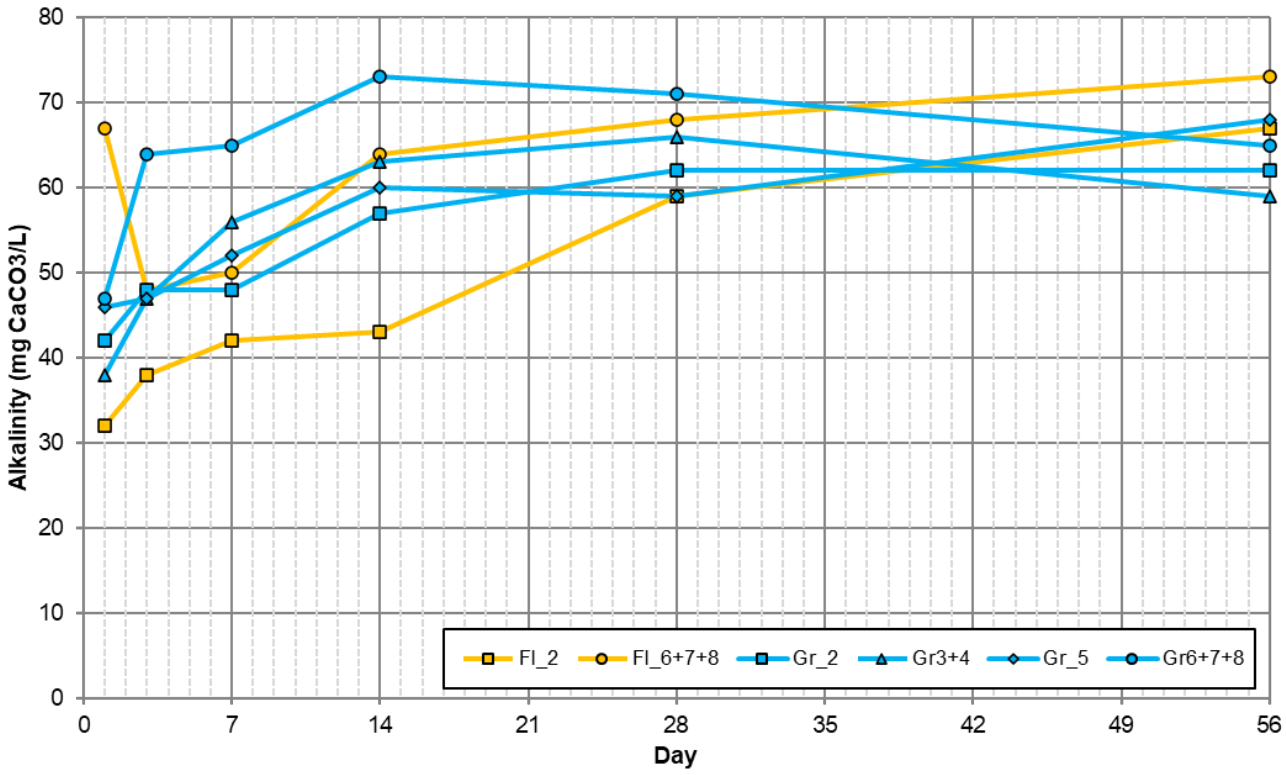

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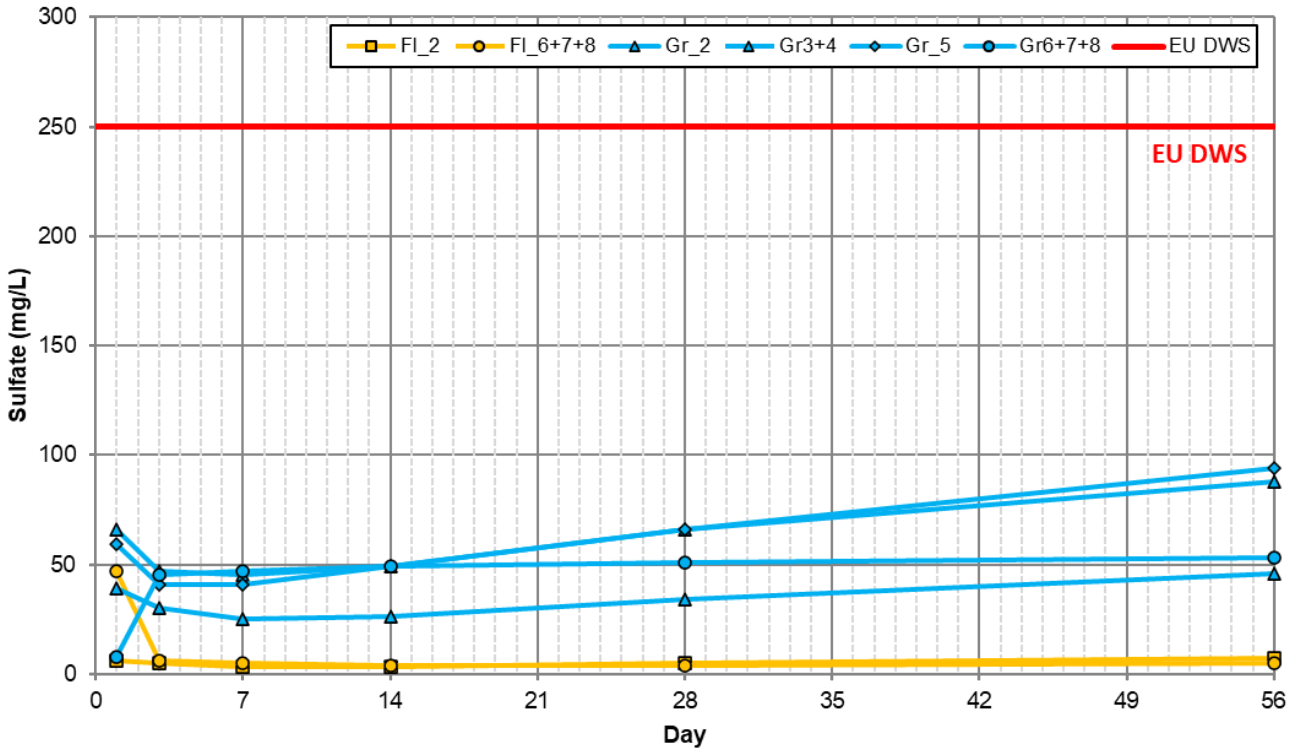

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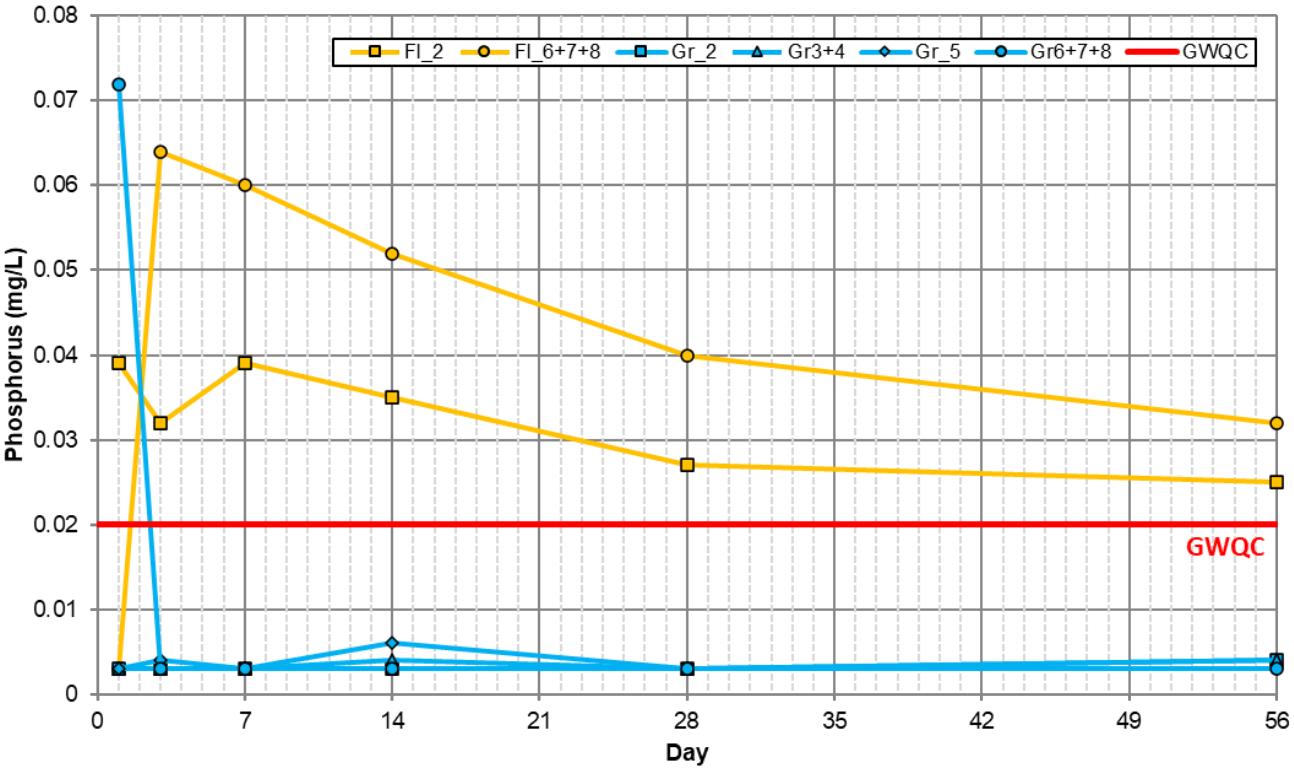

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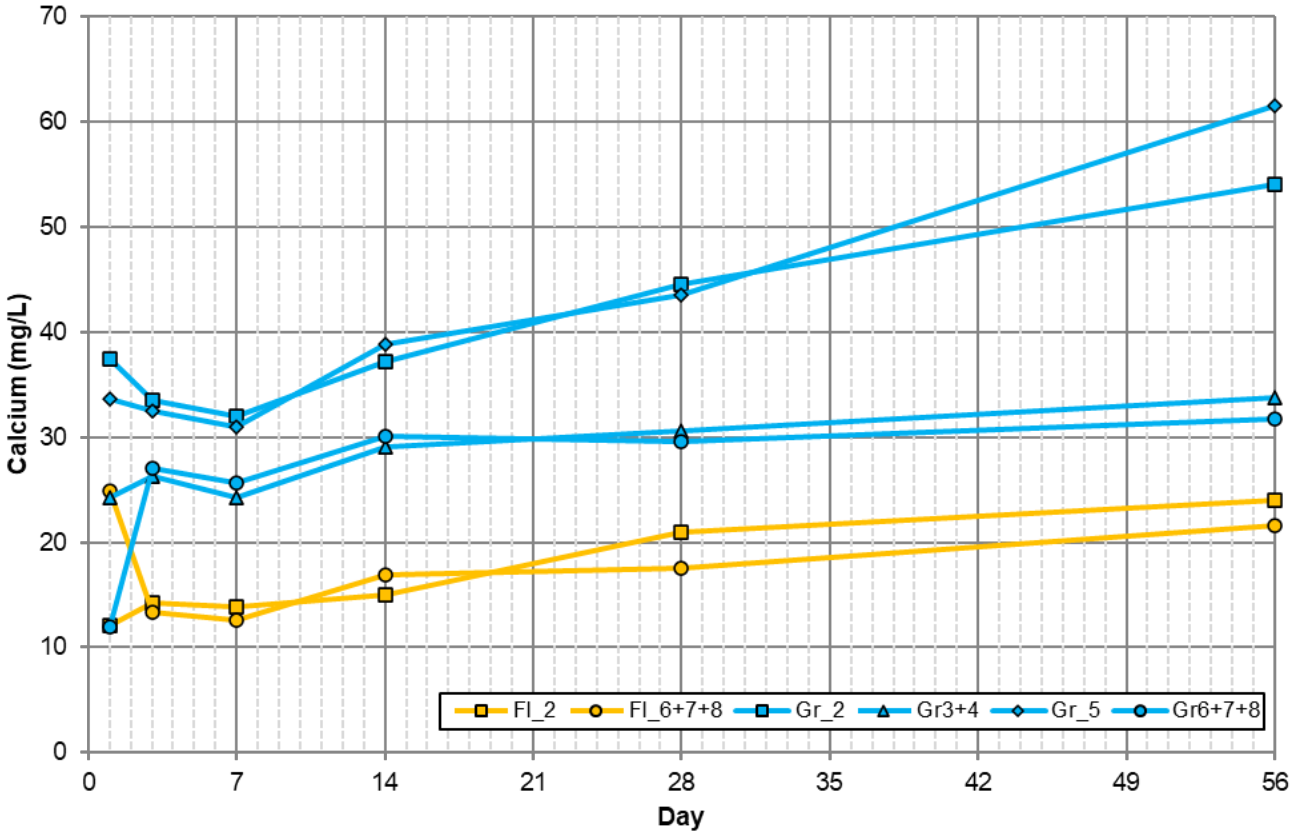

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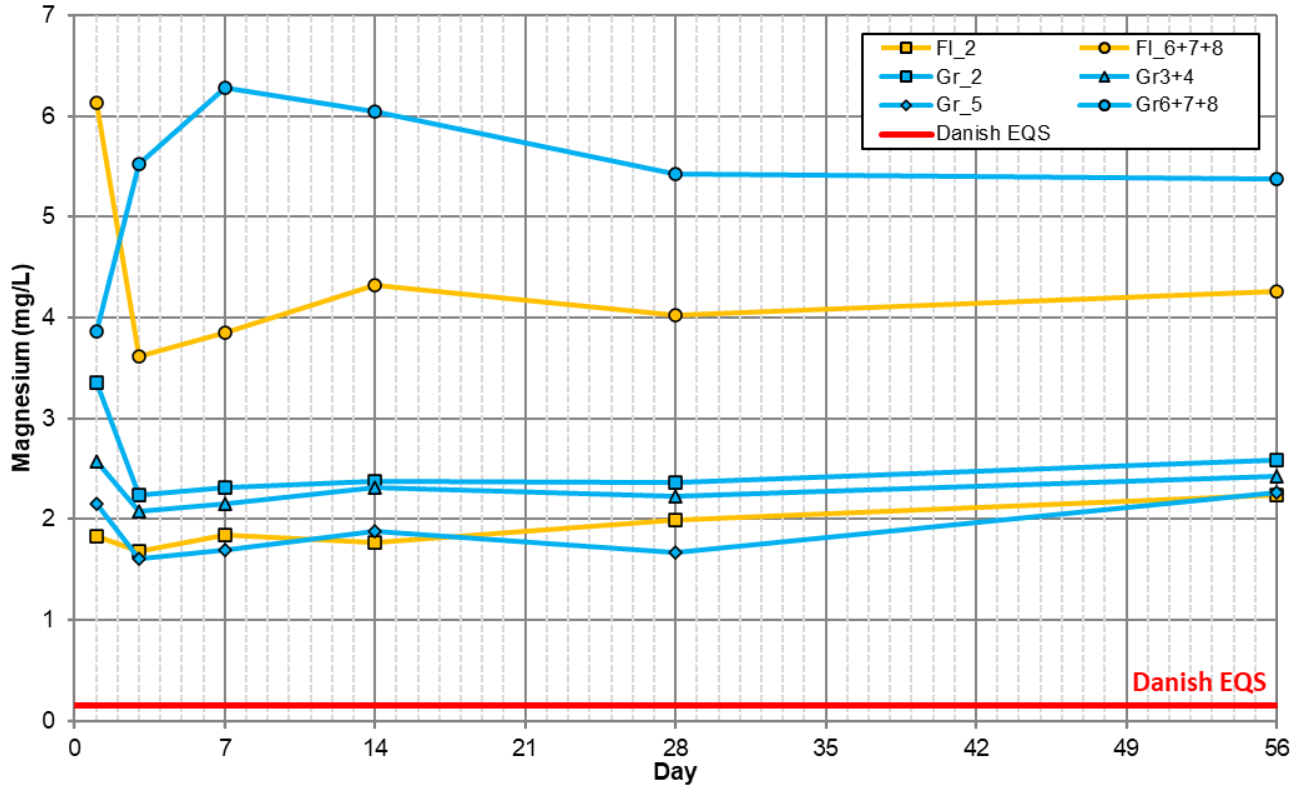

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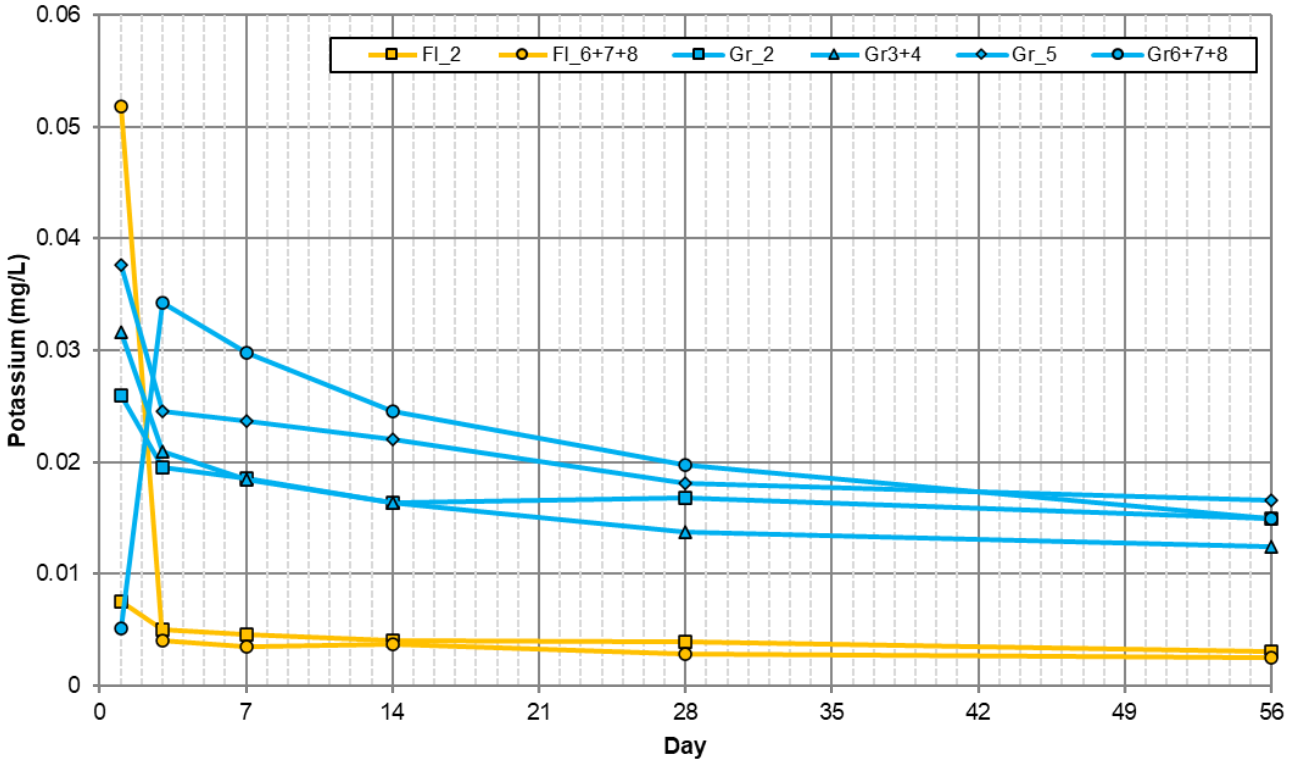

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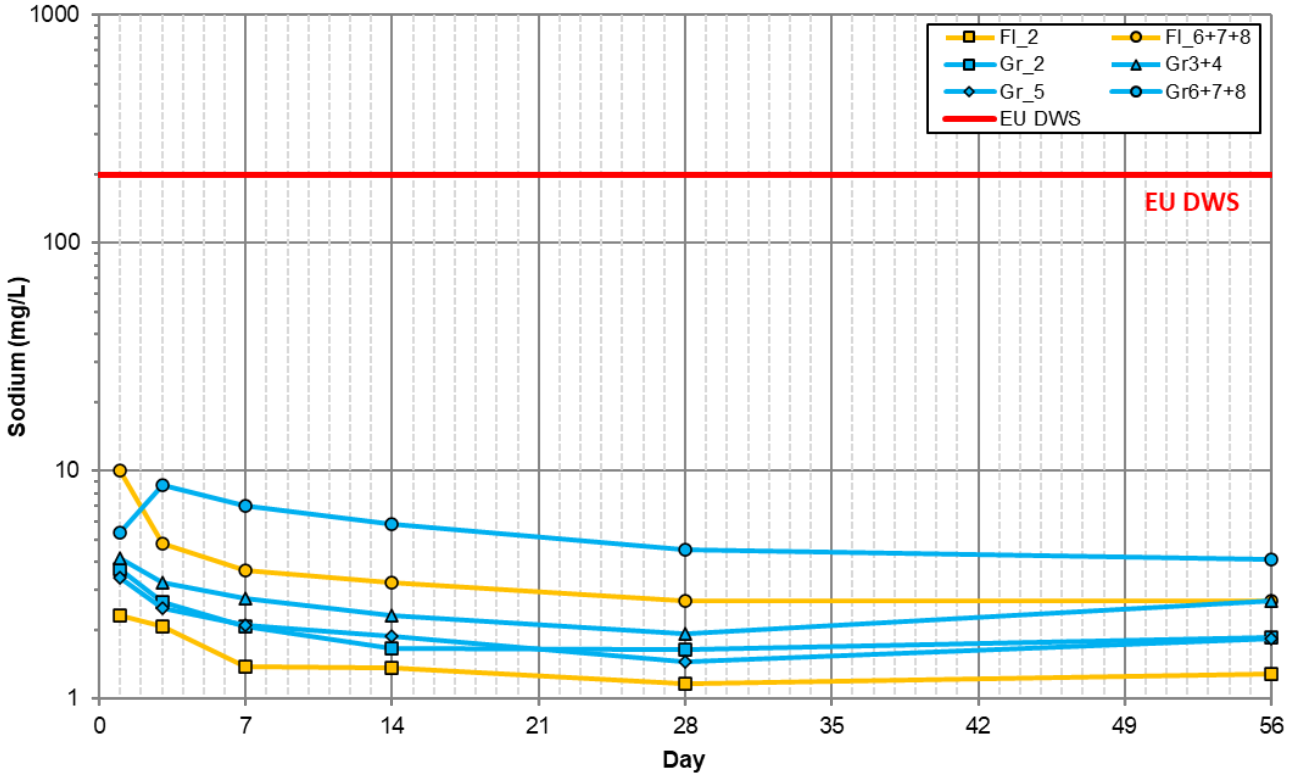

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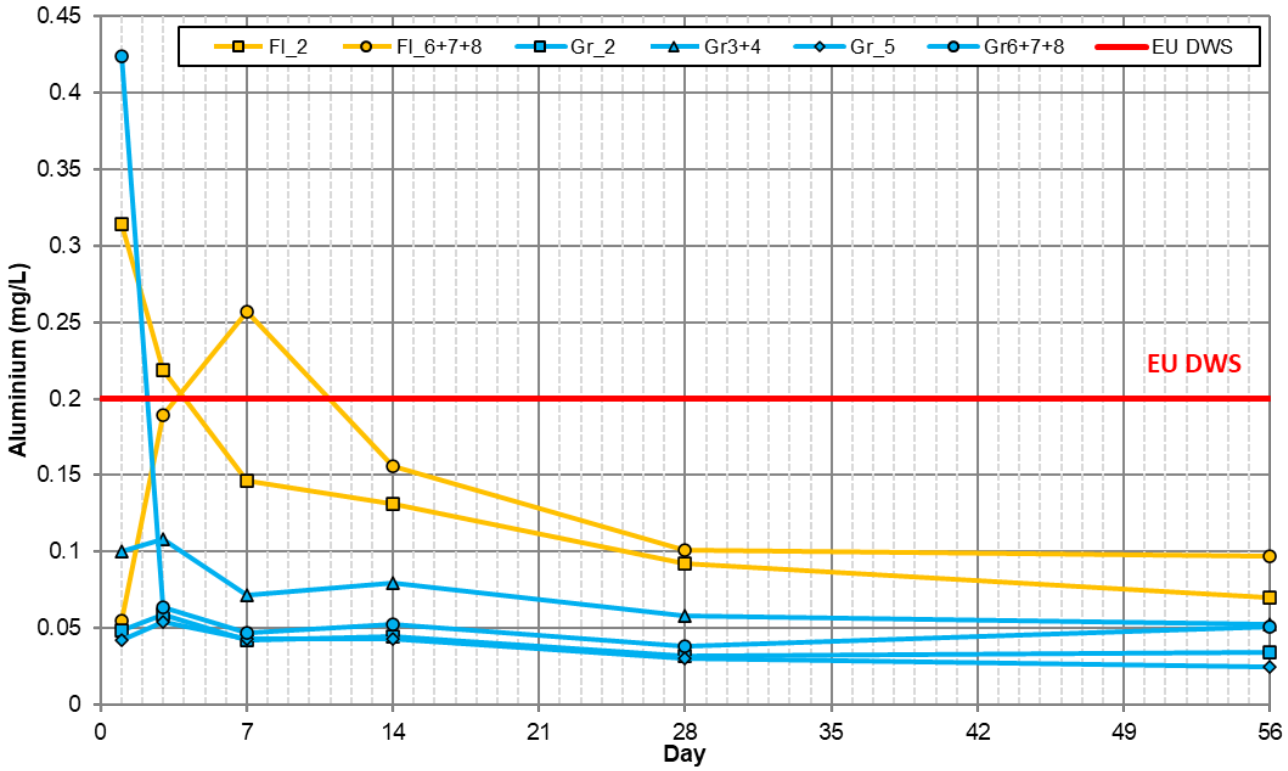

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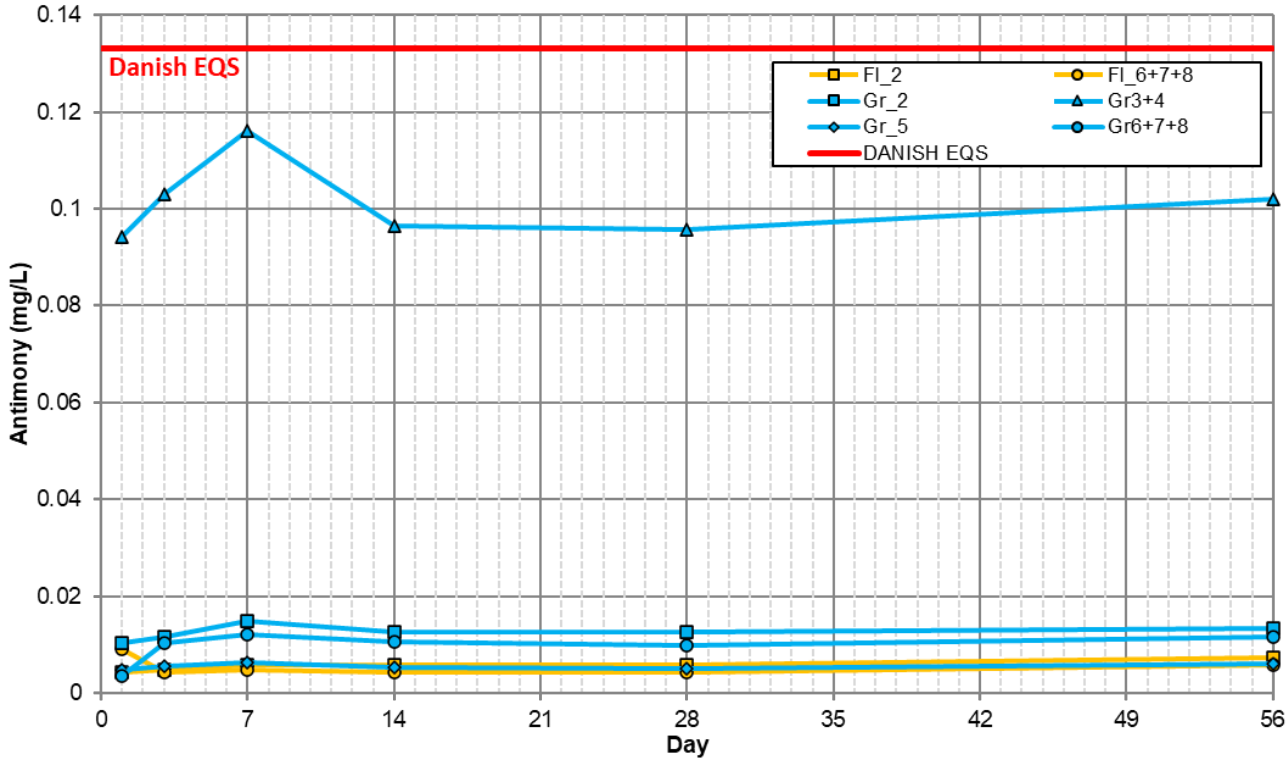

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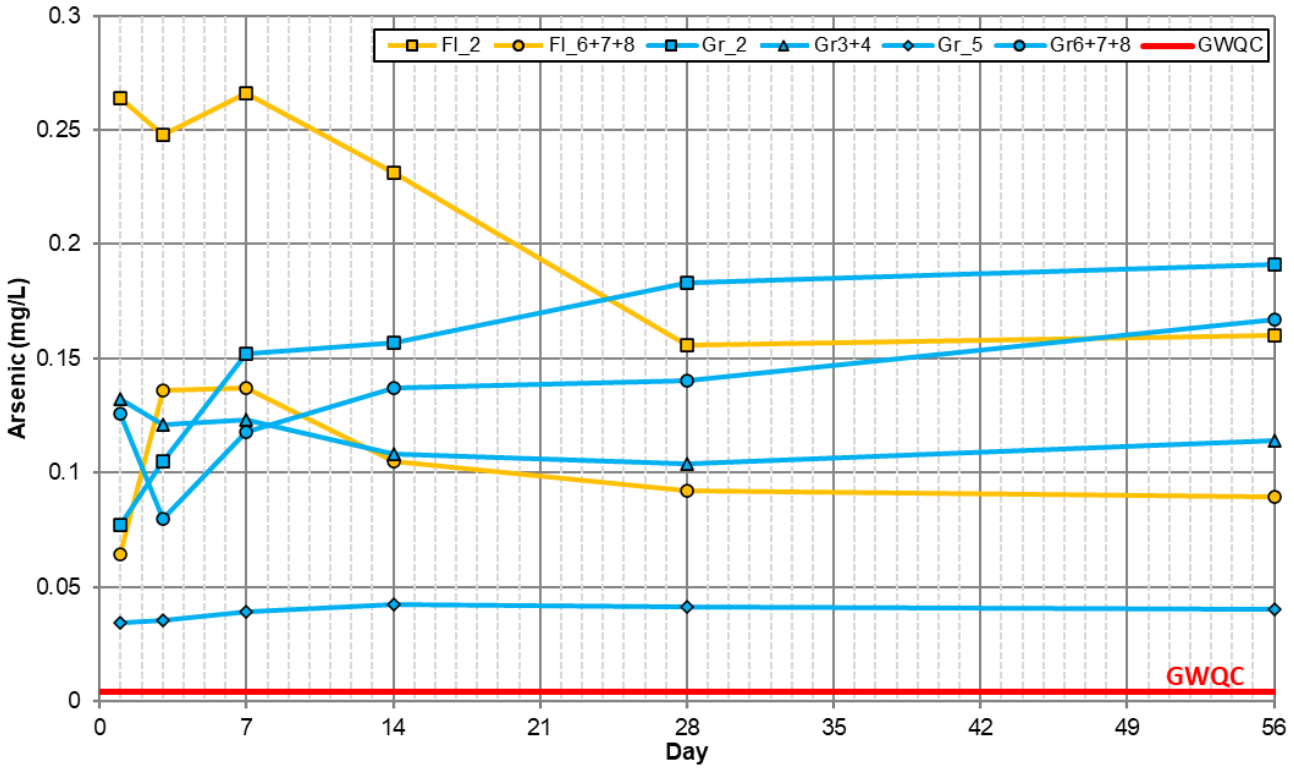

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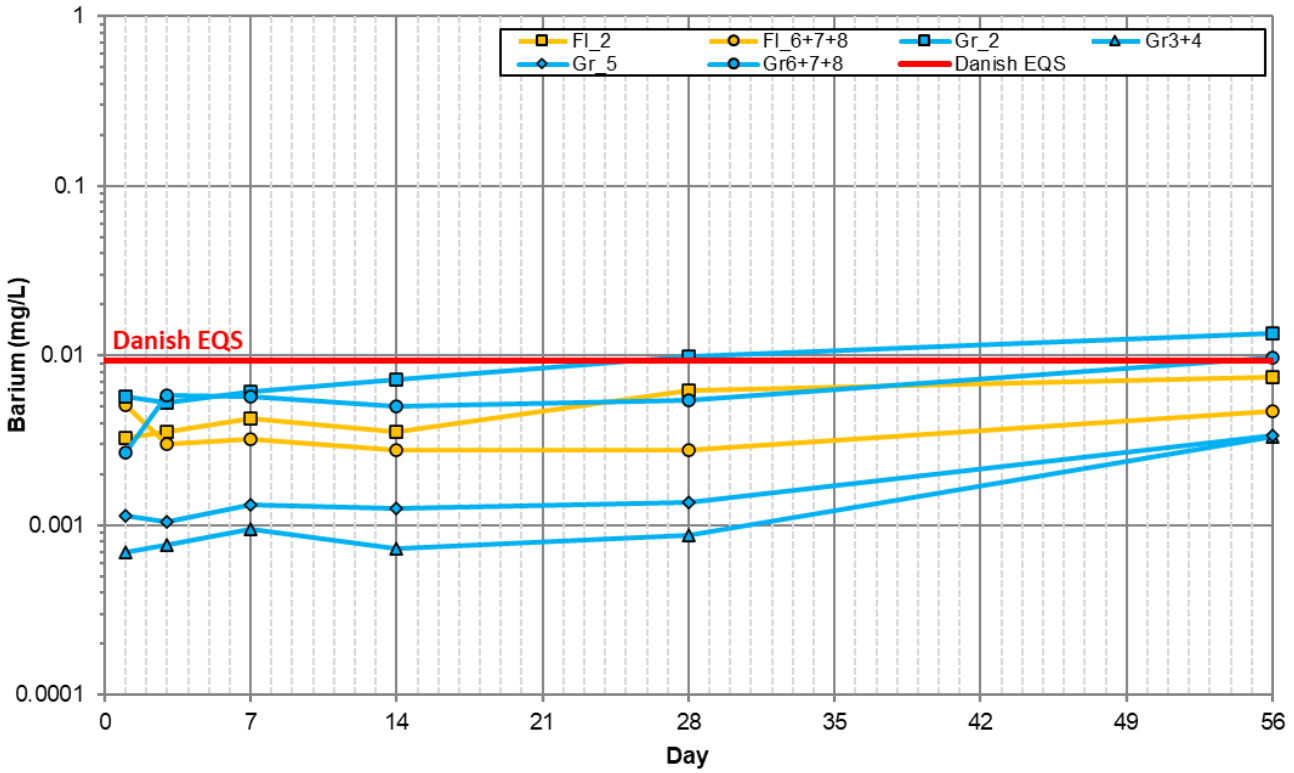

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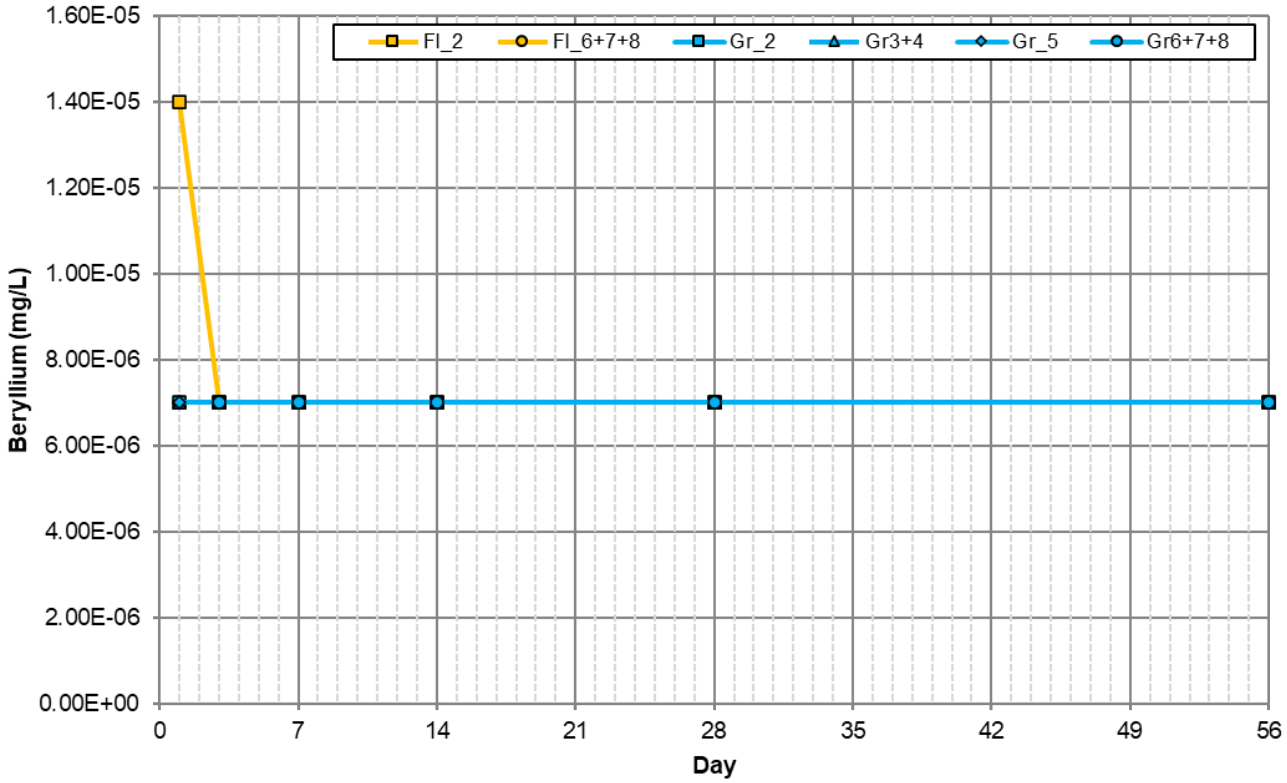

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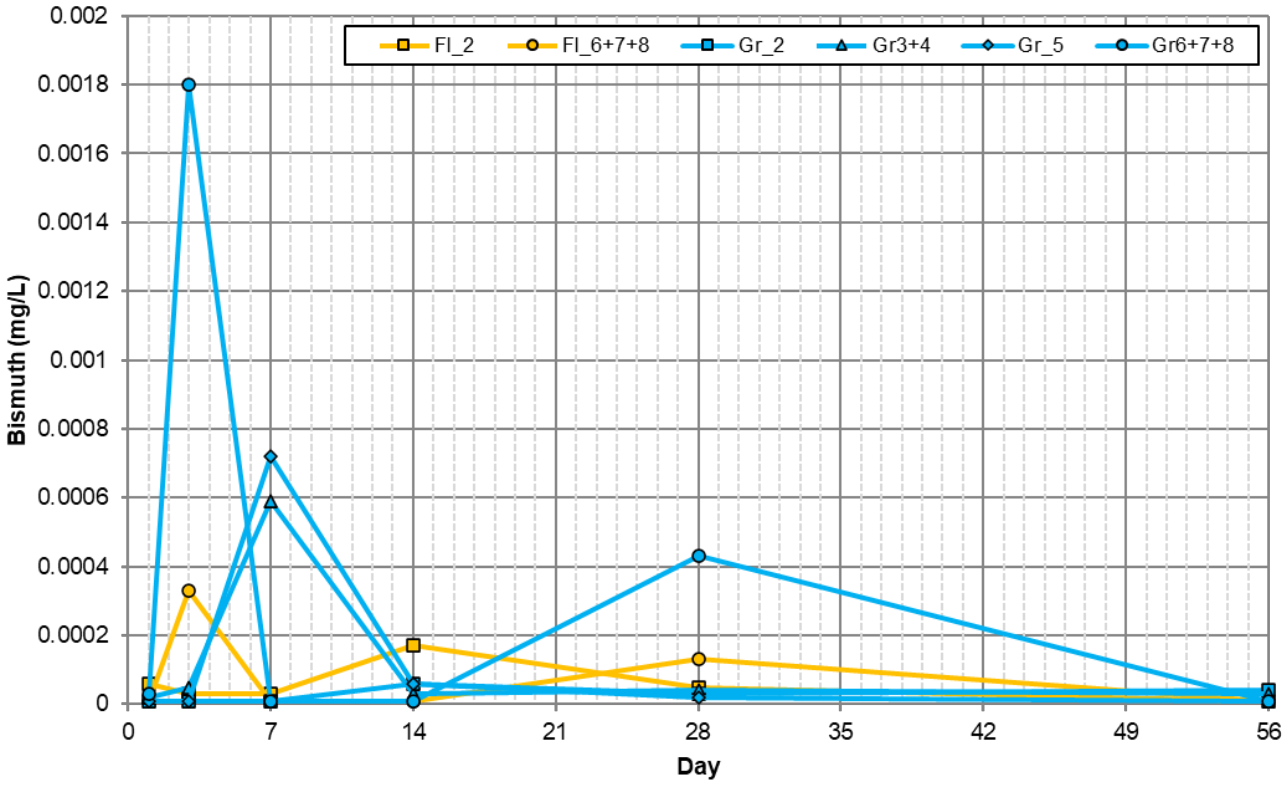

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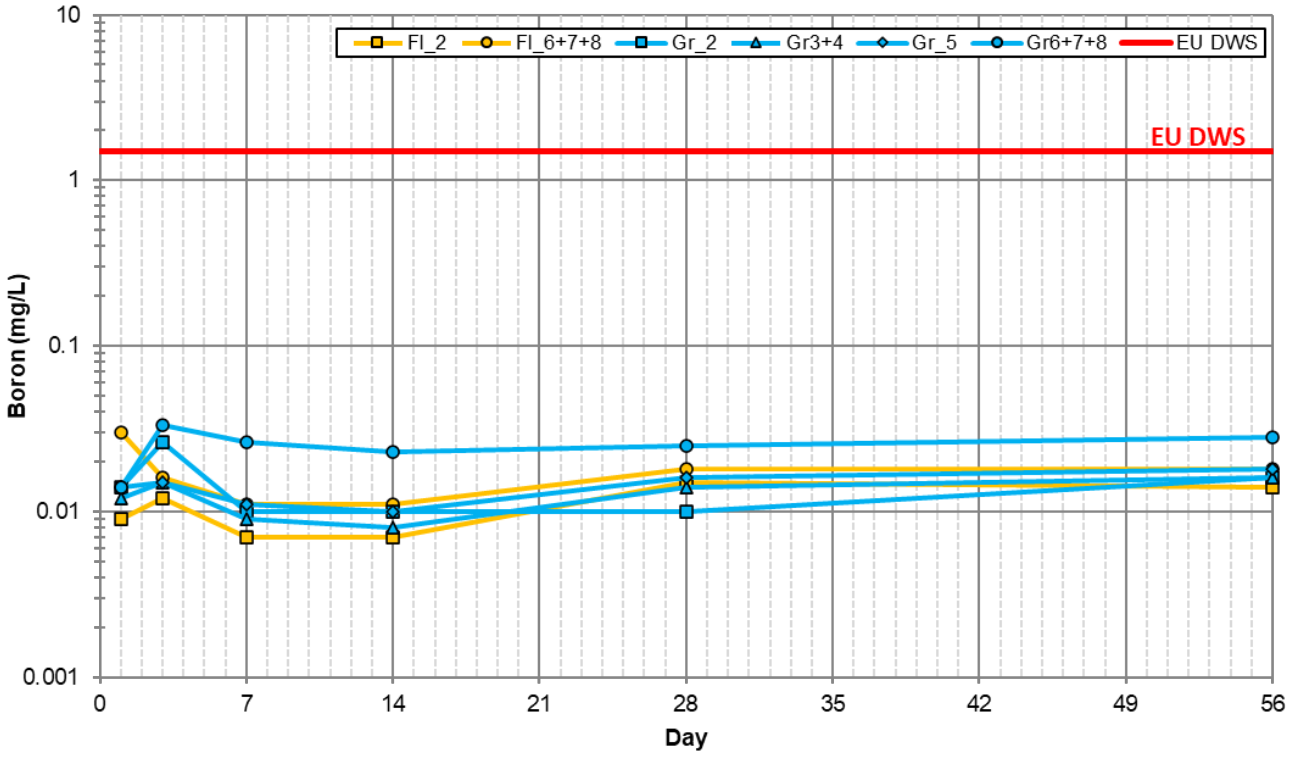

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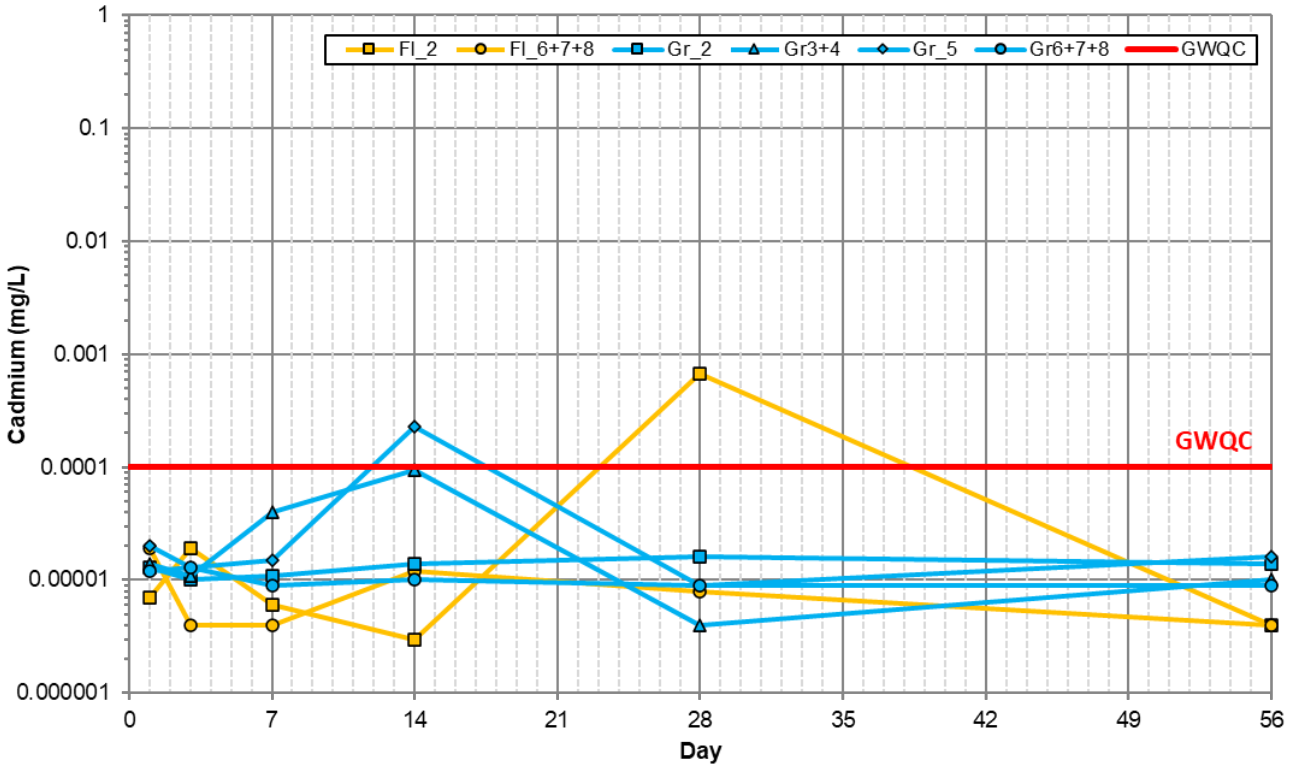

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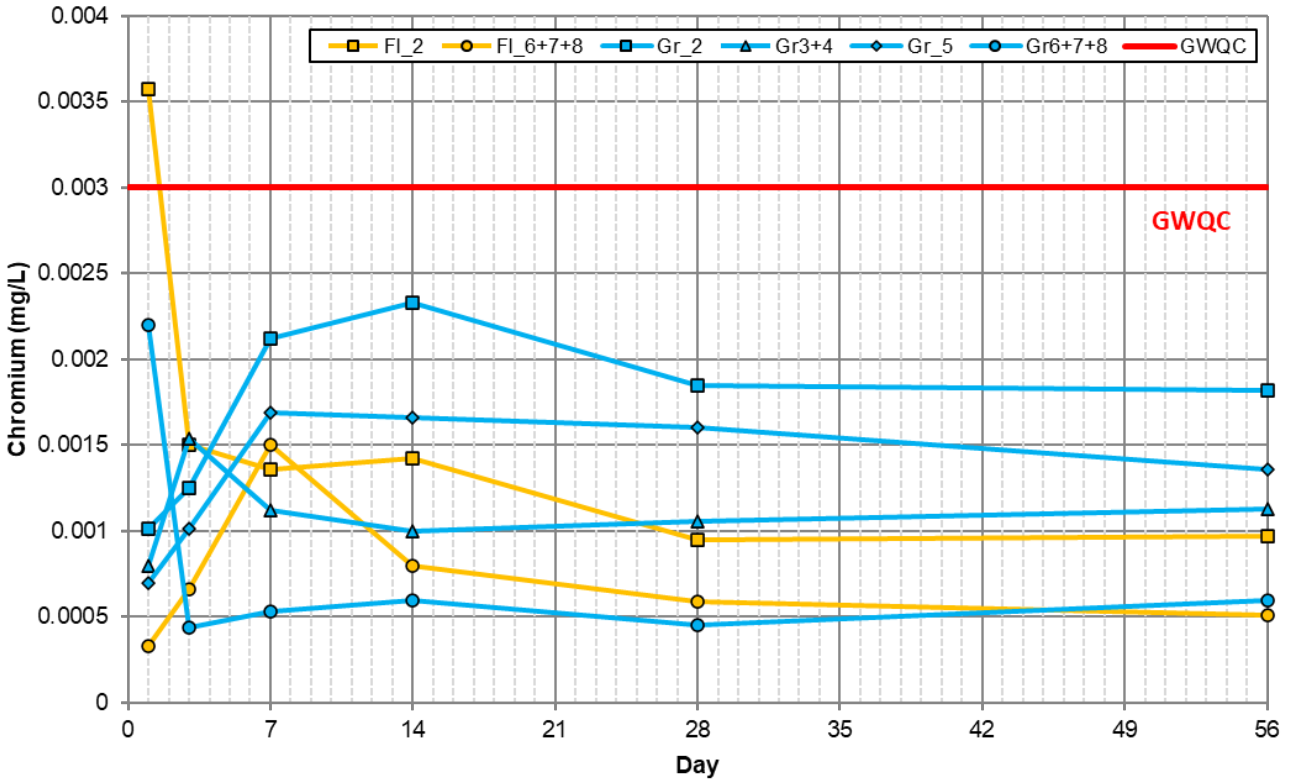

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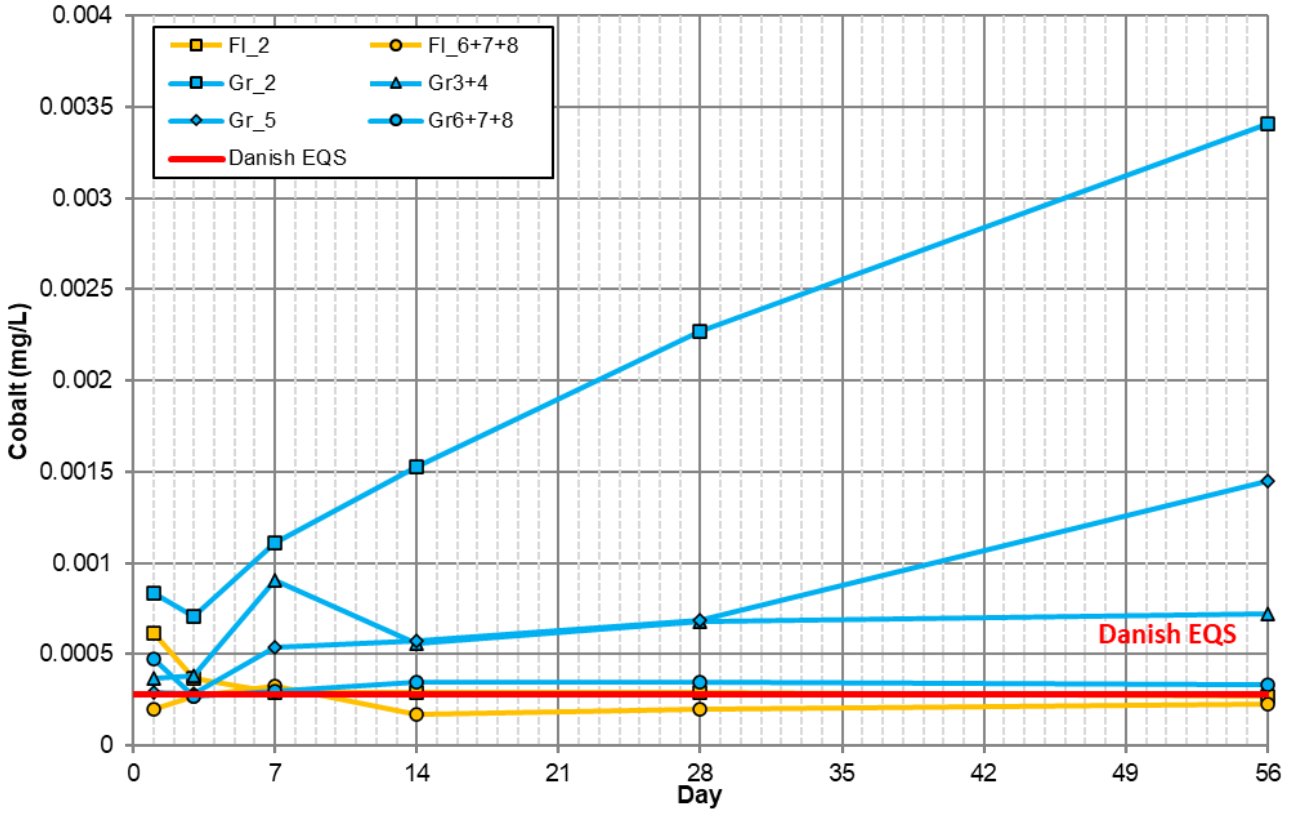

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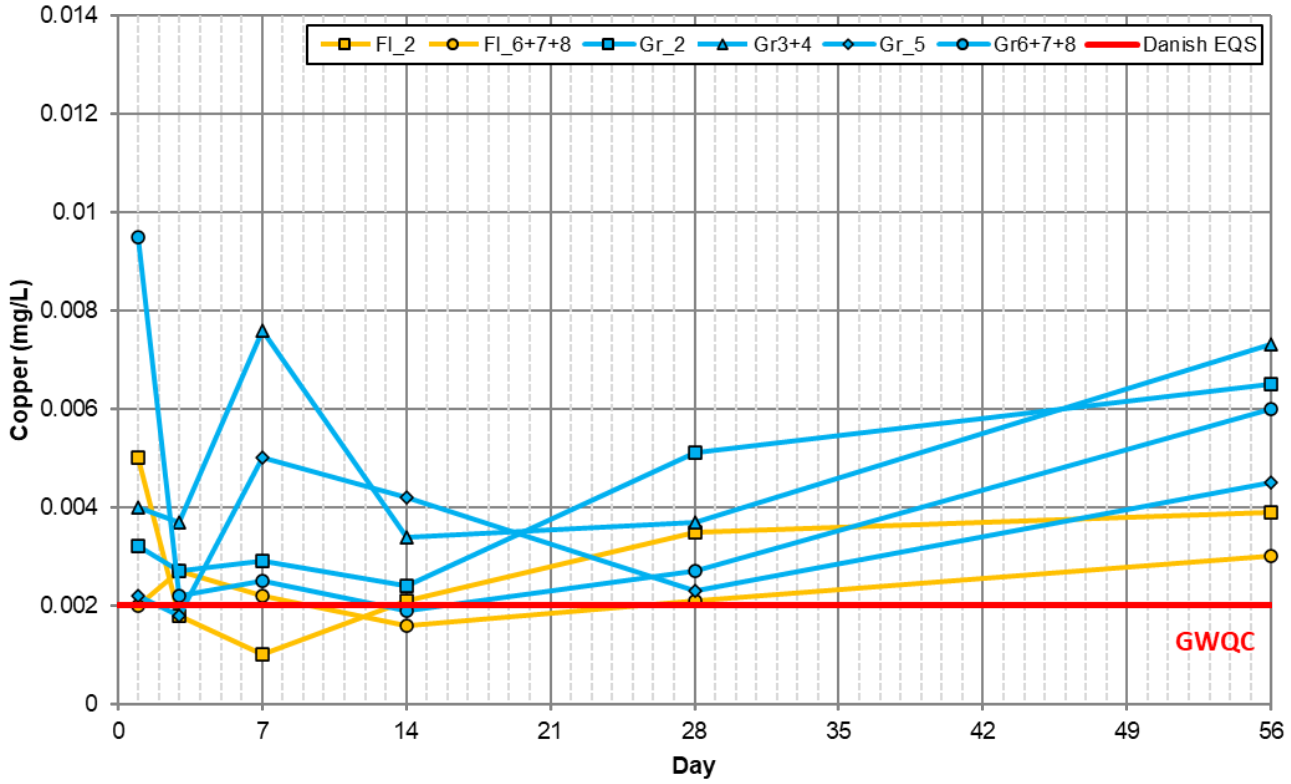

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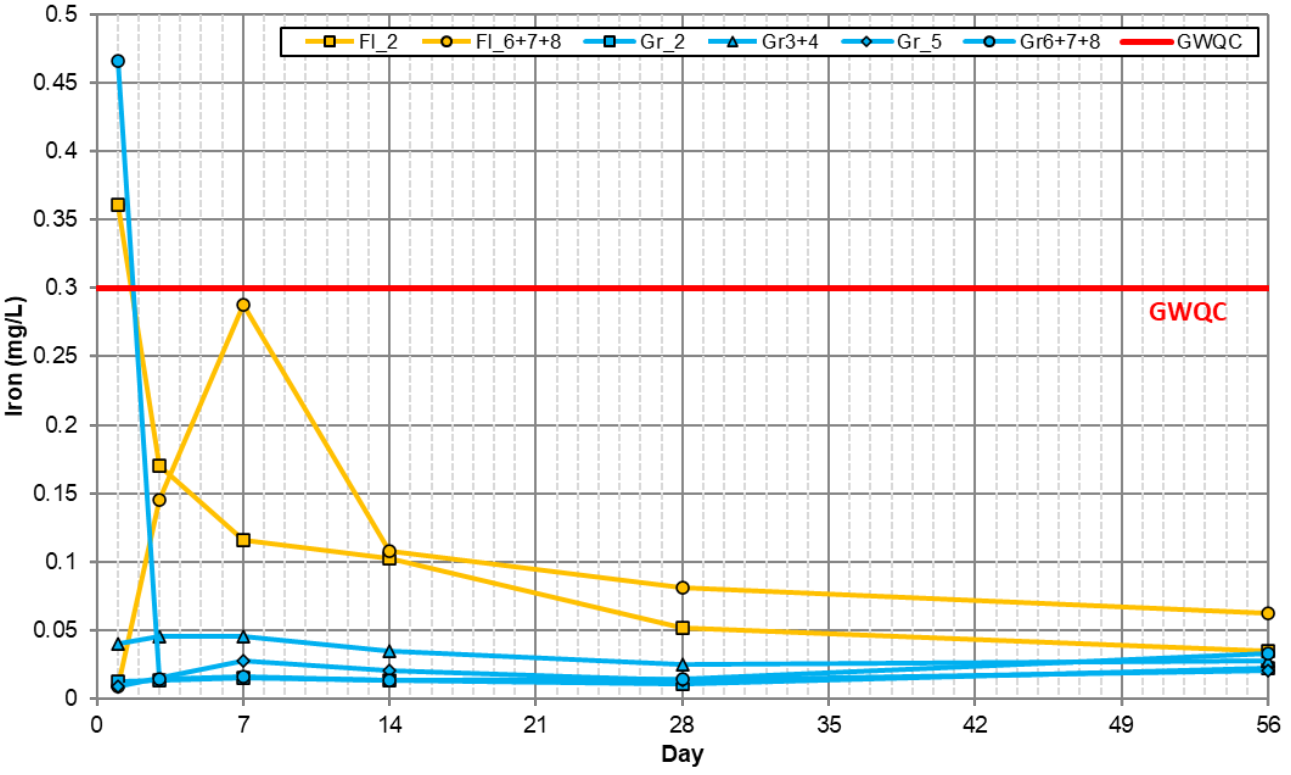

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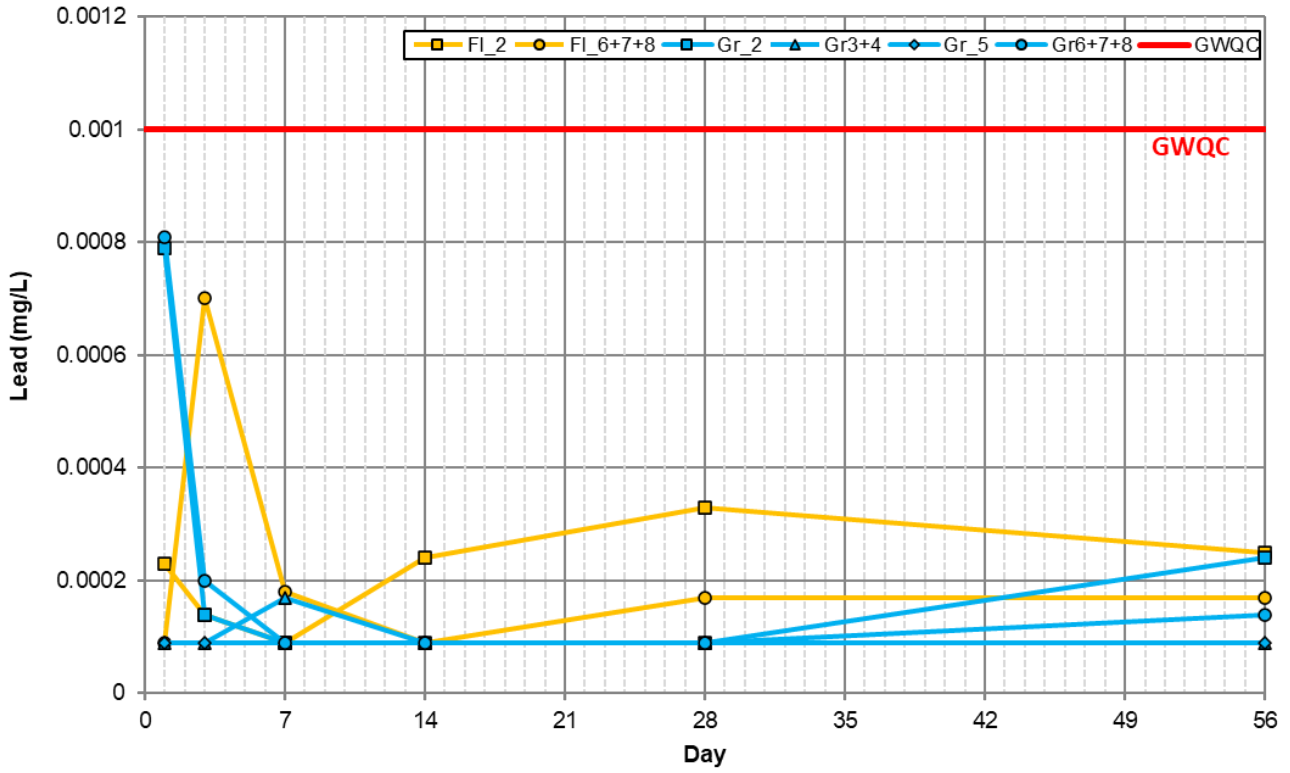

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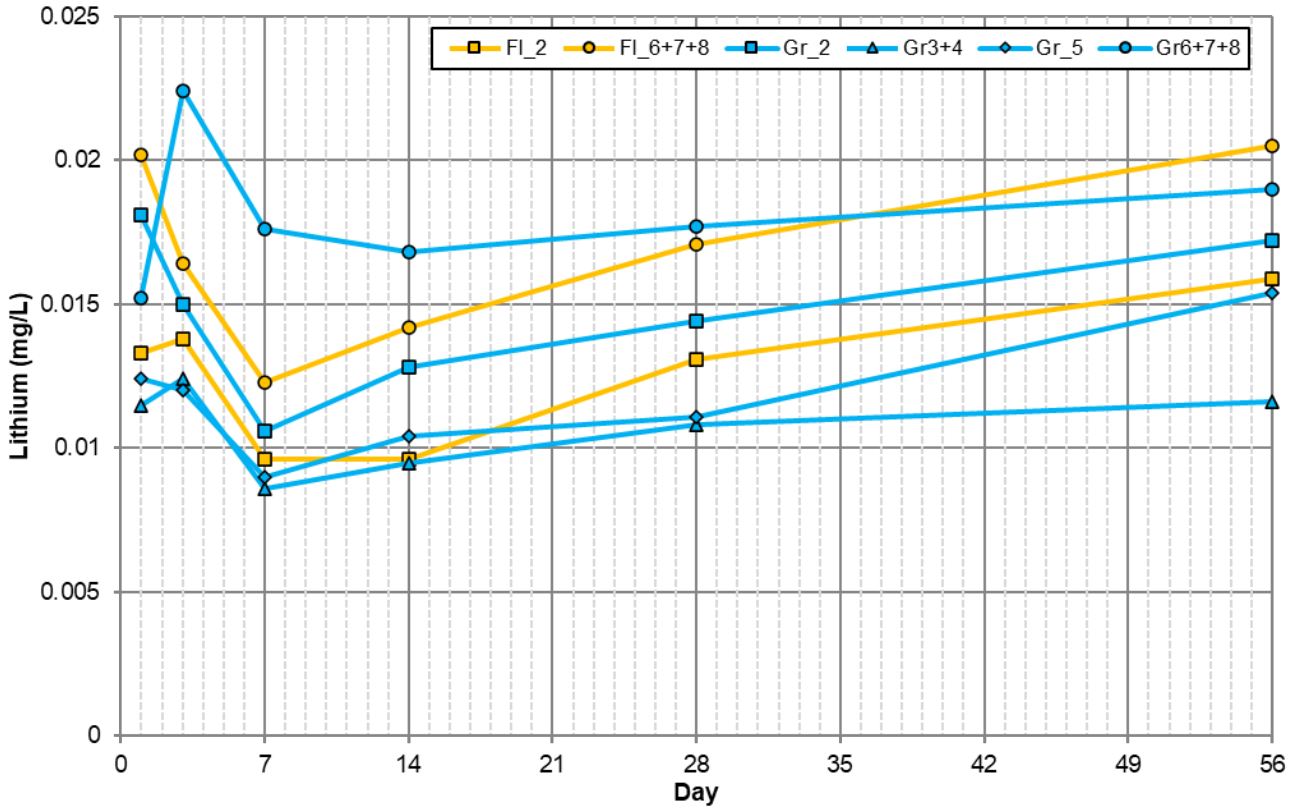

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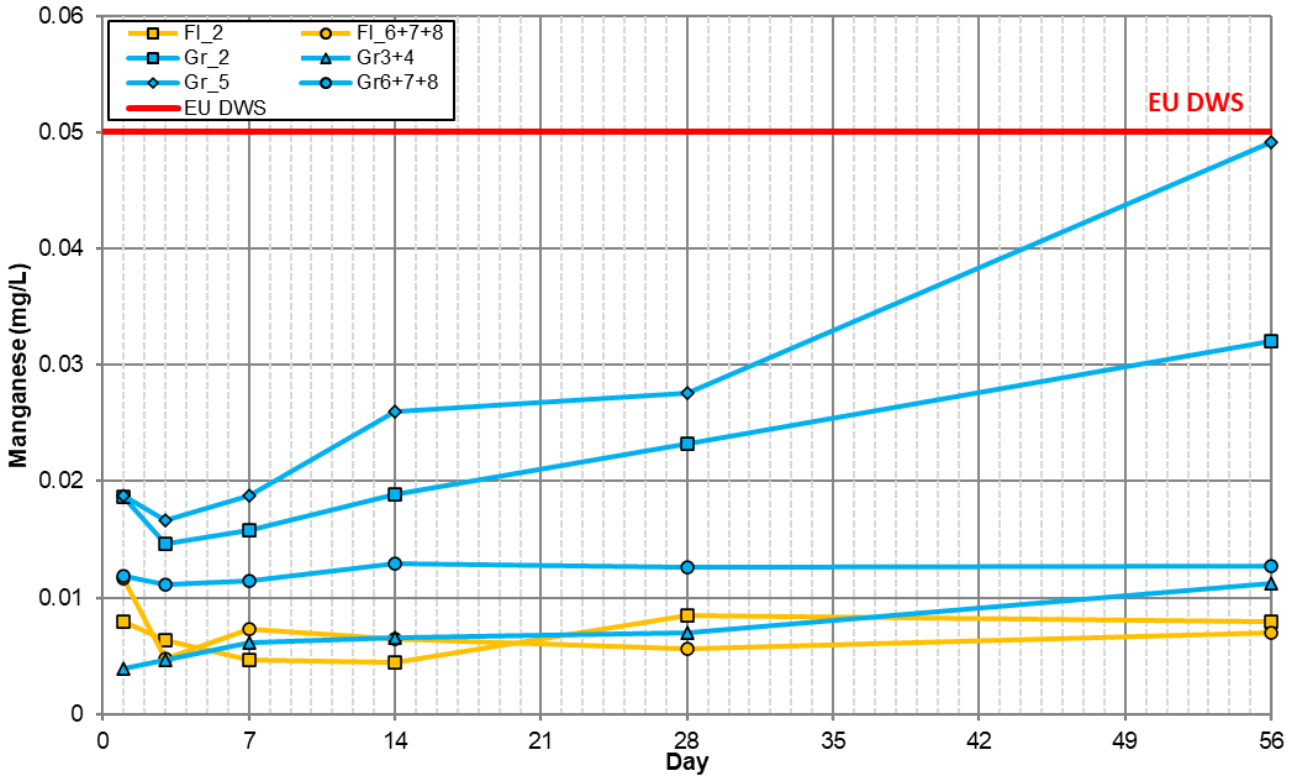

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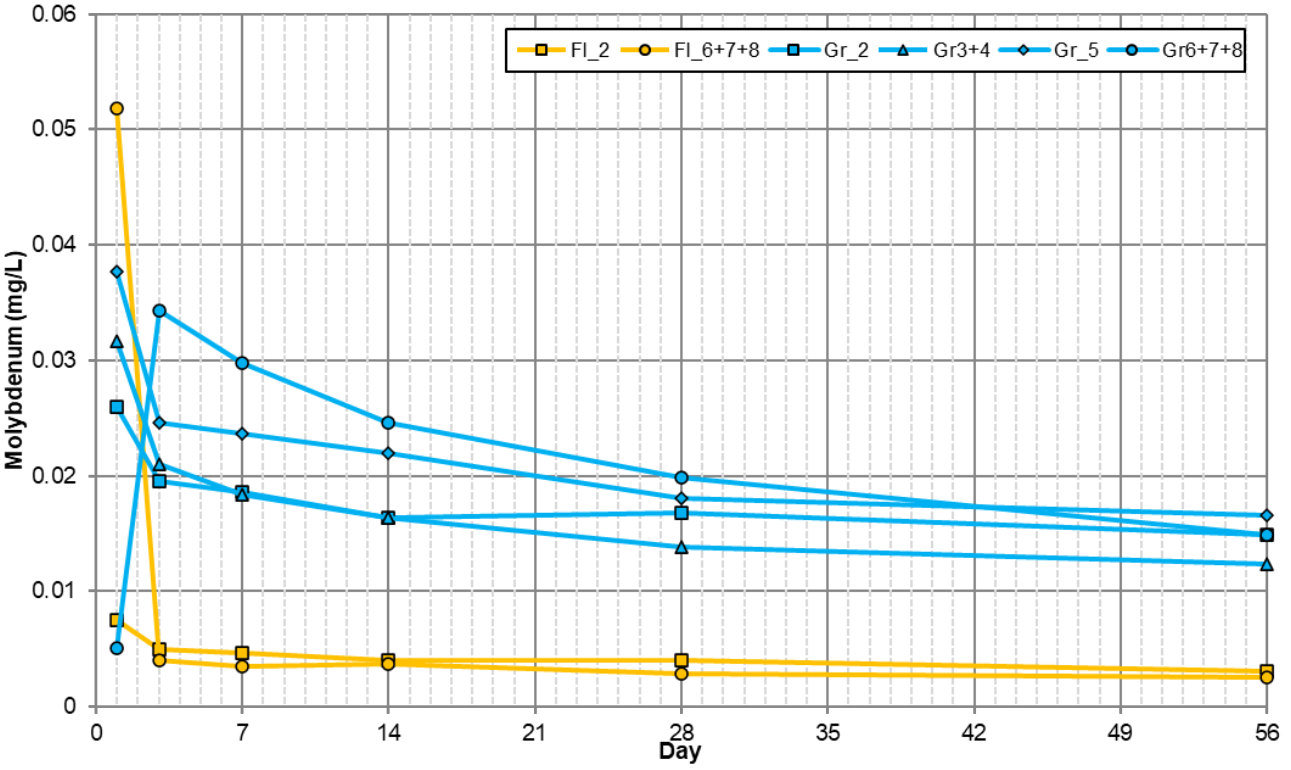

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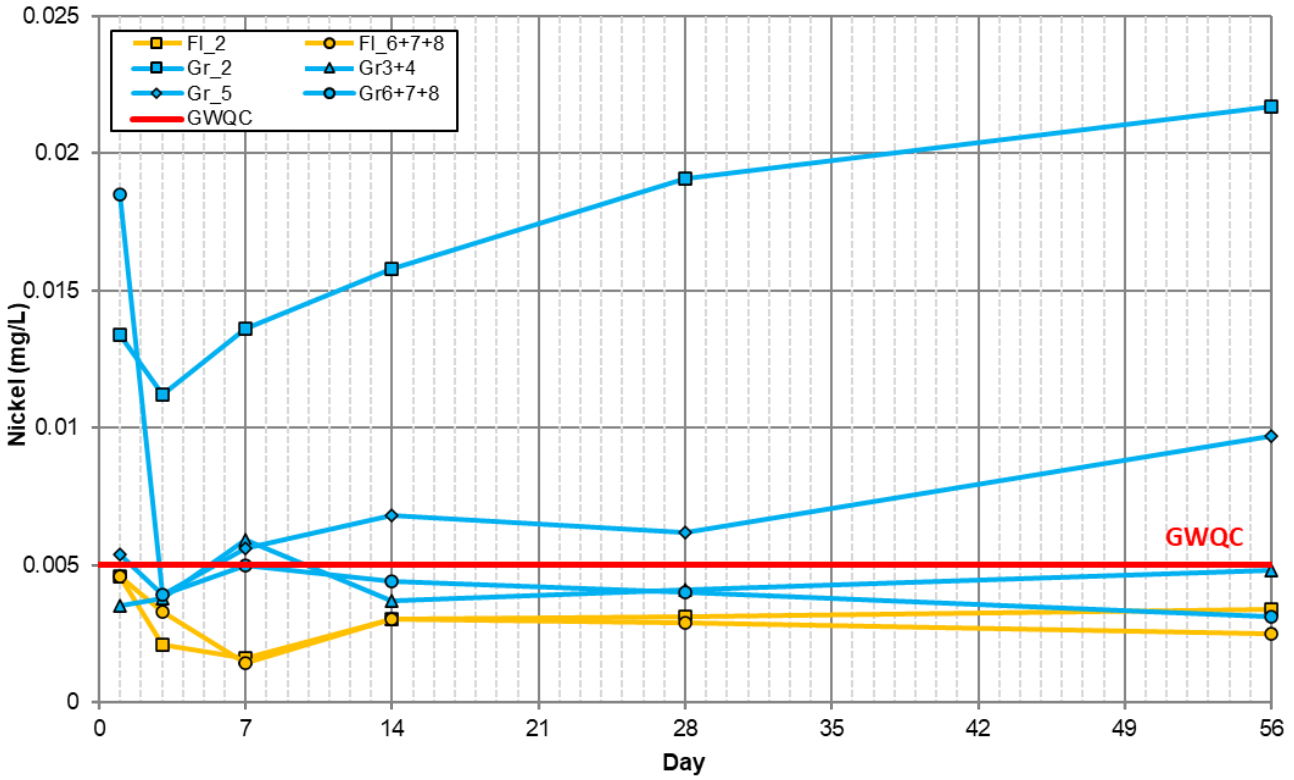

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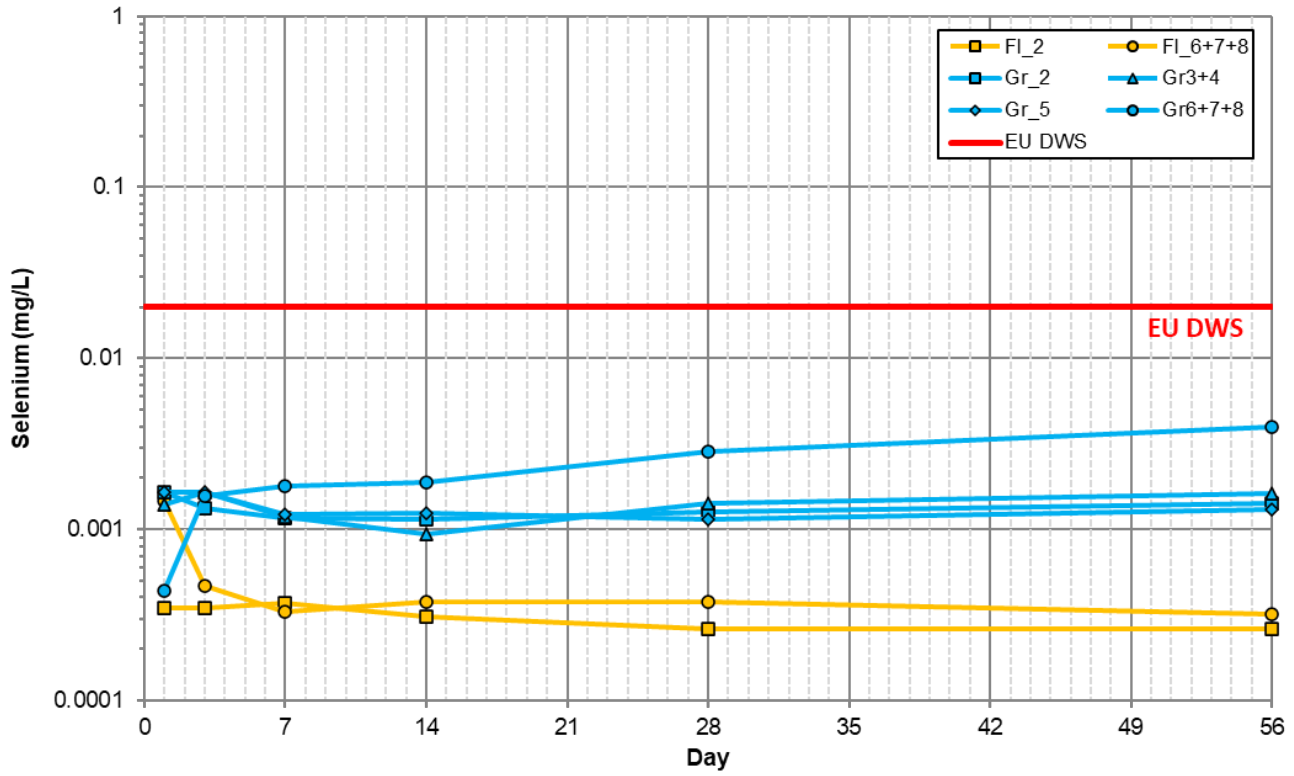

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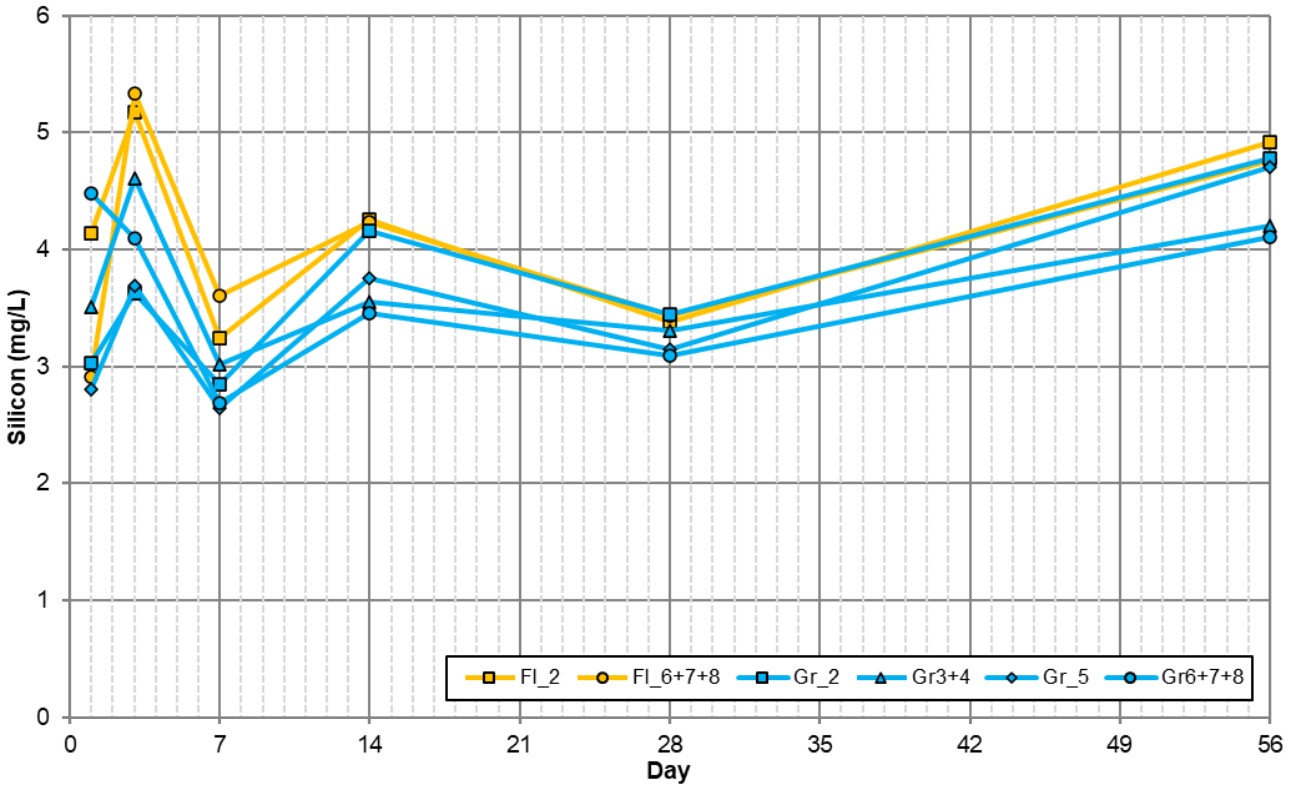

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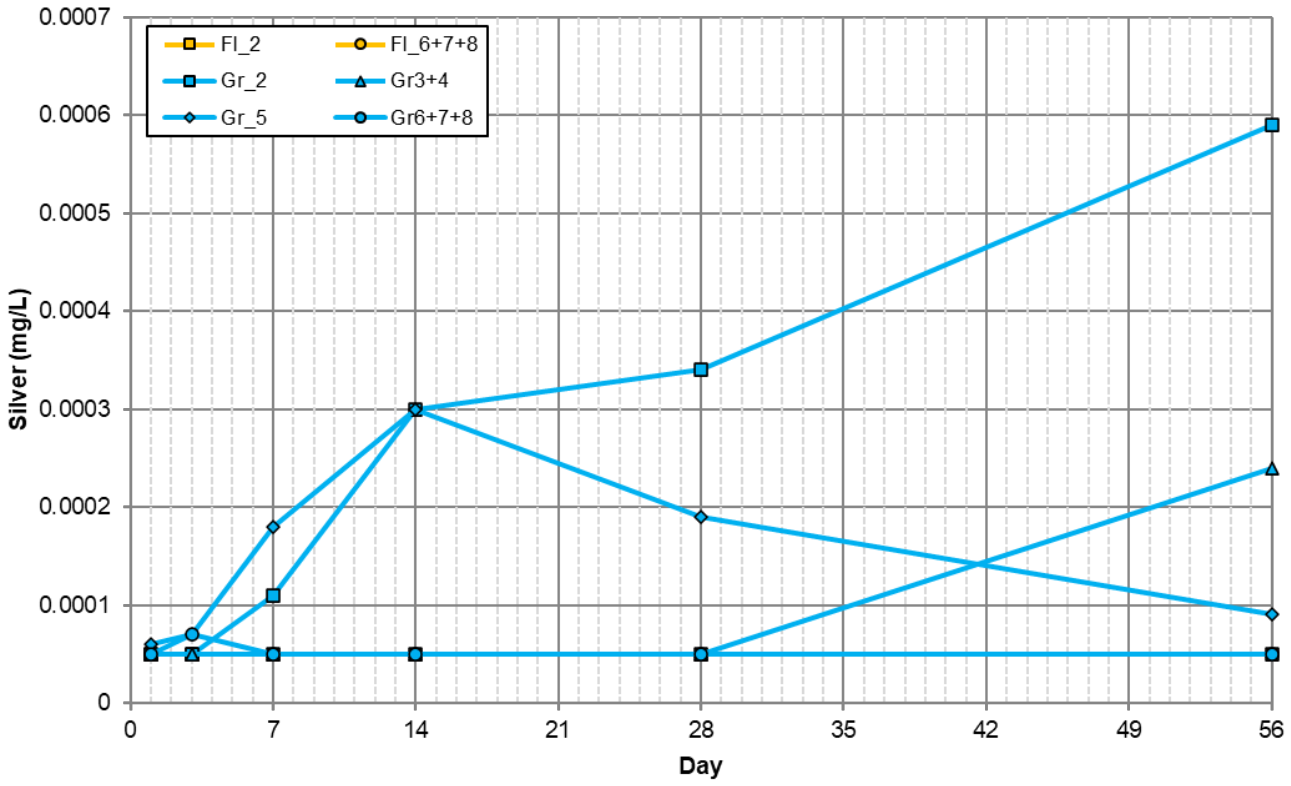

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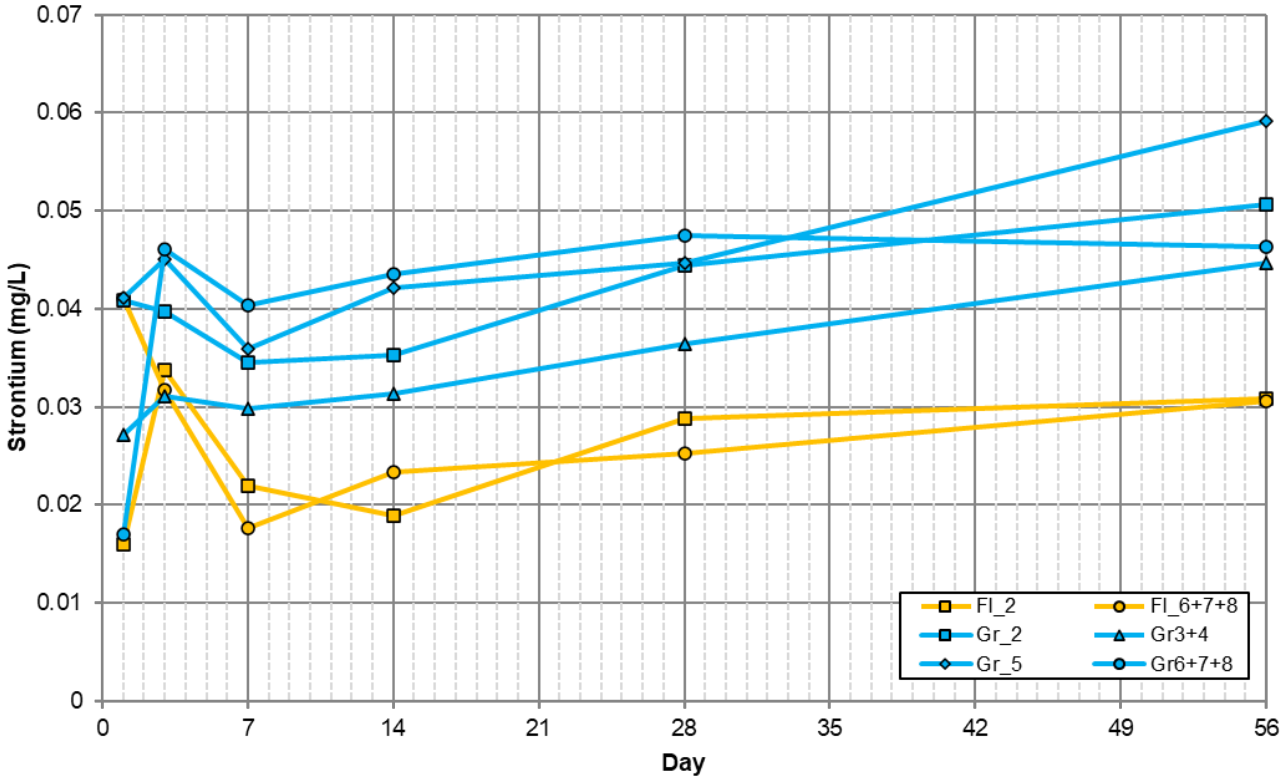

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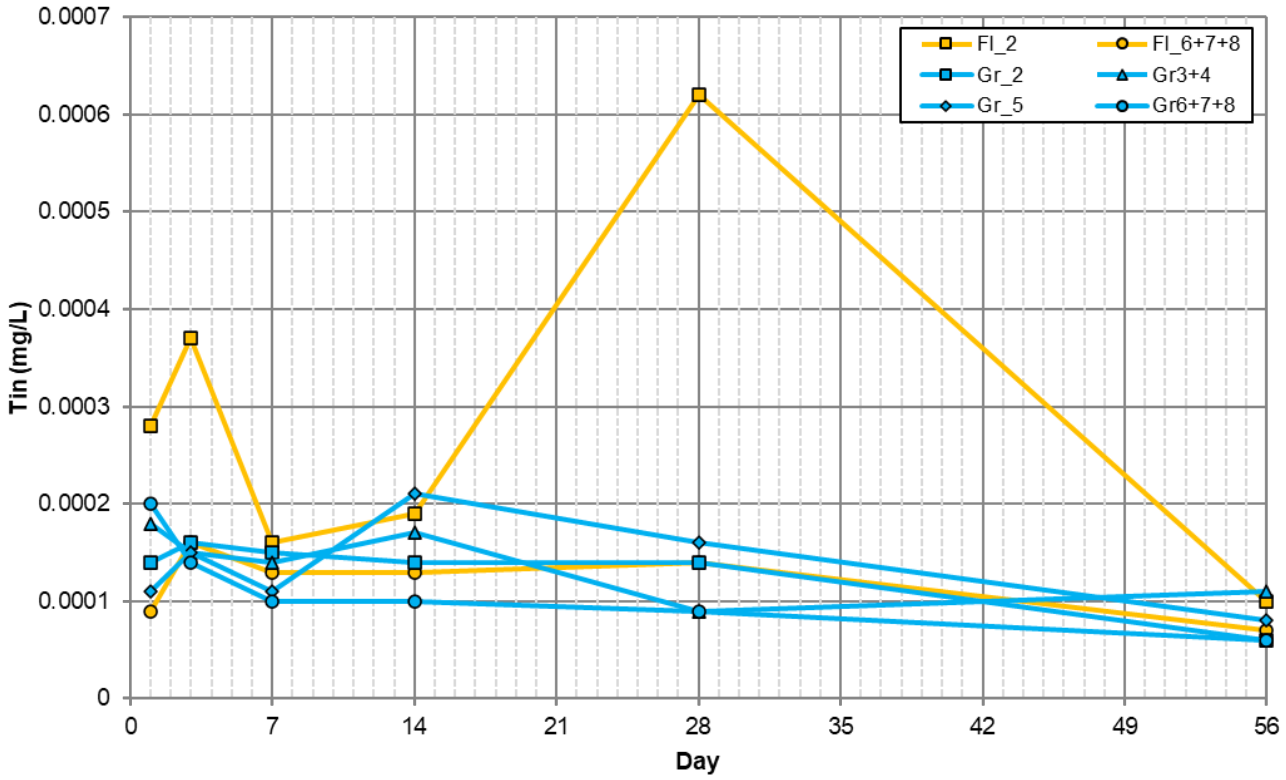

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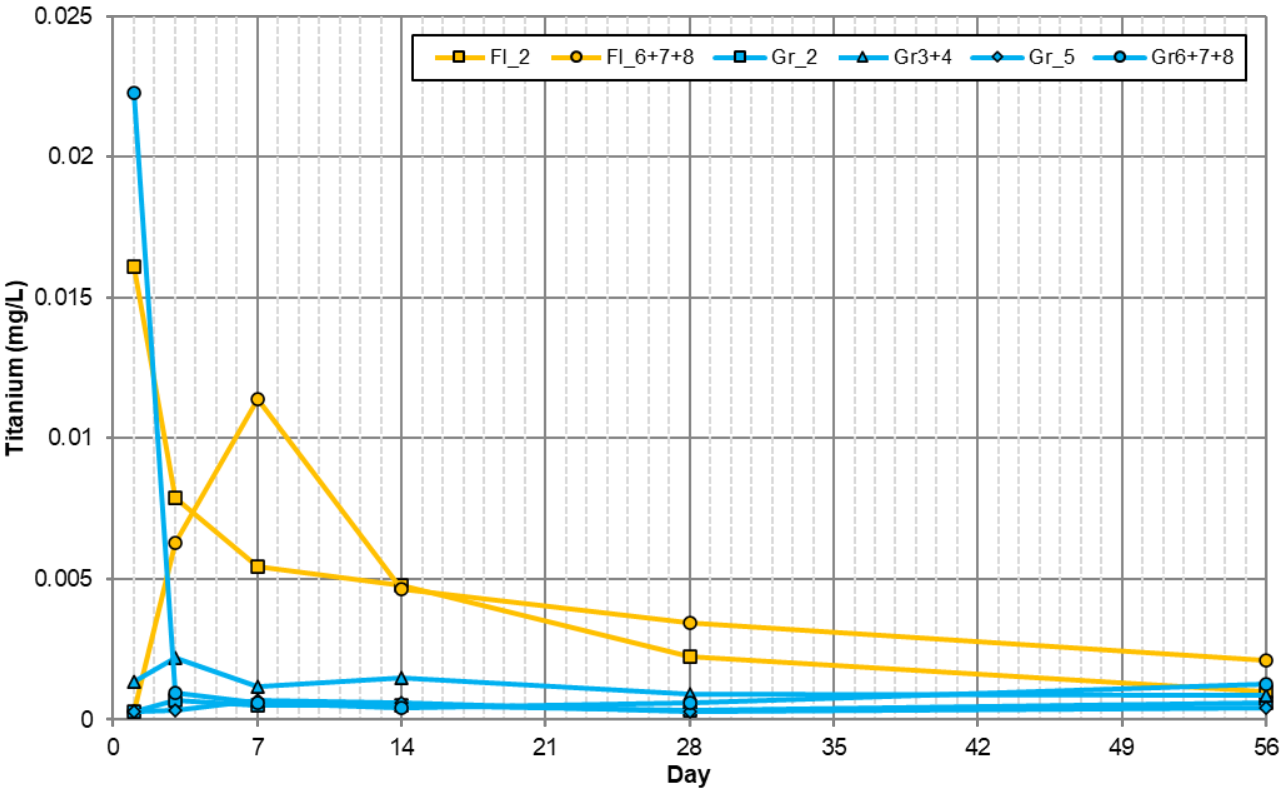

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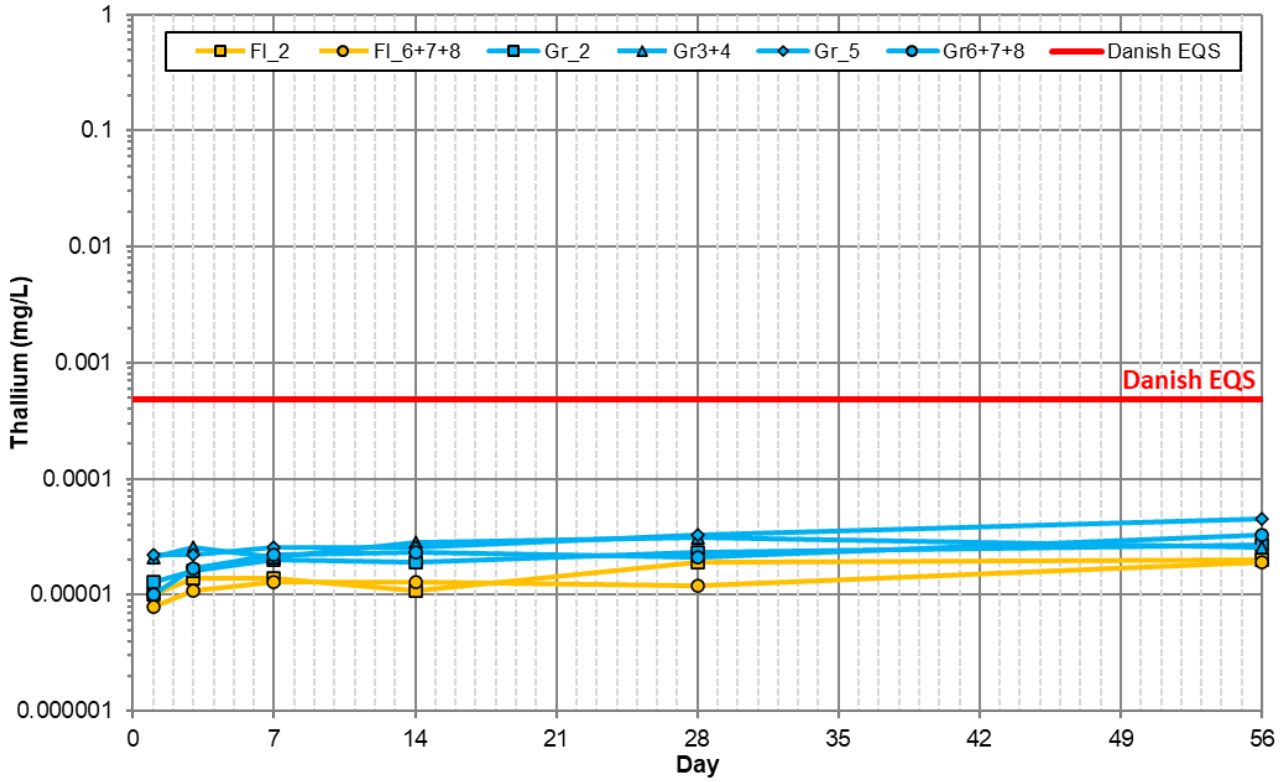

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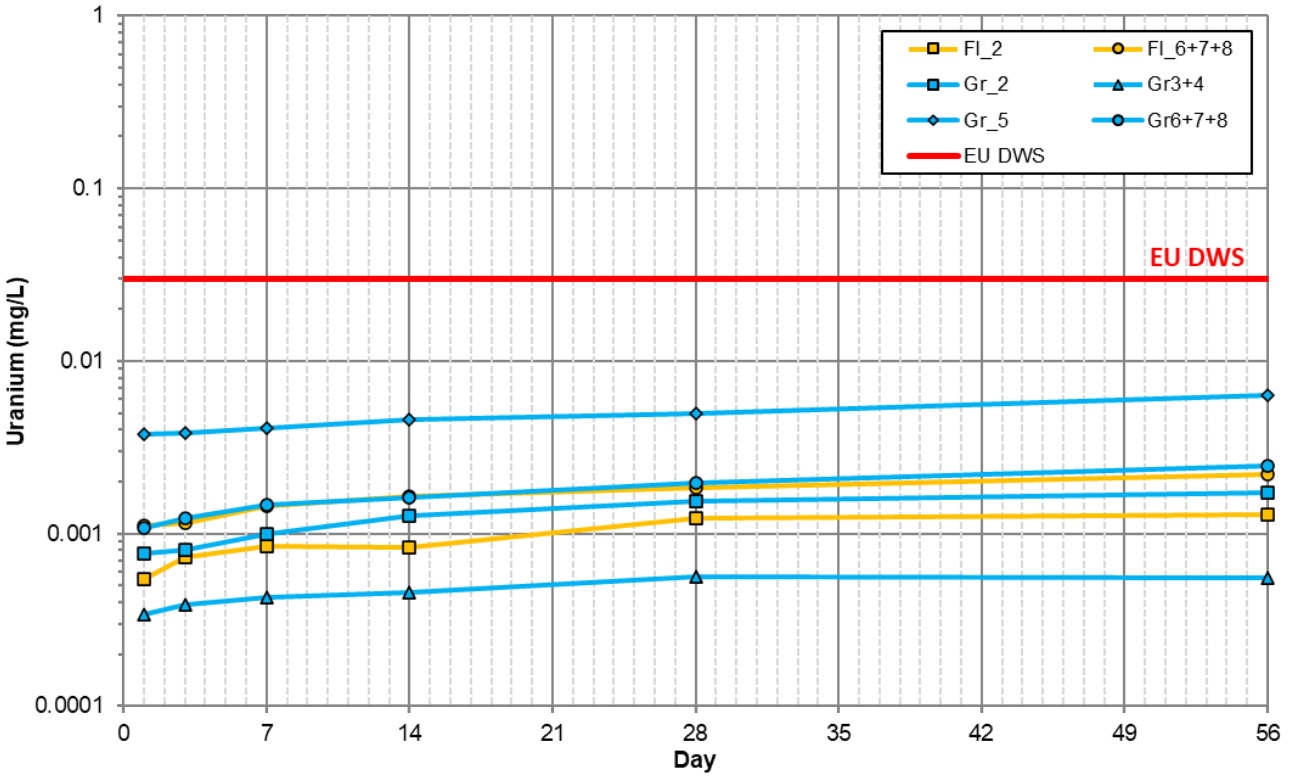

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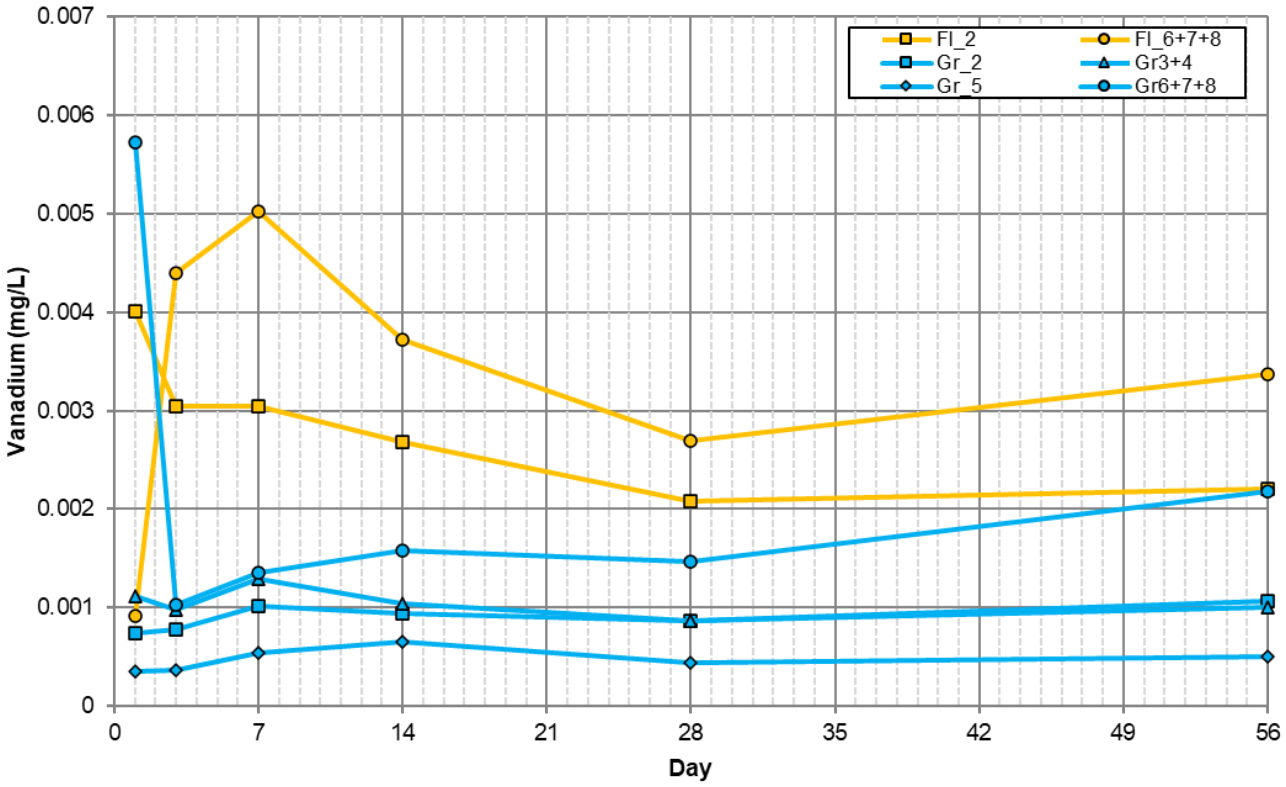

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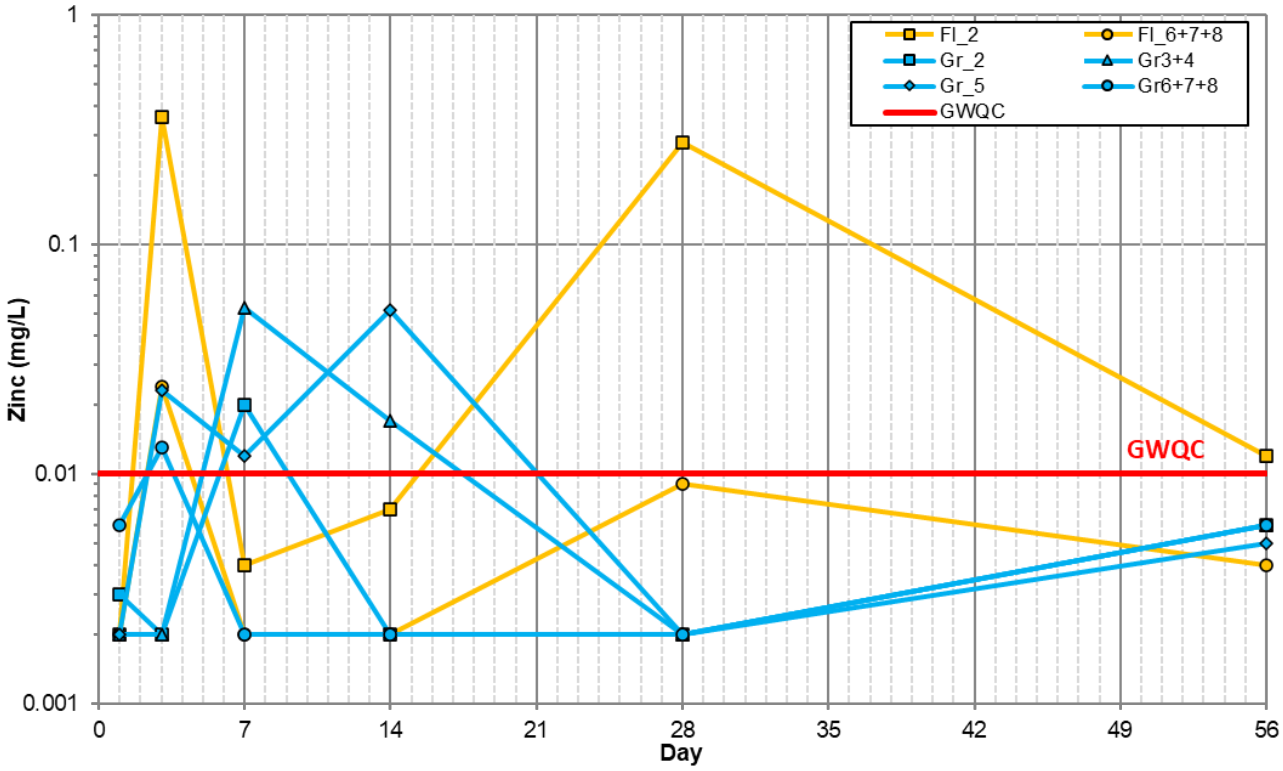

Figure A.37. Time series of Zinc (Zn) results from Intermittent Bottle Roll Tests.

Table A.1. Summary of Intermittent Bottle Roll Test results for Sample Fl_2.

FL_2							
Parameter	**Units**	**Day 1**	**Day 3**	**Day 7**	**Day 14**	**Day 28**	**Day 56**
Date	-	02-Mar-22	04-Mar-22	08-Mar-22	15-Mar-22	29-Mar-22	26-Apr-22
LIMS	-	-	-	-	-	-	-
Sample Weight	g	-	-	-	-	-	-
Volume DI Water	mL	328	329	338	344	348	941
Initial pH	no unit	-	-	-	-	-	-
LIMS	-	14037-MAR22	14081-MAR22	14099-MAR22	14241-MAR22	14428-MAR22	14308-APR22
Temp on Receipt	°C	17.0	17.0	17.0	17.0	17.0	19.0
pH	No unit	7.75	7.90	7.94	7.88	8.10	8.09
Alkalinity	mg/L as $CaCO_3$	32	38	42	43	59	67
Acidity	mg/L as $CaCO_3$	< 2	< 2	<2	< 2	< 2	< 2
Conductivity	µS/cm	90	89	91	95	130	138
SO_4	mg/L	6	5	3	3	5	7
Redox Potential	mV as E_H	213	229	191	174	345	197
Hg	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Ag	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Al	mg/L	0.314	0.219	0.146	0.131	0.092	0.070
As	mg/L	0.264	0.248	0.266	0.231	0.156	0.160
Ba	mg/L	0.00328	0.00354	0.00426	0.00356	0.00627	0.00746
Be	mg/L	0.000014	0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
B	mg/L	0.009	0.012	0.007	0.007	0.015	0.014
Bi	mg/L	0.00006	0.00003	0.00003	0.00017	0.00005	< 0.00001
Ca	mg/L	12.1	14.3	13.9	15.0	20.9	24.0000
Cd	mg/L	0.000007	0.000019	0.000006	< 0.000003	0.000672	0.000004
Co	mg/L	0.000617	0.000371	0.000293	0.000289	0.000289	0.000267
Cr	mg/L	0.00357	0.00150	0.00136	0.00142	0.00095	0.00097
Cu	mg/L	0.0050	0.0018	0.0010	0.0021	0.0035	0.0039
Fe	mg/L	0.361	0.170	0.116	0.102	0.052	0.035
K	mg/L	1.66	1.42	1.34	1.23	1.16	1.24
Li	mg/L	0.0133	0.0138	0.0096	0.0096	0.0131	0.0159
Mg	mg/L	1.83	1.68	1.84	1.77	1.99	2.24
Mn	mg/L	0.00791	0.00637	0.00466	0.00444	0.00851	0.00792

FL_2							
Parameter	**Units**	**Day 1**	**Day 3**	**Day 7**	**Day 14**	**Day 28**	**Day 56**
Mo	mg/L	0.00750	0.00499	0.00460	0.00403	0.00396	0.00310
Na	mg/L	2.33	2.09	1.38	1.36	1.16	1.29
Ni	mg/L	0.0046	0.0021	0.0016	0.0030	0.0031	0.0034
P	mg/L	0.039	0.032	0.039	0.035	0.027	0.025
Pb	mg/L	0.00023	0.00014	< 0.00009	0.00024	0.00033	0.00025
Sb	mg/L	0.0043	0.0048	0.0057	0.0058	0.0058	0.0074
Se	mg/L	0.00035	0.00035	0.00037	0.00031	0.00026	0.00026
Si	mg/L	4.14	5.18	3.24	4.26	3.38	4.92
Sn	mg/L	0.00028	0.00037	0.00016	0.00019	0.00062	0.00010
Sr	mg/L	0.0160	0.0338	0.0219	0.0189	0.0288	0.0308
Th	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Ti	mg/L	0.0161	0.00788	0.00543	0.00478	0.00226	0.00101
Tl	mg/L	0.000010	0.000014	0.000014	0.000011	0.000019	0.000020
U	mg/L	0.000549	0.000729	0.000848	0.000832	0.00123	0.00130
V	mg/L	0.00401	0.00304	0.00305	0.00268	0.00208	0.00221
W	mg/L	0.00788	0.00898	0.01066	0.0126	0.0144	0.0147
Y	mg/L	0.00005	0.00003	0.00002	0.00002	< 0.00002	< 0.00002
Zn	mg/L	0.002	0.359	0.004	0.007	0.277	0.012

Table A.2.Summary of Intermittent Bottle Roll Test results for Sample FI_6+7+8.

FL_6+7+8							
Parameter	**Units**	**Day 1**	**Day 3**	**Day 7**	**Day 14**	**Day 28**	**Day 56**
Date	-	02-Mar-22	04-Mar-22	08-Mar-22	15-Mar-22	29-Mar-22	26-Apr-22
LIMS	-	-	-	-	-	-	-
Sample Weight	g	-	-	-	-	-	-
Volume DI Water	mL	348	326	326	340	354	943
Initial pH	no unit	-	-	-	-	-	-
LIMS	-	14037-MAR22	14081-MAR22	14099-MAR22	14241-MAR22	14428-MAR22	14308-APR22
Temp on Receipt	°C	17.0	17.0	17.0	17.0	17.0	19.0
pH	No unit	8.11	8.08	7.92	8.11	8.18	8.14
Alkalinity	mg/L as $CaCO_3$	67	48	50	64	68	73
Acidity	mg/L as $CaCO_3$	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity	µS/cm	230	112	113	130	140	149
SO_4	mg/L	47	6	5	4	4	5
Redox Potential	mV as E_H	226	182	206	174	326	204
Hg	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Ag	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Al	mg/L	0.055	0.189	0.257	0.156	0.101	0.097
As	mg/L	0.0645	0.136	0.137	0.105	0.0921	0.0893
Ba	mg/L	0.00515	0.00302	0.00320	0.00279	0.00279	0.00472
Be	mg/L	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
B	mg/L	0.030	0.016	0.011	0.011	0.018	0.018
Bi	mg/L	< 0.00001	0.00033	0.00001	< 0.00001	0.00013	< 0.00001
Ca	mg/L	24.9	13.3	12.6	16.9	17.5	21.6
Cd	mg/L	0.000019	0.000004	0.000004	0.000012	0.000008	0.000004
Co	mg/L	0.000198	0.000266	0.000327	0.000172	0.000196	0.000223
Cr	mg/L	0.00033	0.00066	0.00150	0.00080	0.00059	0.00051
Cu	mg/L	0.0020	0.0027	0.0022	0.0016	0.0021	0.0030
Fe	mg/L	0.009	0.145	0.288	0.108	0.081	0.062
K	mg/L	6.54	3.26	3.18	3.52	2.94	3.42
Li	mg/L	0.0202	0.0164	0.0123	0.0142	0.0171	0.0205
Mg	mg/L	6.13	3.62	3.85	4.32	4.02	4.26
Mn	mg/L	0.0117	0.00475	0.00730	0.00642	0.00559	0.00697

FL_6+7+8							
Parameter	**Units**	**Day 1**	**Day 3**	**Day 7**	**Day 14**	**Day 28**	**Day 56**
Mo	mg/L	0.0518	0.00404	0.00345	0.00369	0.00289	0.00248
Na	mg/L	10.0	4.82	3.65	3.22	2.70	2.68
Ni	mg/L	0.0046	0.0033	0.0014	0.0030	0.0029	0.0025
P	mg/L	< 0.003	0.064	0.060	0.052	0.040	0.032
Pb	mg/L	< 0.00009	0.00070	0.00018	< 0.00009	0.00017	0.00017
Sb	mg/L	0.0090	0.0043	0.0048	0.0044	0.0044	0.0058
Se	mg/L	0.00147	0.00047	0.00033	0.00038	0.00038	0.00032
Si	mg/L	2.91	5.33	3.61	4.24	3.43	4.76
Sn	mg/L	0.00009	0.00016	0.00013	0.00013	0.00014	0.00007
Sr	mg/L	0.0410	0.0317	0.0176	0.0234	0.0253	0.0306
Th	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Ti	mg/L	0.00029	0.00627	0.0114	0.00465	0.00346	0.00209
Tl	mg/L	0.000008	0.000011	0.000013	0.000013	0.000012	0.000019
U	mg/L	0.00112	0.00115	0.00144	0.00165	0.00186	0.00220
V	mg/L	0.00091	0.00440	0.00502	0.00372	0.00270	0.00337
W	mg/L	0.00731	0.00654	0.00743	0.00872	0.00842	0.0104
Y	mg/L	< 0.00002	0.00003	0.00005	< 0.00002	< 0.00002	< 0.00002
Zn	mg/L	< 0.002	0.024	< 0.002	< 0.002	0.009	0.004

Table A.3. Summary of Intermittent Bottle Roll Test results for Sample Gr_2.

Gr_2							
Parameter	**Units**	**Day 1**	**Day 3**	**Day 7**	**Day 14**	**Day 28**	**Day 56**
Date	-	02-Mar-22	04-Mar-22	08-Mar-22	15-Mar-22	29-Mar-22	26-Apr-22
LIMS	-	-	-	-	-	-	-
Sample Weight	g	-	-	-	-	-	-
Volume DI Water	mL	500	333	353	321	363	1006
Initial pH	no unit	-	-	-	-	-	-
LIMS	-	14037-MAR22	14081-MAR22	14099-MAR22	14241-MAR22	14428-MAR22	14308-APR22
Temp on Receipt	°C	17.0	17.0	17.0	17.0	17.0	19.0
pH	No unit	7.94	7.72	7.83	8.05	7.99	8.03
Alkalinity	mg/L as $CaCO_3$	42	48	48	57	62	62
Acidity	mg/L as $CaCO_3$	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity	µS/cm	242	205	201	224	257	302
SO_4	mg/L	66	47	45	49	66	88
Redox Potential	mV as E_H	233	223	213	180	349	214
Hg	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Ag	mg/L	< 0.00005	< 0.00005	0.00011	0.00030	0.00034	0.00059
Al	mg/L	0.049	0.059	0.042	0.045	0.032	0.034
As	mg/L	0.0773	0.105	0.152	0.157	0.183	0.191
Ba	mg/L	0.00577	0.00524	0.00611	0.00724	0.00991	0.0135
Be	mg/L	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
B	mg/L	0.014	0.026	0.010	0.010	0.010	0.016
Bi	mg/L	< 0.00001	< 0.00001	< 0.00001	0.00006	0.00003	0.00004
Ca	mg/L	37.5	33.5	32.0	37.2	44.5	54.1
Cd	mg/L	0.000013	0.000010	0.000011	0.000014	0.000016	0.000014
Co	mg/L	0.000831	0.000704	0.00111	0.00153	0.00227	0.00341
Cr	mg/L	0.00101	0.00125	0.00212	0.00233	0.00185	0.00182
Cu	mg/L	0.0032	0.0027	0.0029	0.0024	0.0051	0.0065
Fe	mg/L	0.012	0.013	0.015	0.013	0.011	0.022
K	mg/L	2.10	1.46	1.32	1.29	1.14	1.25
Li	mg/L	0.0181	0.0150	0.0106	0.0128	0.0144	0.0172
Mg	mg/L	3.35	2.24	2.32	2.38	2.37	2.59
Mn	mg/L	0.0187	0.0146	0.0158	0.0189	0.0232	0.0320

Gr_2							
Parameter	**Units**	**Day 1**	**Day 3**	**Day 7**	**Day 14**	**Day 28**	**Day 56**
Mo	mg/L	0.0260	0.0195	0.0186	0.0164	0.0168	0.0149
Na	mg/L	3.72	2.67	2.09	1.67	1.64	1.86
Ni	mg/L	0.0134	0.0112	0.0136	0.0158	0.0191	0.0217
P	mg/L	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	0.004
Pb	mg/L	0.00079	0.00014	< 0.00009	< 0.00009	< 0.00009	0.00024
Sb	mg/L	0.0102	0.0116	0.0149	0.0126	0.0127	0.0133
Se	mg/L	0.00165	0.00132	0.00116	0.00115	0.00126	0.00143
Si	mg/L	3.03	3.63	2.85	4.16	3.45	4.78
Sn	mg/L	0.00014	0.00016	0.00015	0.00014	0.00014	0.00006
Sr	mg/L	0.0409	0.0397	0.0345	0.0353	0.0445	0.0507
Th	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Ti	mg/L	0.00031	0.00070	0.00052	0.00050	0.00032	0.00059
Tl	mg/L	0.000013	0.000016	0.000020	0.000019	0.000023	0.000027
U	mg/L	0.000764	0.000808	0.000995	0.00127	0.00154	0.00172
V	mg/L	0.00074	0.00078	0.00102	0.00094	0.00086	0.00107
W	mg/L	0.00487	0.00658	0.00851	0.00958	0.0100	0.00976
Y	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002
Zn	mg/L	0.003	0.002	0.020	< 0.002	< 0.002	0.006

Table A.4. Summary of Intermittent Bottle Roll Test results for Sample Gr_3+4.

Gr_3+4							
Parameter	**Units**	**Day 1**	**Day 3**	**Day 7**	**Day 14**	**Day 28**	**Day 56**
Date	-	02-Mar-22	04-Mar-22	08-Mar-22	15-Mar-22	29-Mar-22	26-Apr-22
LIMS	-	-	-	-	-	-	-
Sample Weight	g	-	-	-	-	-	-
Volume DI Water	mL	362	328	325	360	367	953
Initial pH	no unit	-	-	-	-	-	-
LIMS	-	14037-MAR22	14081-MAR22	14099-MAR22	14241-MAR22	14428-MAR22	14308-APR22
Temp on Receipt	°C	17.0	17.0	17.0	17.0	17.0	19.0
pH	No unit	7.86	8.06	7.96	8.13	8.13	7.98
Alkalinity	mg/L as $CaCO_3$	38	47	56	63	66	59
Acidity	mg/L as $CaCO_3$	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity	µS/cm	168	157	157	169	189	208
SO_4	mg/L	39	30	25	26	34	46
Redox Potential	mV as E_H	222	230	210	167	323	191
Hg	mg/L	< 0.00001	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001
Ag	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00024
Al	mg/L	0.100	0.108	0.072	0.080	0.058	0.053
As	mg/L	0.132	0.121	0.123	0.108	0.104	0.114
Ba	mg/L	0.00070	0.00077	0.00095	0.00073	0.00087	0.00335
Be	mg/L	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
B	mg/L	0.012	0.015	0.009	0.008	0.014	0.016
Bi	mg/L	0.00002	0.00005	0.00059	0.00003	0.00004	0.00003
Ca	mg/L	24.2	26.3	24.3	29.1	30.6	33.8
Cd	mg/L	0.000014	0.000011	0.000040	0.000095	0.000004	0.000010
Co	mg/L	0.000370	0.000382	0.000902	0.000562	0.000678	0.000721
Cr	mg/L	0.00080	0.00154	0.00112	0.00100	0.00106	0.00113
Cu	mg/L	0.0040	0.0037	0.0076	0.0034	0.0037	0.0073
Fe	mg/L	0.040	0.045	0.045	0.035	0.025	0.028
K	mg/L	1.50	1.21	1.10	1.13	0.900	0.986
Li	mg/L	0.0115	0.0124	0.0086	0.0095	0.0108	0.0116
Mg	mg/L	2.58	2.08	2.16	2.32	2.23	2.43
Mn	mg/L	0.00391	0.00460	0.00613	0.0066	0.00696	0.0112

Gr_3+4							
Parameter	**Units**	**Day 1**	**Day 3**	**Day 7**	**Day 14**	**Day 28**	**Day 56**
Mo	mg/L	0.0317	0.0210	0.0184	0.0164	0.0138	0.0124
Na	mg/L	4.16	3.25	2.76	2.32	1.94	2.69
Ni	mg/L	0.0035	0.0038	0.0059	0.0037	0.0041	0.0048
P	mg/L	< 0.003	< 0.003	< 0.003	0.004	0.003	0.004
Pb	mg/L	< 0.00009	< 0.00009	0.00017	< 0.00009	< 0.00009	< 0.00009
Sb	mg/L	0.0943	0.103	0.116	0.0964	0.0956	0.102
Se	mg/L	0.00139	0.00164	0.00119	0.00094	0.00142	0.00161
Si	mg/L	3.51	4.61	3.02	3.55	3.31	4.20
Sn	mg/L	0.00018	0.00015	0.00014	0.00017	0.00009	0.00011
Sr	mg/L	0.0272	0.0311	0.0298	0.0313	0.0365	0.0447
Th	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Ti	mg/L	0.00136	0.00219	0.00116	0.00147	0.00091	0.00086
Tl	mg/L	0.000021	0.000026	0.000021	0.000028	0.000031	0.000026
U	mg/L	0.000343	0.000389	0.000431	0.000458	0.000564	0.000558
V	mg/L	0.00111	0.00098	0.00129	0.00104	0.00086	0.00100
W	mg/L	0.00212	0.00203	0.00231	0.00294	0.00263	0.00400
Y	mg/L	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002
Zn	mg/L	< 0.002	< 0.002	0.053	0.017	< 0.002	0.006

Table A.5. Summary of Intermittent Bottle Roll Test results for Sample Gr_5.

Gr_5							
Parameter	**Units**	**Day 1**	**Day 3**	**Day 7**	**Day 14**	**Day 28**	**Day 56**
Date	-	02-Mar-22	04-Mar-22	08-Mar-22	15-Mar-22	29-Mar-22	26-Apr-22
LIMS	-	-	-	-	-	-	-
Sample Weight	g	-	-	-	-	-	-
Volume DI Water	mL	500	337	335	360	347	1011
Initial pH	no unit	-	-	-	-	-	-
LIMS	-	14037-MAR22	14081-MAR22	14099-MAR22	14241-MAR22	14428-MAR22	14308-APR22
Temp on Receipt	°C	17.0	17.0	17.0	17.0	17.0	19.0
pH	No unit	7.98	8.02	7.86	8.07	8.02	8.06
Alkalinity	mg/L as $CaCO_3$	46	47	52	60	59	68
Acidity	mg/L as $CaCO_3$	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity	µS/cm	211	184	198	220	245	324
SO_4	mg/L	59	41	41	49	66	94
Redox Potential	mV as E_H	227	234	213	173	313	194
Hg	mg/L	< 0.00001	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001
Ag	mg/L	0.00006	0.00007	0.00018	0.00030	0.00019	0.00009
Al	mg/L	0.042	0.054	0.043	0.043	0.030	0.025
As	mg/L	0.0341	0.0353	0.0391	0.0425	0.0414	0.0400
Ba	mg/L	0.00114	0.00105	0.00133	0.00125	0.00137	0.00338
Be	mg/L	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
B	mg/L	0.014	0.015	0.011	0.010	0.016	0.018
Bi	mg/L	< 0.00001	< 0.00001	0.00072	0.00006	0.00002	< 0.00001
Ca	mg/L	33.7	32.5	31.0	38.9	43.5	61.6
Cd	mg/L	0.000020	0.000013	0.000015	0.000231	0.000009	0.000016
Co	mg/L	0.000293	0.000285	0.000535	0.000576	0.000683	0.00145
Cr	mg/L	0.00070	0.00101	0.00169	0.00166	0.00160	0.00136
Cu	mg/L	0.0022	0.0018	0.0050	0.0042	0.0023	0.0045
Fe	mg/L	0.009	0.015	0.028	0.020	0.013	0.020
K	mg/L	2.44	1.88	1.78	1.97	1.52	1.77
Li	mg/L	0.0124	0.0120	0.0090	0.0104	0.0111	0.0154
Mg	mg/L	2.16	1.61	1.69	1.88	1.67	2.26
Mn	mg/L	0.0188	0.0166	0.0188	0.0260	0.0276	0.0491

Gr_5							
Parameter	**Units**	**Day 1**	**Day 3**	**Day 7**	**Day 14**	**Day 28**	**Day 56**
Mo	mg/L	0.0377	0.0246	0.0237	0.0220	0.0181	0.0166
Na	mg/L	3.42	2.51	2.10	1.89	1.46	1.83
Ni	mg/L	0.0054	0.0039	0.0056	0.0068	0.0062	0.0097
P	mg/L	< 0.003	0.004	< 0.003	0.006	< 0.003	< 0.003
Pb	mg/L	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009
Sb	mg/L	0.0049	0.0056	0.0062	0.0054	0.0050	0.0060
Se	mg/L	0.00166	0.00164	0.00122	0.00125	0.00115	0.00131
Si	mg/L	2.80	3.69	2.64	3.75	3.15	4.71
Sn	mg/L	0.00011	0.00015	0.00011	0.00021	0.00016	0.00008
Sr	mg/L	0.0412	0.0451	0.0359	0.0422	0.0447	0.0592
Th	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Ti	mg/L	0.00030	0.00032	0.00067	0.00062	0.00029	0.00043
Tl	mg/L	0.000022	0.000022	0.000026	0.000026	0.000033	0.000045
U	mg/L	0.00378	0.00382	0.00409	0.00459	0.00497	0.00631
V	mg/L	0.00035	0.00036	0.00054	0.00065	0.00044	0.00050
W	mg/L	0.00145	0.00181	0.00215	0.00315	0.00219	0.00328
Y	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Zn	mg/L	< 0.002	0.023	0.012	0.052	0.002	0.005

Table A.6. Summary of Intermittent Bottle Roll Test results for Sample Gr_6+7+8.

Gr_6+7++8							
Parameter	**Units**	**Day 1**	**Day 3**	**Day 7**	**Day 14**	**Day 28**	**Day 56**
Date	-	Gr_6+7+8 Day 1	Gr_6+7+8 Day 3	Gr_6+7+8 Day 7	Gr_6+7+8 Day 14	Gr_6+7+8 Day 28	26-Apr-22
LIMS	-	02-Mar-22	04-Mar-22	08-Mar-22	15-Mar-22	29-Mar-22	-
Sample Weight	g	-	-	-	-	-	-
Volume DI Water	mL	-	-	-	-	-	988
Initial pH	no unit	351	304	326	347	350	-
LIMS	-	-	-	-	-	-	14308-APR22
Temp on Receipt	°C	14037-MAR22	14081-MAR22	14099-MAR22	14241-MAR22	14428-MAR22	19.0
pH	No unit	17.0	17.0	17.0	17.0	17.0	7.88
Alkalinity	mg/L as $CaCO_3$	8.07	8.07	8.03	8.19	8.14	65
Acidity	mg/L as $CaCO_3$	47	64	65	73	71	< 2
Conductivity	µS/cm	< 2	< 2	< 2	< 2	< 2	239
SO_4	mg/L	122	218	222	227	233	53
Redox Potential	mV as E_H	8	45	47	49	51	200
Hg	mg/L	214	177	188	176	310	< 0.00001
Ag	mg/L	< 0.00001	0.00001	0.00001	< 0.00001	< 0.00001	< 0.00005
Al	mg/L	< 0.00005	0.00007	< 0.00005	< 0.00005	< 0.00005	0.051
As	mg/L	0.424	0.064	0.047	0.053	0.038	0.167
Ba	mg/L	0.126	0.0799	0.118	0.137	0.140	0.00978
Be	mg/L	0.00270	0.00579	0.00569	0.00500	0.00543	< 0.000007
B	mg/L	0.000008	< 0.000007	< 0.000007	< 0.000007	< 0.000007	0.028
Bi	mg/L	0.014	0.033	0.026	0.023	0.025	< 0.00001
Ca	mg/L	0.00003	0.00180	< 0.00001	< 0.00001	0.00043	31.8
Cd	mg/L	11.9	27.0	25.7	30.1	29.6	0.000009
Co	mg/L	0.000012	0.000013	0.000009	0.000010	0.000009	0.000330
Cr	mg/L	0.000472	0.000267	0.000297	0.000344	0.000344	0.00060
Cu	mg/L	0.00220	0.00044	0.00053	0.00060	0.00045	0.0060
Fe	mg/L	0.0095	0.0022	0.0025	0.0019	0.0027	0.033
K	mg/L	0.466	0.014	0.016	0.013	0.014	4.23
Li	mg/L	3.58	5.57	5.25	5.32	4.30	0.0190

Gr_6+7++8							
Parameter	**Units**	**Day 1**	**Day 3**	**Day 7**	**Day 14**	**Day 28**	**Day 56**
Mg	mg/L	0.0152	0.0224	0.0176	0.0168	0.0177	5.37
Mn	mg/L	3.86	5.52	6.28	6.04	5.43	0.0127
Mo	mg/L	0.0119	0.0111	0.0114	0.0129	0.0126	0.0149
Na	mg/L	0.00509	0.0343	0.0298	0.0246	0.0198	4.10
Ni	mg/L	5.40	8.70	7.00	5.84	4.52	0.0031
P	mg/L	0.0185	0.0039	0.0050	0.0044	0.0040	0.003
Pb	mg/L	0.072	< 0.003	0.003	0.003	0.003	0.00014
Sb	mg/L	0.00081	0.00020	< 0.00009	< 0.00009	< 0.00009	0.0115
Se	mg/L	0.0036	0.0103	0.0120	0.0105	0.0099	0.00395
Si	mg/L	0.00044	0.00157	0.00180	0.00187	0.00283	4.11
Sn	mg/L	4.48	4.10	2.69	3.46	3.09	0.00006
Sr	mg/L	0.00020	0.00014	0.00010	0.00010	0.00009	0.0463
Th	mg/L	0.0170	0.0461	0.0404	0.0435	0.0475	< 0.0001
Ti	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.00125
Tl	mg/L	0.0223	0.00094	0.00061	0.00042	0.00060	0.000033
U	mg/L	0.000010	0.000017	0.000022	0.000023	0.000021	0.00246
V	mg/L	0.00108	0.00123	0.00148	0.00163	0.00197	0.00218
W	mg/L	0.00573	0.00103	0.00135	0.00158	0.00146	0.0117
Y	mg/L	0.00623	0.00828	0.0101	0.0109	0.0106	< 0.00002
Zn	mg/L	0.00008	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.006

APPENDIX B

Humidity Cell Tests (HCT) - Interim Results (Weeks 0 to 12)

LIST OF FIGURES

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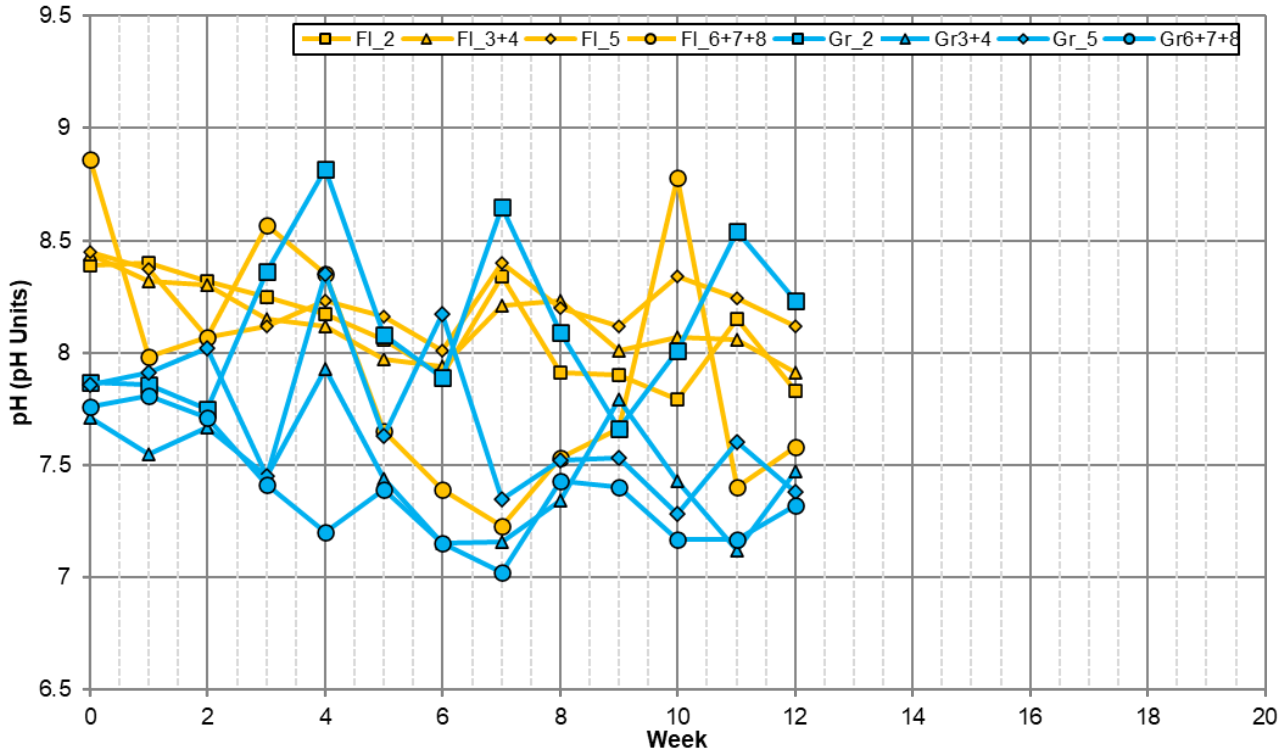

Figure B.1. Time series of pH results from Humidity Cell Tests.

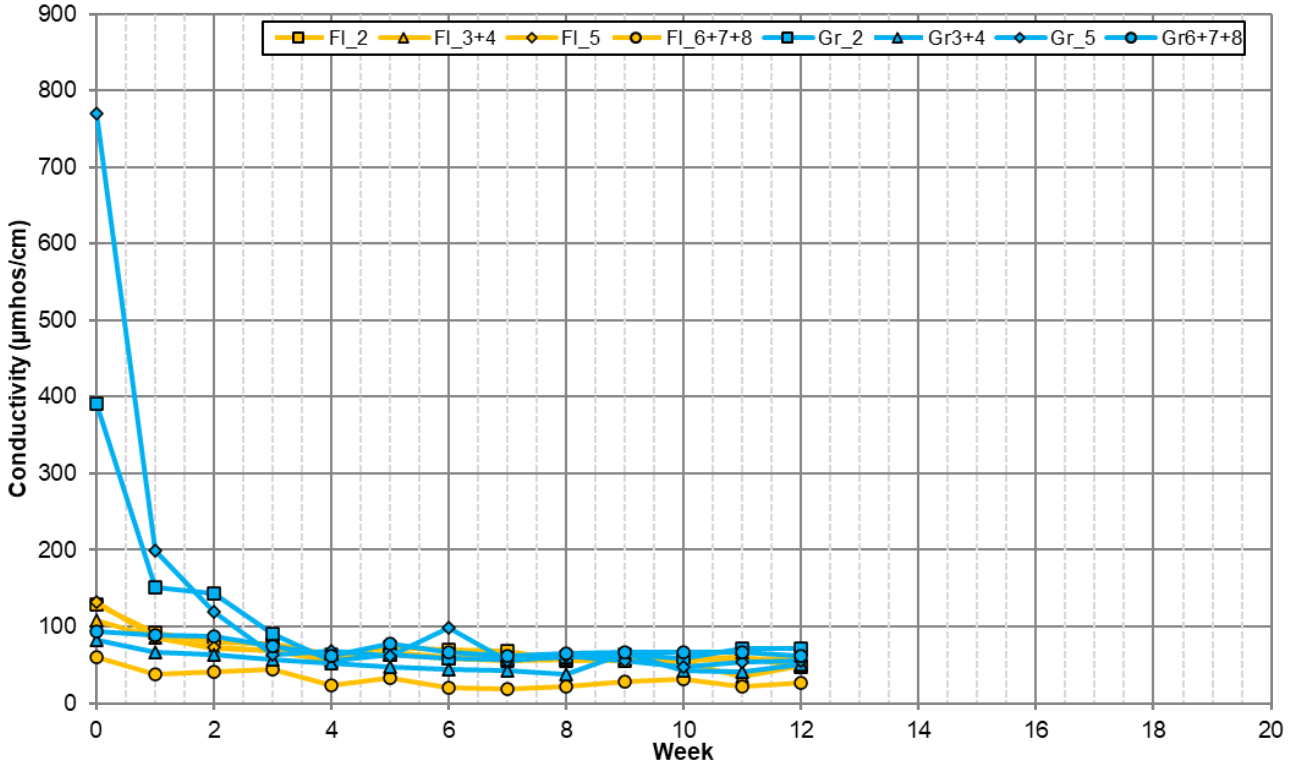

Figure B.2. Time series of Conductivity results from Humidity Cell Tests.

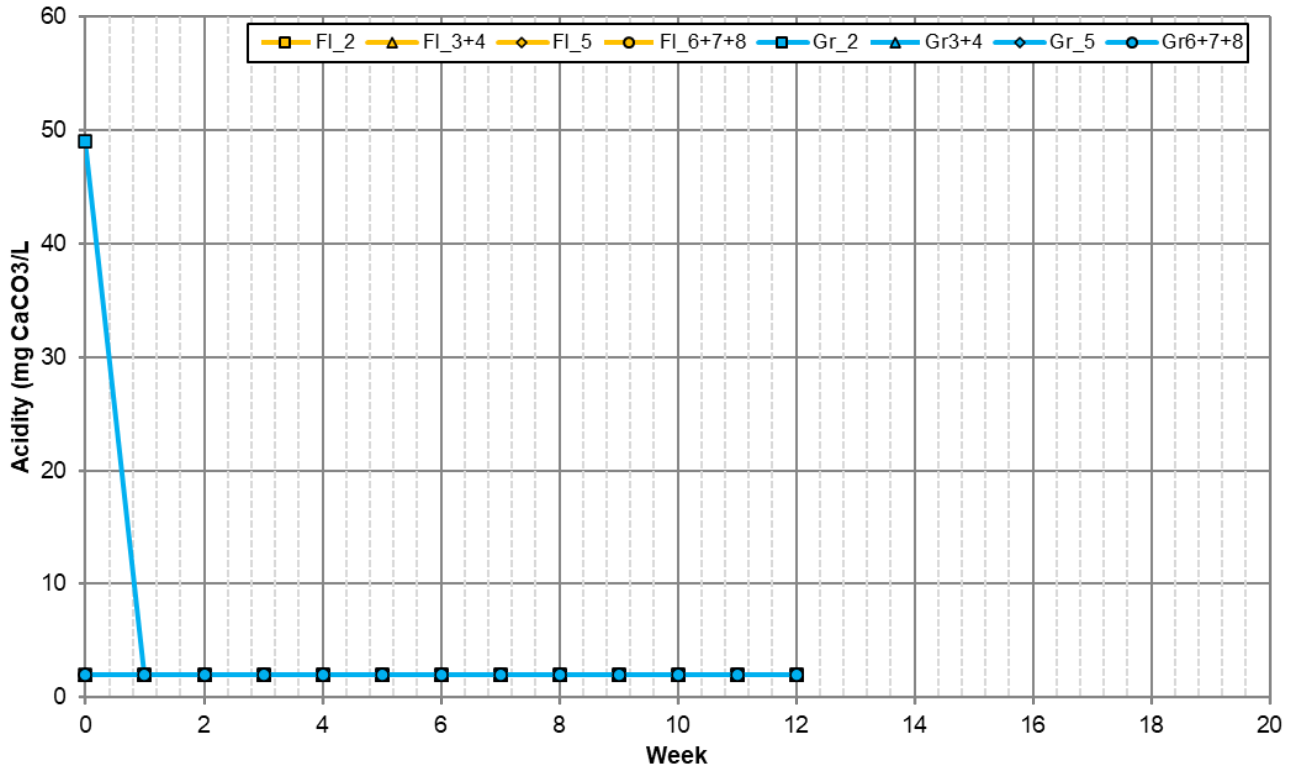

Figure B.3. Time series of Acidity results from Humidity Cell Tests.

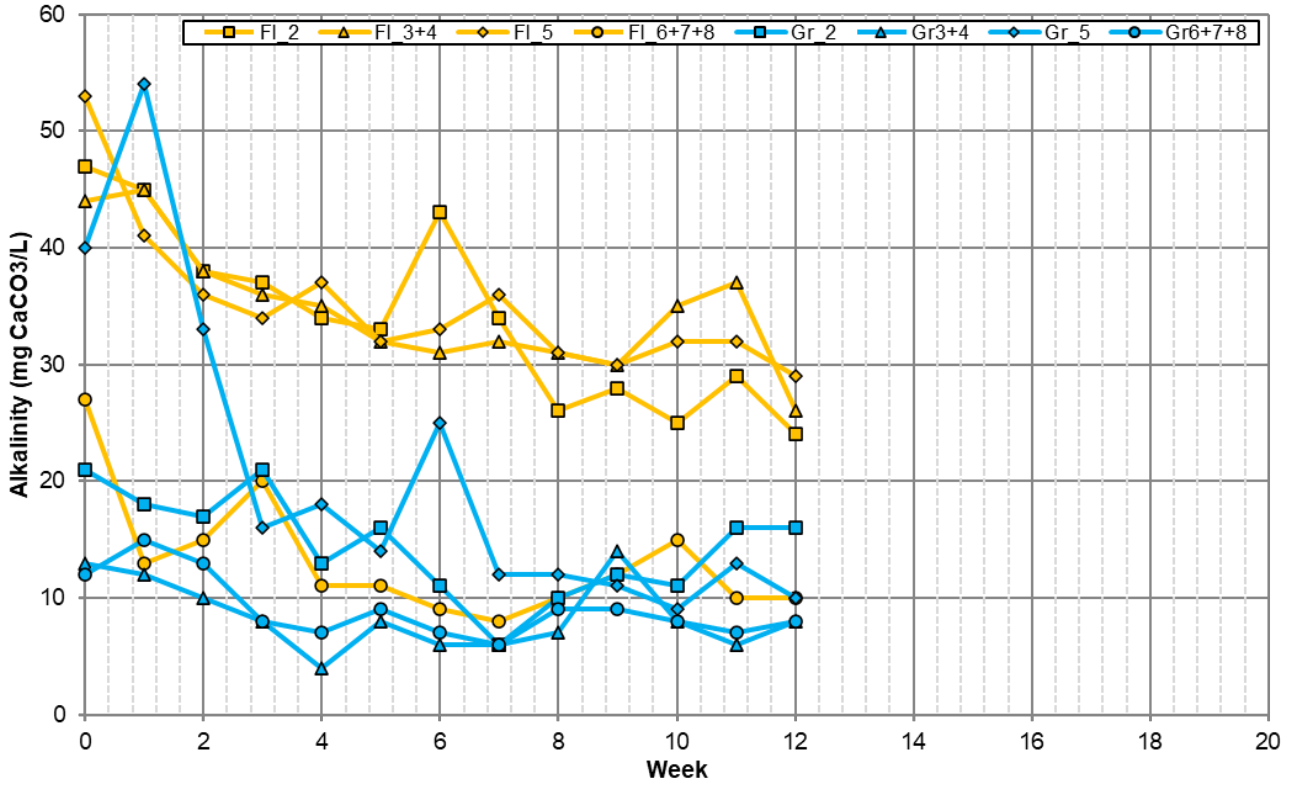

Figure B.4. Time series of Alkalinity results from Humidity Cell Tests.

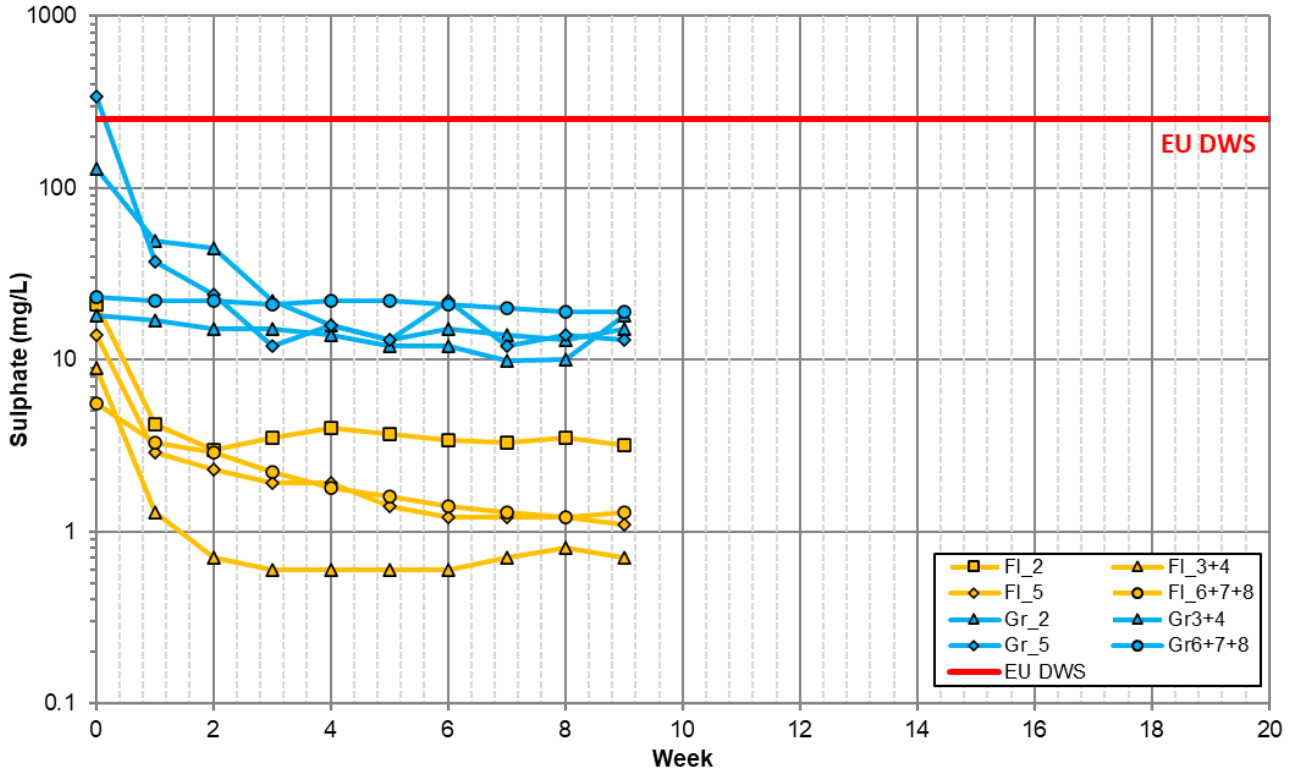

Figure B.5. Time series of Sulphate (SO_4) results from Humidity Cell Tests.

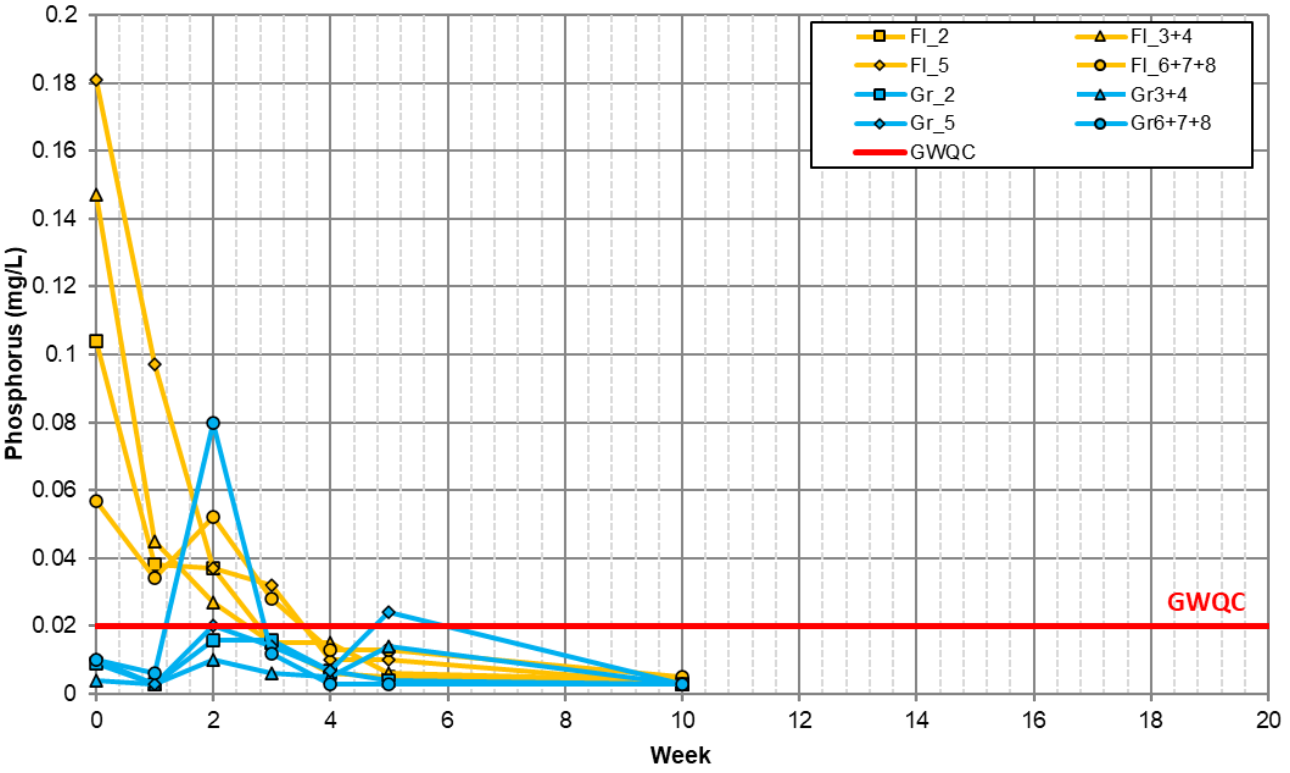

Figure B.6. Time series of Phosphorus (P) results from Humidity Cell Tests.

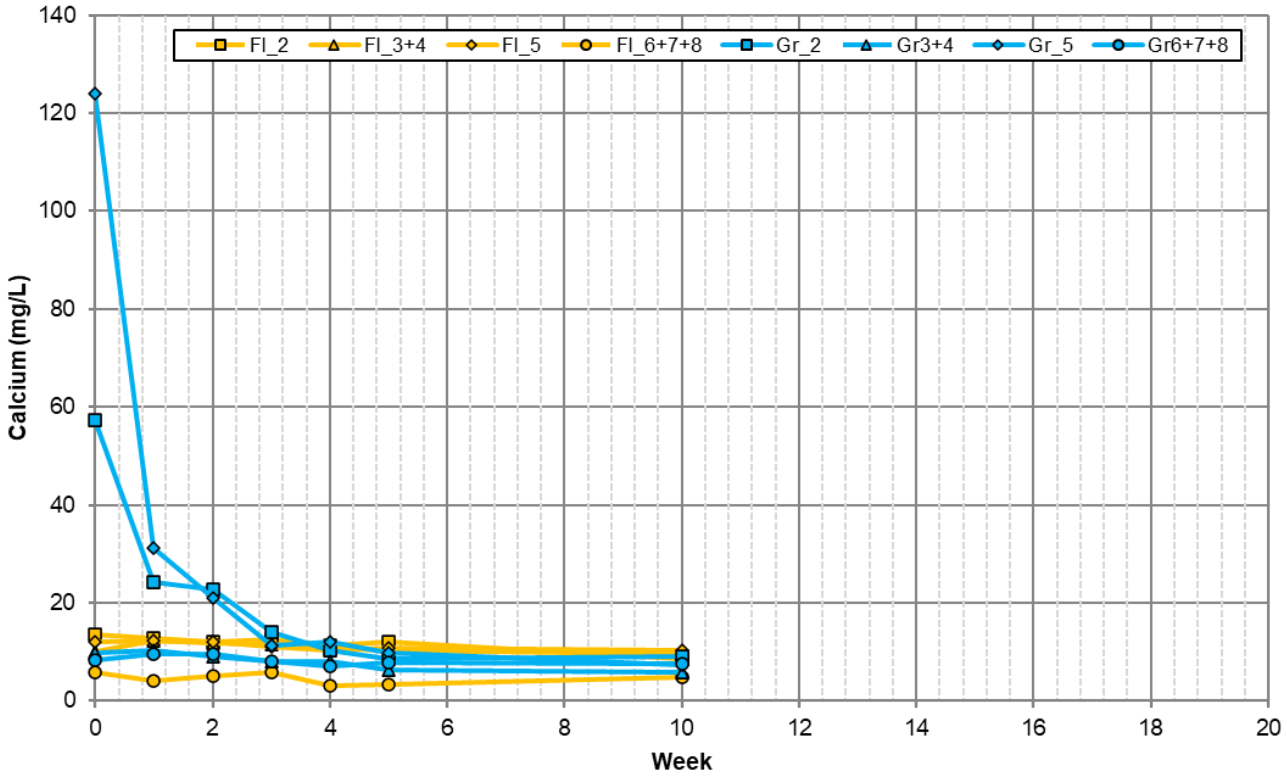

Figure B.7. Time series of Calcium (Ca) results from Humidity Cell Tests.

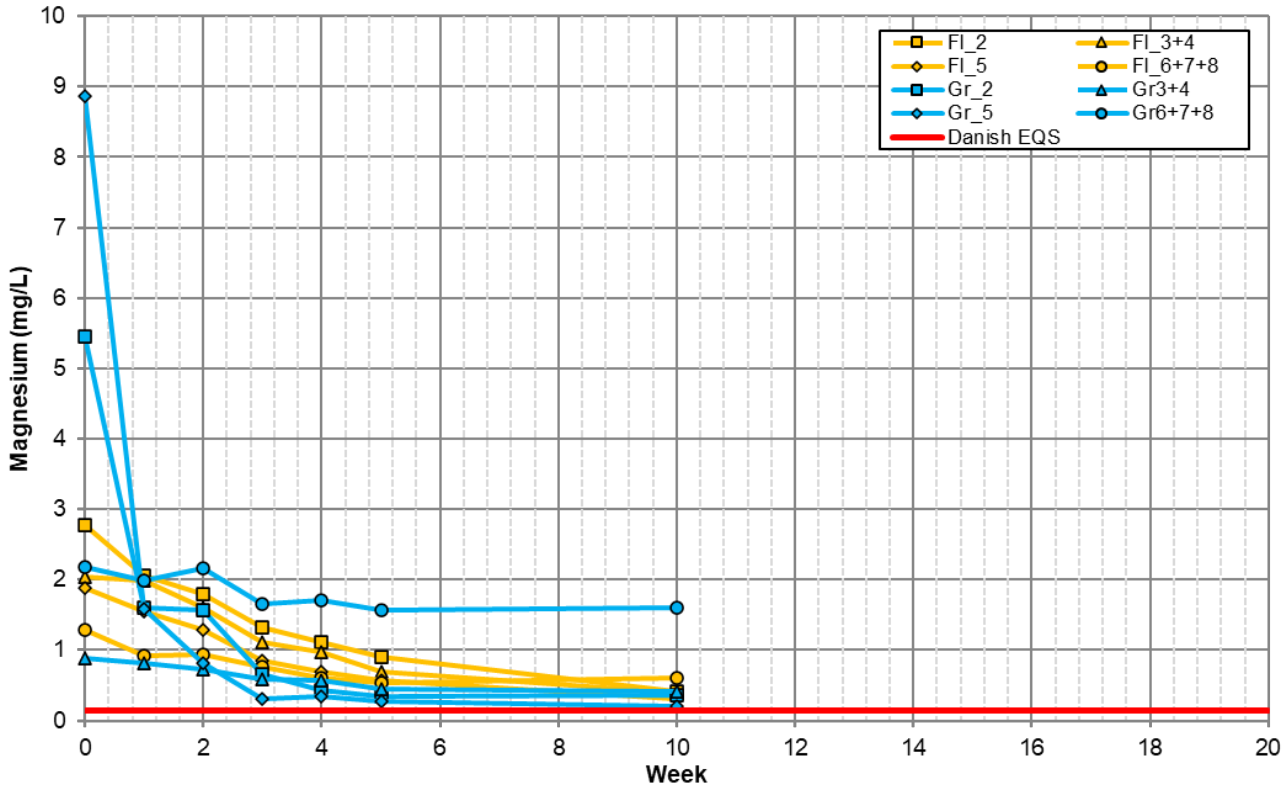

Figure B.8. Time series of Magnesium (Mg) results from Humidity Cell Tests.

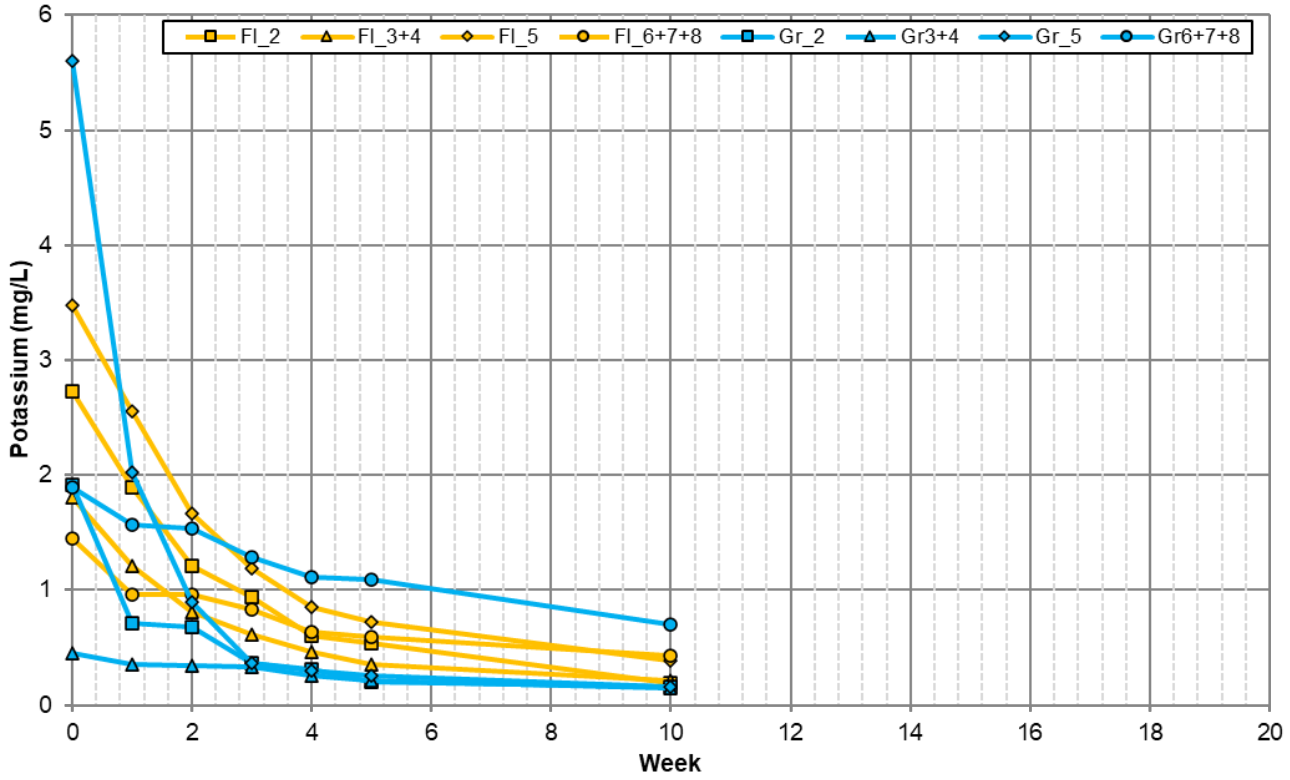

Figure B.9. Time series of Potassium (K) results from Humidity Cell Tests.

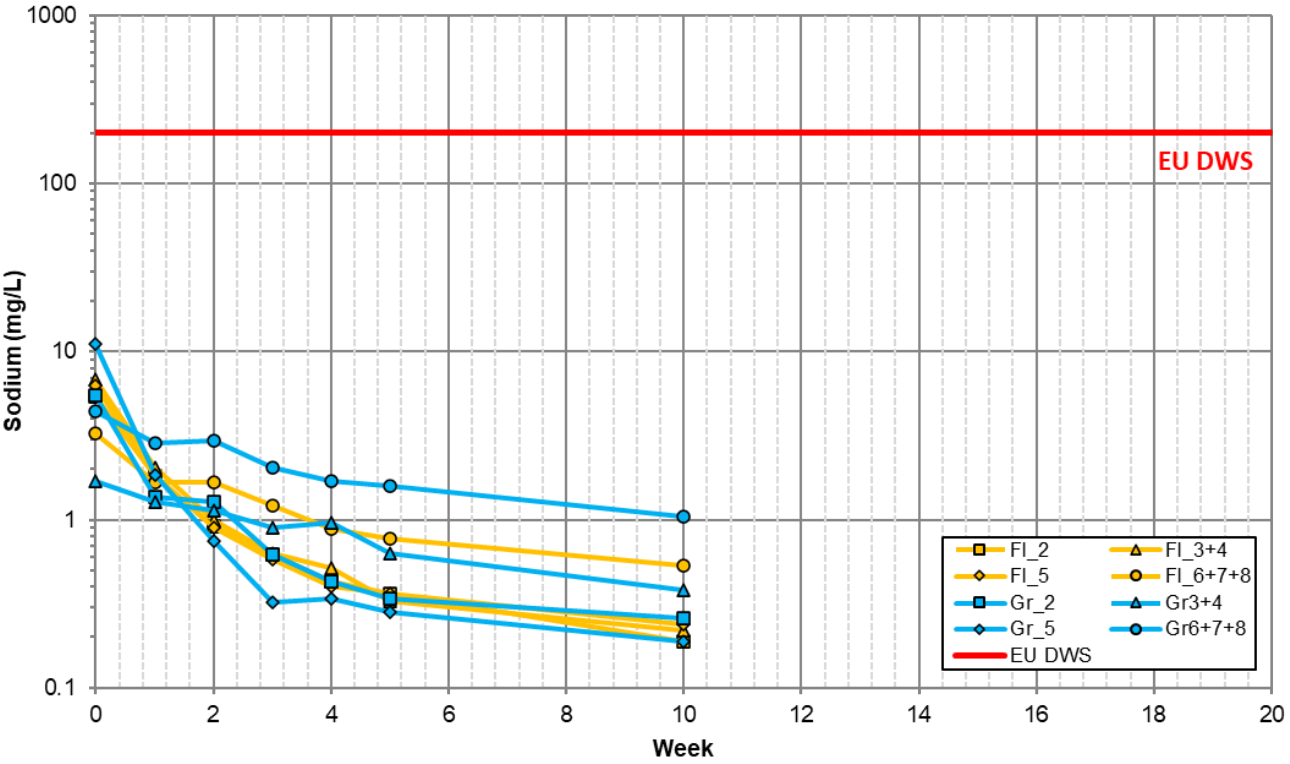

Figure B.10. Time series of Sodium (Na) results from Humidity Cell Tests.

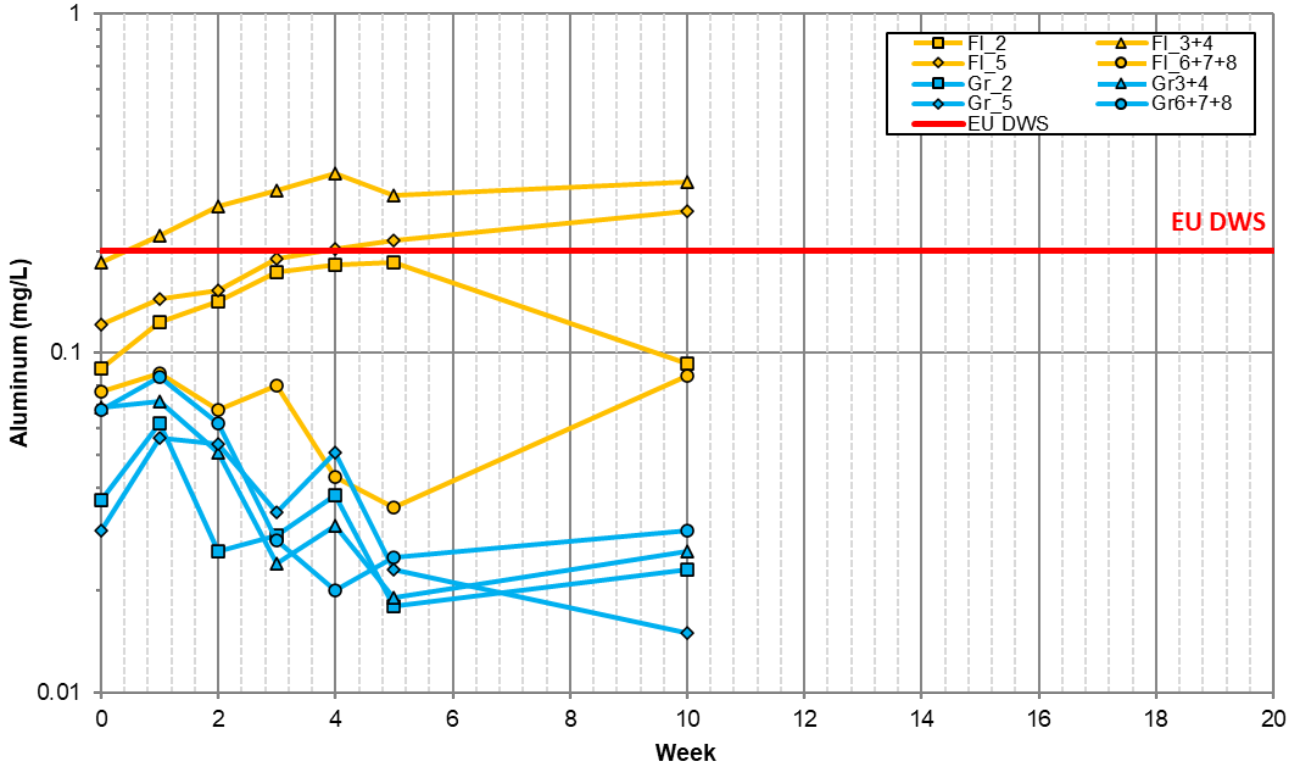

Figure B.11. Time series of Aluminium (Al) results from Humidity Cell Tests.

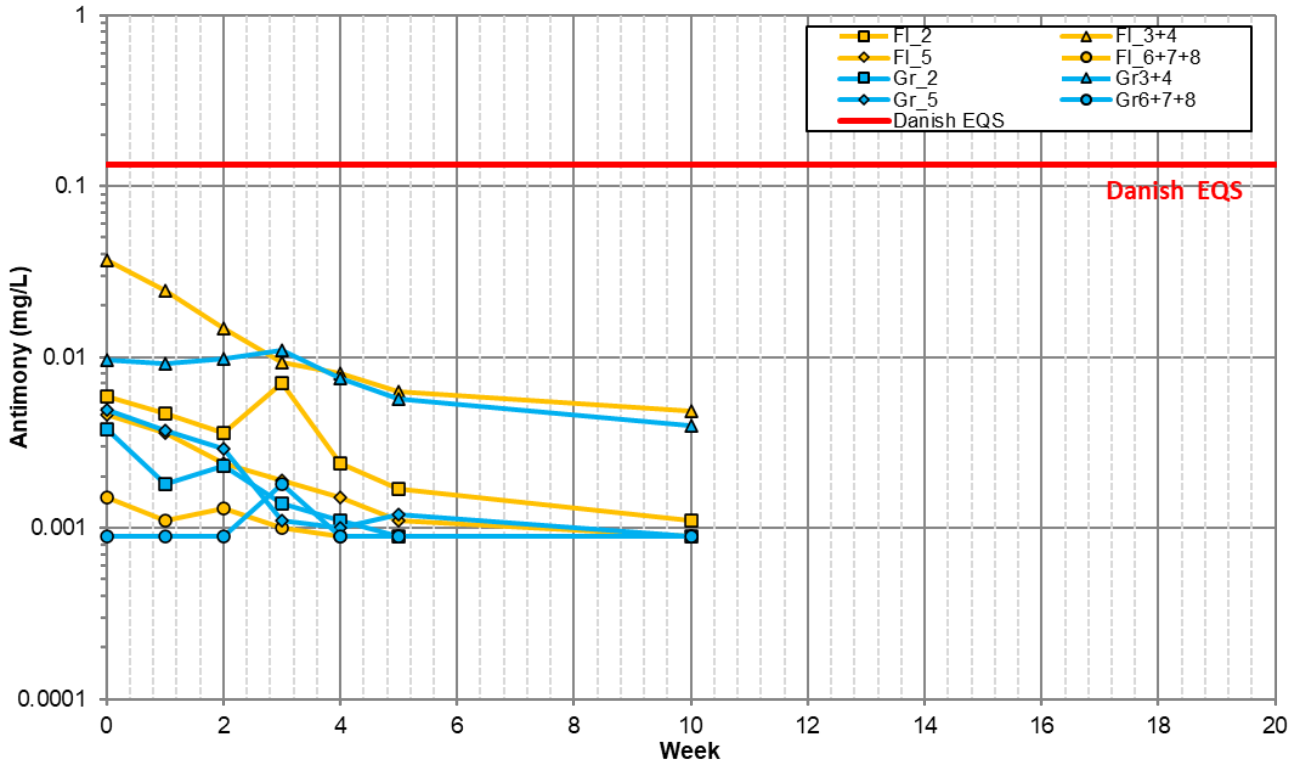

Figure B.12. Time series of Antimony (Sb) results from Humidity Cell Tests.

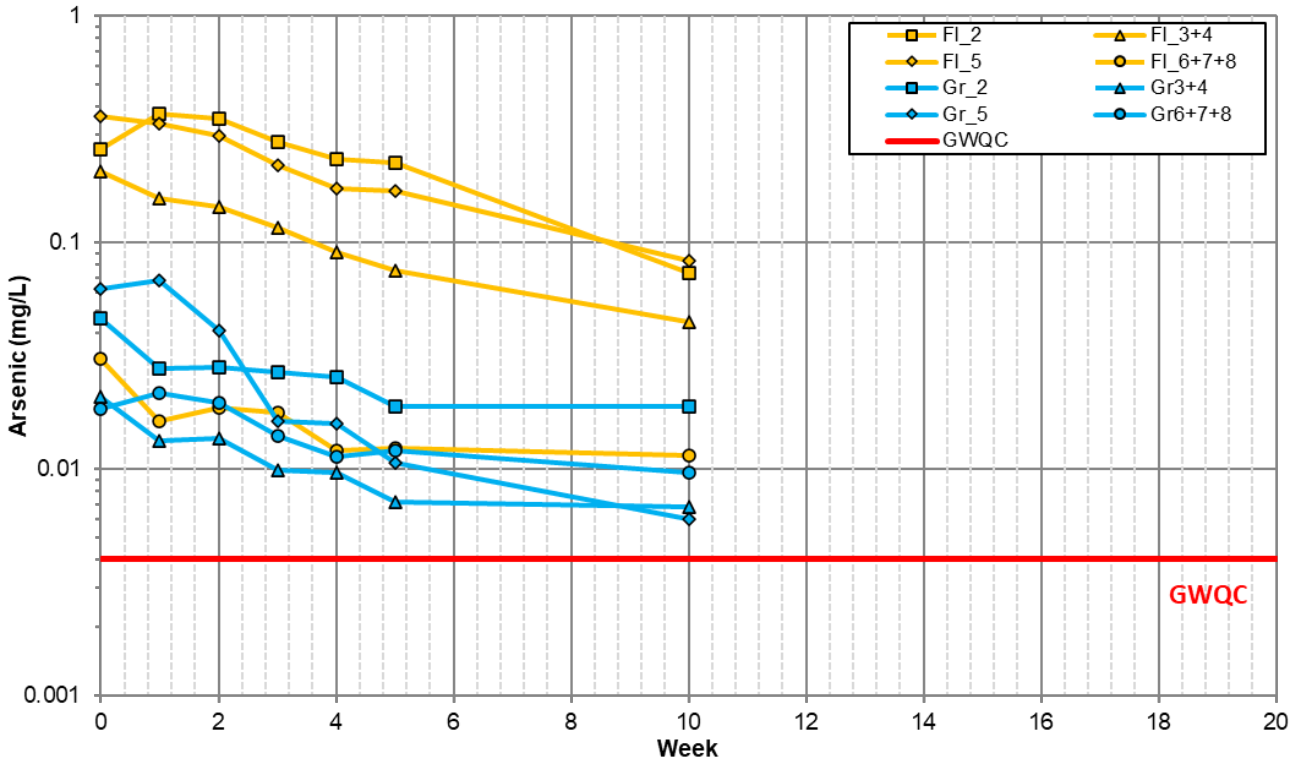

Figure B.13. Time series of Arsenic (As) results from Humidity Cell Tests.

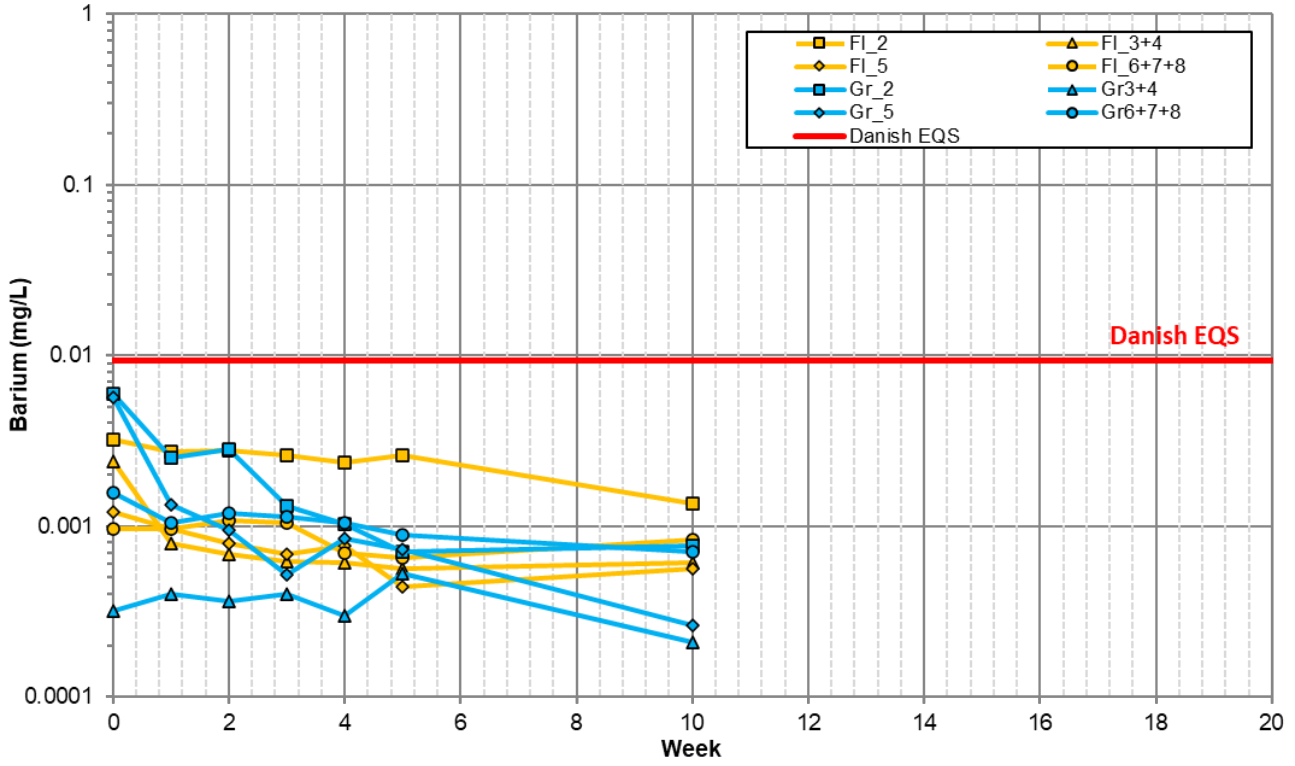

Figure B.14. Time series of Barium (Ba) results from Humidity Cell Tests.

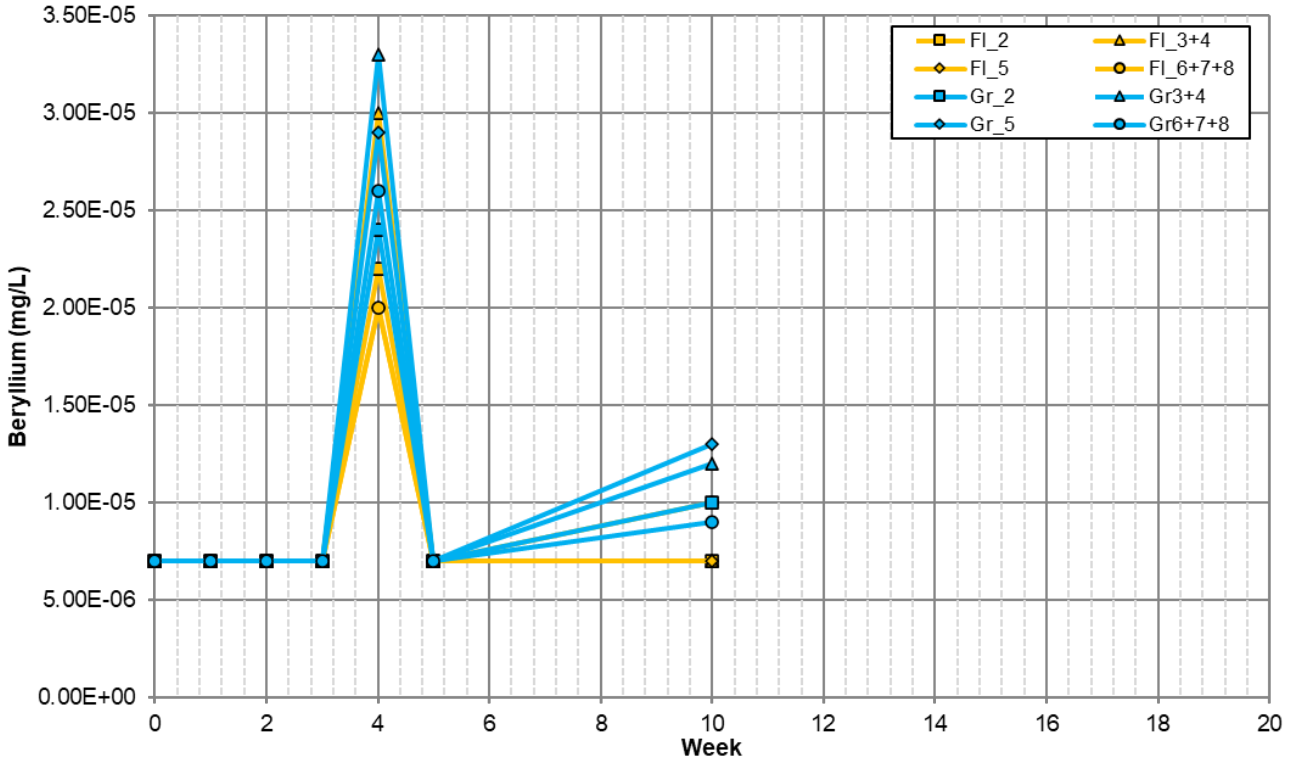

Figure B.15. Time series of Beryllium (Be) results from Humidity Cell Tests.

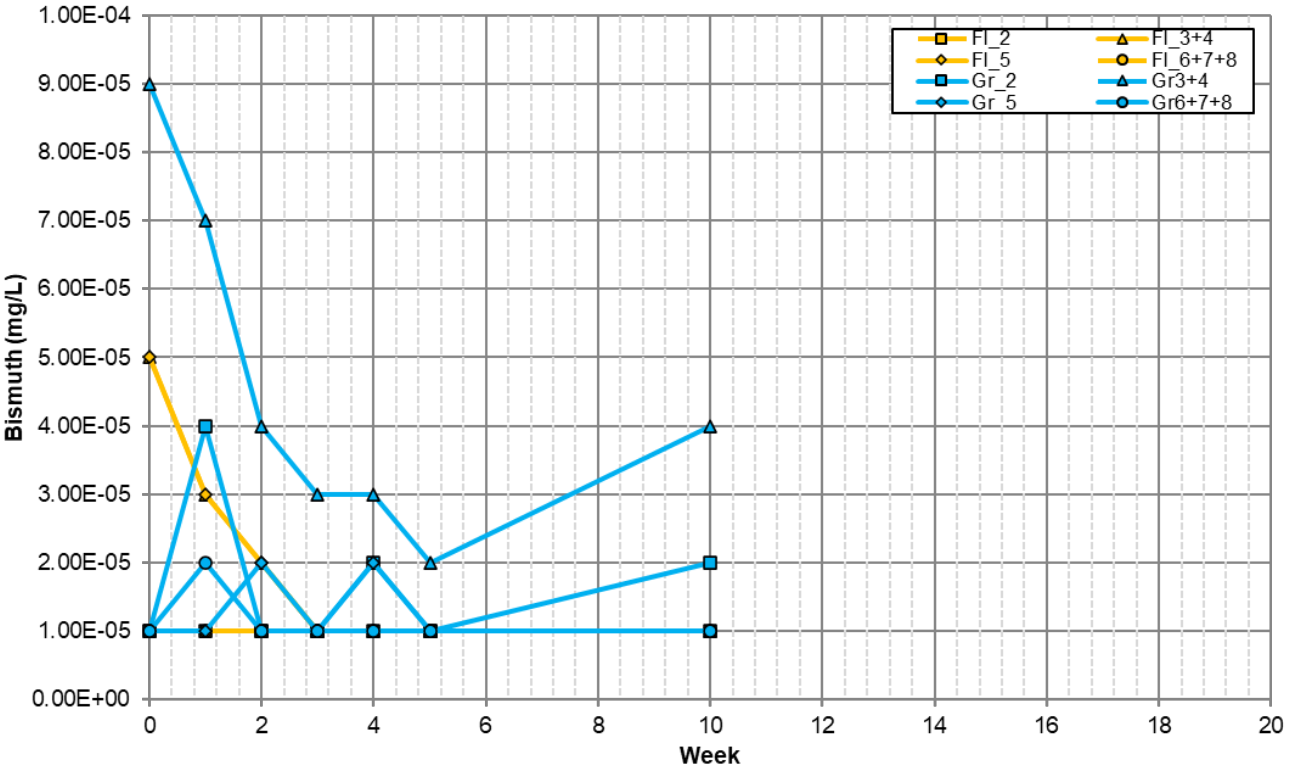

Figure B.16. Time series of Bismuth (Bi) results from Humidity Cell Tests.

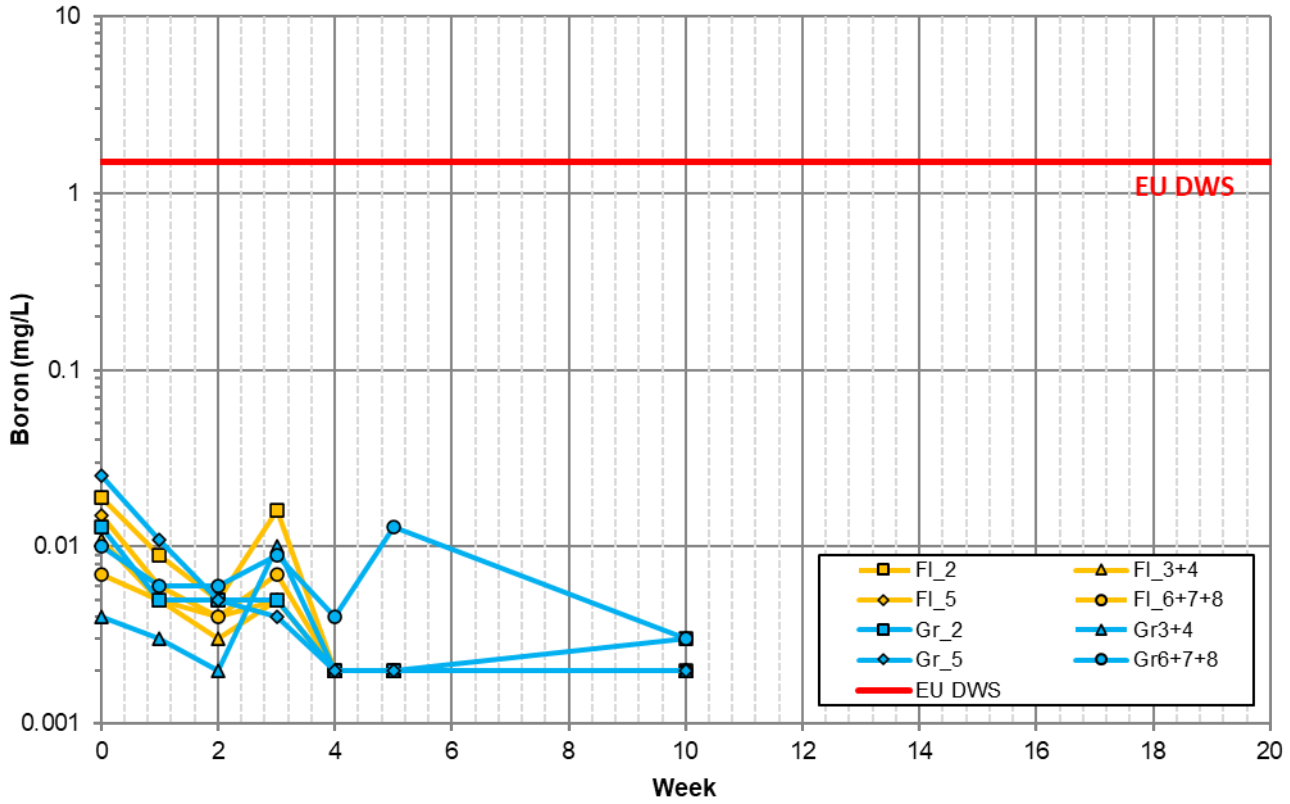

Figure B.17. Time series of Boron (B) results from Humidity Cell Tests.

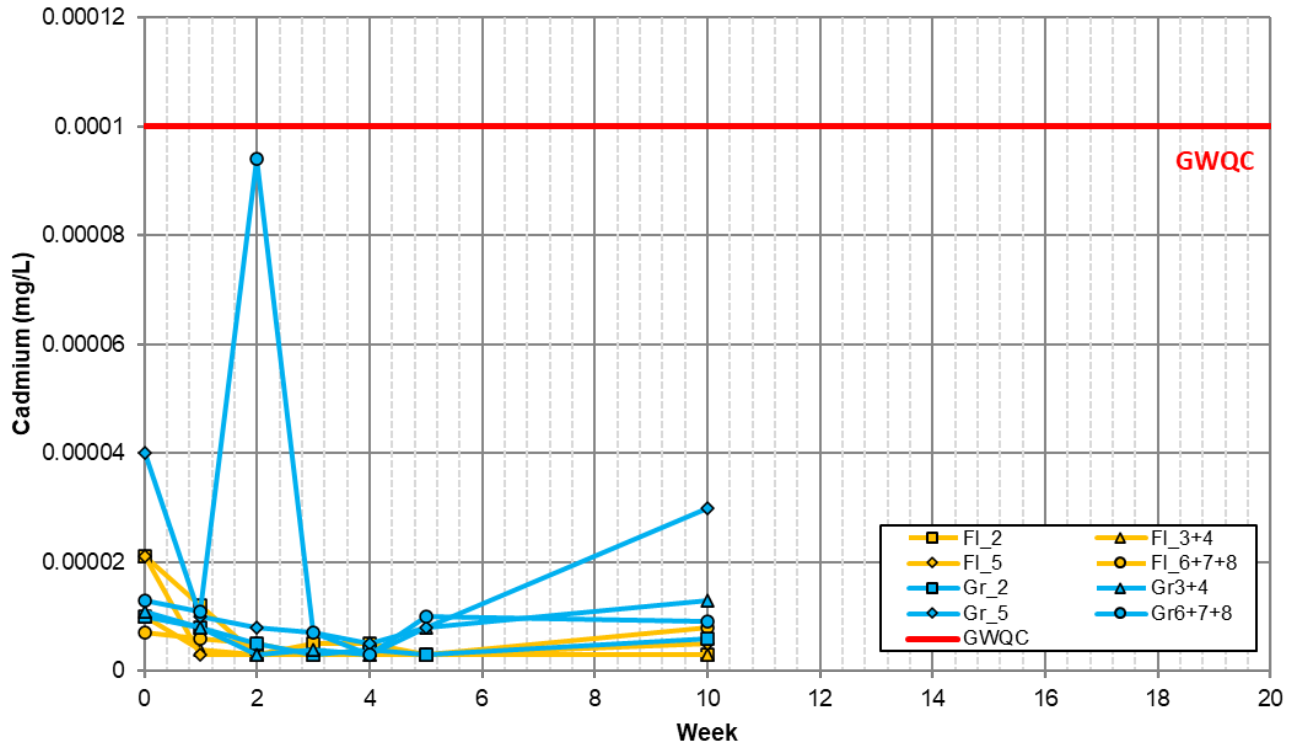

Figure B.18. Time series of Cadmium (Cd) results from Humidity Cell Tests.

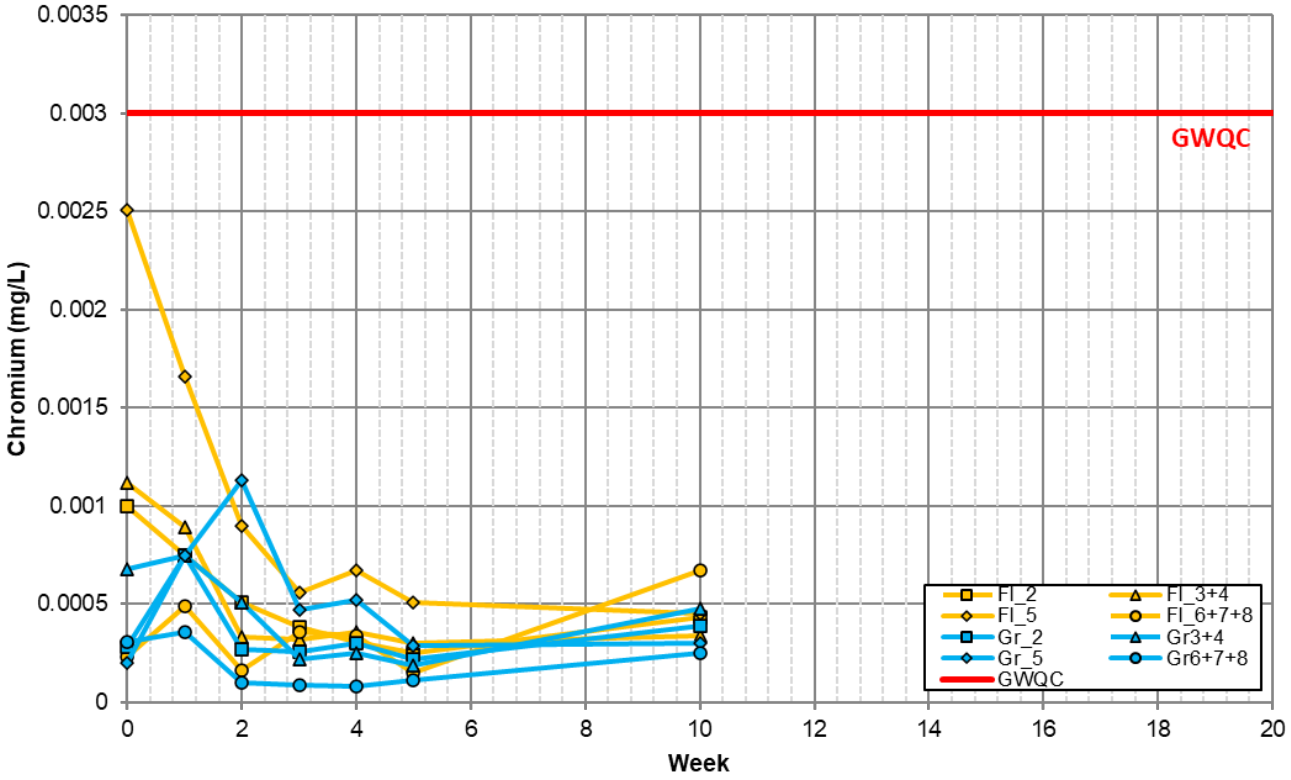

Figure B.19. Time series of Chromium (Cr) results from Humidity Cell Tests.

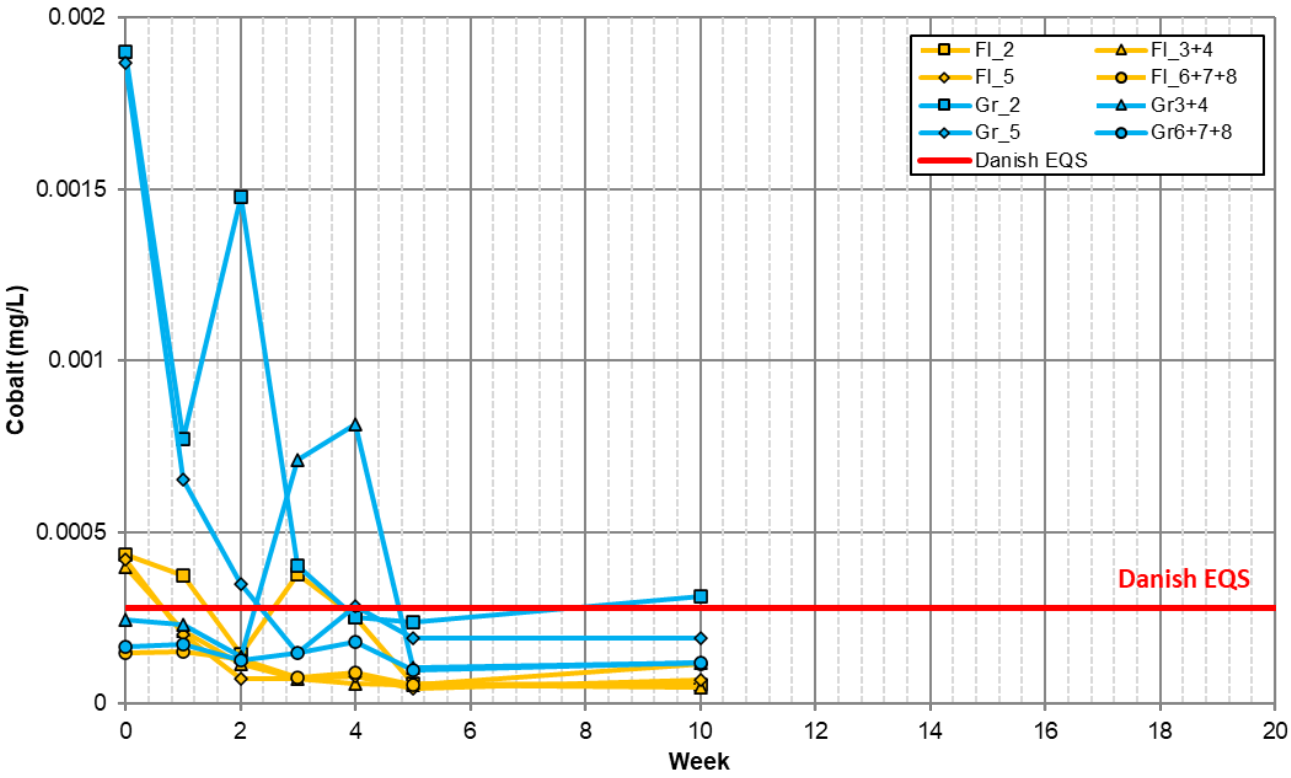

Figure B.20. Time series of Cobalt (Co) results from Humidity Cell Tests.

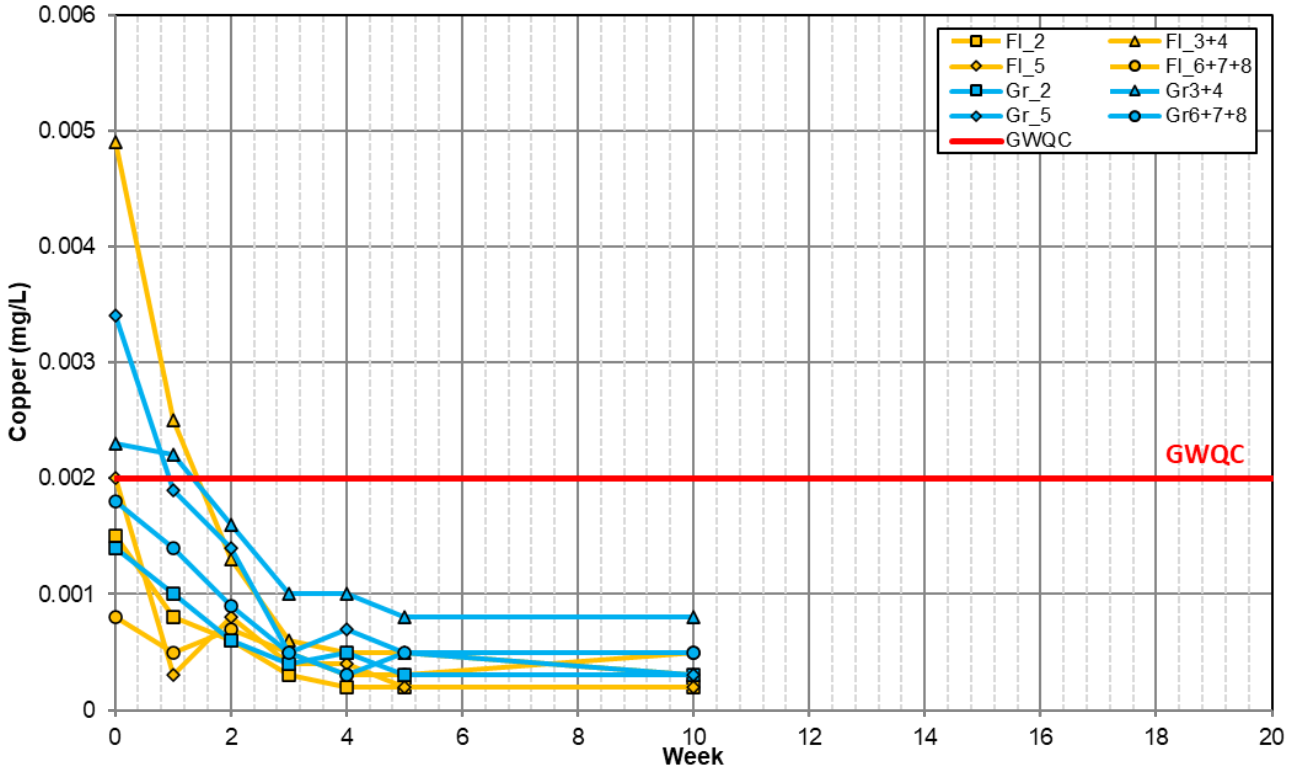

Figure B.21. Time series of Copper (Cu) results from Humidity Cell Tests.

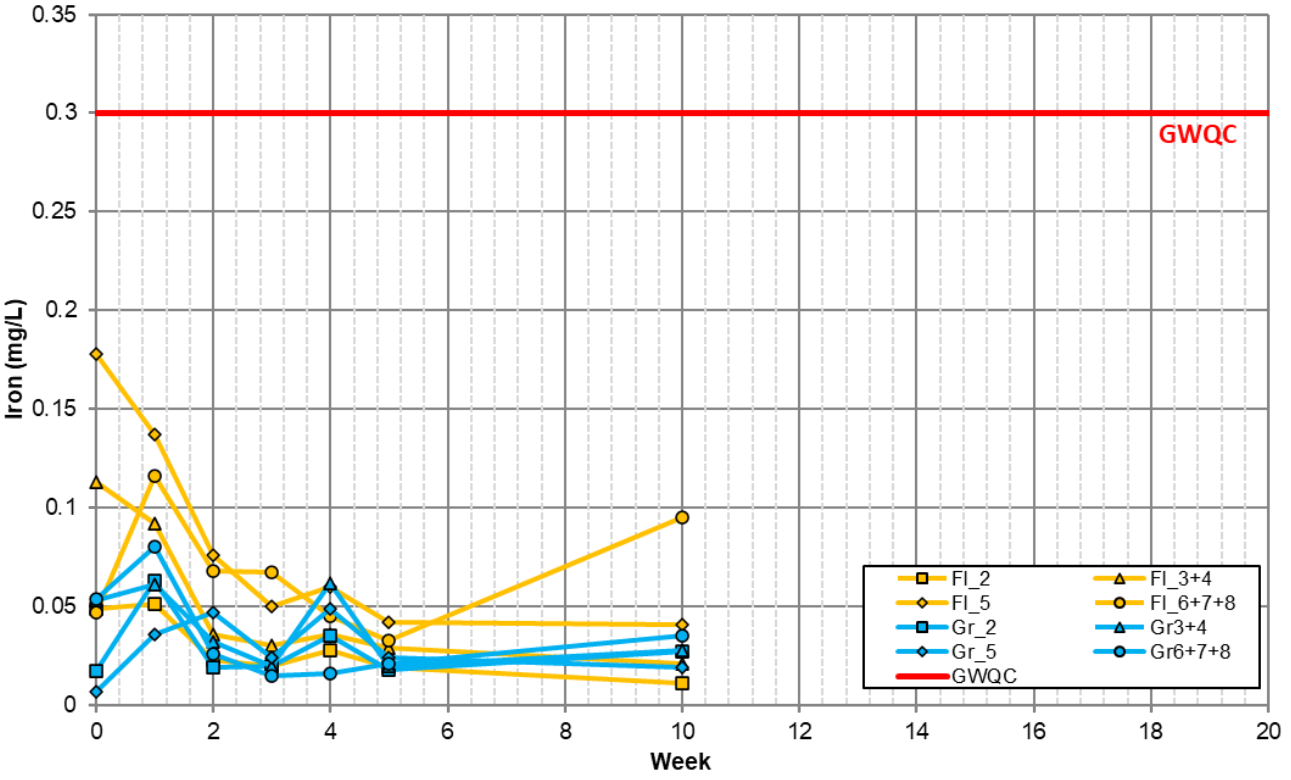

Figure B.22. Time series of Iron (Fe) results from Humidity Cell Tests.

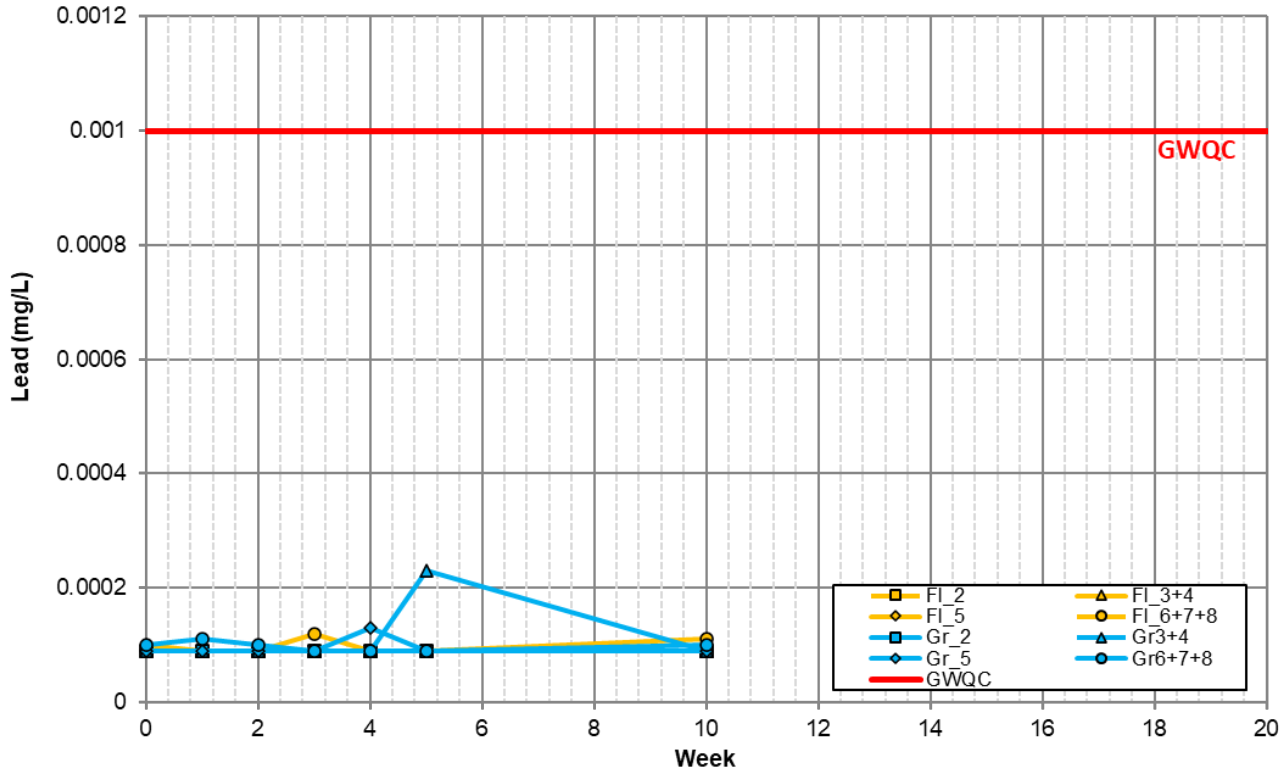

Figure B.23. Time series of Lead (Pb) results from Humidity Cell Tests.

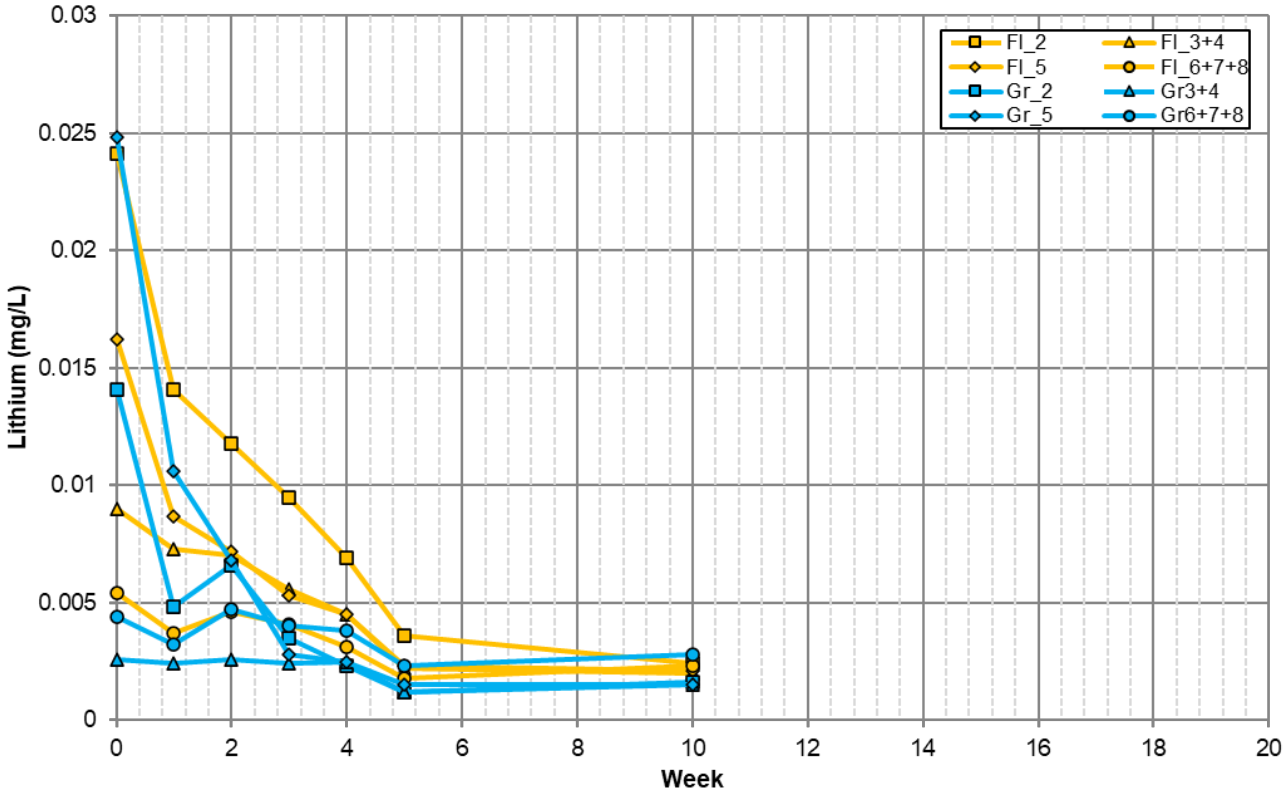

Figure B.24. Time series of Lithium (Li) results from Humidity Cell Tests.

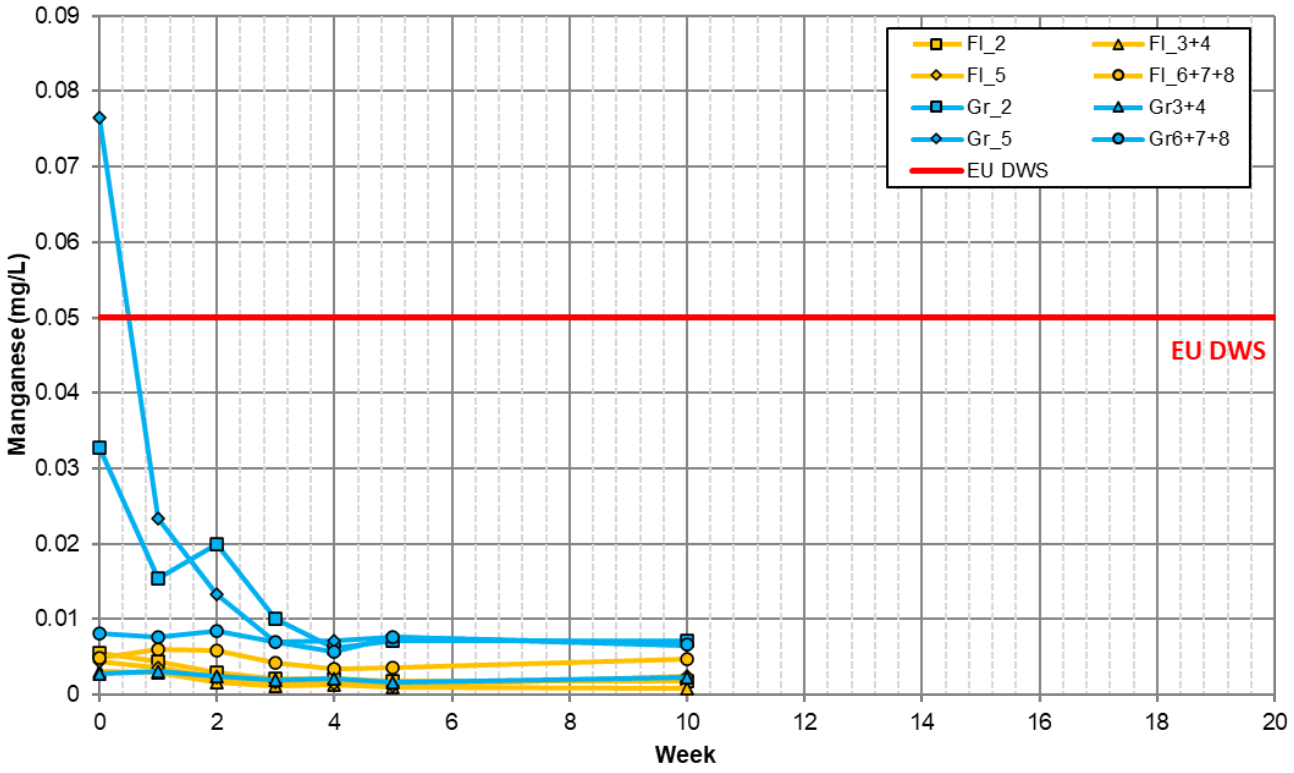

Figure B.25. Time series of Manganese (Mn) results from Humidity Cell Tests.

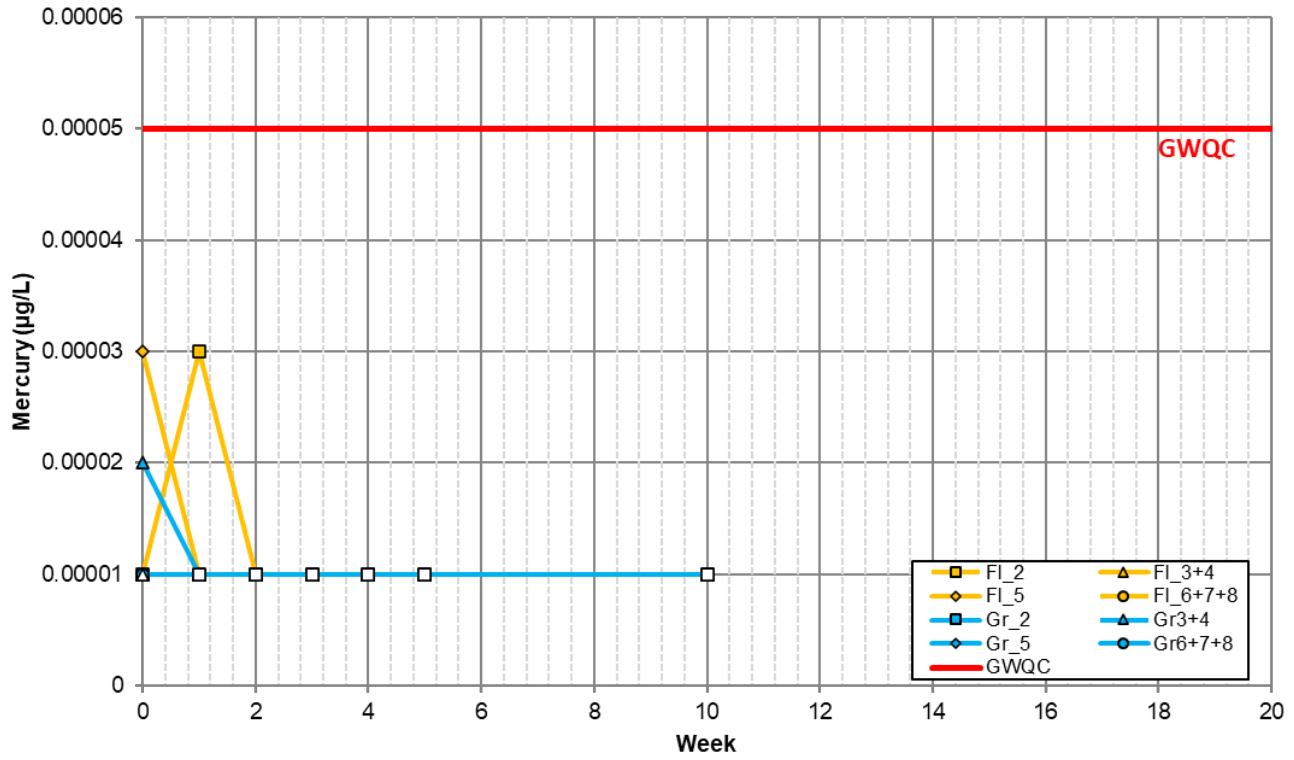

Figure B.26. Time series of Mercury (Hg) results from Humidity Cell Tests.

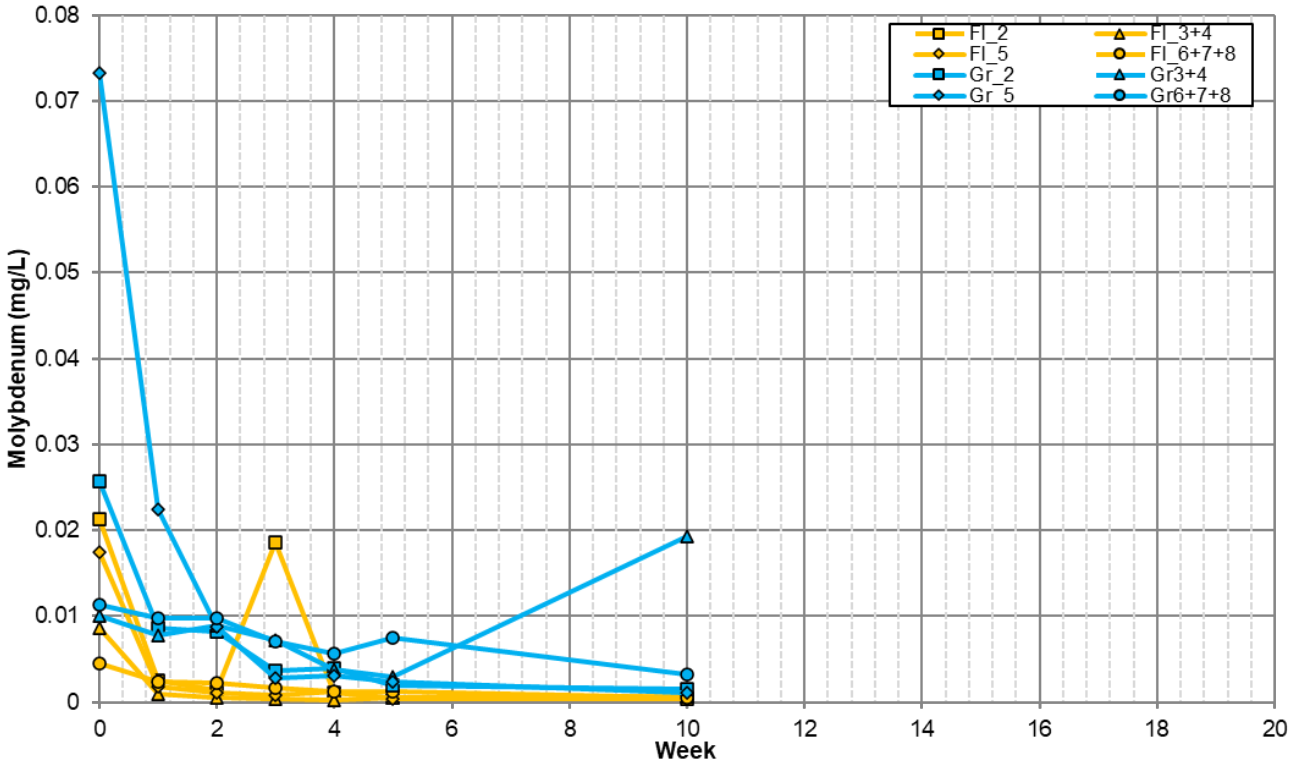

Figure B.27. Time series of Molybdenum (Mo) results from Humidity Cell Tests.

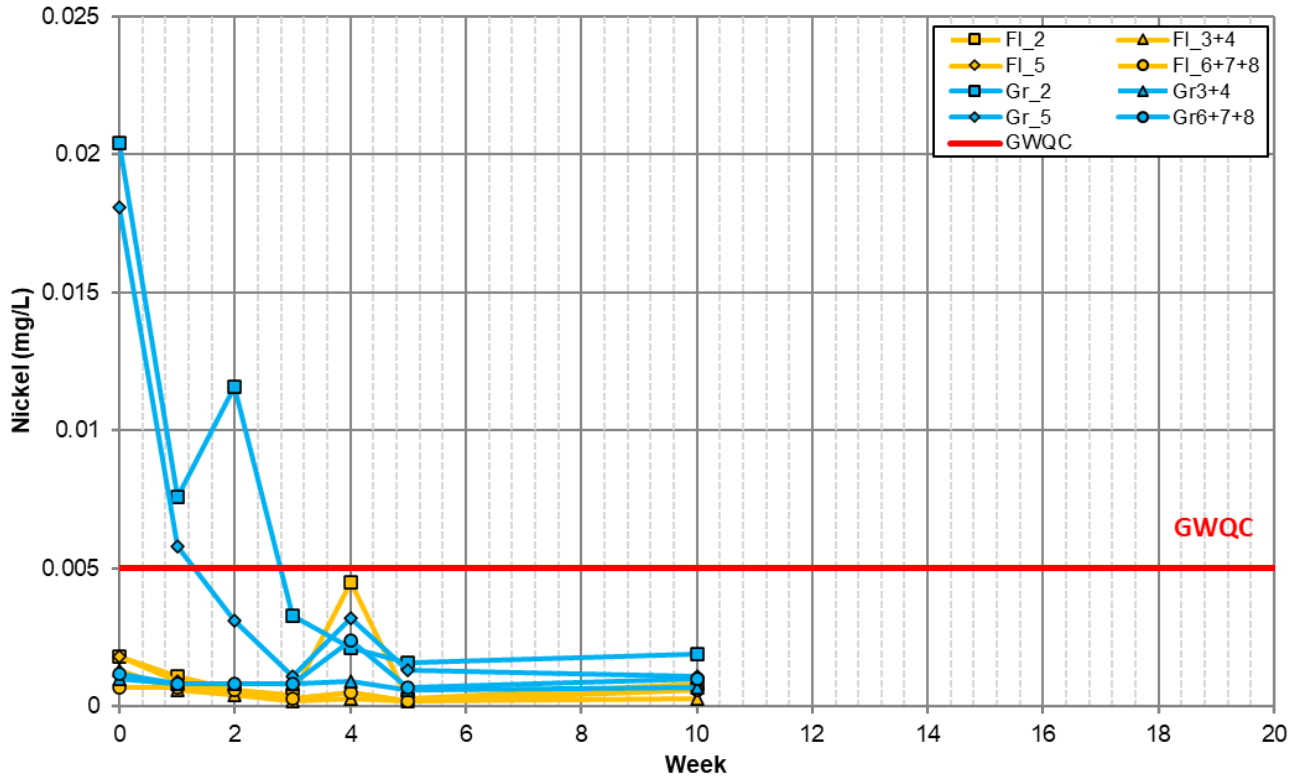

Figure B.28. Time series of Nickel (Ni) results from Humidity Cell Tests.

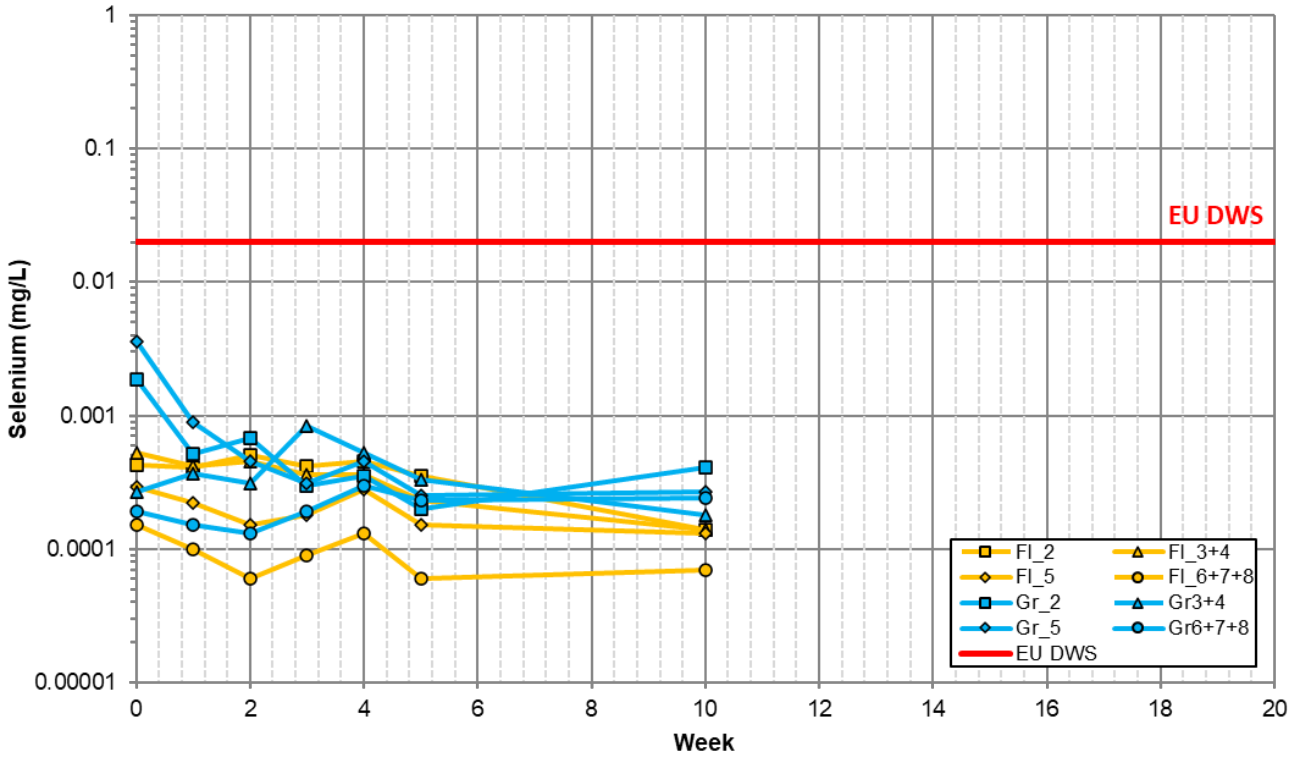

Figure B.29. Time series of Selenium (Se) results from Humidity Cell Tests.

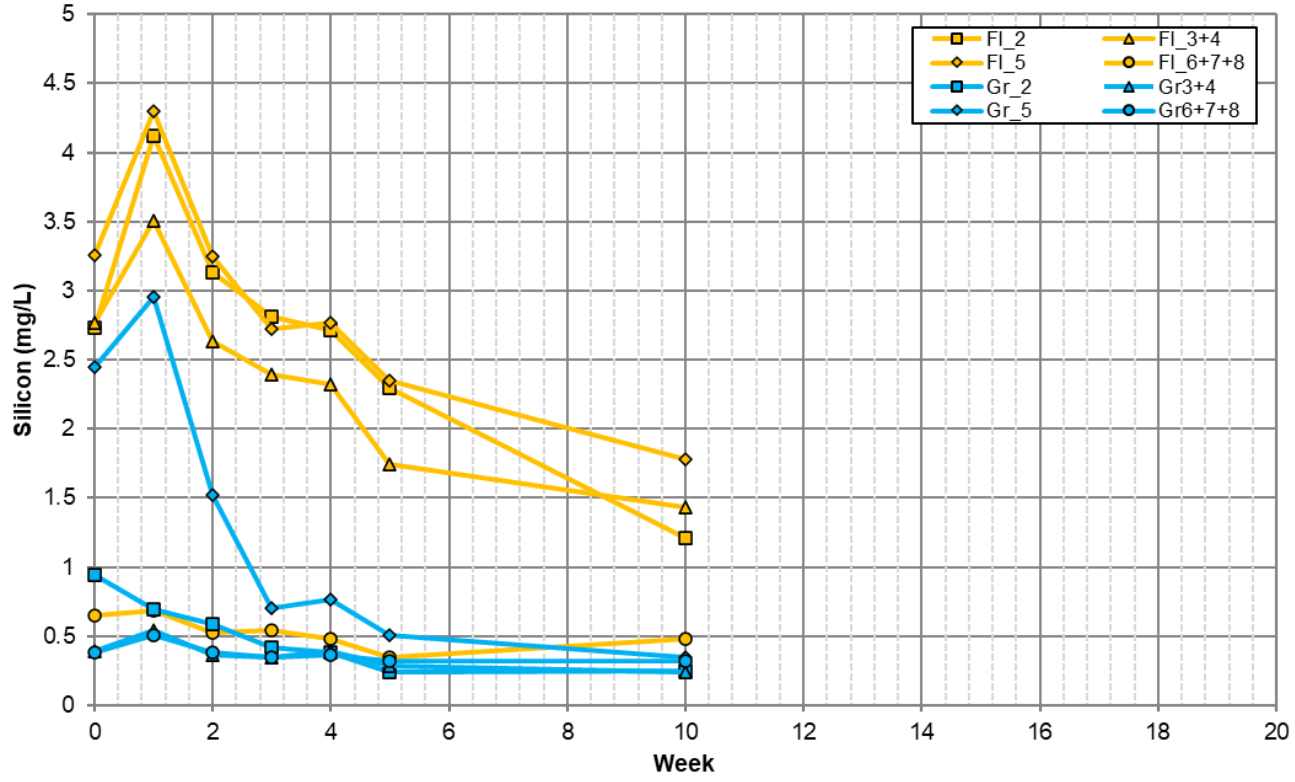

Figure B.30. Time series of Silicon (Si) results from Humidity Cell Tests.

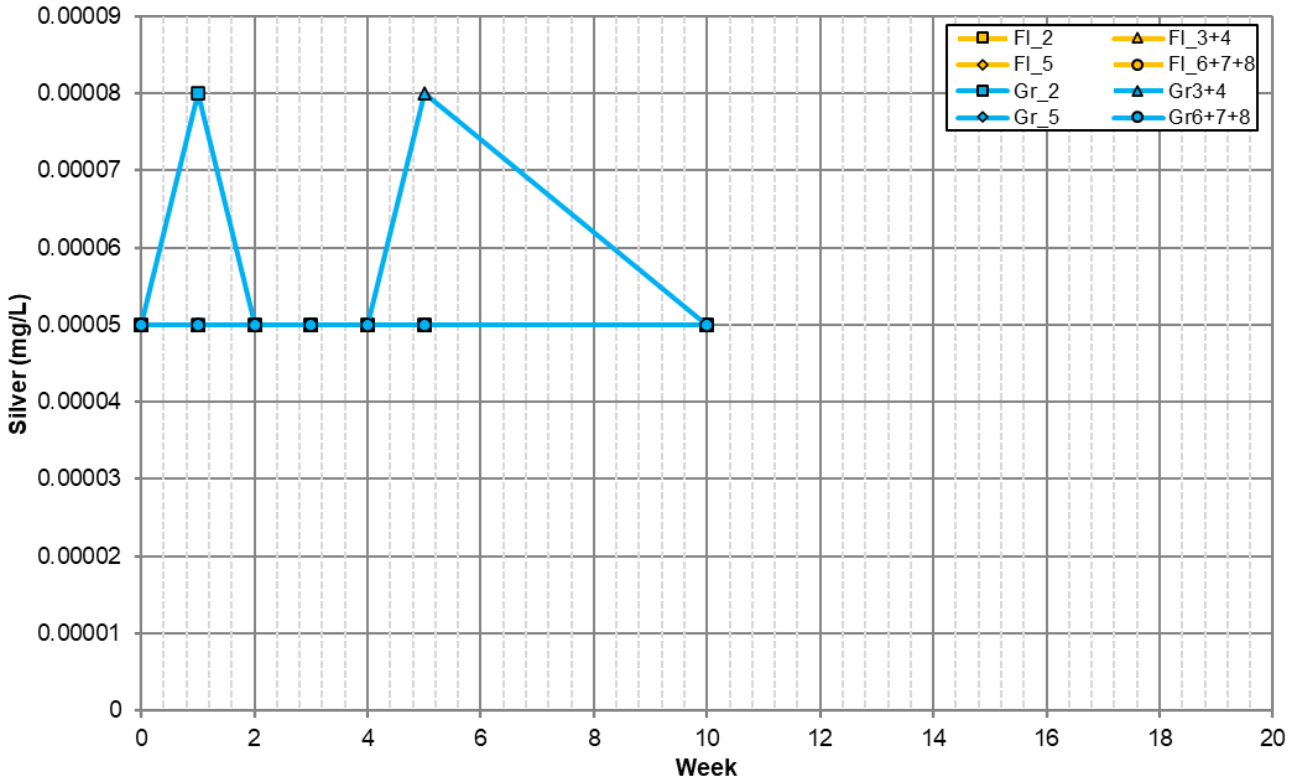

Figure B.31. Time series of Silver (Ag) results from Humidity Cell Tests.

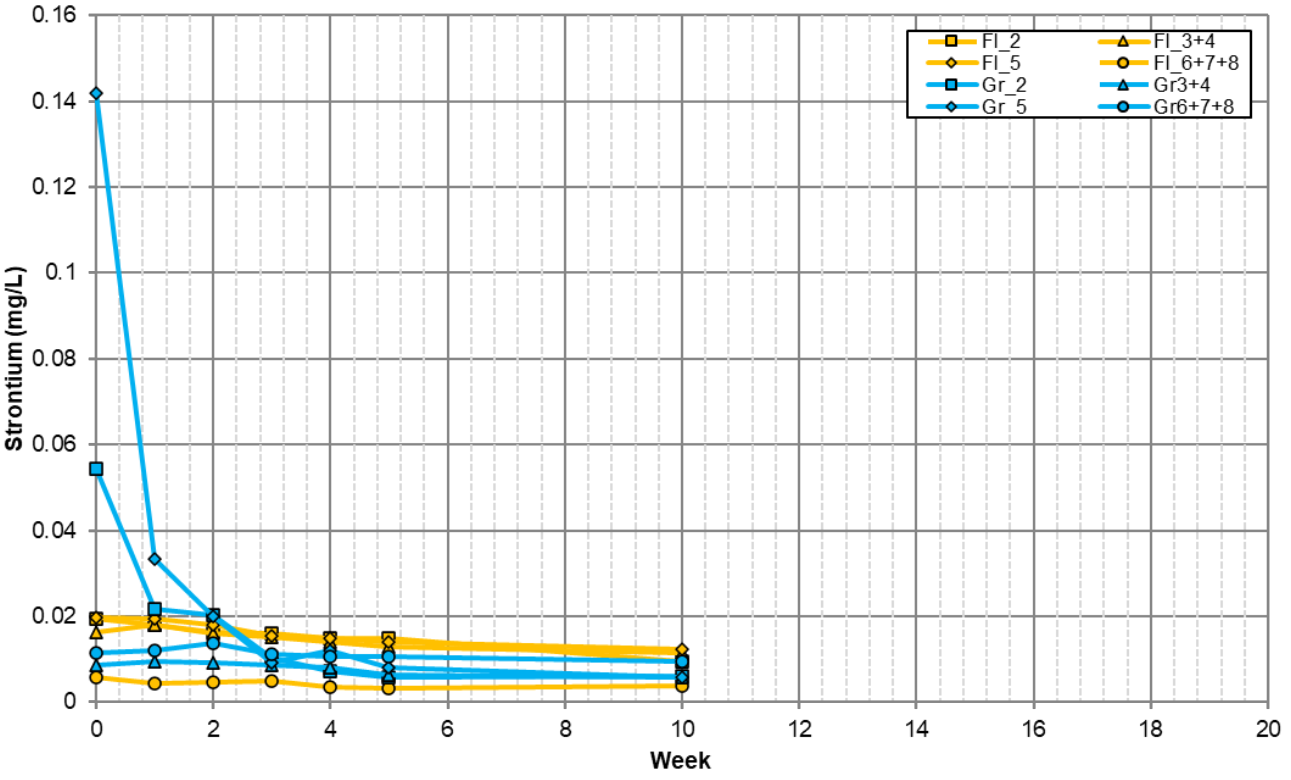

Figure B.32. Time series of Strontium (Sr) results from Humidity Cell Tests.

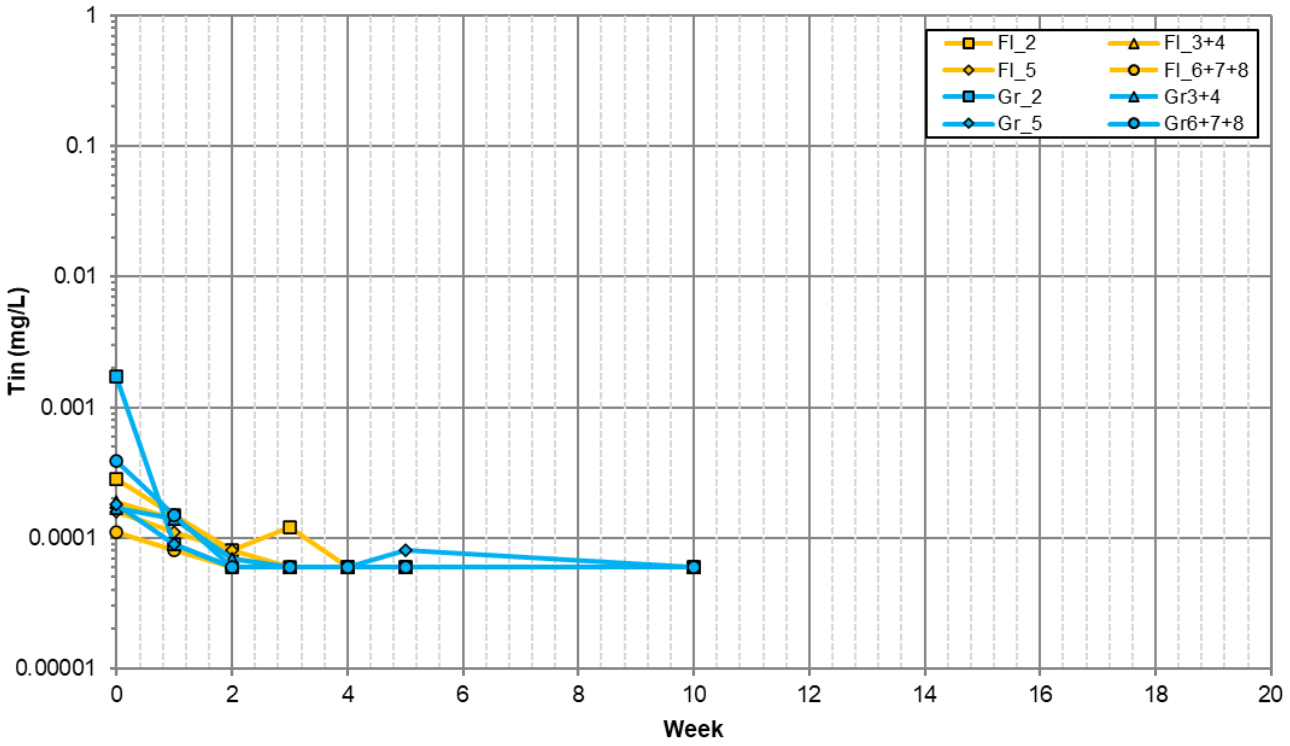

Figure B.33. Time series of Tin (Sn) results from Humidity Cell Tests.

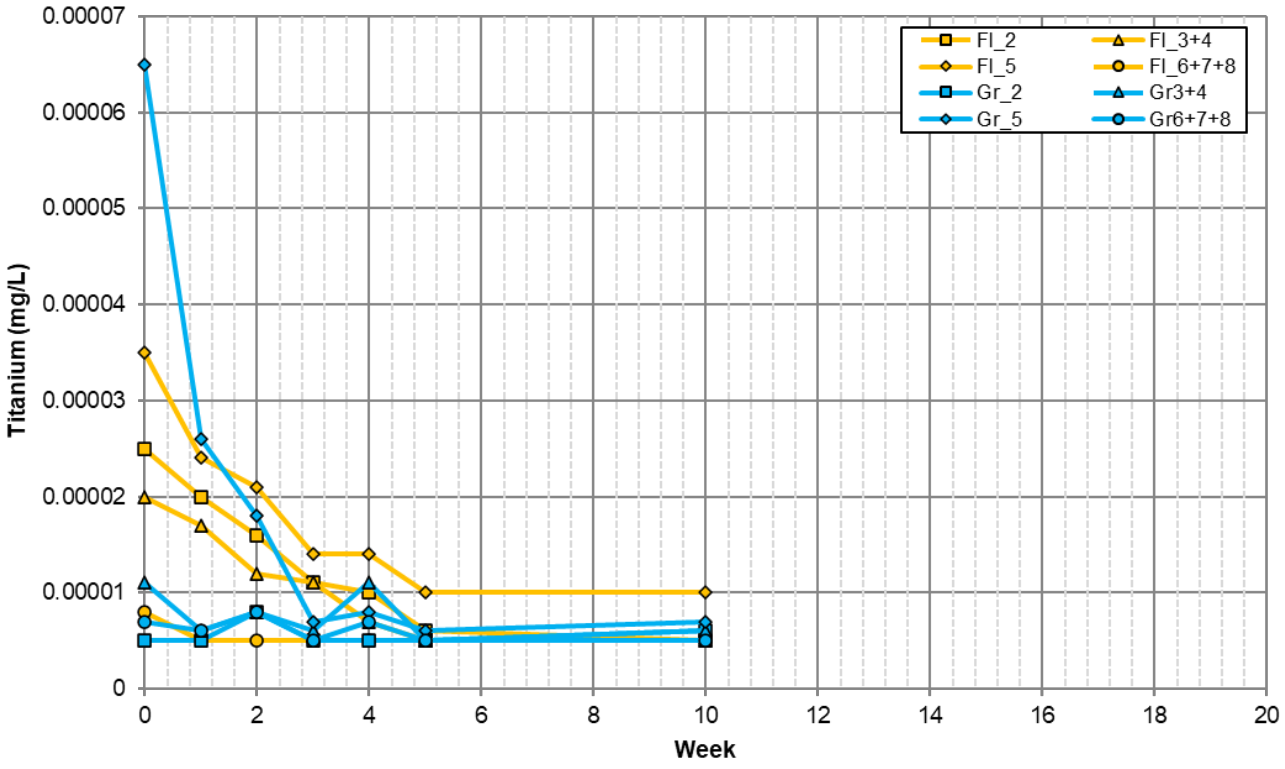

Figure B.34. Time series of Titanium (Ti) results from Humidity Cell Tests.

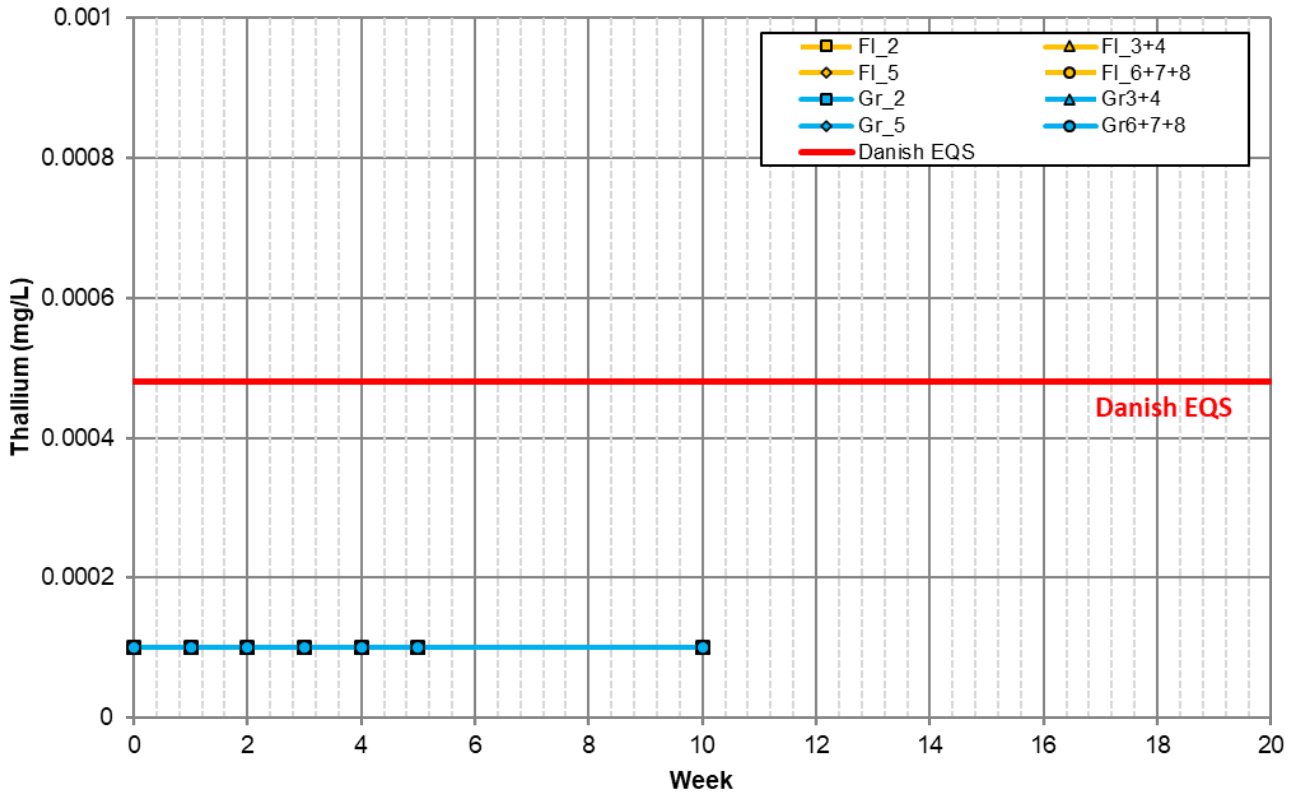

Figure B.35. Time series of Thallium (Tl) results from Humidity Cell Tests.

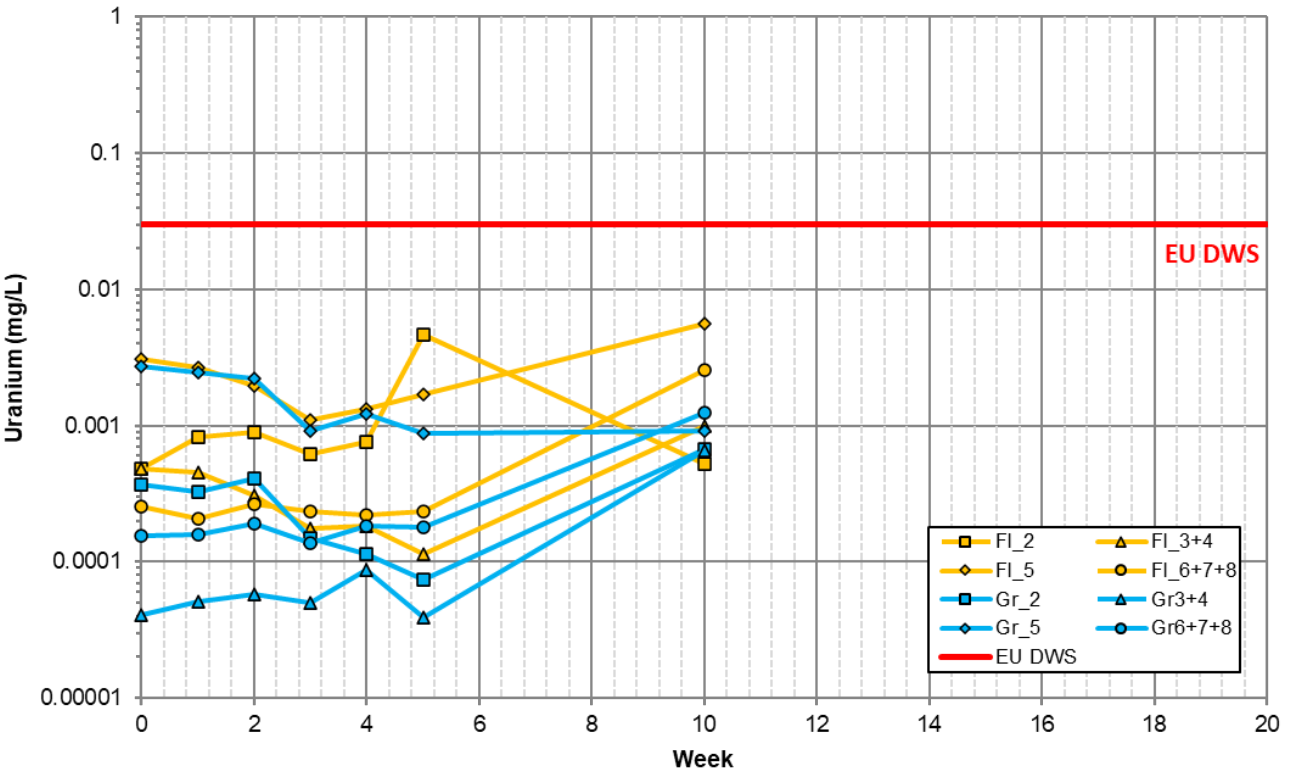

Figure B.36. Time series of Uranium (U) results from Humidity Cell Tests.

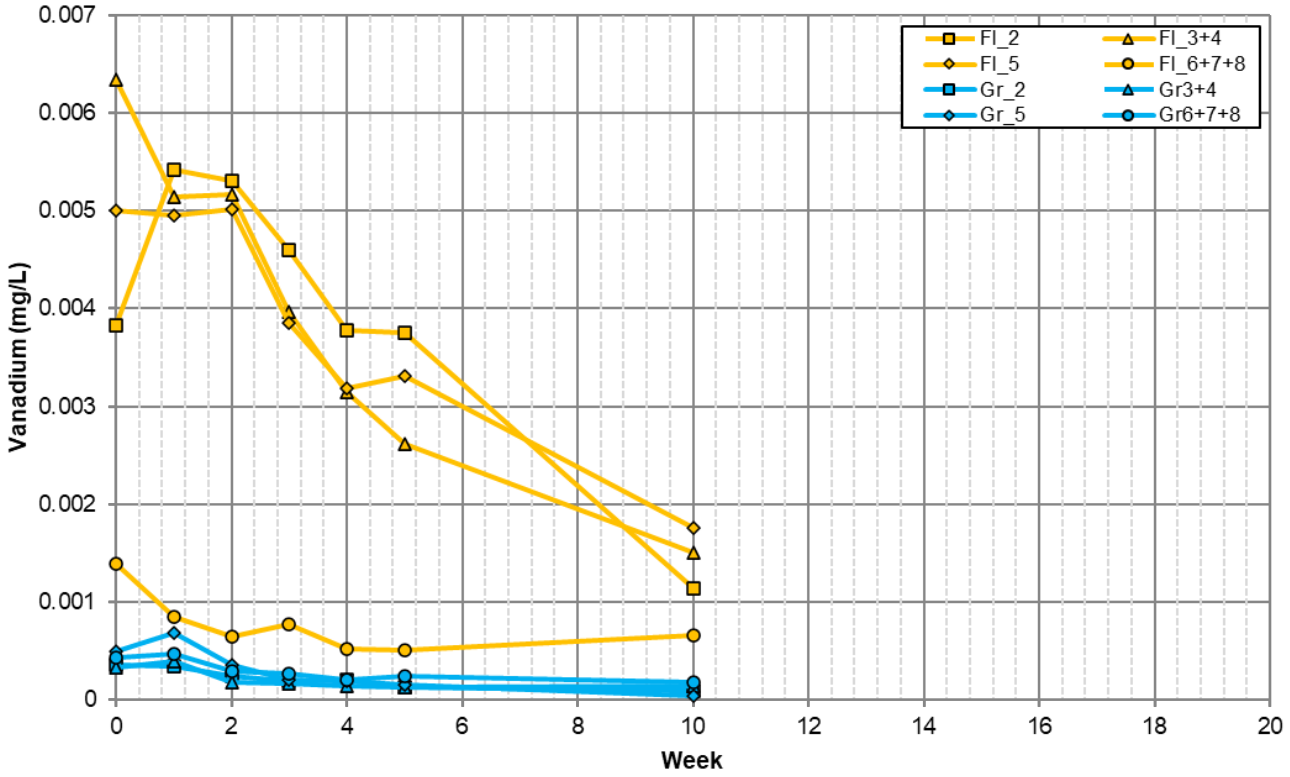

Figure B.37. Time series of Vanadium (V) results from Humidity Cell Tests.

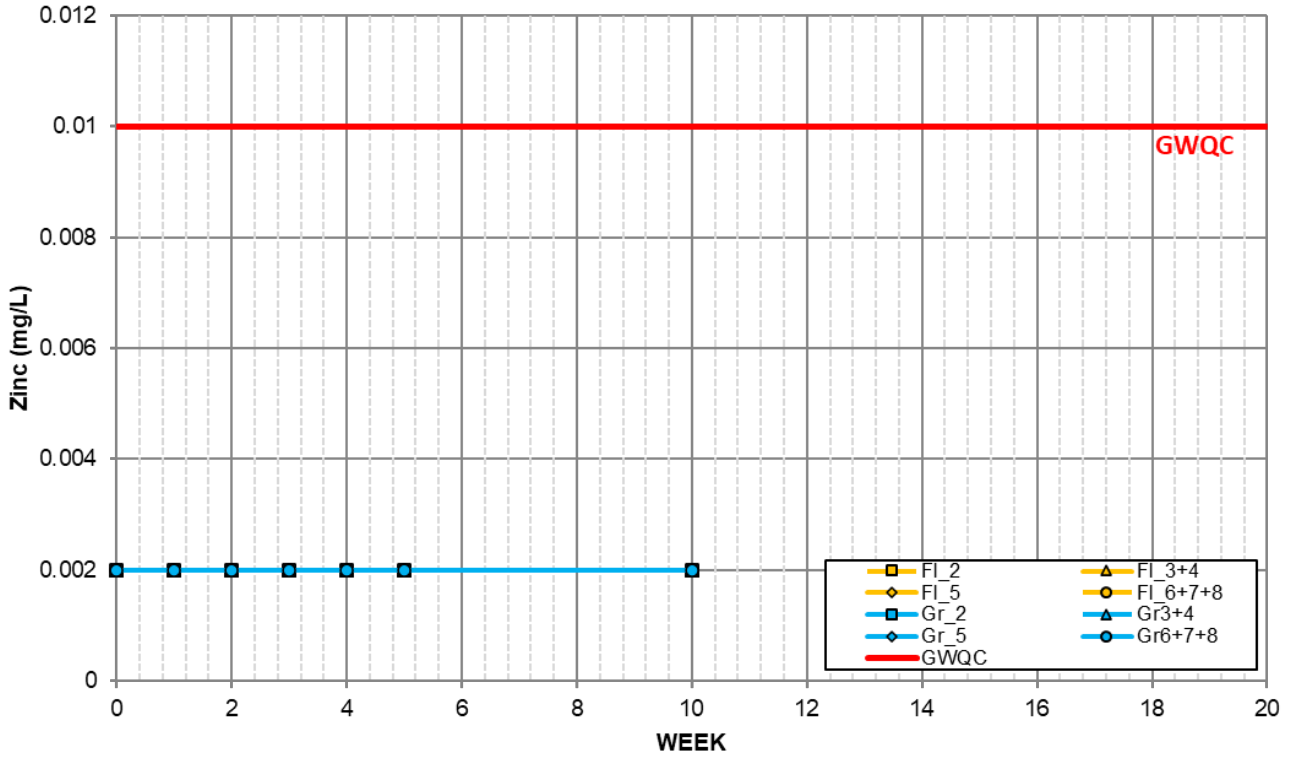

Figure B.38. Time series of Zinc (Zn) results from Humidity Cell Tests.

Table B.1: Summary of HCT results for Sample FI_2.

FL_2														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Date	-	08-Mar-22	15-Mar-22	22-Mar-22	29-Mar-22	05-Apr-22	12-Apr-22	19-Apr-22	26-Apr-22	03-May-22	10-May-22	17-May-22	24-May-22	31-May-22
LIMS	-	10050-MAR22	10088-MAR22	10119-MAR22	10166-MAR22	10017-APR22	10052-APR22	10090-APR22	10131-APR22	10015-MAY22	10057-MAY22	10099-MAY22	10144-MAY22	10192-MAY22
HCT Leachate Vol	mL	712	1015	983	1020	1025	1005	1034	991	1037	965	1050	995	960
pH	No unit	8.39	8.40	8.32	8.25	8.17	8.06	7.90	8.34	7.91	7.90	7.79	8.15	7.83
Acidity	mg/L as $CaCO_3$	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Alkalinity	mg/L as $CaCO_3$	47	45	38	37	34	33	43	34	26	28	25	29	24
Conductivity	µS/cm	129	92	79	77	64	73	70	68	55	57	58	60	47
SO_4	mg/L	21	4.2	3.0	3.5	4.0	3.7	3.4	3.3	3.5	3.2	#N/A	#N/A	#N/A
Hg	mg/L	< 0.00001	0.00003	< 0.00001	< 0.00001	< 0.00001	< 0.00001	---	---	---	---	< 0.00001	---	---
Ag	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	---	---	---	---	< 0.00005	---	---
Al	mg/L	0.090	0.123	0.142	0.173	0.182	0.185	---	---	---	---	0.093	---	---
As	mg/L	0.259	0.370	0.351	0.277	0.233	0.226	---	---	---	---	0.0738	---	---
Ba	mg/L	0.00321	0.00273	0.00277	0.00258	0.00234	0.00258	---	---	---	---	0.00136	---	---
Be	mg/L	< 0.000007	< 0.000007	< 0.000007	< 0.000007	0.000022	< 0.000007	---	---	---	---	< 0.000007	---	---
B	mg/L	0.019	0.009	0.005	0.016	< 0.002	< 0.002	---	---	---	---	< 0.002	---	---
Bi	mg/L	0.00001	< 0.00001	< 0.00001	0.00001	< 0.00001	< 0.00001	---	---	---	---	< 0.00001	---	---

FL_2														
Parameter	Units	0	1	2	3	4	5	6	7	8	9	10	11	12
Ca	mg/L	13.6	12.7	12.0	12.5	11.2	12.1	---	---	---	---	8.64	---	---
Cd	mg/L	0.000021	0.000012	< 0.000003	0.000005	0.000005	< 0.000003	---	---	---	---	< 0.000003	---	---
Co	mg/L	0.000433	0.000375	0.000144	0.000377	0.00025	0.000059	---	---	---	---	0.000056	---	---
Cr	mg/L	0.00100	0.00075	0.00051	0.00038	0.00031	0.00025	---	---	---	---	0.00043	---	---
Cu	mg/L	0.0015	0.0008	0.0006	0.0003	< 0.0002	< 0.0002	---	---	---	---	< 0.0002	---	---
Fe	mg/L	0.049	0.051	0.023	0.020	0.028	0.019	---	---	---	---	0.011	---	---
K	mg/L	2.73	1.89	1.21	0.936	0.603	0.537	---	---	---	---	0.185	---	---
Li	mg/L	0.0241	0.0141	0.0118	0.0095	0.0069	0.0036	---	---	---	---	0.0024	---	---
Mg	mg/L	2.78	2.05	1.79	1.32	1.11	0.907	---	---	---	---	0.406	---	---
Mn	mg/L	0.00562	0.00445	0.00300	0.00220	0.00207	0.00175	---	---	---	---	0.00174	---	---
Mo	mg/L	0.0213	0.00244	0.00138	0.0186	0.00111	0.00056	---	---	---	---	0.00033	---	---
Na	mg/L	5.42	1.83	0.92	0.62	0.43	0.36	---	---	---	---	0.19	---	---
Ni	mg/L	0.0018	0.0011	0.0006	0.0004	0.0045	0.0003	---	---	---	---	0.0008	---	---
P	mg/L	0.104	0.038	0.037	0.015	0.006	0.005	---	---	---	---	< 0.003	---	---
Pb	mg/L	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	---	---	---	---	< 0.00009	---	---
Sb	mg/L	0.0059	0.0047	0.0036	0.0070	0.0024	0.0017	---	---	---	---	0.0011	---	---
Se	mg/L	0.00043	0.00041	0.00050	0.00042	0.00045	0.00035	---	---	---	---	0.00014	---	---
Si	mg/L	2.73	4.12	3.13	2.81	2.71	2.30	---	---	---	---	1.21	---	---
Sn	mg/L	0.00028	0.00015	0.00008	0.00012	< 0.00006	< 0.00006	---	---	---	---	< 0.00006	---	---

FL_2														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Sr	mg/L	0.0194	0.0179	0.0162	0.0159	0.0148	0.0148	---	---	---	---	0.00951	---	---
Ti	mg/L	0.00186	0.00237	0.00052	0.00071	0.00083	0.00035	---	---	---	---	0.00044	---	---
Tl	mg/L	0.000025	0.000020	0.000016	0.000011	0.000010	0.000006	---	---	---	---	< 0.000005	---	---
Th	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	---	---	---	---	< 0.0001	---	---
U	mg/L	0.000482	0.000826	0.000888	0.000616	0.000764	0.004681	---	---	---	---	0.000524	---	---
V	mg/L	0.00383	0.00542	0.00531	0.00460	0.00378	0.00375	---	---	---	---	0.00113	---	---
W	mg/L	0.0127	0.00910	0.00540	0.00415	0.00394	0.00278	---	---	---	---	0.00306	---	---
Y	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	---	---	---	---	< 0.00002	---	---
Zn	mg/L	< 0.002	< 0.002	0.002	< 0.002	< 0.002	< 0.002	---	---	---	---	< 0.002	---	---

Note: #N/A=assay results pending.

Table B.2: Summary of HCT results for Sample FI_3+4.

FL_3+4														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Date	-	08-Mar-22	15-Mar-22	22-Mar-22	29-Mar-22	05-Apr-22	12-Apr-22	19-Apr-22	26-Apr-22	03-May-22	10-May-22	17-May-22	24-May-22	31-May-22
LIMS	-	10050-MAR22	10088-MAR22	10119-MAR22	10166-MAR22	10017-APR22	10052-APR22	10090-APR22	10131-APR22	10015-MAY22	10057-MAY22	10099-MAY22	10144-MAY22	10192-MAY22
HCT Leachate Vol	mL	736	988	995	995	990	1000	1017	997	990	1014	987	1004	1021
pH	No unit	8.44	8.32	8.30	8.15	8.12	7.97	7.94	8.21	8.23	8.01	8.07	8.06	7.91
Acidity	mg/L as $CaCO_3$	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Alkalinity	mg/L as $CaCO_3$	44	45	38	36	35	32	31	32	31	30	35	37	26
Conductivity	µS/cm	108	85	71	69	60	63	58	56	57	55	54	34	49
SO_4	mg/L	8.9	1.3	0.7	0.6	0.6	0.6	0.6	0.7	0.8	0.7	#N/A	#N/A	#N/A
Hg	mg/L	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	---	---	---	---	< 0.00001	---	---
Ag	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00005	---	---	---	---	< 0.00005	---	---
Al	mg/L	0.185	0.222	0.271	0.302	0.337	0.291	---	---	---	---	0.318	---	---
As	mg/L	0.206	0.157	0.144	0.117	0.0909	0.0751	---	---	---	---	0.0444	---	---
Ba	mg/L	0.00238	0.00079	0.00068	0.00062	0.00061	0.00056	---	---	---	---	0.00061	---	---
Be	mg/L	< 0.000007	< 0.000007	< 0.000007	< 0.000007	0.000030	< 0.000007	---	---	---	---	0.000007	---	---
B	mg/L	0.011	0.005	0.003	0.005	< 0.002	< 0.002	---	---	---	---	< 0.002	---	---

FL_3+4														
Parameter	Units	0	1	2	3	4	5	6	7	8	9	10	11	12
Bi	mg/L	0.00005	0.00003	0.00002	0.00001	< 0.00001	0.00001	---	---	---	---	< 0.00001	---	---
Ca	mg/L	10.0	12.3	11.7	11.5	10.7	10.2	---	---	---	---	9.51	---	---
Cd	mg/L	0.000010	0.000004	0.000003	< 0.000003	< 0.000003	< 0.000003	---	---	---	---	< 0.000003	---	---
Co	mg/L	0.000399	0.000213	0.000116	0.000072	0.000058	0.000054	---	---	---	---	0.000049	---	---
Cr	mg/L	0.00112	0.00089	0.00033	0.00032	0.00036	0.00030	---	---	---	---	0.00034	---	---
Cu	mg/L	0.0049	0.0025	0.0013	0.0006	0.0005	0.0005	---	---	---	---	0.0003	---	---
Fe	mg/L	0.113	0.092	0.036	0.030	0.036	0.029	---	---	---	---	0.021	---	---
K	mg/L	1.81	1.21	0.804	0.618	0.457	0.354	---	---	---	---	0.208	---	---
Li	mg/L	0.0090	0.0073	0.0070	0.0056	0.0045	0.0022	---	---	---	---	0.0020	---	---
Mg	mg/L	2.04	1.98	1.60	1.12	0.967	0.702	---	---	---	---	0.393	---	---
Mn	mg/L	0.00311	0.00291	0.00158	0.00118	0.00126	0.00103	---	---	---	---	0.00091	---	---
Mo	mg/L	0.00869	0.00098	0.00050	0.00039	0.00023	0.00044	---	---	---	---	0.00066	---	---
Na	mg/L	6.85	2.03	1.00	0.63	0.52	0.33	---	---	---	---	0.22	---	---
Ni	mg/L	0.0013	0.0006	0.0004	0.0002	0.0003	0.0002	---	---	---	---	0.0003	---	---
P	mg/L	0.147	0.045	0.027	0.015	0.015	0.006	---	---	---	---	0.004	---	---
Pb	mg/L	0.00010	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	---	---	---	---	< 0.00009	---	---
Sb	mg/L	0.0372	0.0244	0.0148	0.0093	0.0080	0.0063	---	---	---	---	0.0048	---	---
Se	mg/L	0.00053	0.00042	0.00045	0.00036	0.00036	0.00023	---	---	---	---	0.00014	---	---
Si	mg/L	2.77	3.51	2.63	2.39	2.32	1.74	---	---	---	---	1.43	---	---

FL_3+4														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Sn	mg/L	0.00019	0.00014	0.00007	< 0.00006	< 0.00006	< 0.00006	---	---	---	---	< 0.00006	---	---
Sr	mg/L	0.0164	0.0180	0.0161	0.0151	0.0139	0.0128	---	---	---	---	0.0114	---	---
Ti	mg/L	0.00417	0.00396	0.00081	0.00116	0.00122	0.00083	---	---	---	---	0.00056	---	---
Tl	mg/L	0.000020	0.000017	0.000012	0.000011	0.000007	0.000005	---	---	---	---	< 0.000005	---	---
Th	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	---	---	---	---	< 0.0001	---	---
U	mg/L	0.000485	0.000457	0.000303	0.000176	0.000182	0.000114	---	---	---	---	0.000989	---	---
V	mg/L	0.00634	0.00514	0.00517	0.00397	0.00315	0.00262	---	---	---	---	0.00150	---	---
W	mg/L	0.00326	0.00166	0.00069	0.00053	0.00042	0.00029	---	---	---	---	0.00031	---	---
Y	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	---	---	---	---	< 0.00002	---	---
Zn	mg/L	< 0.002	< 0.002	0.002	< 0.002	< 0.002	< 0.002	---	---	---	---	< 0.002	---	---

Note: #N/A=assay results pending.

Table B.3: Summary of HCT results for Sample Fl_5.

FL_5														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Date	-	08-Mar-22	15-Mar-22	22-Mar-22	29-Mar-22	05-Apr-22	12-Apr-22	19-Apr-22	26-Apr-22	03-May-22	10-May-22	17-May-22	24-May-22	31-May-22
LIMS	-	10050-MAR22	10088-MAR22	10119-MAR22	10166-MAR22	10017-APR22	10052-APR22	10090-APR22	10131-APR22	10015-MAY22	10057-MAY22	10099-MAY22	10144-MAY22	10192-MAY22
HCT Leachate Vol	mL	709	1000	974	1012	910	1023	1028	998	1042	1027	1013	981	999
pH	No unit	8.45	8.37	8.07	8.12	8.23	8.16	8.01	8.40	8.20	8.12	8.34	8.24	8.12
Acidity	mg/L as $CaCO_3$	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Alkalinity	mg/L as $CaCO_3$	53	41	36	34	37	32	33	36	31	30	32	32	29
Conductivity	µS/cm	132	85	73	68	55	66	60	60	57	59	56	58	57
SO_4	mg/L	14	2.9	2.3	1.9	1.9	1.4	1.2	1.2	1.2	1.1	#N/A	#N/A	#N/A
Hg	mg/L	0.00003	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	---	---	---	---	< 0.00001	---	---
Ag	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	---	---	---	---	< 0.00005	---	---
Al	mg/L	0.121	0.144	0.153	0.190	0.203	0.215	---	---	---	---	0.261	---	---
As	mg/L	0.361	0.335	0.294	0.219	0.174	0.169	---	---	---	---	0.0835	---	---
Ba	mg/L	0.00120	0.00097	0.00079	0.00068	0.00076	0.00044	---	---	---	---	0.00056	---	---
Be	mg/L	< 0.000007	< 0.000007	< 0.000007	< 0.000007	0.000020	< 0.000007	---	---	---	---	< 0.000007	---	---
B	mg/L	0.015	0.006	0.004	0.005	< 0.002	< 0.002	---	---	---	---	< 0.002	---	---
Bi	mg/L	0.00005	0.00003	0.00002	0.00001	< 0.00001	< 0.00001	---	---	---	---	< 0.00001	---	---

FL_5														
Parameter	Units	0	1	2	3	4	5	6	7	8	9	10	11	12
Ca	mg/L	12.0	12.4	12.1	11.1	10.3	10.7	---	---	---	---	10.2	---	---
Cd	mg/L	0.000021	< 0.000003	< 0.000003	< 0.000003	0.000004	< 0.000003	---	---	---	---	0.000005	---	---
Co	mg/L	0.000420	0.000202	0.000071	0.000073	0.000080	0.000045	---	---	---	---	0.000068	---	---
Cr	mg/L	0.00251	0.00166	0.00090	0.00056	0.00067	0.00051	---	---	---	---	0.00045	---	---
Cu	mg/L	0.0020	0.0003	0.0008	0.0004	0.0004	0.0002	---	---	---	---	< 0.0002	---	---
Fe	mg/L	0.178	0.137	0.076	0.050	0.060	0.042	---	---	---	---	0.041	---	---
K	mg/L	3.48	2.55	1.67	1.19	0.852	0.726	---	---	---	---	0.383	---	---
Li	mg/L	0.0162	0.0087	0.0072	0.0053	0.0045	0.0023	---	---	---	---	0.0021	---	---
Mg	mg/L	1.89	1.55	1.28	0.843	0.697	0.566	---	---	---	---	0.305	---	---
Mn	mg/L	0.00447	0.00358	0.00228	0.00159	0.00150	0.00118	---	---	---	---	0.00251	---	---
Mo	mg/L	0.0175	0.00176	0.00103	0.00078	0.00121	0.00042	---	---	---	---	0.00032	---	---
Na	mg/L	6.30	1.83	0.89	0.58	0.40	0.36	---	---	---	---	0.24	---	---
Ni	mg/L	0.0018	0.0009	0.0006	0.0003	0.0005	0.0002	---	---	---	---	0.0007	---	---
P	mg/L	0.181	0.097	0.037	0.032	0.010	0.010	---	---	---	---	< 0.003	---	---
Pb	mg/L	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	---	---	---	---	< 0.00009	---	---
Sb	mg/L	0.0046	0.0036	0.0024	0.0019	0.0015	0.0011	---	---	---	---	< 0.0009	---	---
Se	mg/L	0.00029	0.00022	0.00015	0.00018	0.00028	0.00015	---	---	---	---	0.00013	---	---
Si	mg/L	3.26	4.30	3.25	2.72	2.77	2.35	---	---	---	---	1.78	---	---
Sn	mg/L	0.00016	0.00011	0.00008	< 0.00006	< 0.00006	< 0.00006	---	---	---	---	< 0.00006	---	---

FL_5														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Sr	mg/L	0.0198	0.0193	0.0181	0.0154	0.0149	0.0141	---	---	---	---	0.0122	---	---
Ti	mg/L	0.00409	0.00458	0.00223	0.00139	0.00192	0.00103	---	---	---	---	0.00144	---	---
Tl	mg/L	0.000035	0.000024	0.000021	0.000014	0.000014	0.000010	---	---	---	---	0.000010	---	---
Th	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	---	---	---	---	< 0.0001	---	---
U	mg/L	0.00307	0.00265	0.00197	0.00110	0.00133	0.00170	---	---	---	---	0.00564	---	---
V	mg/L	0.00500	0.00495	0.00502	0.00385	0.00318	0.00331	---	---	---	---	0.00175	---	---
W	mg/L	0.00261	0.00195	0.00090	0.00058	0.00076	0.00040	---	---	---	---	0.00043	---	---
Y	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	---	---	---	---	< 0.00002	---	---
Zn	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	---	---	---	---	< 0.002	---	---

Note: #N/A=assay results pending.

Table B.4: Summary of HCT results for Sample Fl_6+7+8.

FL_6+7+8														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Date	-	08-Mar-22	15-Mar-22	22-Mar-22	29-Mar-22	05-Apr-22	12-Apr-22	19-Apr-22	26-Apr-22	03-May-22	10-May-22	17-May-22	24-May-22	31-May-22
LIMS	-	10050-MAR22	10088-MAR22	10119-MAR22	10166-MAR22	10017-APR22	10052-APR22	10090-APR22	10131-APR22	10015-MAY22	10057-MAY22	10099-MAY22	10144-MAY22	10192-MAY22
HCT Leachate Vol	mL	783	1010	1023	1019	1008	1034	1015	1022	1022	1017	1016	1008	993
pH	No unit	8.86	7.98	8.07	8.57	8.35	7.65	7.39	7.23	7.53	7.66	8.78	7.40	7.58
Acidity	mg/L as $CaCO_3$	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Alkalinity	mg/L as $CaCO_3$	27	13	15	20	11	11	9	8	10	12	15	10	10
Conductivity	µS/cm	60	37	41	44	24	33	20	19	21	28	32	21	26
SO_4	mg/L	5.6	3.3	2.9	2.2	1.8	1.6	1.4	1.3	1.2	1.3	#N/A	#N/A	#N/A
Hg	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	---	---	---	---	< 0.00001	---	---
Ag	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	---	---	---	---	< 0.00005	---	---
Al	mg/L	0.077	0.087	0.068	0.080	0.043	0.035	---	---	---	---	0.086	---	---
As	mg/L	**0.0308**	**0.0163**	**0.0187**	**0.0177**	**0.0121**	**0.0124**	---	---	---	---	**0.0115**	---	---
Ba	mg/L	0.00096	0.00097	0.00108	0.00104	0.00070	0.00065	---	---	---	---	0.00083	---	---
Be	mg/L	< 0.000007	< 0.000007	< 0.000007	< 0.000007	0.000020	< 0.000007	---	---	---	---	0.000010	---	---
B	mg/L	0.007	0.005	0.004	0.007	0.002	0.002	---	---	---	---	0.002	---	---
Bi	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	---	---	---	---	< 0.00001	---	---

FL_6+7+8														
Parameter	Units	0	1	2	3	4	5	6	7	8	9	10	11	12
Ca	mg/L	5.83	4.15	4.96	5.80	3.06	3.34	---	---	---	---	4.78	---	---
Cd	mg/L	0.000007	0.000006	0.000005	< 0.000003	< 0.000003	< 0.000003	---	---	---	---	0.000008	---	---
Co	mg/L	0.000148	0.000153	0.000129	0.000075	0.000090	0.000055	---	---	---	---	0.000115	---	---
Cr	mg/L	0.00023	0.00049	0.00016	0.00036	0.00034	0.00015	---	---	---	---	0.00067	---	---
Cu	mg/L	0.0008	0.0005	0.0007	0.0005	0.0003	0.0003	---	---	---	---	0.0005	---	---
Fe	mg/L	0.047	0.116	0.068	0.067	0.045	0.033	---	---	---	---	0.095	---	---
K	mg/L	1.45	0.963	0.959	0.826	0.636	0.586	---	---	---	---	0.429	---	---
Li	mg/L	0.0054	0.0037	0.0046	0.0041	0.0031	0.0018	---	---	---	---	0.0023	---	---
Mg	mg/L	1.28	0.923	0.944	0.771	0.608	0.529	---	---	---	---	0.612	---	---
Mn	mg/L	0.00485	0.00600	0.00579	0.00427	0.00340	0.00359	---	---	---	---	0.00477	---	---
Mo	mg/L	0.00452	0.00236	0.00216	0.00164	0.00122	0.00121	---	---	---	---	0.00054	---	---
Na	mg/L	3.28	1.66	1.68	1.22	0.88	0.77	---	---	---	---	0.53	---	---
Ni	mg/L	0.0007	0.0007	0.0006	0.0003	0.0005	0.0002	---	---	---	---	0.0006	---	---
P	mg/L	0.057	0.034	0.052	0.028	0.013	0.013	---	---	---	---	0.005	---	---
Pb	mg/L	< 0.00009	0.00009	< 0.00009	0.00012	< 0.00009	< 0.00009	---	---	---	---	0.00011	---	---
Sb	mg/L	0.0015	0.0011	0.0013	0.0010	< 0.0009	< 0.0009	---	---	---	---	< 0.0009	---	---
Se	mg/L	0.00015	0.00010	0.00006	0.00009	0.00013	0.00006	---	---	---	---	0.00007	---	---
Si	mg/L	0.65	0.68	0.52	0.54	0.48	0.35	---	---	---	---	0.48	---	---
Sn	mg/L	0.00011	0.00008	< 0.00006	< 0.00006	< 0.00006	< 0.00006	---	---	---	---	< 0.00006	---	---

FL_6+7+8														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Sr	mg/L	0.00563	0.00432	0.00457	0.00498	0.00337	0.00328	---	---	---	---	0.00385	---	---
Ti	mg/L	0.00153	0.00422	0.00243	0.00188	0.00165	0.00104	---	---	---	---	0.00356	---	---
Tl	mg/L	0.000008	0.000005	0.000005	0.000005	0.000005	< 0.000005	---	---	---	---	< 0.000005	---	---
Th	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	---	---	---	---	< 0.0001	---	---
U	mg/L	0.000253	0.000207	0.000264	0.000233	0.000221	0.000233	---	---	---	---	0.00254	---	---
V	mg/L	0.00139	0.00085	0.00064	0.00077	0.00052	0.00051	---	---	---	---	0.00065	---	---
W	mg/L	0.00270	0.00227	0.00228	0.00173	0.00158	0.00135	---	---	---	---	0.00106	---	---
Y	mg/L	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	---	---	---	---	< 0.00002	---	---
Zn	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	---	---	---	---	< 0.002	---	---

Note: #N/A=assay results pending.

Table B.5: Summary of HCT results for Sample Gr_2.

Gr_2														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Date	-	08-Mar-22	15-Mar-22	22-Mar-22	29-Mar-22	05-Apr-22	12-Apr-22	19-Apr-22	26-Apr-22	03-May-22	10-May-22	17-May-22	24-May-22	31-May-22
LIMS	-	10050-MAR22	10088-MAR22	10119-MAR22	10166-MAR22	10017-APR22	10052-APR22	10090-APR22	10131-APR22	10015-MAY22	10057-MAY22	10099-MAY22	10144-MAY22	10192-MAY22
HCT Leachate Vol	mL	809	1005	1010	997	1014	1010	993	1002	908	1005	993	999	1025
pH	No unit	7.87	7.86	7.75	8.36	8.82	8.08	7.89	8.65	8.09	7.66	8.01	8.54	8.23
Acidity	mg/L as $CaCO_3$	49	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Alkalinity	mg/L as $CaCO_3$	21	18	17	21	13	16	11	6	10	12	11	16	16
Conductivity	µS/cm	391	151	143	91	56	64	59	57	60	63	58	72	72
SO_4	mg/L	130	49	45	22	16	13	15	14	13	15	#N/A	#N/A	#N/A
Hg	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	---	---	---	---	< 0.00001	---	---
Ag	mg/L	< 0.00005	0.00008	< 0.00005	< 0.00005	< 0.00005	< 0.00005	---	---	---	---	< 0.00005	---	---
Al	mg/L	0.037	0.062	0.026	0.029	0.038	0.018	---	---	---	---	0.023	---	---
As	mg/L	0.0464	0.0277	0.0280	0.0269	0.0254	0.0190	---	---	---	---	0.0188	---	---
Ba	mg/L	0.00592	0.00250	0.00282	0.00131	0.00102	0.00071	---	---	---	---	0.00076	---	---
Be	mg/L	< 0.000007	< 0.000007	< 0.000007	< 0.000007	0.000024	< 0.000007	---	---	---	---	0.000010	---	---
B	mg/L	0.013	0.005	0.005	0.005	< 0.002	< 0.002	---	---	---	---	0.003	---	---
Bi	mg/L	< 0.00001	0.00004	< 0.00001	0.00001	0.00002	< 0.00001	---	---	---	---	0.00002	---	---

Gr_2														
Parameter	Units	0	1	2	3	4	5	6	7	8	9	10	11	12
Ca	mg/L	57.3	24.3	22.8	14.1	10.3	8.47	---	---	---	---	9.07	---	---
Cd	mg/L	0.000010	0.000008	0.000005	0.000003	0.000004	0.000003	---	---	---	---	0.000006	---	---
Co	mg/L	0.00190	0.000770	0.001477	0.000404	0.000253	0.000239	---	---	---	---	0.000312	---	---
Cr	mg/L	0.00028	0.00075	0.00027	0.00026	0.00030	0.00022	---	---	---	---	0.00039	---	---
Cu	mg/L	0.0014	0.0010	0.0006	0.0004	0.0005	0.0003	---	---	---	---	0.0003	---	---
Fe	mg/L	0.017	0.063	0.019	0.020	0.035	0.018	---	---	---	---	0.027	---	---
K	mg/L	1.91	0.711	0.678	0.365	0.312	0.206	---	---	---	---	0.158	---	---
Li	mg/L	0.0141	0.0048	0.0066	0.0035	0.0023	0.0012	---	---	---	---	0.0016	---	---
Mg	mg/L	5.46	1.60	1.56	0.667	0.434	0.337	---	---	---	---	0.357	---	---
Mn	mg/L	0.0327	0.0155	0.0199	0.0101	0.00617	0.00715	---	---	---	---	0.00710	---	---
Mo	mg/L	0.0257	0.00868	0.00821	0.00363	0.00399	0.00188	---	---	---	---	0.00156	---	---
Na	mg/L	5.53	1.36	1.27	0.62	0.43	0.34	---	---	---	---	0.26	---	---
Ni	mg/L	0.0204	0.0076	0.0116	0.0033	0.0021	0.0016	---	---	---	---	0.0019	---	---
P	mg/L	0.009	< 0.003	0.016	0.016	0.007	0.004	---	---	---	---	< 0.003	---	---
Pb	mg/L	< 0.00009	< 0.00009	< 0.00009	< 0.00009	0.00009	< 0.00009	---	---	---	---	< 0.00009	---	---
Sb	mg/L	0.0038	0.0018	0.0023	0.0014	0.0011	< 0.0009	---	---	---	---	< 0.0009	---	---
Se	mg/L	0.00187	0.00052	0.00068	0.00030	0.00035	0.00020	---	---	---	---	0.00041	---	---
Si	mg/L	0.94	0.69	0.59	0.42	0.38	0.24	---	---	---	---	0.25	---	---
Sn	mg/L	0.00172	0.00009	< 0.00006	< 0.00006	0.00006	< 0.00006	---	---	---	---	< 0.00006	---	---
Sr	mg/L	0.0545	0.0216	0.0202	0.0104	0.00712	0.00571	---	---	---	---	0.00608	---	---

Gr_2														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Ti	mg/L	0.00062	0.00255	0.00062	0.00057	0.00110	0.00061	---	---	---	---	0.00085	---	---
Tl	mg/L	< 0.000005	< 0.000005	0.000008	< 0.000005	< 0.000005	< 0.000005	---	---	---	---	0.000006	---	---
Th	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	---	---	---	---	< 0.0001	---	---
U	mg/L	0.000366	0.000325	0.000411	0.000148	0.000114	0.000074	---	---	---	---	0.000666	---	---
V	mg/L	0.00035	0.00034	0.00024	0.00019	0.00020	0.00013	---	---	---	---	0.00009	---	---
W	mg/L	0.00163	0.00080	0.00070	0.00039	0.00039	0.00035	---	---	---	---	0.00025	---	---
Y	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	---	---	---	---	< 0.00002	---	---
Zn	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	---	---	---	---	< 0.002	---	---

Note: #N/A=assay results pending.

Table B.6: Summary of HCT results for Sample Gr_3+4.

Gr_3+4														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Date	-	08-Mar-22	15-Mar-22	22-Mar-22	29-Mar-22	05-Apr-22	12-Apr-22	19-Apr-22	26-Apr-22	03-May-22	10-May-22	17-May-22	24-May-22	31-May-22
LIMS	-	10050-MAR22	10088-MAR22	10119-MAR22	10166-MAR22	10017-APR22	10052-APR22	10090-APR22	10131-APR22	10015-MAY22	10057-MAY22	10099-MAY22	10144-MAY22	10192-MAY22
HCT Leachate Vol	mL	841	1000	996	1002	982	1017	955	1026	960	1000	1011	978	961
pH	No unit	7.71	7.55	7.67	7.45	7.93	7.44	7.15	7.16	7.34	7.79	7.43	7.12	7.47
Acidity	mg/L as $CaCO_3$	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Alkalinity	mg/L as $CaCO_3$	13	12	10	8	4	8	6	6	7	14	8	6	8
Conductivity	µS/cm	82	67	64	57	52	48	44	43	38	65	42	41	50
SO_4	mg/L	18	17	15	15	14	12	12	9.9	10	18	#N/A	#N/A	#N/A
Hg	mg/L	0.00002	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	---	---	---	---	< 0.00001	---	---
Ag	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00008	---	---	---	---	< 0.00005	---	---
Al	mg/L	0.069	0.072	0.051	0.024	0.031	0.019	---	---	---	---	0.026	---	---
As	mg/L	**0.0209**	**0.0134**	**0.0137**	**0.0099**	**0.0096**	**0.0072**	---	---	---	---	**0.0068**	---	---
Ba	mg/L	0.00032	0.00040	0.00036	0.00040	0.00030	0.00053	---	---	---	---	0.00021	---	---
Be	mg/L	< 0.000007	< 0.000007	< 0.000007	< 0.000007	0.000033	< 0.000007	---	---	---	---	0.000012	---	---
B	mg/L	0.004	0.003	0.002	0.010	< 0.002	< 0.002	---	---	---	---	< 0.002	---	---
Bi	mg/L	0.00009	0.00007	0.00004	0.00003	0.00003	0.00002	---	---	---	---	0.00004	---	---

Gr_3+4														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Ca	mg/L	9.91	10.3	9.06	8.04	8.15	6.39	---	---	---	---	5.91	---	---
Cd	mg/L	0.000011	0.000008	0.000003	0.000004	< 0.000003	0.000008	---	---	---	---	0.000013	---	---
Co	mg/L	0.000243	0.000230	0.000136	0.000712	0.000813	0.000105	---	---	---	---	0.000118	---	---
Cr	mg/L	0.00068	0.00075	0.00051	0.00022	0.00025	0.00019	---	---	---	---	0.00048	---	---
Cu	mg/L	**0.0023**	**0.0022**	0.0016	0.0010	0.0010	0.0008	---	---	---	---	0.0008	---	---
Fe	mg/L	0.053	0.061	0.032	0.020	0.062	0.020	---	---	---	---	0.028	---	---
K	mg/L	0.450	0.356	0.343	0.330	0.255	0.213	---	---	---	---	0.148	---	---
Li	mg/L	0.0026	0.0024	0.0026	0.0024	0.0025	0.0012	---	---	---	---	0.0015	---	---
Mg	mg/L	0.887	0.812	0.720	0.591	0.564	0.447	---	---	---	---	0.415	---	---
Mn	mg/L	0.00281	0.00311	0.00239	0.00202	0.00216	0.00164	---	---	---	---	0.00226	---	---
Mo	mg/L	0.0101	0.00784	0.00888	0.00718	0.00377	0.00297	---	---	---	---	0.0193	---	---
Na	mg/L	1.70	1.27	1.13	0.89	0.96	0.63	---	---	---	---	0.38	---	---
Ni	mg/L	0.0010	0.0008	0.0008	0.0008	0.0009	0.0006	---	---	---	---	0.0007	---	---
P	mg/L	0.004	< 0.003	0.010	0.006	0.005	0.014	---	---	---	---	< 0.003	---	---
Pb	mg/L	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	0.00023	---	---	---	---	< 0.00009	---	---
Sb	mg/L	0.0097	0.0091	0.0098	0.0110	0.0075	0.0057	---	---	---	---	0.0040	---	---
Se	mg/L	0.00027	0.00037	0.00031	0.00084	0.00053	0.00033	---	---	---	---	0.00018	---	---
Si	mg/L	0.39	0.54	0.36	0.35	0.39	0.28	---	---	---	---	0.24	---	---
Sn	mg/L	0.00017	0.00014	0.00007	< 0.00006	0.00006	< 0.00006	---	---	---	---	< 0.00006	---	---

Gr_3+4														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Sr	mg/L	0.00869	0.00942	0.00924	0.00853	0.00814	0.00639	---	---	---	---	0.00586	---	---
Ti	mg/L	0.00179	0.00240	0.00069	0.00060	0.00076	0.00051	---	---	---	---	0.00107	---	---
Tl	mg/L	0.000011	0.000006	0.000008	0.000006	0.000011	0.000005	---	---	---	---	0.000006	---	---
Th	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	---	---	---	---	< 0.0001	---	---
U	mg/L	0.000041	0.000051	0.000058	0.000050	0.000087	0.000039	---	---	---	---	0.000661	---	---
V	mg/L	0.00033	0.00039	0.00017	0.00016	0.00014	0.00013	---	---	---	---	0.00014	---	---
W	mg/L	0.00017	0.00014	0.00009	0.00019	0.00007	0.00004	---	---	---	---	0.00017	---	---
Y	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	---	---	---	---	< 0.00002	---	---
Zn	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	---	---	---	---	< 0.002	---	---

Note: #N/A=assay results pending.

Table B.7: Summary of HCT results for Sample Gr_5.

Gr_5														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Date	-	08-Mar-22	15-Mar-22	22-Mar-22	29-Mar-22	05-Apr-22	12-Apr-22	19-Apr-22	26-Apr-22	03-May-22	10-May-22	17-May-22	24-May-22	31-May-22
LIMS	-	10050-MAR22	10088-MAR22	10119-MAR22	10166-MAR22	10017-APR22	10052-APR22	10090-APR22	10131-APR22	10015-MAY22	10057-MAY22	10099-MAY22	10144-MAY22	10192-MAY22
HCT Leachate Vol	mL	734	1021	1020	1018	1009	1010	1026	1010	997	975	1019	961	1001
pH	No unit	7.86	7.91	8.02	7.45	8.35	7.63	8.17	7.35	7.52	7.53	7.28	7.60	7.38
Acidity	mg/L as $CaCO_3$	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Alkalinity	mg/L as $CaCO_3$	40	54	33	16	18	14	25	12	12	11	9	13	10
Conductivity	µS/cm	770	199	120	64	68	62	98	55	61	56	48	54	55
SO_4	mg/L	340	37	24	12	16	13	22	12	14	13	#N/A	#N/A	#N/A
Hg	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	---	---	---	---	< 0.00001	---	---
Ag	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	---	---	---	---	< 0.00005	---	---
Al	mg/L	0.030	0.056	0.054	0.034	0.051	0.023	---	---	---	---	0.015	---	---
As	mg/L	0.0623	0.0679	0.0411	0.0163	0.0158	0.0106	---	---	---	---	0.0060	---	---
Ba	mg/L	0.00570	0.00133	0.00095	0.00052	0.00085	0.00073	---	---	---	---	0.00026	---	---
Be	mg/L	< 0.000007	< 0.000007	< 0.000007	< 0.000007	0.000029	< 0.000007	---	---	---	---	0.000013	---	---
B	mg/L	0.025	0.011	0.005	0.004	< 0.002	< 0.002	---	---	---	---	< 0.002	---	---
Bi	mg/L	< 0.00001	0.00001	0.00002	< 0.00001	0.00002	< 0.00001	---	---	---	---	< 0.00001	---	---

Gr_5														
Parameter	Units	0	1	2	3	4	5	6	7	8	9	10	11	12
Ca	mg/L	124	31.2	20.9	11.3	12.0	9.70	---	---	---	---	7.42	---	---
Cd	mg/L	0.000040	0.000010	0.000008	0.000007	0.000005	0.000008	---	---	---	---	0.000030	---	---
Co	mg/L	0.00187	0.000652	0.000347	0.000147	0.000283	0.000191	---	---	---	---	0.000190	---	---
Cr	mg/L	0.00020	0.00075	0.00113	0.00047	0.00052	0.00029	---	---	---	---	0.00030	---	---
Cu	mg/L	0.0034	0.0019	0.0014	0.0005	0.0007	0.0005	---	---	---	---	0.0003	---	---
Fe	mg/L	< 0.007	0.036	0.047	0.024	0.049	0.024	---	---	---	---	0.019	---	---
K	mg/L	5.60	2.02	0.891	0.366	0.303	0.258	---	---	---	---	0.152	---	---
Li	mg/L	0.0248	0.0106	0.0068	0.0028	0.0025	0.0015	---	---	---	---	0.0015	---	---
Mg	mg/L	8.86	1.59	0.820	0.312	0.344	0.270	---	---	---	---	0.204	---	---
Mn	mg/L	0.0765	0.0233	0.0133	0.00696	0.00711	0.00761	---	---	---	---	0.00659	---	---
Mo	mg/L	0.0732	0.0224	0.00870	0.00277	0.00302	0.00238	---	---	---	---	0.00108	---	---
Na	mg/L	11.2	1.84	0.74	0.32	0.34	0.28	---	---	---	---	0.19	---	---
Ni	mg/L	0.0181	0.0058	0.0031	0.0011	0.0032	0.0013	---	---	---	---	0.0011	---	---
P	mg/L	0.010	< 0.003	0.020	0.014	0.007	0.024	---	---	---	---	< 0.003	---	---
Pb	mg/L	< 0.00009	< 0.00009	< 0.00009	< 0.00009	0.00013	< 0.00009	---	---	---	---	< 0.00009	---	---
Sb	mg/L	0.0049	0.0037	0.0029	0.0011	0.0010	0.0012	---	---	---	---	< 0.0009	---	---
Se	mg/L	0.00361	0.00090	0.00045	0.00031	0.00045	0.00025	---	---	---	---	0.00027	---	---
Si	mg/L	2.45	2.95	1.52	0.70	0.76	0.51	---	---	---	---	0.35	---	---
Sn	mg/L	0.00018	0.00009	< 0.00006	< 0.00006	< 0.00006	0.00008	---	---	---	---	< 0.00006	---	---
Sr	mg/L	0.142	0.0332	0.0201	0.00930	0.0121	0.00806	---	---	---	---	0.00578	---	---

Gr_5														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Ti	mg/L	0.00015	0.00116	0.00088	0.00075	0.00115	0.00053	---	---	---	---	0.00051	---	---
Tl	mg/L	0.000065	0.000026	0.000018	0.000007	0.000008	0.000006	---	---	---	---	0.000007	---	---
Th	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	---	---	---	---	< 0.0001	---	---
U	mg/L	0.00271	0.00245	0.00221	0.000905	0.00123	0.000871	---	---	---	---	0.000913	---	---
V	mg/L	0.00049	0.00068	0.00035	0.00020	0.00019	0.00015	---	---	---	---	0.00004	---	---
W	mg/L	0.00126	0.00125	0.00094	0.00030	0.00030	0.00021	---	---	---	---	0.00018	---	---
Y	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	---	---	---	---	< 0.00002	---	---
Zn	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	---	---	---	---	< 0.002	---	---

Note: #N/A=assay results pending.

Table B.8: Summary of HCT results for Sample Gr_6+7+8.

Gr_6+7+8														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Date	-	15-Mar-22	22-Mar-22	29-Mar-22	05-Apr-22	12-Apr-22	19-Apr-22	26-Apr-22	03-May-22	10-May-22	17-May-22	24-May-22	31-May-22	15-Mar-22
LIMS	-	10088-MAR22	10119-MAR22	10166-MAR22	10017-APR22	10052-APR22	10090-APR22	10131-APR22	10015-MAY22	10057-MAY22	10099-MAY22	10144-MAY22	10192-MAY22	10088-MAR22
HCT Leachate Vol	mL	998	1016	1019	986	985	1020	1014	1036	1013	1027	1005	1024	998
pH	No unit	7.81	7.71	7.41	7.20	7.39	7.15	7.02	7.43	7.40	7.17	7.17	7.32	7.81
Acidity	mg/L as $CaCO_3$	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Alkalinity	mg/L as $CaCO_3$	15	13	8	7	9	7	6	9	9	8	7	8	15
Conductivity	µS/cm	89	87	75	62	77	66	62	65	66	66	66	62	89
SO_4	mg/L	22	22	21	22	22	21	20	19	19	#N/A	#N/A	#N/A	22
Hg	mg/L	< 0.00001	< 0.00001	< 0.00001	0.00001	< 0.00001	---	---	---	---	< 0.00001	---	---	< 0.00001
Ag	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	---	---	---	---	< 0.00005	---	---	< 0.00005
Al	mg/L	0.085	0.062	0.028	0.020	0.025	---	---	---	---	0.030	---	---	0.085
As	mg/L	**0.0217**	**0.0197**	**0.0141**	**0.0113**	**0.0120**	---	---	---	---	**0.0096**	---	---	**0.0217**
Ba	mg/L	0.00105	0.00118	0.00114	0.00105	0.00088	---	---	---	---	0.00071	---	---	0.00105
Be	mg/L	< 0.000007	< 0.000007	< 0.000007	0.000026	< 0.000007	---	---	---	---	0.000009	---	---	< 0.000007
B	mg/L	0.006	0.006	0.009	0.004	0.013	---	---	---	---	0.003	---	---	0.006
Bi	mg/L	0.00002	< 0.00001	< 0.00001	< 0.00001	< 0.00001	---	---	---	---	< 0.00001	---	---	0.00002

Gr_6+7+8														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Ca	mg/L	9.63	9.52	7.94	6.98	7.68	---	---	---	---	7.44	---	---	9.63
Cd	mg/L	0.000011	**0.000094**	0.000007	0.000003	0.000010	---	---	---	---	0.000009	---	---	0.000011
Co	mg/L	0.000173	0.000127	0.000147	0.000181	0.000097	---	---	---	---	0.000119	---	---	0.000173
Cr	mg/L	0.00036	0.00010	0.00009	< 0.00008	0.00011	---	---	---	---	0.00025	---	---	0.00036
Cu	mg/L	0.0014	0.0009	0.0005	0.0003	0.0005	---	---	---	---	0.0005	---	---	0.0014
Fe	mg/L	0.080	0.026	0.015	0.016	0.021	---	---	---	---	0.035	---	---	0.080
K	mg/L	1.57	1.54	1.28	1.11	1.09	---	---	---	---	0.705	---	---	1.57
Li	mg/L	0.0032	0.0047	0.0040	0.0038	0.0023	---	---	---	---	0.0028	---	---	0.0032
Mg	mg/L	1.99	2.16	1.66	1.70	1.57	---	---	---	---	1.61	---	---	1.99
Mn	mg/L	0.00759	0.00840	0.00698	0.00577	0.00764	---	---	---	---	0.00669	---	---	0.00759
Mo	mg/L	0.00978	0.00982	0.00707	0.00569	0.00753	---	---	---	---	0.00324	---	---	0.00978
Na	mg/L	2.84	2.94	2.05	1.69	1.59	---	---	---	---	1.04	---	---	2.84
Ni	mg/L	0.0008	0.0008	0.0008	0.0024	0.0007	---	---	---	---	0.0010	---	---	0.0008
P	mg/L	0.006	0.080	0.012	< 0.003	0.003	---	---	---	---	< 0.003	---	---	0.006
Pb	mg/L	0.00011	0.00010	< 0.00009	< 0.00009	< 0.00009	---	---	---	---	0.00010	---	---	0.00011
Sb	mg/L	< 0.0009	< 0.0009	0.0018	< 0.0009	< 0.0009	---	---	---	---	< 0.0009	---	---	< 0.0009
Se	mg/L	0.00015	0.00013	0.00019	0.00030	0.00023	---	---	---	---	0.00024	---	---	0.00015
Si	mg/L	0.51	0.38	0.35	0.36	0.32	---	---	---	---	0.32	---	---	0.51
Sn	mg/L	0.00015	0.00006	< 0.00006	< 0.00006	0.00006	---	---	---	---	< 0.00006	---	---	0.00015
Sr	mg/L	0.0119	0.0137	0.0111	0.0105	0.0105	---	---	---	---	0.00958	---	---	0.0119

Gr_6+7+8														
Parameter	**Units**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Ti	mg/L	0.00228	0.00049	0.00049	0.00030	0.00052	---	---	---	---	0.00129	---	---	0.00228
Tl	mg/L	0.000006	0.000008	0.000005	0.000007	< 0.000005	---	---	---	---	0.000005	---	---	0.000006
Th	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	---	---	---	---	< 0.0001	---	---	< 0.0001
U	mg/L	0.000157	0.000192	0.000137	0.000182	0.000179	---	---	---	---	0.00124	---	---	0.000157
V	mg/L	0.00047	0.00029	0.00026	0.00020	0.00024	---	---	---	---	0.00017	---	---	0.00047
W	mg/L	0.00055	0.00052	0.00040	0.00043	0.00040	---	---	---	---	0.00034	---	---	0.00055
Y	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	---	---	---	---	< 0.00002	---	---	< 0.00002
Zn	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	---	---	---	---	< 0.002	---	---	< 0.002

Note: #N/A=assay results pending.