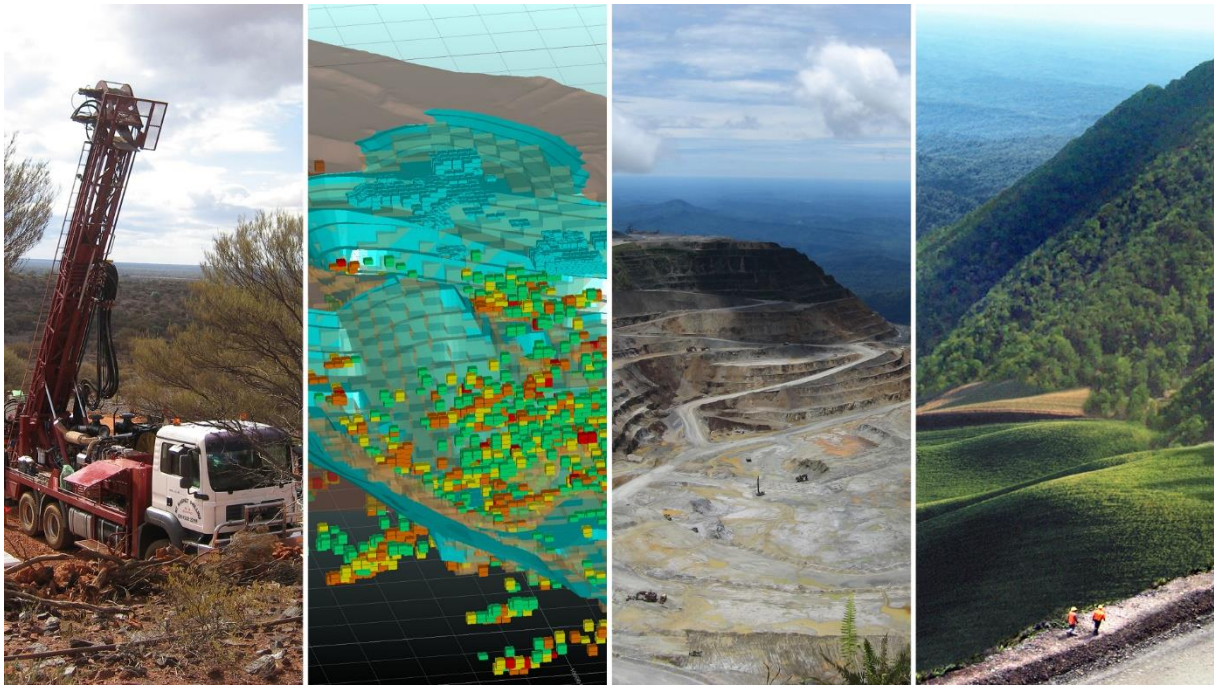
Final

Hemi Gold Project DFS – Geochemical Supplementary Leach Testing Program

Hemi Gold Project, Western Australia, Australia
De Grey Mining Ltd



SRK Consulting (Australasia) Pty Ltd ▪ DEG003 ▪ 18 October 2023

srk consulting

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Hemi Gold Project, Western Australia, Australia

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Contents

Tables

Figures

Appendices

Useful Definitions

This list contains definitions of symbols, units, abbreviations, and terminology that may be unfamiliar to the reader.

µS/cm	microsiemens per centimetre
ABA	Acid Base Accounting
AMD	Acid Metalliferous Drainage
ANC	acid neutralisation capacity
ASX:DEG	Australian Securities Exchange
BLSH	Black Shale
CIL	Carbon in leach
CRS	chromium reducible sulfur
De Grey	De Grey Mining Ltd
DI	Deionised
EPA	Environmental Protection Authority
FIRK	Felsic Intrusive
Hemi	Hemi Gold Project
IIRK	Intermediate Intrusive
IOR	intrinsic oxidation rate
kg	kilograms
km^2	square kilometres
LEAF	leaching environmental assessment framework
m	metres
MEND	Mine Environment Neutral Drainage (program)
mg	milligrams
mg/L	milligrams per litre
MIRK	Mafic Intrusive
mL	millilitres
NAF	non-acid forming
NAG	Net Acid Generating
NAPP	net acid production potential
NMD	Neutral Metalliferous Drainage
PAF	potentially acid forming
PFS	Pre-Feasibility Study
POx	pressure oxidisation
S:L	solid to liquid ratio
SDST	Sandstone
SEM	Scanning Electron Microscopy
SLST	Siltstone

SRK	SRK Consulting (Australasia) Pty Ltd
TDS	Total Dissolved Solids
TSF	Tailings Storage Facilities
UC	uncertain
WAD	weak acid dissociable
WRL	waste rock landform
wt	weight tonnes
XRD	X-Ray Diffraction

Executive Summary

Background

In 2021, De Grey Mining Ltd (De Grey) commissioned SRK Consulting (Australasia) Pty Ltd (SRK) to complete a sub-surface materials characterisation program as an input to the scoping and feasibility studies for the Hemi Gold Project (Hemi).

A desktop geochemical assessment (Phase 0[1]) was undertaken in support of the Hemi scoping study (SRK, June 2021). A sub-surface materials characterisation program (Phases 1 and 2[1]) incorporating a static geochemical laboratory program commenced in October 2021 as an input to the Hemi pre-feasibility study (PFS) (SRK, 2022).

Based on the results of the *Hemi sub-surface materials characterisation assessment* (SRK, 2022), a subset of samples were selected for further assessment in a kinetic testwork and supplemental static leach program (Phases 3 and 4[1]), which was designed to provide data that can be used in subsequent water quality assessments and support operational and closure planning. This assessment was undertaken in support of the Hemi detailed feasibility study (DFS) and subsequent project implementation.

Supplementary leach testing program overview

Fourteen waste rock samples were selected for free-draining column leach tests. Column operating conditions were designed to generate data suitable to quantify rates of sulfide oxidation rates and solute release. Of 14 columns, 11 produced stable leach solute conditions within 12 months and have been terminated. The test durations of three columns were extended and are still operational, with results available for 13 leach events (52 weeks' operation) per column.

The supplemental leach program also included study of a tailings sample, generated as part of the Hemi PFS metallurgical program to represent the final tailings to be deposited. The tailings sample contained negligible sulfide sulfur (<0.02 wt%) and was submitted for a multi-step leach test involving 10 successive bottle roll leach events. This report documents the available results from the leach program.

At the time of report preparation, three columns and the multi-step bottle roll testing involving the tailings were still operational. An addendum report will be prepared once the kinetic column and multi-leach testwork has been completed and further characterisation of residual column materials has also been undertaken.

Free-draining AMIRA kinetic column test results (waste rock samples)

The following conclusions have been made based on assessment of the kinetic dataset obtained to-date (with three columns remaining operational):

[1] An overview of the phased approach used for sub-surface materials characterisation assessment is given in Section 1.

- The evolution of leachate pH in most tests is consistent with sample classification, and all non-acid forming (NAF) classed samples have consistently resulted in circum-neutral pH solutions.
- However, currently, the pH of the leachate solutions obtained from the potentially acid forming (PAF) (BLSH_8) and PAF-LC (SDST_1) samples also remain circum-neutral (having completed 13 leach events).
- The stable sulfate release rates, which are interpreted as indicative of sulfide oxidation rates, range between 1 mg/kg/week and 14 mg/kg/week (BLSH_8). These rates are lower than anticipated given the sulfide contents of the samples (0.046–0.79% sulfide sulfur).
- Neutralisation in the tests may include reaction of both carbonates and silicates. Silicates usually react too slowly to be effective contributors to acid neutralisation capacity (ANC). However, in the case of these samples, due to the slow rates of oxidation and acid generation, it is inferred that the role of silicates may be significant.
- To-date, the leachate solutions from all the columns have remained at circum-neutral pH. Calculated times for sulfide contents to be depleted are long (up to 270 years). If the slow rates of sulfide oxidation (and acid generation) are verified, and neutralisation from silicate minerals is effective, the risks of acid metalliferous drainage (AMD) and neutral metalliferous drainage (NMD) may be lower than previously assessed.
- Dissolved leachate concentrations of many trace metals were close to or below detection limits.
- There were some exceptions in leachates from a subset of the columns where trace element concentrations were readily detectable, most notably As, which is not unexpected given the geology and the likely presence of arsenopyrite within the sulfide minerals.

Multi-step deionised leach test (tailings solid sample)

These conclusions are provided based on the available dataset from seven leach events (with a further three leach events to be completed):

- The pH of the leachates from the multi-step leach test were circum-neutral over the duration of the test to-date – three more leach cycles are still to take place.
- Most major and minor parameters show trends indicating the progressive leaching and depletion of readily soluble salts from the sample, i.e. higher dissolved concentrations in the first few leach cycles.
- There are some exceptions – for example, increasing concentration trends for Al, As, Mn (from the second leach event) and Si in successive leach events. Such trends may suggest changes (increases) in solubility or desorption during the test – possibly in response to changes in the solution composition, e.g. decreasing ionic strength.
- Total cyanide concentrations decreased from 1.2 mg/L in the first leachate solution to 0.12 mg/L in the sixth and seventh leachate solution, i.e. showed a trend of progressive leaching. Detectable concentrations of free cyanide (0.009 mg/L) and weak acid dissociable (WAD) cyanide (0.011 mg/L) were only measured in the first leach solution.

Recommended geochemical and water quality assessment forward works

- Further assessment is required as further kinetic data are obtained from the ongoing (3) columns and further tailings (and other metallurgical program samples) are characterised.
- Further investigation of the low sulfate release rates calculated is required – this should include intrinsic oxidation rate (IOR) measurements to verify sulfide oxidation rates, along with QEMSCAN and Scanning Electron Microscopy (SEM) analysis of residual column samples.
- Following completion of the kinetic column program and associated testwork on residual column samples, the dataset should be used to further develop waste rock classification criteria that can be incorporated into the Hemi mining block model to ensure appropriate waste rock management. If IOR measurements corroborate the sulfide oxidation rates calculated based on the sulfate release measured in the column solutions, it may be justified to revisit the previous geochemical classifications of waste rock at Hemi (SRK, 2022).
- A cyanide degradation assessment should be undertaken to assess the likely degradation of cyanide species in decant water present on the surface of the tailings storage facility (TSF) during operations. This assessment would subsequently be used as an input to TSF seepage and water quality assessments (for both operational and post-closure periods).
- Waste rock landform (WRL) and TSF seepage and water quality assessments should be completed to inform environmental risk assessments and environmental approvals, along with operational and closure planning. The assessments would require developing contaminant source terms from the laboratory-derived datasets, taking into account anticipated geochemical conditions within the full-scale landforms.

1 Introduction

De Grey has engaged SRK to complete a sub-surface materials characterisation program as an input to the Hemi Deposit DFS for the Hemi Gold Project.

The characterisation program has included testwork to evaluate the geochemical and mineralogical properties of waste rock and tailings that may be generated by the Hemi Gold Project. Static test results are documented in *Hemi Deposits – Sub-surface Materials Characterisation, Hemi Gold Project*, SRK (September 2022). The current report describes outcomes from an ongoing kinetic and supplemental leach testing program, designed to furnish the data required for subsequent water quality assessments to support operational and closure planning.

Report structure

This report documents all results from the long-term kinetic leach tests (waste rock samples) and the supplementary multi-step leach testwork (tailings). The report layout is as follows:

- Section 2 provides a brief description of project background and a summary of outcomes from the static geochemical characterisation work presented in the earlier report (SRK, 2022).
- Section 3 outlines the laboratory methods used in this supplemental leach program, the operational status of the tests and the parameters analysed.
- Section 4 presents the results of the supplementary leach program, including the outcomes of the kinetic column data collected to-date for the waste rock samples, and the outcomes of the multi-step leach test method underway on the tailings sample.
- Section 5 presents SRK's conclusions.
- Section 6 provides SRK's recommendations, including forward works recommendations for outstanding or further testwork to support the supplemental leach program and subsequent water quality assessments.

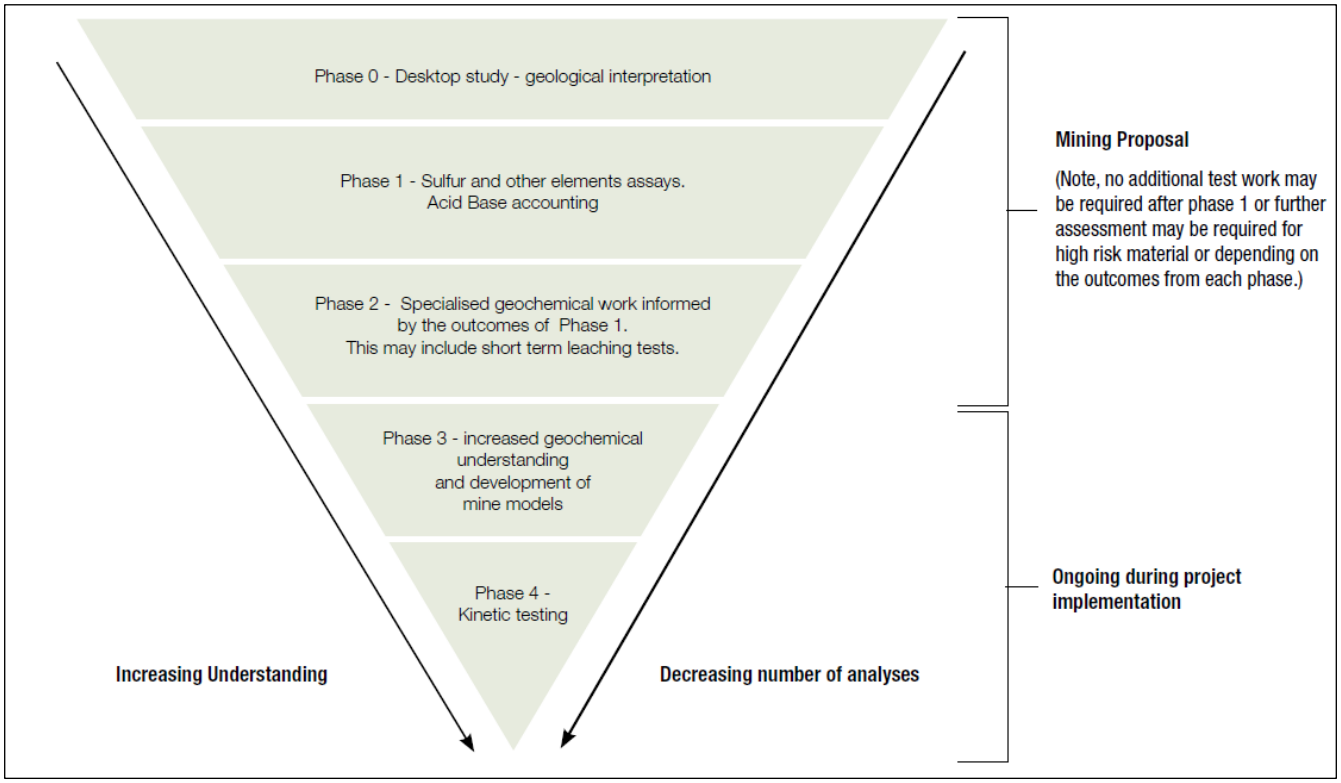
Geochemical assessment approach overview

The typical phases of a geochemical assessment to support mining feasibility studies and project implementation are illustrated in Figure 1.1.

An initial study assessed the available in-pit geological database assay data (Phase 0 to Phase 1) was completed in support of the Hemi scoping study (SRK, 2021). A sub-surface materials characterisation assessment, which focussed on Phase 1 and Phase 2 testing of waste rock, ore and tailings, was undertaken in support of the Hemi PFS (SRK, 2022).

The supplementary leach testing assessment presented herein is equivalent to a Phase 3–Phase 4 assessment (Figure 1.1).

Figure 1.1: Phases of a sub-surface geochemical characterisation



Source: DMP (2016)

2 Background

2.1 Hemi Gold Project

De Grey, a Western Australian based mining company listed on the Australian Securities Exchange (ASX:DEG) is seeking to develop the Hemi Gold Project in the Pilbara region of Western Australia, some 85 km south of the regional hub of Port Hedland.

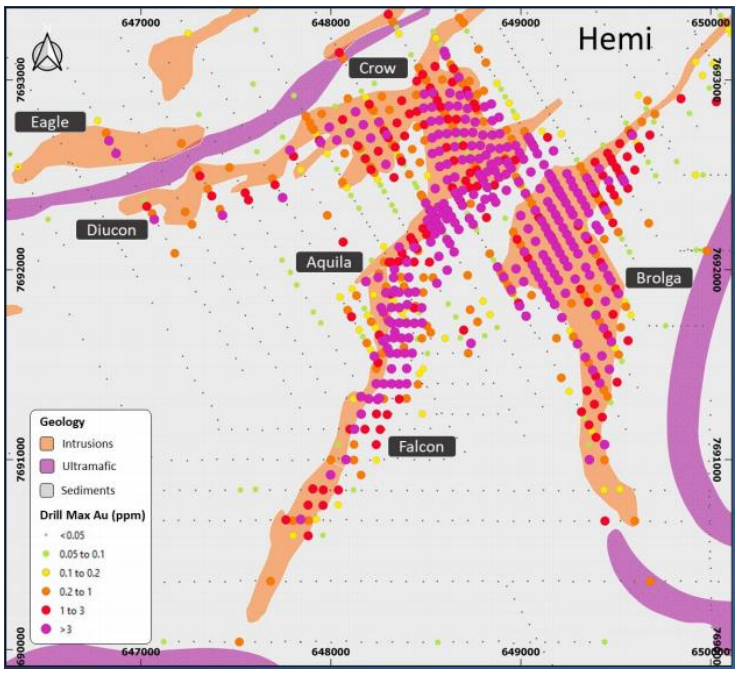
The Project is of a scale that places it in Tier 1 category for gold mine developments. The Project consists of six deposits: Aquila, Brolga, Crow, Diucon, Eagle and Falcon, collectively known as the Hemi deposits. Although the Hemi deposits will provide ore for the Project over a mine life in excess of 10 years, there is also potential for additional resources from regional deposits that may, subject to the outcomes of further studies, be processed at the Hemi processing facility.

2.2 Geological setting

The Hemi deposits are located in the central area of the Hemi Gold Project (Figure 2.1). The gold mineralisation at Hemi is hosted in a series of intrusives associated with stringer and disseminated sulfide rich zones. The Hemi deposits comprise six main zones – Aquila, Brolga, Crow, Diucon, Eagle and Falcon (Figure 2.1) – with mineralisation defined over an approximate 3.5 km^2 area, to depths of up to 500 m. The mineralisation typically occurs below 30–40 m of transported cover.

The main lithologies intercepted by the proposed Hemi pit shell include intrusives (mafic, intermediate and felsic), sedimentary units (siltstone, sandstone, shale and black shale) and transported cover (predominantly comprising alluvium). The proposed pits extend to depths of around 325 m below ground level and intercept oxide, transitional and fresh rock.

Figure 2.1: Hemi deposits



2.3 Static geochemical characterisation program results summary

A summary of the static geochemical characterisation results is provided in the following sections. The full results can be found in the SRK (2022) report.

2.3.1 Waste rock

Results from acid base accounting and net acid generation (NAG) testwork indicated that the bulk of the waste rock samples assessed (95%; 390 samples) did not pose a risk of AMD, recording negative net acid production potential (NAPP) and near neutral or alkaline NAG pH results. Most samples were classed as NAF or uncertain (UC[NAF]). A small proportion of the NAF samples (<20%) contained significant sulfide content and may pose a risk of saline drainage or NMD if not managed appropriately.

A small proportion of samples (<5%; 18 samples) were classed as PAF. These include samples from the black shale (BLSH; 4 samples), intermediate intrusive (IIRK; 3 samples), mafic intrusive (MIRK; 1 sample), sandstone (SDST; 1 sample), shale (SHLE; 2 samples) and siltstone (SLST; 7 samples) waste rock lithologies. PAF materials could pose a risk of AMD if not managed appropriately.

2.3.2 Tailings

The final (cyanide leach) tailing solids are classified as NAF with the potential to generate NMD. The total sulfur content of the tailings was 0.48%, which was dominated by sulfate-sulfur, with only 0.022% sulfide sulfur, based on the Chromium Reducible Sulfur (CRS) test method.

Deionised (DI) water leach testing with the final tailings generated alkaline (pH 8), moderately saline (2,400 µS/cm) leachates, with notable concentrations of cyanide (total, free WAD), Ag, As, Co, Cu, Fe and Ni.

The tailings supernatant was also alkaline (pH 9.4) with moderate salinity (EC of 3,700 µS/cm), and the major ion chemistry was dominated by sulfate and calcium. Cyanide species were present in elevated concentrations (compared to relevant water quality guideline values) along with several trace metals including Ag, As, Cd, Co, Cu, Ni and Zn.

It is noted that the products generated from the metallurgical program are anticipated to have higher cyanide concentrations than the tailings slurry components that would be deposited in the TSF, as these benchtop materials have not been subjected to degradation (i.e. by UV radiation).

3 Supplemental leach testwork program

3.1 Methods

3.1.1 Free-draining AMIRA kinetic column leach tests

The columns were set up and operated in accordance with the methodology outlined in the AMIRA test handbook (AMIRA, 2002).

In summary, the AMIRA method involves placing a sample of crushed rock on a mesh in a free draining container and subjecting it to periodic irrigation with a known volume of DI water. The leachate that drains from the sample is collected and analysed following each irrigation cycle.

The method has developed specifically to measure sulfide oxidation rates. Between irrigation events, the samples are maintained in a moist, aerated condition and it is expected that sulfides present will oxidise. Such oxidation will result in accumulation of sulfate, iron and other metals as reaction products. Regular irrigation flushes soluble reaction products from the sample. By monitoring the chemical composition of leachates as a function of time, it is possible to estimate key reaction rates.

The objectives of kinetic testing are to measure:

1. the rate of sulfide oxidation and hence acid production
2. the concurrent rate of acid neutralisation
3. solute release rates.

Results may be used to predict the time to consumption of the acid generating and acid neutralising minerals, providing an indication of whether or not acidic conditions could develop in the future.

AMIRA kinetic columns involved Buchner funnels (diameter of 17 cm and an approximate sample depth of 7 cm) and contained 2 kg of sample. The columns were irrigated at a rate of 800 mL every 4 weeks[2] to ensure that sufficient solution would be generated to allow an extended-suite water analysis to be undertaken. The water was applied (by hand) evenly over the entire surface of the sample. These operational conditions were designed to ensure maximum contact between the water and the sample. The AMIRA column set-up used in the program is shown in Figure 3.1.

The scale of the test, combined with the operating conditions, leads to the expectation that soluble reaction products will be flushed entirely from the column during each irrigation event. The resulting leachate chemistries should therefore give an accurate measure of the rate at which those reaction products are accumulating in the column. In the case of less soluble reaction products, some mass will be retained within the column, as dictated by the solubility of the mineral(s) concerned.

[2] A higher volume (1,200 mL) was used to irrigate the column of sample SLST-14 to ensure sufficient volume of recovered solution.

Figure 3.1: Photograph showing the kinetic (AMIRA) column setup

3.1.2 Multi-step leach testwork

This test involves subjecting a sample to a series of up to 10 leach cycles using a bottle roll procedure. Unlike the column leach method, there is no delay between leach cycles; therefore, the test duration is considerably shorter. The test is suitable for samples with low sulfide sulfur content (i.e. no requirement to measure oxidation rates). The aim of the test is to assess how the leaching behaviour varies with successive leaching cycles.

Each leach cycle involves the addition of DI water at an L:S ratio of 2:1. The leachate is filtered using a 0.2 µm filter. The mass of the sample after each successive leach cycle is recorded to allow calculations of losses of sample mass as a result of the filtering process completed following each leach event.

3.2 Test matrix

The samples assessed, methodologies used and data available for reporting in this supplemental leach program are summarised in the test matrix shown in Table 3.1.

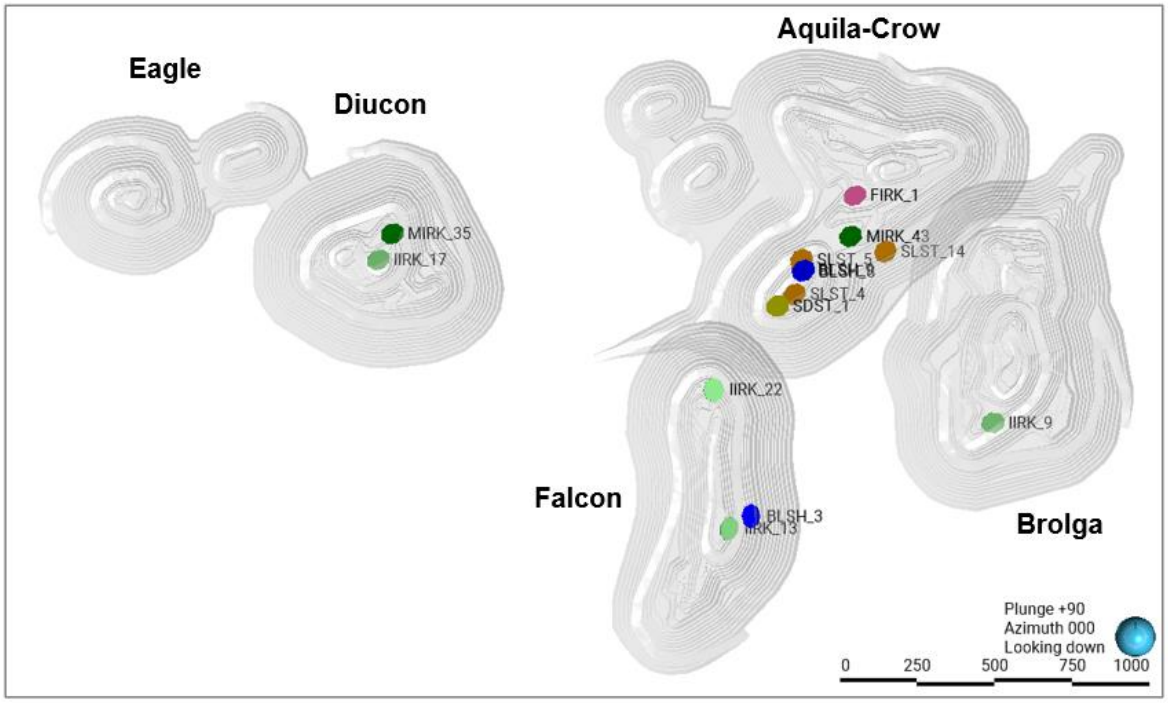
Free-draining AMIRA columns

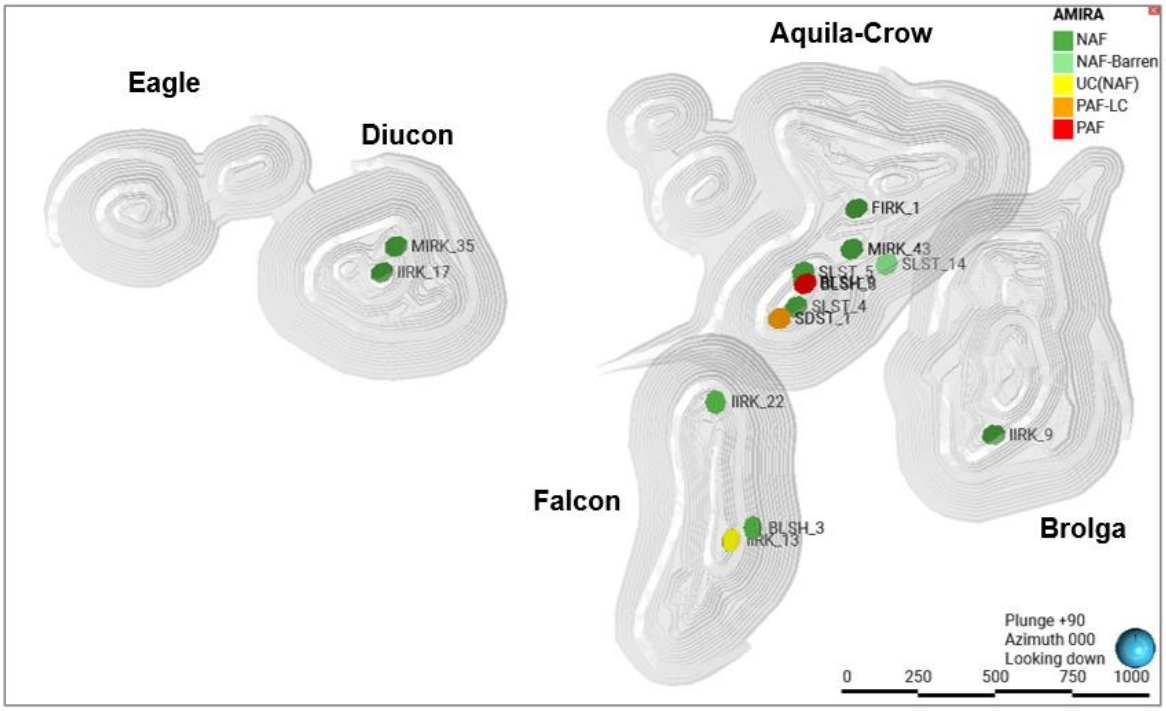
Fourteen waste rock samples were tested. The samples were selected to cover a range of lithologies, sulfide contents and sample geochemical classifications. The locations of the waste rock intervals selected for AMIRA columns are shown in Figure 3.2.

The samples were submitted in two batches as summarised in the test matrix (Table 3.1). The first five samples (batch one) were submitted for kinetic column testing in January 2022 and have been subject to 12 (4-weekly) leach events. The last leach event (12th leach event; week 48) took place on January 2023 and all data have been received and processed.

A further nine samples (batch two) were submitted for testing in May 2022. Seven of these columns have had twelve leach events each completed prior to terminating the columns in April 2023. Three columns have not yet generated stable leach solution results and are still operational, with the results of 13 leach events reported by the laboratory and included in this report.

Figure 3.2: Locations of waste rock samples selected for AMIRA columns – shown by (a) lithology and sample ID and (b) geochemical classifications





Multi-step deionised leach test

A multi-step DI water leach test was performed on the tailings solid sample (*A23317 BK17532)*. A new sub-sample was provided for testing, and results from characterisation of the new sample are discussed in Section 1265240128.478.544084801.

The results of seven consecutive DI water leaches are presented in this report, with 3 further leach events still to be completed. The test was carried out on a split of the “as-received” tailings solid sample (i.e. not pulverised).

Table 3.1: Supplemental leach testwork program test matrix

Test method	Sample ID	Pit	Oxidation class	Column test batch	Leach events completed	From	To	Operational or terminated
AMIRA column test – waste rock samples	BLSH_3	FALCON	FR	1	12	Jan-2022	Dec-2022	Terminated
	FIRK_1	AQUILA	FR	1	12	Jan-2022	Dec-2022	Terminated
	IIRK_13	FALCON	FR	1	12	Jan-2022	Dec-2022	Terminated
	MIRK_35	DIUCON	FR	1	12	Jan-2022	Dec-2022	Terminated
	SLST_5	AQUILA	FR	1	12	Jan-2022	Dec-2022	Terminated
	BLSH_8	AQUILA	POx	2	13	May-2022	Ongoing	Operational
	BLSH_9	AQUILA	POx	2	12	May-2022	Ongoing	Operational
	IIRK_9	BROLGA	FR	2	12	May-2022	April-2023	Terminated
	IIRK_17	DIUCON	FR	2	12	May-2022	April-2023	Terminated
	IIRK_22	FALCON	POx	2	12	May-2022	April-2023	Terminated
	MIRK_43	AQUILA	POx	2	12	May-2022	April-2023	Terminated
	SDST_1	AQUILA	FR	2	13	May-2022	Ongoing	Operational
	SLST_4	AQUILA	FR	2	12	May-2022	April-2023	Terminated
	SLST_14	AQUILA	POx	2	12	May-2022	April-2023	Terminated
Multi-step DI leach – tailings solid sample	Tailings solid (*A23317 BK17532)*	BROLGA	–	–	7 of 10	March-2023	Ongoing	Operational

Note: Further leachate solutions from columns BLSH_8, BLSH_9 and SDST_1 have been collected and laboratory results are pending.

3.3 Analytes

The parameters analysed as part of this program are summarised in Table 3.2.

Table 3.2: Parameters analysed in supplementary leach program

Test method	Suites of analytical parameters	
AMIRA column tests	Physio-chemical and major ions	pH, EC, SO_4, Cl, F, alkalinity (total alkalinity, OH, HCO_3 and $CaCO_3$), acidity, ionic balance, hardness
	Minor and trace elements, nutrients	Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Fe, Ga, Ge, Hf, Hg, In, La, Li, K, Mg, Mn, Mo, Na, Ni, Nb, P, Pb, Rb, Re, Sb, Sc, Se, Si, Sn, Sr, Ta, Te, Tl, Th, Ti, Tl, U, V, W, Y, Zn, Zr
AMIRA column tests	Speciated analytes (select leach samples only)	As (III)/As (V) (select leach events only – results pending)
Multi-step DI leach test	Physio-chemical and major ions	pH, EC, SO_4, Cl, F, alkalinity (total alkalinity, OH, HCO_3 and $CaCO_3$), acidity
	Minor and trace elements, nutrients	Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Fe, Ga, Ge, Hf, Hg, In, La, Li, K, Mg, Mn, Mo, Na, Ni, Nb, P, Pb, Rb, Re, Sb, Sc, Se, Si, Sn, Sr, Ta, Te, Tl, Th, Ti, Tl, U, V, Y, Zn, Zr, Total N, TKN, NOx-N, nitrate (as N), nitrite (as N), ammonium (as N), P, total cyanide, free cyanide, WAD cyanide, thiocyanate (SCN)
	Speciated analytes	Fe^{2+}/Fe^{3+} (all leach events) As (III)/As (V) (select leach events only – 1 and 4) Metal cyanide complexes (Cr, Co, Cu, Au, Fe^{3+}, Fe^{2+}, Ni, Ag; select leach events only – 1 and 2)

3.4 Sample characteristics

3.4.1 Waste rock samples

Mineralogy

The mineralogical assessment carried out on the samples selected for column testing used powder x-ray diffraction (XRD) to identify the primary mineral phases. The procedure included the addition of an internal standard (corundum) to allow quantification of the phases identified. A summary is provided in Table 3.3.

The assessment indicates that the majority of the sulfur is present in the waste rock samples as sulfide (predominantly pyrite[3]), with limited sulfur present as sulfate minerals (<0.1%) such as gypsum.

Carbonates were present in most samples in the form of acid neutralising calcite and/or dolomite. Other carbonate minerals present in the samples include ankerite, magnesite or siderite; however, these minerals are either less effective (ankerite/magnesite), or not effective (siderite) in contributing to the ANC of the samples.

Acid base accounting and net acid generation

Table 3.4 provides a brief summary of static test results for the waste rock samples, including acid base accounting (ABA) and NAG testing, as well as the sample classification.

The total sulfur contents of the samples selected for the AMIRA columns range from 0.066 to 1.4%S, with sulfide sulfur contents of 0.048–0.79% (accounting for 54–91% of the total sulfur content). ANC values range from 5.7 to 130 kg H_2SO_4/t.

The NAG test results for these samples were typically generated circum-neutral to alkaline NAG liquors (NAG pH 6.4 to 11.3), with two samples generating acidic solutions (BLSH_8, NAG pH 3.6) and SDST_1 (NAG pH 3.8).

The sample set includes a range of geochemical classifications. The samples include NAF (11 samples), UC(NAF) (1 sample), PAF-LC (1 sample) and PAF (1 sample).

[3] It is likely that small amounts of arsenopyrite and pyrrhotite may also be present in the samples, below x-ray diffraction limits of detection (<0.5% and <1%).

Table 3.3: Summary of quantitative x-ray diffraction analyses for selected supplementary leach program samples

Mineral	Mineral Group	Waste rock samples													Tailings solid (cyanide leach A23317 BK17532)
		BLSH_3	BLSH_8	BLSH_9	FIRK_1	IIRK_13	IIRK_9	IIRK_17	IIRK_22	MIRK_35	MIRK_43	SDST_1	SLST_14	SLST_4	SLST_5	
Pyrite	Sulfides	<0.5	1	<0.5	1	1	1			<0.5				<0.5	<0.5	
Pyrrhotite							<0.5									Trace
Arsenopyrite																Trace
Gypsum	Sulfates															3
Ankerite	Carbonates							7	2			1				
Calcite		3					4	1		1		2	1	2		3
Dolomite					6					4				7	<0.5	
Magnesite											5					
Siderite		<0.5	2	9	1			3	<0.5	1	10	2	2		1	
Halite	Halides		1	1									1		1	
Chlorite	Silicates and aluminosilicates	23	54	28	5	3	5			10	35			36	25	
Illite/Muscovite		11	12	24	3	2	1	12	7	5	11	11	15	16	4	5
Clinochlore								2	17			33	43			12
Kaolin			3	1							5					
Palygorskite							<0.5									
Potassium Feldspar/Microline		2	2		5	14	10	2	7	2	9	2	3	1	1	7
Pyroxene			<0.5													
Quartz		34	20	27	9	13	24	16	20	14	16	28	28	16	21	16
Sodium Plagioclase/Albite		25	4	3	67	66	46	50	43	62	7	7	4	19	45	50
Stilpnomelane																1
Talc								1								
12A Clay							1									
Magnetite	Iron oxides and hydroxides						1									
Goethite							1									
Hematite					<0.5		<0.5	1	<0.5						<0.5	
Amorphous content		2	2	6	4	1	6	5	4	2	3	15	4	3	2	4

Table 3.4: Summary of acid base accounting results for selected supplementary leach program samples

Sample ID	Pit	Oxidation class	S (LECO)	SO_4-S	CRS	MPA	AP	ANC	CarbNP	NAG pH	NAG pH7	NAPP	Classification
			%	%	%	kgH_2SO_4/t				pH units	kgH_2SO_4/t		AMIRA
BLSH_3	Falcon	FR	0.2	0.01	0.18	6.12	5.8	73	58.0	11.3	<0.5	-66.9	NAF
BLSH_8	Aquila	POx	0.69	0.04	0.54	21.1	19.9	7.1	9.0	3.6	15	14	PAF
BLSH_9	Aquila	POx	0.12	0.01	0.1	3.67	3.5	6.5	0.0	8.2	<0.5	-2.8	PAF-LC
FIRK_1	Aquila	FR	0.94	0.01	0.51	28.8	28.4	130	196	9.2	<0.5	-101	NAF
IIRK_9	Brolga	FR	0.82	0.06	0.62	25.1	23.3	47.9	36.7	10.3	<0.5	-22.8	PAF-LC
IIRK_13	Falcon	FR	1.4	0.05	0.79	42.8	41.4	28.8	26.9	9.6	<0.5	14.0	UC (NAF)
IIRK_17	Diucon	FR	0.51	0.01	0.35	15.6	15.4	100	163	9.3	<0.5	-84.4	NAF
IIRK_22	Falcon	POx	0.49	0.02	0.42	15.0	14.5	39.8	0.0	9.4	<0.5	-24.8	NAF
MIRK_35	Diucon	FR	0.33	0.002	0.3	10.1	10.1	91	131	9.1	<0.5	-80.9	NAF
MIRK_43	Aquila	POx	0.25	0.01	0.2	7.65	7.3	27.1	147	8.1	<0.5	-19.5	NAF
SDST_1	Aquila	FR	0.21	0.01	0.17	6.43	6.1	5.7	0.0	3.8	3.0	0.7	PAF-LC
SLST_4	Aquila	FR	0.29	0.01	0.26	8.87	8.7	127	106	10.1	<0.5	-118	NAF
SLST_5	Aquila	FR	0.17	0.01	0.13	5.20	4.9	15.3	11.4	6.4	<0.5	-10.1	NAF
SLST_14	Aquila	POx	0.066	0.01	0.048	2.02	1.7	4.5	0.0	7.6	<0.5	-2.5	NAF
Tailings solid (cyanide leach A23317 BK17532)	Brolga – 2022 sub-sample[1]	–	0.48	0.4	0.022	14.7	0.67	56.3	41.6	9.8	<0.5	-41.6	NAF
	Brolga – 2023 sub-sample[2]	–	0.13	–	–	4.0	-	54.1	–	10.6	<0.5	<0.5	NAF

Notes: S – Sulfur by Leco analyser; SO_4 – Sulfate-sulfur; CarbNP – neutralising capacity calculated from total inorganic carbon; PAF-LC – PAF low capacity; FR – fresh; POx – transitional. All samples included in the kinetic column program were obtained from diamond drill hole core and crushed to obtain <10 mm particle sizes.

[1] Tailings sample provided as a slurry (2022).

[2] Tailings sample provided as a solid (2023).

Bulk chemistry

A number of elements were identified in the AMIRA column samples as being enriched relative to average crustal abundances. Table 3.5 gives a summary of the elements with concentrations above the Geochemical Abundance Indices (GAI) 3 threshold[4] in the subset of samples selected for AMIRA columns.

Table 3.5: Enriched elements present in the AMIRA column samples

Element		Ag	As	Bi	Cd	Pb	S	Sb	Se	Te	W
Units		mg/kg									
GAI 3 threshold		0.84	18	0.58	1.32	168	3,120	2.4	0.6	0.06	12
Sample ID	AMIRA class										
MIRK_43	NAF	0.5	96	*0.1*	0.2	8	2,900	2	1	*0.2*	17
FIRK_1	NAF	*0.5*	4100	*0.1*	0.8	22	9,900	3.8	2	*0.2*	44
SLST_5	NAF	*0.5*	400	0.2	0.4	30	2,300	1.6	2	*0.2*	12
IIRK_9	NAF	*0.5*	210	1.1	*0.2*	18	8,900	0.5	2	0.2	15
BLSH_3	NAF	*0.5*	25	0.2	*0.2*	14	2,700	1.2	2	*0.2*	2.2
IIRK_13	UC(NAF)	1	800	2.8	3.4	310	14,000	1.7	2	*0.2*	9.9
IIRK_22	NAF	0.5	150	0.6	0.8	85	5,700	1.5	2	*0.2*	11
IIRK_17	NAF	*0.5*	56	*0.1*	0.2	16	6,300	8.9	2	*0.2*	18
MIRK_35	NAF	*0.5*	54	*0.1*	0.2	10	4,200	1.9	2	*0.2*	10
BLSH_8	PAF	1	130	0.3	*0.2*	16	7300	2.4	1	*0.2*	7.4
BLSH_9	NAF	*0.5*	110	0.2	*0.2*	16	1400	1.8	1	*0.2*	4.8
SDST_1	PAF-LC	*0.5*	200	0.2	*0.2*	11	2500	1.8	*0.5*	0.2	5.7
SLST_14	NAF	1	24	0.2	*0.2*	16	720	0.2	*0.5*	*0.2*	3.7
SLST_4	NAF	*0.5*	220	0.3	*0.2*	8	3300	0.4	0.5	*0.2*	3.7

Note: Values highlighted in blue are above the GAI 3 threshold concentration.

3.4.2 Tailings solid sample

Mineralogical assessment of the tailings (Table 3.2) indicated that the sample contained trace amounts of arsenopyrite and pyrrhotite, gypsum (3%) and calcite (3%).

The total sulfur content was 0.48%, which was dominated by sulfate-sulfur, with only 0.022% sulfide sulfur (CRS) (Table 3.3). The ANC was 56.3 kg H_2SO_4/t, and the sample generated a NAG pH value of 9.8. The sample was classified as NAF with the potential to generate neutral metalliferous drainage.

[4] The GAI is a tool which provides a measure of geochemical enrichment relative to average crustal abundance (Bowen, 1979). The GAI (based on a log-2 scale) is expressed in seven integer increments (0–6). A GAI of 0 indicates that the content of the element is less than, or similar to, the average crustal abundance. A GAI of 3 corresponds to a 12-fold enrichment above the average crustal abundance and a GAI of 6 corresponds to a 96-fold, or greater, enrichment. Elements with a GAI value of 3 or more are generally considered to be enriched. The GAI 3 threshold is equivalent to 12 times the average crustal abundance.

Further characterisation has been completed on a new sub-sample of the same tailings batch. The results from this new sample are also summarised in Table 3.3. The sample classified as NAF, but the total sulfur content is noted to be lower (0.13 wt%S) relative to the 2022 sub-sample (0.48 wt%S). The higher sulfur content of the 2022 sample may be due to the presence of residual sulfate salts remaining from the supernatant (as the sample was supplied as a slurry), whereas the 2023 sub-sample was supplied as solids[5].

The total cyanide contents of the two tailings solid sub-samples are consistent; however, the WAD cyanide and free cyanide in the 2023 sample are below the analytical limit of detection (Table 3.6). It is likely that some degradation of these forms of cyanide has occurred during the storage of the sample.

The cyanide analysis results for supernatant and static leach test for the 2022 sub-sample are also given for reference in Table 3.7.

Table 3.6: Cyanide solids analyses (sample A23317 BK17532)

Sample type	Sub-sample batch provided	Sample ID	Total CN	Free CN	WAD CN
			mg/kg	mg/kg	mg/kg
Tailings slurry solid	2022	A23317 BK17532	12	6.2	8.3
Tailings solid	2023	A23317 BK17532	12	<0.5	<0.5

Table 3.7: Cyanide supernatant and static leach test results (sample A23317 BK17532)

Sample type	Sub-sample batch provided	Sample ID	Total CN	Free CN	WAD CN
			mg/L	mg/L	mg/L
Tailings slurry solid (1:3 S:L DI static leach test)	2022	A23317 BK17532	12	0.008	0.009
Tailings supernatant	2022	A23317 BK17532	65	39	51

[5] The sample had been stored as a slurry (following generation in 2022) but supplied as a solid sample in 2023.

4 Results

The full tabulated results from the AMIRA column tests and the multi-step DI leach testwork are provided Appendix A. Figures showing leachate solution concentrations for the AMIRA columns and the multi-step leach testwork are included in Appendix B and Appendix C, respectively.

4.1 Kinetic AMIRA column results

4.1.1 Overview of results

In most columns, the solute concentrations are highest in the first few leach cycles and decrease in subsequent cycles. These higher concentrations at early times often reflect leaching of readily soluble salts from the materials that were present in the samples prior to commencing testing. These solutes may be present as a result of saline porewater and/or as a result of oxidation and weathering that occurred either in situ before sampling or post-sampling during storage (i.e. the time interval between when the sample was obtained by drilling and when testing occurred – this period can span several months to several years).

For the majority of samples, the release rates became relatively stable between week 12 and week 36. This suggests that by this stage in the test, most of the pre-existing stored oxidation products and readily soluble salts had been flushed from the samples.

A summary of the average long-term release rates for each column is shown in Table 4.1 and Table 4.2. All columns generated circum-neutral leachates with average pH values between 6.5 and 7.9. Three columns remain in operation as stable leach solution conditions have not yet been reached (BLSH_8 and SDST_1). The geochemical classifications for these samples based on static testwork were PAF and PAF-LC, respectively. The most recent leach solution pH values for these columns were pH 6.3 (BLSH_8) and pH 6.6 (from the 13th leach event, or week 52 leach). The pH values have generally remained stable, with circum-neutral values over the duration of testing. The BLSH_8 shows a slight decreasing trend from pH 8.6 (first leach, week 4) to pH 6.3 (13th leach, week 52)

In general, solute release from the columns were low; the highest rate calculated (14 mg/kg/week) was for SO_4 release from sample BLSH_8. Release rates greater than 0.1 mg/kg/week included:

- SO_4, Cl, Ca, Mg, K and Na – majority of samples
- Si – in two samples: BLSH_8 (0.27 mg/kg/week) and SDST_1 (0.16 mg/kg/week).

Minor or trace element concentrations in leachates were often below limits of detection, suggesting that release rates were less than 0.01 µg/kg/week. However, release rates between 1 and 10 µg/kg/week were observed for some elements in at least some of the columns, including:

- Al (10 samples), As (8), Mn (8), N (13), P (11), Sr (14) and Zn (8) – more than half the samples
- Ba (6 samples), Co (2), F (1), Fe (1), Mo (1), Ni (2), Sb (1) and U (1)– between 1 and 6 of the samples.

Table 4.1: Summary of average release rates – pH, major ions and selected minor elements

Sample ID	Class	Week		Average pH[1]	SO_4	Cl	F	N	Al	Ca	Fe	Mg	P	K	Si	Na
	AMIRA	Stable	End		mg/kg/wk											
BLSH_3	NAF	20	48	7.1	1	0.14	0.007	0.014	0.0047	0.32	0.0007	0.05	0.0013	0.21	0.08	0.33
BLSH_8	PAF	–	52	6.5	14	0.53	0.096	0.009	0.0009	2.10	0.0015	1.66	0.0005	0.26	0.27	0.56
BLSH_9	PAF-LC	16	48	7.5	3	0.53	0.007	0.021	0.0007	0.44	0.0007	0.39	0.0242	0.30	0.10	1.18
FIRK_1	NAF	36	48	7.0	2	0.07	0.022	0.019	0.0036	0.33	0.0007	0.35	0.0022	0.10	0.04	0.24
IIRK_9	PAF-LC	16	48	7.1	1	0.18	0.011	0.015	0.0033	0.53	0.0007	0.05	0.0143	0.04	0.01	0.44
IIRK_13	UC (NAF)	36	48	6.7	4	0.07	0.007	0.017	0.0034	1.14	0.0007	0.24	0.0012	0.11	0.07	0.22
IIRK_17	NAF	16	48	7.2	2	0.11	0.008	0.014	0.0053	0.43	0.0008	0.34	0.0011	0.17	0.03	0.21
IIRK_22	NAF	12	48	7.0	6	0.21	0.008	0.018	0.0036	1.10	0.0008	0.47	0.0048	0.15	0.06	0.78
MIRK_35	NAF	36	48	7.1	1	0.07	0.007	0.019	0.0048	0.31	0.0007	0.11	0.0007	0.15	0.04	0.20
MIRK_43	NAF	32	48	7.9	5	0.42	0.011	0.007	0.0007	0.54	0.0006	1.26	0.0006	0.14	0.03	0.54
SDST_1	PAF-LC	-	52	6.7	5	0.14	0.006	0.011	0.0006	0.46	0.0006	0.62	0.0069	0.20	0.16	0.43
SLST_4	NAF	12	48	7.3	2	0.15	0.008	0.015	0.0107	0.58	0.0008	0.28	0.0021	0.22	0.05	0.27
SLST_5	NAF	24	48	6.9	2	0.29	0.008	0.014	0.0018	0.35	0.0008	0.20	0.0052	0.15	0.10	0.62
SLST_14	NAF	12	48	6.9	1	0.95	0.011	0.033	0.0016	0.18	0.0007	0.15	0.0011	0.11	0.03	0.86
Approximate LOD equivalent rate (or rate range)[2]					*0.08*	*0.08*	*0.006 –0.008*	*0.007*	*0.0006 –0.0007*	*0.04*	*0.0006 –0.0008*	*0.04*	*0.0005 – 0.0008*	*0.04*	*0.008*	*0.04*

Notes: LOD – limit of detection.

[1] Average pH calculated over the stabilised leach solution duration from hydrogen ion (H^+) concentrations.

[2] The LOD given in the table is approximate; as for the same analytical LOD, the calculated release rate can vary according to the volume of the leachate collected and the mass of solid in the column. Average release rates that are equivalent to the approximate limit of detection are shown in grey text.

Table 4.2: Summary of the average release rates – selected minor and trace elements

Sample ID	Class	Week		Average pH[1]	Ag	As	Ba	Cd	Cr	Co	Cu	Hg	Mn	Mo	Ni	Pb	Sb	Se	Sr	Th	U	V	Zn
	AMIRA	Stable	End		µg/kg/wk																		
BLSH_3	NAF	20	48	7.1	0.004	4.1	10.4	0.008	0.07	0.07	0.07	0.0035	0.67	0.32	0.07	0.07	0.18	0.07	2.3	0.04	0.04	0.14	1.2
BLSH_8	PAF	–	52	6.5	0.003	3.3	1.03	0.019	0.05	10.1	0.07	0.0026	91	0.19	82	0.05	0.26	0.14	21	0.03	0.03	0.05	4.0
BLSH_9	PAF-LC	16	48	7.5	0.004	173	0.52	0.007	0.07	0.07	0.07	0.0035	0.13	2.44	0.31	0.07	3.8	0.17	5.9	0.04	0.17	0.07	0.6
FIRK_1	NAF	36	48	7.0	0.004	3.4	7.85	0.007	0.07	0.07	0.07	0.0036	0.55	0.07	0.07	0.07	0.07	0.07	2.1	0.04	0.04	0.07	1.1
IIRK_9	PAF-LC	16	48	7.1	0.004	0.33	0.16	0.007	0.07	0.07	0.08	0.0037	5.96	0.13	0.07	0.07	0.07	0.07	4.0	0.04	0.04	0.07	0.40
IIRK_13	UC (NAF)	36	48	6.7	0.004	6.6	7.19	0.007	0.07	0.07	0.07	0.0036	0.24	0.41	0.07	0.07	0.07	0.07	6.2	0.04	0.04	0.07	2.4
IIRK_17	NAF	16	48	7.2	0.004	0.43	0.11	0.008	0.08	0.08	0.08	0.0040	1.34	0.26	0.08	0.08	0.61	0.08	2.8	0.04	0.04	0.08	0.30
IIRK_22	NAF	12	48	7.0	0.004	0.64	0.27	0.008	0.08	0.08	0.07	0.0038	2.36	0.34	0.08	0.08	0.08	0.18	6.9	0.04	0.04	0.08	0.42
MIRK_35	NAF	36	48	7.1	0.004	0.31	7.88	0.007	0.07	0.07	0.07	0.0036	1.39	0.12	0.07	0.07	0.07	0.07	2.7	0.04	0.04	0.07	1.2
MIRK_43	NAF	32	48	7.9	0.003	0.14	0.06	0.006	0.06	0.06	0.06	0.0042	1.43	0.22	0.06	0.06	0.06	0.06	2.4	0.03	1.12	0.06	1.0
SDST_1	PAF-LC	-	52	6.7	0.003	79	0.22	0.006	0.06	3.42	0.06	0.0032	22	0.28	1	0.06	0.32	0.06	6.2	0.03	0.03	0.06	1.8
SLST_4	NAF	12	48	7.3	0.004	10.6	0.15	0.008	0.08	0.08	0.08	0.0038	1.14	0.12	0.08	0.08	0.16	0.08	3.4	0.04	0.04	0.11	0.41
SLST_5	NAF	24	48	6.9	0.004	32	7.64	0.008	0.08	0.08	0.08	0.0038	0.16	0.75	0.09	0.08	0.71	0.08	3.2	0.04	0.08	0.08	1.8
SLST_14	NAF	12	48	6.9	0.004	0.30	0.28	0.007	0.07	0.07	0.07	0.0037	0.12	0.10	0.07	0.07	0.07	0.08	2.0	0.04	0.05	0.07	0.10
Approximate LOD equivalent rate (or rate range)[2]					*0.003–0.004*	*0.08*	*0.08*	*0.006 –0.008*	*0.05 - 0.08*	*0.06 - 0.08*	*0.06 –0.08*	*0.0026 –0.0038*	*0.08*	*0.08*	*0.06 –0.08*	*0.05 - 0.08*	*0.06 –0.08*	*0.06 –0.08*	*0.08*	*0.03 –0.04*	*0.03 –0.05*	*0.05 - 0.08*	*0.08*

Notes:

[1] Average pH calculated from hydrogen ion (H^+) concentrations over the stabilised leach solution duration.

[2] The LOD given in the table is approximate; as for the same analytical LOD, the calculated release rate can vary according to the volume of the leachate collected and the mass of solid in the column. Average release rates that are equivalent to the approximate limit of detection are shown in grey text.

4.1.2 Sulfate release rates

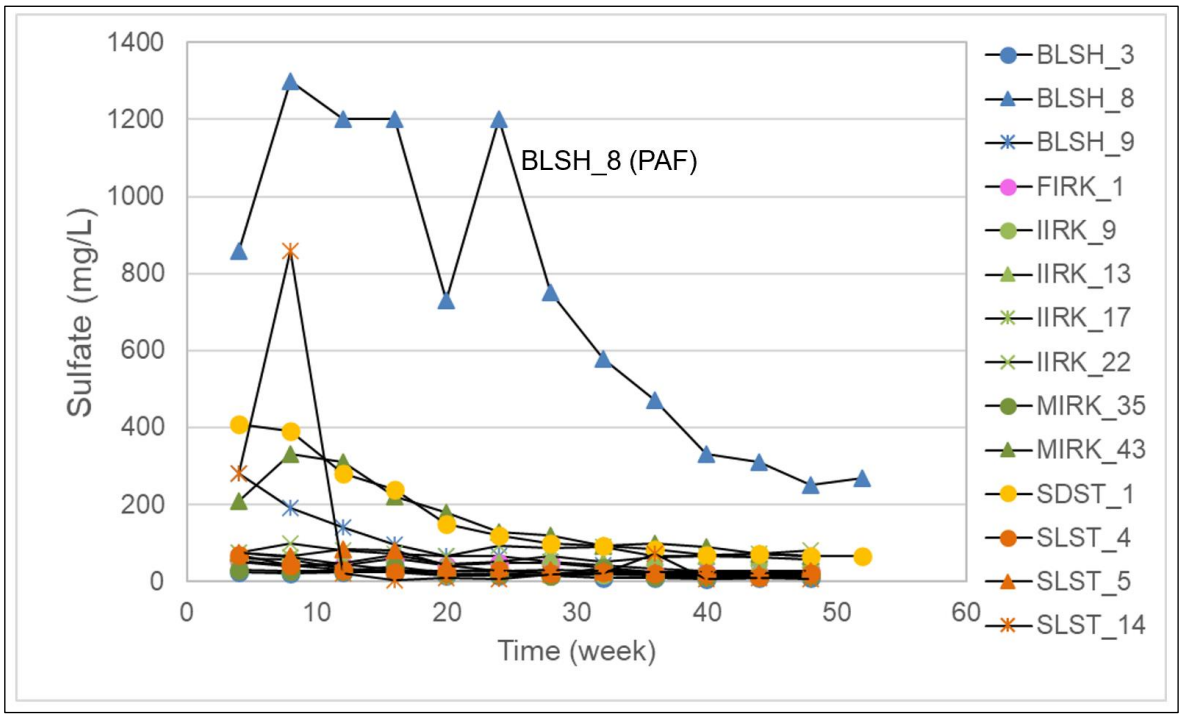
Figure 4.1 shows the concentration of sulfate as a function of time for all leachate solutions from the 14 column tests. Most of the column results show that sulfate concentrations are typically below 100 mg/L per leach event and are decreasing with time. In later leachates, when stable conditions appear to have been reached, the calculated sulfate release rates are typically low (<10 mg/kg/week).

The highest sulfate concentrations were observed in the leachate solutions from the BLSH_8 sample (classed as PAF), and leachate trends have not yet stabilised. The sulfate concentrations obtained in the leachates from this sample peaked at 1,300 mg/L (leach event 2) and have dropped to around 270 mg/L (leach event 13).

A high sulfate concentration was present in the second leachate obtained from SLST_14 (860 mg/L). Recent leach solutions have much lower concentrations (mean 18 mg/L), and the leachate trends has now stabilised.

The long-term sulfate release rates (following the onset of stable column conditions) are shown in Table 4.3), ranging from 1 mg/kg/week to 14 mg/kg/week. These rates are lower than anticipated given the sulfide contents of the samples (up to 0.79% sulfide sulfur). The highest release rate (14 mg/kg/week) was calculated for the BLSH_8 sample. The IIRK_22, SDST_1 and MIRK_43 samples have calculated release rates of between 5 and 6 mg/kg/week; the remaining columns have rates below 5 mg/kg/week.

Figure 4.1: Sulfate concentrations in leachate solutions from AMIRA columns



Sulfate release rates from kinetic columns can be used to infer sulfide oxidation rates assuming that no other geochemical processes increase or decrease sulfate concentrations in the leachates (e.g. dissolution or precipitation of sulfate minerals such as gypsum).

There is limited evidence that the sulfate minerals (e.g. gypsum) control leachate chemistry during the early parts of the tests. Gypsum was undersaturated in all of the column leachates and sulfate concentrations were also below saturation with respect to other sulfate minerals such as jarosite and alunite. Thus, sulfate concentrations in leachate solutions are unlikely to be influenced by precipitation of sulfate minerals and can be assumed to be indicative of sulfide oxidation rates.

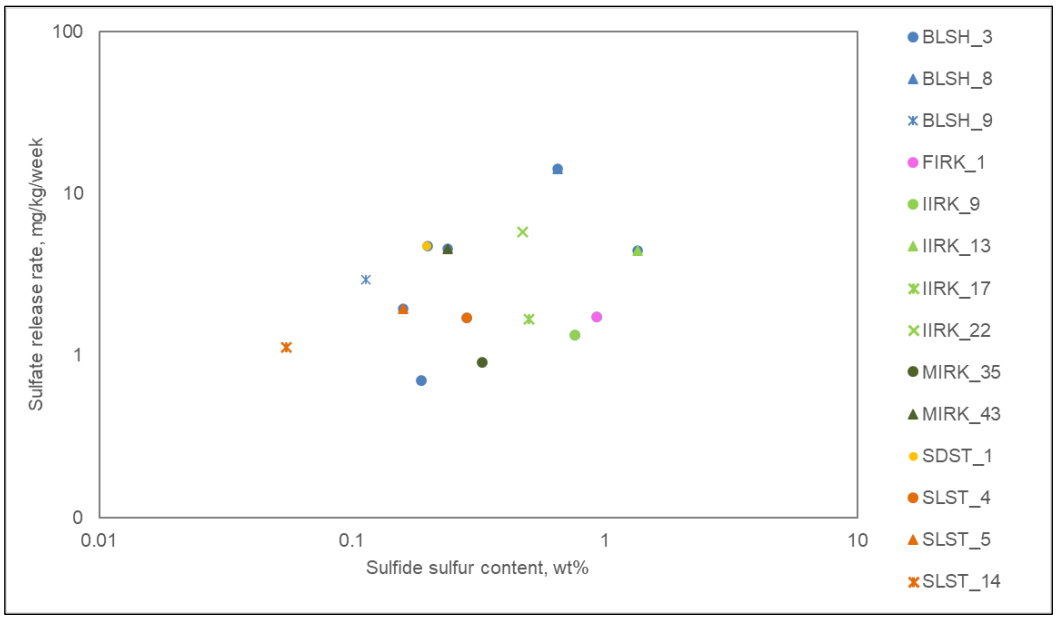
Figure 4.2 plots the stable sulfate release rates against the sulfide sulfur content of the sample (note the log-log scale). The data show considerable scatter, and there is limited evidence of correlation between sulfate release rate and sulfide sulfur content.

There are several factors that may be contributing to the low rates of sulfide oxidation and sulfate release, including:

- the uncertainty regarding relative proportions of sulfide minerals contributing to the total sulfide content (due to limitations resulting from mineralogical analysis XRD analytical limits of detection, typically 0.5 wt% to 1wt %)
- incomplete oxidation of sulfides (oxidation to native sulfur rather than soluble sulfate – common in the case of in the case of pyrrhotite, which may be present in trace amounts)
- potential armouring of surfaces with neutralisation product precipitates (such as amorphous metal hydroxides, ferrihydrite, goethite)
- residual unreacted sulfide minerals present within the interiors of rock fragments that have not been subjected to oxidation.

Based on the calculated sulfate release rates, sulfide depletion times would be long; up to 270 years.

Figure 4.2: Sulfate release rate plotted as a function of sulfide sulfur content



Further assessment will be undertaken on residual column materials following termination of the last two columns to investigate these possible explanations further. These assessments will include measurements of IOR to compare against the sulfur release rates calculated from leachate chemistry and QEMSCAN[6] and SEM analysis to provide further mineralogical assessment with lower analytical limits of detection.

4.1.3 Acid neutralisation

Acid generated following sulfide oxidation will be neutralised by ANC present in the materials. In most of the Hemi waste rock geochemical samples, the available ANC is primarily from carbonate minerals, with a possible contribution from reactive alumino-silicates. For neutralisation dominated by carbonates, the following simplified reactions can be used to describe the consumption of acid (the equations are balanced for different dissolved carbonate species):

$$2H+ + SO_4^{2-} + CaCO_3 = Ca^{2+} + SO_4^{2-} + H_2CO_3 \quad [1]$$

$$2H+ + SO_4^{2-} + 2CaCO_3 = 2Ca^{2+} + SO_4^{2-} + 2HCO^{3-} \quad [2]$$

Each reaction has been written in terms of calcite ($CaCO_3$) but could also have been written in terms of mixed Ca, Mg carbonate minerals, e.g. dolomite ($Ca_{0.5}Mg_{0.5}CO_3$) or magnesite ($MgCO_3$). The main difference between reactions [1] and [2] is the molar ratio of Ca (or Mg) to SO_4 in the resulting solution. Based on these reactions, the expected (Ca+Mg)/SO_4 molar ratio in the solution could range from 1 to 2 for neutral pH conditions. As the pH decreases below about 6, the ratio would be expected to drop below 1.

Figure 4.3 shows the stable (Ca+Mg)/SO_4 molar ratios observed, plotted as a function of stable sulfate release rate. Half of the columns plot close to, or between, the bounding ratios for utilisation of carbonate buffering capacity, consistent with neutralisation in the columns being dominated by the reaction of carbonate minerals. The other half, while giving circum-neutral leachates, plot at (Ca+Mg)/SO_4 molar ratios less than 1, i.e. inconsistent with carbonate buffering and therefore expected to be acidic. The lack of acidic conditions may relate to the inferred low oxidation rates (discussed in the previous subsection). Where acid generation rates are slow, there is a greater likelihood that silicate-based neutralisation potential could be effective.

The black shale samples (BLSH_8 and BLSH_9) have significant chlorite contents of 28–54%[7] and the SDST_1 and SLST_14 have clinochlore contents of 33% and 43%, respectively, along with lower contents of sodium plagioclase feldspar (Table 3.3). Higher Si and K concentrations are evident in the leach solutions from the BLSH_8 and SDST_1 column, with higher Na concentrations in the first seven leach events from BLSH_8.

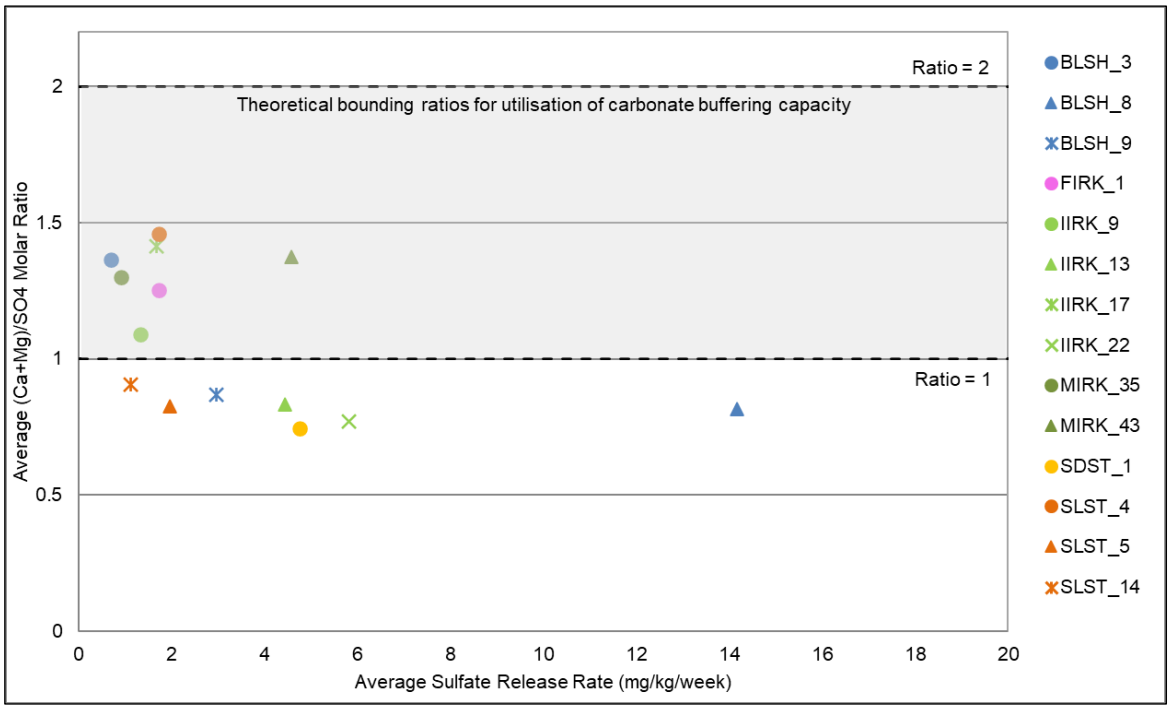
Of the samples that plot below 1, only the SLST_14, SLST, 5 and SDST_1 samples have carbonate minerals present that would be expected to provide effective neutralisation potential (either calcite or dolomite – Table 3.3). The other samples either contained ankerite or siderite,

[6] QEMSCAN – quantitative evaluation of minerals by scanning electron microscopy – registered trademark owned by FEI Company.

[7] The black shale logged at Hemi are non-carbonaceous metamorphosed iron-rich chlorite shales which may also incorporate intervals of mudstone or siltstone (personal communication with De Grey Principal Technical Geologist).

which would provide limited (ankerite) or no (siderite) contributions to neutralisation reactions. The IIRK-13 sample had no carbonate mineral content identified by the XRD analysis.

Figure 4.3: Comparison of stable average sulfate release with average (Ca+Mg)/SO_4 molar ratio



4.1.4 Geochemical processes and classification

The geochemical classifications of the waste rock samples, based on static test results (SRK, 2022) are shown in Table 3.4. The majority of the waste rock samples (nine samples) selected for the columns were classified as NAF. The circum-neutral leachates observed in the tests were consistent with the NAF classification. A subset of six NAF samples contained 0.2% sulfide sulfur (or higher) and were considered to present a neutral mine drainage risk[8].

Column samples with other geochemical classifications include one PAF classed sample (BLSH_8), three PAF-LC samples (BLSH_9, SDST_1, IIRK_9) and a sample classed as UC (NAF) (IIRK_13).

To-date, all column tests have generated leach solutions with circum-neutral pH values. For the NAF classed samples, the solution pH values are consistent with geochemical classification.

The PAF and PAF-LC samples have also generated near-neutral pH solutions, and only the BLSH_8 column has shown a decreasing trend over the column duration (but still remains above pH 6). The low sulfate release rates mean that the depletion of sulfide content from the samples is going to be slow. The BLSH_8 sample has the highest sulfate release rate (14 mg/kg/week) and it is estimated that it would take around 4 years for the sulfide to deplete from this sample (with other

[8] FIRK_1, MIRK_35, IIRK_17, IIRK_22, MIRK_43, SLST_4.

samples calculated to take around 270 years). However, as discussed in Section 4.1.2, there are several uncertainties in relation to the low sulfate release rates that have be calculated based on the kinetic dataset collected to-date.

It is possible that if the sulfide oxidation within the samples is slow, that contributions of neutralising capacity from aluminosilicates may be sufficient to minimise or limit acid generation beyond timescales offered by carbonate minerals within the samples.

A key part of the forward works of this assessment will be completing IOR measurements to verify the sulfide release rates calculated (based on sulfate release rates from the column samples). Until the sulfide release rates have been confirmed by IOR measurements, there remains uncertainty as to whether the kinetic column data are consistent with the geochemical classification derived from static testwork (SRK, 2022).

Similarly, there are uncertainties around the assessment of NMD, as key solutes of interest (such as As) are likely to be primarily derived from sulfide minerals, and solute loads of these trace elements will also largely be determined by sulfide oxidation rates.

4.1.5 Trace elements

The concentrations of many trace elements[9] are at or below detection limits in most leachates. This is shown for nickel in Figure 4.4, where leached concentrations are typically at detection limits, except for the PAF and PAF-LC samples (BLSH_8; SDST_1). Plots of all column leachate solution concentrations are given in Appendix C.

Other examples of trace elements that are generally below detection limits but have higher concentrations in some samples include: SDST_1 (Co, Ni, Sb, Se), BSLH_8 (Cd, Co, Cu, Ni, Sb, Se) and BLSH_9 (Ni, Sb, Se).

Arsenic is readily detectable in many of the tests and present in higher concentrations in the leachate solutions generated from three samples, as shown in Figure 4.5. Of these, leachates from SLST_5 have reached stable conditions but the leachate trends for samples BLSH_9 and SDST_1 are still to stabilise.

Arsenic is a key potential contaminant of concern. The higher bound arsenic release rates (>10 µg/kg/week) were observed from columns BLSH_9 (173 µg/kg/week), SDST_1 (79 µg/kg/week), SLST_5 (32 µg/kg/week) and SLST_4 (10.6 µg/kg/week). It is noted that the As release rates do not correlate with the total arsenic concentrations in the samples – measured in the multi-element (4 acid digest) analyses (Table 3.5). Arsenic may be present in the samples in a range of mineral assemblages, such as in silicates or iron oxyhydroxides (less readily leachable), and also within arsenopyrite, which may be more readily leached on oxidation of the arsenopyrite. The higher release rate in sample BLSH_9 may be due to a higher arsenopyrite content in the sample. Further mineralogical assessment by QEMSCAN (with lower detection limits) will be undertaken as part of the forward works program.

[9] Including Ag, Bi, Cd, Cr, Cu, Fe, Ni, Pb, Sb, Se, Sn, Th, Tl, U, Hg.

Figure 4.4: Nickel concentrations in leachates from the kinetic leach columns

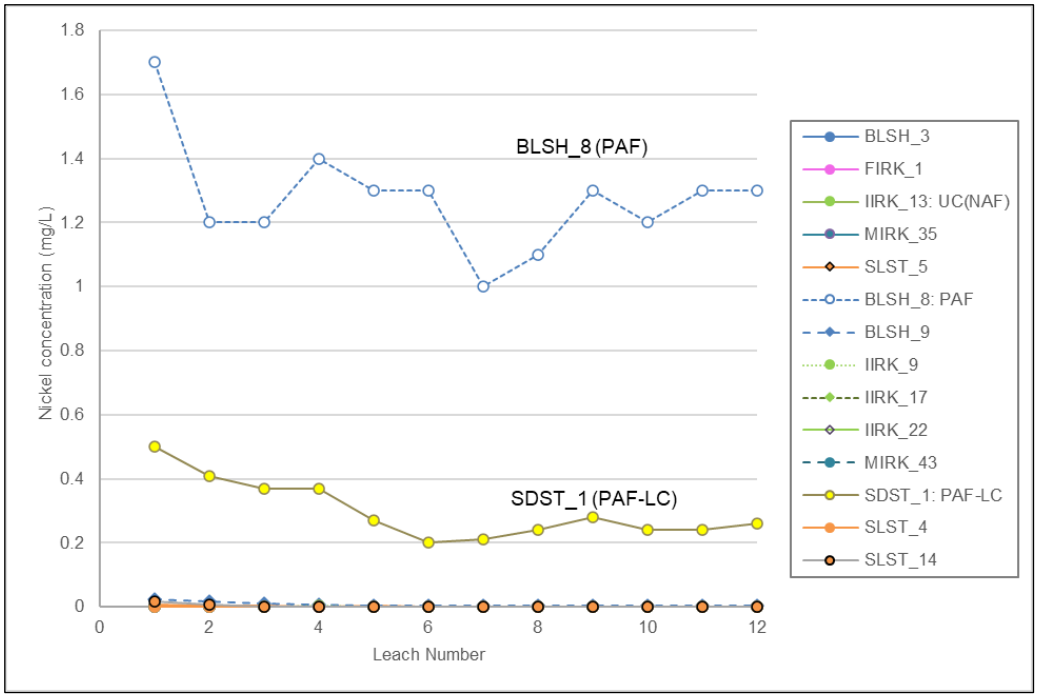
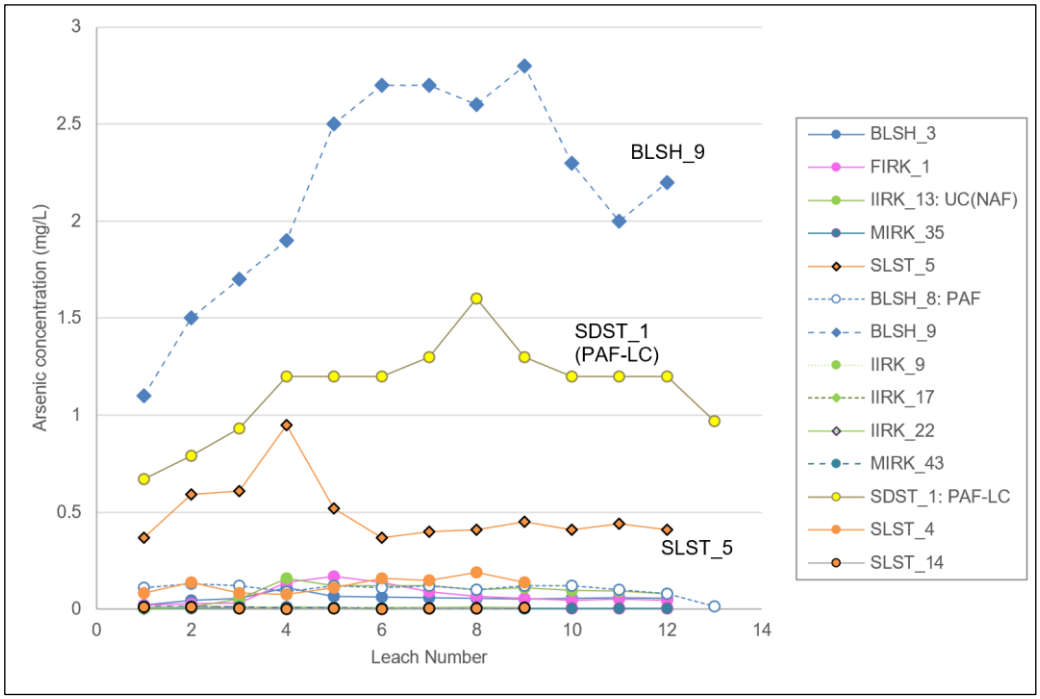


Figure 4.5: Arsenic concentrations in leachates from the kinetic leach columns



4.1.6 Controls on minor element leachability and release rate

Controls on trace element release could include release of trace elements from oxidising sulfide minerals, minerals dissolving in response to acid generation, minerals dissolving as a result of weathering reactions, and trace elements being sorbed or desorbed from mineral surfaces (for example, in response to changes in ionic strength or solution pH).

The measured column leachate chemistries have been assessed using PHREEQC[10] geochemical modelling software to assess possible solubility controls. Using measured column leachate chemistries as input, the saturation indices of key mineral phases were calculated. The focus of the calculations was to identify minerals close to equilibrium with the measured leachate water chemistries (a saturation index close to zero). Such minerals, if present in the materials, may have dissolved to attain equilibrium with the leachate and therefore may be used to infer solubility controls or limitations within the tests.

The following possible minerals and mineral groups were identified:

- Hydroxy-sulphates – alunite ($KAl_3(OH)_6(SO_4)_2$) in the earlier leachate solutions from the BLSH_8 (PAF) and SDST_1 (PAF-LC) samples.
- Sulfates – barite ($BaSO_4$) in around half of the samples.
- Iron and aluminium oxy-hydroxides – ferrihydrite ($Fe(OH)_3$), gibbsite ($Al(OH)_3$), boehmite (AlOOH).
- Arsenate bearing minerals: hydrated calcium and iron arsenates including austinite ($CaZnAsO_4(OH)$) in leach solutions from BLSH_9; parascorodite ($FeAsO_4 \cdot 2H_2O$) in leach solutions from SDST_1 and BLSH_9; and pharmacolite ($CaHAsO_4 \cdot 2H_2O$) in leach solutions from MIRK_35, MIRK_43, IIRK_9, IIRK_17 and SLST_14.

As three of the AMIRA column tests are still ongoing, interpretation of the kinetic dataset will continue as further data are obtained. This will include evaluation of correlations between major and trace solutes being released and evaluation of linkages with bulk elemental content and mineralogy of the column samples.

4.2 Multi-step leach results (tailings)

4.2.1 General trends

The leachate solution concentrations results are given in Table 4.3, Table 4.4 and Table 4.5. Concentration plots for selected parameters are shown in Figure 4.6, Figure 4.7 and Figure 4.8. The plots also include the results of the conventional static DI water leach test (S:L 1:3) completed in SRK (2022), for comparison. Concentrations plots for all parameters are given in Appendix C.

The pH values of the leachate solutions from the multi-step leach test were circum-neutral, showing an increasing trend from pH 6.1 to pH 7.8 over the first six leach cycles, and then dropping to

[10] All geochemical modelling calculations were undertaken using PHREEQC Interactive, Version 3.7.3 (Parkhurst and Appelo, 1999). Two thermodynamic databases were used, including a modified Minteq database, and the HATCHES thermodynamic database (Bond et al., 1997) NEA V2 released in 2013.

pH 6.2 on the seventh leach cycle. The tests are ongoing; a further 3 leach cycles are still to be performed.

The electrical conductivity (EC) measurements peaked at 930 µS/cm in the second leach solution, dropping to less than 150 µS/cm in the last two solutions (leach events 6 and 7). The EC measurements are notably lower than the static leach test completed on the 2022 sub-sample (2,400 µS/cm); this may be due to residual salts from the supernatant from the slurry sample contributing to the higher EC of the previous leach test (see discussion in Section 0).

Generally, concentrations of major cations and anions were highest in the first few leach cycles before decreasing, often reaching relatively stable concentrations by the third and fourth leach events, as shown for Ca and SO_4 in Figure 4.7. These trends are indicative of progressive leaching and depletion of readily soluble salts from the sample.

Elements that were readily detectable in leachates were:

- Major species – Ca, Mg, Na, K, SO_4, Cl and Si
- Trace elements – Al, As, B, Ba, Co, Cr, F, Fe, Mn, Mo, Sb, Se, Sr, V and Zn.

Trace elements that were close to or below detection limits in the leachates were Ag, Bi, Cd, Cu, Hg, Ni, P, Pb, Sn, Th, Ti and Tl.

Decreasing trends for EC, Ca, SO_4, Cr and Se are evident in successive leach events (Figure 4.7). Other elements that showed a similar trend were Mg, Na, K, Cl, Co, Li, Mo, Sb, Rb, Sr, U and W.

Increasing concentration trends are evident for Al, As, Mn (from the second leach event) and Si in successive leach events Figure 4.8). Ba and Zn showed general increasing concentration trends, however, the concentrations were variable.

Figure 4.8 shows that the total, free and WAD cyanide concentrations decrease in successive leaches over the duration of the test. The initial total cyanide concentration (1.2 mg/L, leach 1) decreased and stabilised around 0.13 mg/L from leach number 3. Free and WAD cyanides were reported at 0.009 mg/L and 0.011 mg/L, respectively, in the first leachate decrease below the limit of detection (0.004 mg/L) in subsequent leach events.

Higher total cyanide concentrations of 12 mg/L were measured in the previous static leach test (2022), which may be due to residual porewater from the supernatant. Free cyanide and WAD cyanide measured in the 2022 static leach test were comparable to those of the first leach of the multi-step leach (0.008 mg/L and 0.009 mg/L, respectively).

Free cyanide and WAD cyanide were not detected (<0.5 mg/kg) in the solids analysis of the 2023 tailings sample, whereas these were measured at concentrations of 6.2 mg/kg (free cyanide) and 8.3 mg/kg (WAD cyanide). This may be due to residual salts from the supernatant being present in the 2022 solid, or degradation of WAD cyanide that has occurred in the 2023 sub-sample.

Speciated cyanide metals complex were analysed in leachate solutions from the first two leach events. All cyanide metal complex species were reported below the analytical limits of detection (Table 4.5).

Table 4.3: Tailings multi-leach results - major ions and minor elements

Leach event	pH	EC	Alkalinity	Acidity	Cl	SO_4	F	Total N	Ca	Mg	K	Na	P	Si	Al	Fe
	-	µS/cm	mg $CaCO_3$/L	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LOD		*1*	*5*	*5*	*1*	*1*	*0.1*	*0.1*	*0.5*	*0.5*	*0.5*	*0.5*	*0.05*	*0.1*	*0.01*	*0.01*
1	6.1	63	36	<5	19	450	0.9	0.9	160	13	2.3	23	<0.05	2.8	0.05	0.53
2	7.1	930	40	<5	4	110	0.8	0.2	42	4.9	1.3	10	<0.05	3.2	0.11	0.12
3	7.3	320	52	<5	1	36	0.6	0.1	21	2.7	1	6	<0.05	3.1	0.13	0.05
4	7.5	180	64	<5	<1	15	0.5	0.1	18	2.3	0.9	4.3	<0.05	3.2	0.14	0.04
5	7.7	160	76	<5	<1	12	0.4	0.7	25	3.5	1	4.9	<0.05	3.6	0.07	0.12
6	7.8	110	58	<5	<1	5	0.3	0.6	18	2.4	0.8	3.2	<0.05	3.2	0.3	0.83
7	6.2	130	62	19	<1	4	0.2	0.3	18	2.5	0.9	2.7	<0.05	3.2	0.16	0.2

Table 4.4: Tailings multi-leach results - trace metals

Leach event	Ag	As	B	Ba	Bi	Cd	Cr	Co	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	Tl	U	V	Zn	Hg
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LOD	*0.001*	*0.001*	*0.02*	*0.001*	*0.001*	*0.0001*	*0.001*	*0.001*	*0.001*	*0.01*	*0.005*	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	*0.0005*	*0.001*	*0.001*	*0.0005*	*0.001*	*0.001*	*0.00005*
1	*<0.001*	0.83	0.06	0.011	0.008	0.0032	0.047	0.014	0.009	0.53	0.044	0.01	0.009	0.002	0.006	0.004	0.003	0.26	0.0031	0.004	0.002	0.0042	0.004	0.006	*<0.00005*
2	*<0.001*	1.9	0.05	0.005	*<0.001*	*<0.0001*	0.009	0.004	*<0.001*	0.12	0.008	0.003	*<0.001*	*<0.001*	0.002	0.003	*<0.001*	0.07	*<0.0005*	*<0.001*	*<0.001*	0.0006	0.002	0.002	*<0.00005*
3	*<0.001*	2.5	0.05	0.025	*<0.001*	*<0.0001*	0.003	0.002	*<0.001*	0.05	0.008	0.002	*<0.001*	*<0.001*	0.001	0.003	*<0.001*	0.038	*<0.0005*	*<0.001*	*<0.001*	*<0.0005*	0.003	0.006	*<0.00005*
4	*<0.001*	2.9	0.04	0.015	*<0.001*	*<0.0001*	0.002	0.001	*<0.001*	0.04	0.01	0.001	*<0.001*	*<0.001*	0.001	0.003	*<0.001*	0.034	*<0.0005*	*<0.001*	*<0.001*	*<0.0005*	0.003	0.002	*<0.00005*
5	*<0.001*	2.5	0.02	0.005	*<0.001*	*<0.0001*	0.002	0.001	*<0.001*	0.12	0.015	0.003	*<0.001*	*<0.001*	0.002	0.002	*<0.001*	0.053	*<0.0005*	*<0.001*	*<0.001*	0.0006	0.003	*<0.001*	*<0.00005*
6	*<0.001*	2.4	0.03	0.009	*<0.001*	*<0.0001*	0.003	*<0.001*	*<0.001*	0.83	0.022	0.001	*<0.001*	*<0.001*	0.001	0.002	*<0.001*	0.04	*<0.0005*	0.005	*<0.001*	*<0.0005*	0.003	*<0.001*	*<0.00005*
7	*<0.001*	2.3	*<0.02*	0.013	*<0.001*	*<0.0001*	*<0.001*	*<0.001*	*<0.001*	0.2	0.018	0.001	*<0.001*	*<0.001*	0.001	0.001	*<0.001*	0.043	*<0.0005*	0.002	*<0.001*	*<0.0005*	0.002	0.01	*<0.00005*

Table 4.5: Tailings multi-leach results – cyanide species and additional speciated analyte results

Leach event	Free xyanide	WAD cyanide	Total cyanide	Thiocyanate	Chromium cyanide	Cobalt cyanide	Copper cyanide	Gold cyanide	Iron (II) cyanide	Iron (III) cyanide	Nickel cyanide	Silver cyanide	Fe (II)	Fe (III)	As (III)	As (V)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L
LOD	*0.004*	*0.004*	*0.004*	*0.1*	*0.5*	*0.1*	*0.1*	*0.5*	*1*	*1*	*0.2*	*1*	*<0.05*	*<0.05*	*<1*	*<1*
1	0.009	0.011	1.2	<0.1	<0.5	<0.1	<0.1	<0.5	<1	<1	<0.2	<1	<0.05	0.48	1,070	29
2	<0.004	<0.004	0.29	<0.1	<0.5	<0.1	<0.1	<0.5	<1	<1	<0.2	<1	<0.05	0.12	–	–
3	<0.004	<0.004	0.13	–	–	–	–	–	–	–	–	–	<0.05	<0.05	–	–
4	<0.004	<0.004	0.084	–	–	–	–	–	–	–	–	–	<0.05	<0.05	3,838	60
5	<0.004	<0.004	0.13	–	–	–	–	–	–	–	–	–	<0.05	0.12	–	–
6	<0.004	<0.004	0.12	–	–	–	–	–	–	–	–	–	<0.05	0.83	–	–
7	<0.004	<0.004	0.12	–	–	–	–	–	–	–	–	–	<0.05	0.2	–	–

Figure 4.6: pH, EC, Ca, SO_4, Cr and Se as a function of leach number (tailings solid sample)

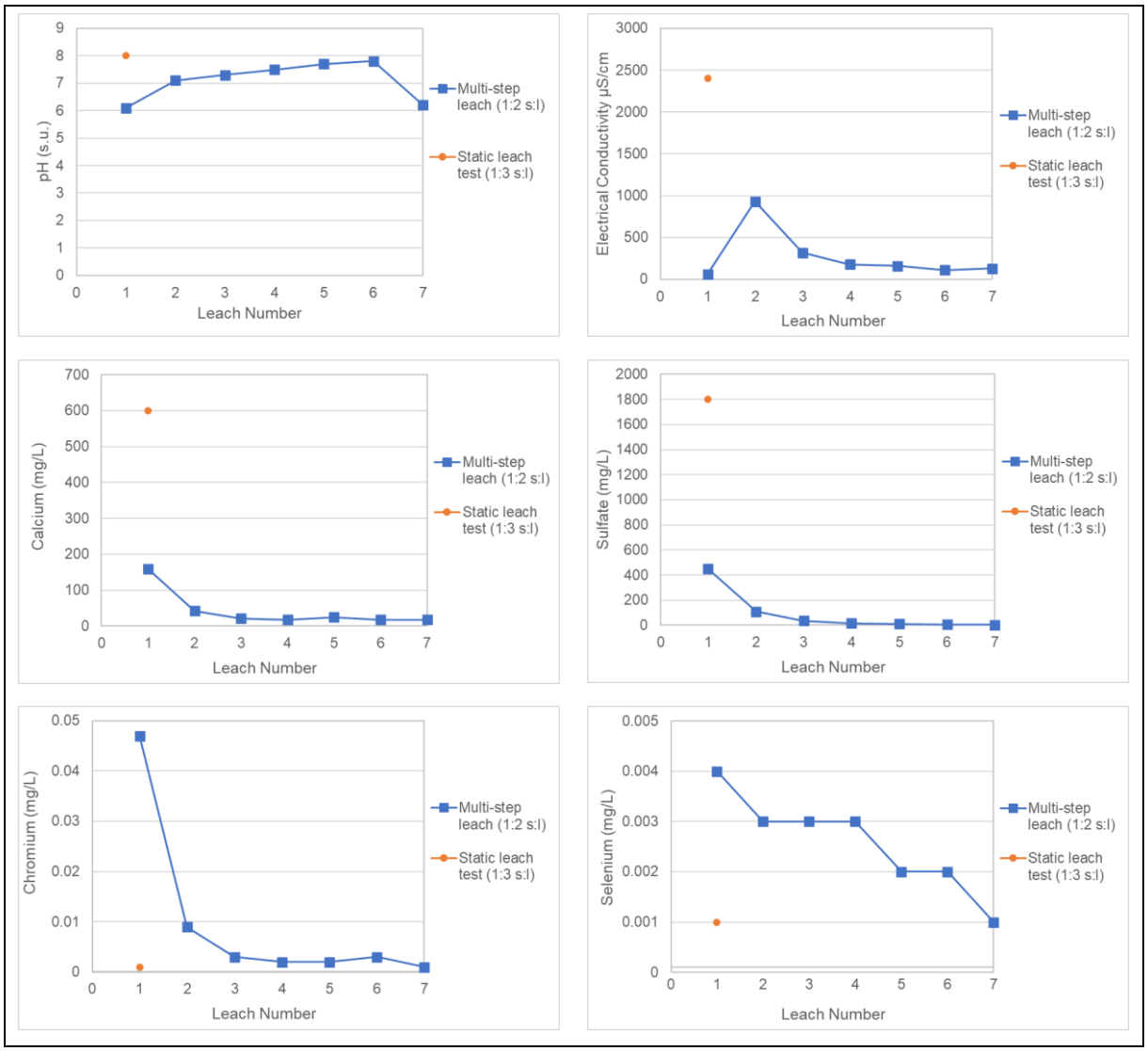


Figure 4.7: Al, As, Ba, Si, Mn and Zn as a function of leach number

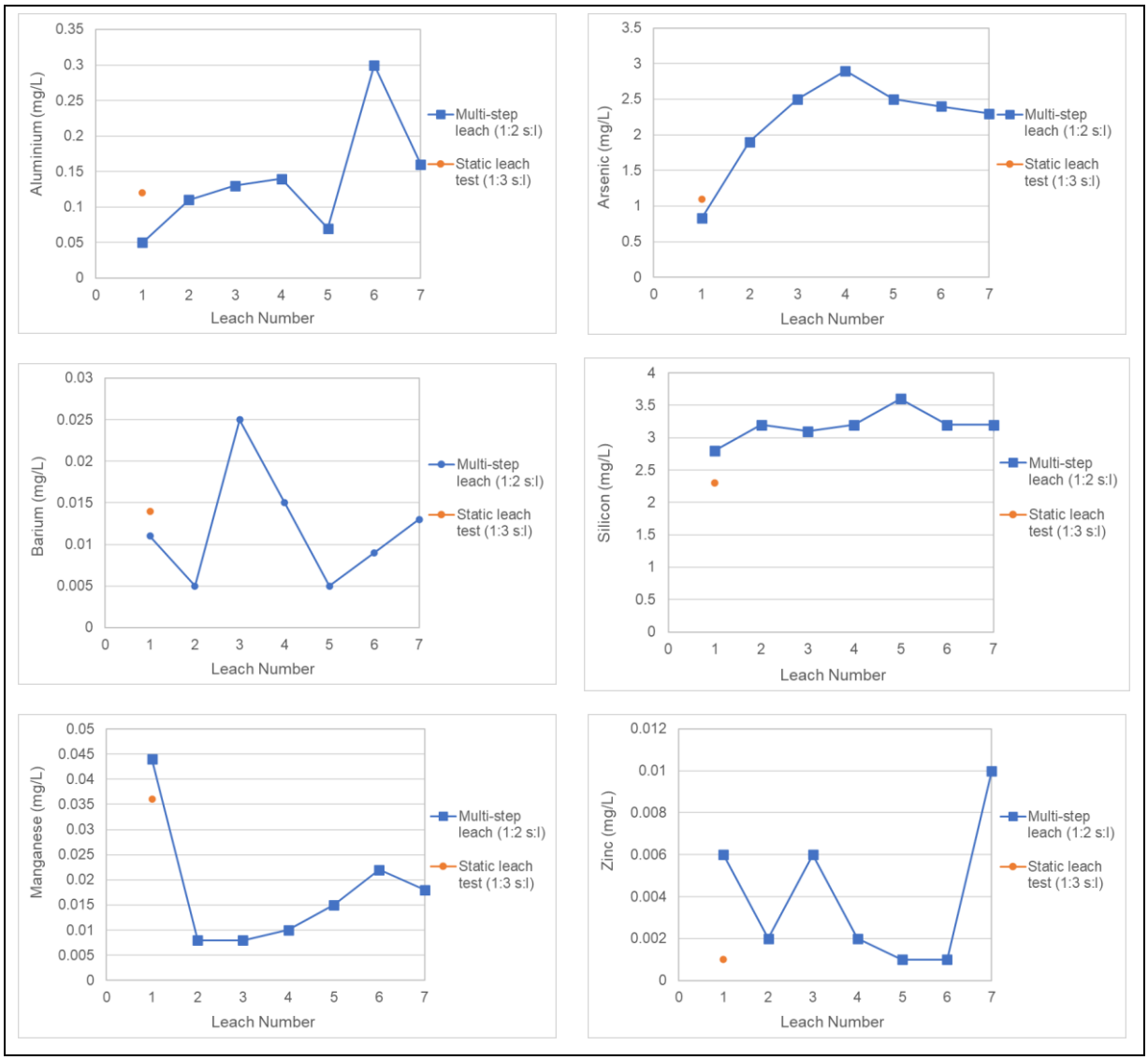
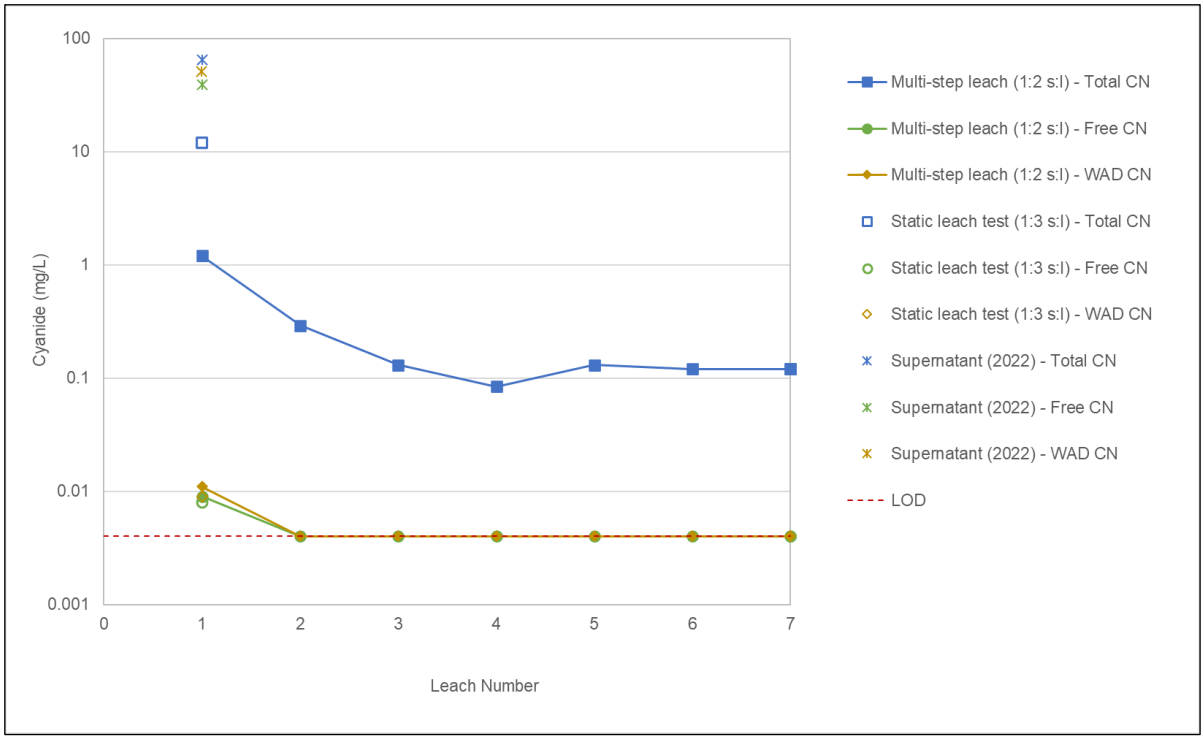


Figure 4.8: Total, Free and weak acid dissociable cyanide as a function of leach number



4.2.2 Controls on leachability

Based on trends observed in the multi-step leach test, the following processes are likely influencing leaching behaviour:

- flushing of readily soluble minerals and salts, e.g. gypsum (CaSO4) and halite (NaCl) – as indicated by decreasing concentrations of major cations and anions in successive leaches.
- gradual dissolution of sparingly soluble minerals – where concentrations may be relatively constant.

In both cases, trace elements are likely to be present in major element host minerals and would be released into solution as the mineral dissolves.

The measured multi-step leachate chemistries have been assessed using PHREEQC[11] geochemical modelling software to assess possible solubility controls. Using the leachate chemistries as input, the saturation indices of key mineral phases were calculated. The focus of the calculations was to identify minerals close to equilibrium with the measured leachate water chemistries (a saturation index close to zero). Such minerals, if present in the materials, may have dissolved to attain equilibrium with the leachate and therefore may be used to infer solubility controls or limitations within the tests.

[11] All geochemical modelling calculations were undertaken using PHREEQC Interactive, Version 3.7.3 (Parkhurst and Appelo, 1999). Two thermodynamic databases were used, including a modified Minteq database, and the HATCHES thermodynamic database (Bond et al., 1997) NEA V2 released in 2013.

The main minerals and mineral groups that were identified as possible solubility controls are:

- Iron and aluminium oxy-hydroxides – ferrihydrite ($Fe(OH)_3$), gibbsite ($Al(OH)_3$), boehmite (AlOOH).
- Hydroxy-sulphates – jarosite ($KFe_3(OH)_6(SO_4)_2$) in first leach solution.
- Sulfates – barite ($BaSO_4$) in the first three solutions.
- Arsenate bearing minerals: parascorodite ($FeAsO_4 \cdot 2H_2O$) in leach solutions 3 to 5.

For trace elements that could be assessed (above analytical detection limits in the leachates), many showed positive correlations with major parameter, most likely indicating inclusion of the trace element in readily soluble salts flushing from the sample. Further assessment of the correlations will be undertaken when the multi-step leach test has been completed and leachate solutions from all 10 leach events are available.

Increases in dissolved concentrations may reflect a response to decreasing anions (such as sulfate controlling the solubility of As and Ba), ongoing dissolution from silicate minerals, or desorption from mineral surfaces during the tests (as the ionic strength reduces).

5 Conclusions

A supplementary leach program incorporating AMIRA kinetic columns (waste rock) and a multi-step leach test (tailings) has been undertaken and the following conclusions can be made:

Free-draining AMIRA columns (waste rock samples)

A total of 14 AMIRA kinetic columns were initiated and operated for 12 (4-weekly) leach events. Of these, 11 columns have reached stable conditions and the column tests were terminated. Three columns are still operational (BLSH_8, BLSH_9 and SDST-1).

- The evolution of leachate pH in most tests is consistent with sample classification, and all NAF classed samples have consistently resulted in circum-neutral pH solutions. However, currently, the pH of the leachate solutions obtained from the PAF (BLSH_8) and PAF-LC (SDST_1) samples also remain circum-neutral (having completed 13 leach events).
- The stable sulfate release rates, which are interpreted as indicative of sulfide oxidation rates, range between 1 mg/kg/week and 14 mg/kg/week (BLSH_8). These rates are lower than anticipated given the sulfide contents of the samples (0.046–0.79% sulfide sulfur).
- Neutralisation in the tests may include reaction of both carbonates and silicates. Silicates usually react too slowly to be effective contributors to ANC. However, in the case of these samples, due to the slow rates of oxidation and acid generation, it is inferred that the role of silicates may be significant.
- To-date, the leachate solutions from all the columns have remained at circum-neutral pH. Calculated times for sulfide contents to be depleted are long (up to 270 years). If the slow rates of sulfide oxidation (and acid generation) are verified and neutralisation from silicate minerals is effective, the risks of AMD and NMD may be lower than previously assessed.
- Dissolved leachate concentrations of many trace metals were close to or below detection limits.
- There were some exceptions in leachates from a subset of the columns where higher trace element concentrations were measured, most notably As, which is not unexpected given the geology and the likely presence of arsenopyrite within the sulfide minerals. (This is to be verified by additional mineralogical assessment, e.g. using QEMSCAN.)
- Other trace elements readily detectable in a subset of leachates were Cd, Co, Cu, Ni, Sb and Se.

Multi-step deionised leach test (tailings solid sample)

- The pH of the leachates from the multi-step leach test were circum-neutral over the duration of the test to-date – three more leach cycles are still to take place.
- Most major and minor parameters show trends indicative of the progressive leaching and depletion of readily soluble salts from the sample, i.e. higher dissolved concentrations in the first few leach cycles.
- There are some exceptions – for example, increasing concentration trends for Al, As, Mn (from the second leach event) and Si in successive leach events. Ba and Zn showed general increasing concentration trends; however, the concentrations were variable. Such trends may

suggest changes (increases) in solubility or desorption during the test, possibly in response to changes in the solution composition, e.g. decreasing ionic strength.

- Total cyanide concentrations decreased from 1.2 mg/L in the first leach solution to 0.12 mg/L in the sixth and seventh leachate solution, i.e. showed a trend of progressive leaching. Detectable concentrations of free cyanide and WAD cyanide were only measured in the first leach solution (0.009 mg/L and 0.011 mg/L, respectively).

6 Recommendations and forward works

The following recommendations are made:

AMIRA columns (waste rock)

- The columns that are currently operational (BLSH_8, BLSH_9 and SDST_1) should remain operational for a further 3 months (three leach events) and the results should be reviewed to determine whether to continue to the columns further. The extension of the column test duration is primarily to further assess SO_4 and As release rates from these columns (as they do not appear to have stabilised).
- Additional geochemical characterisation testwork should be completed on the column residues when all columns have been terminated. The objectives of the testwork would be to further investigate sulfide oxidation rates and sulfide mineralogy and contents within the samples. Possible testwork could include:
  - IOR measurements[12] on a subset of samples
  - QEMSCAN on a subset of samples (including stored sample and residual sample materials recovered from terminated columns)
  - XRD on residual column materials
  - selected ABA (Total sulfur, speciated sulfur) on residual column samples
  - SEM analysis to determine if armouring of grains (e.g. by ferric oxyhydroxides) is occurring.

Supplementary leach testwork (tailings)

Geochemical characterisation testwork should be completed on further tailings samples being generated by the De Grey DFS metallurgical program. The data generated will allow assessment of the potential geochemical variability of tailings likely to be generated over the Hemi Gold Project life of mine.

The characterisation program is to be extended to include other products generated during processing: pressure oxidation (POx) feed samples, concentrate samples and POx residue samples.

Other than standard static geochemical testing, a range of leach tests will be completed, including:

- static leach tests at a range of S:L ratios (including 1:3 based on the MEND approach, and 1:20 based on the Australian Standard Leach Procedures)
- multi-step leach tests.

[12] This testwork involves placing a moist sample within an airtight sealed container and measuring the consumption of oxygen as a function of time. The IOR measurements provide an indication of the rate at which sulfide in the sample may oxidise to sulfate (under conditions where supply of oxygen is not a limiting factor), which may be used as part of the water quality modelling process.

- mild acidic leach tests
- leaching environmental assessment framework (LEAF) tests (EPA 1313 and 1316) based on US Environmental Protection Authority (EPA) methodologies.

If higher contents of sulfide sulfur are present in any of the tailings samples to be assessed, kinetic column tests may be considered.

The dataset generated will support the definitive feasibility study metallurgical program and can be used as inputs to the seepage and water quality assessments required to support environmental risk assessments, along with operational and closure planning.

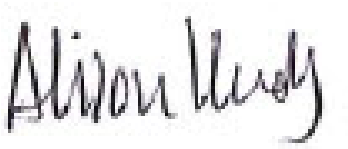
Recommended geochemical and water quality assessment forward works

- Following completion of the kinetic column program and associated testwork on residual column samples, the dataset should be used to further develop waste rock classification criteria that can be incorporated into the Hemi mining block model to ensure appropriate waste rock management. Waste rock criteria should be used to identify wase rock volumes that may be PAF, generate neutral mine drainage or contain asbestiform materials (if intersected by proposed mining). If the IOR measurements corroborate the low sulfide oxidation rates calculated based on the sulfate release from the columns, it may be justified to re-visit the previous geochemical classifications of waste rock at Hemi (SRK, 2022), i.e. those previously classed as PAF or NAF with an NMD risk. This assessment would also be important for deriving source terms to be used in future water quality assessments (e.g. pit lake water quality prediction).
- A cyanide degradation assessment should be undertaken to assess the likely degradation of cyanide species in decant water present on the surface of the TSF during operations. This assessment would subsequently be used as an input to TSF seepage and water quality assessments (for both operational and post-closure periods).
- WRL and TSF seepage and water quality assessments should be completed to inform environmental risk assessments and environmental approvals, along with operational and closure planning. The assessments would require developing contaminant source terms from the laboratory-derived datasets, taking into account anticipated geochemical conditions within the full-scale landforms.

Closure

An addendum to this report will be prepared on completion of the supplementary leach program testwork. Subsequent water quality assessments using the dataset obtained from this program will be reported in a separate report.

This report, Hemi Gold Project DFS – Geochemical Supplementary Leach Testing Program, was prepared by



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Principal Geochemist

and reviewed by

Claire Linklater
Principal Geochemist

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

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Appendix A AMIRA column results

Project No: DEG003
Sample ID: BLSH_3
Client ID: De Grey FALCON

Date	Week	Sample Mass	Mass of Fluid		pH	EC	Alkalinity	Acidity	Cl	SO4	F	TOC	Total N	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba
		Dry (g)	Input (g)	Output (g)	-	µS/cm	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
14/01/2022	4	2,000	800	550	8.6	160	20	<5	18	24	<0.1	2	0.2	5.4	1.7	4.1	19	<0.01	2.1	<0.00005	0.01	0.023	1.4	0.11
17/02/2022	8	2,000	800	560	7.5	120	19	<5	9	20	<0.1	<1	0.1	5.4	1.5	4.9	11	0.02	0.7	<0.00005	0.24	0.044	0.59	0.18
15/03/2022	12	2,000	800	560	8.2	140	19	<5	11	25	<0.1	2	0.1	5.3	1.4	5.7	15	0.02	1.4	<0.00005	0.14	0.056	0.75	0.16
11/04/2022	16	2,000	800	550	7.6	140	22	<5	9	25	<0.1	<1	0.2	6.6	1.5	6.5	14	0.03	1.4	<0.00005	0.12	0.11	1	0.2
23/05/2022	20	2,000	800	560	7.4	93	18	<5	4	16	<0.1	<1	0.2	5.4	0.99	4.4	7.1	0.02	0.9	<0.00005	0.09	0.066	0.66	0.14
22/06/2022	24	2,000	800	550	7.2	84	18	7	4	14	<0.1	1	0.2	5.2	0.8	3.4	5.9	0.02	0.9	<0.00005	0.09	0.064	0.58	0.14
20/07/2022	28	2,000	800	560	7.3	80	17	<5	3	14	<0.1	<1	0.1	5.3	1.1	4.6	6.8	0.01	2.3	<0.00005	0.07	0.06	0.54	0.14
16/08/2022	32	2,000	800	580	7	64	17	<5	2	10	<0.1	<1	0.2	4.5	1	3	5.4	0.03	0.8	<0.00005	0.08	0.057	0.45	0.13
13/09/2022	36	2,000	800	560	6.9	56	17	<5	2	8	<0.1	<1	0.1	4.3	0.6	2.7	4	0.02	0.8	<0.00005	0.07	0.052	0.44	0.13
13/10/2022	40	2,000	800	560	7.1	55	17	<5	1	7	<0.1	<1	<0.1	4.1	0.6	2.4	3.9	0.02	0.8	<0.00005	0.06	0.055	0.4	0.16
8/11/2022	44	2,000	800	570	6.7	47	17	<5	1	8	<0.1	<1	0.3	4.3	0.5	2.2	3.2	0.02	0.9	<0.00005	0.09	0.061	0.47	0.16
6/12/2022	48	2,000	800	560	7.3	59	16	<5	1	9	<0.1	<1	0.4	3.7	<0.5	2.7	3.6	0.01	1.1	<0.00005	0.01	0.055	0.65	0.17

Date	Week	Sample Mass	Bi	Cd	Cr	Co	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	Tl	U	V	Zn	Hg
		Dry (g)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
14/01/2022	4	2,000	0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.012	0.004	<0.001	<0.001	0.002	<0.001	<0.001	0.054	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.009	<0.00005
17/02/2022	8	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	0.09	0.013	0.004	<0.001	<0.001	0.003	<0.001	<0.001	0.05	<0.0005	0.003	<0.0001	<0.0005	0.002	0.037	<0.00005
15/03/2022	12	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	0.01	0.009	0.007	<0.001	<0.001	0.004	0.001	<0.001	0.043	<0.0005	<0.001	<0.0001	<0.0005	0.002	0.023	<0.00005
11/04/2022	16	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	0.01	0.013	0.009	<0.001	<0.001	0.005	0.001	<0.001	0.058	<0.0005	<0.001	<0.0001	<0.0005	0.003	0.037	<0.00005
23/05/2022	20	2,000	<0.0001	<0.0001	<0.001	<0.001	0.004	0.01	0.013	0.006	<0.001	<0.001	0.004	<0.001	<0.001	0.038	<0.0005	<0.001	<0.0001	<0.0005	0.002	0.029	<0.00005
22/06/2022	24	2,000	0.0002	<0.0001	<0.001	<0.001	<0.001	0.01	0.011	0.006	<0.001	<0.001	0.004	<0.001	<0.001	0.037	<0.0005	<0.001	<0.0001	<0.0005	0.002	0.023	<0.00005
20/07/2022	28	2,000	0.0002	0.0002	<0.001	<0.001	<0.001	<0.01	0.011	0.006	<0.001	<0.001	0.003	<0.001	<0.001	0.035	<0.0005	<0.001	0.0001	<0.0005	0.002	0.02	<0.00005
16/08/2022	32	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.011	0.005	<0.001	<0.001	0.003	<0.001	<0.001	0.03	<0.0005	<0.001	<0.0001	<0.0005	<0.002	0.018	<0.00005
13/09/2022	36	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.009	0.004	<0.001	<0.001	0.002	<0.001	<0.001	0.029	<0.0005	<0.001	<0.0001	<0.0005	<0.002	0.015	<0.00005
13/10/2022	40	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.007	0.004	<0.001	<0.001	0.002	<0.001	<0.001	0.03	<0.0005	<0.001	<0.0001	<0.0005	0.002	0.013	<0.00005
8/11/2022	44	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.011	0.004	<0.001	<0.001	0.002	<0.001	<0.001	0.034	<0.0005	<0.001	<0.0001	<0.0005	0.002	0.016	<0.00005
6/12/2022	48	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.007	0.003	0.001	<0.001	0.002	<0.001	<0.001	0.033	<0.0005	<0.001	<0.0001	<0.0005	0.002	0.014	<0.00005

Tot Alk - Total Alkalinity; Acidity to pH 8.3

Project No: DEG003
Sample ID: FIRK_1
Client ID: AQUILA

Date	Week	Sample Mass	Mass of Fluid		pH	EC	Alkalinity	Acidity	Cl	SO4	F	TOC	Total N	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba
		Dry (g)	Input (g)	Output (g)	-	µS/cm	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
14/01/2022	4	2,000	800	550	8.3	300	16	<5	47	54	0.2	2	0.2	7.7	5.1	3.2	36	<0.01	2	<0.00005	0.01	0.022	1.3	0.064
17/02/2022	8	2,000	800	560	7.4	200	15	<5	22	41	<0.1	1	0.1	6	5	3.3	20	0.01	0.4	<0.00005	0.08	0.027	0.56	0.14
15/03/2022	12	2,000	800	570	7.2	190	15	<5	18	42	<0.1	3	0.2	6	5.4	3	19	0.01	0.7	<0.00005	0.07	0.033	0.48	0.086
11/04/2022	16	2,000	800	555	7.5	230	18	<5	14	61	<0.1	<1	0.2	9.8	8.3	3.6	16	0.03	0.9	<0.00005	0.11	0.14	0.57	0.083
23/05/2022	20	2,000	800	575	7.5	150	16	<5	5	43	<0.1	<1	0.3	7.7	6.9	1.9	7	0.04	0.7	<0.00005	0.11	0.17	0.27	0.1
22/06/2022	24	2,000	800	560	7.5	160	17	8	4	49	<0.1	<1	0.4	7.5	7.6	2	6.1	0.02	0.5	<0.00005	0.05	0.14	0.22	0.11
20/07/2022	28	2,000	800	560	7.3	170	17	<5	3	49	<0.1	1	0.1	6.5	9.6	2.2	6.3	0.02	0.6	<0.00005	0.05	0.089	0.2	0.12
16/08/2022	32	2,000	800	580	7	120	18	<5	2	35	<0.1	1	0.2	6.5	8.6	2.5	6.1	0.03	0.6	<0.00005	0.05	0.068	0.21	0.12
13/09/2022	36	2,000	800	570	6.9	100	18	<5	2	25	<0.1	<1	0.2	4.6	5.8	1.6	3.7	0.02	0.5	<0.00005	0.06	0.056	0.2	0.1
13/10/2022	40	2,000	800	575	7.1	98	20	<5	1	24	0.7	<1	0.1	4.6	5.5	1.4	4	0.02	0.4	<0.00005	0.05	0.045	0.2	0.13
8/11/2022	44	2,000	800	585	6.7	77	20	<5	1	21	<0.1	<1	0.3	4.6	4.2	1.2	2.8	0.06	0.5	<0.00005	0.08	0.052	0.2	0.097
6/12/2022	48	2,000	800	570	7.3	100	19	<5	<1	27	<0.1	<1	0.4	4.7	4.7	1.6	3.2	<0.01	0.6	<0.00005	0.02	0.044	0.48	0.1

Date	Week	Sample Mass	Bi	Cd	Cr	Co	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	Tl	U	V	Zn	Hg
		Dry (g)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
14/01/2022	4	2,000	<0.0001	<0.0001	<0.001	<0.001	0.001	<0.01	0.05	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	0.097	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.012	<0.00005
17/02/2022	8	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	0.02	0.026	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	0.068	<0.0005	0.001	<0.0001	<0.0005	<0.001	0.026	<0.00005
15/03/2022	12	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.014	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	0.051	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.026	<0.00005
11/04/2022	16	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.018	0.005	<0.001	<0.001	0.001	<0.001	<0.001	0.083	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.041	<0.00005
23/05/2022	20	2,000	<0.0001	<0.0001	<0.001	<0.001	0.004	<0.01	0.008	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.051	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.054	<0.00005
22/06/2022	24	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.004	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.05	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.023	<0.00005
20/07/2022	28	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.007	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.041	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.018	<0.00005
16/08/2022	32	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.008	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.032	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.016	<0.00005
13/09/2022	36	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.007	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.027	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.013	<0.00005
13/10/2022	40	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.006	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.029	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.012	<0.00005
8/11/2022	44	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.01	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.03	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.017	<0.00005
6/12/2022	48	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.03	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.016	<0.00005

Tot Alk - Total Alkalinity; Acidity to pH 8.3

Project No: DEG003
Sample ID: IIRK_13
Client ID: FALCON

Date	Week	Sample Mass	Mass of Fluid		pH	EC	Alkalinity	Acidity	Cl	SO4	F	TOC	Total N	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba
		Dry (g)	Input (g)	Output (g)	-	µS/cm	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
14/01/2022	4	2,000	800	550	7.4	190	10	<5	13	51	<0.1	1	0.2	12	2.2	3	17	<0.01	2.1	<0.00005	<0.01	0.005	1.4	0.051
17/02/2022	8	2,000	800	590	7.2	170	12	<5	16	40	<0.1	<1	0.2	9	2.9	3.8	15	<0.01	0.7	<0.00005	0.12	0.01	0.66	0.076
15/03/2022	12	2,000	800	575	8	180	14	<5	11	49	<0.1	1	0.1	12	2.8	3.1	13	0.02	0.8	<0.00005	0.05	0.054	0.46	0.063
11/04/2022	16	2,000	800	560	7.2	230	14	<5	12	68	<0.1	<1	0.3	16	4.8	4.5	14	0.03	1.1	<0.00005	0.07	0.16	0.68	0.088
23/05/2022	20	2,000	800	580	7	150	11	<5	4	46	<0.1	<1	0.3	14	2.8	2.4	5.4	0.02	0.8	<0.00005	0.05	0.12	0.37	0.095
22/06/2022	24	2,000	800	580	6.9	160	12	<5	4	51	<0.1	<1	0.1	14	2.9	2.1	4.7	0.02	0.8	<0.00005	0.05	0.12	0.33	0.098
20/07/2022	28	2,000	800	580	7	170	10	<5	3	65	<0.1	<1	0.2	19	4	2.5	5.2	0.02	0.8	<0.00005	0.05	0.12	0.32	0.091
16/08/2022	32	2,000	800	590	6.7	150	11	<5	3	52	<0.1	<1	0.2	14	3.3	2.1	4.2	0.03	0.8	<0.00005	0.04	0.1	0.29	0.088
13/09/2022	36	2,000	800	570	6.7	160	11	<5	1	64	<0.1	<1	<0.1	18	3.5	1.8	3.3	0.03	0.9	<0.00005	0.05	0.11	0.33	0.1
13/10/2022	40	2,000	800	580	6.8	160	11	<5	1	65	<0.1	<1	0.1	18	3.6	1.5	3.3	0.02	0.8	<0.00005	0.05	0.097	0.29	0.11
8/11/2022	44	2,000	800	590	6.4	130	11	<5	1	62	<0.1	<1	0.3	16	3.2	1.3	2.7	0.01	0.9	<0.00005	0.05	0.095	0.32	0.089
6/12/2022	48	2,000	800	575	7	140	9	<5	<1	56	<0.1	<1	0.3	13	3.2	1.6	2.9	0.02	1.1	<0.00005	0.04	0.081	0.58	0.098

Date	Week	Sample Mass	Bi	Cd	Cr	Co	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	Tl	U	V	Zn	Hg
		Dry (g)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
14/01/2022	4	2,000	<0.0001	<0.0001	<0.001	<0.001	0.001	<0.01	0.19	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.094	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.019	<0.00005
17/02/2022	8	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	0.03	0.12	0.002	<0.001	0.002	<0.001	0.001	<0.001	0.068	<0.0005	0.002	<0.0001	<0.0005	<0.001	0.02	<0.00005
15/03/2022	12	2,000	<0.0001	<0.0001	<0.001	<0.001	0.001	<0.01	0.014	0.002	<0.001	<0.001	<0.001	0.002	<0.001	0.07	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.023	<0.00005
11/04/2022	16	2,000	<0.0001	0.0001	<0.001	<0.001	0.002	<0.01	0.01	0.005	<0.001	0.001	<0.001	0.003	<0.001	0.1	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.038	<0.00005
23/05/2022	20	2,000	<0.0001	<0.0001	<0.001	<0.001	0.004	<0.01	0.004	0.004	<0.001	<0.001	<0.001	0.001	<0.001	0.075	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.024	<0.00005
22/06/2022	24	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.003	0.005	<0.001	<0.001	<0.001	0.001	<0.001	0.079	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.021	<0.00005
20/07/2022	28	2,000	0.0003	<0.0001	<0.001	<0.001	<0.001	<0.01	0.003	0.005	<0.001	<0.001	0.001	0.002	<0.001	0.095	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.025	<0.00005
16/08/2022	32	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.003	0.005	<0.001	<0.001	<0.001	0.001	<0.001	0.078	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.026	<0.00005
13/09/2022	36	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.003	0.005	<0.001	<0.001	<0.001	0.001	<0.001	0.093	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.027	<0.00005
13/10/2022	40	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.003	0.006	<0.001	<0.001	<0.001	0.001	<0.001	0.098	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.03	<0.00005
8/11/2022	44	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.002	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	0.089	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.023	<0.00005
6/12/2022	48	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	0.068	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.048	<0.00005

Tot Alk - Total Alkalinity; Acidity to pH 8.3

Project No: DEG003
Sample ID: MIRK_35
Client ID: DIUCON

Date	Week	Sample Mass	Mass of Fluid		pH	EC	Alkalinity	Acidity	Cl	SO4	F	TOC	Total N	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba
		Dry (g)	Input (g)	Output (g)	-	µS/cm	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
14/01/2022	4	2,000	800	550	8.4	130	18	<5	6	31	<0.1	2	0.2	4.9	1.6	4.6	15	<0.01	2	<0.00005	0.02	0.006	1.4	0.091
17/02/2022	8	2,000	800	560	7.4	110	16	<5	5	26	<0.1	1	<0.1	5.1	1.8	4.5	10	<0.01	0.5	<0.00005	0.14	0.005	0.57	0.13
15/03/2022	12	2,000	800	560	7.5	130	16	<5	6	28	<0.1	1	<0.1	5.1	2.1	4.4	11	<0.01	0.9	<0.00005	0.1	0.005	0.55	0.096
11/04/2022	16	2,000	800	550	7.7	160	21	<5	5	38	<0.1	<1	0.2	7.8	3.1	5.5	11	<0.01	0.9	<0.00005	0.15	0.012	0.7	0.15
23/05/2022	20	2,000	800	560	7.3	93	16	<5	2	20	<0.1	<1	0.2	5.5	2.1	3.4	5.4	<0.01	0.5	<0.00005	0.09	0.007	0.35	0.11
22/06/2022	24	2,000	800	570	7.1	84	17	<5	2	19	<0.1	<1	0.2	4.9	1.8	2.9	4.5	<0.01	0.5	<0.00005	0.09	0.006	0.29	0.11
20/07/2022	28	2,000	800	580	7.3	78	16	<5	2	16	<0.1	<1	0.2	5	2.2	3.3	4.7	<0.01	0.5	<0.00005	0.09	0.005	0.27	0.1
16/08/2022	32	2,000	800	580	6.9	65	16	<5	3	37	<0.1	<1	0.2	7.4	3.9	3.2	5.7	0.02	1	<0.00005	0.07	0.005	0.21	0.09
13/09/2022	36	2,000	800	565	6.9	62	16	<5	<1	11	<0.1	<1	0.1	4.4	1.6	2.4	3.1	0.01	0.5	<0.00005	0.09	0.005	0.23	0.098
13/10/2022	40	2,000	800	580	7.1	63	16	<5	<1	12	<0.1	<1	0.1	4.5	1.6	2	3	<0.01	0.5	<0.00005	0.08	0.004	0.2	0.11
8/11/2022	44	2,000	800	580	6.7	54	17	<5	<1	12	<0.1	<1	0.3	4.5	1.5	2	2.6	<0.01	0.5	<0.00005	0.1	0.005	0.2	0.11
6/12/2022	48	2,000	800	560	7.3	67	17	<5	<1	14	<0.1	<1	0.4	4	1.5	2.3	2.8	<0.01	0.6	<0.00005	0.02	0.004	0.49	0.11

Date	Week	Sample Mass	Bi	Cd	Cr	Co	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	Tl	U	V	Zn	Hg
		Dry (g)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
14/01/2022	4	2,000	<0.0001	<0.0001	<0.001	<0.001	0.002	<0.01	0.04	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	0.046	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.01	<0.00005
17/02/2022	8	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	0.04	0.033	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	0.046	<0.0005	0.002	<0.0001	<0.0005	<0.001	0.037	<0.00005
15/03/2022	12	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.029	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	0.041	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.023	<0.00005
11/04/2022	16	2,000	<0.0001	0.0001	<0.001	<0.001	<0.001	0.01	0.047	0.008	<0.001	<0.001	0.002	0.001	<0.001	0.069	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.043	<0.00005
23/05/2022	20	2,000	<0.0001	<0.0001	<0.001	<0.001	0.003	<0.01	0.031	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	0.041	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.028	<0.00005
22/06/2022	24	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.031	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	0.039	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.028	<0.00005
20/07/2022	28	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.03	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	0.038	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.025	<0.00005
16/08/2022	32	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.022	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.031	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.016	<0.00005
13/09/2022	36	2,000	<0.0002	<0.0001	<0.001	<0.001	<0.001	<0.01	0.023	0.002	<0.001	<0.001	0.001	<0.001	<0.001	0.034	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.018	<0.00005
13/10/2022	40	2,000	<0.0002	<0.0001	<0.001	<0.001	<0.001	<0.01	0.021	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.036	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.017	<0.00005
8/11/2022	44	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.021	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.039	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.017	<0.00005
6/12/2022	48	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.016	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.04	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.018	<0.00005

Tot Alk - Total Alkalinity; Acidity to pH 8.3

Project No: DEG003
Sample ID: SLST_5
Client ID: AQUILA

Date	Week	Sample Mass	Mass of Fluid		pH	EC	Alkalinity	Acidity	Cl	SO4	F	TOC	Total N	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba
		Dry (g)	Input (g)	Output (g)	-	µS/cm	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
14/01/2022	4	2,000	800	550	7.2	430	9	<5	76	74	<0.1	2	0.2	8	7.5	3.3	50	0.06	1.9	<0.00005	<0.1	0.37	1.4	0.086
17/02/2022	8	2,000	800	600	7.1	320	11	<5	46	66	<0.1	1	0.2	8.8	6.5	3.5	34	0.07	0.9	<0.00005	0.32	0.59	0.57	0.2
15/03/2022	12	2,000	800	590	7	390	13	<5	52	83	0.1	3	0.2	12	8.1	3.5	44	0.11	1.4	<0.00005	0.04	0.61	0.67	0.22
11/04/2022	16	2,000	800	590	7.5	340	15	<5	38	80	0.1	1	0.3	11	7	4.5	35	0.12	1.6	<0.00005	0.05	0.95	0.91	0.2
23/05/2022	20	2,000	800	640	7.1	180	12	<5	13	43	<0.1	1	0.3	7.4	4	2.7	16	0.09	0.9	<0.00005	0.03	0.52	0.6	0.085
22/06/2022	24	2,000	800	610	6.9	120	12	8	8	27	<0.1	<1	0.2	4.8	2.6	1.7	9.9	0.09	0.8	<0.00005	0.03	0.37	0.44	0.07
20/07/2022	28	2,000	800	600	7.1	120	11	<5	6	31	<0.1	1	0.1	5.1	3.3	2.5	12	0.1	3	<0.00005	0.02	0.4	0.46	0.064
16/08/2022	32	2,000	800	620	6.9	110	11	<5	5	27	<0.1	<1	0.2	4.7	3.3	2.1	9.1	0.09	0.7	<0.00005	0.02	0.41	0.49	0.068
13/09/2022	36	2,000	800	620	6.8	93	12	<5	3	24	<0.1	<1	<0.1	4.6	2.4	1.8	7.4	0.08	0.9	<0.00005	0.03	0.45	0.5	0.092
13/10/2022	40	2,000	800	600	6.9	92	12	<5	3	24	<0.1	<1	<0.1	4.5	2.5	1.5	7.5	0.07	0.9	<0.00005	0.03	0.41	0.47	0.11
8/11/2022	44	2,000	800	620	6.6	74	13	<5	3	22	<0.1	<1	0.3	4.2	2.1	1.5	6	0.02	1	<0.00005	0.03	0.44	0.57	0.12
6/12/2022	48	2,000	800	590	7.1	95	10	<5	3	27	<0.1	<1	0.3	4.3	2.1	2.1	7.2	0.05	1.4	<0.00005	<0.1	0.41	0.74	0.15

Date	Week	Sample Mass	Bi	Cd	Cr	Co	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	Tl	U	V	Zn	Hg
		Dry (g)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
14/01/2022	4	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.051	0.003	0.006	<0.001	0.005	0.002	<0.001	0.099	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.027	<0.00005
17/02/2022	8	2,000	<0.0001	<0.0001	<0.001	0.001	<0.001	0.16	0.031	0.003	0.005	<0.001	0.009	0.002	<0.001	0.11	<0.0005	0.005	<0.0001	0.0007	0.001	0.071	<0.00005
15/03/2022	12	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.023	0.006	0.003	<0.001	0.012	0.003	<0.001	0.11	<0.0005	<0.001	<0.0001	0.0006	0.001	0.067	<0.00005
11/04/2022	16	2,000	<0.0001	<0.0001	<0.001	0.001	<0.001	<0.01	0.012	0.011	0.002	<0.001	0.016	0.003	<0.001	0.12	<0.0005	<0.001	<0.0001	0.0017	0.001	0.052	0.00007
23/05/2022	20	2,000	<0.0001	<0.0001	<0.001	<0.001	0.004	<0.01	0.003	0.008	0.003	<0.001	0.011	0.001	<0.001	0.075	<0.0005	<0.001	<0.0001	0.0012	<0.001	0.033	<0.00005
22/06/2022	24	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.01	0.007	0.002	<0.001	0.008	0.001	<0.001	0.046	<0.0005	<0.001	<0.0001	0.0007	<0.001	0.018	<0.00005
20/07/2022	28	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.004	0.009	0.002	<0.001	0.009	0.001	<0.001	0.049	<0.0005	<0.001	<0.0001	0.0011	<0.001	0.025	<0.00005
16/08/2022	32	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.002	0.011	0.001	<0.001	0.009	0.001	<0.001	0.042	<0.0005	<0.001	<0.0001	0.0013	<0.001	0.022	<0.00005
13/09/2022	36	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.002	0.009	0.001	<0.001	0.01	<0.001	<0.001	0.039	<0.0005	<0.001	<0.0001	0.001	<0.001	0.022	<0.00005
13/10/2022	40	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.002	0.01	0.001	<0.001	0.009	0.001	<0.001	0.041	<0.0005	<0.001	<0.0001	0.0009	<0.001	0.02	<0.00005
8/11/2022	44	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.001	0.011	0.001	<0.001	0.009	<0.001	<0.001	0.04	<0.0005	<0.001	<0.0001	0.0008	<0.001	0.022	<0.00005
6/12/2022	48	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.002	0.009	0.001	<0.001	0.01	0.001	<0.001	0.039	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.028	<0.00005

Tot Alk - Total Alkalinity; Acidity to pH 8.3

Project No: DEG003
Sample ID: BLSH_8
Client ID: AQUILA

Date	Week	Sample Mass	Mass of Fluid		pH	EC	Alkalinity	Acidity	Cl	SO4	F	TOC	Total N	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba
		Dry (g)	Input (g)	Output (g)	-	µS/cm	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	800	410	6.7	2300	11	9	280	860	0.3	10	0.02	110	130	11	160	2.2	1.9	<0.00005	0.03	0.11	<0.02	0.033
5/07/2022	8	2,000	800	420	7	3000	11	<5	410	1300	0.2	10	0.02	180	180	12	200	2.1	3.6	<0.00005	0.01	0.13	0.03	0.061
27/07/2022	12	2,000	800	440	6.8	2800	11	<5	390	1200	0.2	7	0.02	170	170	12	200	1.4	3.5	<0.00005	0.01	0.12	0.02	0.036
23/08/2022	16	2,000	800	390	6.8	3100	14	<5	500	1200	0.1	8	1.1	180	180	12	250	0.02	4	<0.00005	0.01	0.092	<0.02	0.05
20/09/2022	20	2,000	800	400	6.6	2600	13	<5	370	730	0.1	7	0.8	150	140	11	210	0.03	4.5	<0.00005	0.01	0.12	<0.02	0.047
18/10/2022	24	2,000	800	400	6.9	2300	15	<5	290	1200	0.1	6	0.6	140	130	10	200	0.03	4.7	<0.00005	0.01	0.11	<0.02	0.033
15/11/2022	28	2,000	800	400	6.8	1400	11	<5	81	750	0.1	5	0.4	83	73	8.5	97	0.01	4.8	<0.00005	0.01	0.12	0.02	0.022
11/01/2023	32	2,000	800	370	7	1100	11	<5	31	580	0.1	3	0.4	70	58	8	57	0.02	5.5	<0.00005	0.01	0.1	0.22	0.018
10/01/2023	36	2,000	800	430	7	870	11	<5	13	470	<0.1	3	0.2	59	50	7.5	41	0.03	6.2	<0.00005	0.03	0.12	0.2	0.017
07/02/2023	40	2,000	800	410	7	640	9	<5	6	330	<0.1	4	0.1	46	37	6.6	22	0.03	5.4	<0.00005	0.01	0.12	0.2	0.018
8/03/2023	44	2,000	800	410	6.6	620	8	<5	22	310	<0.1	2	0.1	43	35	6	15	0.01	5.7	<0.00005	0.01	0.1	0.2	0.02
4/04/2023	48	2,000	800	410	6.7	510	9	<5	8	250	5.4	1	0.2	38	32	5.3	9.7	<0.01	5.3	0.00008	0.03	0.08	0.1	0.02
30/06/2023	52	2,000	800	410	6.3	550	5	<5	1	270	<0.1	2	0.2	42	30	4.2	7.8	<0.01	4.8	<0.00005	0.01	0.014	0.04	0.02

Date	Week	Sample Mass	Bi	Cd	Cr	Co	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	Tl	U	V	Zn	Hg
		Dry (g)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
27/05/2022	4	2,000	<0.0001	0.0005	<0.001	0.16	0.003	<0.01	2.8	0.02	1.7	<0.001	0.005	0.015	<0.001	1.9	<0.0005	<0.001	0.0006	<0.0005	<0.001	0.029	<0.001
24/06/2022	8	2,000	<0.0001	0.0006	<0.001	0.17	0.003	0.04	3.4	0.036	1.2	<0.001	0.007	0.02	<0.001	2.8	<0.0005	<0.001	0.001	<0.0005	<0.001	0.05	<0.001
22/07/2022	12	2,000	<0.0001	0.0003	<0.001	0.15	0.002	0.01	2.6	0.024	1.2	<0.001	0.006	0.018	<0.001	2.4	<0.0005	<0.001	0.0008	<0.0005	<0.001	0.02	<0.001
19/08/2022	16	2,000	<0.0001	0.0004	<0.001	0.17	0.002	0.01	2.7	0.024	1.4	<0.001	0.006	0.017	<0.001	2.4	<0.0005	<0.001	0.001	0.0006	<0.001	0.025	<0.00005
16/09/2022	20	2,000	<0.0001	0.0003	<0.001	0.15	0.002	0.04	2.1	0.016	1.3	<0.001	0.007	0.014	<0.001	2	<0.0005	<0.001	0.0009	<0.0005	<0.001	0.026	<0.00005
14/10/2022	24	2,000	<0.0001	0.0003	<0.001	0.16	0.001	0.02	1.9	0.015	1.3	<0.001	0.006	0.014	<0.001	1.8	<0.0005	<0.001	0.0009	<0.0005	<0.001	0.025	<0.00005
11/11/2022	28	2,000	<0.0001	0.0002	<0.001	0.12	0.001	0.02	1.3	0.01	1	<0.001	0.006	0.007	<0.001	1.2	<0.0005	<0.001	0.0007	<0.0005	<0.001	0.026	<0.00005
9/12/2022	32	2,000	0.0002	0.0002	<0.001	0.13	<0.001	0.02	1.2	0.008	1.1	<0.001	0.006	0.005	<0.001	0.84	<0.0005	<0.001	0.0006	<0.0005	<0.001	0.033	<0.00005
6/01/2023	36	2,000	0.0002	0.0002	0.002	0.14	0.001	0.01	1.3	0.007	1.3	<0.001	0.007	0.004	<0.001	0.65	<0.0005	<0.001	0.0004	<0.0005	<0.001	0.04	<0.00005
07/02/2023	40	2,000	0.0001	0.0002	<0.001	0.13	<0.001	<0.01	1.2	0.007	1.2	<0.001	0.007	0.004	<0.001	0.49	0.0006	0.0003	<0.001	<0.0005	<0.001	0.049	<0.00005
3/03/2023	44	2,000	<0.0001	0.0002	<0.001	0.15	<0.001	<0.01	1.4	0.005	1.3	<0.001	0.005	0.003	<0.001	0.45	<0.0005	<0.001	0.0003	<0.0005	<0.001	0.059	<0.00005
31/03/2023	48	2,000	0.0002	0.0003	<0.001	0.16	0.001	0.07	1.5	0.004	1.3	<0.001	0.008	0.002	<0.001	0.39	<0.0005	<0.001	0.0004	<0.0005	<0.001	0.053	<0.00005
30/06/2023	52	2,000	0.0007	0.0006	<0.001	0.28	0.002	<0.01	2.4	0.002	2.2	<0.001	0.002	0.003	<0.001	0.4	<0.0005	<0.001	0.0002	<0.0005	<0.001	0.12	<0.00005

Tot Alk - Total Alkalinity; Acidity to pH 8.3

Project No: DEG003
Sample ID: BLSH_9
Client ID: AQUILA

Date	Week	Sample Mass	Mass of Fluid		pH	EC	Alkalinity	Acidity	Cl	SO4	F	TOC	Total N	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba
		Dry (g)	Input (g)	Output (g)	-	µS/cm	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	800	580	7.2	1700	20	7	360	280	0.3	11	0.17	33	41	16	210	2.6	1.2	<0.00005	0.01	1.1	0.07	0.078
5/07/2022	8	2,000	800	580	7.1	1000	17	<5	210	190	0.2	6	0.2	21	23	12	130	1.2	1.5	<0.00005	0.05	1.5	0.09	0.046
27/07/2022	12	2,000	800	590	7.4	670	21	<5	120	140	0.2	5	0.15	13	15	9.1	84	0.7	1.1	<0.00005	0.01	1.7	0.08	0.026
23/08/2022	16	2,000	800	570	7.4	450	28	<5	60	97	0.2	4	0.3	8.7	9.5	6.5	55	0.34	1.1	<0.00005	0.01	1.9	0.07	0.015
20/09/2022	20	2,000	800	580	7.4	280	31	<5	26	66	0.1	2	0.3	6.7	6.5	5.1	35	0.3	1.3	<0.00005	0.01	2.5	0.05	0.011
18/10/2022	24	2,000	800	545	7.6	240	37	<5	15	67	0.1	3	0.1	7.1	6.6	4.6	27	0.37	1.3	<0.00005	0.01	2.7	0.02	0.01
15/11/2022	28	2,000	800	515	7.5	180	31	<5	6	50	0.1	2	0.3	6.3	5.7	4.1	19	0.3	1.3	<0.00005	0.01	2.7	0.06	0.008
11/01/2023	32	2,000	800	545	7.7	170	32	<5	3	43	<0.1	2	1	6.1	5.5	4.3	16	0.44	1.4	<0.00005	0.01	2.6	0.37	0.006
10/01/2023	36	2,000	800	600	7.7	140	31	<5	2	32	<0.1	<1	0.2	5.4	4.6	4.3	14	0.28	1.6	<0.00005	<0.01	2.8	0.29	0.006
07/02/2023	40	2,000	800	560	7.6	120	30	<5	2	27	<0.1	8	0.1	5.4	4.6	4	10	0.37	1.4	<0.00005	0.01	2.3	0.23	0.006
8/03/2023	44	2,000	800	570	7.4	130	28	5	5	28	0.1	1	0.2	5.9	5	3.8	7.7	0.45	1.4	0.00005	0.01	2	0.2	0.006
4/04/2023	48	2,000	800	570	7.6	120	34	<5	1	27	<0.1	<1	0.2	7.1	5.8	3.9	6.1	0.26	1.4	0.00006	<0.01	2.2	0.1	0.006

Date	Week	Sample Mass	Bi	Cd	Cr	Co	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	Tl	U	V	Zn	Hg
		Dry (g)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	<0.0001	<0.0001	<0.001	0.005	0.003	<0.01	0.082	0.055	0.024	<0.001	0.026	0.009	<0.001	0.8	<0.0005	<0.001	<0.0001	0.0028	<0.001	0.009	<0.001
5/07/2022	8	2,000	<0.0001	<0.0001	<0.001	0.004	0.002	0.03	0.053	0.057	0.016	<0.001	0.042	0.008	<0.001	0.48	<0.0005	<0.001	<0.0001	0.0018	<0.001	0.017	<0.001
27/07/2022	12	2,000	<0.0001	<0.0001	<0.001	0.003	0.001	<0.01	0.018	0.044	0.011	<0.001	0.048	0.007	<0.001	0.25	<0.0005	<0.001	<0.0001	0.0043	<0.001	0.007	<0.001
23/08/2022	16	2,000	<0.0001	<0.0001	<0.001	0.001	<0.001	<0.01	0.004	0.038	0.007	<0.001	0.055	0.005	<0.001	0.17	<0.0005	<0.001	<0.0001	0.0042	<0.001	0.006	<0.00005
20/09/2022	20	2,000	<0.0001	<0.0001	<0.001	0.001	<0.001	<0.01	0.002	0.034	0.005	<0.001	0.062	0.004	<0.001	0.1	<0.0005	<0.001	<0.0001	0.0031	<0.001	0.006	<0.00005
18/10/2022	24	2,000	<0.0001	<0.0001	<0.001	0.001	<0.001	<0.01	0.001	0.044	0.005	<0.001	0.07	0.005	<0.001	0.11	<0.0005	<0.001	<0.0001	0.0039	<0.001	0.005	<0.00005
15/11/2022	28	2,000	<0.0001	<0.0001	<0.001	0.001	<0.001	<0.01	0.001	0.046	0.005	<0.001	0.062	0.003	<0.001	0.1	<0.0005	<0.001	<0.0001	0.003	<0.001	0.006	<0.00005
11/01/2023	32	2,000	<0.0001	<0.0001	<0.001	0.001	<0.001	<0.01	0.002	0.044	0.004	<0.001	0.054	0.002	<0.001	0.089	<0.0005	<0.001	<0.0001	0.0024	<0.001	0.008	<0.00005
10/01/2023	36	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.002	0.03	0.003	<0.001	0.062	0.002	<0.001	0.063	<0.0005	<0.001	<0.0001	0.0019	<0.001	0.005	<0.00005
07/02/2023	40	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.002	0.025	0.004	<0.001	0.046	0.002	<0.001	0.068	<0.0005	<0.0001	<0.001	0.002	<0.001	0.014	<0.00005
8/03/2023	44	2,000	0.0001	0.0001	0.001	0.001	0.001	0.01	0.002	0.027	0.004	0.001	0.04	0.001	0.001	0.069	0.0005	0.001	0.0001	0.0017	0.001	0.014	0.00005
4/04/2023	48	2,000	<0.0001	<0.0001	<0.001	0.001	<0.001	<0.01	0.003	0.031	0.005	<0.001	0.04	<0.001	<0.001	0.08	<0.0005	<0.001	<0.0001	0.0017	<0.001	0.006	<0.00005

Tot Alk - Total Alkalinity; Acidity to pH 8.3

Project No: DEG003
Sample ID: IIRK_9
Client ID: BROLGA

Date	Week	Sample Mass	Mass of Fluid		pH	EC	Alkalinity	Acidity	Cl	SO4	F	TOC	Total N	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba
		Dry (g)	Input (g)	Output (g)	-	µS/cm	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	600	430	7.7	260	44	<5	16	61	0.3	2	0.58	16	2.1	0.9	26	0.2	0.4	<0.00005	0.08	0.004	<0.02	0.005
5/07/2022	8	2,000	600	450	7	200	19	<5	12	57	0.3	1	0.12	10	1.6	0.7	22	0.1	0.1	0.00006	0.05	0.007	<0.02	0.004
27/07/2022	12	2,000	600	450	7.3	130	16	<5	7	34	0.2	2	0.19	8.7	1.1	0.8	14	<0.1	<0.1	<0.00005	0.04	0.005	<0.02	0.003
23/08/2022	16	2,000	600	430	6.9	110	14	<5	5	26	0.2	1	<0.1	7.3	1.1	<0.5	10	0.12	<0.1	<0.00005	0.02	0.004	<0.02	0.002
20/09/2022	20	2,000	600	425	7.2	110	24	<5	4	19	<0.1	2	0.2	8.4	0.6	<0.5	9.3	0.26	0.2	<0.00005	0.07	0.004	<0.02	0.002
18/10/2022	24	2,000	600	440	7.5	100	24	<5	4	22	0.2	2	0.1	8.1	0.8	<0.5	8.9	0.27	0.1	<0.00005	0.07	0.005	<0.02	0.002
15/11/2022	28	2,000	600	445	6.8	71	15	<5	2	15	0.2	1	0.3	6.6	0.5	<0.5	4.9	0.24	<0.1	<0.00005	0.05	0.004	<0.02	0.002
11/01/2023	32	2,000	600	435	7.4	88	16	<5	2	19	0.2	<1	0.3	6.9	0.7	<0.5	6.9	0.18	<0.1	<0.00005	0.04	0.005	0.08	0.002
10/01/2023	36	2,000	600	470	7.4	75	18	<5	2	15	<0.1	<1	0.2	8.1	0.6	<0.5	5.2	0.34	<0.2	<0.00005	0.05	0.005	0.06	0.002
07/02/2023	40	2,000	600	430	6.7	67	11	<5	2	18	0.2	3	0.1	6.4	0.6	<0.5	4.6	0.02	<0.1	<0.00005	0.04	0.004	0.04	0.003
8/03/2023	44	2,000	600	440	7.1	66	10	5	2	17	0.1	1	0.2	6.1	0.5	0.5	3.8	0.13	0.1	0.00005	0.02	0.004	0.03	0.002
4/04/2023	48	2,000	600	440	7	74	12	<5	2	21	<0.1	<1	0.2	7.4	0.7	<0.5	4.1	0.1	<0.1	0.0001	0.02	0.005	0.02	0.002

Date	Week	Sample Mass	Bi	Cd	Cr	Co	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	Tl	U	V	Zn	Hg
		Dry (g)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.29	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	0.13	<0.0005	<0.001	<0.0001	0.0008	<0.001	0.001	<0.001
5/07/2022	8	2,000	0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.15	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	0.1	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.004	<0.001
27/07/2022	12	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.1	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	0.072	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.003	<0.001
23/08/2022	16	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.085	0.002	0.003	<0.001	<0.001	<0.001	<0.001	0.066	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.004	<0.00005
20/09/2022	20	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.11	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.061	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.001	<0.00005
18/10/2022	24	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.11	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.062	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.001	<0.00005
15/11/2022	28	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	0.01	0.096	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.059	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.004	<0.00005
11/01/2023	32	2,000	<0.0001	<0.0001	<0.001	<0.001	0.001	<0.01	0.086	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.058	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.005	<0.00005
10/01/2023	36	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.096	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.051	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.002	<0.00005
07/02/2023	40	2,000	0.0001	<0.0001	<0.001	<0.001	0.002	<0.01	0.055	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.049	<0.0005	<0.0001	<0.001	<0.0005	<0.001	0.011	<0.00005
8/03/2023	44	2,000	0.0001	0.0001	0.001	0.001	0.001	0.01	0.044	0.001	0.001	0.001	0.001	0.001	0.001	0.045	0.0005	0.001	0.0001	0.0005	0.001	0.013	0.00005
4/04/2023	48	2,000	0.0002	<0.0001	<0.001	<0.001	<0.001	<0.01	0.052	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.056	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.007	<0.00005

Tot Alk - Total Alkalinity; Acidity to pH 8.3

Project No: DEG003
Sample ID: IIRK_17
Client ID: DIUCON

Date	Week	Sample Mass	Mass of Fluid		pH	EC	Alkalinity	Acidity	Cl	SO4	F	TOC	Total N	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba
		Dry (g)	Input (g)	Output (g)	-	µS/cm	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	800	610	7.2	250	26	5	12	74	0.1	<1	0.03	11	8.9	5.1	16	0.2	0.4	<0.00005	0.02	0.001	<0.02	0.005
5/07/2022	8	2,000	800	620	7	200	17	<5	9	64	<0.1	<1	<0.01	9.2	7.2	4.5	12	<0.1	0.6	<0.00005	0.1	0.014	<0.02	0.004
27/07/2022	12	2,000	800	640	7.2	140	15	<5	5	44	<0.1	1	<0.01	7.4	6.3	4	7.9	<0.1	0.4	<0.00005	0.08	0.011	<0.02	0.003
23/08/2022	16	2,000	800	590	7	120	17	<5	3	31	<0.1	1	<0.1	5.7	4.9	2.9	5.4	<0.01	0.3	<0.00005	0.07	0.008	<0.02	0.002
20/09/2022	20	2,000	800	630	6.9	110	19	<5	2	26	<0.1	<1	0.2	5.8	4.6	2.6	4.3	<0.01	0.4	<0.00005	0.08	0.007	<0.02	0.002
18/10/2022	24	2,000	800	620	7.4	100	22	<5	3	28	<0.1	1	<0.1	6	4.9	2.7	4.2	0.01	0.4	<0.00005	0.08	0.007	<0.02	0.002
15/11/2022	28	2,000	800	630	7	82	18	<5	1	20	<0.1	<1	0.2	5.4	3.7	2.2	2.7	<0.01	0.4	<0.00005	0.11	0.007	<0.02	0.002
11/01/2023	32	2,000	800	620	7.4	94	19	<5	<1	22	<0.1	<1	0.3	5.6	4.3	2.5	2.6	0.01	0.4	<0.00005	0.07	0.006	0.22	0.001
10/01/2023	36	2,000	800	680	7.4	90	23	<5	<1	21	<0.1	<1	0.2	5.8	4.7	2.3	2.5	0.03	0.4	<0.00005	0.04	0.003	0.2	0.001
07/02/2023	40	2,000	800	630	6.9	67	16	<5	1	16	<0.1	4	<0.1	4.5	3.5	1.9	1.8	0.01	0.3	<0.00005	0.05	0.005	0.08	0.001
8/03/2023	44	2,000	800	620	7.4	82	16	5	1	17	0.1	1	0.1	5.1	3.9	1.8	1.7	0.01	0.3	0.00005	0.06	0.005	0.06	0.001
4/04/2023	48	2,000	800	630	7.4	89	26	<5	<1	20	<0.1	<1	0.2	5.5	4.7	1.7	1.8	0.02	0.3	<0.00005	0.05	0.004	0.04	0.001

Date	Week	Sample Mass	Bi	Cd	Cr	Co	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	Tl	U	V	Zn	Hg
		Dry (g)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.1	0.007	0.001	<0.001	0.018	0.001	<0.001	0.1	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.001	<0.001
5/07/2022	8	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.031	0.007	<0.001	<0.001	0.015	0.001	<0.001	0.083	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.005	<0.001
27/07/2022	12	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.019	0.005	<0.001	<0.001	0.012	0.001	<0.001	0.054	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.004	<0.001
23/08/2022	16	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.012	0.003	<0.001	<0.001	0.008	<0.001	<0.001	0.044	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.005	<0.00005
20/09/2022	20	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.017	0.004	<0.001	<0.001	0.009	0.001	<0.001	0.041	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.003	<0.00005
18/10/2022	24	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.015	0.004	<0.001	<0.001	0.01	0.001	<0.001	0.041	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.003	<0.00005
15/11/2022	28	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.016	0.004	<0.001	<0.001	0.008	<0.001	<0.001	0.045	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.003	<0.00005
11/01/2023	32	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.019	0.004	<0.001	<0.001	0.007	<0.001	<0.001	0.037	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.003	<0.00005
10/01/2023	36	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.025	0.003	<0.001	<0.001	0.01	<0.001	<0.001	0.032	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.001	<0.00005
07/02/2023	40	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.013	0.003	<0.001	<0.001	0.006	<0.001	<0.001	0.026	<0.0005	<0.0001	<0.001	<0.0005	<0.001	0.007	<0.00005
8/03/2023	44	2,000	0.0001	0.0001	0.001	0.001	0.001	0.01	0.013	0.002	0.001	0.001	0.006	0.001	0.001	0.029	0.0005	0.001	0.0001	0.0005	0.001	0.008	0.00005
4/04/2023	48	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.017	0.002	<0.001	<0.001	0.006	<0.001	<0.001	0.033	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.003	<0.00005

Tot Alk - Total Alkalinity; Acidity to pH 8.3

Project No: DEG003
Sample ID: IIRK_22
Client ID: FALCON

Date	Week	Sample Mass	Mass of Fluid		pH	EC	Alkalinity	Acidity	Cl	SO4	F	TOC	Total N	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba
		Dry (g)	Input (g)	Output (g)	-	µS/cm	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	800	560	7	230	15	6	9	75	0.2	1	0.04	7.3	3.6	2.2	26	<0.1	0.5	<0.00005	0.01	0.003	0.03	0.003
5/07/2022	8	2,000	800	590	6.8	280	13	<5	13	100	0.2	1	0.02	11	5	2.2	30	<0.1	0.8	<0.00005	0.05	0.008	0.04	0.003
27/07/2022	12	2,000	800	600	7	220	13	<5	8	81	<0.1	1	0.05	10	5	2.2	24	<0.1	0.5	<0.00005	0.03	0.006	0.03	0.003
23/08/2022	16	2,000	800	630	6.8	210	13	<5	5	73	<0.1	2	0.1	10	4.7	1.8	19	0.02	0.5	<0.00005	0.04	0.013	0.02	0.002
20/09/2022	20	2,000	800	590	6.8	190	16	<5	4	66	<0.1	<1	0.2	11	4.7	1.7	15	0.06	0.7	<0.00005	0.05	0.006	<0.02	0.003
18/10/2022	24	2,000	800	590	7.1	210	16	<5	4	92	<0.1	2	0.1	13	7	2.2	16	0.06	0.7	<0.00005	0.04	0.008	<0.02	0.003
15/11/2022	28	2,000	800	600	6.8	200	13	<5	2	88	<0.1	<1	0.3	15	6.7	2	11	0.05	0.7	<0.00005	0.05	0.009	0.03	0.004
11/01/2023	32	2,000	800	580	7.3	230	14	<5	2	89	<0.1	<1	0.4	17	7.3	2.4	9.5	<0.1	1	<0.00005	0.06	0.01	0.26	0.004
10/01/2023	36	2,000	800	660	7.2	170	15	<5	2	67	<0.1	<1	0.3	13	6.4	2.1	7.9	0.06	0.9	<0.00005	0.04	0.007	0.2	0.003
07/02/2023	40	2,000	800	600	6.8	160	14	<5	2	66	<0.1	4	0.2	15	5.8	1.9	4.9	0.04	0.7	<0.00005	0.05	0.007	0.1	0.004
8/03/2023	44	2,000	800	590	7.2	190	14	5	2	71	0.1	1	0.2	17	6.2	1.9	4.6	0.11	0.8	0.00005	0.05	0.008	0.1	0.004
4/04/2023	48	2,000	800	610	7.2	210	20	<5	2	82	<0.1	<1	0.3	20	6.9	2	4.6	0.07	0.9	0.00006	0.05	0.008	0.07	0.005

Date	Week	Sample Mass	Bi	Cd	Cr	Co	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	Tl	U	V	Zn	Hg
		Dry (g)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.12	0.003	<0.001	<0.001	<0.001	0.003	0.001	0.065	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.003	<0.001
5/07/2022	8	2,000	<0.0001	<0.0001	<0.001	<0.001	0.002	0.01	0.066	0.006	<0.001	<0.001	<0.001	0.004	0.002	0.094	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.006	<0.001
27/07/2022	12	2,000	<0.0001	<0.0001	<0.001	<0.001	0.001	<0.01	0.048	0.004	<0.001	<0.001	<0.001	0.004	<0.001	0.073	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.005	<0.001
23/08/2022	16	2,000	<0.0001	<0.0001	<0.001	<0.001	0.001	<0.01	0.027	0.003	<0.001	<0.001	<0.001	0.003	<0.001	0.073	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.005	<0.00005
20/09/2022	20	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.049	0.003	<0.001	<0.001	<0.001	0.003	<0.001	0.072	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.003	<0.00005
18/10/2022	24	2,000	<0.0001	<0.0001	<0.001	<0.001	0.001	<0.01	0.038	0.005	<0.001	<0.001	<0.001	0.004	<0.001	0.084	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.004	<0.00005
15/11/2022	28	2,000	<0.0001	<0.0001	<0.001	<0.001	0.001	<0.01	0.028	0.005	<0.001	<0.001	<0.001	0.003	<0.001	0.11	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.006	<0.00005
11/01/2023	32	2,000	<0.0001	<0.0001	<0.001	<0.001	0.001	<0.01	0.02	0.005	<0.001	<0.001	<0.001	0.003	<0.001	0.11	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.005	<0.00005
10/01/2023	36	2,000	<0.0001	<0.0001	<0.001	<0.001	0.001	<0.01	0.033	0.005	<0.001	<0.001	<0.001	0.002	<0.001	0.076	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.004	<0.00005
07/02/2023	40	2,000	<0.0001	<0.0001	<0.001	<0.001	0.001	<0.01	0.038	0.004	<0.001	<0.001	<0.001	0.001	<0.001	0.086	<0.0005	<0.0001	<0.001	<0.0005	<0.001	0.008	<0.00005
8/03/2023	44	2,000	0.0001	0.0001	0.001	0.001	0.001	0.01	0.028	0.004	0.001	0.001	0.001	0.002	0.001	0.095	0.0005	0.001	0.0001	0.0005	0.001	0.01	0.00005
4/04/2023	48	2,000	0.0001	<0.0001	<0.001	<0.001	0.001	<0.01	0.02	0.006	<0.001	<0.001	<0.001	0.001	<0.001	0.12	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.005	<0.00005

Tot Alk - Total Alkalinity; Acidity to pH 8.3

Project No: DEG003
Sample ID: MIRK_43
Client ID: AQUILA

Date	Week	Sample Mass	Mass of Fluid		pH	EC	Alkalinity	Acidity	Cl	SO4	F	TOC	Total N	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba
		Dry (g)	Input (g)	Output (g)	-	µS/cm	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	800	395	7.2	630	21	6	57	210	0.3	4	<0.01	18	34	3.9	42	0.3	0.6	<0.00005	0.01	0.016	0.05	0.004
5/07/2022	8	2,000	800	425	6.8	910	20	<5	97	330	0.3	4	<0.01	32	53	4.8	62	0.2	0.7	<0.00005	0.02	0.014	0.07	0.006
27/07/2022	12	2,000	800	450	7.2	840	25	<5	84	310	0.3	4	<0.01	28	54	5	56	<0.1	0.6	<0.00005	<0.01	0.01	0.07	0.004
23/08/2022	16	2,000	800	430	7.1	630	31	<5	55	220	0.3	4	<0.1	18	39	3.8	38	<0.01	0.5	<0.00005	<0.01	0.007	0.05	0.003
20/09/2022	20	2,000	800	420	7.1	530	41	<5	44	180	0.3	3	0.2	15	35	3.5	32	<0.01	0.6	<0.00005	0.01	0.007	0.04	0.002
18/10/2022	24	2,000	800	430	7.7	360	46	<5	26	130	0.2	2	<0.1	11	25	2.7	20	0.01	0.5	<0.00005	0.01	0.005	<0.02	0.001
15/11/2022	28	2,000	800	420	7.4	340	41	<5	20	120	0.2	2	0.3	11	25	2.5	17	<0.01	0.5	<0.00005	0.01	0.004	0.04	0.001
11/01/2023	32	2,000	800	410	7.8	310	48	<5	13	93	0.2	2	0.3	10	22	2.7	13	<0.01	0.5	<0.00005	0.01	0.004	0.2	<0.001
10/01/2023	36	2,000	800	460	7.9	320	50	<5	12	100	0.2	1	0.1	11	24	2.8	14	<0.01	0.6	<0.00005	0.01	0.003	0.2	<0.001
07/02/2023	40	2,000	800	430	7.7	280	54	<5	9	91	0.2	14	<0.1	10	23	2.6	11	<0.01	0.5	<0.00005	0.01	0.003	0.2	<0.001
8/03/2023	44	2,000	800	430	7.9	280	55	5	5	72	0.2	1	0.1	9.3	22	2.4	7.9	0.01	0.4	0.00005	0.02	0.002	0.1	0.001
4/04/2023	48	2,000	800	450	8	270	77	<5	4	67	0.2	1	0.2	9	22	2.2	6.3	<0.01	0.4	<0.00005	0.01	0.002	0.1	<0.001

Date	Week	Sample Mass	Bi	Cd	Cr	Co	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	Tl	U	V	Zn	Hg
		Dry (g)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	<0.0001	<0.0001	<0.001	0.002	<0.001	<0.01	0.13	0.01	0.001	<0.001	<0.001	0.003	<0.001	0.14	<0.0005	<0.001	<0.0001	0.026	<0.001	0.015	<0.001
5/07/2022	8	2,000	<0.0001	<0.0001	<0.001	0.003	0.001	<0.01	0.2	0.012	0.002	<0.001	<0.001	0.005	<0.001	0.28	<0.0005	<0.001	0.0001	0.045	<0.001	0.02	<0.001
27/07/2022	12	2,000	<0.0001	<0.0001	<0.001	0.003	<0.001	<0.01	0.2	0.009	0.001	<0.001	<0.001	0.005	<0.001	0.19	<0.0005	<0.001	<0.0001	0.071	<0.001	0.016	<0.001
23/08/2022	16	2,000	<0.0001	<0.0001	<0.001	0.002	<0.001	<0.01	0.14	0.007	<0.001	<0.001	<0.001	0.003	<0.001	0.12	<0.0005	<0.001	<0.0001	0.05	<0.001	0.012	<0.00005
20/09/2022	20	2,000	<0.0001	<0.0001	<0.001	0.002	<0.001	<0.01	0.12	0.007	<0.001	<0.001	<0.001	0.003	<0.001	0.1	<0.0005	<0.001	<0.0001	0.04	<0.001	0.013	<0.00005
18/10/2022	24	2,000	<0.0001	<0.0001	<0.001	0.001	<0.001	<0.01	0.081	0.006	<0.001	<0.001	<0.001	0.002	<0.001	0.07	<0.0005	<0.001	<0.0001	0.032	<0.001	0.01	<0.00005
15/11/2022	28	2,000	<0.0001	<0.0001	<0.001	0.001	<0.001	<0.01	0.07	0.005	<0.001	<0.001	<0.001	0.001	<0.001	0.073	<0.0005	<0.001	<0.0001	0.035	<0.001	0.012	<0.00005
11/01/2023	32	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.042	0.005	<0.001	<0.001	<0.001	0.001	<0.001	0.053	<0.0005	<0.001	<0.0001	0.02	<0.001	0.01	<0.00005
10/01/2023	36	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.032	0.005	<0.001	<0.001	<0.001	0.001	<0.001	0.05	<0.0005	<0.001	<0.0001	0.023	<0.001	0.009	<0.00005
07/02/2023	40	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.027	0.004	<0.001	<0.001	<0.001	0.001	<0.001	0.045	<0.0005	<0.0001	<0.001	0.022	<0.001	0.02	0.00016
8/03/2023	44	2,000	0.0001	0.0001	0.001	0.001	0.001	0.01	0.022	0.004	0.001	0.001	0.001	0.001	0.001	0.039	0.0005	0.001	0.0001	0.018	0.001	0.034	0.00005
4/04/2023	48	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.022	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	0.037	<0.0005	<0.001	<0.0001	0.018	<0.001	0.01	<0.00005

Tot Alk - Total Alkalinity; Acidity to pH 8.3

Project No: DEG003
Sample ID: SDST_1
Client ID: AQUILA

Date	Week	Sample Mass	Mass of Fluid		pH	EC	Alkalinity	Acidity	Cl	SO4	F	TOC	Total N	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba
		Dry (g)	Input (g)	Output (g)	-	µS/cm	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	800	500	6.6	1500	8	8	230	410	0.3	5	0.12	58	54	9.9	140	1.3	1.4	<0.00005	<0.01	0.67	0.08	0.029
5/07/2022	8	2,000	800	550	6.4	1400	6	<5	230	390	0.2	3	0.11	52	52	10	130	0.9	1.6	<0.00005	<0.01	0.79	0.1	0.03
27/07/2022	12	2,000	800	540	6.6	880	6	<5	120	280	0.2	3	0.09	32	36	7.8	81	0.5	1.4	<0.00005	<0.01	0.93	0.09	0.017
23/08/2022	16	2,000	800	520	6.6	700	7	<5	74	240	0.2	3	0.3	23	28	6.5	61	0.16	1.7	<0.00005	<0.01	1.2	0.08	0.012
20/09/2022	20	2,000	800	520	6.5	420	7	<5	32	150	0.1	2	0.3	13	17	4.9	35	<0.01	2	<0.00005	<0.01	1.2	0.06	0.008
18/10/2022	24	2,000	800	530	6.7	280	7	<5	14	120	<0.1	2	0.1	9.1	12	3.8	22	0.16	1.7	<0.00005	<0.01	1.2	0.03	0.005
15/11/2022	28	2,000	800	515	6.5	230	5	<5	7	100	<0.1	1	0.3	7.9	11	3.5	16	0.11	2	<0.00005	<0.01	1.3	0.06	0.004
11/01/2023	32	2,000	800	500	6.7	220	5	<5	4	92	<0.1	1	0.3	7.8	11	3.8	12	0.1	2.2	<0.00005	<0.01	1.6	0.41	0.004
10/01/2023	36	2,000	800	550	6.7	190	6	<5	2	84	<0.1	<1	0.1	7.6	10	3.6	9.6	0.14	2.8	<0.00005	<0.01	1.3	0.25	0.003
07/02/2023	40	2,000	800	505	6.5	160	6	<5	2	70	<0.1	2	<0.1	6.7	9.2	3.1	6.6	0.14	2.5	<0.00005	<0.01	1.2	0.2	0.003
8/03/2023	44	2,000	800	490	6.7	170	6	5	2	71	0.1	1	0.2	7	9.7	3.1	5.3	0.14	2.6	0.00005	<0.01	1.2	0.1	0.004
4/04/2023	48	2,000	800	510	6.8	170	9	<5	2	66	<0.1	<1	0.2	7.1	9.7	2.9	3.9	0.12	2.7	0.00008	0.01	1.2	0.08	0.004
30/06/2023	52	2,000	800	490	6.6	160	6	<5	<1	65	<0.1	<1	<0.1	7	8.9	2.4	2.9	<0.01	2.6	<0.00005	<0.01	0.97	0.03	0.003

Date	Week	Sample Mass	Bi	Cd	Cr	Co	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	Tl	U	V	Zn	Hg
		Dry (g)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	<0.0001	<0.0001	<0.001	0.079	<0.001	<0.01	0.59	0.034	0.5	<0.001	0.003	0.008	<0.001	0.9	<0.0005	<0.001	0.0003	<0.0005	<0.001	0.03	<0.001
5/07/2022	8	2,000	<0.0001	<0.0001	<0.001	0.058	<0.001	<0.01	0.57	0.039	0.41	<0.001	0.005	0.009	<0.001	0.84	<0.0005	<0.001	0.0004	<0.0005	<0.001	0.024	<0.001
27/07/2022	12	2,000	<0.0001	<0.0001	<0.001	0.057	<0.001	<0.01	0.43	0.023	0.37	<0.001	0.005	0.007	<0.001	0.46	<0.0005	<0.001	0.0003	<0.0005	<0.001	0.02	<0.001
23/08/2022	16	2,000	<0.0001	<0.0001	<0.001	0.059	<0.001	<0.01	0.41	0.021	0.37	<0.001	0.005	0.005	<0.001	0.38	<0.0005	<0.001	0.0002	<0.0005	<0.001	0.019	<0.00005
20/09/2022	20	2,000	<0.0001	<0.0001	<0.001	0.043	<0.001	<0.01	0.31	0.013	0.27	<0.001	0.006	0.004	<0.001	0.2	<0.0005	<0.001	0.0002	<0.0005	<0.001	0.018	<0.00005
18/10/2022	24	2,000	<0.0001	<0.0001	<0.001	0.035	<0.001	<0.01	0.22	0.01	0.2	<0.001	0.006	0.003	<0.001	0.13	<0.0005	<0.001	0.0001	<0.0005	<0.001	0.016	<0.00005
15/11/2022	28	2,000	<0.0001	<0.0001	<0.001	0.036	<0.001	<0.01	0.26	0.008	0.21	<0.001	0.006	0.002	<0.001	0.13	<0.0005	<0.001	0.0001	<0.0005	<0.001	0.019	<0.00005
11/01/2023	32	2,000	<0.0001	<0.0001	<0.001	0.045	<0.001	<0.01	0.31	0.007	0.24	<0.001	0.005	0.001	<0.001	0.12	<0.0005	<0.01	0.0002	<0.0005	<0.001	0.027	<0.00005
10/01/2023	36	2,000	<0.0001	<0.0001	<0.001	0.051	<0.001	<0.01	0.3	0.005	0.28	<0.001	0.005	<0.001	<0.001	0.096	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.02	<0.00005
07/02/2023	40	2,000	<0.0001	<0.0001	<0.001	0.046	<0.001	<0.01	0.29	0.004	0.24	<0.001	0.005	<0.001	<0.001	0.086	<0.0005	<0.0001	<0.001	<0.0005	<0.001	0.03	<0.00005
8/03/2023	44	2,000	0.0001	0.0001	0.001	0.05	0.001	0.01	0.31	0.004	0.24	<0.001	0.006	0.001	0.001	0.092	0.0005	0.001	0.0001	0.0005	0.001	0.034	0.00005
4/04/2023	48	2,000	0.0002	<0.0001	<0.001	0.056	<0.001	<0.01	0.37	0.004	0.26	0.001	0.006	<0.001	<0.001	0.1	<0.0005	<0.001	0.0001	<0.0005	<0.001	0.025	<0.00005
30/06/2023	52	2,000	<0.0007	<0.0001	<0.001	0.076	<0.001	<0.01	0.51	0.002	0.35	<0.001	0.003	<0.001	<0.001	0.095	<0.0005	<0.001	0.0001	<0.0005	<0.001	0.032	<0.00005

Tot Alk - Total Alkalinity; Acidity to pH 8.3

Project No: DEG003
Sample ID: SLST_4
Client ID: AQUILA

Date	Week	Sample Mass	Mass of Fluid		pH	EC	Alkalinity	Acidity	Cl	SO4	F	TOC	Total N	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba
		Dry (g)	Input (g)	Output (g)	-	µS/cm	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	800	620	7.4	330	25	6	39	68	0.1	2	0.02	8.2	5.9	8.8	35	0.3	0.6	<0.00005	0.13	0.084	0.04	0.006
5/07/2022	8	2,000	800	600	7.3	180	22	<5	17	43	0.1	1	0.03	6.8	3.3	6.1	16	0.1	0.8	<0.00005	0.24	0.14	0.05	0.004
27/07/2022	12	2,000	800	620	7.3	120	16	<5	7	29	<0.1	1	0.02	6.3	3.2	4.9	9.9	<0.1	0.4	<0.00005	0.09	0.083	0.03	0.002
23/08/2022	16	2,000	800	610	7	110	16	<5	5	25	<0.1	1	<0.1	6	3.1	3.6	6.9	0.01	0.4	<0.00005	0.08	0.076	<0.02	0.002
20/09/2022	20	2,000	800	610	7.1	120	22	<5	4	26	<0.1	1	0.2	7.7	3.5	3.7	5.6	0.04	0.5	<0.00005	0.12	0.11	<0.02	0.002
18/10/2022	24	2,000	800	620	7.5	110	25	<5	3	29	<0.1	1	0.2	7.7	4	3.5	5.1	0.04	0.7	<0.00005	0.15	0.16	<0.02	0.002
15/11/2022	28	2,000	800	610	7.1	90	19	<5	1	21	<0.1	<1	0.3	6.8	3.2	2.7	3.1	0.02	0.7	<0.00005	0.17	0.15	0.03	0.002
11/01/2023	32	2,000	800	600	7.6	110	22	<5	1	25	<0.1	<1	0.3	8.2	4	3	2.9	0.02	0.9	<0.00005	0.2	0.19	0.38	0.002
10/01/2023	36	2,000	800	650	7.6	98	23	<5	<1	22	<0.1	<1	0.2	8.3	3.9	2.7	2.5	0.04	0.8	<0.00005	0.14	0.14	0.2	0.002
07/02/2023	40	2,000	800	610	7.2	86	22	<5	1	20	<0.1	5	0.1	7.6	3.6	2.4	1.9	0.03	0.8	<0.00005	0.15	0.14	0.1	0.002
8/03/2023	44	2,000	800	610	7.4	97	20	5	1	11	0.1	1	0.2	7.7	3.8	2.2	1.8	0.02	0.7	0.00005	0.13	0.13	0.09	0.002
4/04/2023	48	2,000	800	610	7.5	97	29	<5	1	22	<0.1	<1	0.2	7.8	3.9	1.8	1.6	0.02	0.8	<0.00005	0.12	0.15	0.06	0.002

Date	Week	Sample Mass	Bi	Cd	Cr	Co	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	Tl	U	V	Zn	Hg
		Dry (g)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.016	0.009	<0.001	<0.001	0.004	0.001	<0.001	0.084	<0.0005	<0.001	<0.0001	<0.0005	0.001	0.003	<0.001
5/07/2022	8	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.007	0.005	<0.001	<0.001	0.003	0.001	<0.001	0.059	<0.0005	<0.001	<0.0001	<0.0005	0.002	0.004	<0.001
27/07/2022	12	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.015	0.003	<0.001	<0.001	0.002	<0.001	<0.001	0.043	<0.0005	<0.001	<0.0001	<0.0005	0.001	0.003	<0.001
23/08/2022	16	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.016	0.002	0.001	<0.001	0.001	<0.001	<0.001	0.042	<0.0005	<0.001	<0.0001	<0.0005	<0.001	0.004	<0.00005
20/09/2022	20	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.038	0.002	<0.001	<0.001	0.002	<0.001	<0.001	0.048	<0.0005	<0.001	<0.0001	<0.0005	0.001	0.001	<0.00005
18/10/2022	24	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.011	0.002	<0.001	<0.001	0.003	<0.001	<0.001	0.049	<0.0005	<0.001	<0.0001	<0.0005	0.002	0.002	<0.00005
15/11/2022	28	2,000	<0.0001	<0.0001	0.001	<0.001	<0.001	<0.01	0.011	0.002	<0.001	<0.001	0.002	<0.001	<0.001	0.045	<0.0005	<0.001	<0.0001	<0.0005	0.002	0.003	<0.00005
11/01/2023	32	2,000	<0.0001	<0.0001	0.001	<0.001	<0.001	<0.01	0.009	0.002	<0.001	<0.001	0.003	<0.001	<0.001	0.052	<0.0005	<0.001	<0.0001	<0.0005	0.002	0.004	<0.00005
10/01/2023	36	2,000	<0.0001	<0.0001	0.001	<0.001	<0.001	<0.01	0.013	0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.041	<0.0005	<0.001	<0.0001	<0.0005	0.001	0.003	<0.00005
07/02/2023	40	2,000	<0.0001	<0.0001	0.001	<0.001	<0.001	<0.01	0.015	0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.039	<0.0005	<0.0001	0.001	<0.0005	0.002	0.007	<0.00005
8/03/2023	44	2,000	0.0001	0.0001	0.001	0.001	0.001	0.01	0.011	0.001	0.001	0.001	0.002	0.001	0.001	0.038	0.0005	0.001	0.0001	0.0005	0.001	0.009	0.00005
4/04/2023	48	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.01	0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.04	<0.0005	0.001	<0.0001	<0.0005	0.001	0.015	<0.00005

Tot Alk - Total Alkalinity; Acidity to pH 8.3

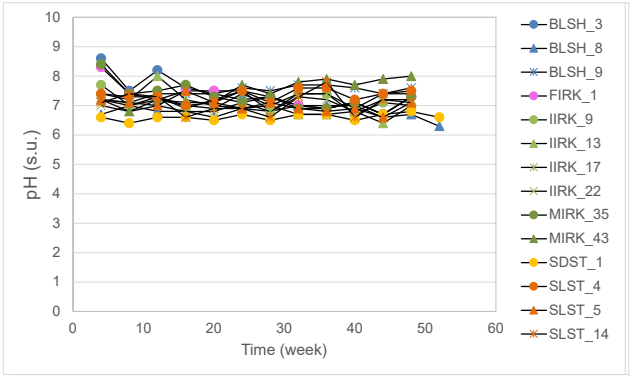
Project No: DEG003
Sample ID: SLST_14
Client ID: AQUILA

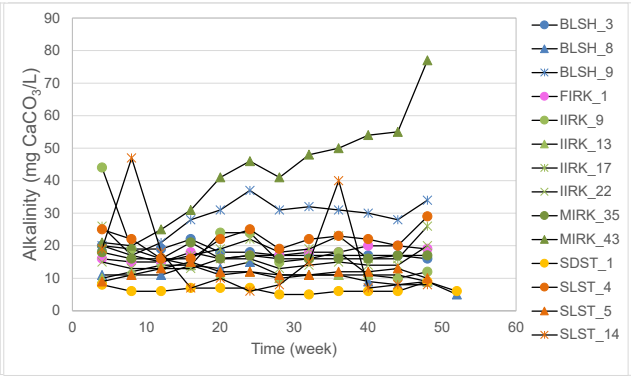
Date	Week	Sample Mass	Mass of Fluid		pH	EC	Alkalinity	Acidity	Cl	SO4	F	TOC	Total N	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba
		Dry (g)	Input (g)	Output (g)	-	µS/cm	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	1200	390	7.1	1800	19	7	390	280	0.5	11	<0.01	28	42	7.8	240	0.9	0.8	<0.00005	<0.01	0.013	0.1	0.036
5/07/2022	8	2,000	1200	420	7.4	4300	47	<5	1100	860	1.2	16	<0.01	81	94	21	660	0.8	1.9	<0.00005	0.01	0.01	0.45	0.043
27/07/2022	12	2,000	1200	470	7.3	180	18	<5	30	22	0.2	2	<0.01	3.8	3.7	2.4	24	<0.5	0.5	<0.00005	0.01	0.003	0.06	0.011
23/08/2022	16	2,000	1200	435	6.6	39	7	<5	4	5	<0.1	7	0.2	0.8	0.7	0.6	4.4	<0.01	0.2	<0.00005	<0.01	0.002	<0.02	0.002
20/09/2022	20	2,000	1200	580	6.9	78	10	<5	10	10	<0.1	4	2.4	1.2	1.1	1.2	10	<0.01	0.4	<0.00005	0.04	0.006	<0.02	0.002
18/10/2022	24	2,000	1200	590	6.9	42	6	<5	4	7	<0.1	2	0.2	1.1	0.8	0.6	4.9	0.02	0.2	<0.00005	0.01	0.002	<0.02	0.002
15/11/2022	28	2,000	1200	610	6.6	97	8	<5	12	17	0.1	3	0.2	1.4	1.3	1.3	14	<0.01	0.3	<0.00005	0.04	0.005	0.04	0.002
11/01/2023	32	2,000	1200	550	7.3	140	15	<5	16	21	0.2	2	0.2	3.2	2.8	2.1	16	0.01	0.4	<0.00005	0.01	0.005	0.1	0.005
10/01/2023	36	2,000	1200	440	7.8	420	40	<5	70	72	0.5	5	0.2	15	12	5.7	46	<0.01	1.3	<0.00005	0.01	0.007	0.3	0.025
07/02/2023	40	2,000	1200	630	6.6	44	7	<5	6	6	<0.1	3	0.2	0.8	0.7	1.1	5.7	0.03	0.3	<0.00005	0.02	0.003	0.04	0.001
8/03/2023	44	2,000	1200	720	7.2	61	8	5	6	9	0.1	1	0.2	1	0.8	1.3	7.8	0.02	0.3	<0.00005	0.03	0.004	0.06	0.001
4/04/2023	48	2,000	1200	780	7.1	44	8	<5	4	6	<0.1	<1	0.2	1.1	0.7	0.7	5.4	0.01	0.2	0.00006	0.02	0.003	0.03	0.001

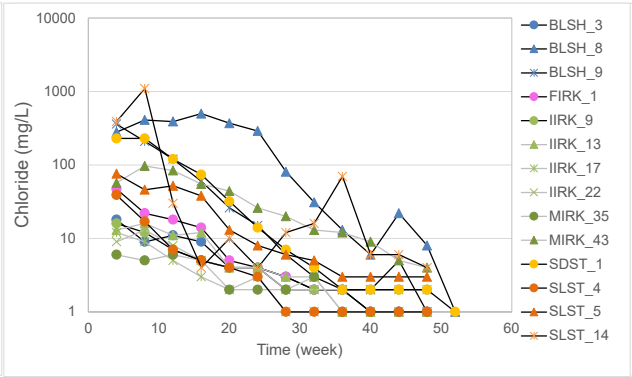
Date	Week	Sample Mass	Bi	Cd	Cr	Co	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	Tl	U	V	Zn	Hg
		Dry (g)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
13/06/2022	4	2,000	<0.0001	<0.0001	<0.001	0.006	0.005	<0.01	0.089	0.003	0.017	<0.001	<0.001	0.009	<0.001	0.41	<0.0005	<0.001	0.0002	0.0006	<0.001	0.003	<0.001
5/07/2022	8	2,000	<0.0001	<0.0001	<0.001	0.003	0.005	<0.01	0.039	0.008	0.007	<0.001	<0.001	0.021	<0.001	0.87	<0.0005	<0.001	0.0003	0.014	<0.001	0.025	<0.001
27/07/2022	12	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.005	0.002	0.001	<0.001	<0.001	<0.001	<0.001	0.044	<0.0005	<0.001	<0.0001	<0.0005	<0.001	<0.001	<0.001
23/08/2022	16	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.011	<0.0005	<0.001	<0.0001	<0.0005	<0.001	<0.001	<0.00005
20/09/2022	20	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.014	<0.0005	<0.001	<0.0001	<0.0005	<0.001	<0.001	<0.00005
18/10/2022	24	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.013	<0.0005	<0.001	<0.0001	<0.0005	<0.001	<0.001	<0.00005
15/11/2022	28	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.018	<0.0005	<0.001	<0.0001	<0.0005	<0.001	<0.001	<0.00005
11/01/2023	32	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.042	<0.0005	<0.001	<0.0001	<0.0005	<0.001	<0.001	<0.00005
10/01/2023	36	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	0.007	0.004	0.001	<0.001	<0.001	0.002	<0.001	0.16	<0.0005	<0.001	<0.0001	0.0019	<0.001	0.006	<0.00005
07/02/2023	40	2,000	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.007	<0.0005	<0.0001	<0.001	<0.0005	<0.001	<0.001	<0.00005
8/03/2023	44	2,000	0.0001	0.0001	0.001	0.001	0.001	0.01	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.011	0.0005	0.001	0.0001	0.0005	0.001	0.001	0.00005
4/04/2023	48	2,000	0.0001	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.011	<0.0005	<0.001	<0.0001	<0.0005	<0.001	<0.001	<0.00005

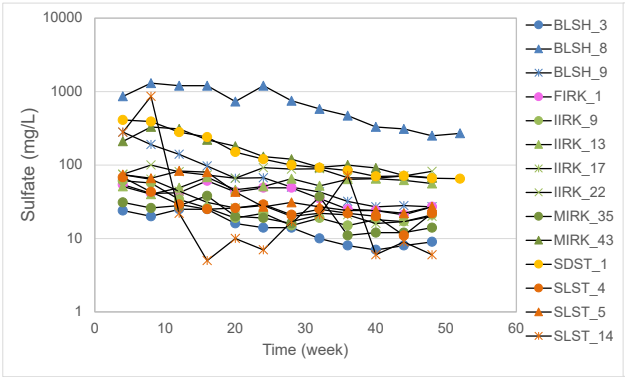
Tot Alk - Total Alkalinity; Acidity to pH 8.3

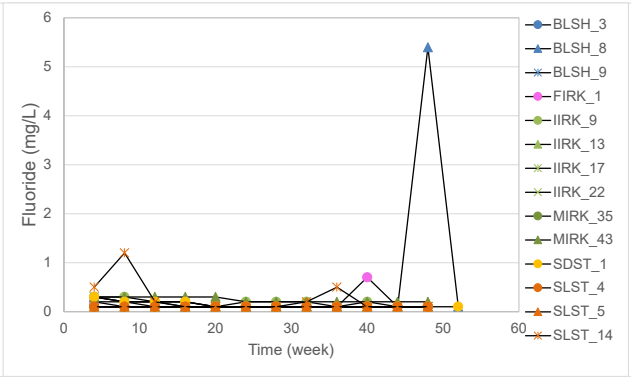
Appendix B AMIRA column leachate concentration plots

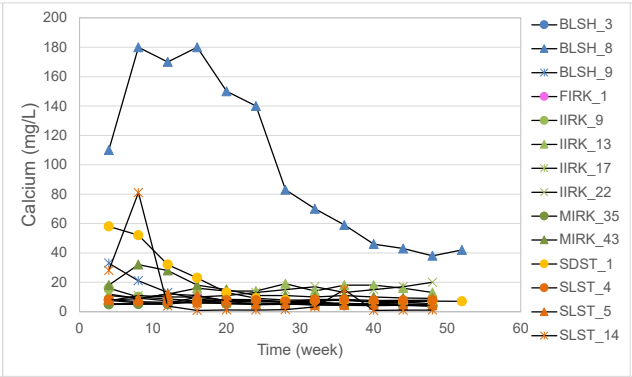

pH (s.u.)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

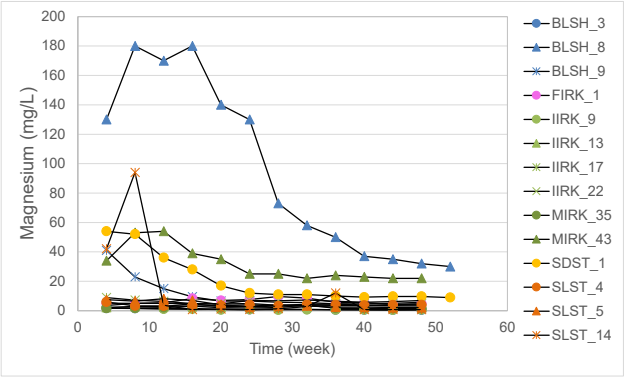

Alkalinity (mg CaCO3/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

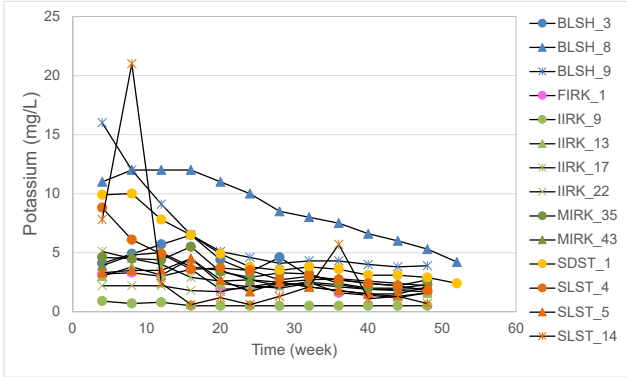

Chloride (mg/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

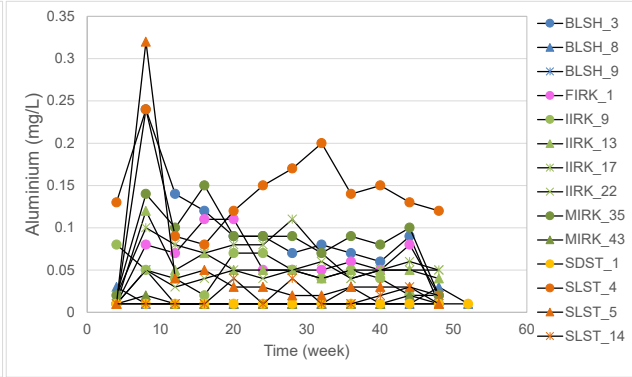

Sulfate (mg/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

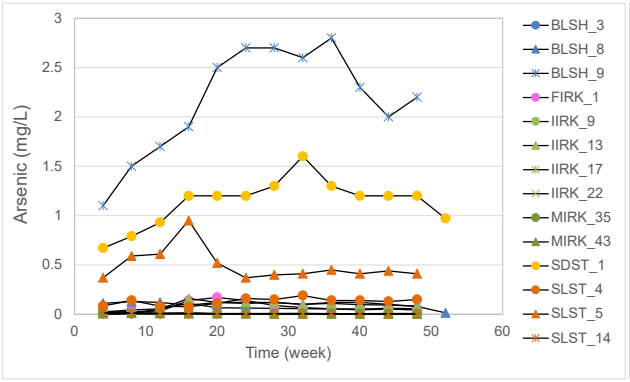

Fluoride (mg/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

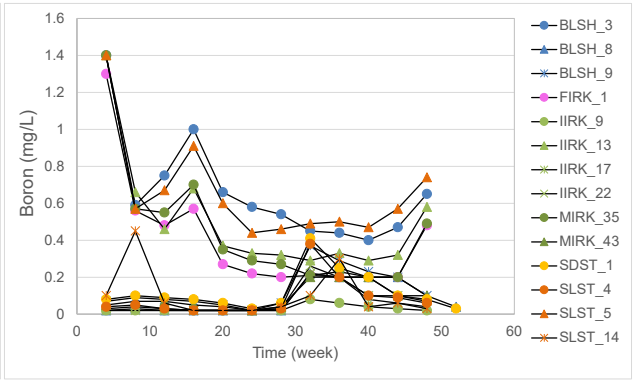

Calcium (mg/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

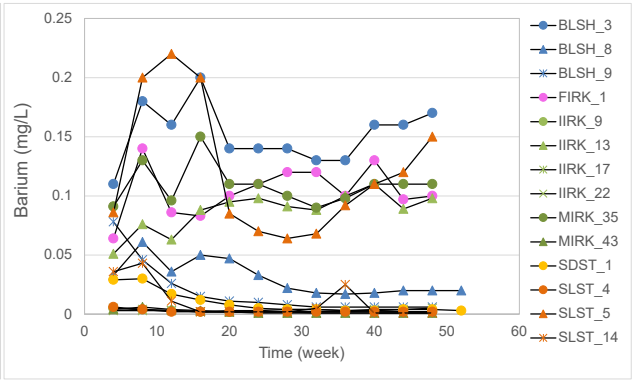

Magnesium (mg/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

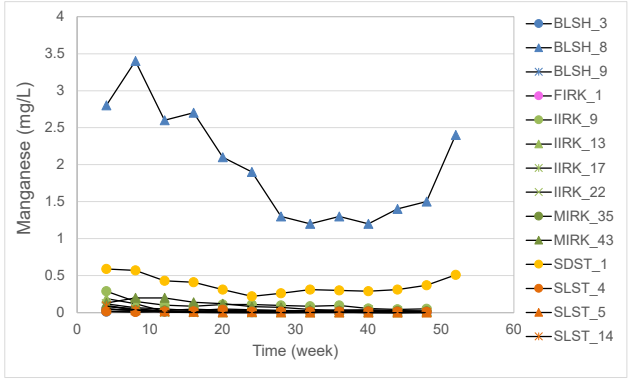

Potassium (mg/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

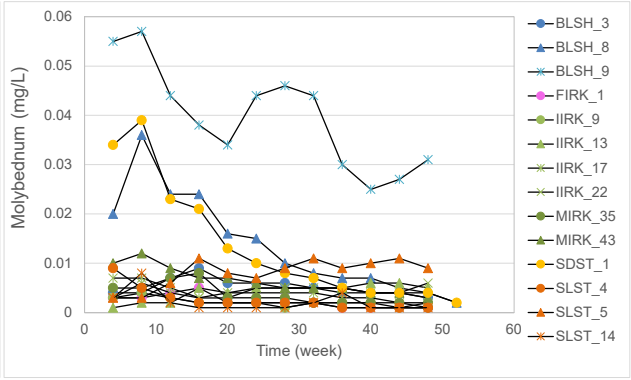

Aluminium (mg/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

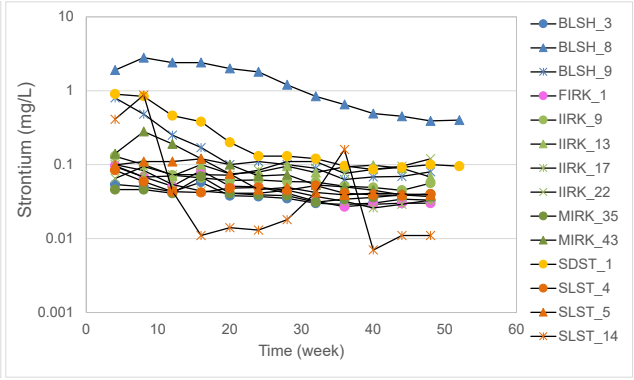

Arsenic (mg/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

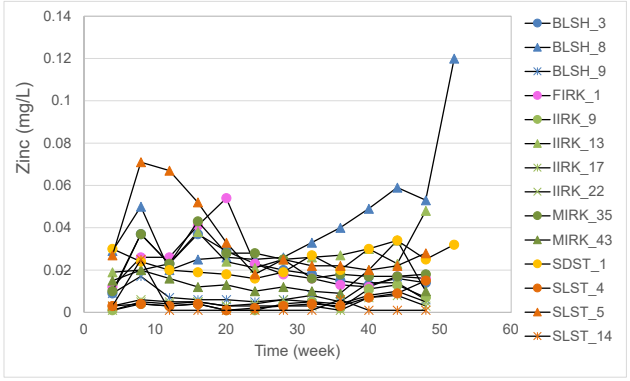

Boron (mg/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

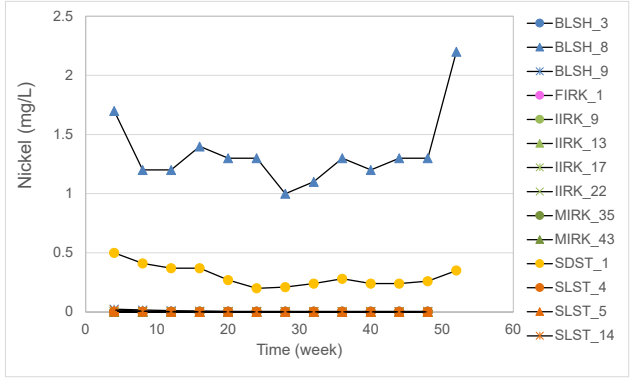

Barium (mg/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

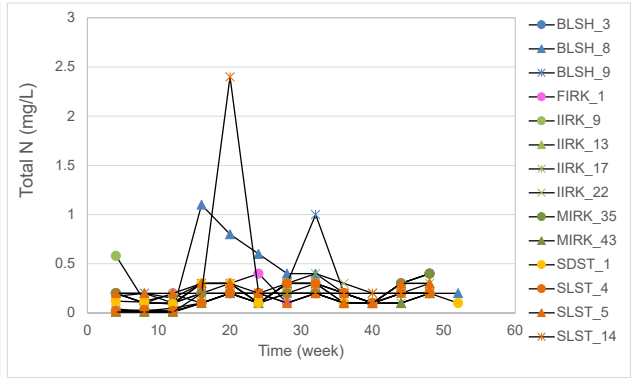

Manganese (mg/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14


Molybednum (mg/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

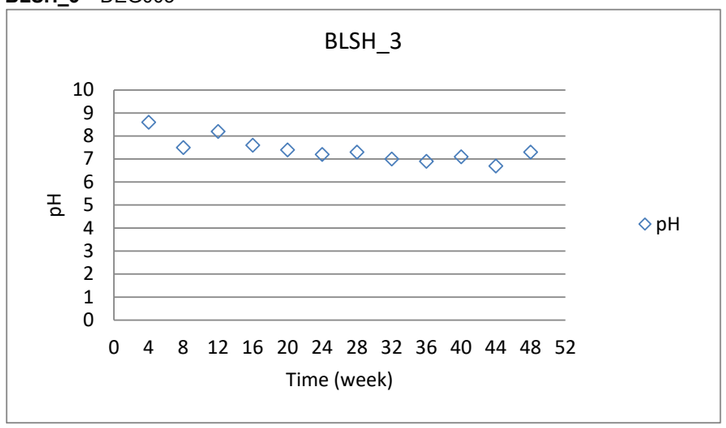

Strontium (mg/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

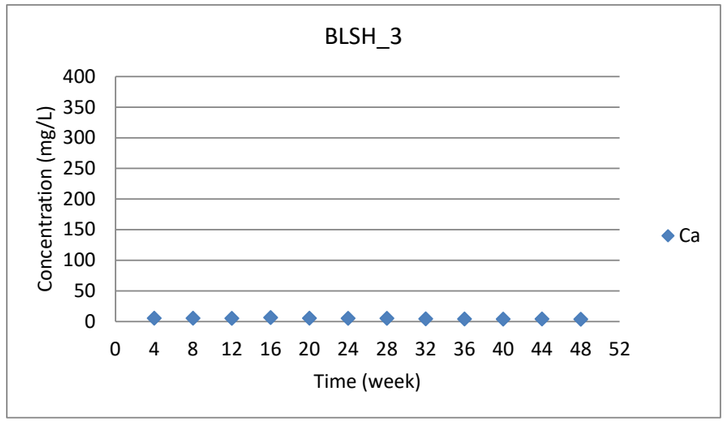

Zinc (mg/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

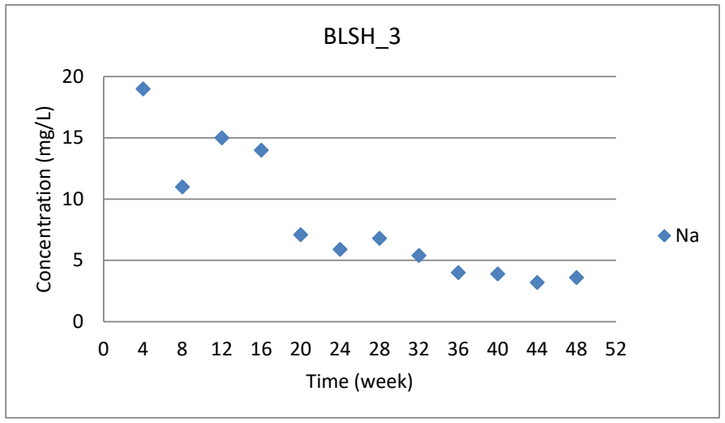

Nickel (mg/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

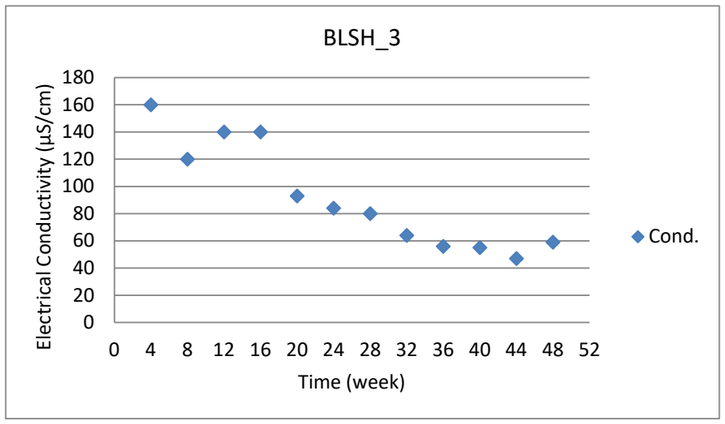

Total N (mg/L)
Time (week)
BLSH_3
BLSH_8
BLSH_9
FIRK_1
IIRK_9
IIRK_13
IIRK_17
IIRK_22
MIRK_35
MIRK_43
SDST_1
SLST_4
SLST_5
SLST_14

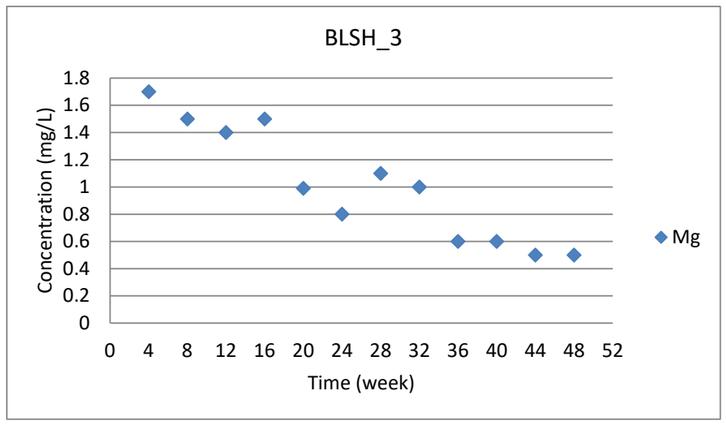
BLSH_3 DEG003

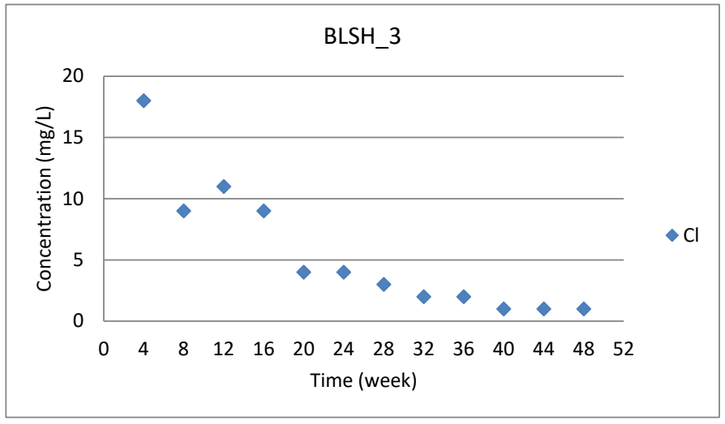


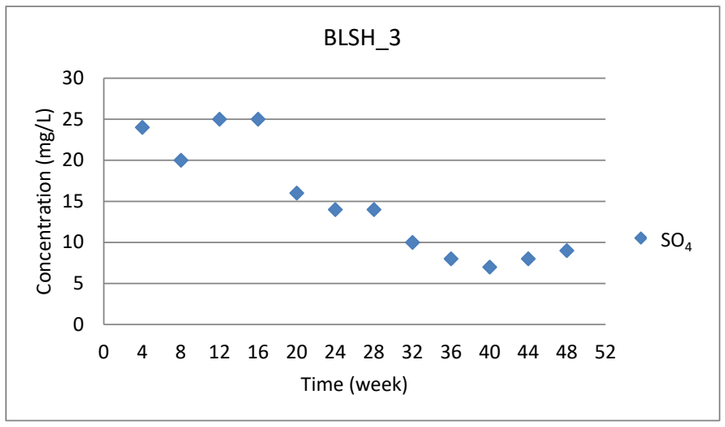


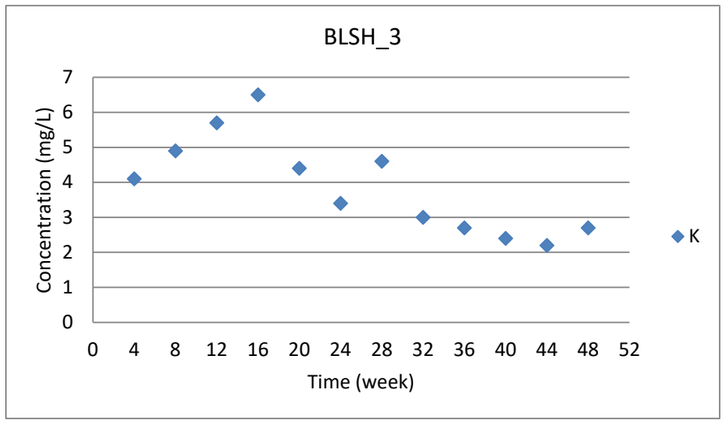


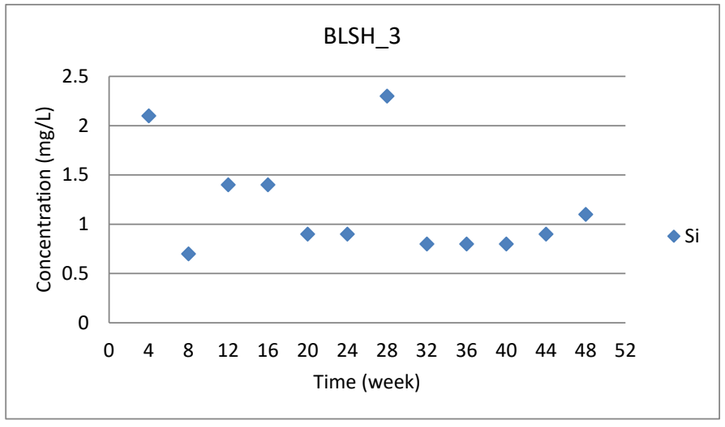


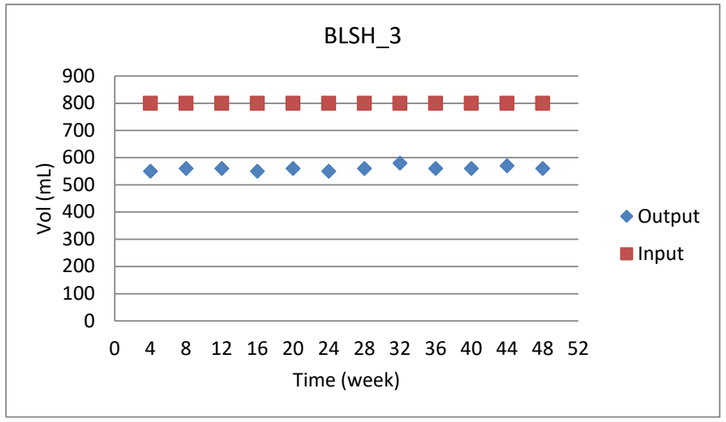


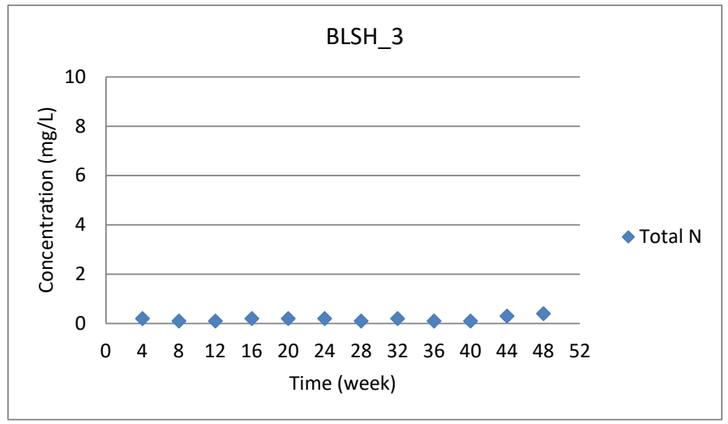


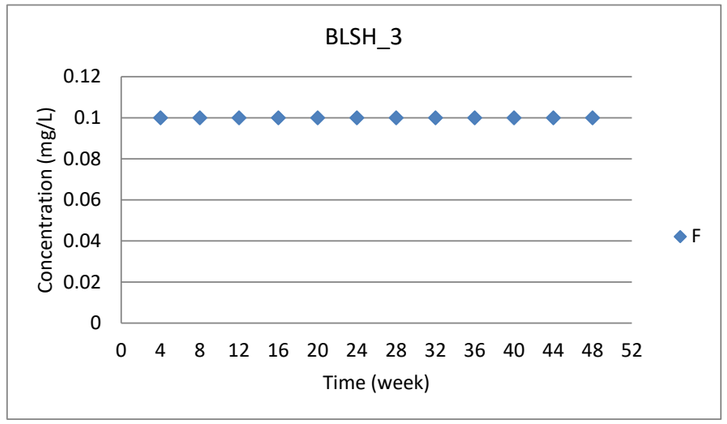


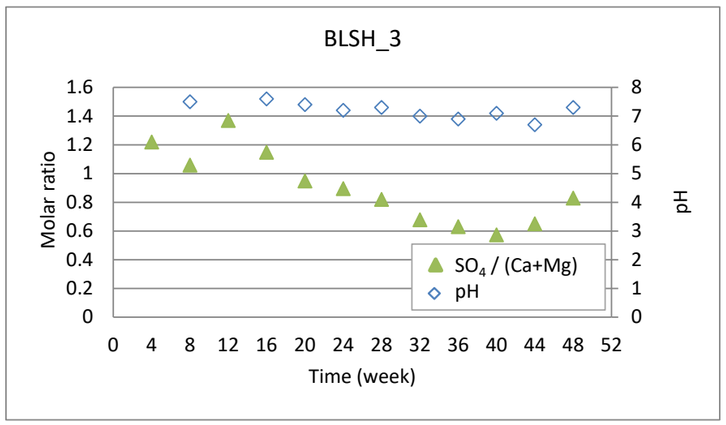


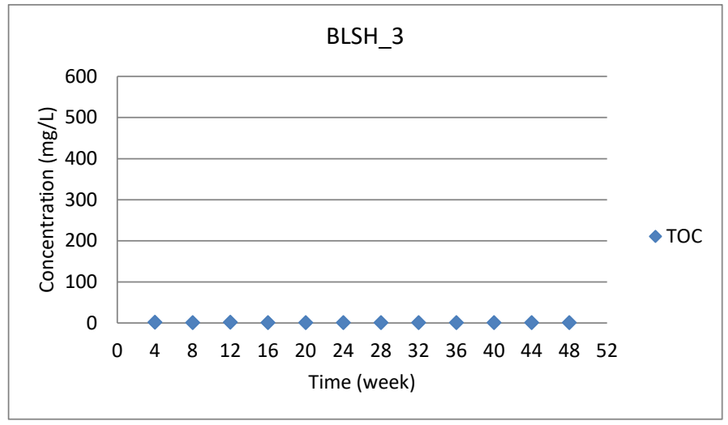


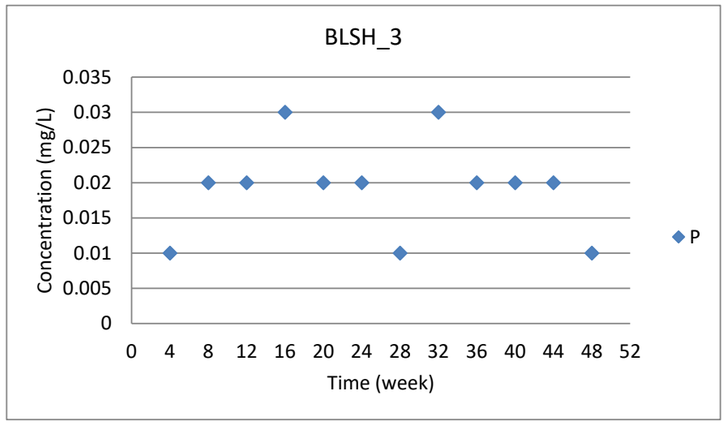

BLSH_3
Vol (mL)
900
800
700
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Output
Input

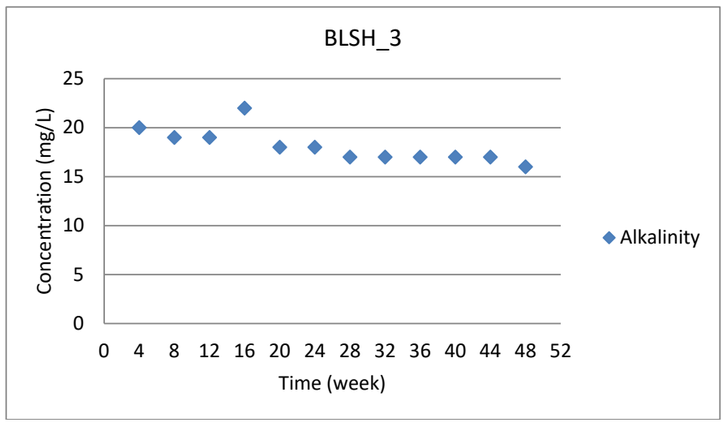

BLSH_3
Concentration (mg/L)
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Total N

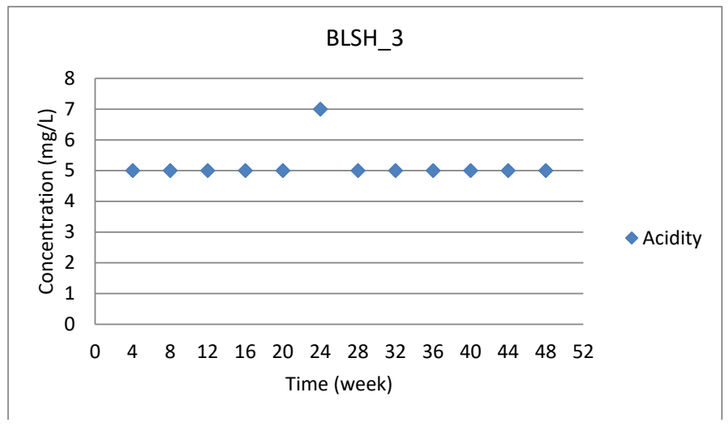

BLSH_3
Concentration (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
F

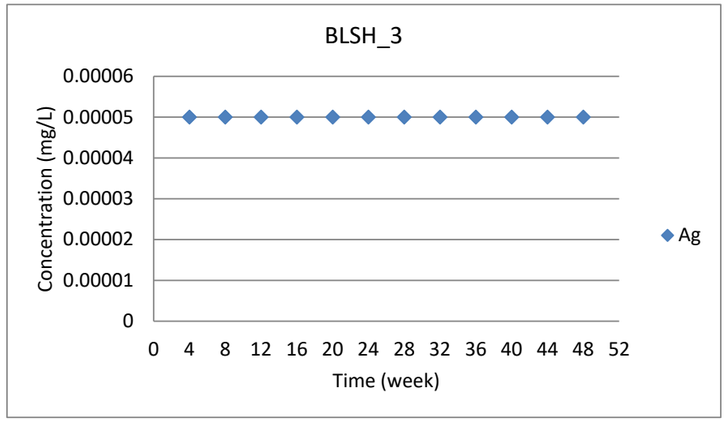

BLSH_3
Molar ratio
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
pH
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
SO4 / (Ca+Mg)
pH

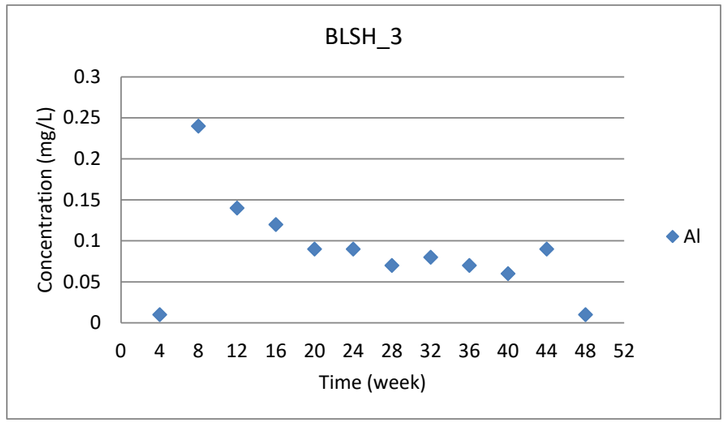

BLSH_3
Concentration (mg/L)
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
TOC

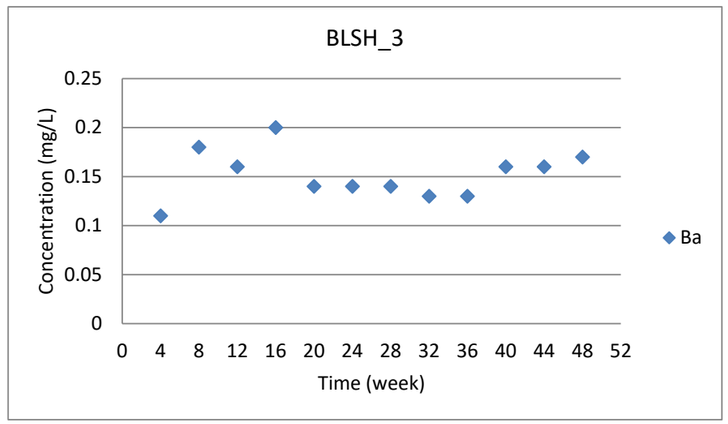

BLSH_3
Concentration (mg/L)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
P

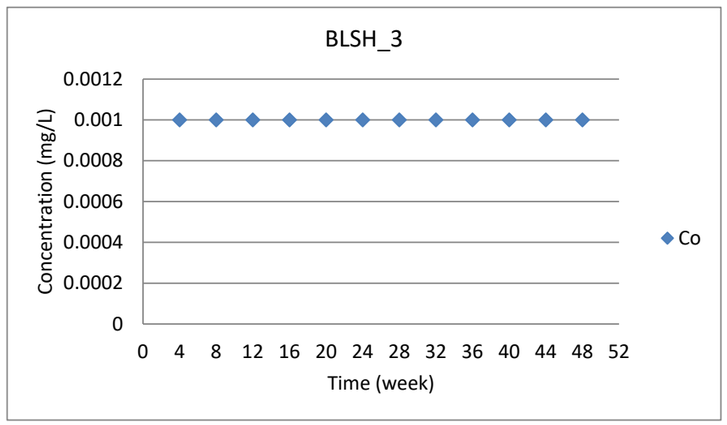

BLSH_3
Concentration (mg/L)
25
20
15
10
5
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Alkalinity

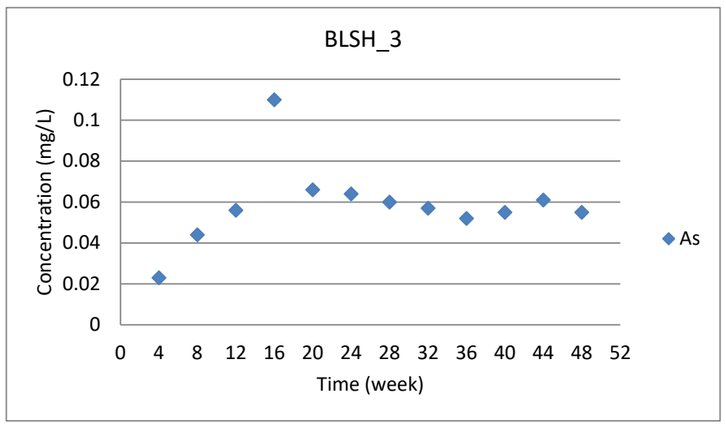

BLSH_3
Concentration (mg/L)
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Acidity

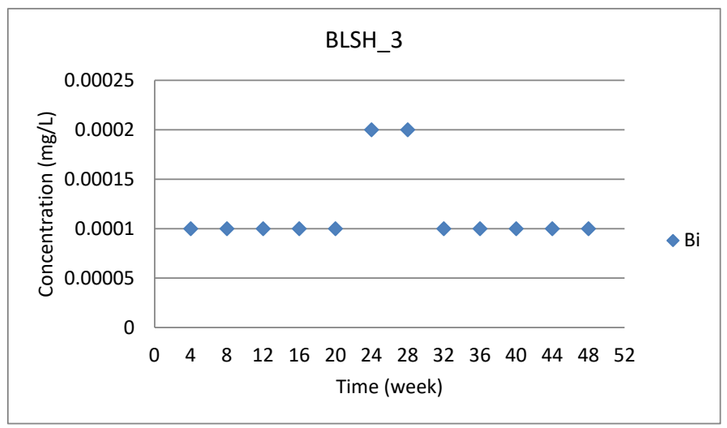

BLSH_3
Concentration (mg/L)
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Ag

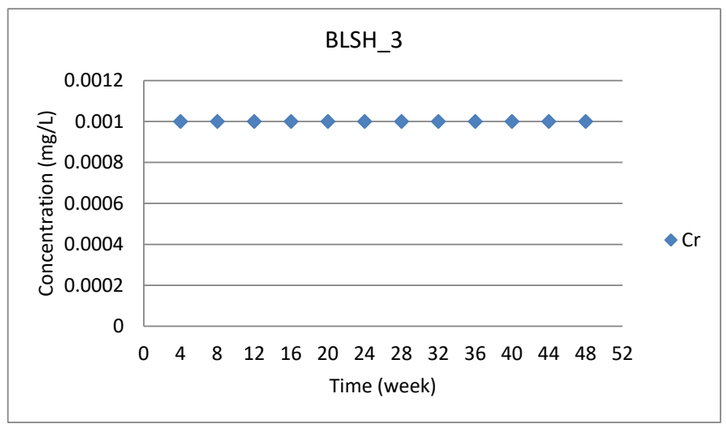

BLSH_3
Concentration (mg/L)
0.3
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Al

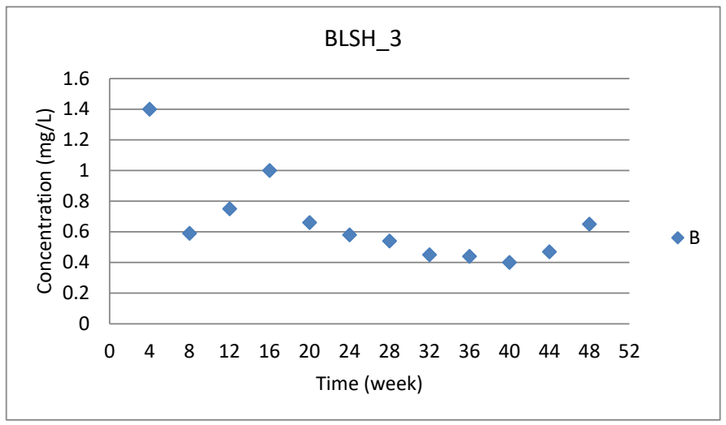

BLSH_3
Concentration (mg/L)
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Ba

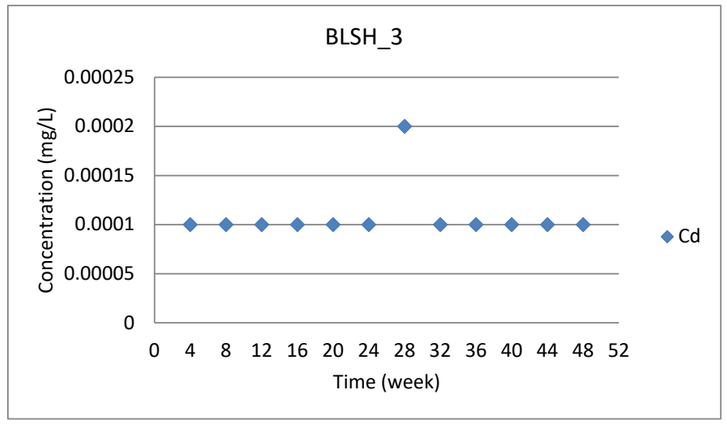

BLSH_3
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Co

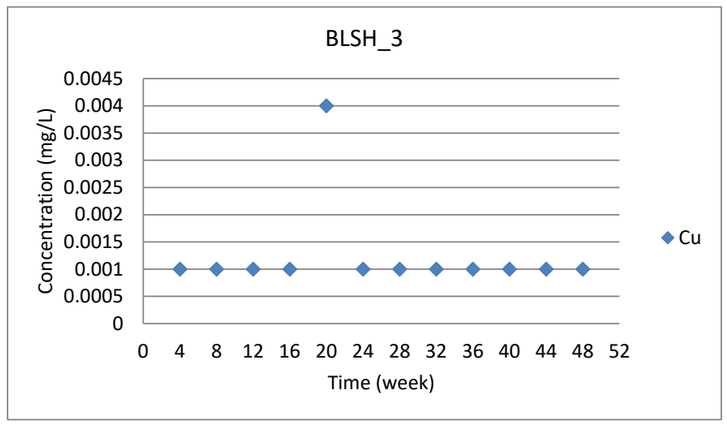

BLSH_3
Concentration (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
As

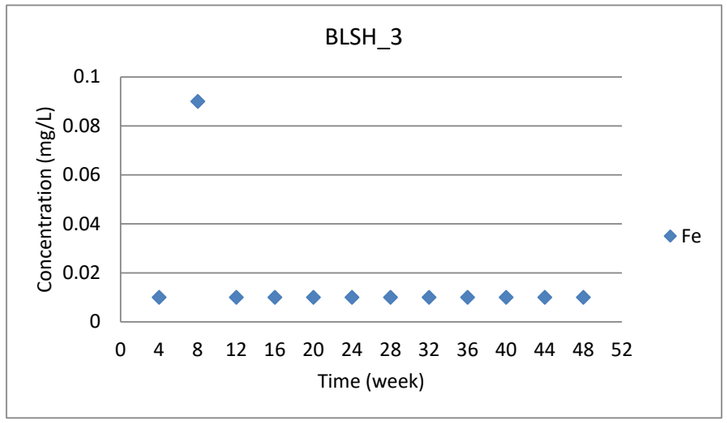

BLSH_3
Concentration (mg/L)
0.00025
0.0002
0.00015
0.0001
0.00005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Bi

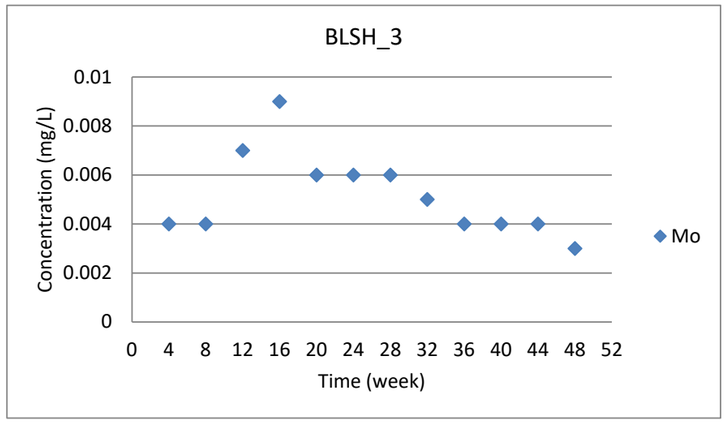

BLSH_3
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Cr

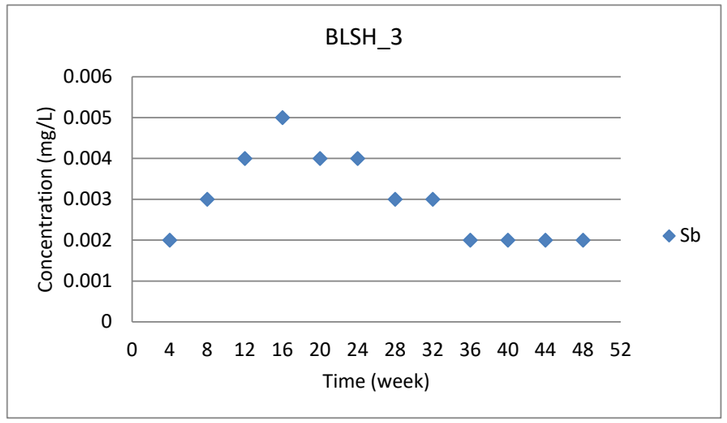

BLSH_3
Concentration (mg/L)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
B

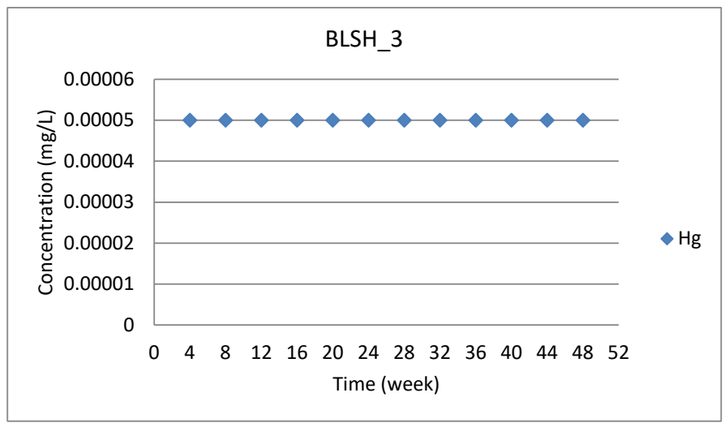

BLSH_3
Concentration (mg/L)
0.00025
0.0002
0.00015
0.0001
0.00005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Cd

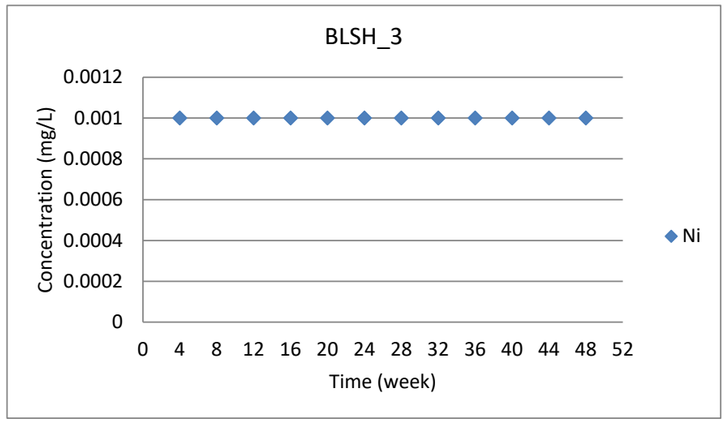

BLSH_3
Concentration (mg/L)
0.0045
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Cu

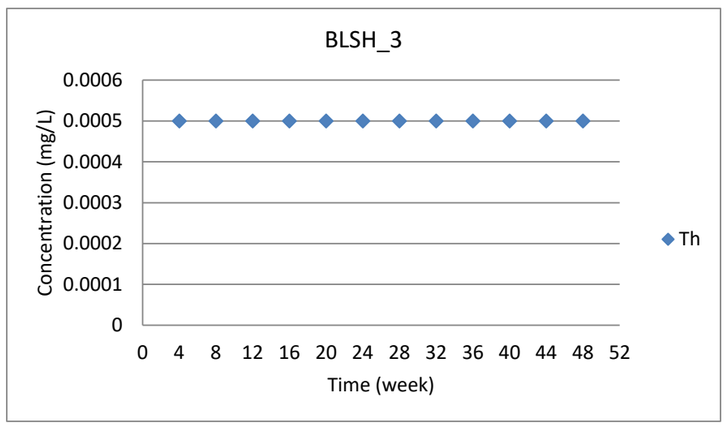

BLSH_3
Concentration (mg/L)
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Fe

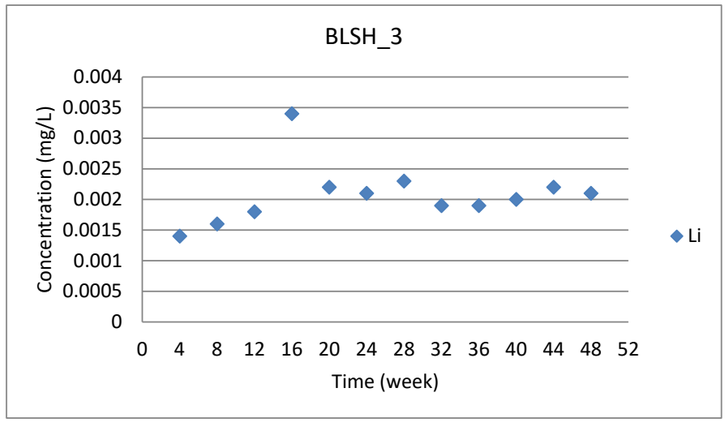

BLSH_3
Concentration (mg/L)
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Mo

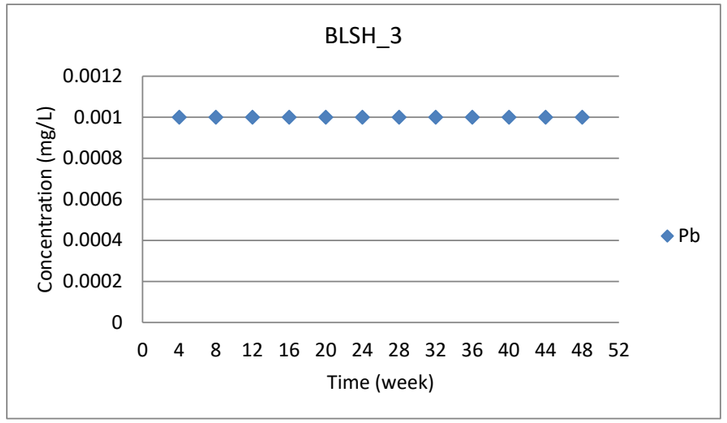

BLSH_3
Concentration (mg/L)
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Sb

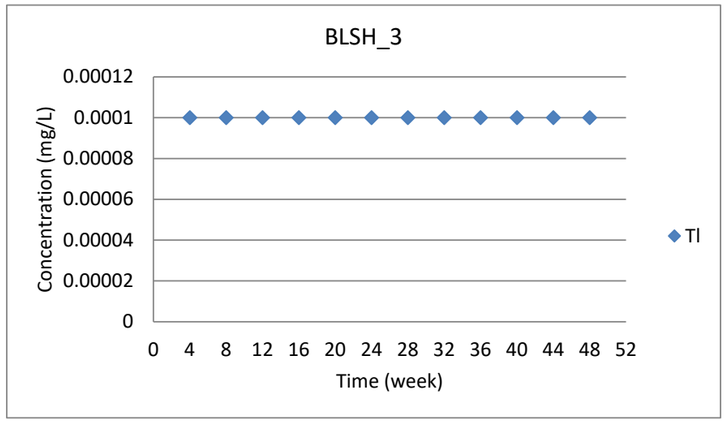

BLSH_3
Concentration (mg/L)
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Hg

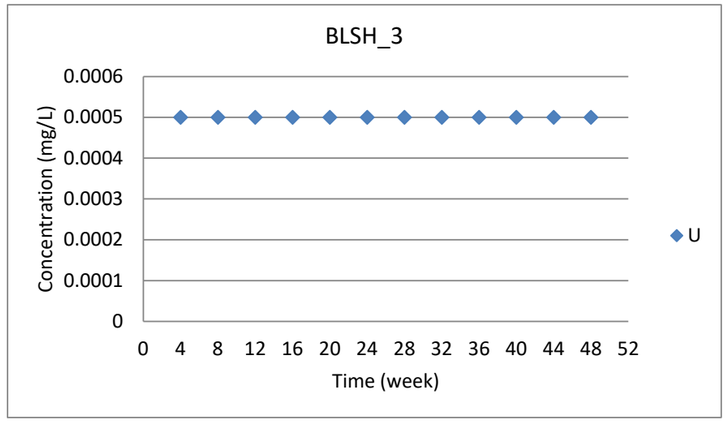

BLSH_3
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Ni

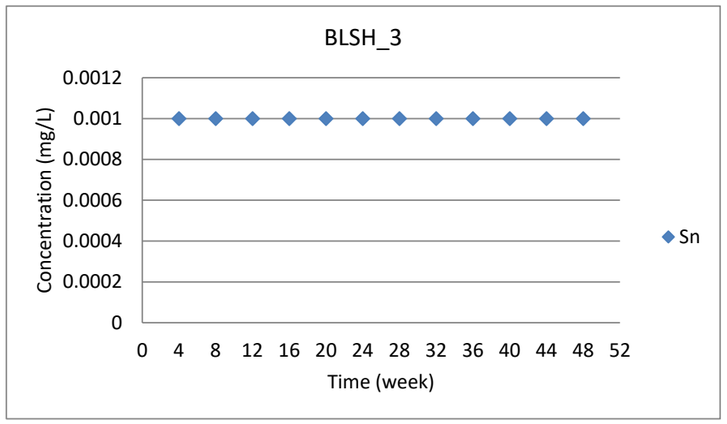

BLSH_3
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Th

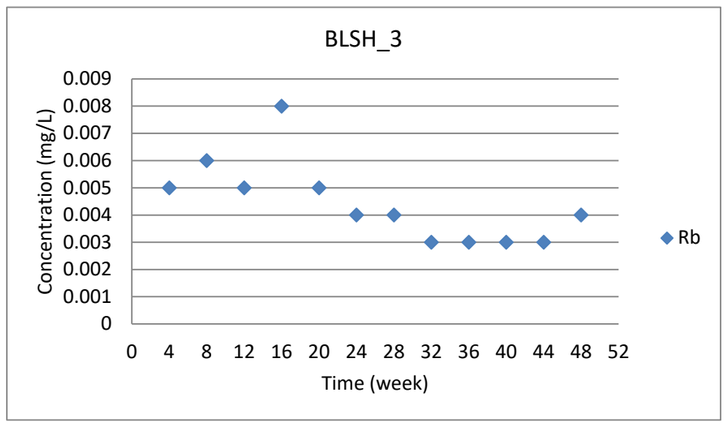

BLSH_3
Concentration (mg/L)
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Li

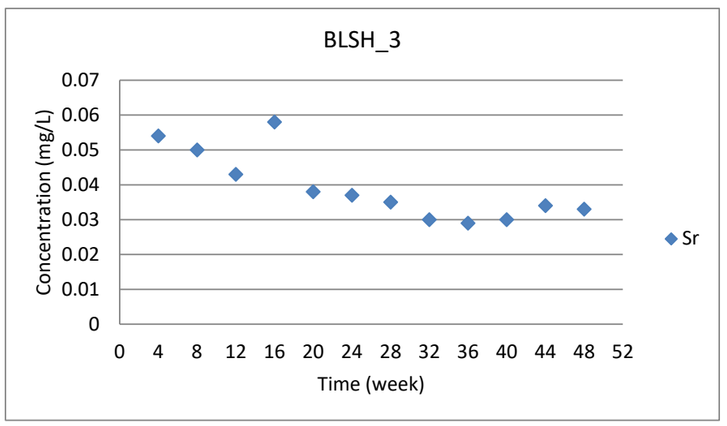

BLSH_3
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Pb

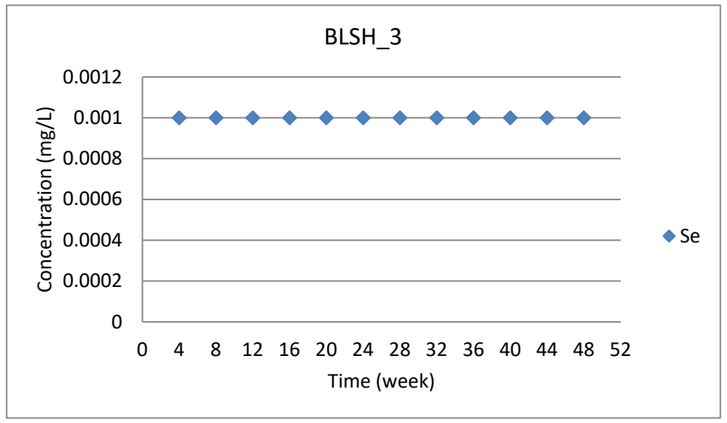

BLSH_3
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Tl

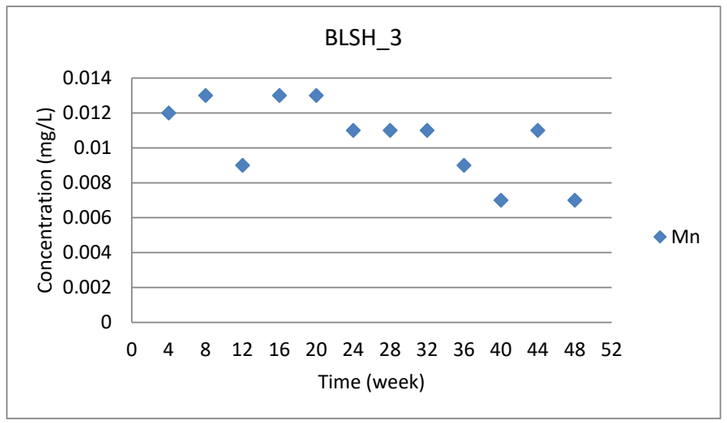

BLSH_3
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
U


BLSH_3
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Sn

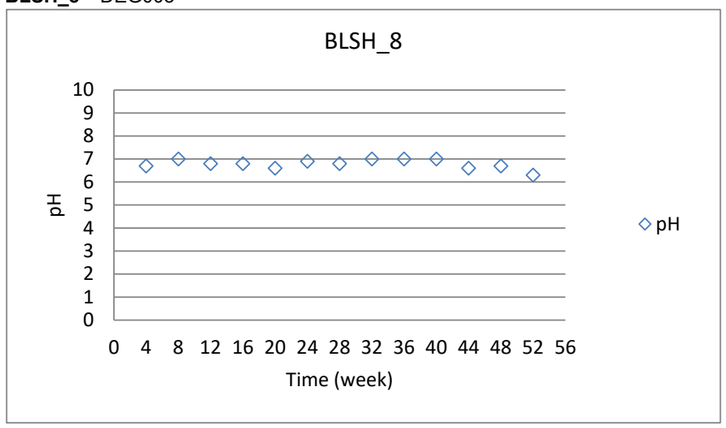

BLSH_3
Concentration (mg/L)
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Rb

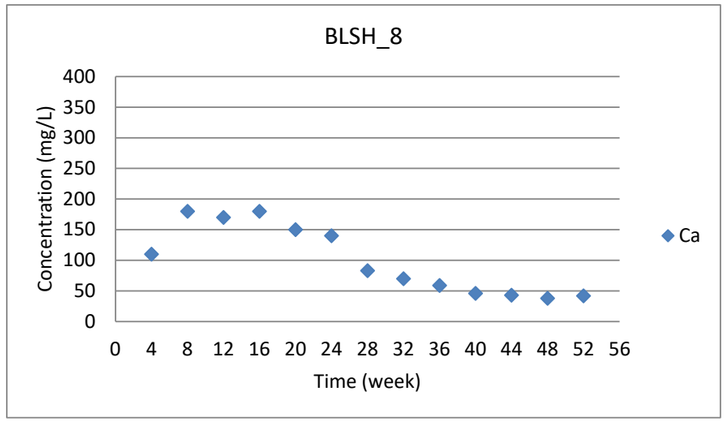

BLSH_3
Concentration (mg/L)
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Sr

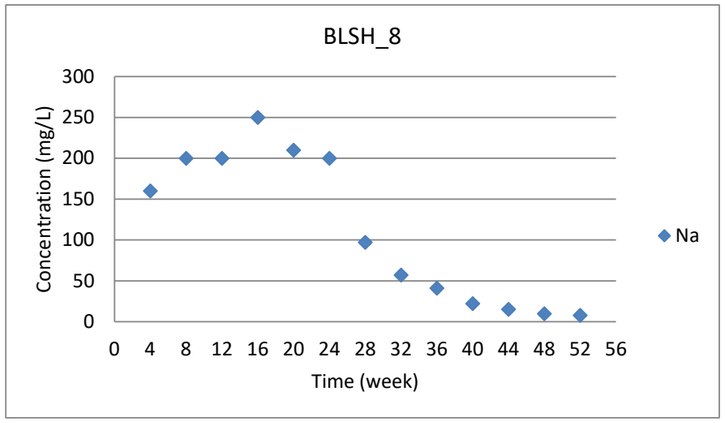

BLSH_3
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Se

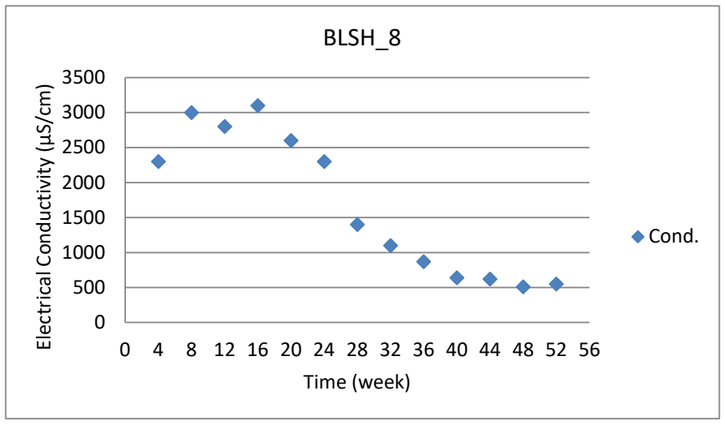

BLSH_3
Concentration (mg/L)
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Mn

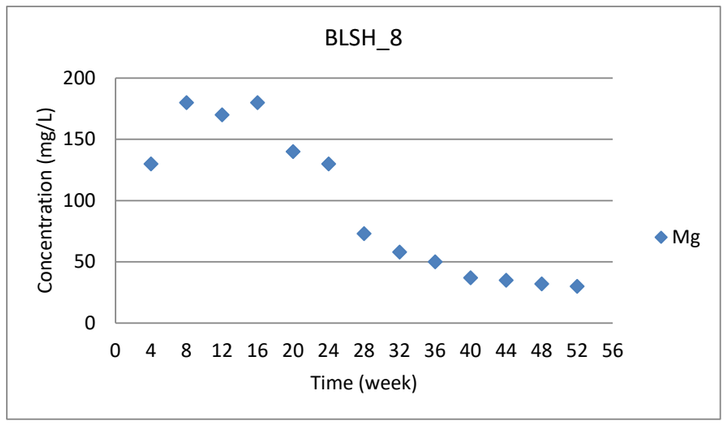
BLSH_8 DEG003

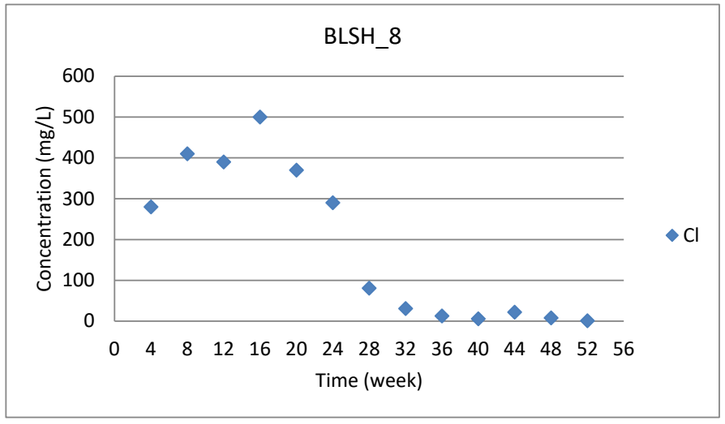


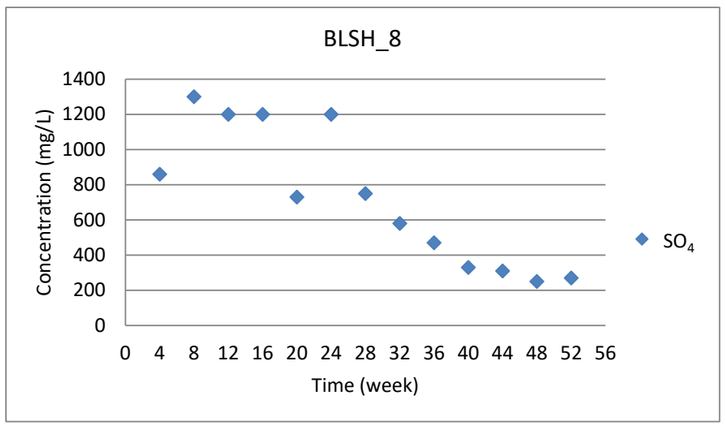


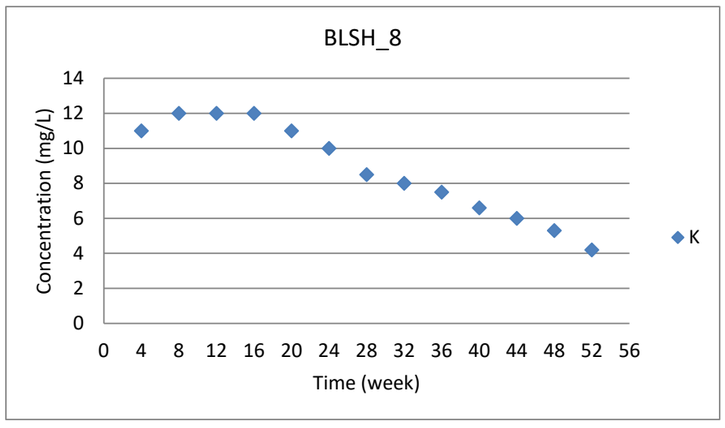


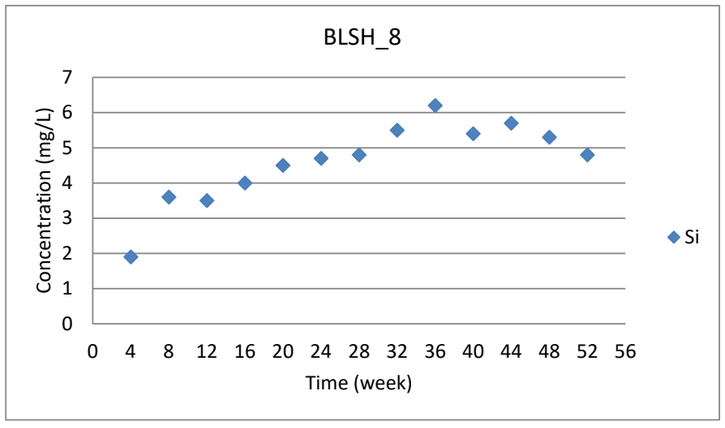


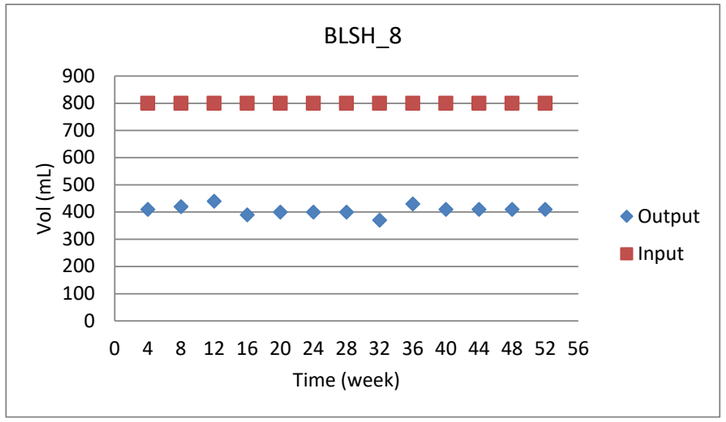


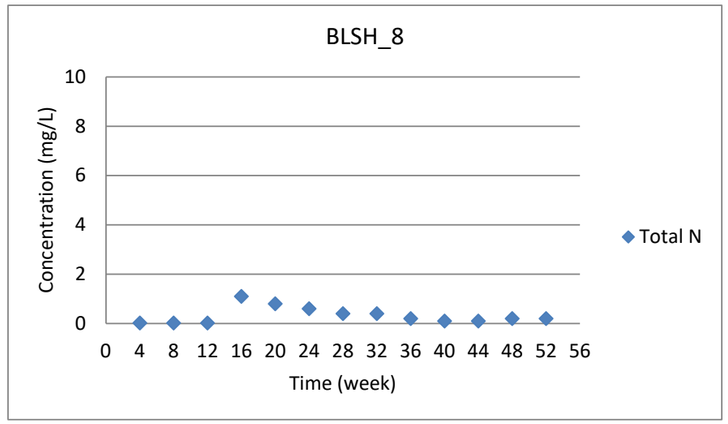


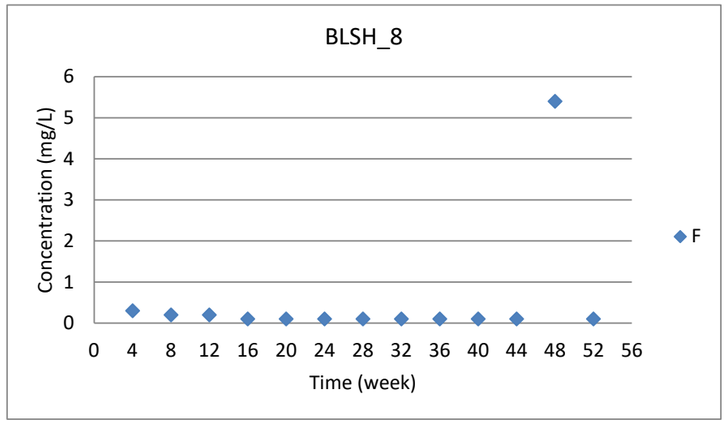


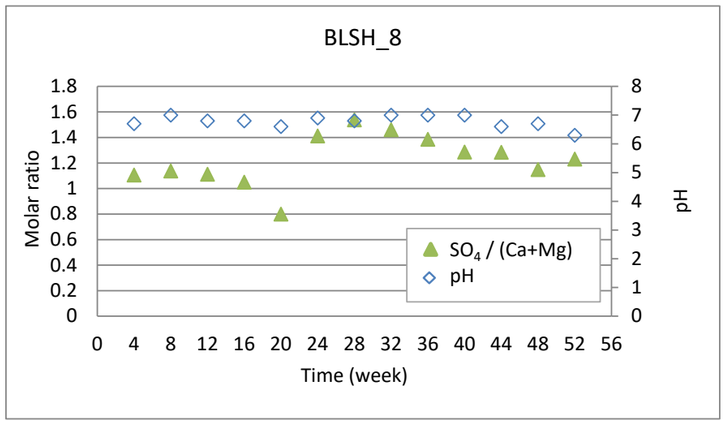


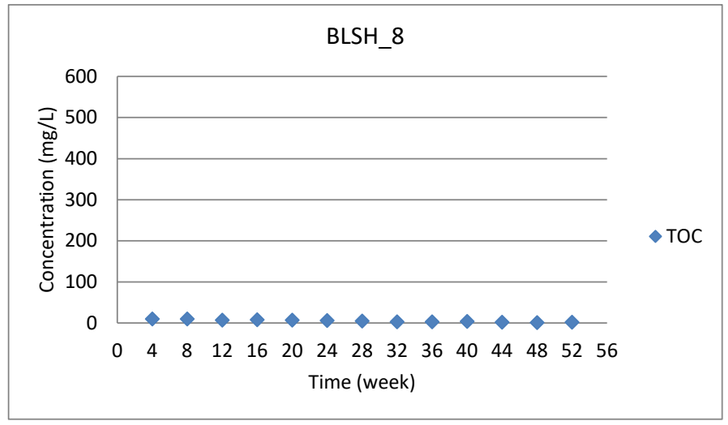


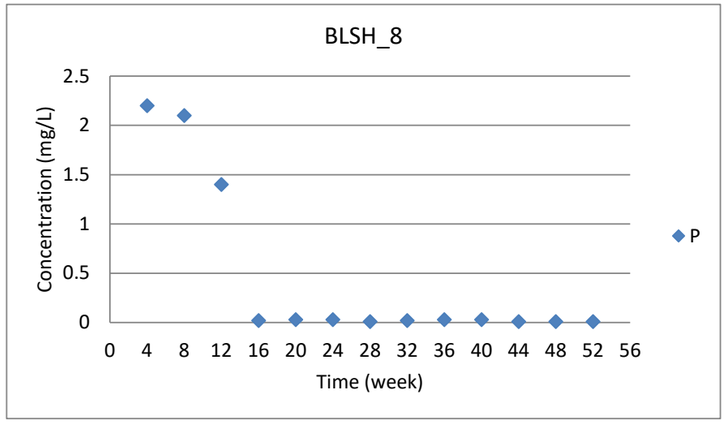

BLSH_8
Vol (mL)
900
800
700
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Output
Input

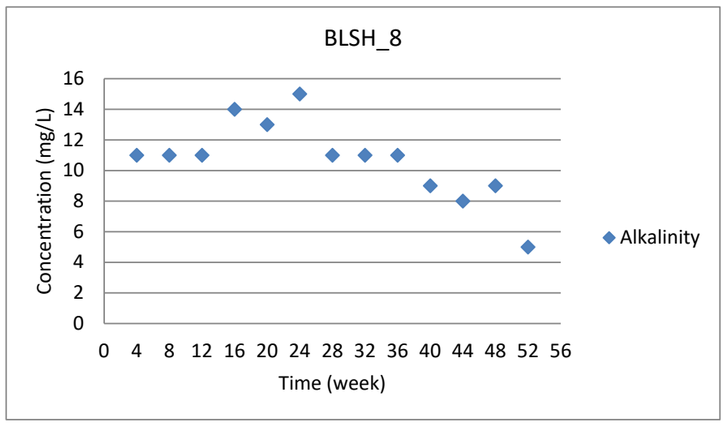

BLSH_8
Concentration (mg/L)
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Total N

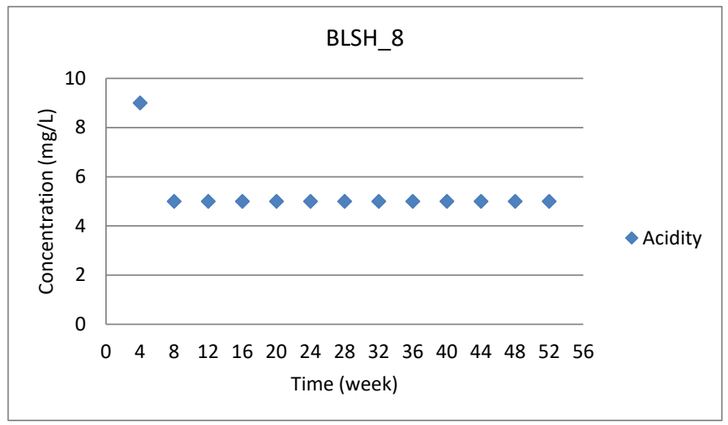

BLSH_8
Concentration (mg/L)
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
F

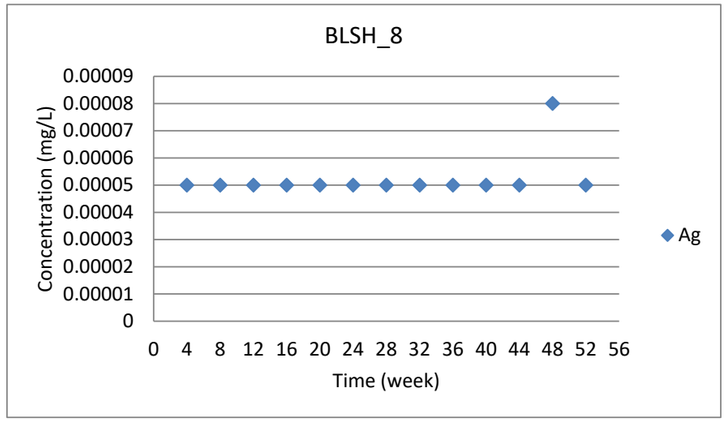

BLSH_8
Molar ratio
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
pH
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
SO4 / (Ca+Mg)
pH

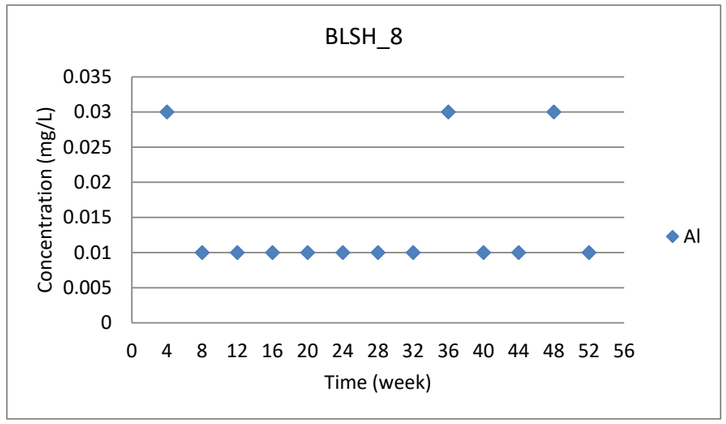

BLSH_8
Concentration (mg/L)
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
TOC

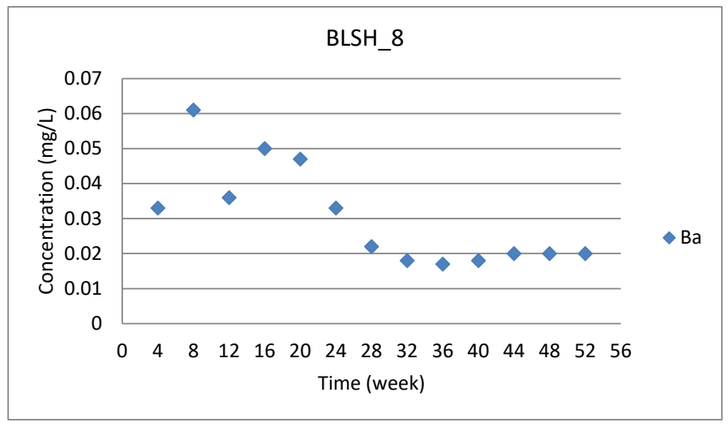

BLSH_8
Concentration (mg/L)
2.5
2
1.5
1
0.5
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
P

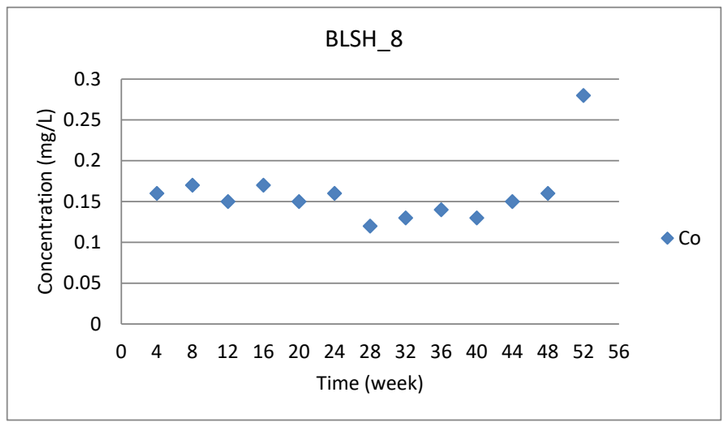

BLSH_8
Concentration (mg/L)
16
14
12
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Alkalinity

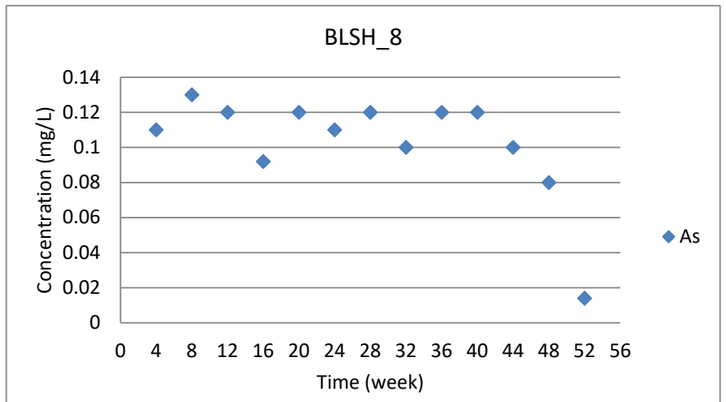

BLSH_8
Concentration (mg/L)
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Acidity

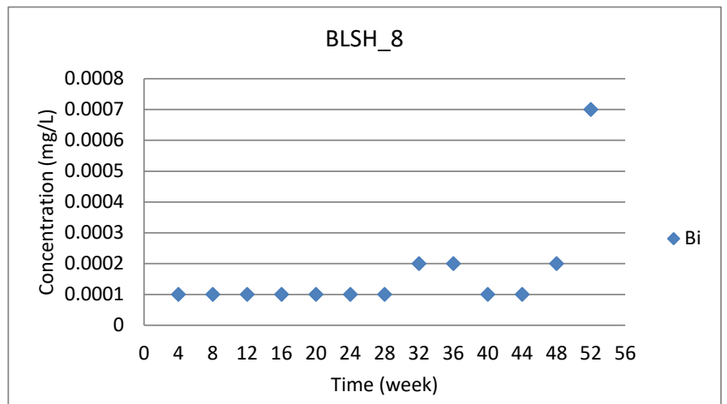

BLSH_8
Concentration (mg/L)
0.00009
0.00008
0.00007
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ag

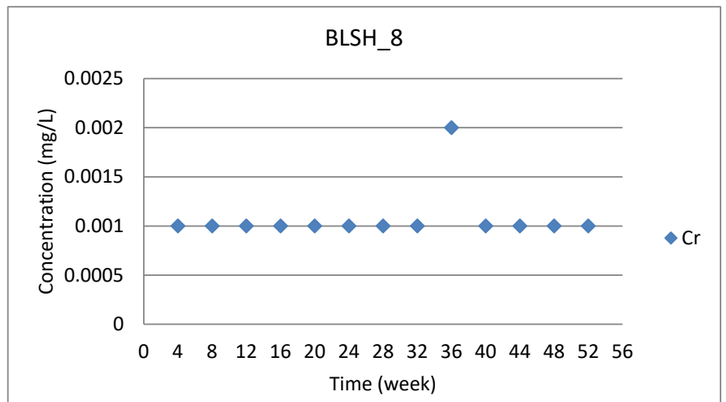

BLSH_8
Concentration (mg/L)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Al

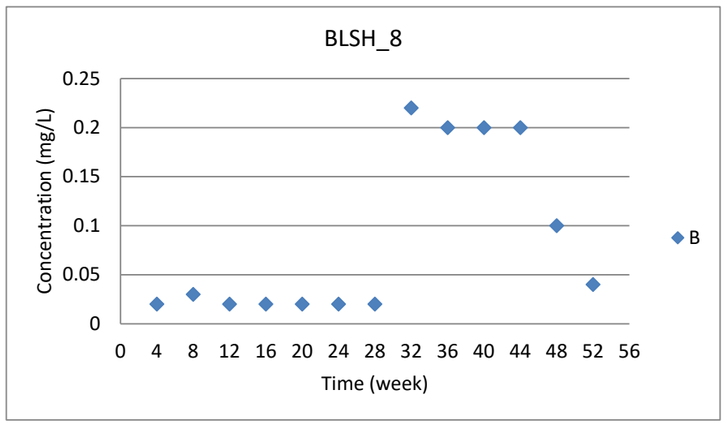

BLSH_8
Concentration (mg/L)
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ba

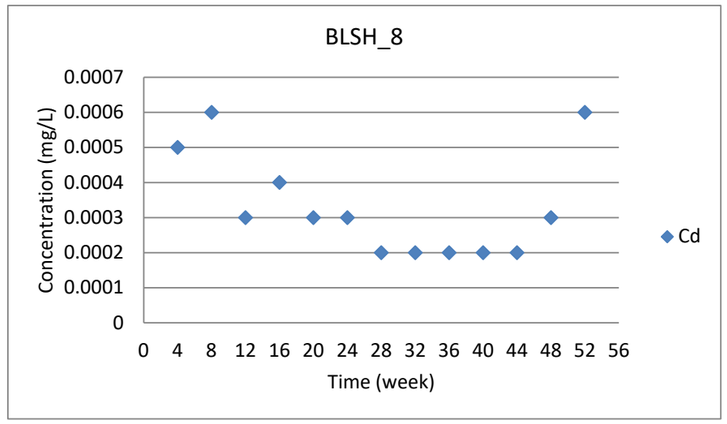

BLSH_8
Concentration (mg/L)
0.3
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Co

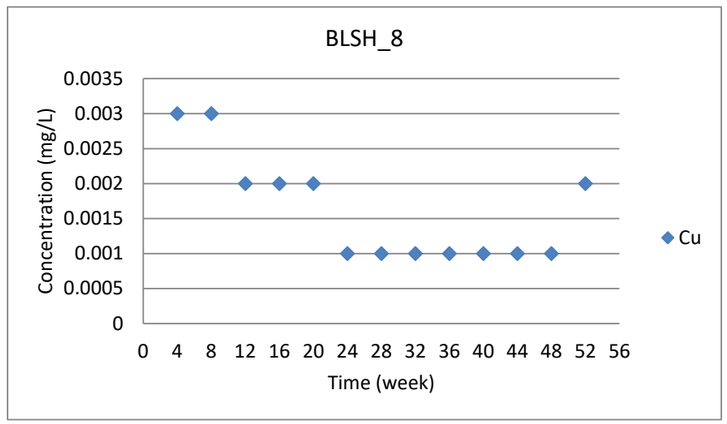

BLSH_8
Concentration (mg/L)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
As

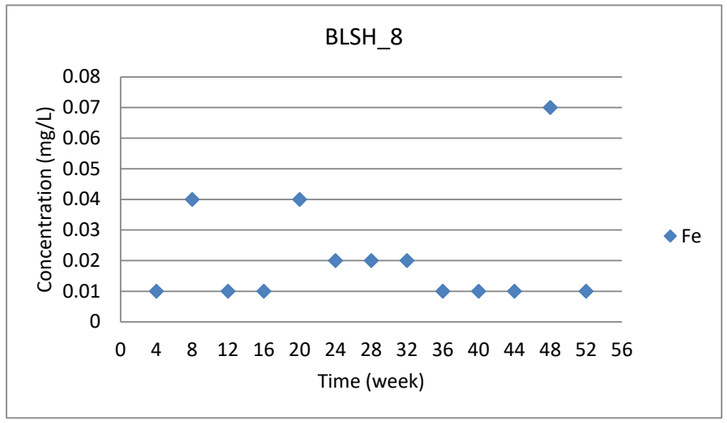

BLSH_8
Concentration (mg/L)
0.0008
0.0007
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Bi

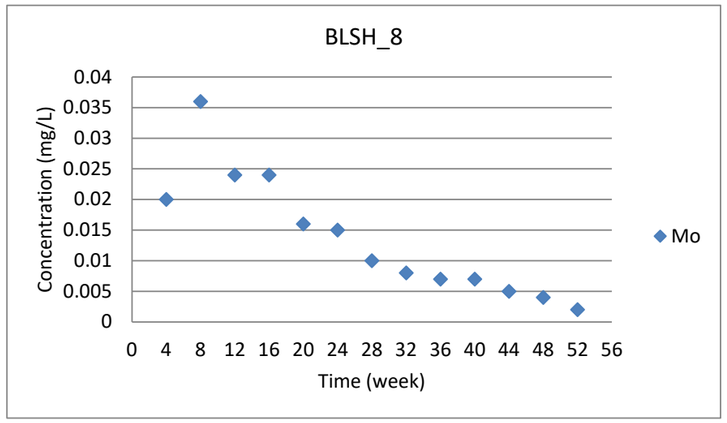

BLSH_8
Concentration (mg/L)
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cr

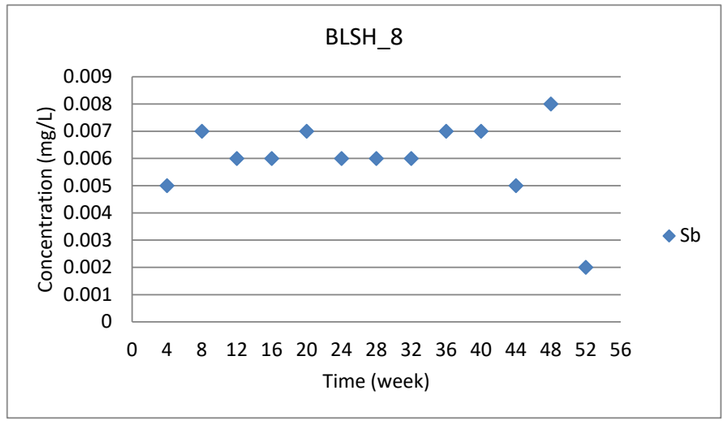

BLSH_8
Concentration (mg/L)
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
B

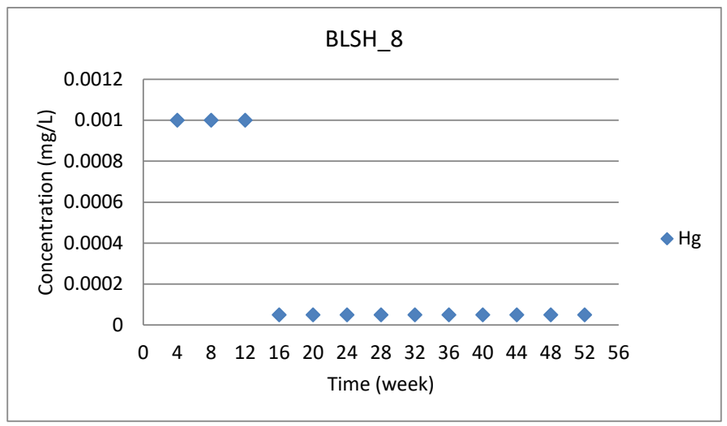

BLSH_8
Concentration (mg/L)
0.0007
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cd

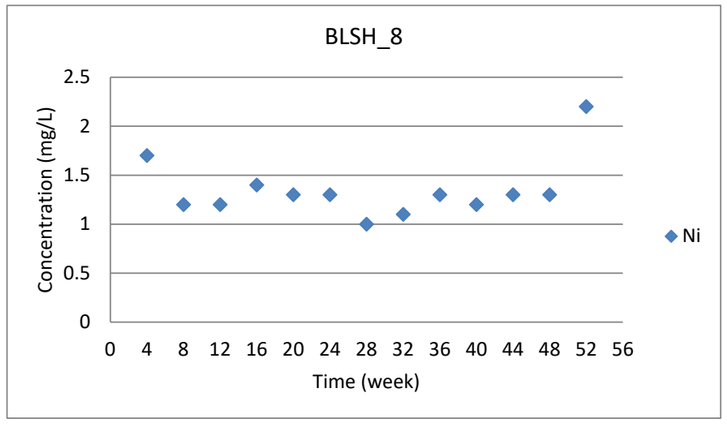

BLSH_8
Concentration (mg/L)
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cu

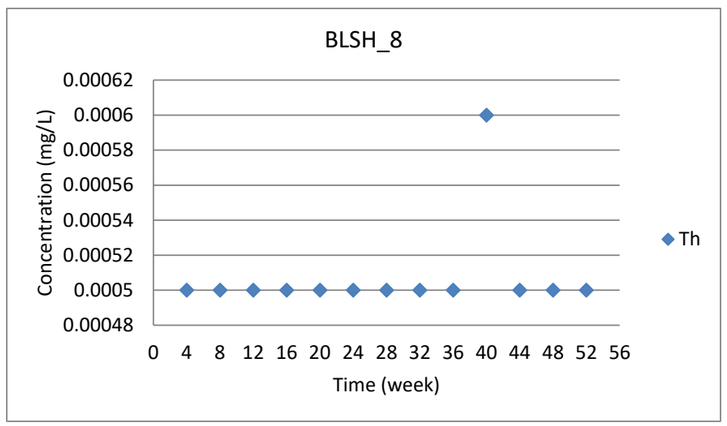

BLSH_8
Concentration (mg/L)
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Fe

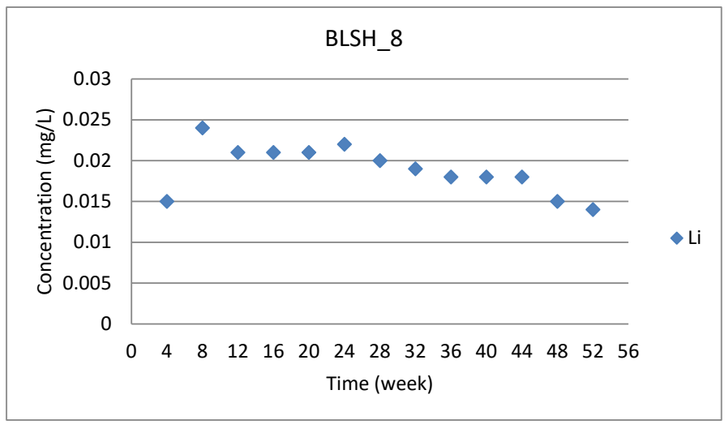

BLSH_8
Concentration (mg/L)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mo

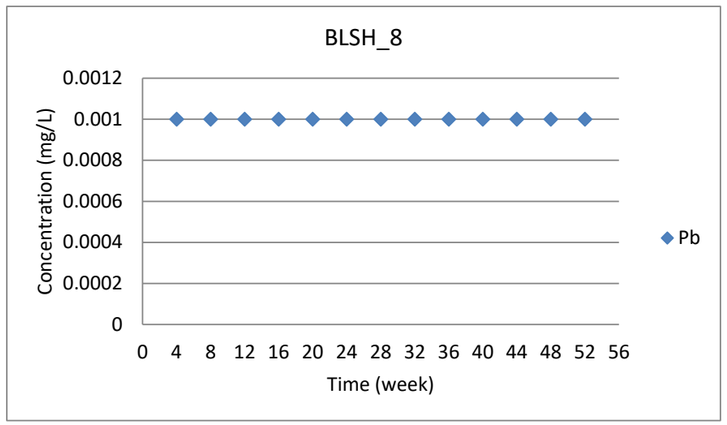

BLSH_8
Concentration (mg/L)
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sb

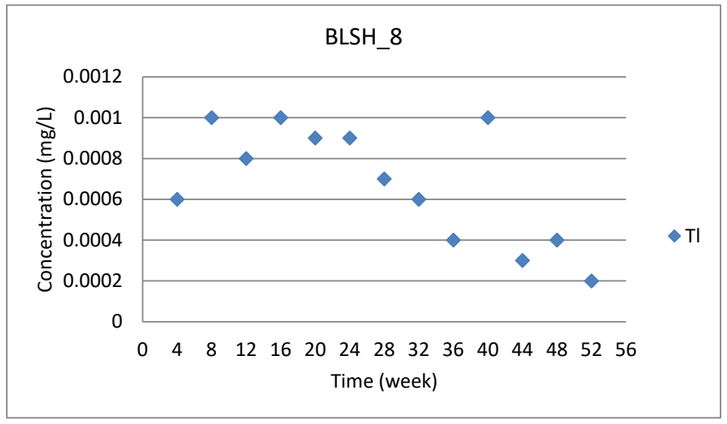

BLSH_8
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Hg

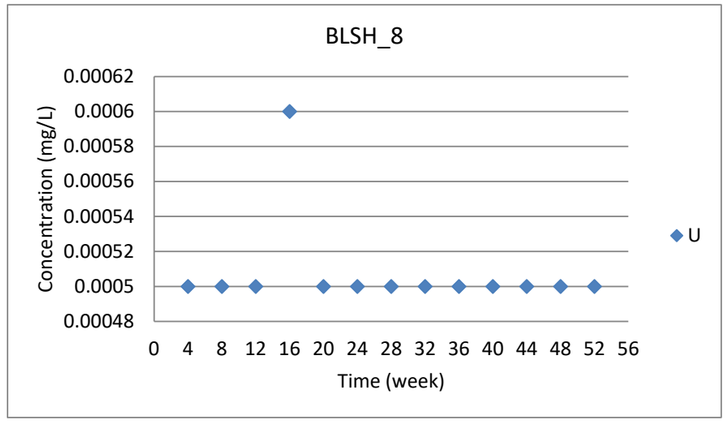

BLSH_8
Concentration (mg/L)
2.5
2
1.5
1
0.5
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ni

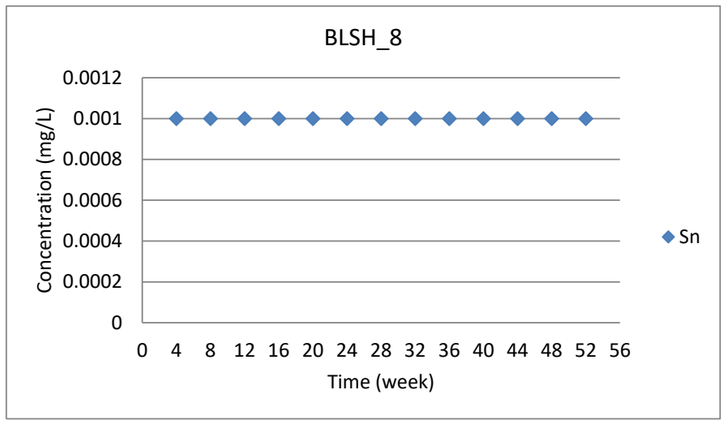

BLSH_8
Concentration (mg/L)
0.00062
0.0006
0.00058
0.00056
0.00054
0.00052
0.0005
0.00048
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Th

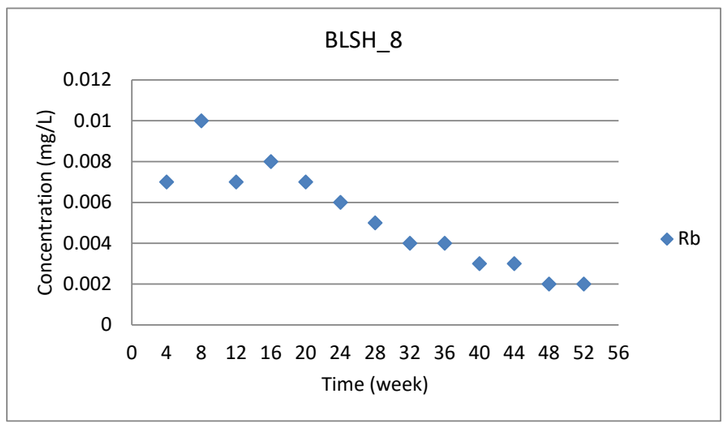

BLSH_8
Concentration (mg/L)
0.03
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Li

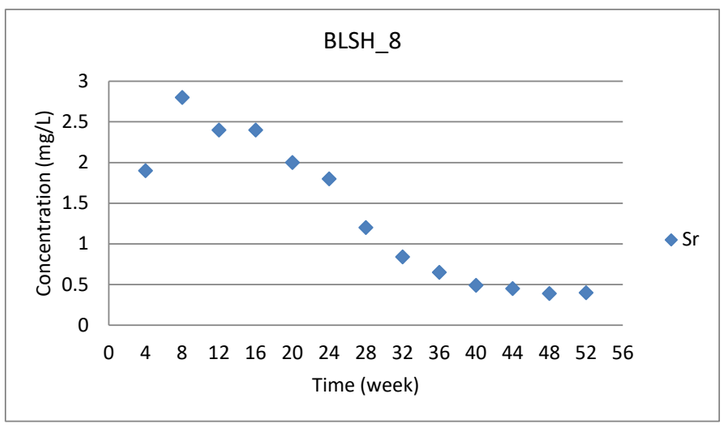

BLSH_8
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Pb

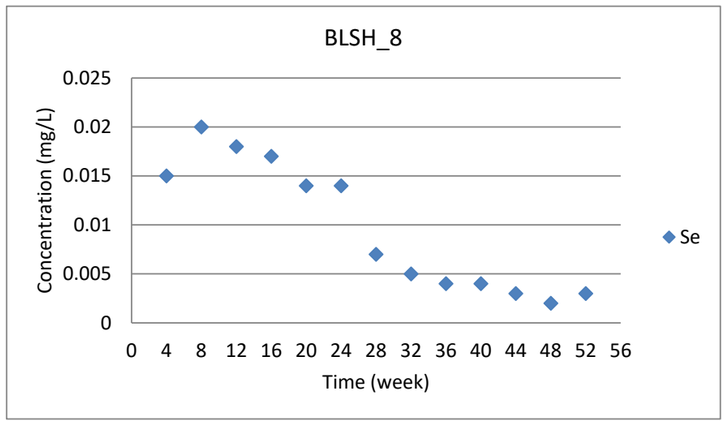

BLSH_8
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Tl

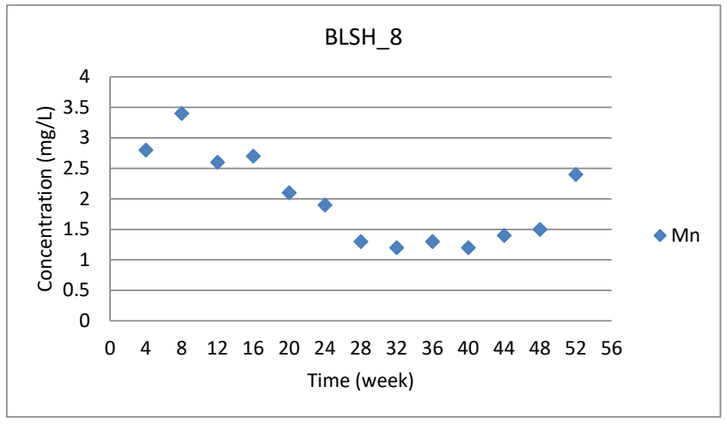

BLSH_8
Concentration (mg/L)
0.00062
0.0006
0.00058
0.00056
0.00054
0.00052
0.0005
0.00048
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
U


BLSH_8
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sn

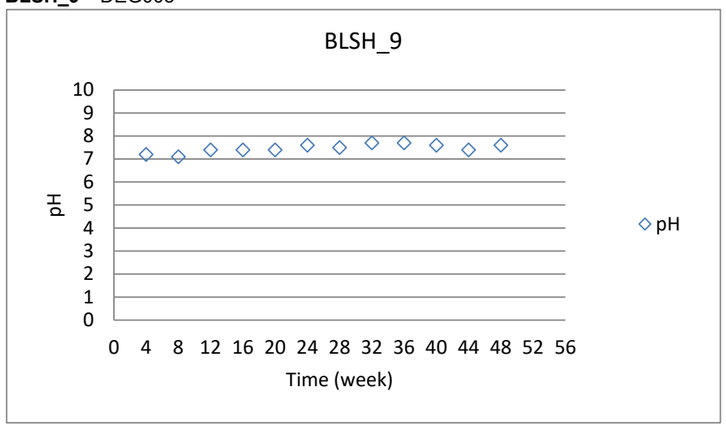

BLSH_8
Concentration (mg/L)
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Rb

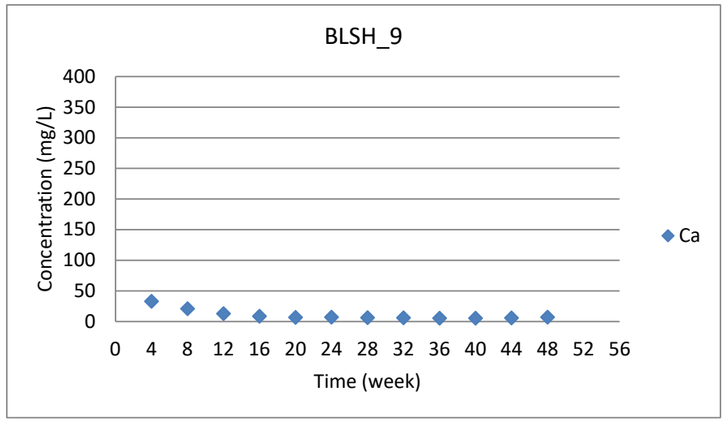

BLSH_8
Concentration (mg/L)
3
2.5
2
1.5
1
0.5
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sr

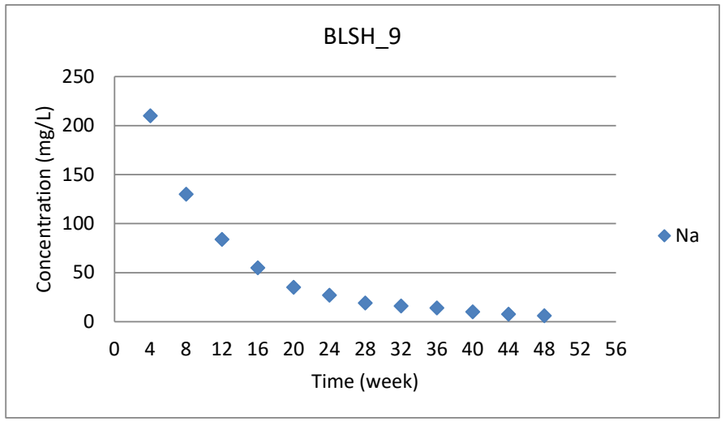

BLSH_8
Concentration (mg/L)
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Se

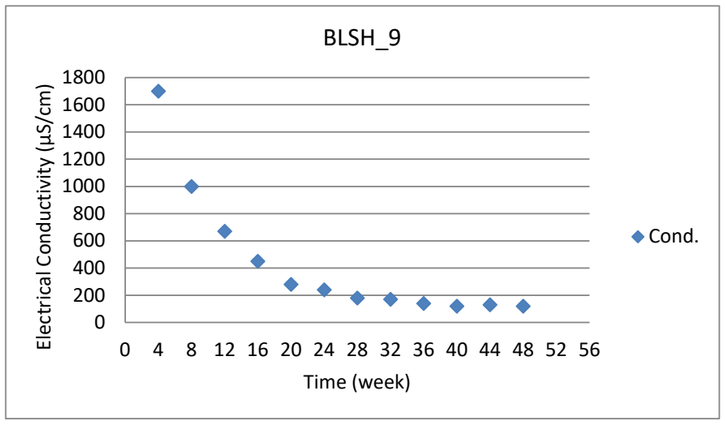

BLSH_8
Concentration (mg/L)
4
3.5
3
2.5
2
1.5
1
0.5
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mn

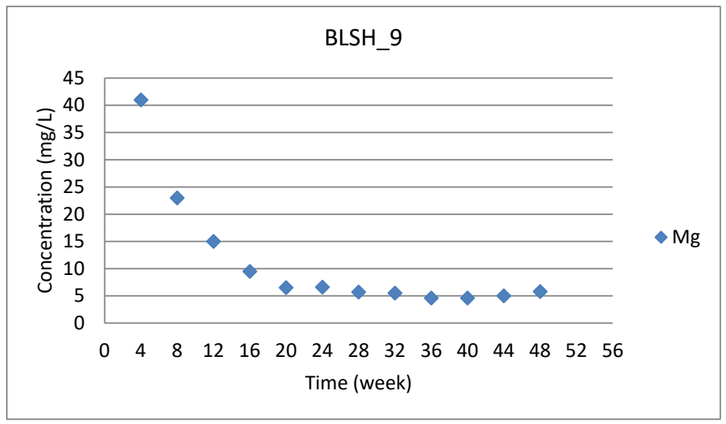
BLSH_9 DEG003

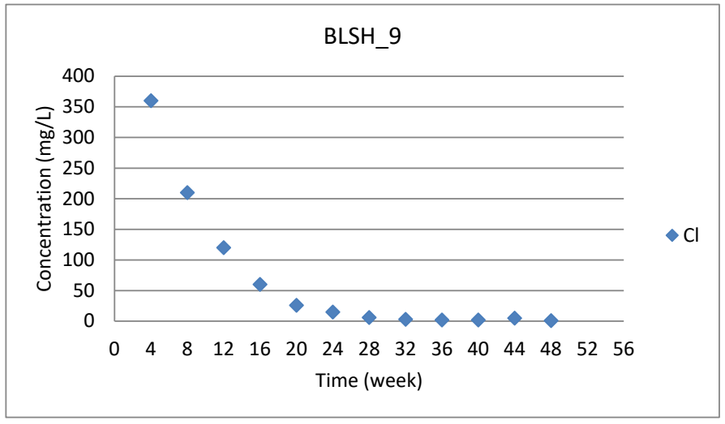


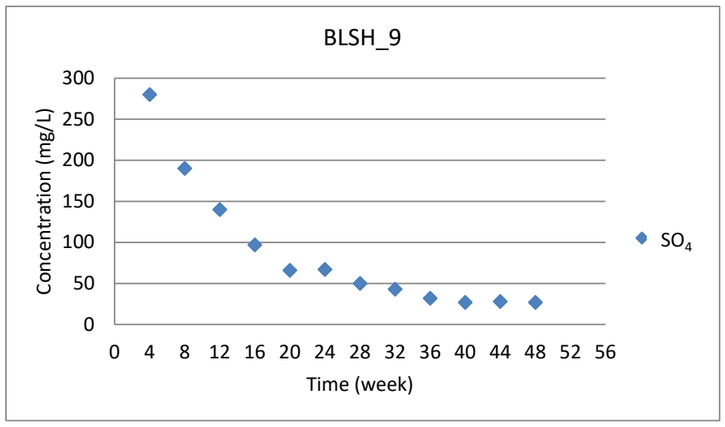


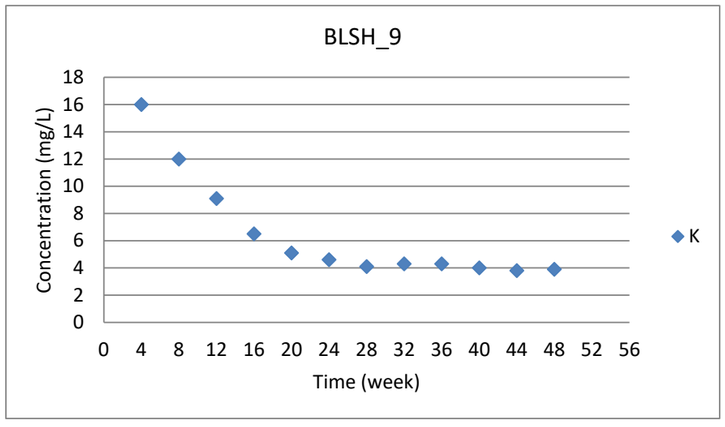


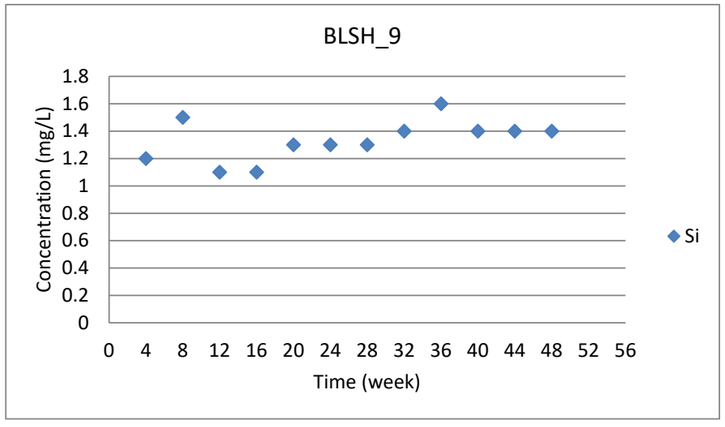


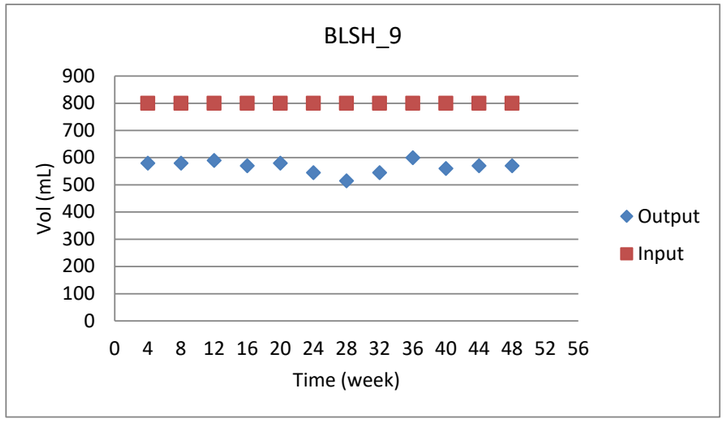


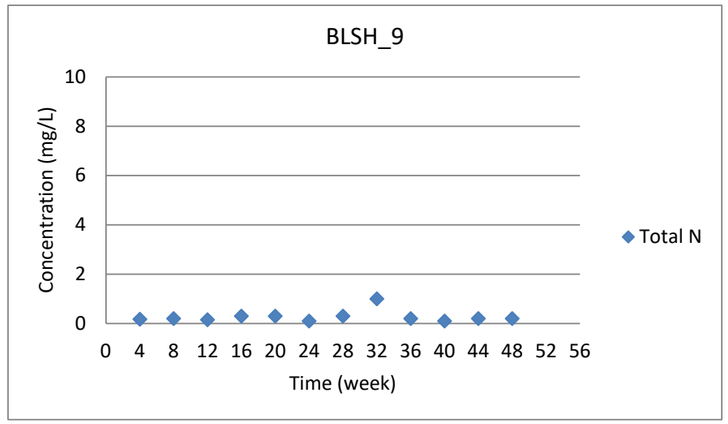


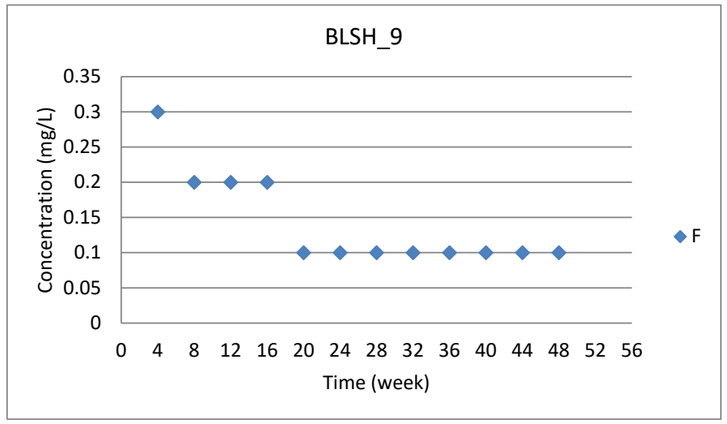


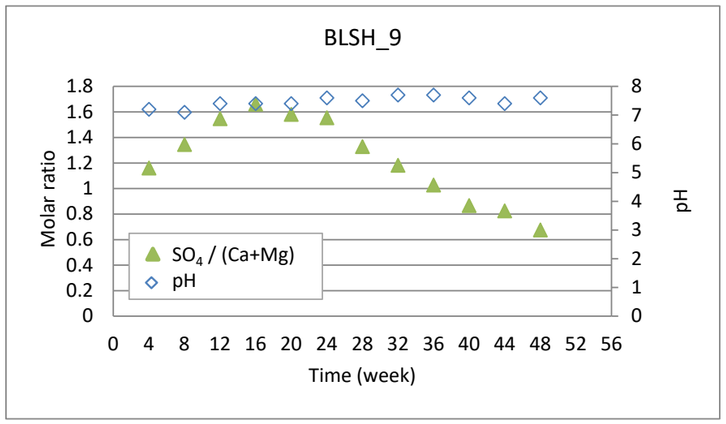


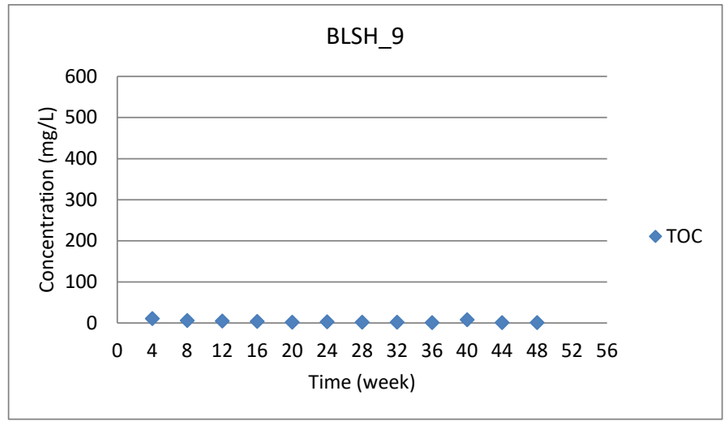


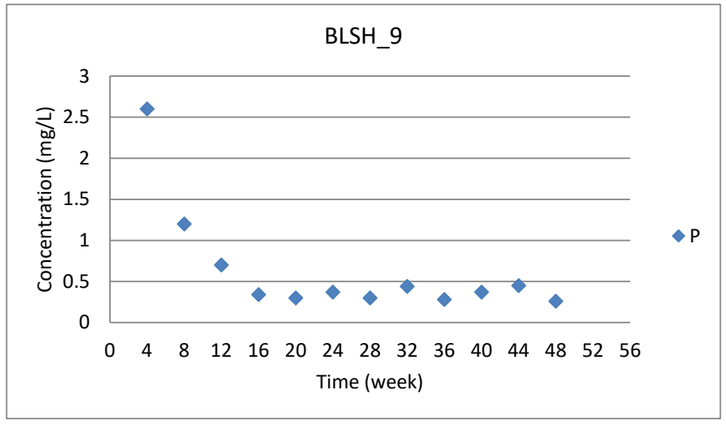

BLSH_9
Vol (mL)
900
800
700
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Output
Input

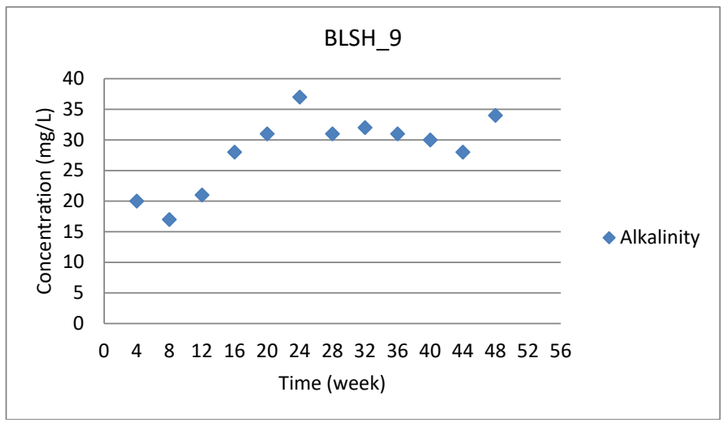

BLSH_9
Concentration (mg/L)
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Total N

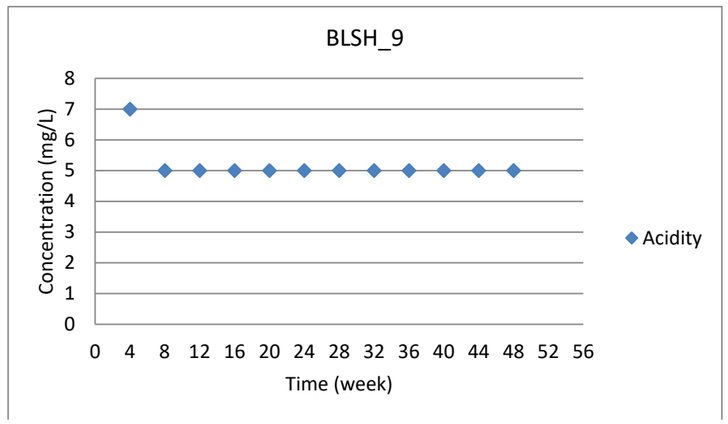

BLSH_9
Concentration (mg/L)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
F

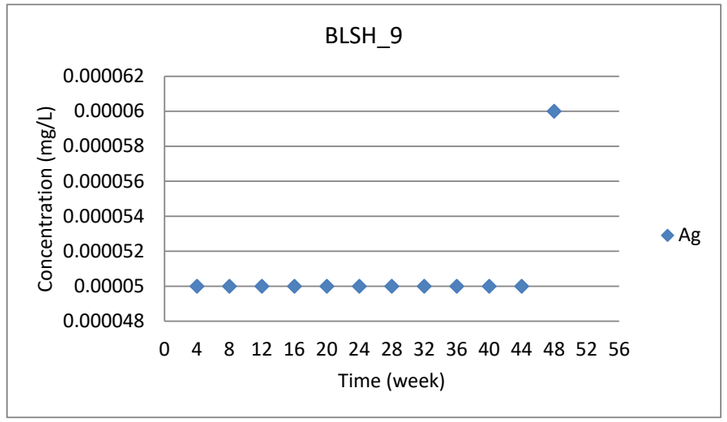

BLSH_9
Molar ratio
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
pH
8
7
6
5
4
3
2
1
0
SO4 / (Ca+Mg)
pH
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)

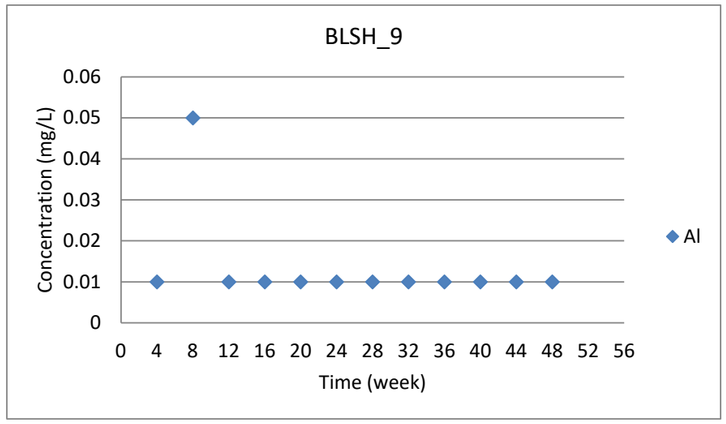

BLSH_9
Concentration (mg/L)
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
TOC

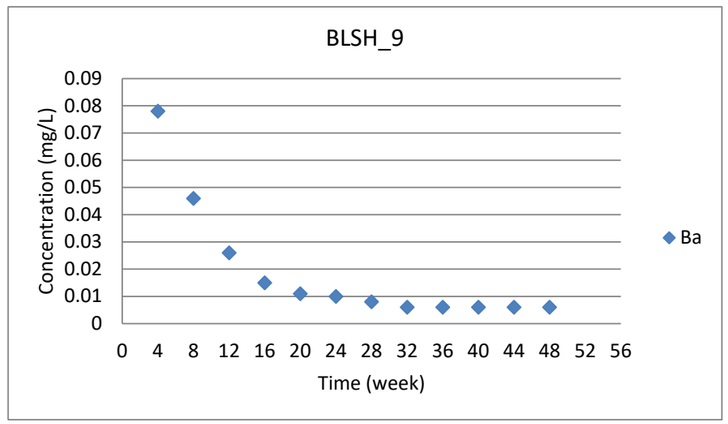

BLSH_9
Concentration (mg/L)
3
2.5
2
1.5
1
0.5
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
P

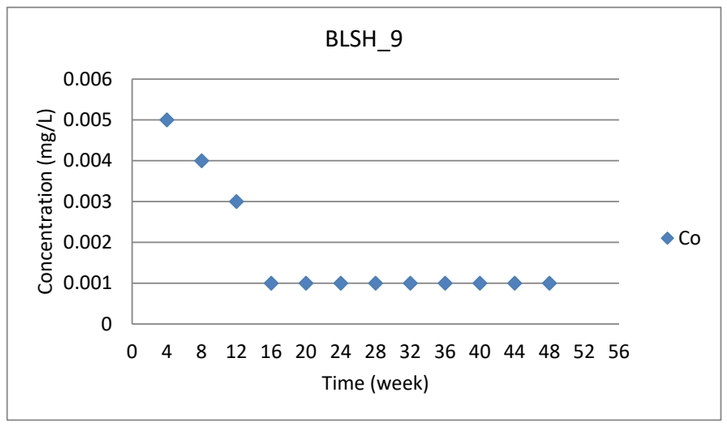

BLSH_9
Concentration (mg/L)
40
35
30
25
20
15
10
5
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Alkalinity

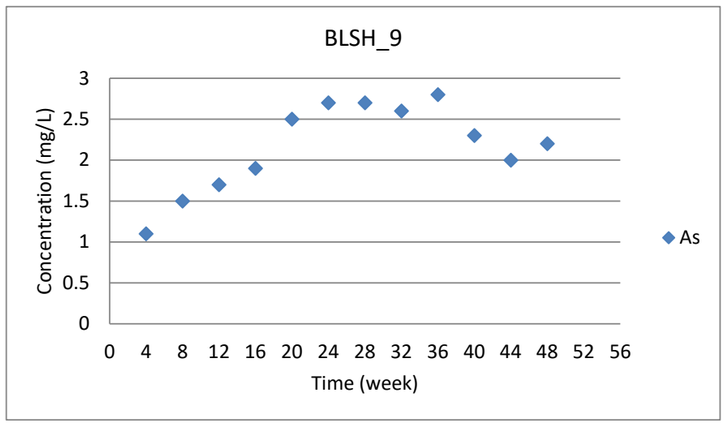

BLSH_9
Concentration (mg/L)
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Acidity

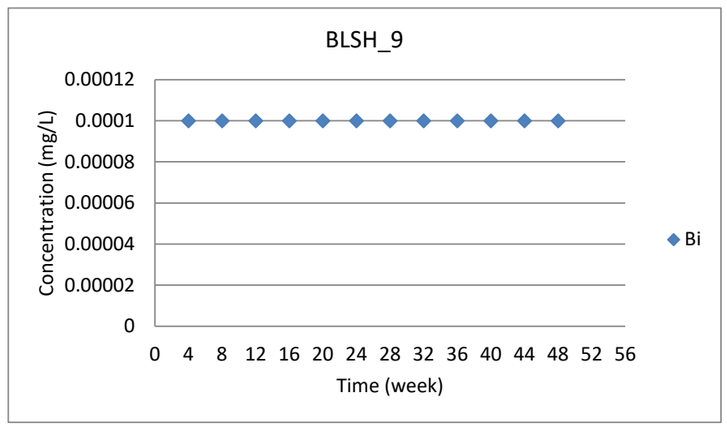

BLSH_9
Concentration (mg/L)
0.000062
0.00006
0.000058
0.000056
0.000054
0.000052
0.00005
0.000048
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ag

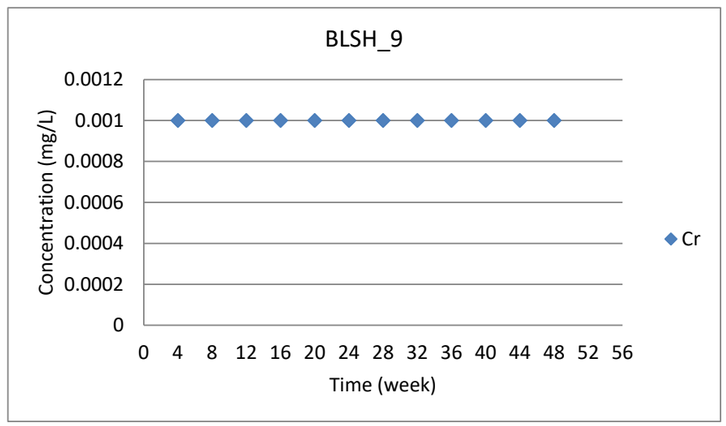

BLSH_9
Concentration (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Al

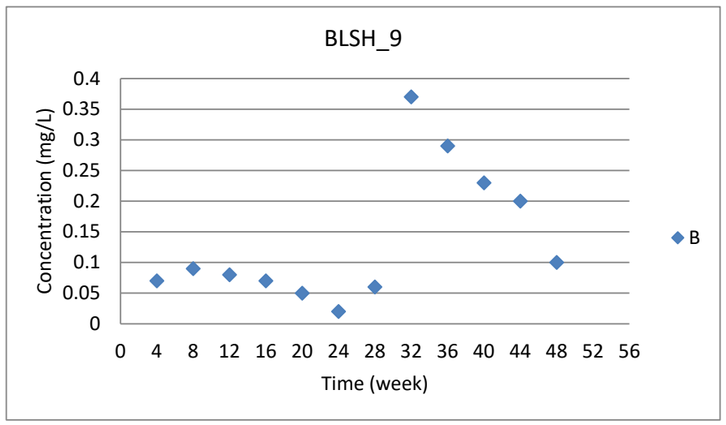

BLSH_9
Concentration (mg/L)
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ba

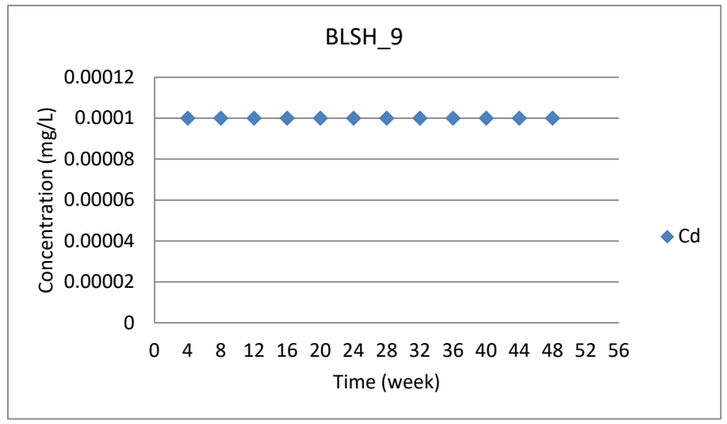

BLSH_9
Concentration (mg/L)
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Co

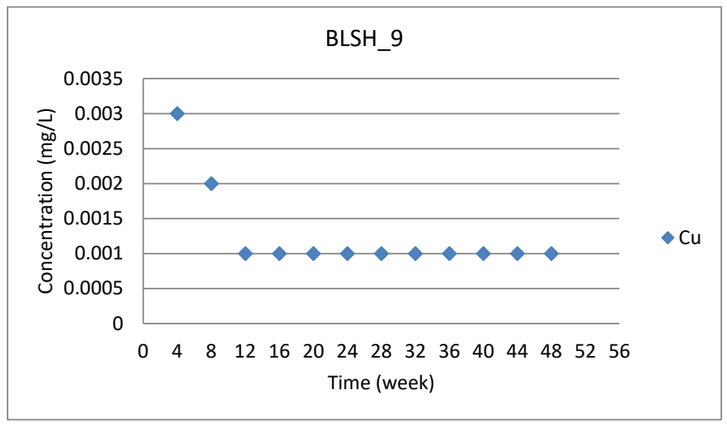

BLSH_9
Concentration (mg/L)
3
2.5
2
1.5
1
0.5
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
As

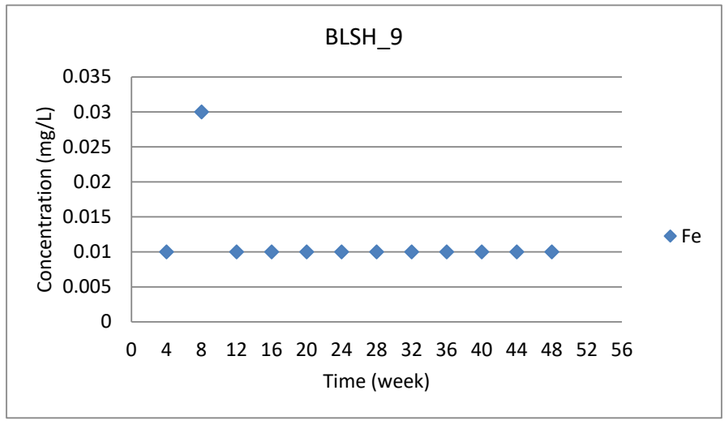

BLSH_9
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Bi

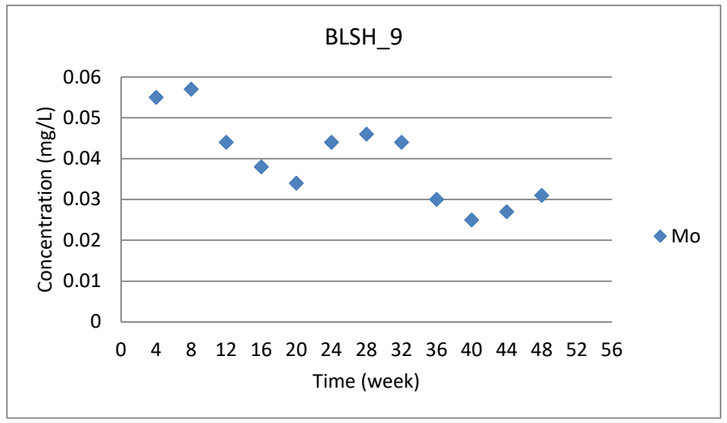

BLSH_9
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cr

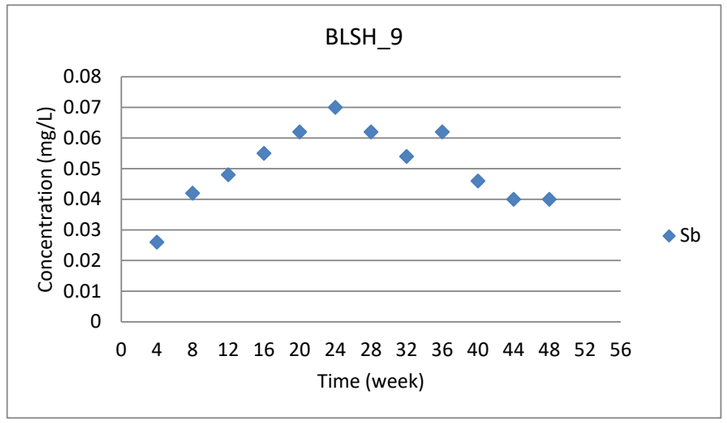

BLSH_9
Concentration (mg/L)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
B

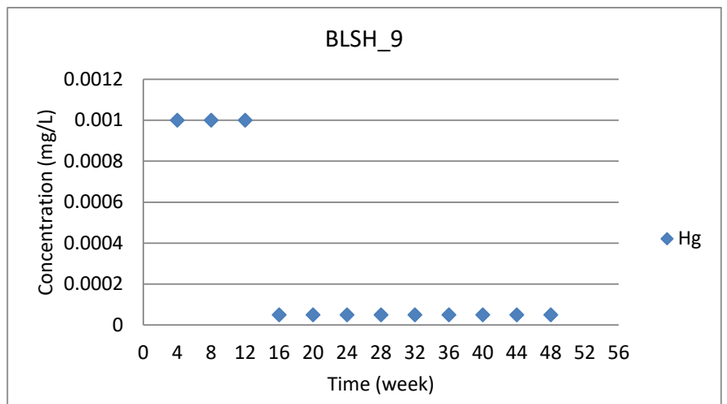

BLSH_9
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cd

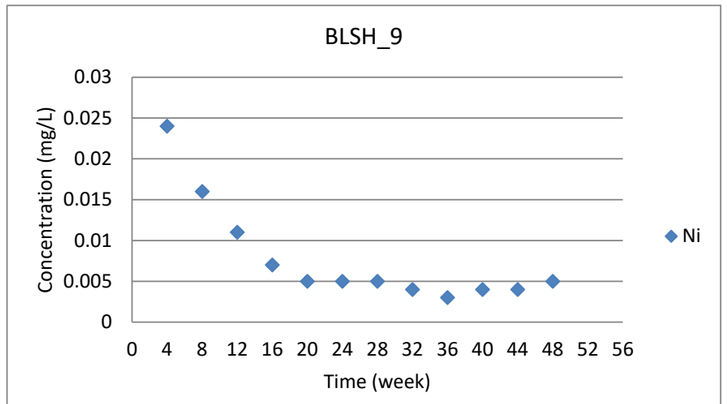

BLSH_9
Concentration (mg/L)
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cu

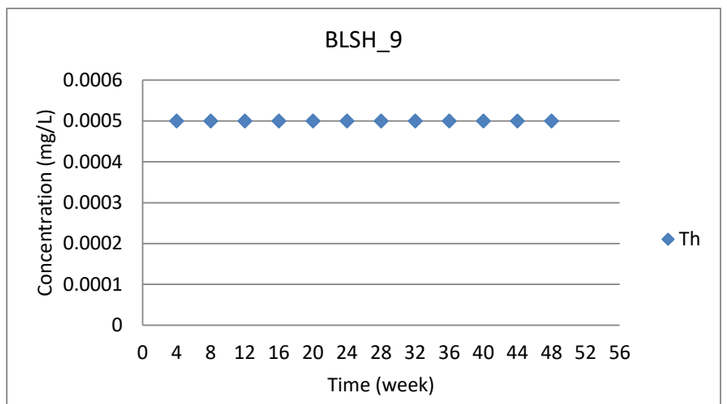

BLSH_9
Concentration (mg/L)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Fe

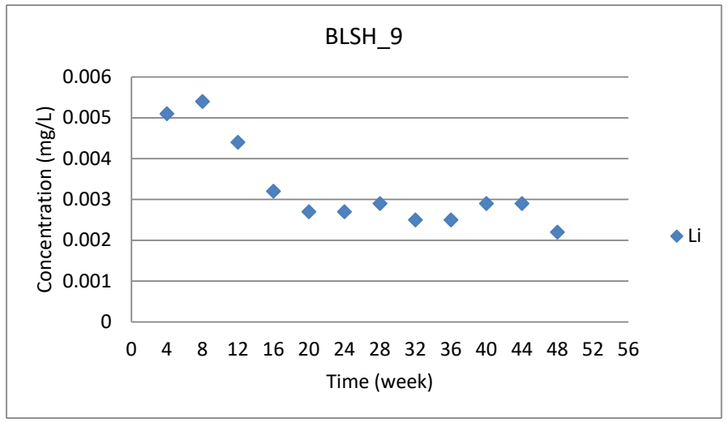

BLSH_9
Concentration (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mo

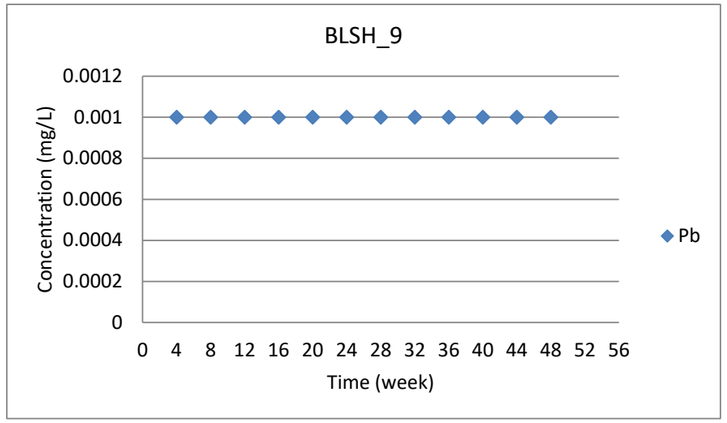

BLSH_9
Concentration (mg/L)
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sb

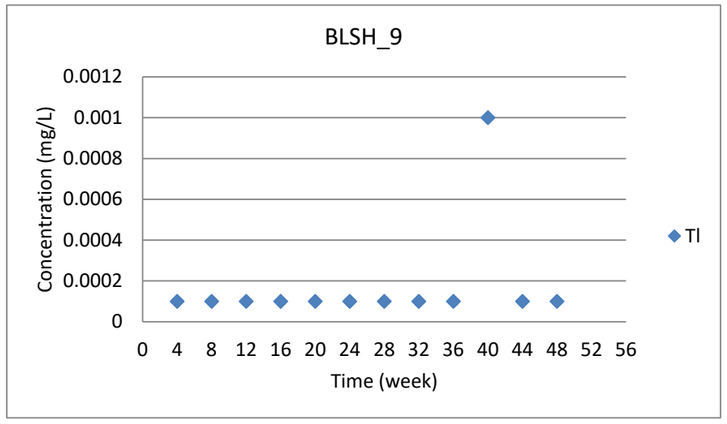

BLSH_9
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Hg

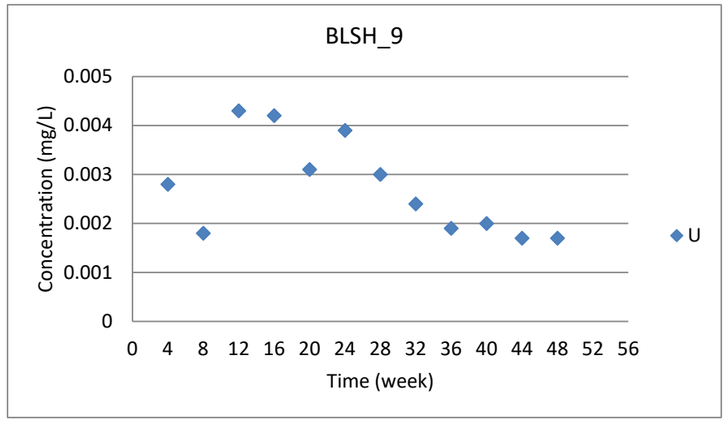

BLSH_9
Concentration (mg/L)
0.03
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ni

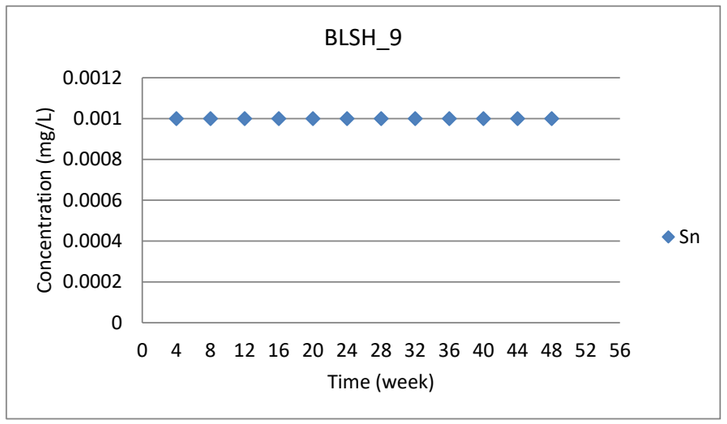

BLSH_9
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Th

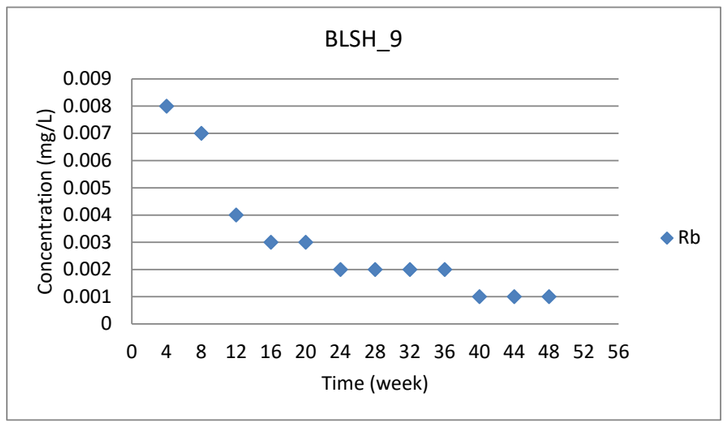

BLSH_9
Concentration (mg/L)
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Li

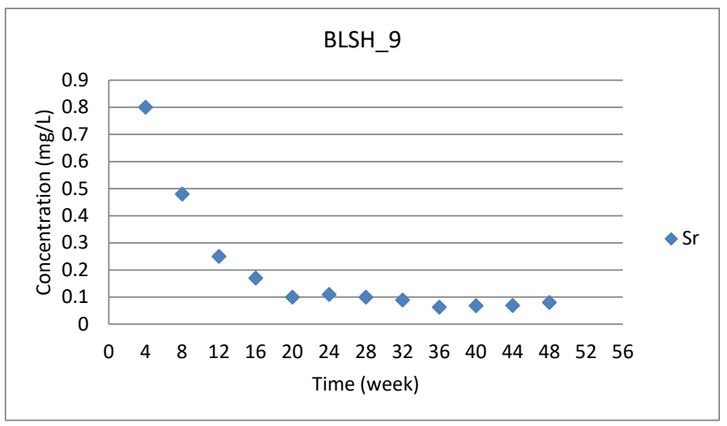

BLSH_9
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Pb

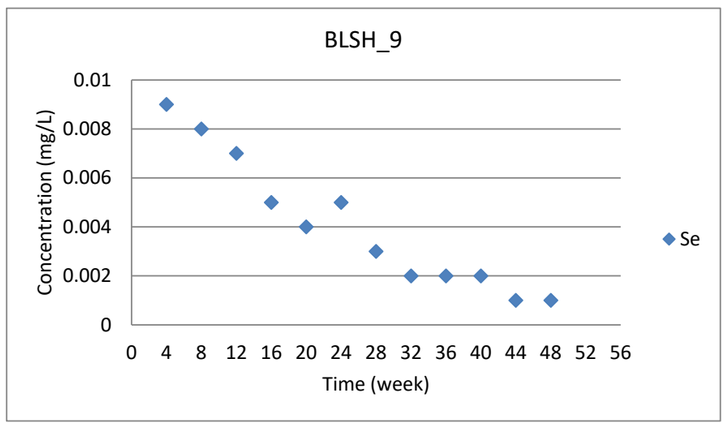

BLSH_9
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Tl

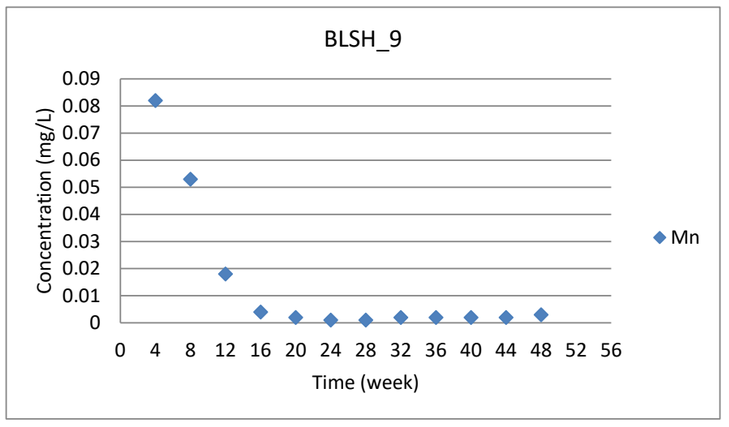

BLSH_9
Concentration (mg/L)
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
U


BLSH_9
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sn

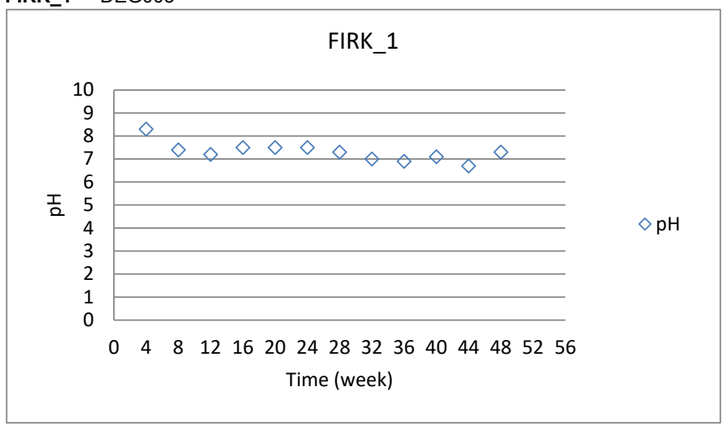

BLSH_9
Concentration (mg/L)
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Rb

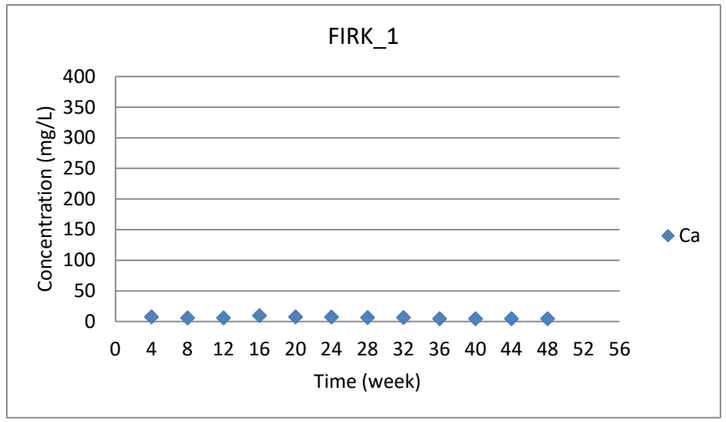

BLSH_9
Concentration (mg/L)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sr

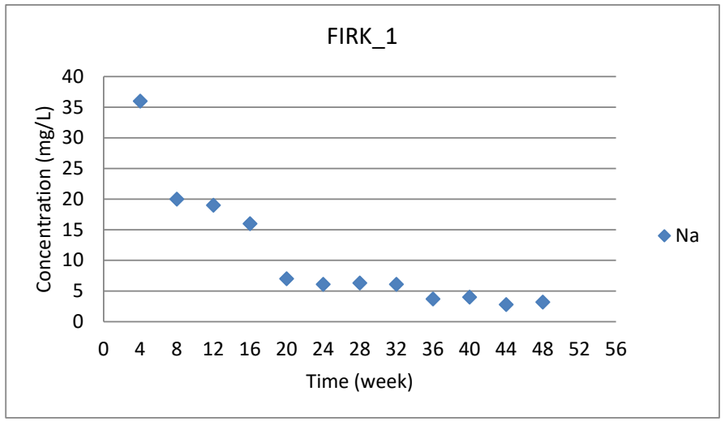

BLSH_9
Concentration (mg/L)
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Se

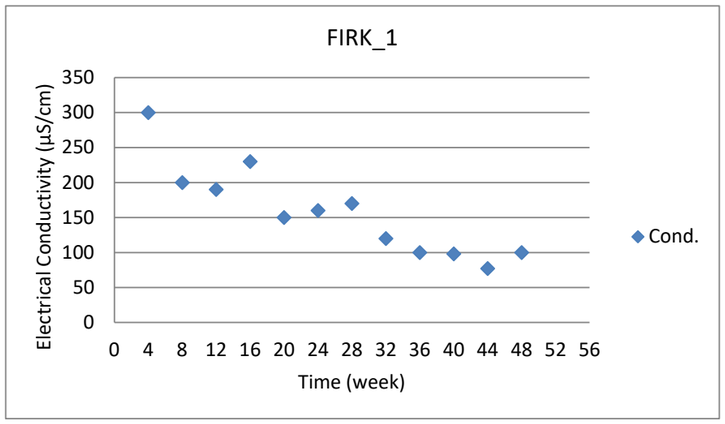

BLSH_9
Concentration (mg/L)
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mn

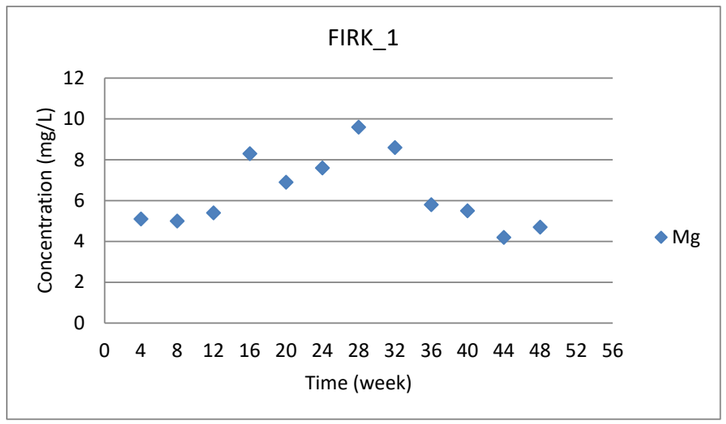
FIRK_1 DEG003

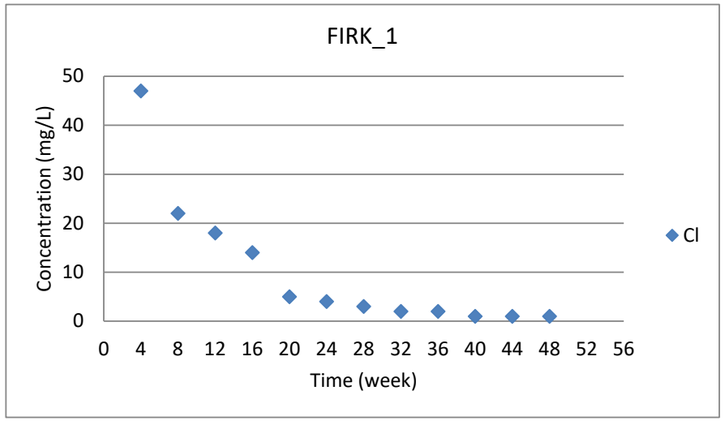


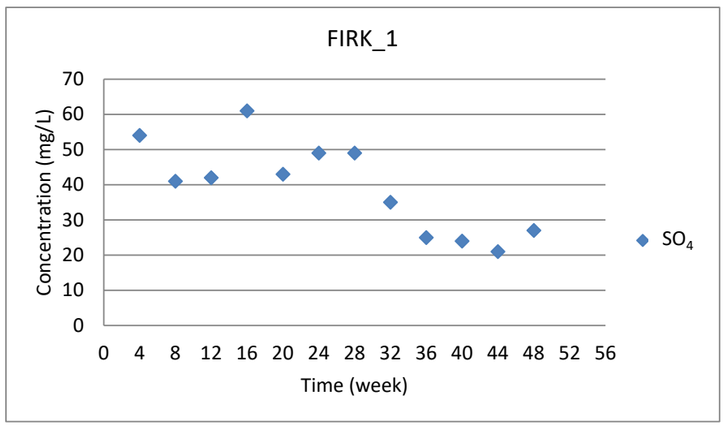


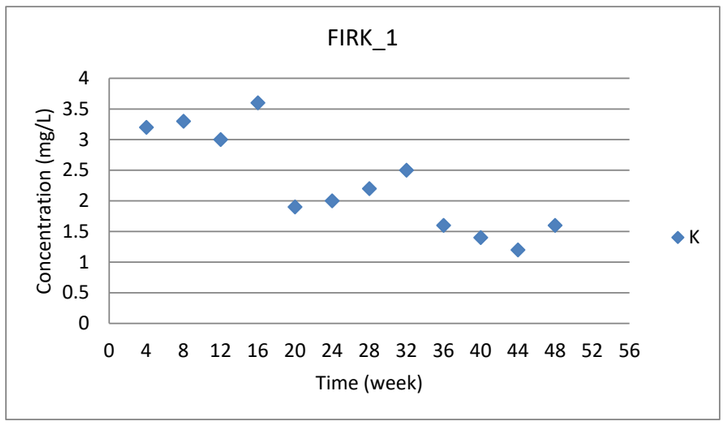


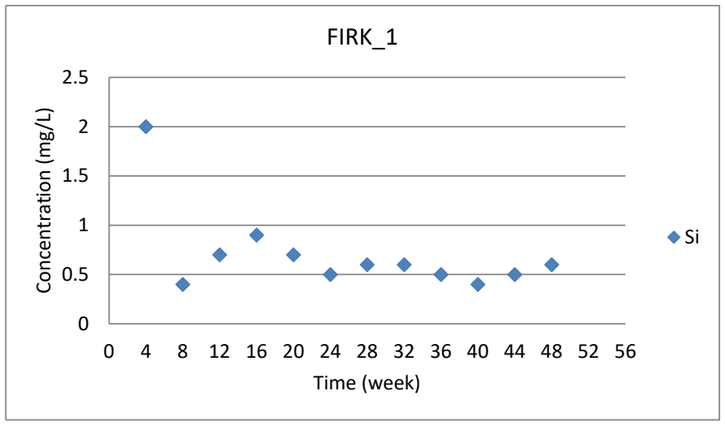


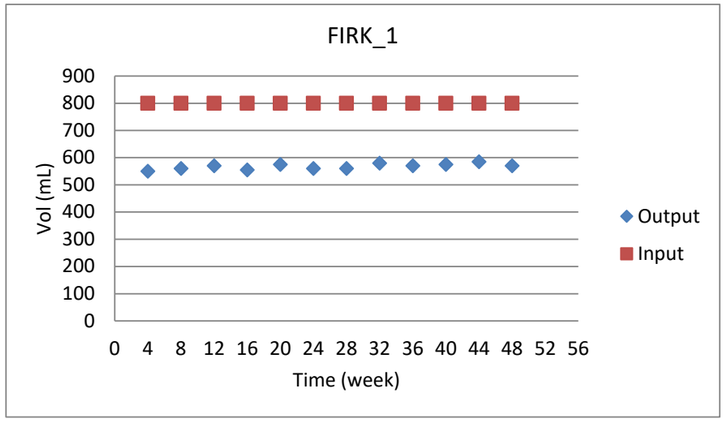


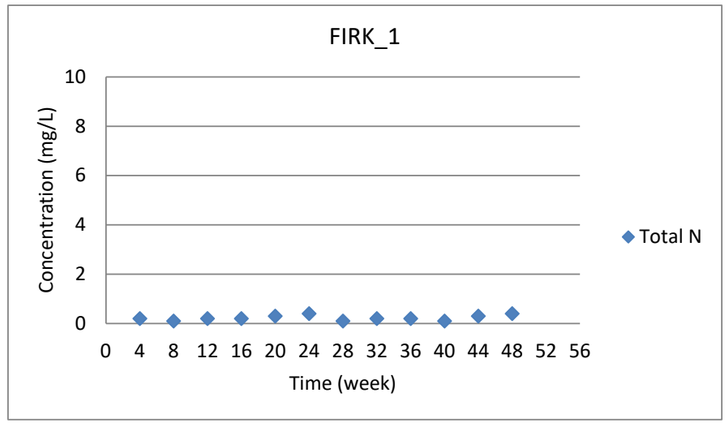


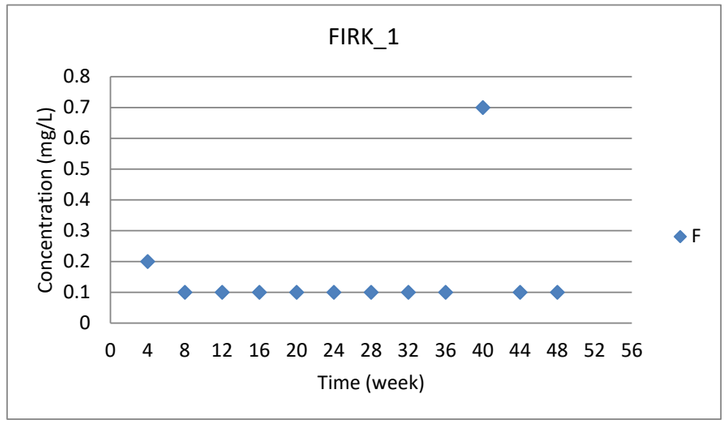


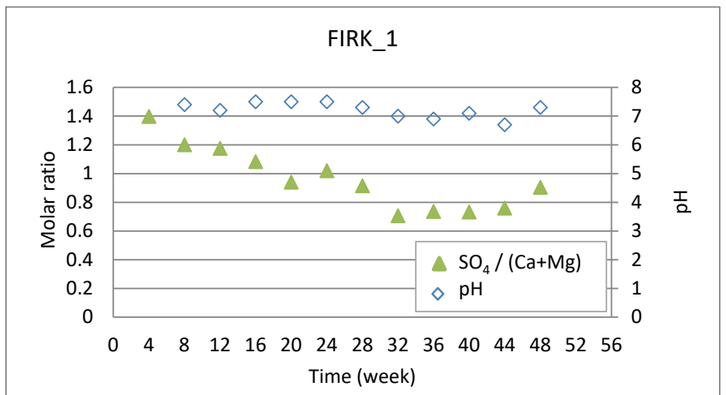


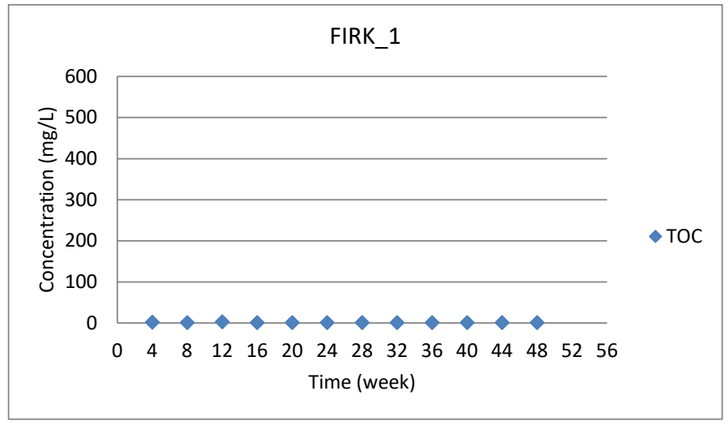


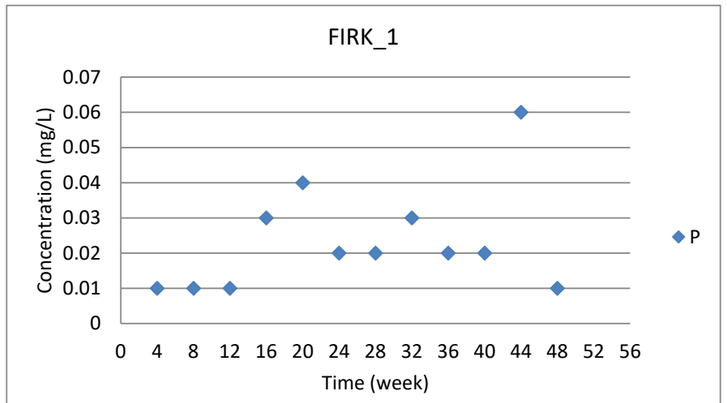

FIRK_1
Vol (mL)
900
800
700
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Output
Input

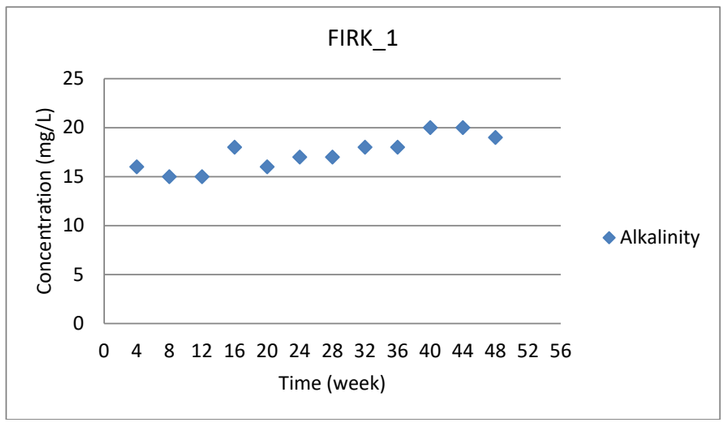

FIRK_1
Concentration (mg/L)
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Total N

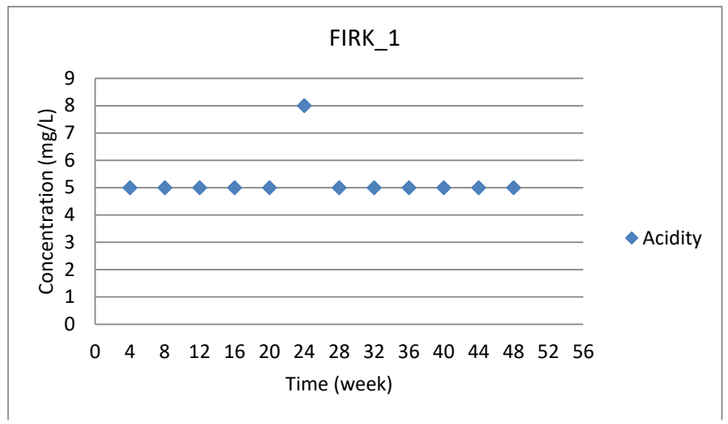

FIRK_1
Concentration (mg/L)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
F

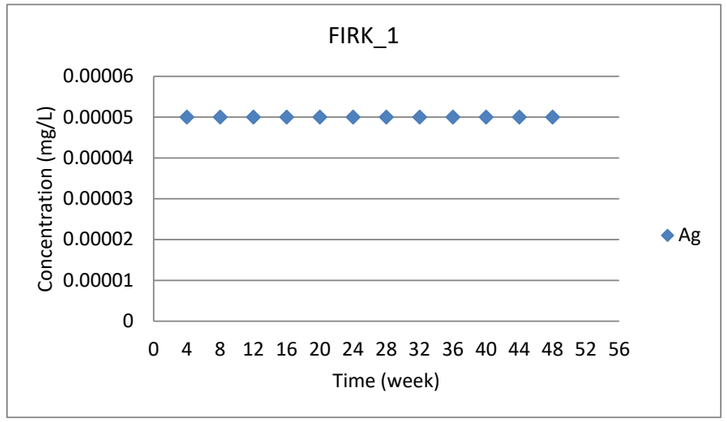

FIRK_1
Molar ratio
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
pH
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
SO4 / (Ca+Mg)
pH

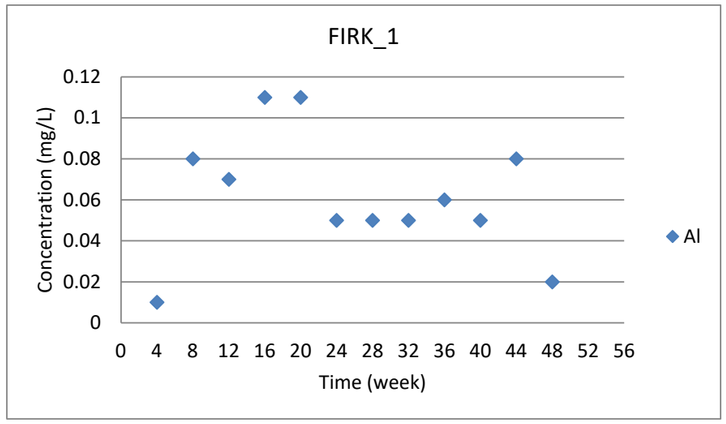

FIRK_1
Concentration (mg/L)
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
TOC

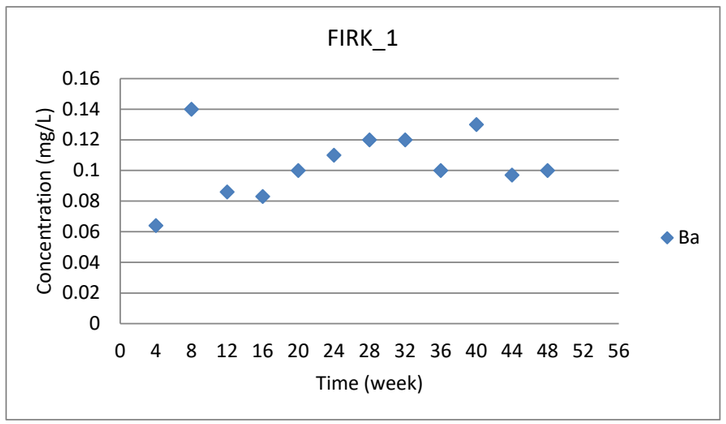

FIRK_1
Concentration (mg/L)
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
P

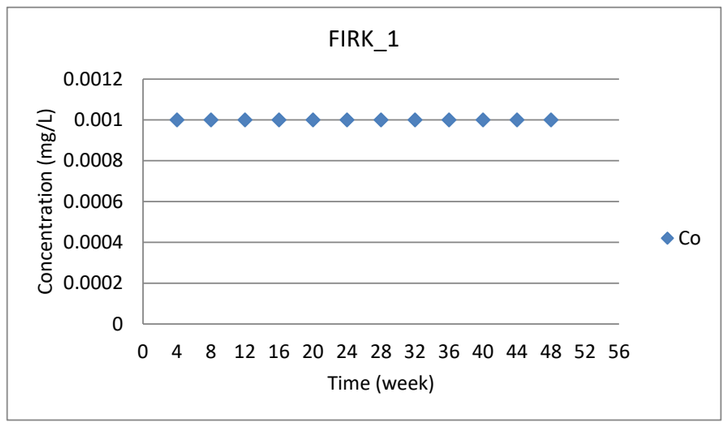

FIRK_1
Concentration (mg/L)
25
20
15
10
5
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Alkalinity

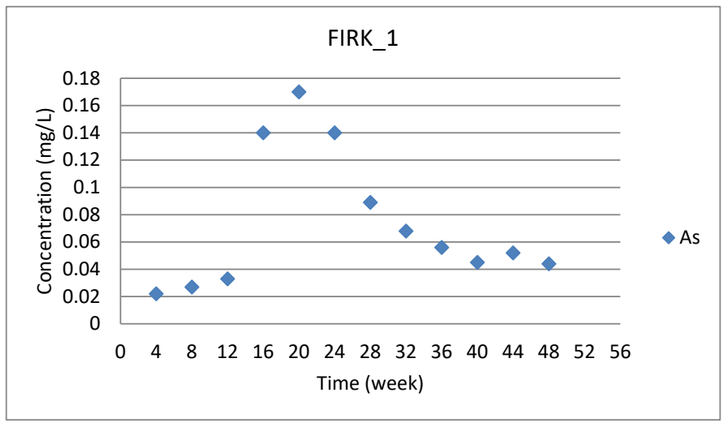

FIRK_1
Concentration (mg/L)
9
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Acidity

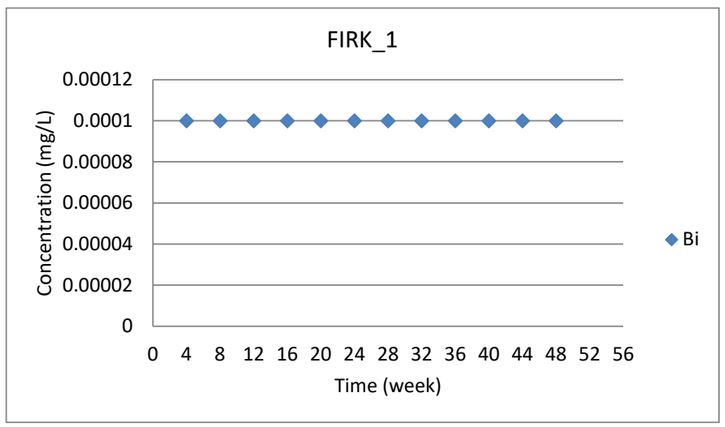

FIRK_1
Concentration (mg/L)
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ag

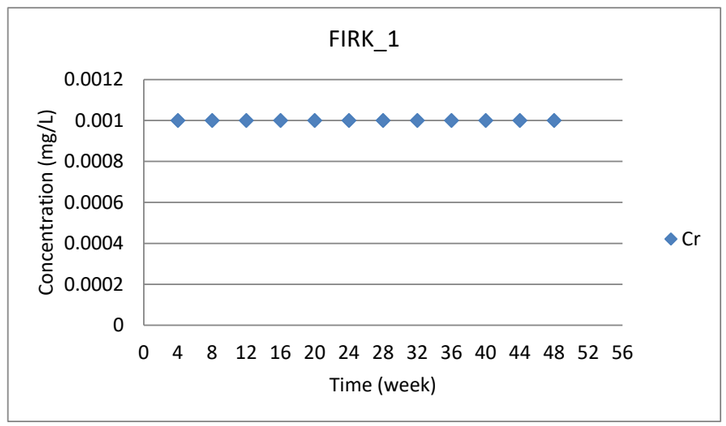

FIRK_1
Concentration (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Al

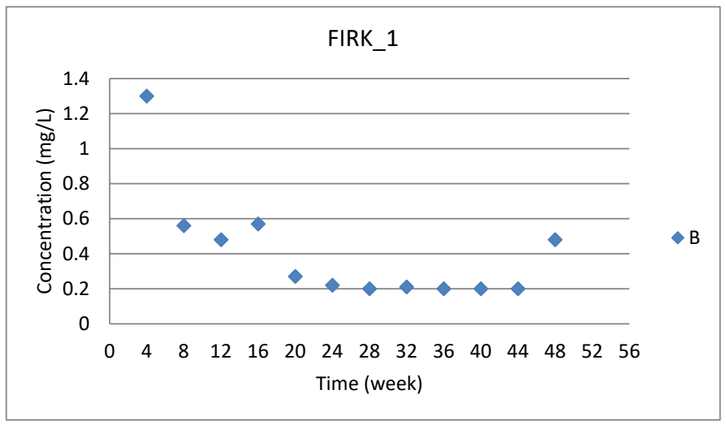

FIRK_1
Concentration (mg/L)
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ba

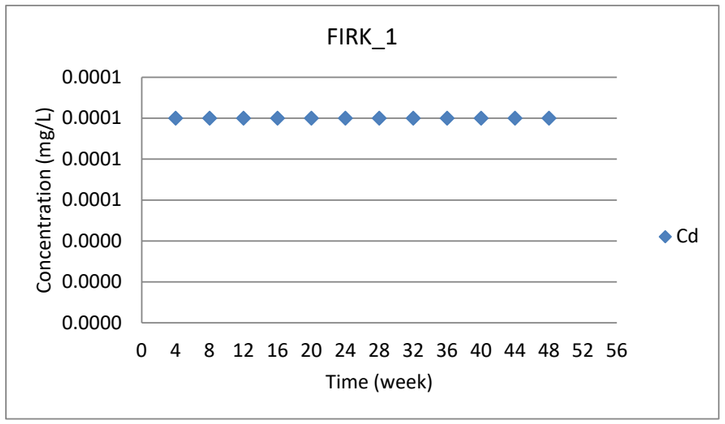

FIRK_1
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Co

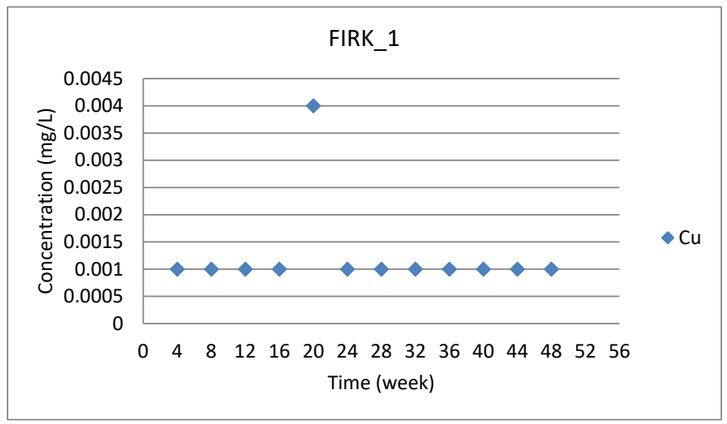

FIRK_1
Concentration (mg/L)
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
As

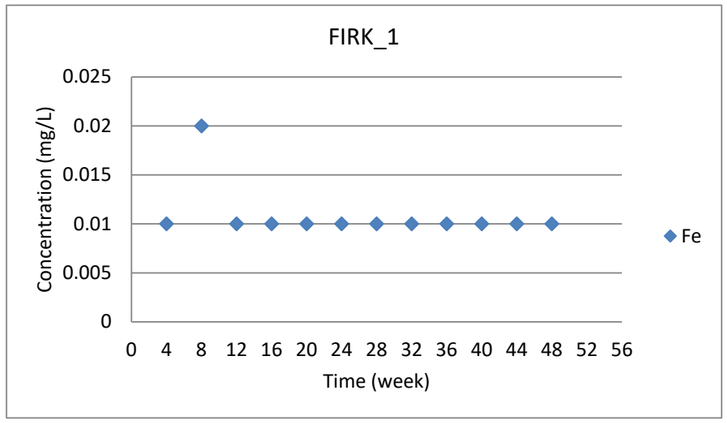

FIRK_1
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Bi

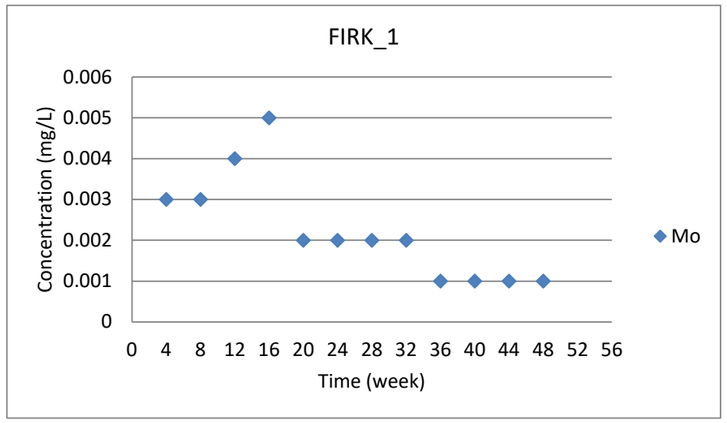

FIRK_1
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cr

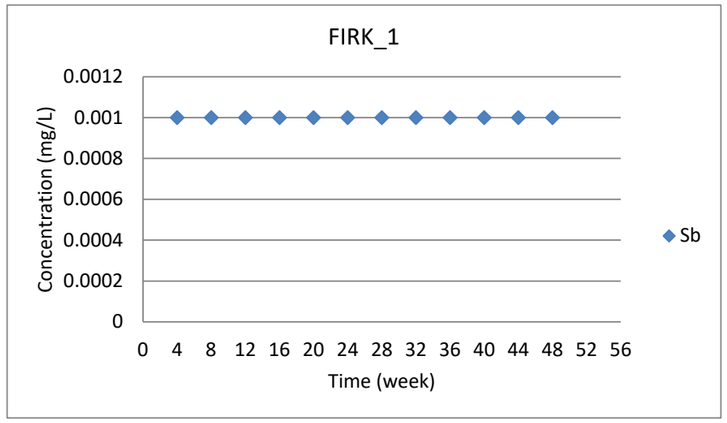

FIRK_1
Concentration (mg/L)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
B

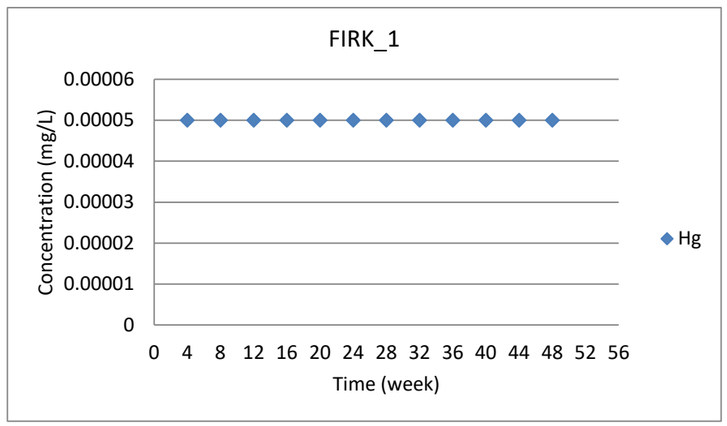

FIRK_1
Concentration (mg/L)
0.0001
0.0001
0.0001
0.0001
0.0000
0.0000
0.0000
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cd

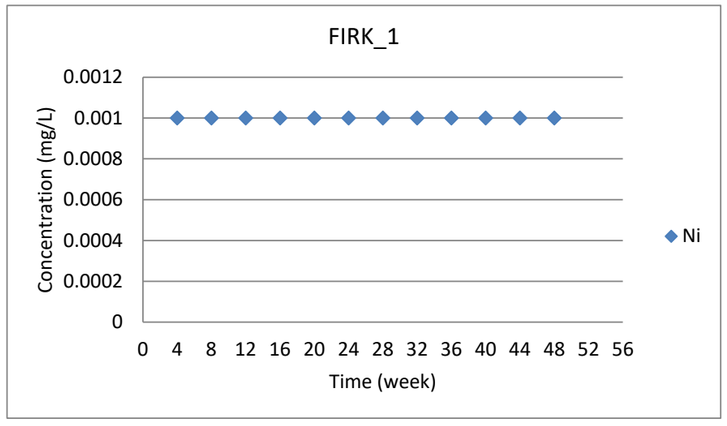

FIRK_1
Concentration (mg/L)
0.0045
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cu

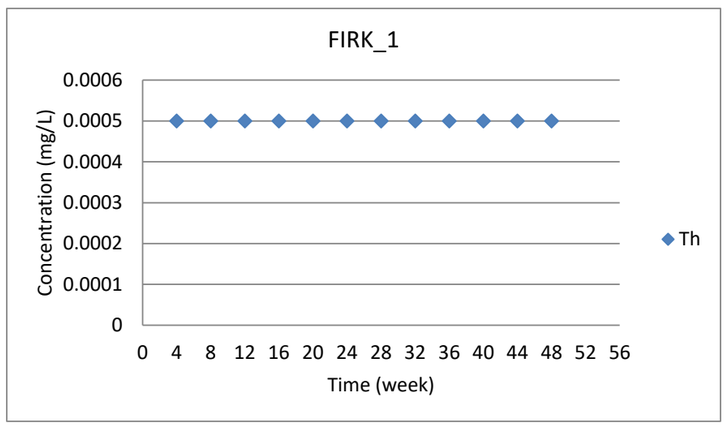

FIRK_1
Concentration (mg/L)
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Fe

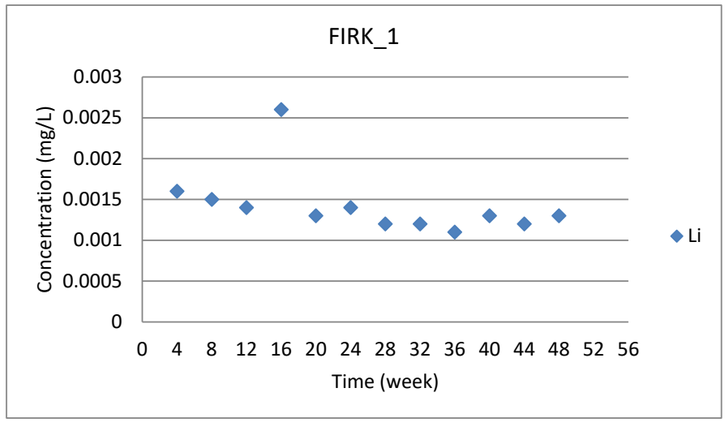

FIRK_1
Concentration (mg/L)
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mo

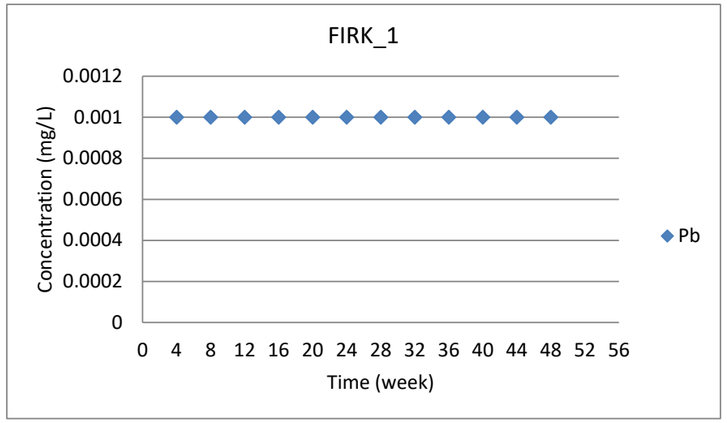

FIRK_1
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sb

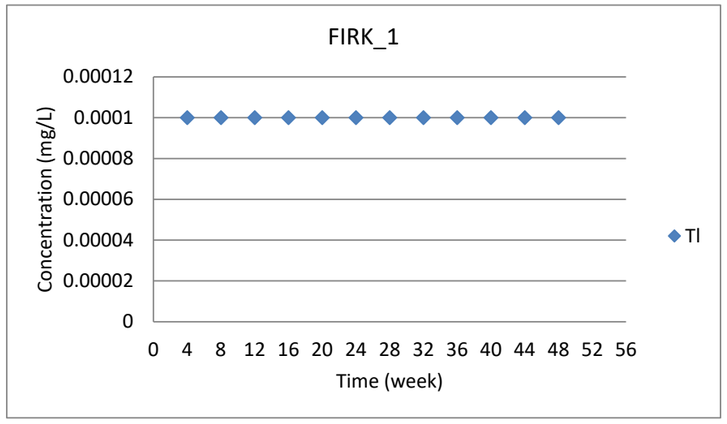

FIRK_1
Concentration (mg/L)
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Hg

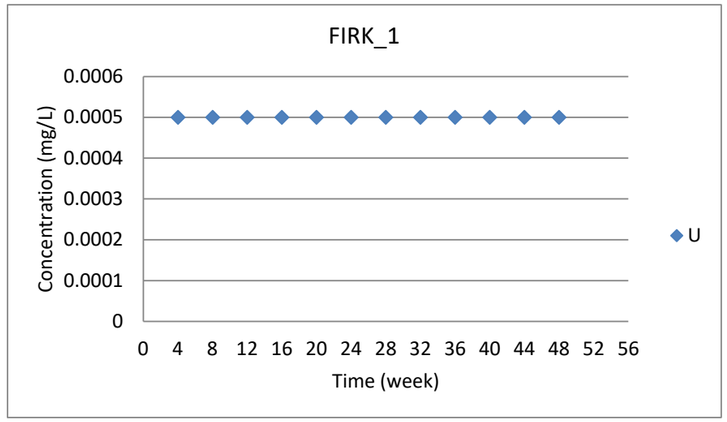

FIRK_1
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ni

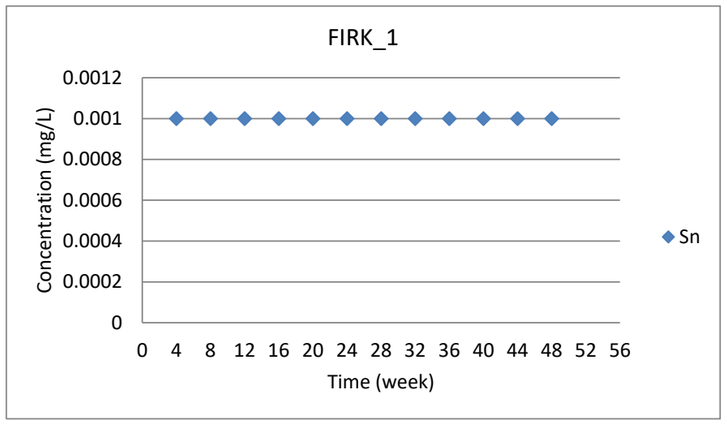

FIRK_1
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Th

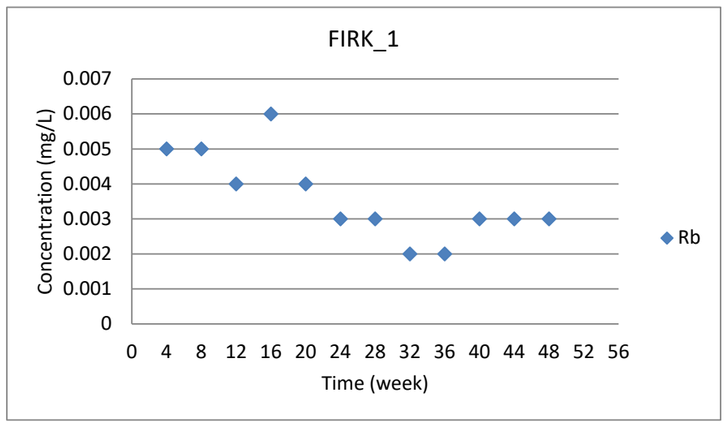

FIRK_1
Concentration (mg/L)
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Li

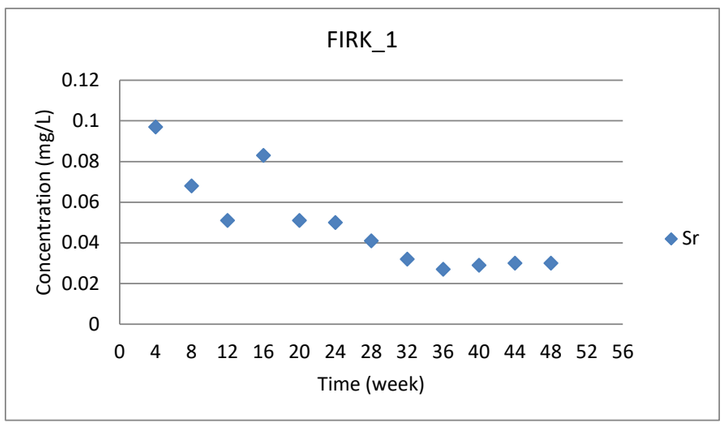

FIRK_1
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Pb

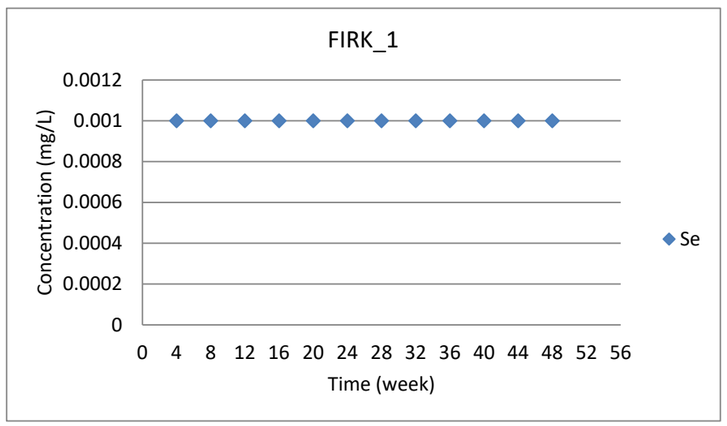

FIRK_1
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Tl

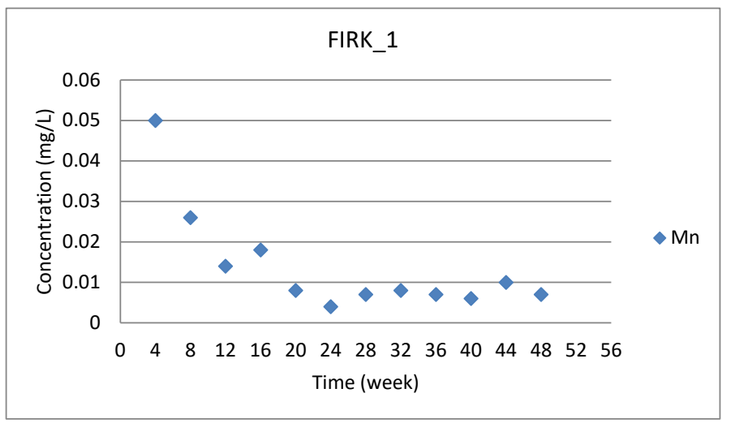

FIRK_1
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
U


FIRK_1
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sn

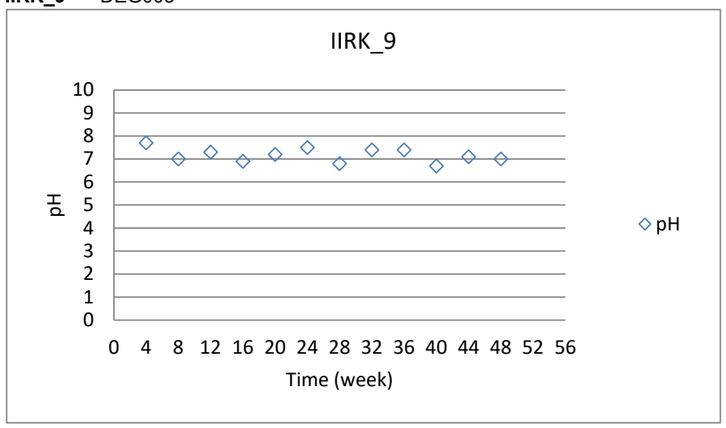

FIRK_1
Concentration (mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Rb

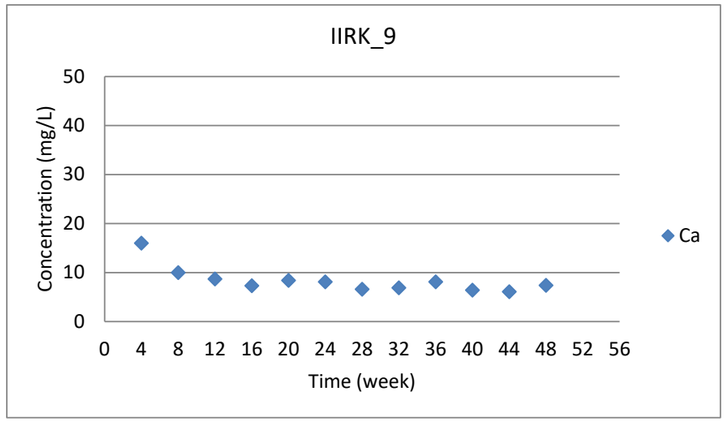

FIRK_1
Concentration (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sr

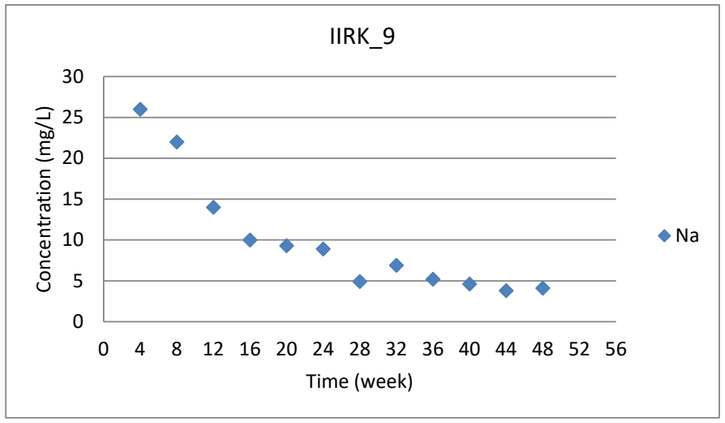

FIRK_1
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Se

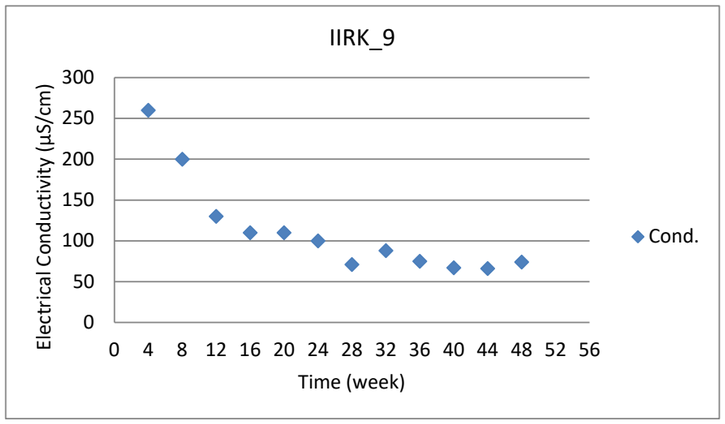

FIRK_1
Concentration (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mn

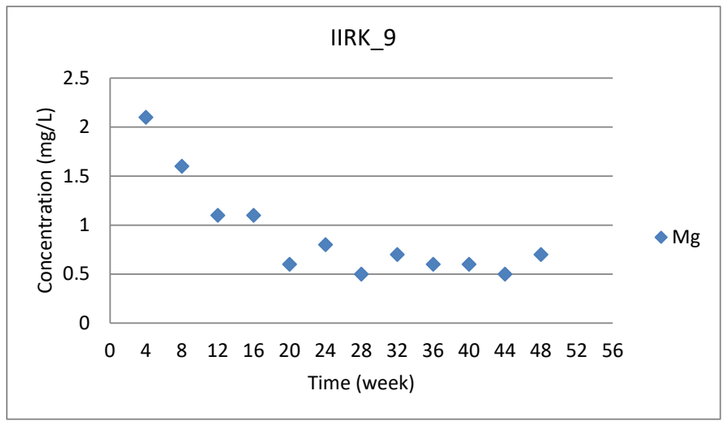
IIRK_9 DEG003

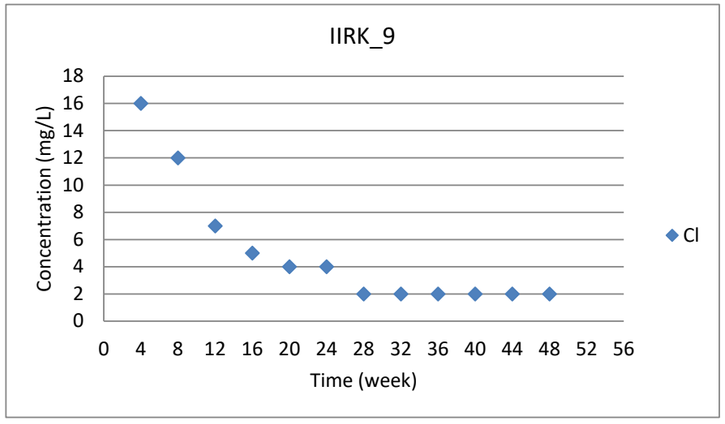


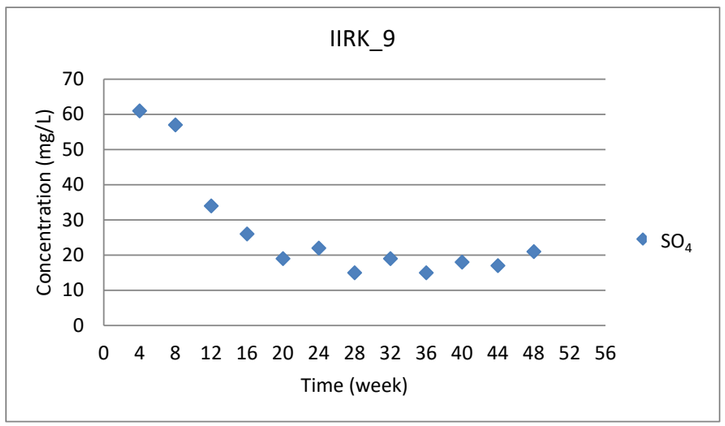


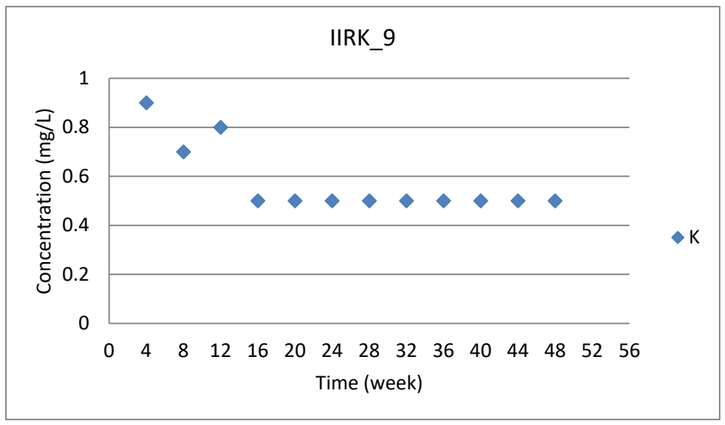


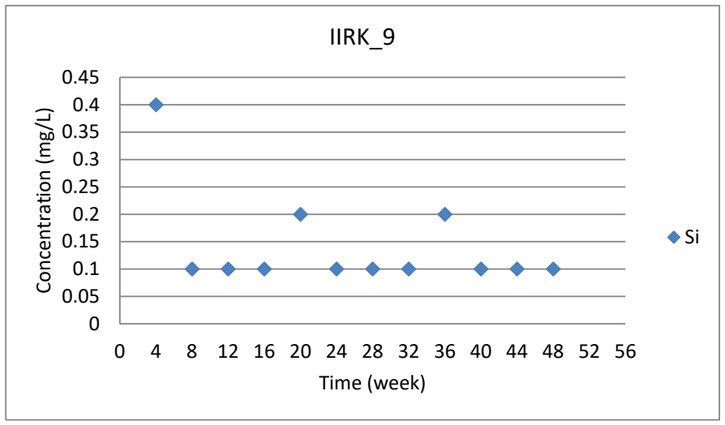


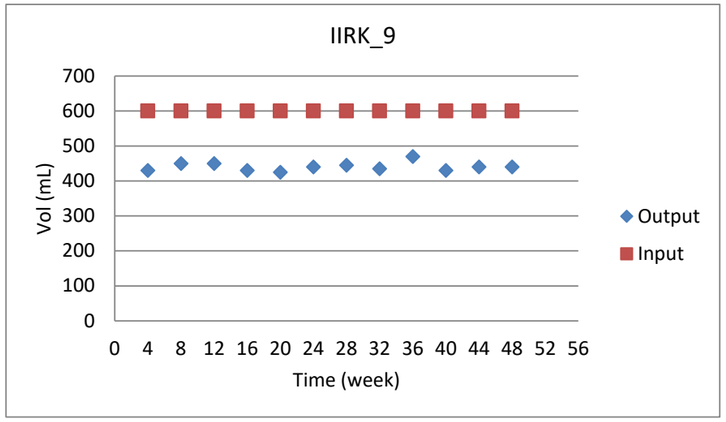


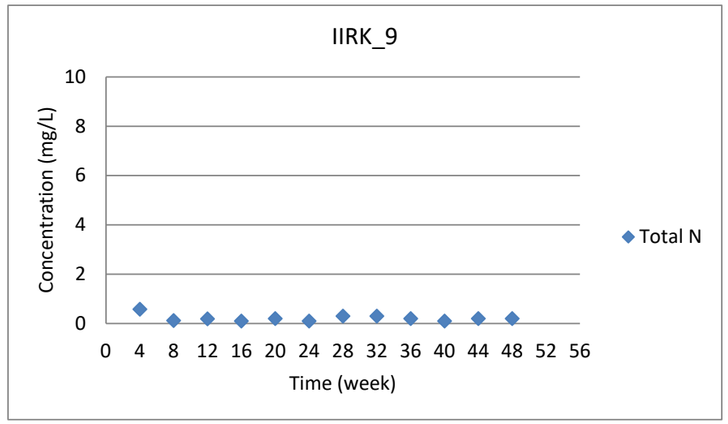


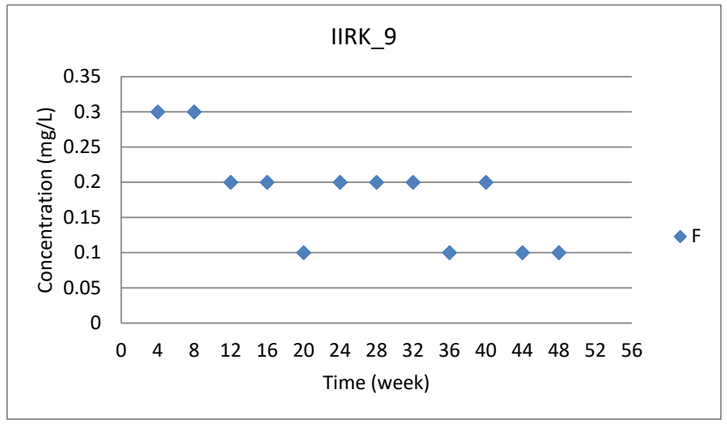


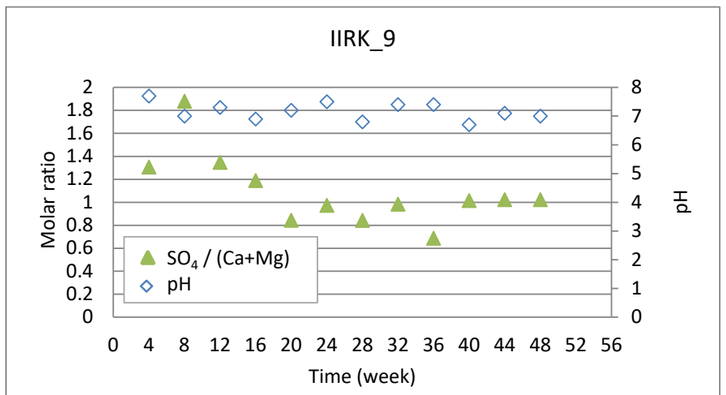


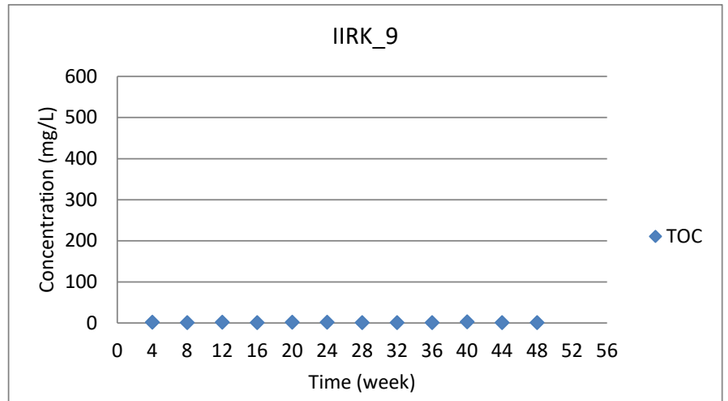


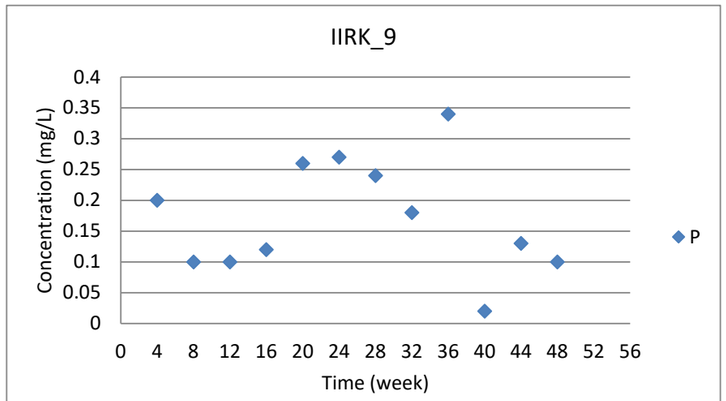

IIRK_9
Vol (mL)
Time (week)
Output
Input

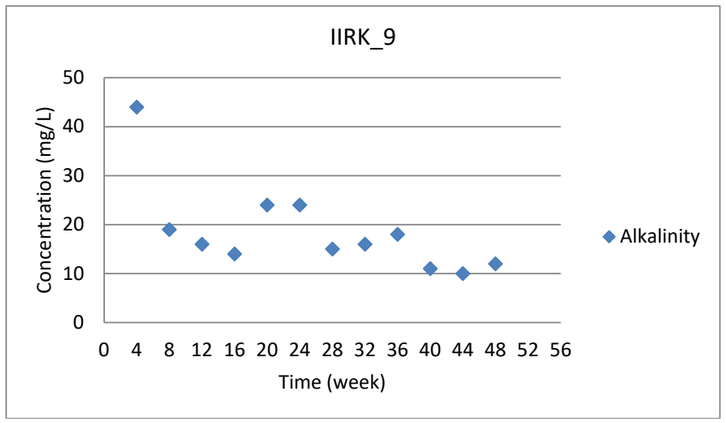

IIRK_9
Concentration (mg/L)
Time (week)
Total N

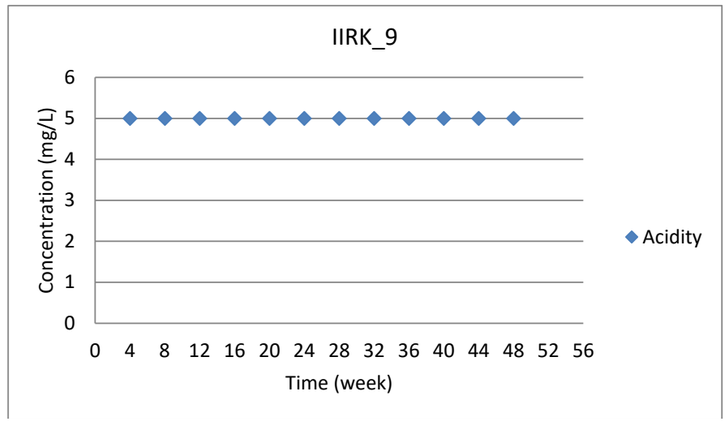

IIRK_9
Concentration (mg/L)
Time (week)
F

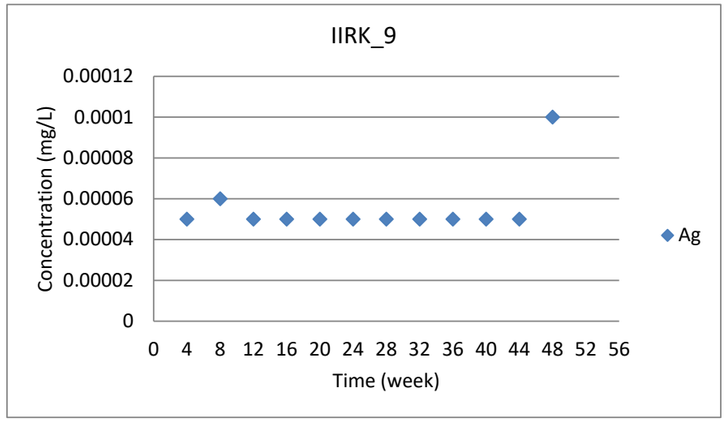

IIRK_9
Molar ratio
pH
SO4 / (Ca+Mg)
pH
Time (week)

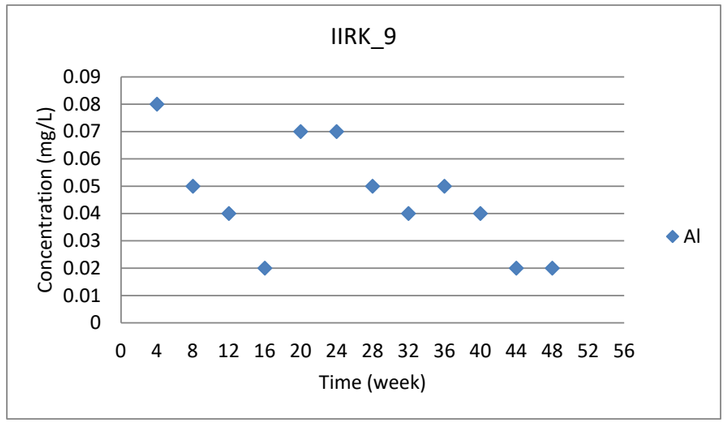

IIRK_9
Concentration (mg/L)
Time (week)
TOC

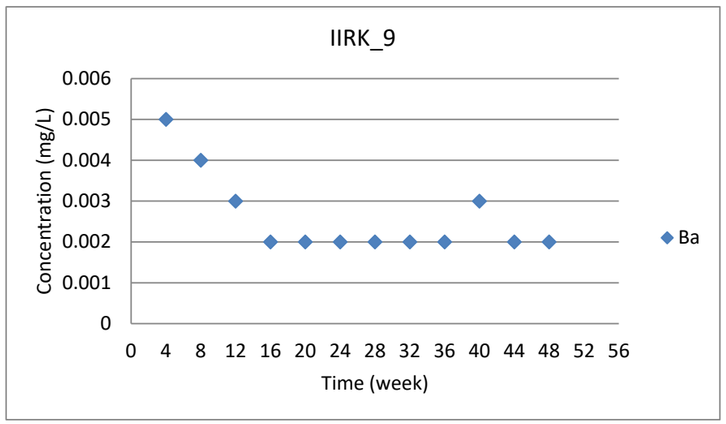

IIRK_9
Concentration (mg/L)
Time (week)
P

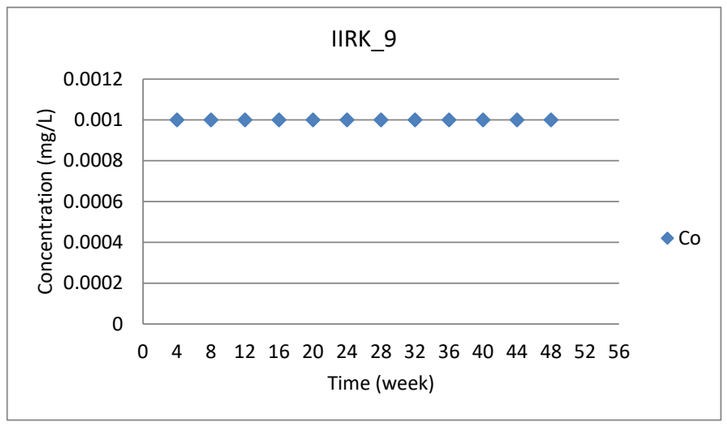

IIRK_9
Concentration (mg/L)
Time (week)
Alkalinity

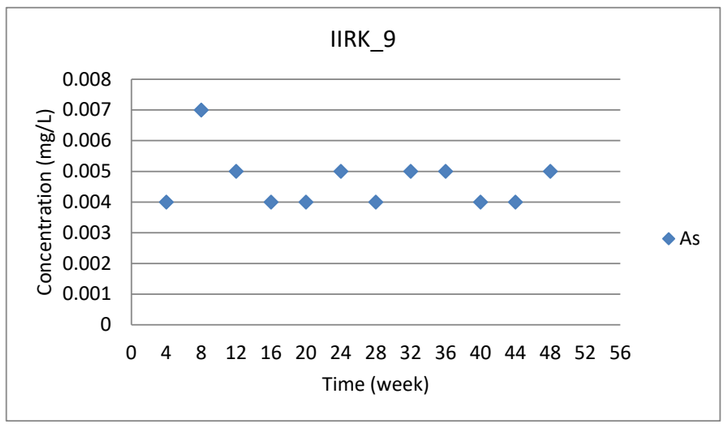

IIRK_9
Concentration (mg/L)
Time (week)
Acidity

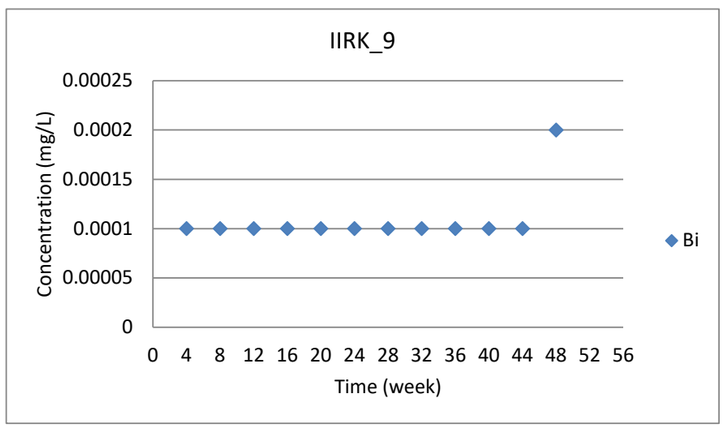

IIRK_9
Concentration (mg/L)
Time (week)
Ag

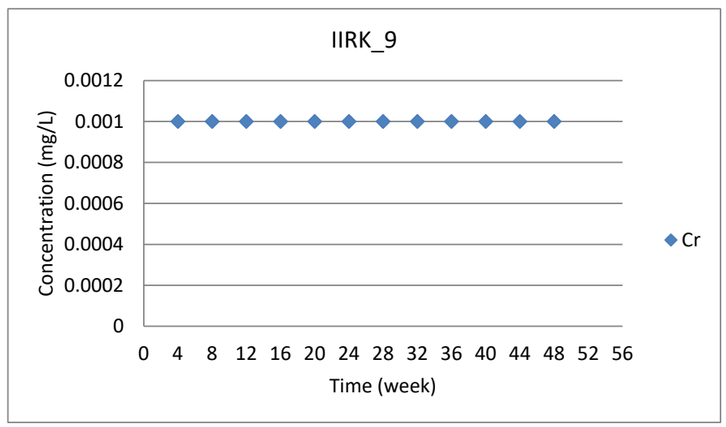

IIRK_9
Concentration (mg/L)
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Al

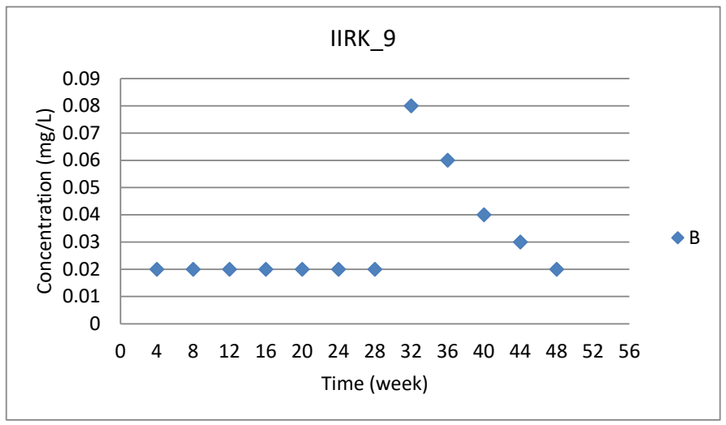

IIRK_9
Concentration (mg/L)
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ba

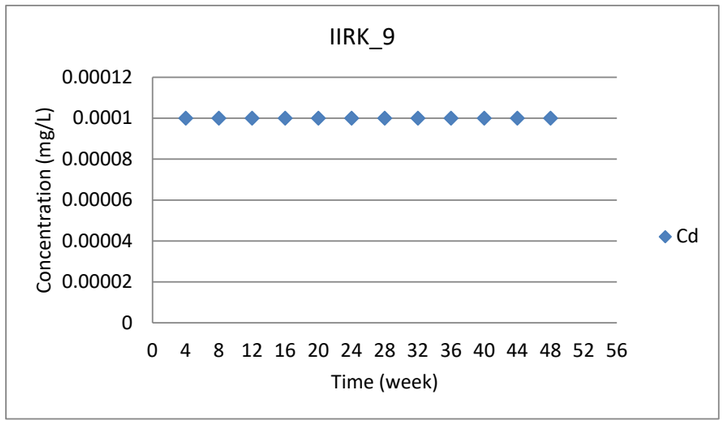

IIRK_9
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Co

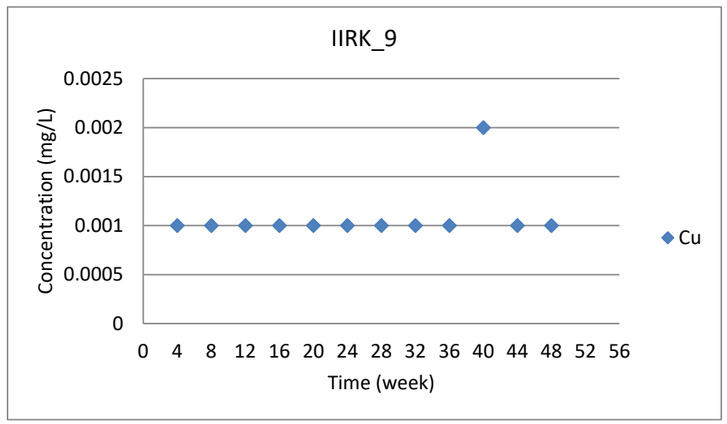

IIRK_9
Concentration (mg/L)
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
As

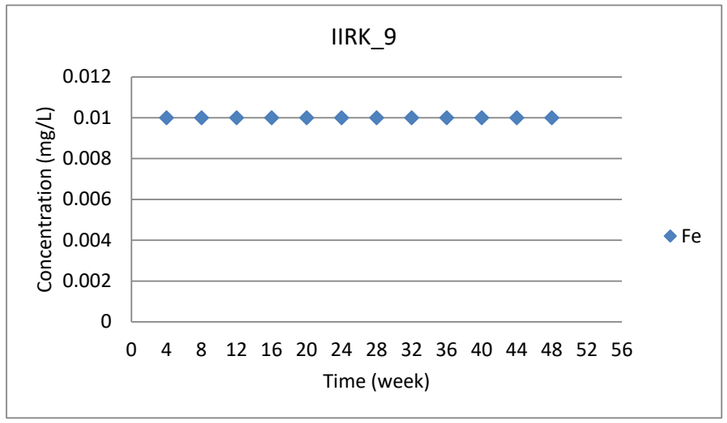

IIRK_9
Concentration (mg/L)
0.00025
0.0002
0.00015
0.0001
0.00005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Bi

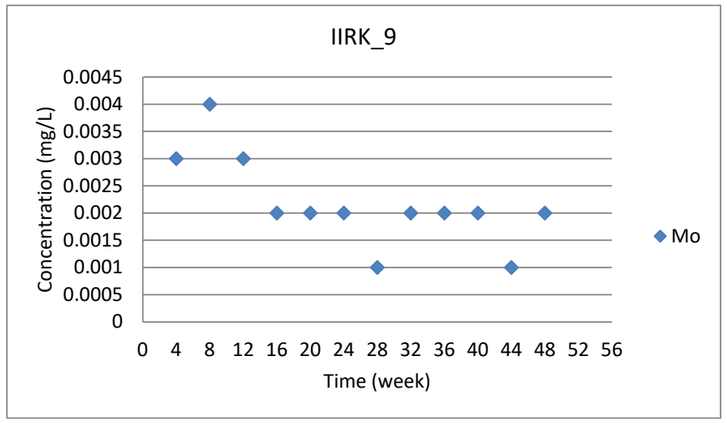

IIRK_9
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cr

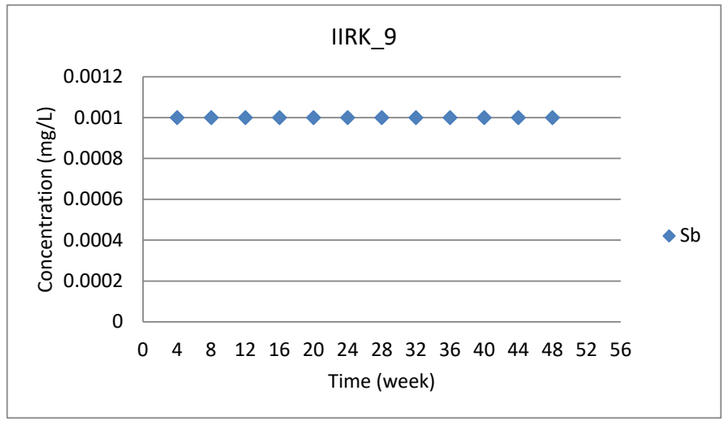

IIRK_9
Concentration (mg/L)
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
B

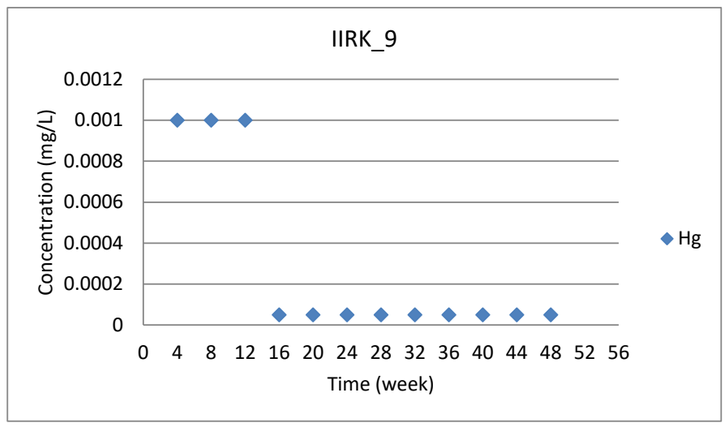

IIRK_9
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cd

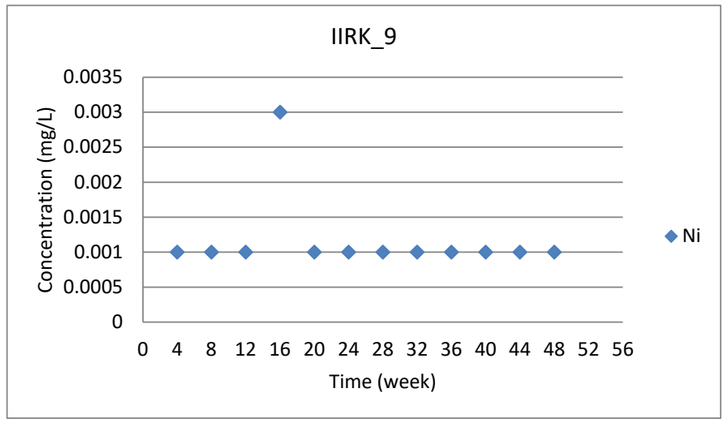

IIRK_9
Concentration (mg/L)
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cu

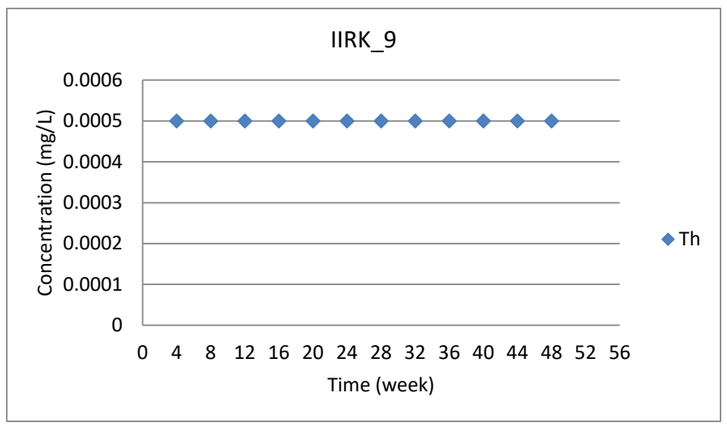

IIRK_9
Concentration (mg/L)
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Fe

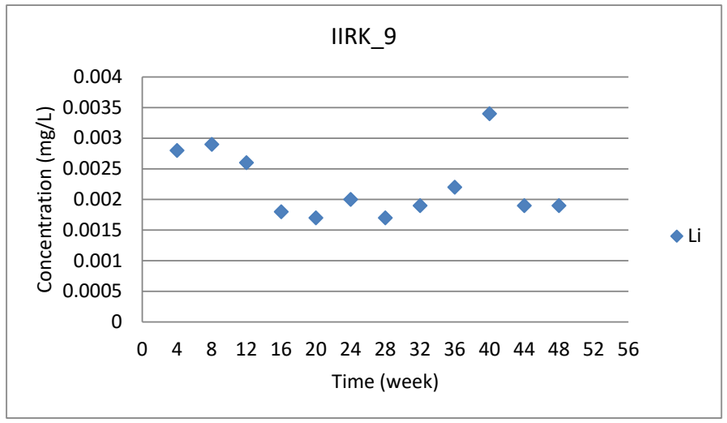

IIRK_9
Concentration (mg/L)
0.0045
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mo

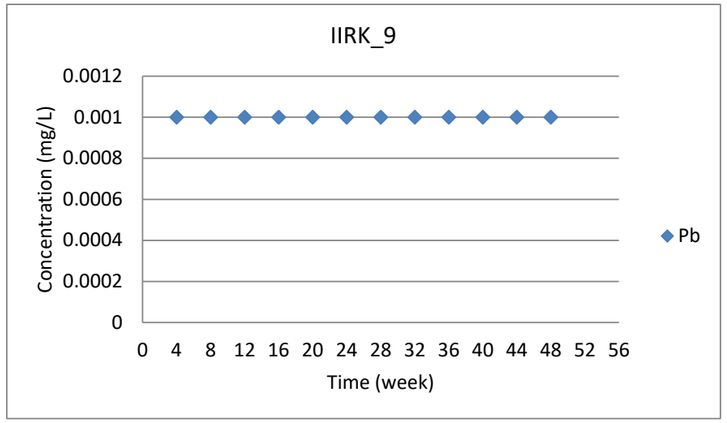

IIRK_9
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sb

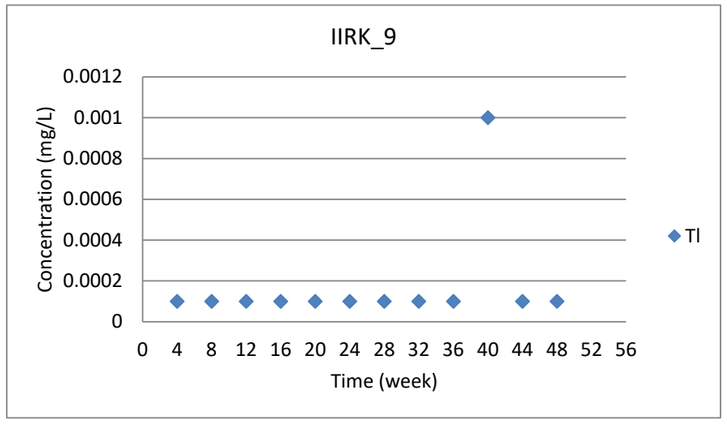

IIRK_9
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Hg

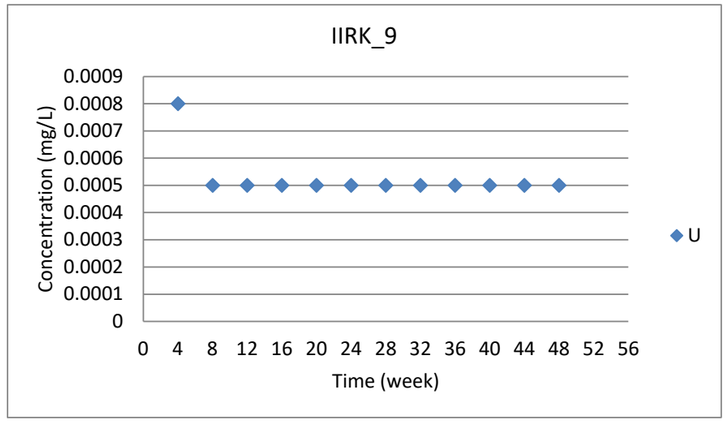

IIRK_9
Concentration (mg/L)
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ni

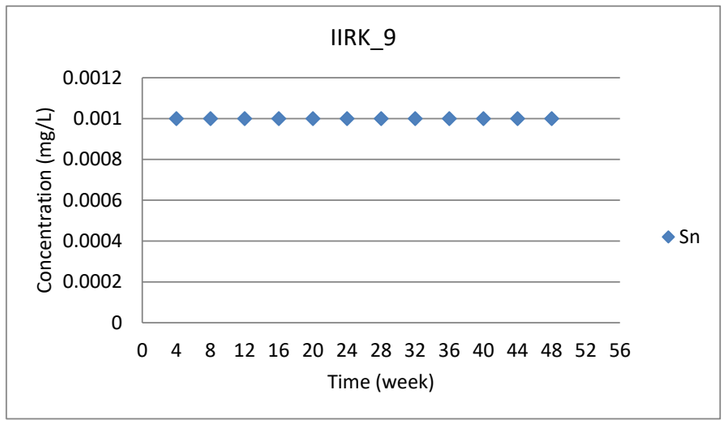

IIRK_9
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Th

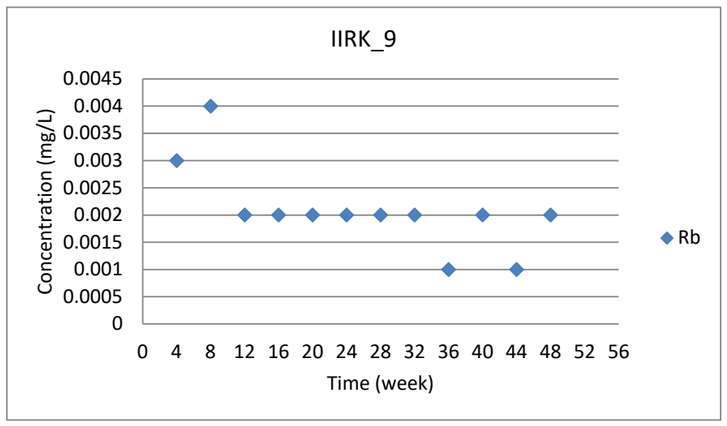

IIRK_9
Concentration (mg/L)
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Li

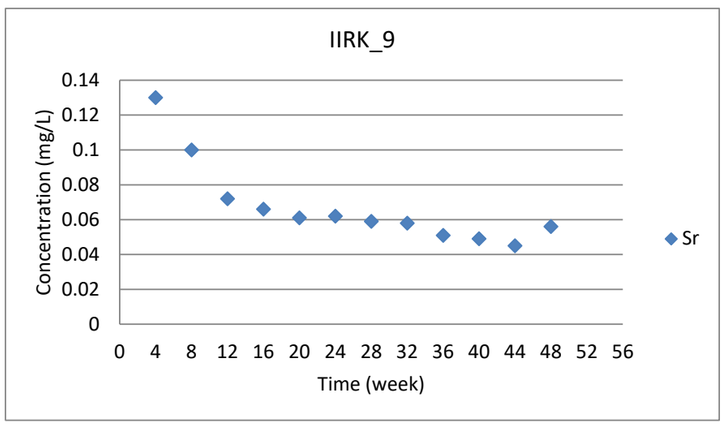

IIRK_9
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Pb

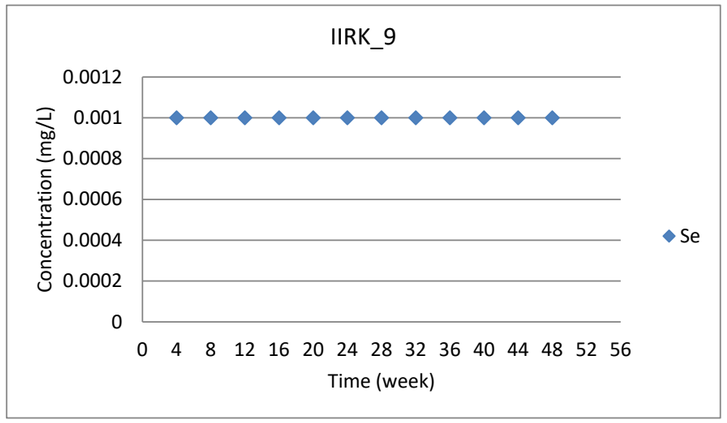

IIRK_9
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Tl

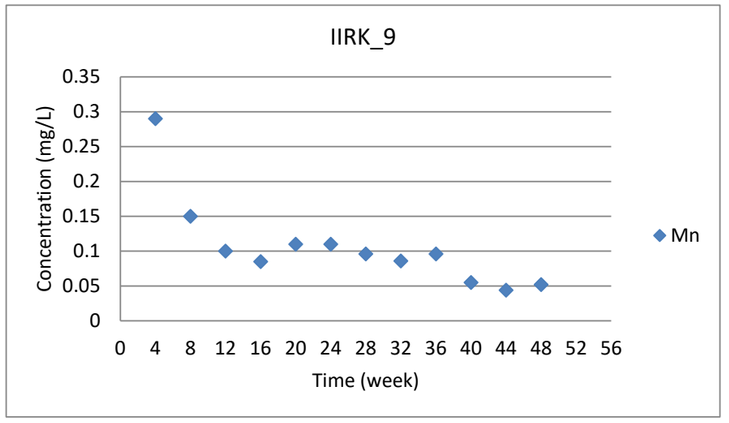

IIRK_9
Concentration (mg/L)
0.0009
0.0008
0.0007
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
U


IIRK_9
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sn

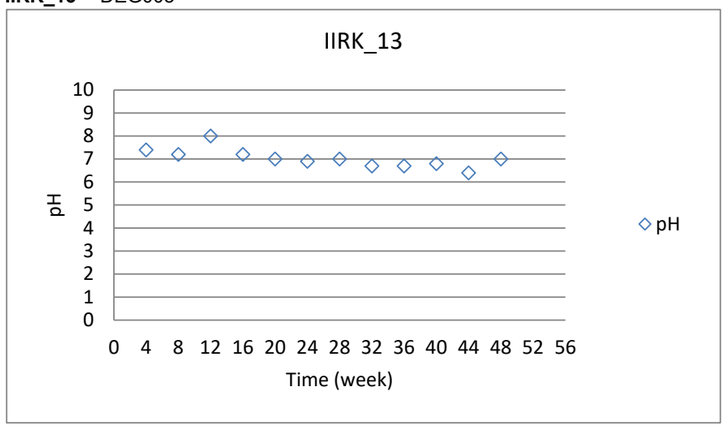

IIRK_9
Concentration (mg/L)
0.0045
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Rb

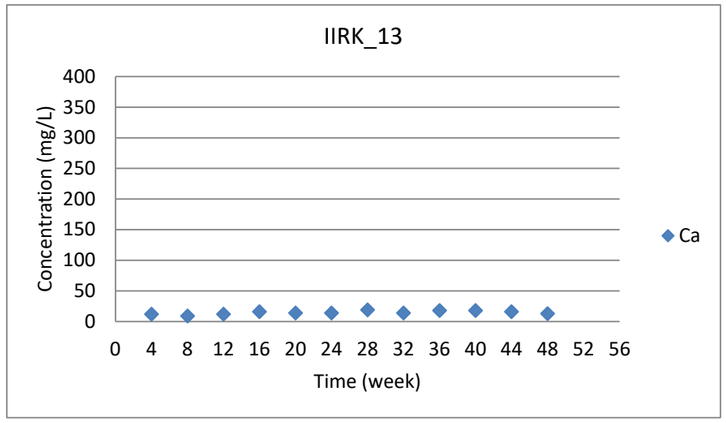

IIRK_9
Concentration (mg/L)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sr

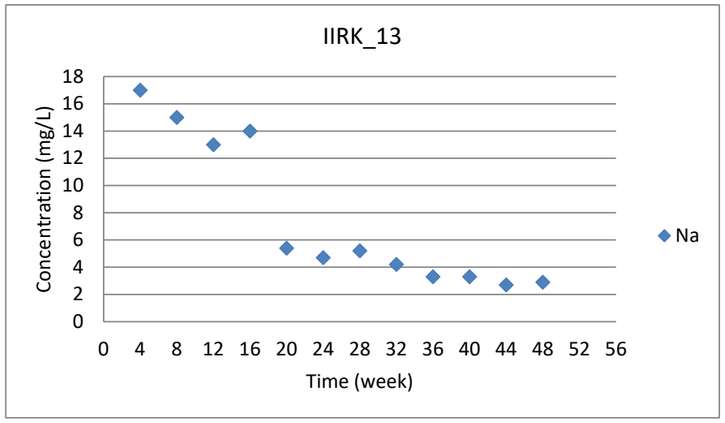

IIRK_9
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Se

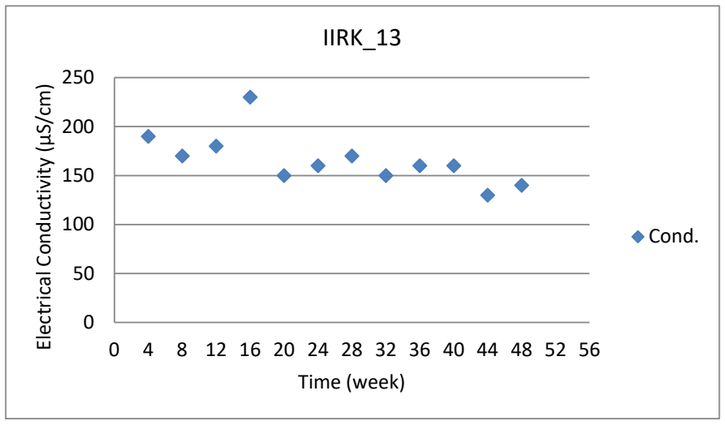

IIRK_9
Concentration (mg/L)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mn

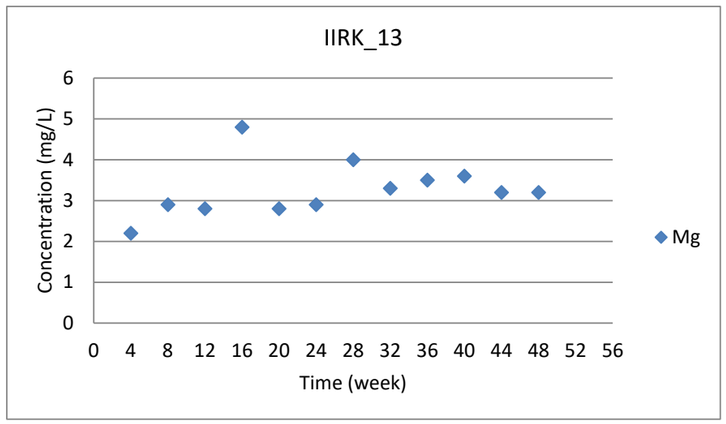
IIRK_13 DEG003

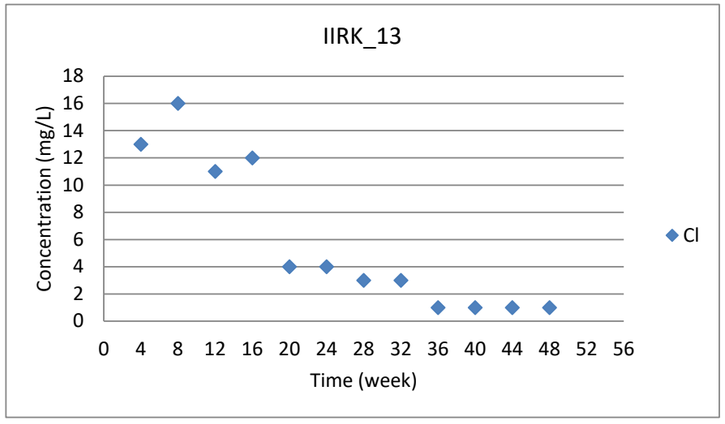


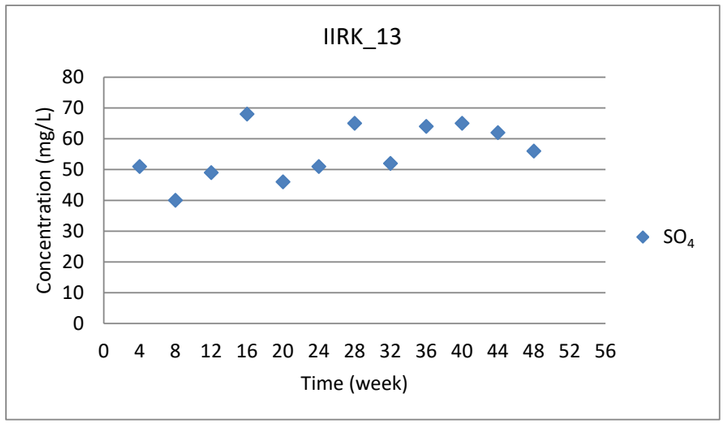


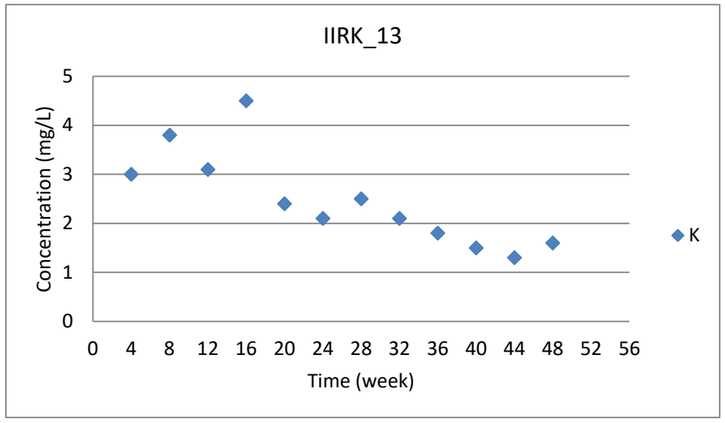


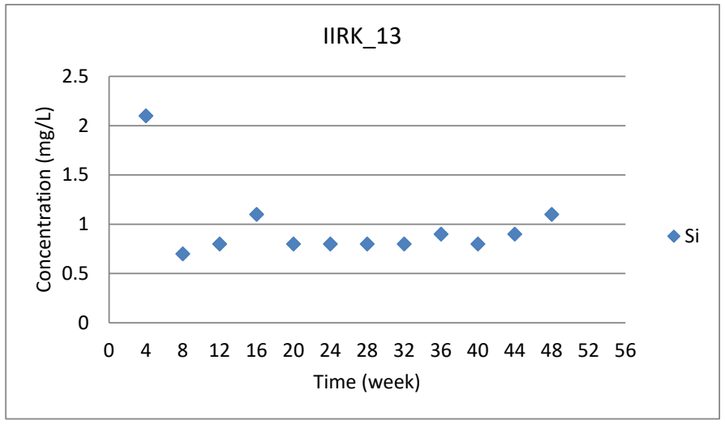


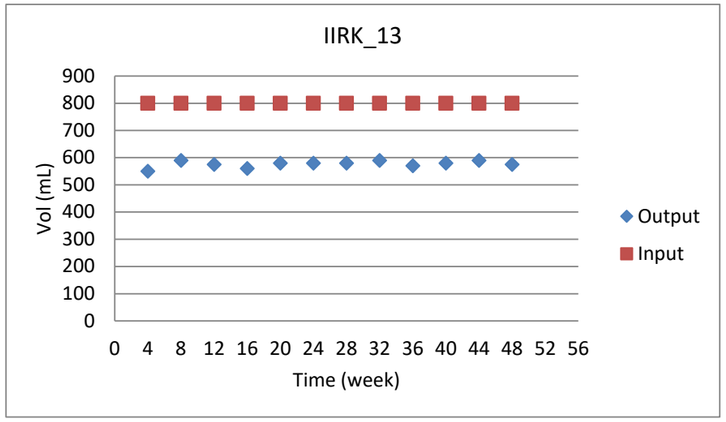


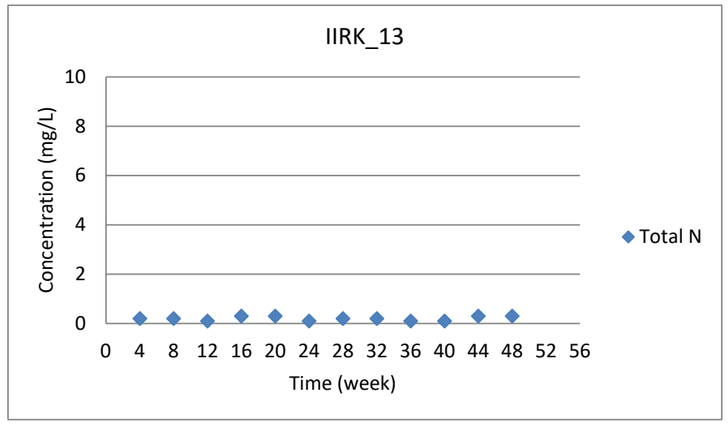


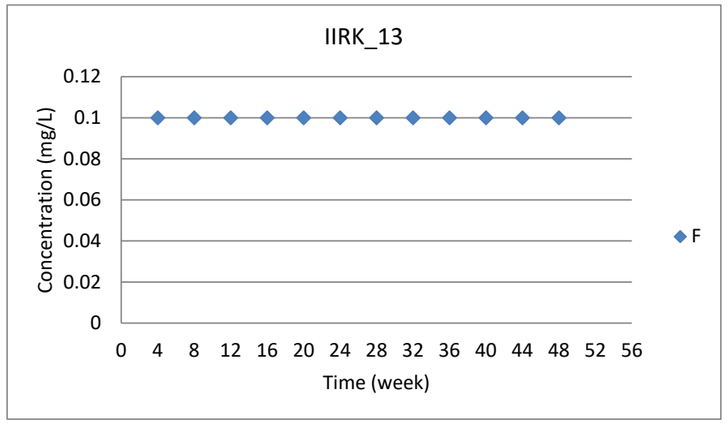


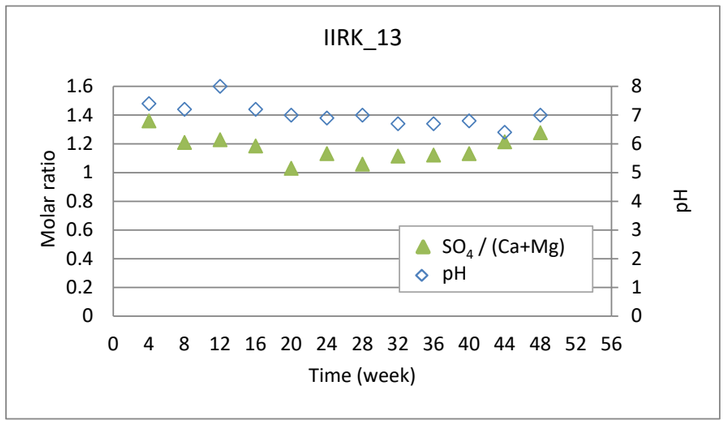


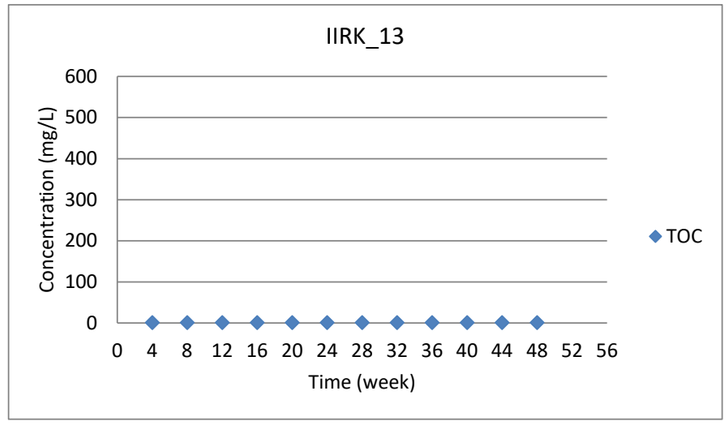


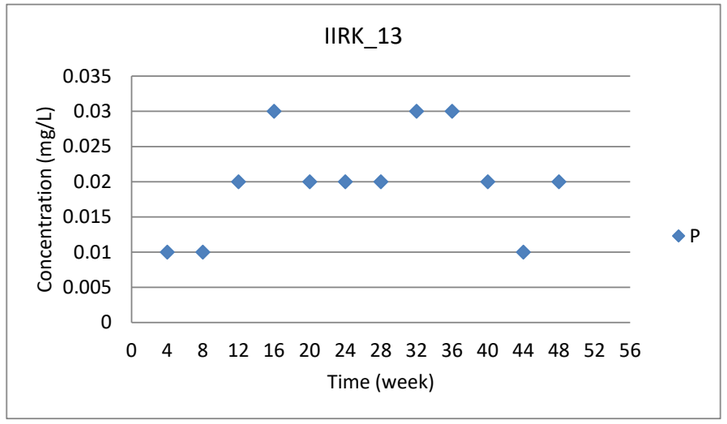

IIRK_13
Vol (mL)
900
800
700
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Output
Input

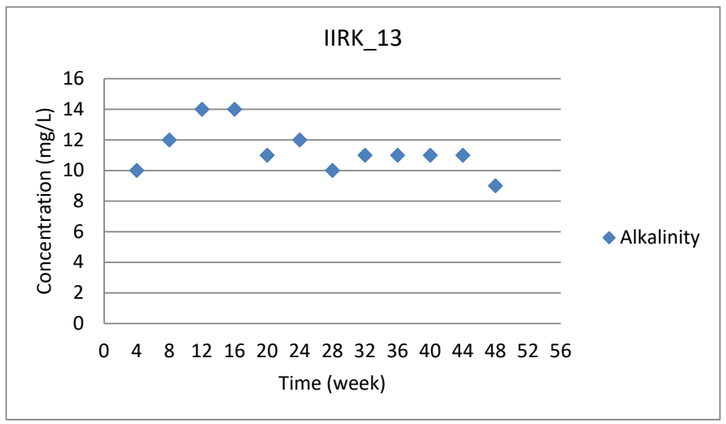

IIRK_13
Concentration (mg/L)
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Total N

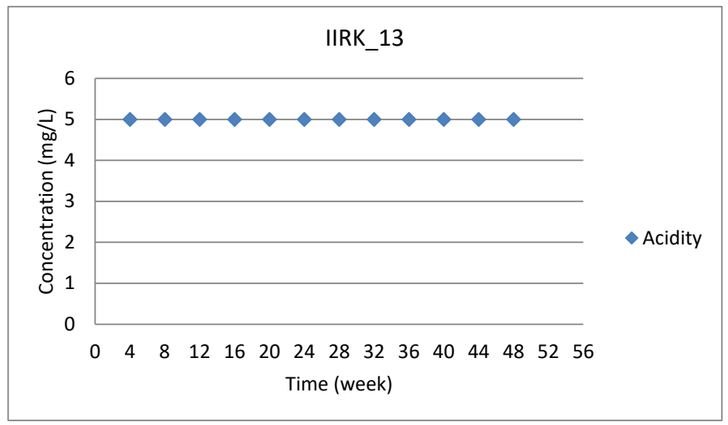

IIRK_13
Concentration (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
F

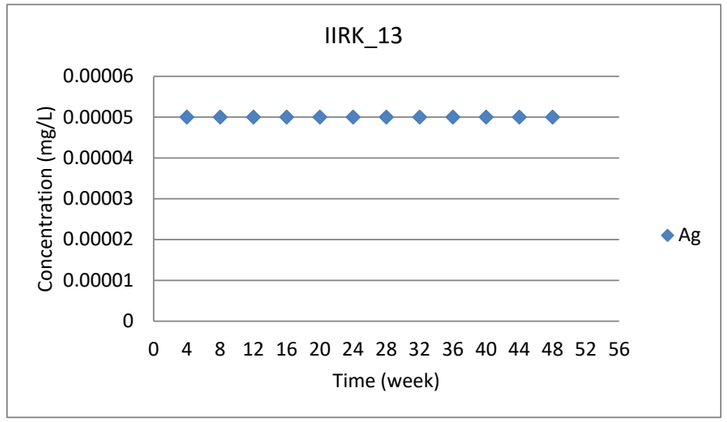

IIRK_13
Molar ratio
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
pH
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
SO4 / (Ca+Mg)
pH

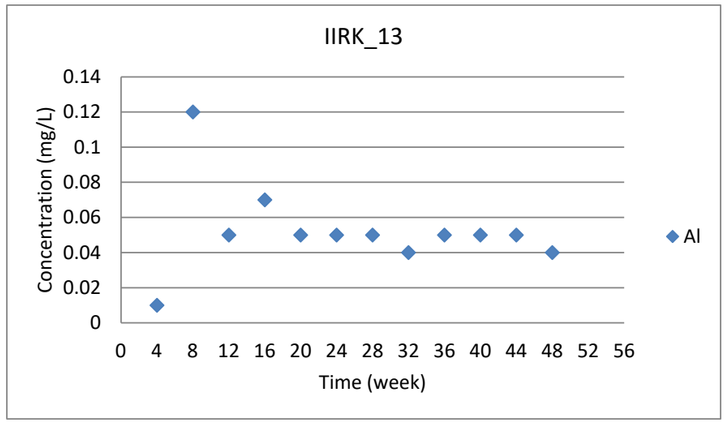

IIRK_13
Concentration (mg/L)
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
TOC

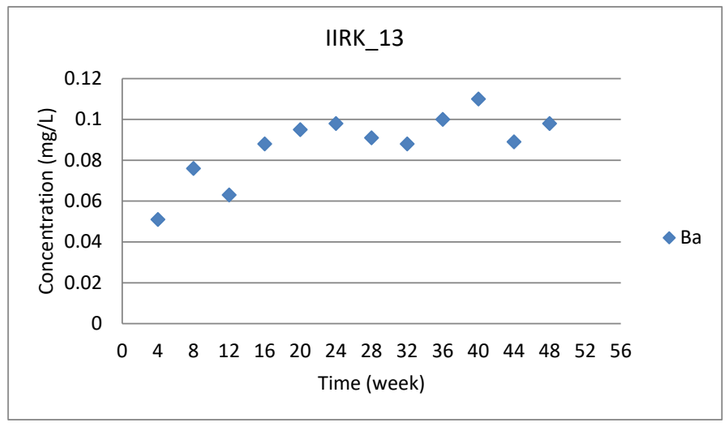

IIRK_13
Concentration (mg/L)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
P

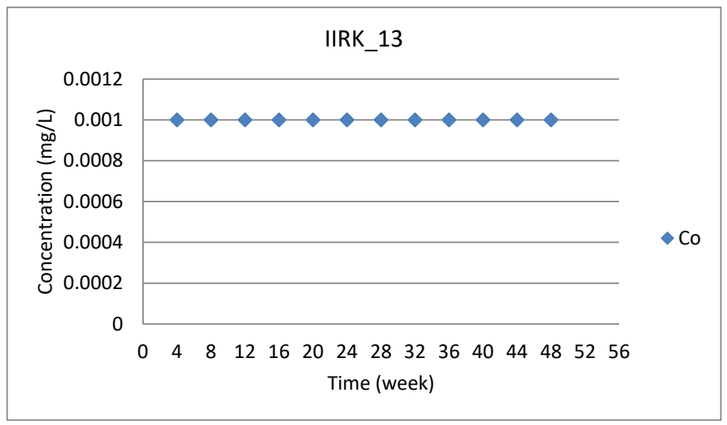

IIRK_13
Concentration (mg/L)
16
14
12
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Alkalinity

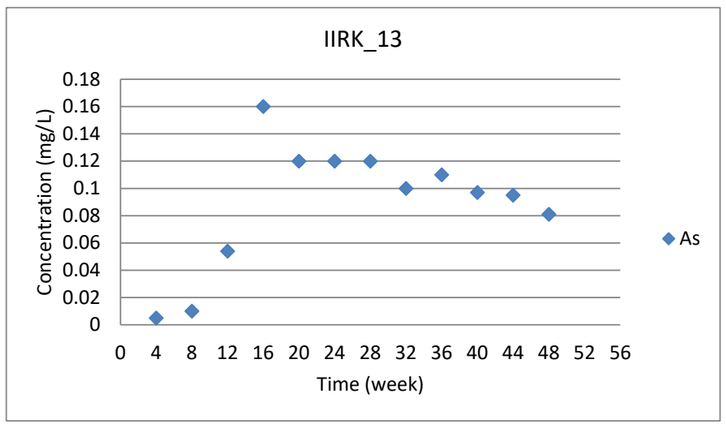

IIRK_13
Concentration (mg/L)
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Acidity

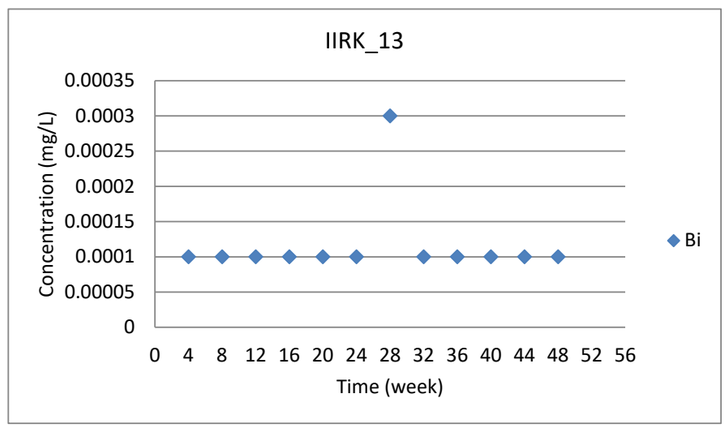

IIRK_13
Concentration (mg/L)
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ag

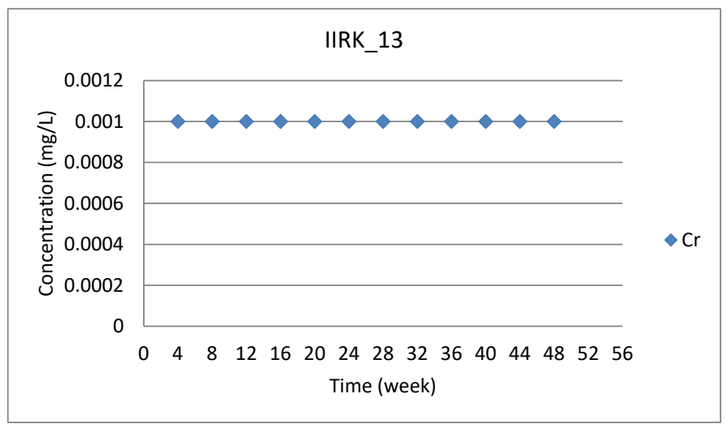

IIRK_13
Concentration (mg/L)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Al

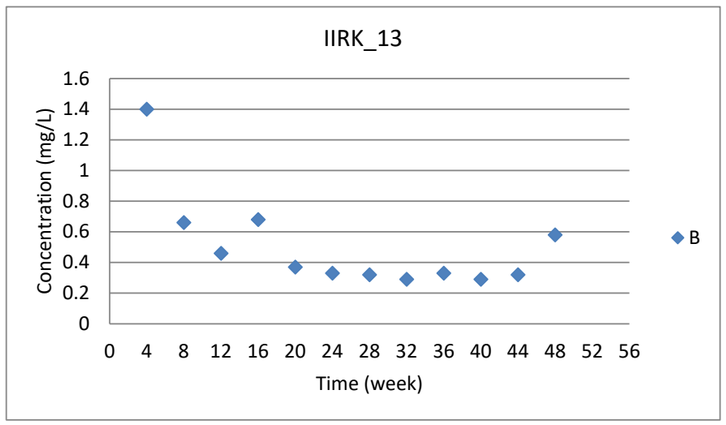

IIRK_13
Concentration (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ba

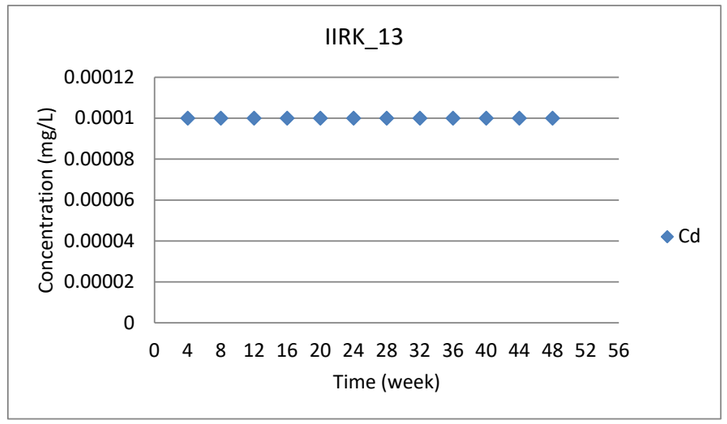

IIRK_13
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Co

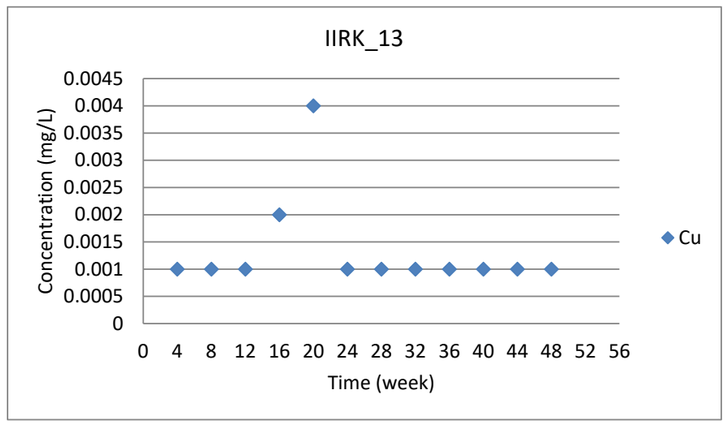

IIRK_13
Concentration (mg/L)
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
As

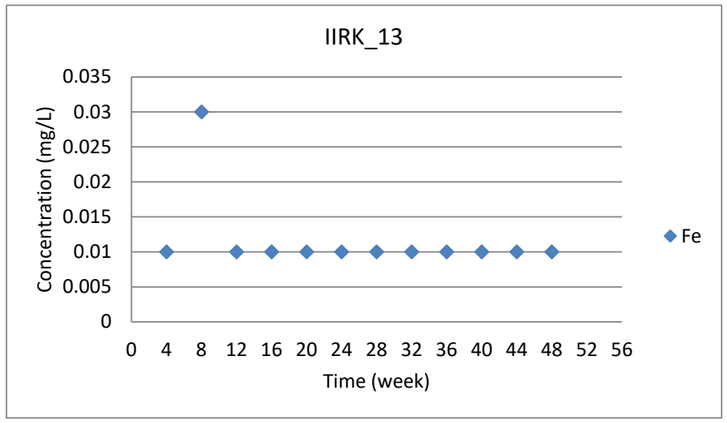

IIRK_13
Concentration (mg/L)
0.00035
0.0003
0.00025
0.0002
0.00015
0.0001
0.00005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Bi

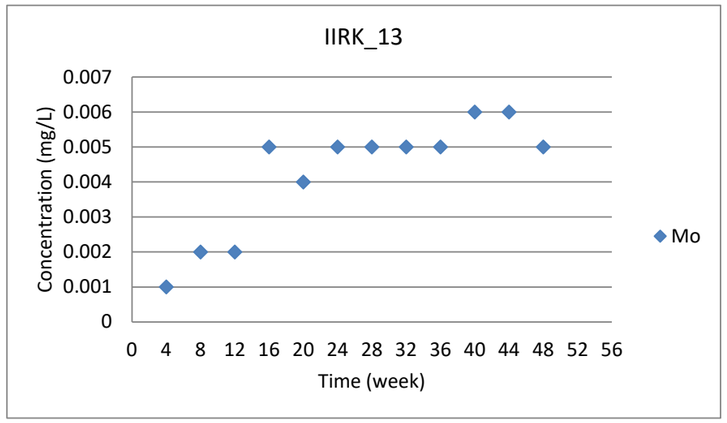

IIRK_13
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cr

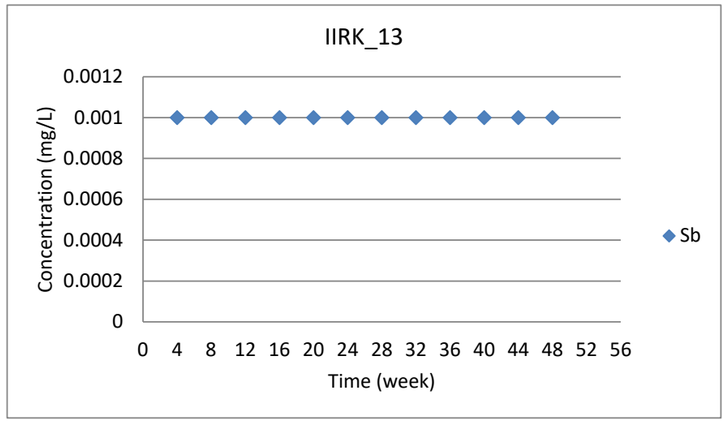

IIRK_13
Concentration (mg/L)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
B

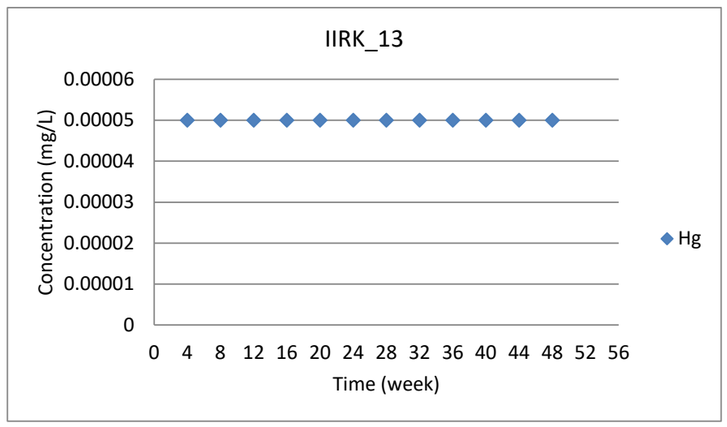

IIRK_13
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cd

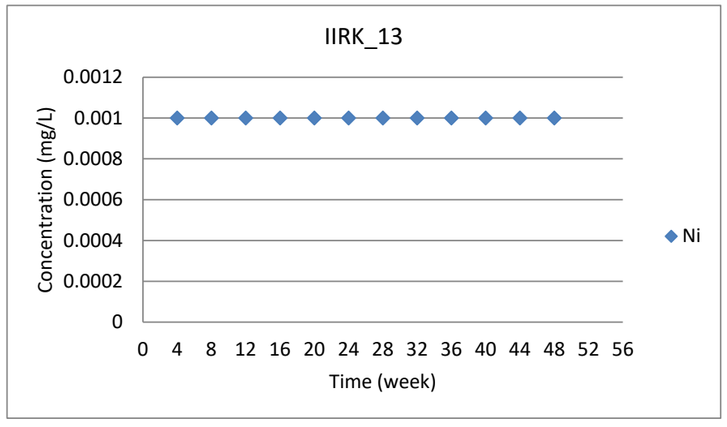

IIRK_13
Concentration (mg/L)
0.0045
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cu

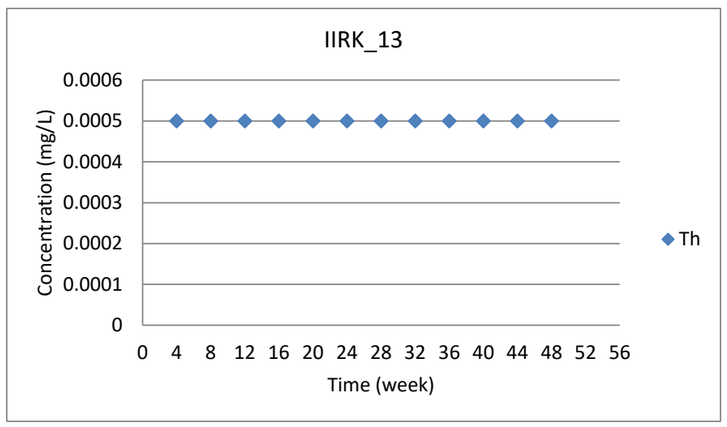

IIRK_13
Concentration (mg/L)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Fe

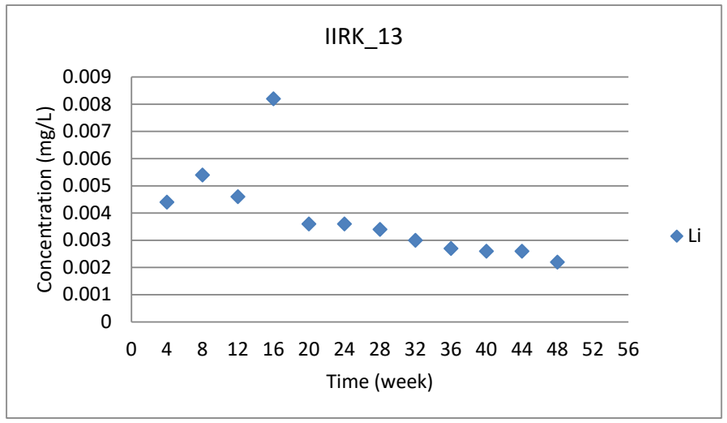

IIRK_13
Concentration (mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mo

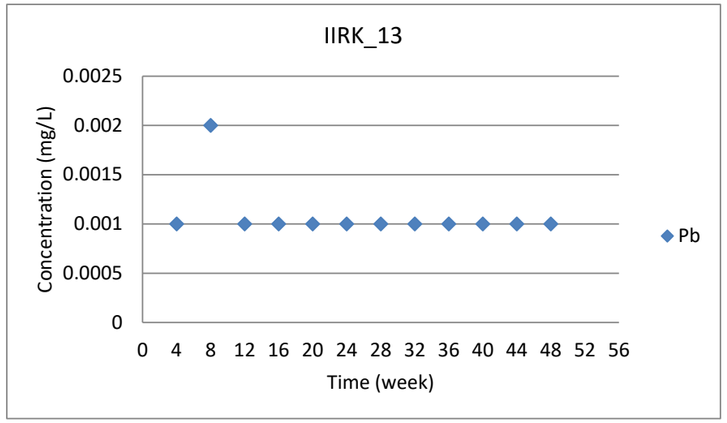

IIRK_13
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sb

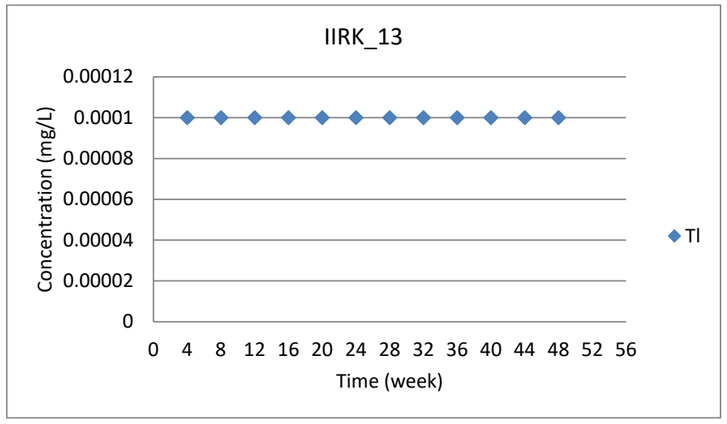

IIRK_13
Concentration (mg/L)
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Hg

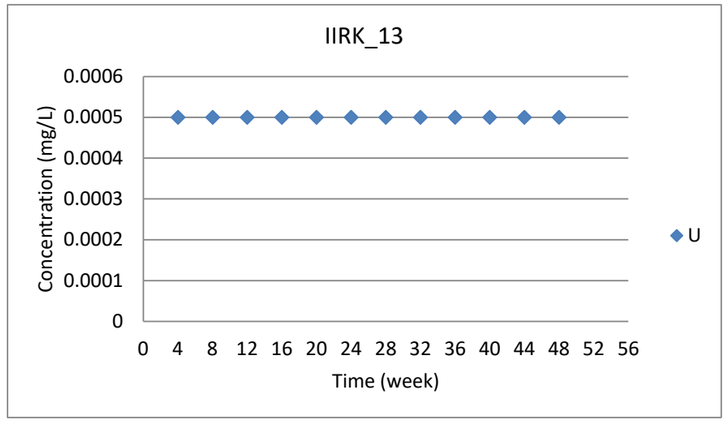

IIRK_13
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ni

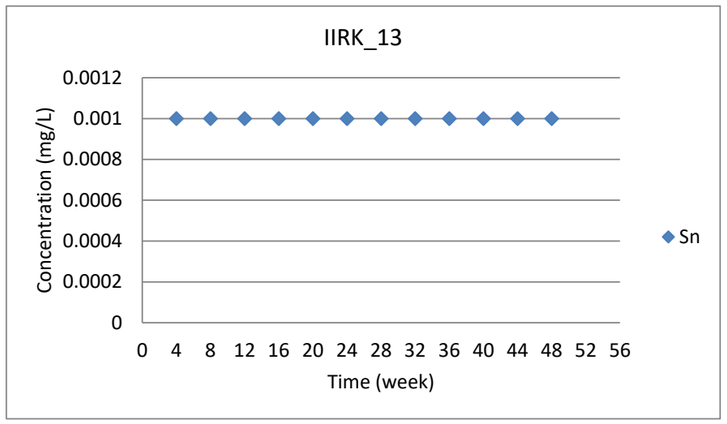

IIRK_13
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Th

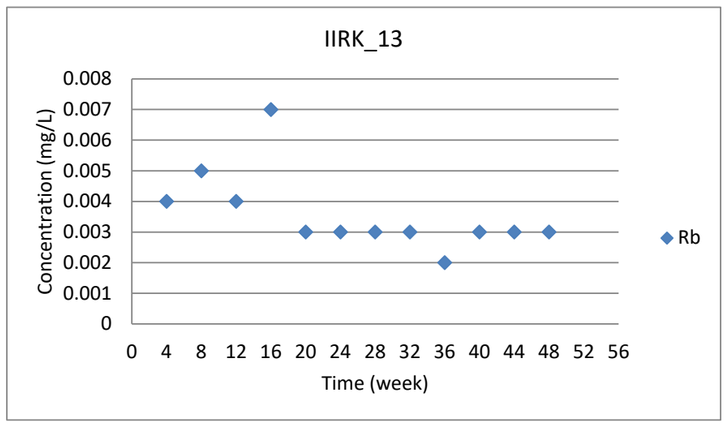

IIRK_13
Concentration (mg/L)
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Li

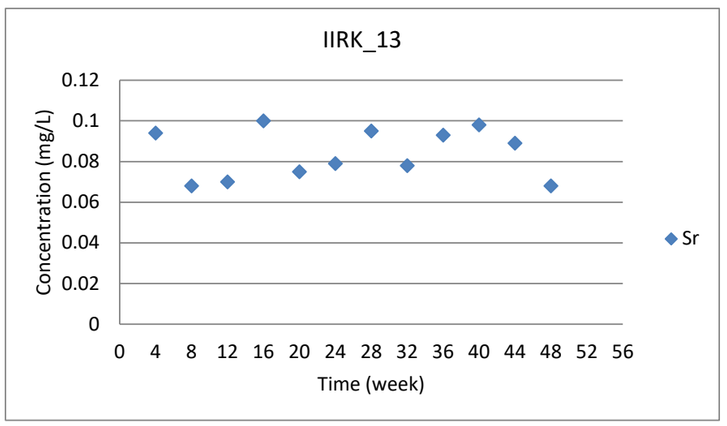

IIRK_13
Concentration (mg/L)
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Pb

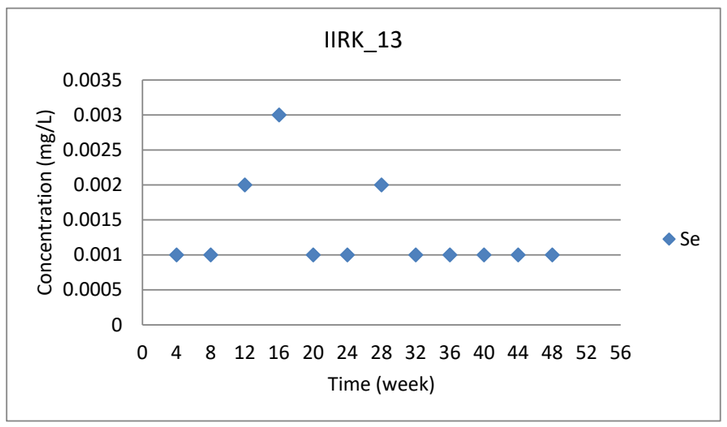

IIRK_13
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Tl

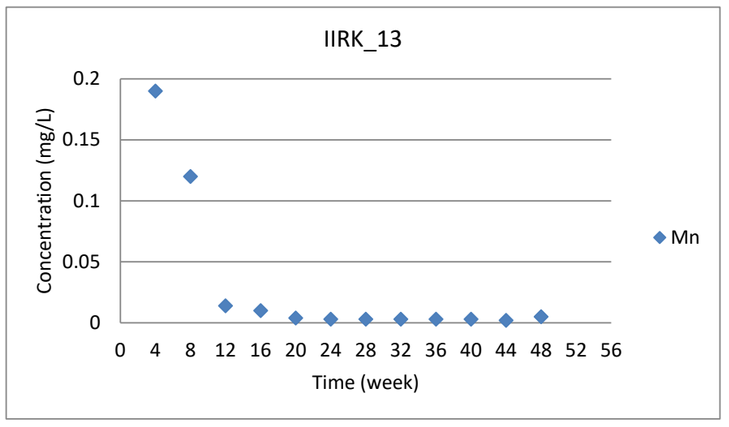

IIRK_13
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
U


IIRK_13
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sn

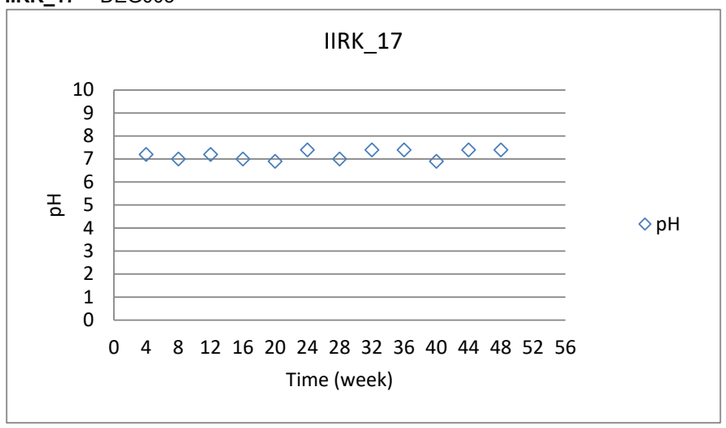

IIRK_13
Concentration (mg/L)
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Rb

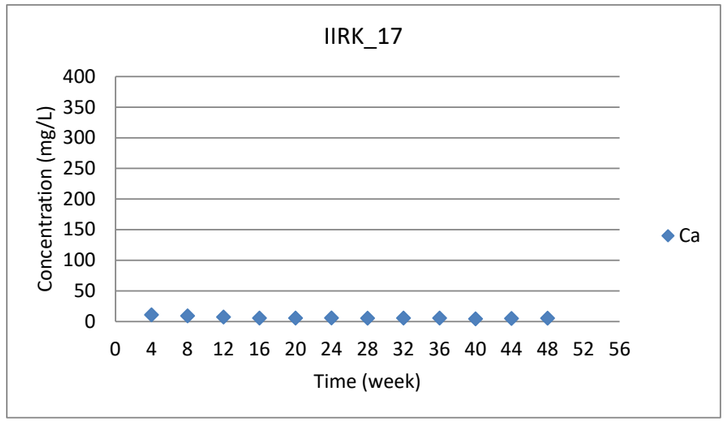

IIRK_13
Concentration (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sr

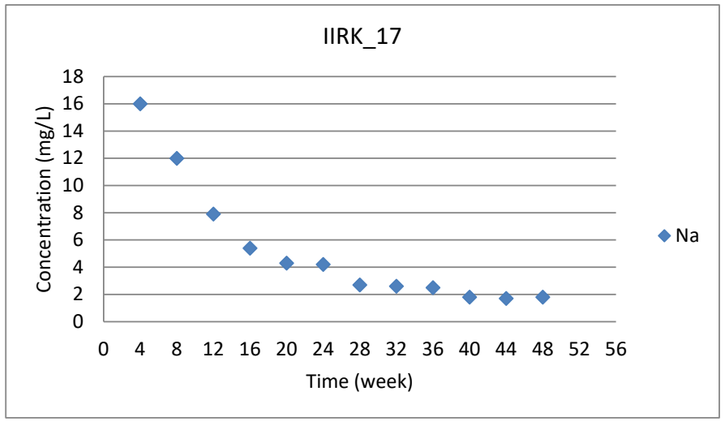

IIRK_13
Concentration (mg/L)
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Se

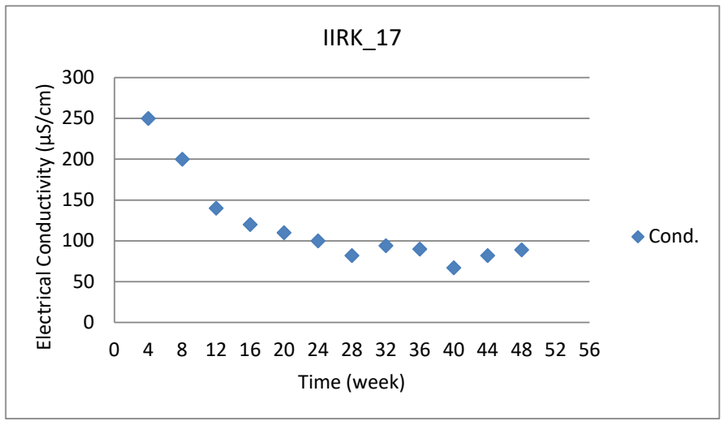

IIRK_13
Concentration (mg/L)
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mn

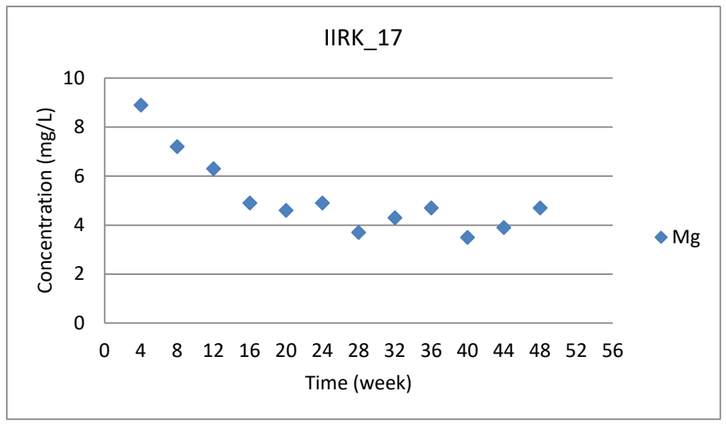
IIRK_17 DEG003

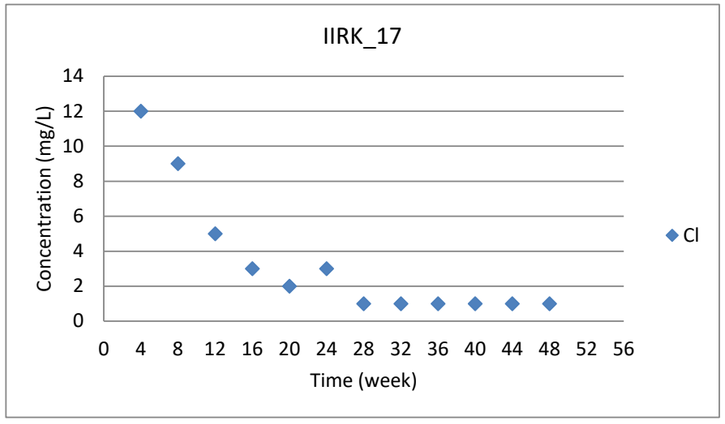


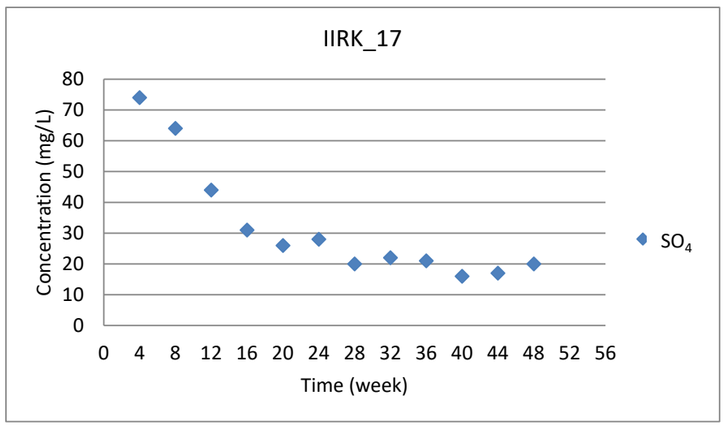


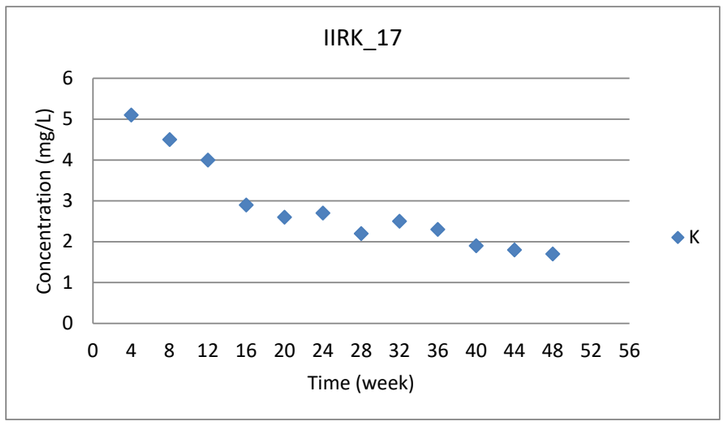


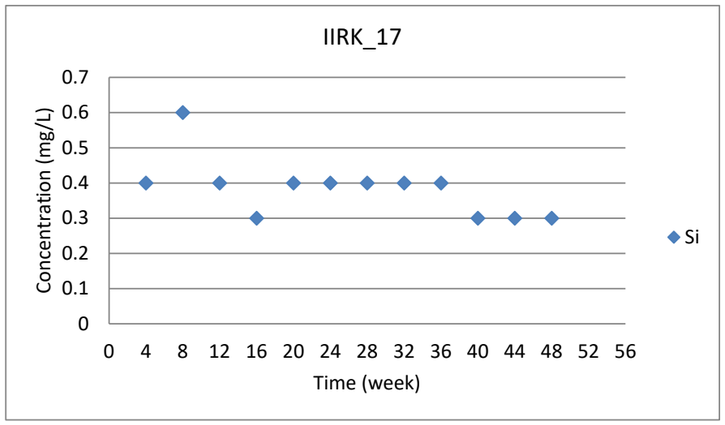


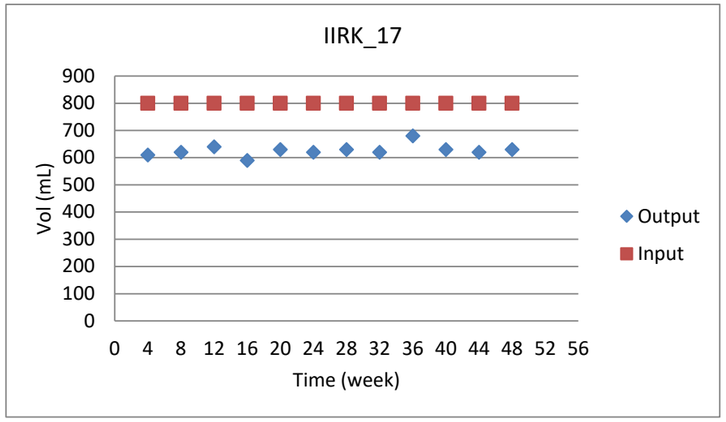


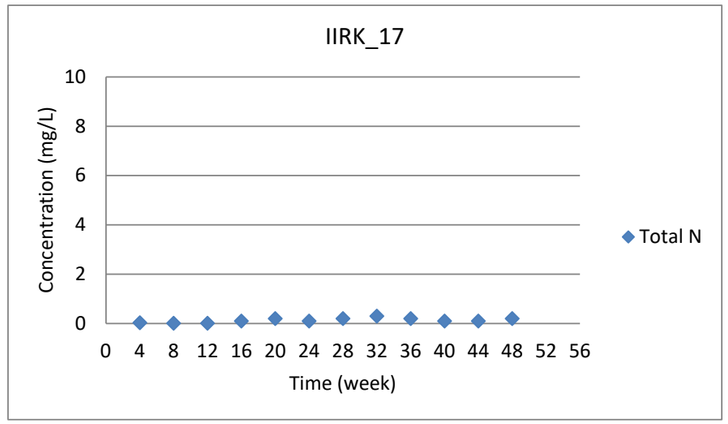


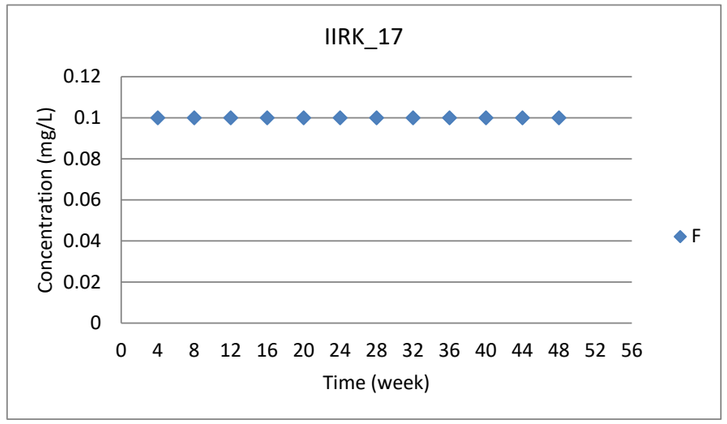


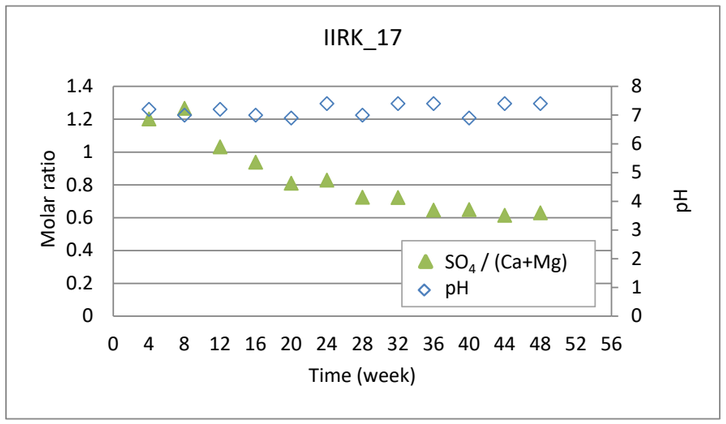


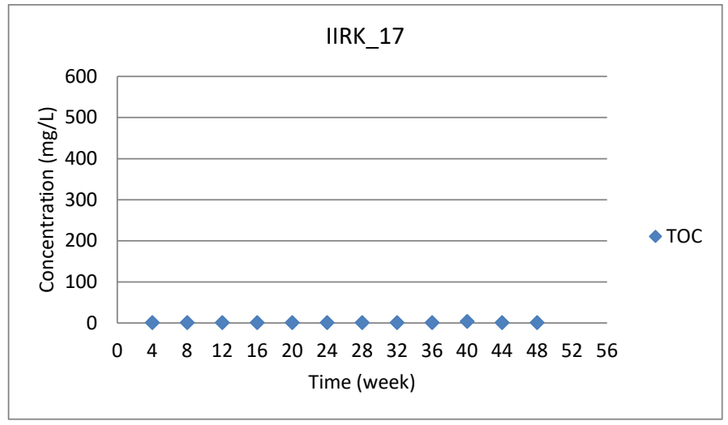


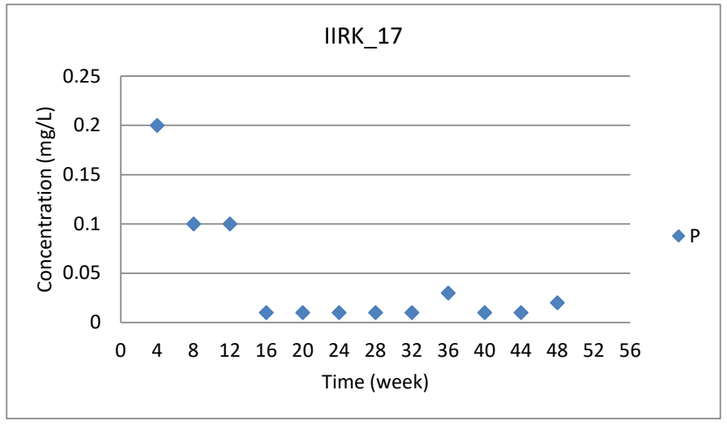

IIRK_17
Vol (mL)
900
800
700
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Output
Input

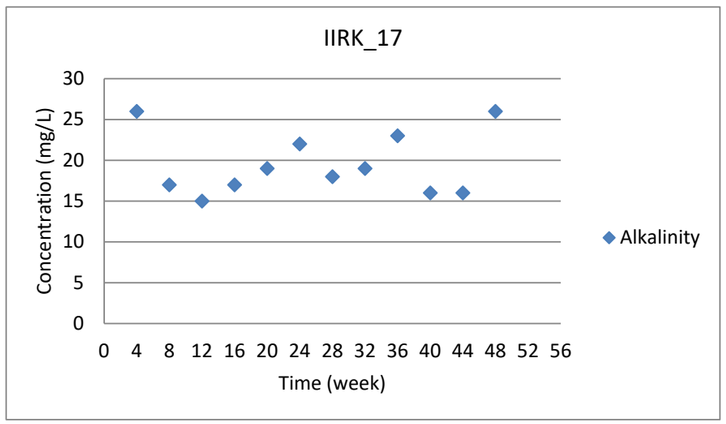

IIRK_17
Concentration (mg/L)
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Total N

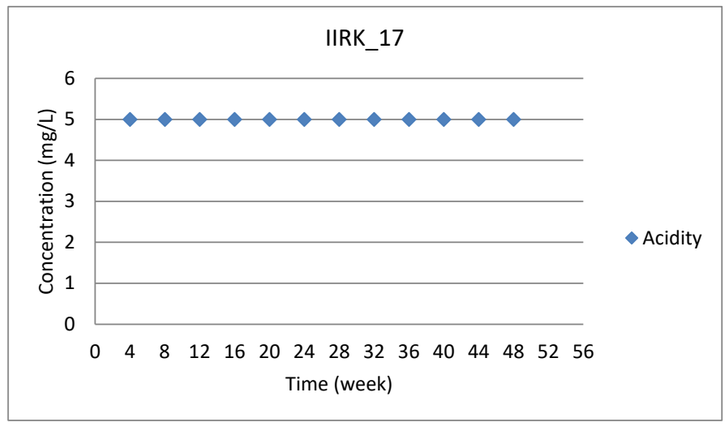

IIRK_17
Concentration (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
F

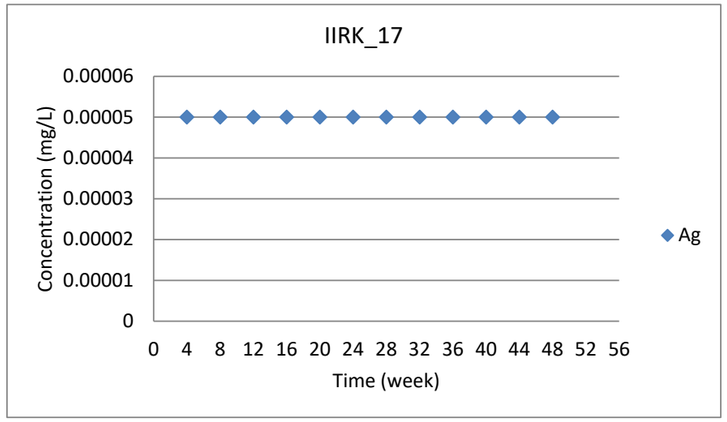

IIRK_17
Molar ratio
pH
1.4
1.2
1
0.8
0.6
0.4
0.2
0
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
SO4 / (Ca+Mg)
pH

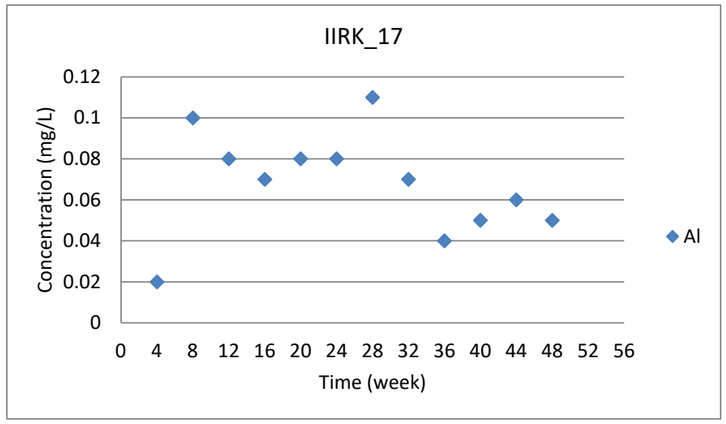

IIRK_17
Concentration (mg/L)
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
TOC

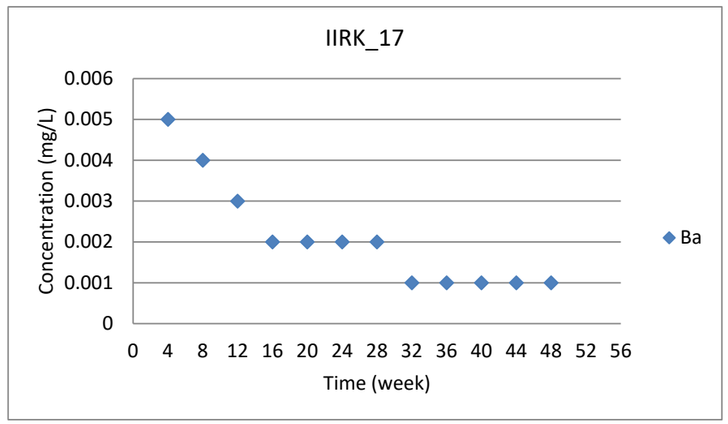

IIRK_17
Concentration (mg/L)
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
P

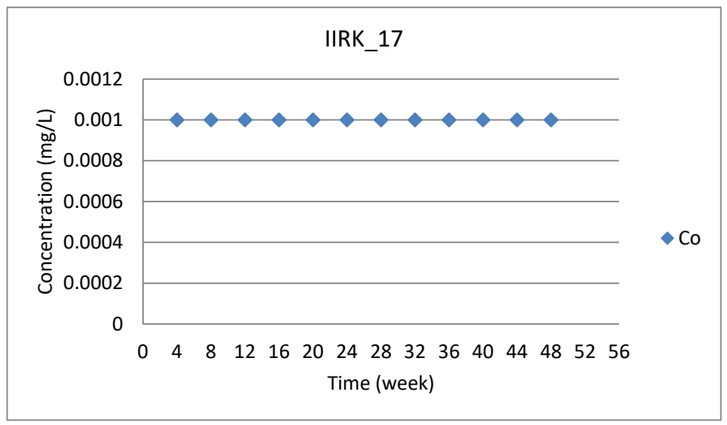

IIRK_17
Concentration (mg/L)
30
25
20
15
10
5
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Alkalinity

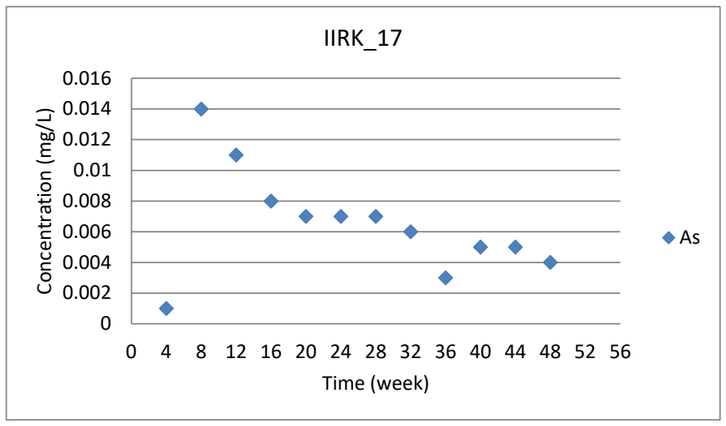

IIRK_17
Concentration (mg/L)
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Acidity

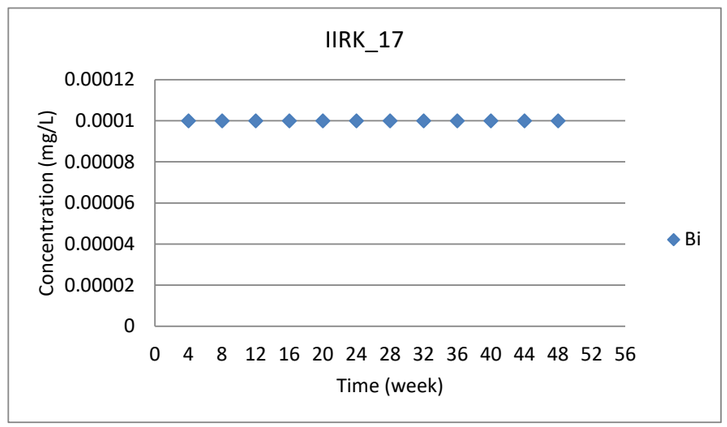

IIRK_17
Concentration (mg/L)
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ag

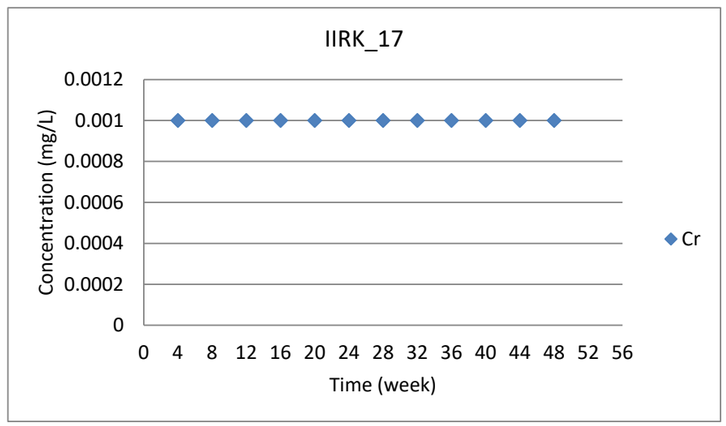

IIRK_17
Concentration (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Al

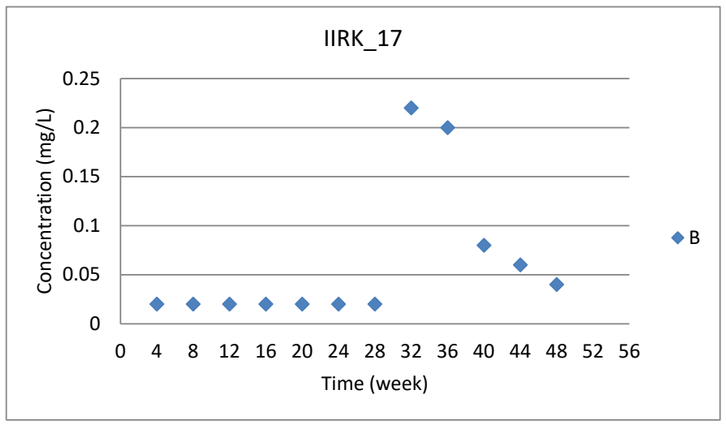

IIRK_17
Concentration (mg/L)
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ba

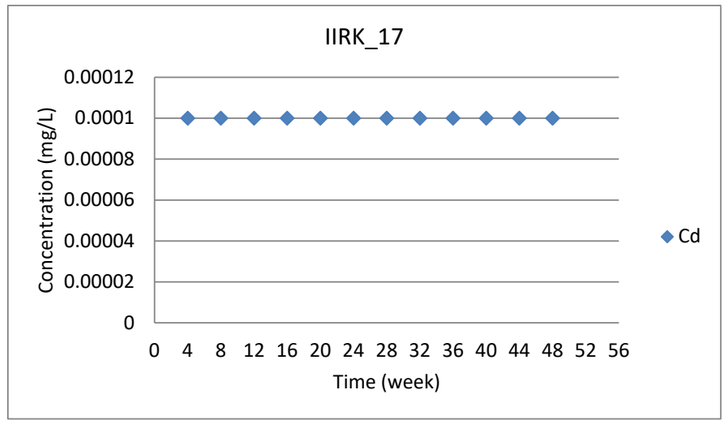

IIRK_17
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Co

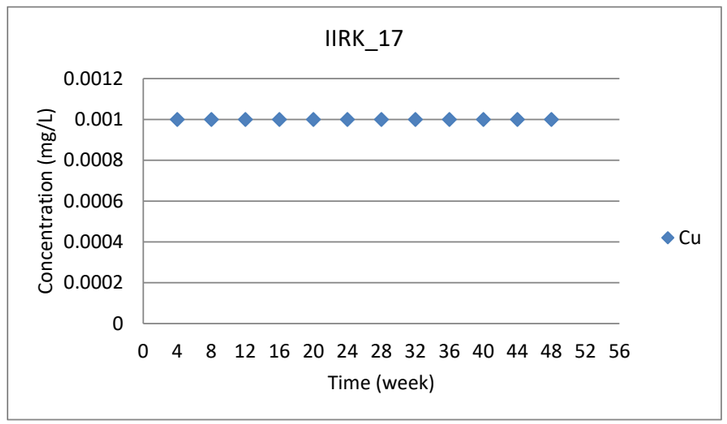

IIRK_17
Concentration (mg/L)
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
As

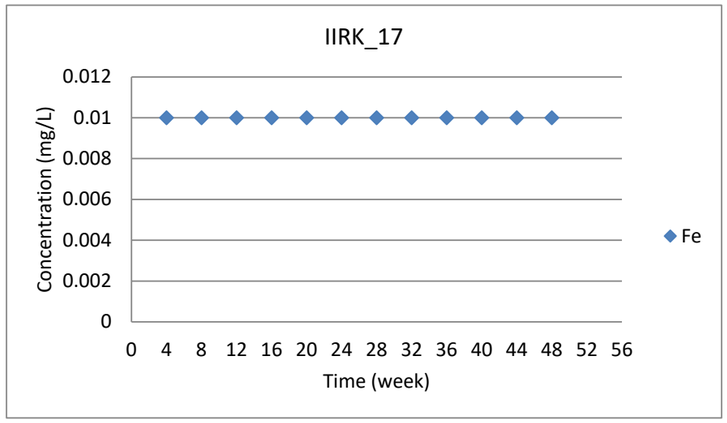

IIRK_17
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Bi

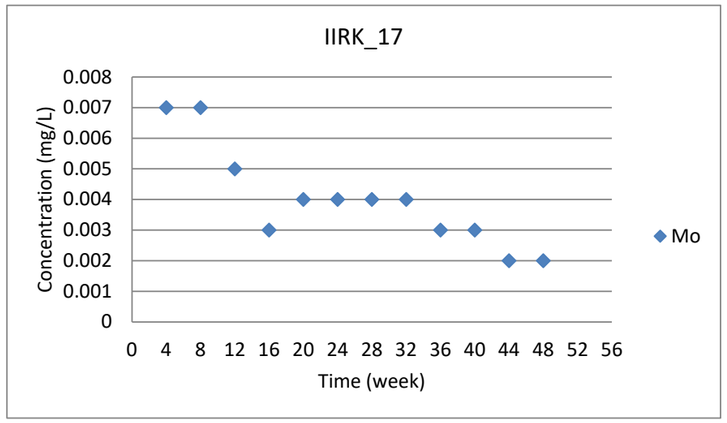

IIRK_17
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cr

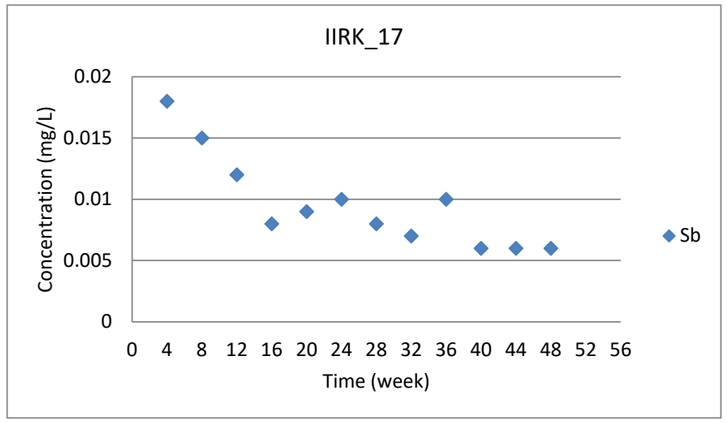

IIRK_17
Concentration (mg/L)
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
B

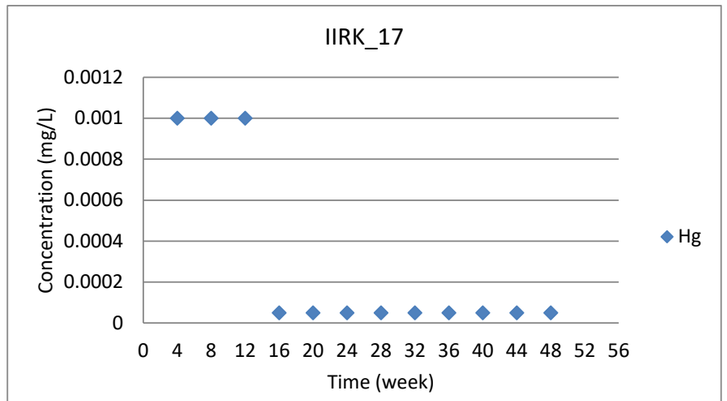

IIRK_17
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cd

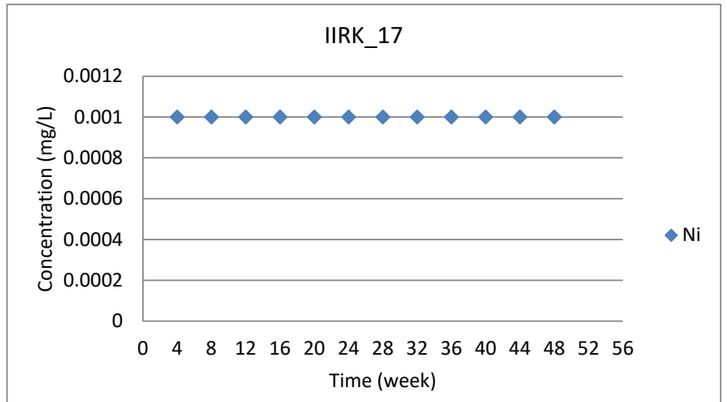

IIRK_17
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cu

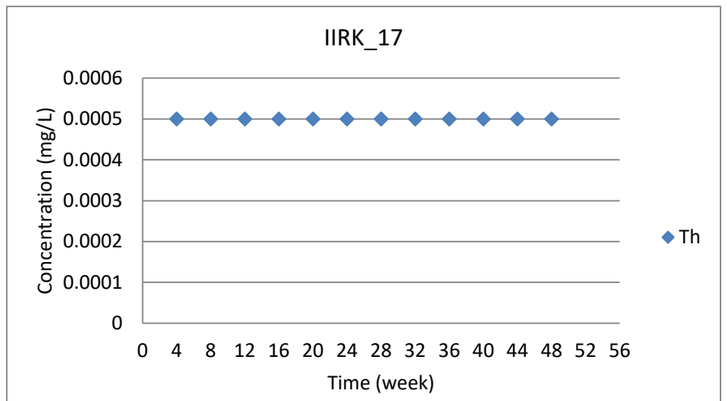

IIRK_17
Concentration (mg/L)
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Fe

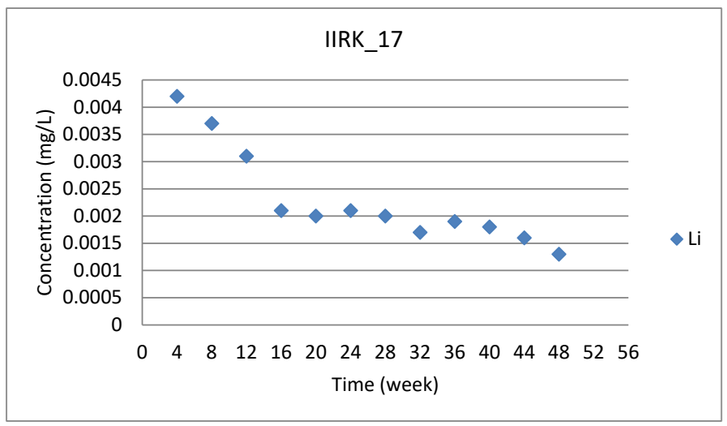

IIRK_17
Concentration (mg/L)
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mo

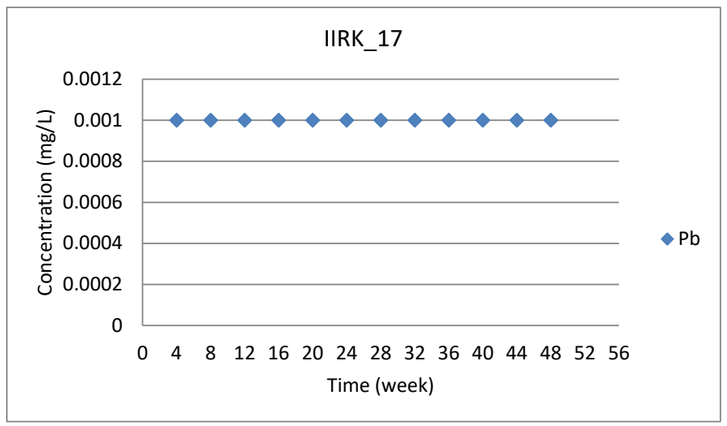

IIRK_17
Concentration (mg/L)
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sb

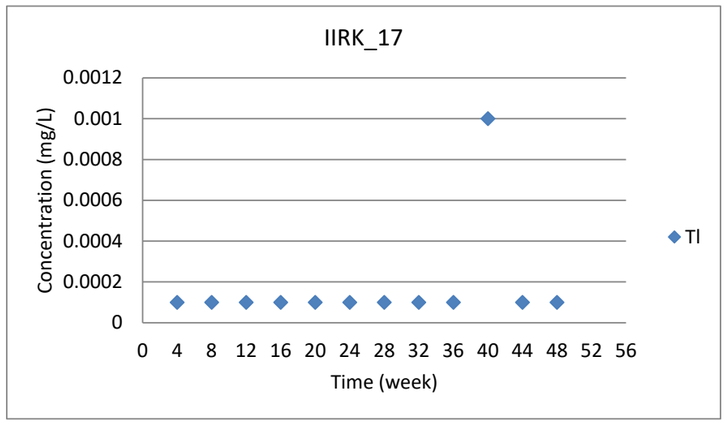

IIRK_17
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Hg

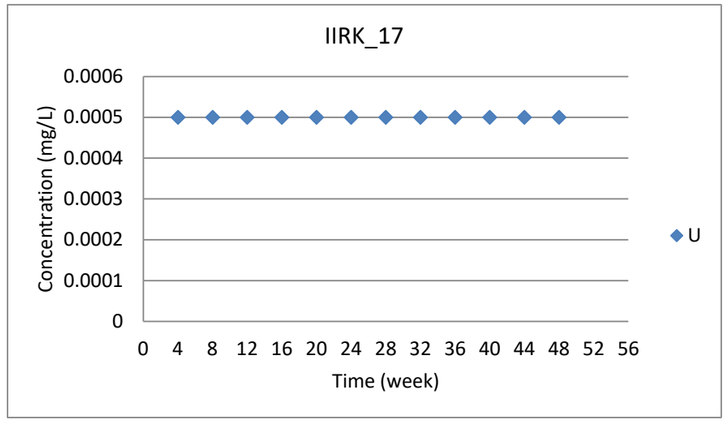

IIRK_17
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ni

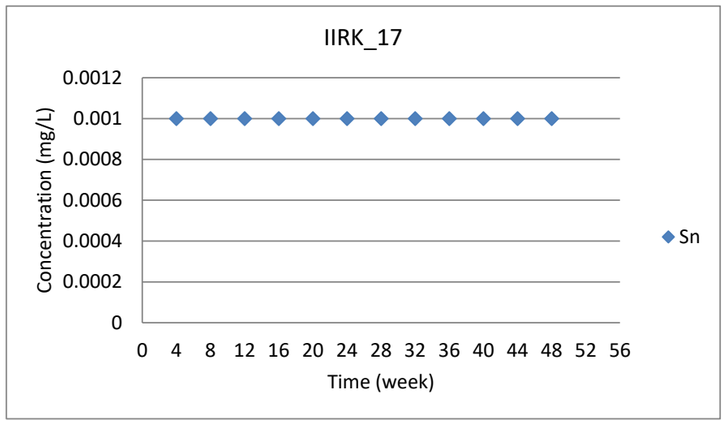

IIRK_17
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Th

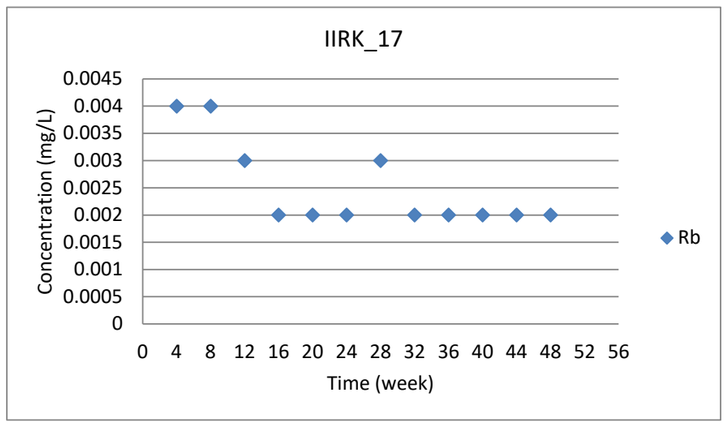

IIRK_17
Concentration (mg/L)
0.0045
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Li

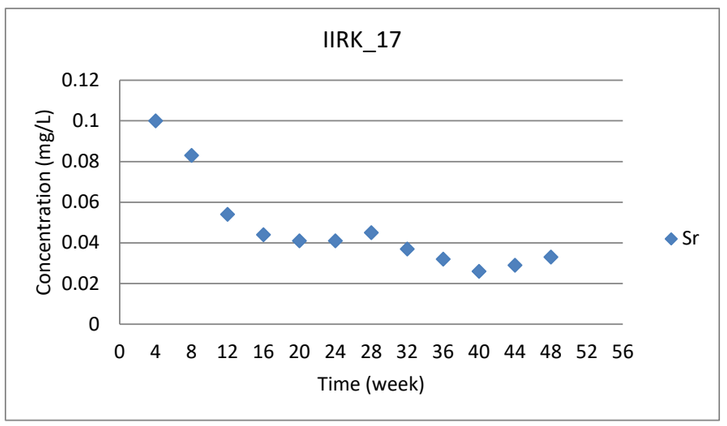

IIRK_17
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Pb

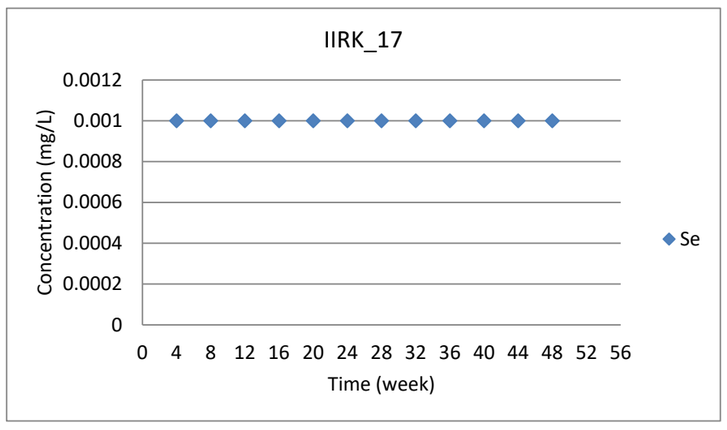

IIRK_17
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Tl

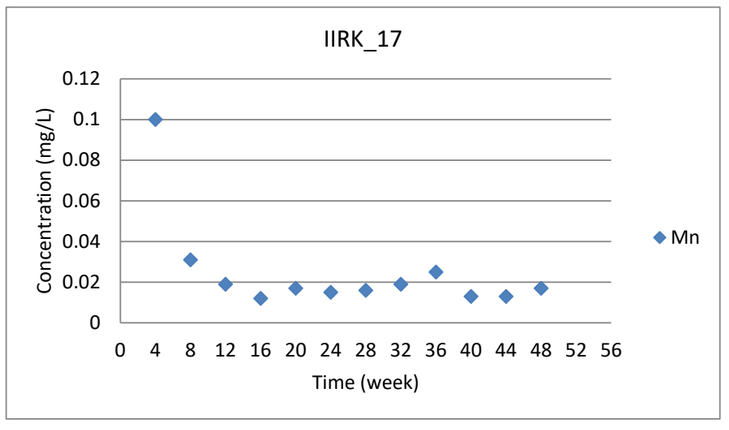

IIRK_17
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
U


IIRK_17
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sn

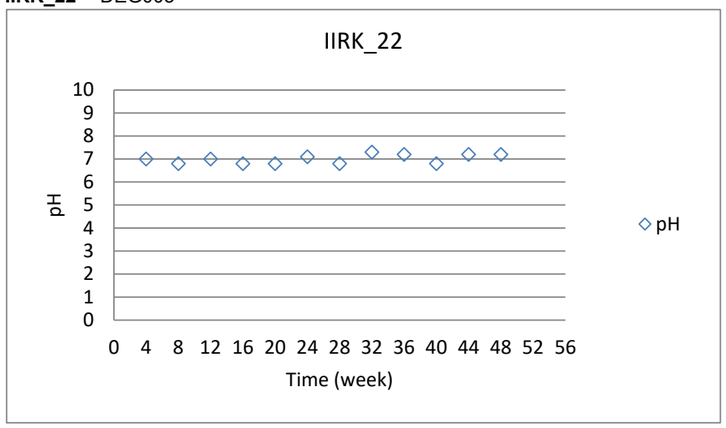

IIRK_17
Concentration (mg/L)
0.0045
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Rb

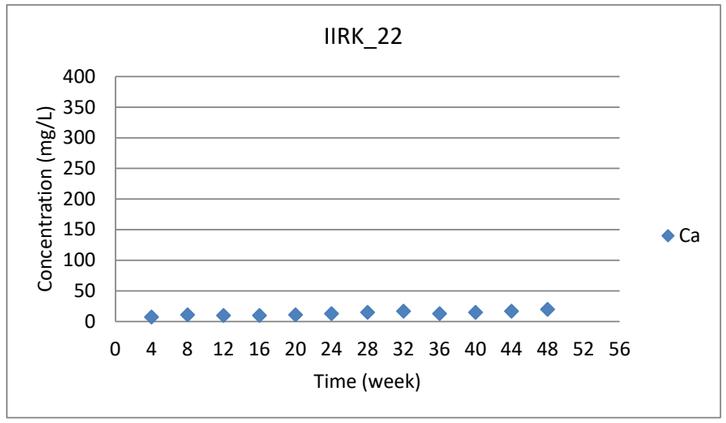

IIRK_17
Concentration (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sr

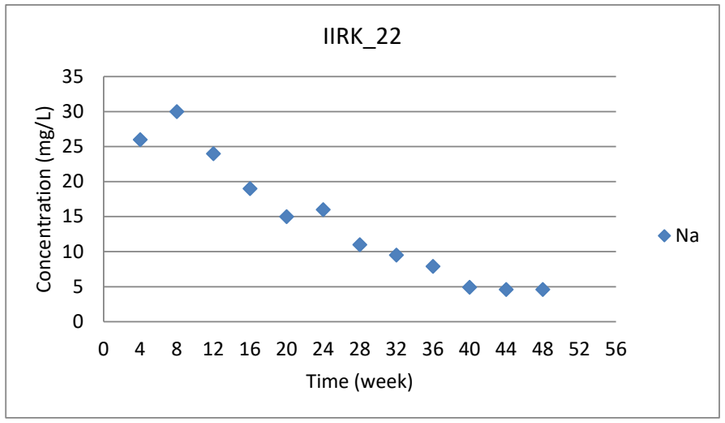

IIRK_17
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Se

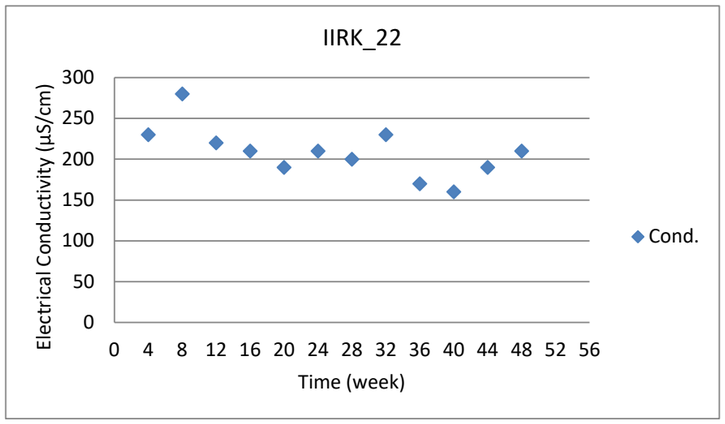

IIRK_17
Concentration (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mn

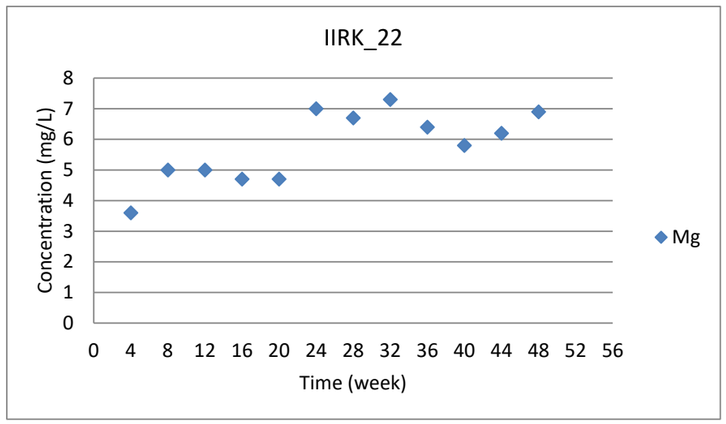
IIRK_22 DEG003

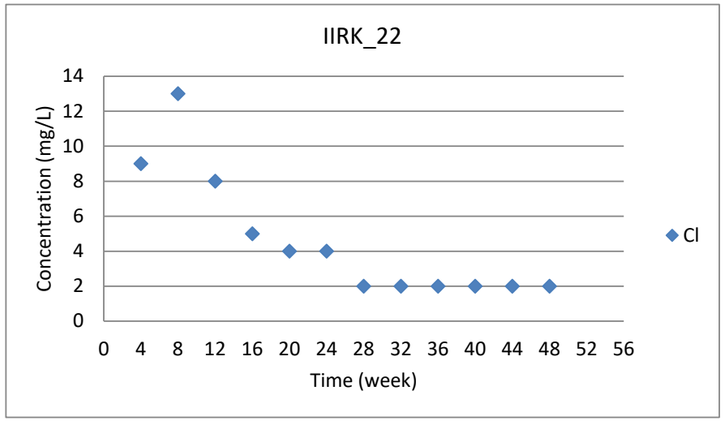


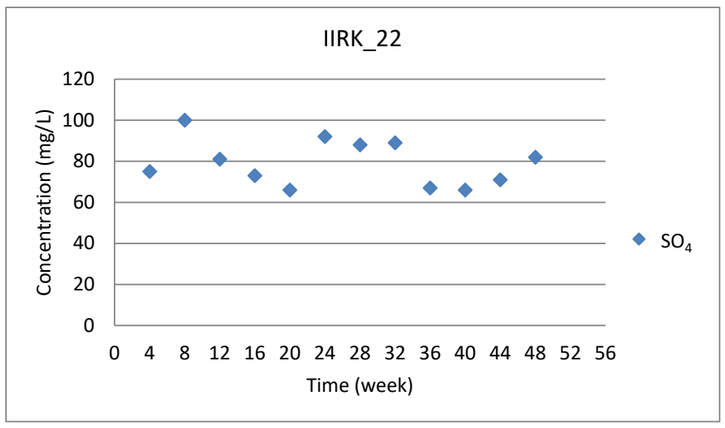


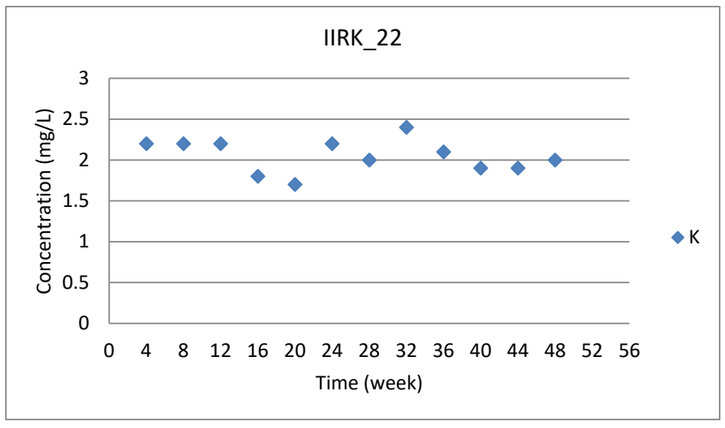


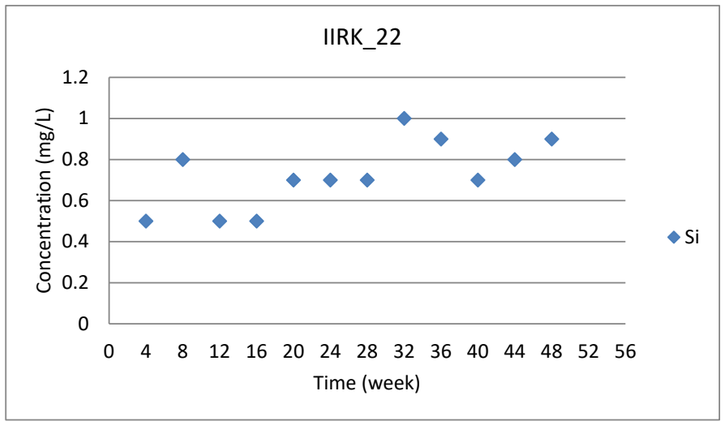


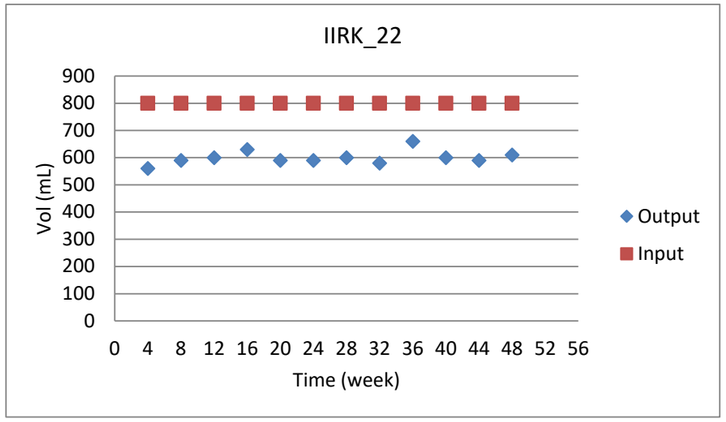


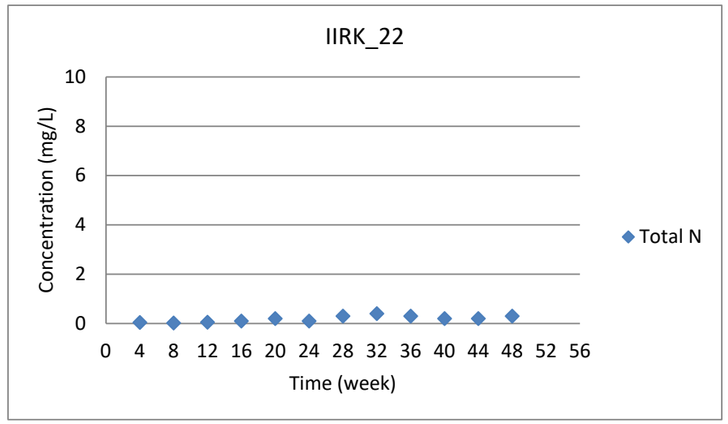


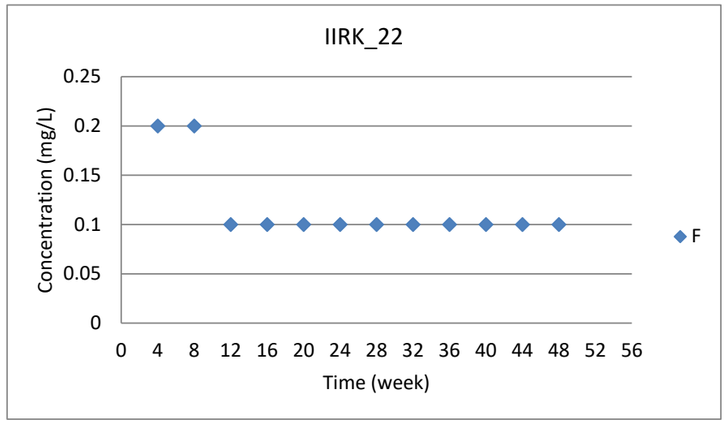


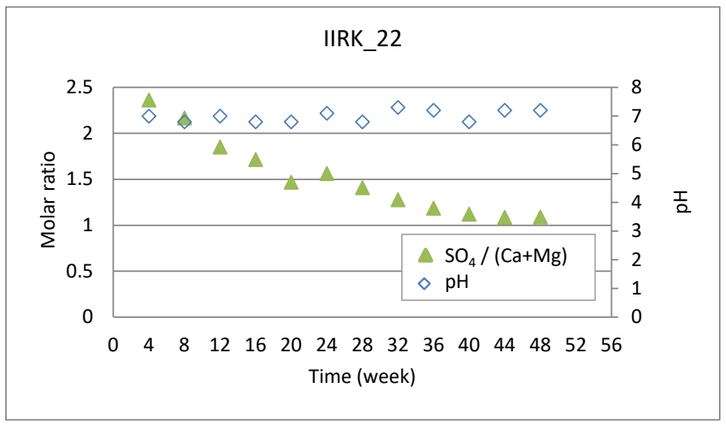


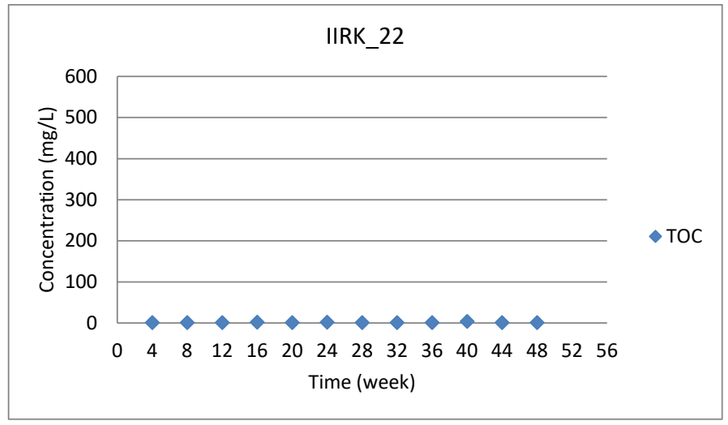


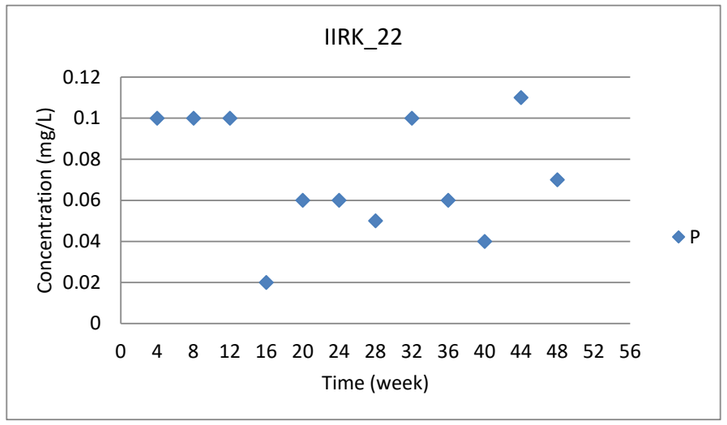

IIRK_22
Vol (mL)
900
800
700
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Output
Input

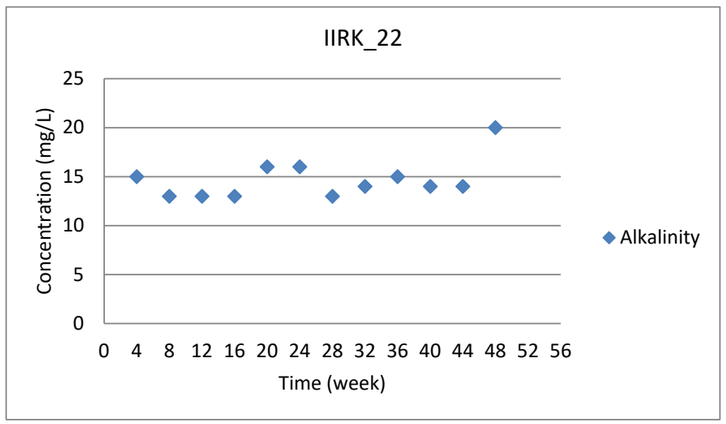

IIRK_22
Concentration (mg/L)
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Total N

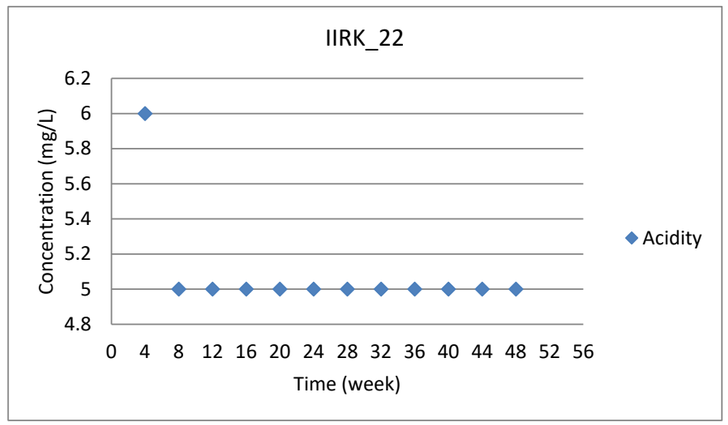

IIRK_22
Concentration (mg/L)
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
F

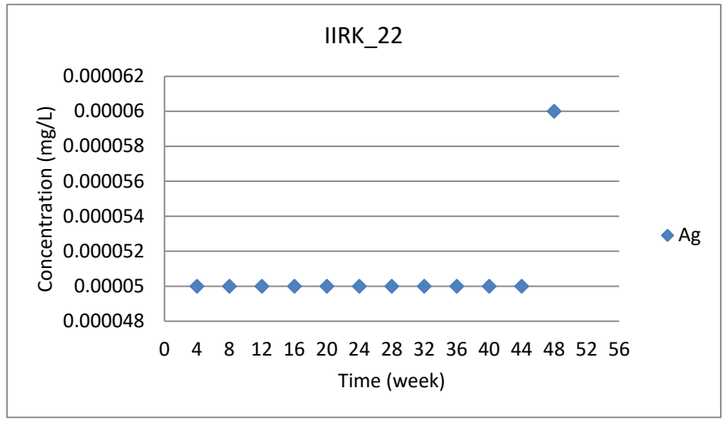

IIRK_22
Molar ratio
2.5
2
1.5
1
0.5
0
pH
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
SO4 / (Ca+Mg)
pH

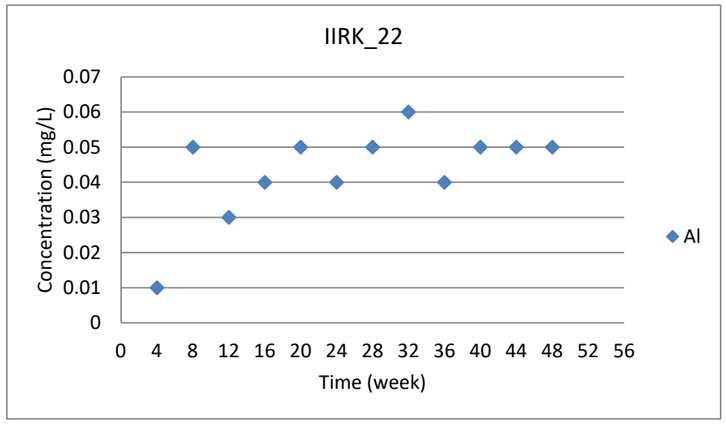

IIRK_22
Concentration (mg/L)
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
TOC

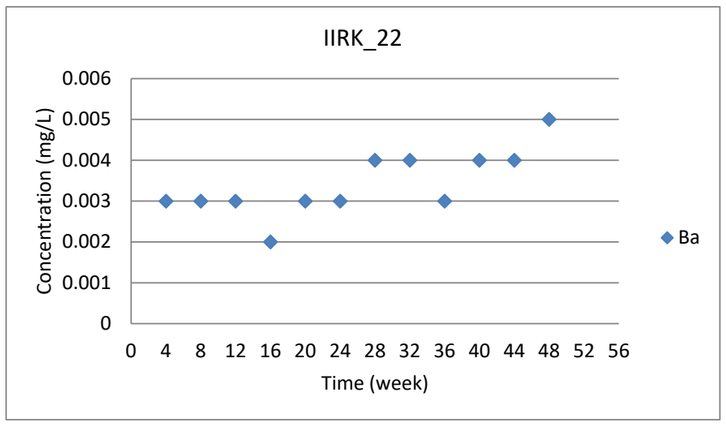

IIRK_22
Concentration (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
P

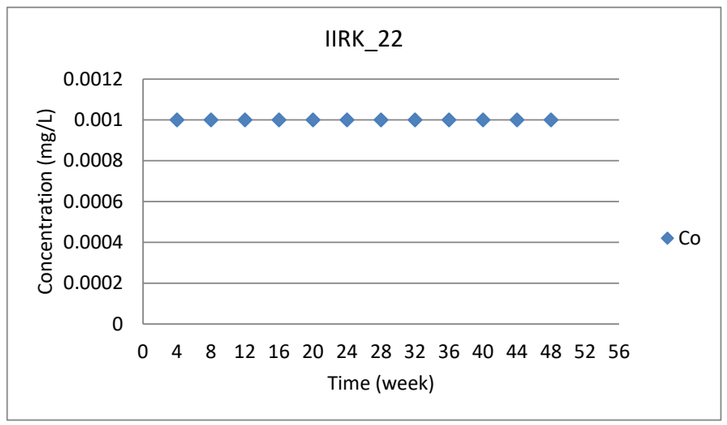

IIRK_22
Concentration (mg/L)
25
20
15
10
5
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Alkalinity

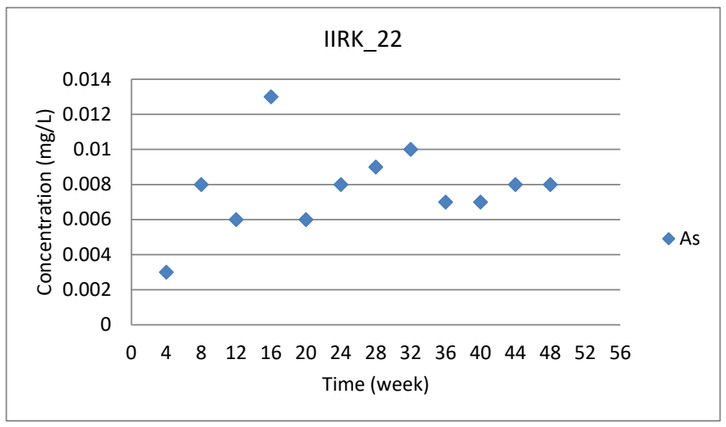

IIRK_22
Concentration (mg/L)
6.2
6
5.8
5.6
5.4
5.2
5
4.8
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Acidity

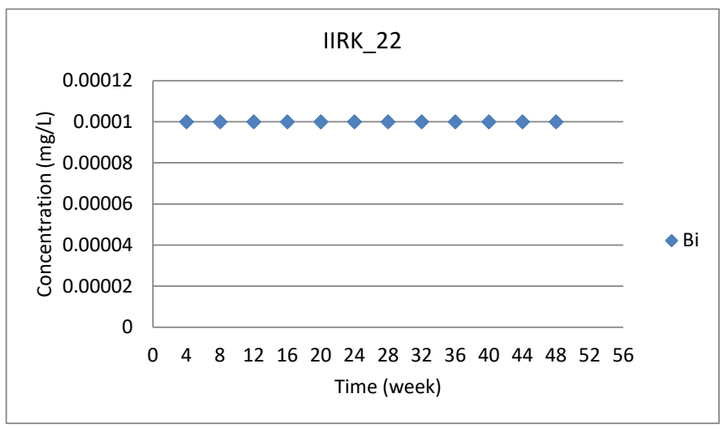

IIRK_22
Concentration (mg/L)
0.000062
0.00006
0.000058
0.000056
0.000054
0.000052
0.00005
0.000048
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ag

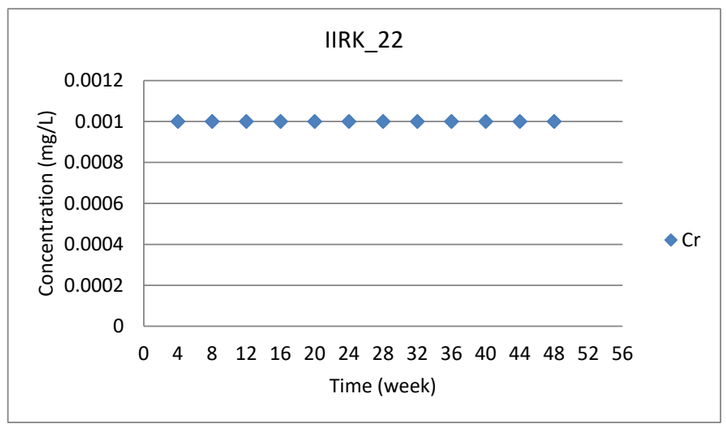

IIRK_22
Concentration (mg/L)
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Al

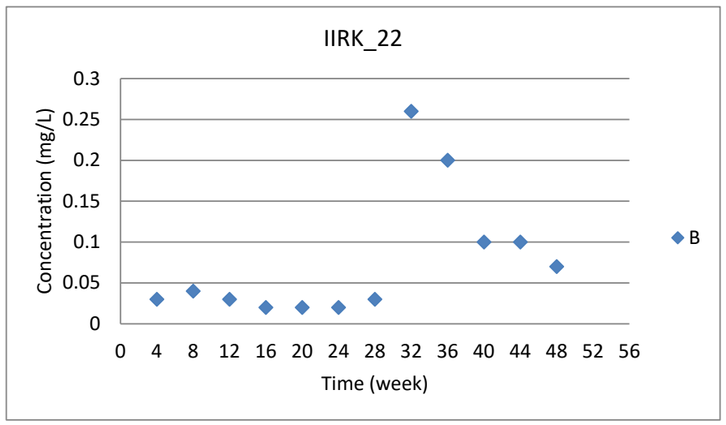

IIRK_22
Concentration (mg/L)
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ba

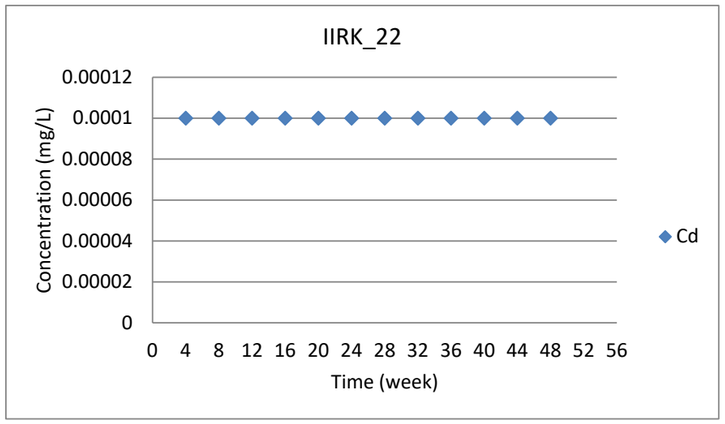

IIRK_22
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Co

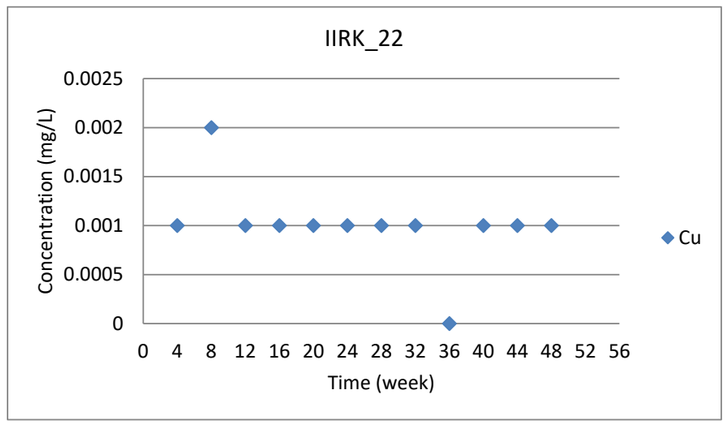

IIRK_22
Concentration (mg/L)
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
As

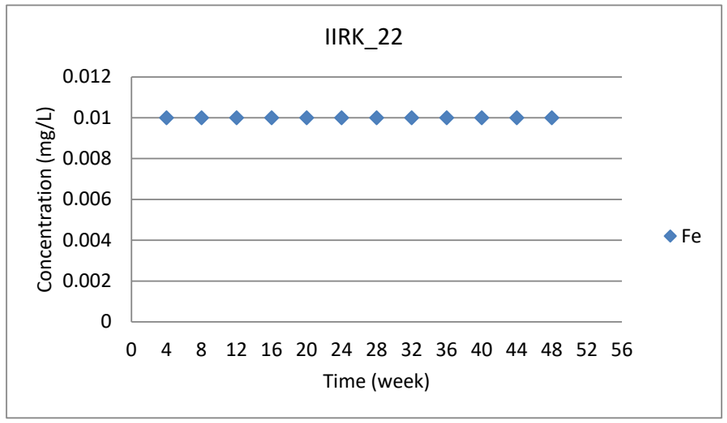

IIRK_22
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Bi

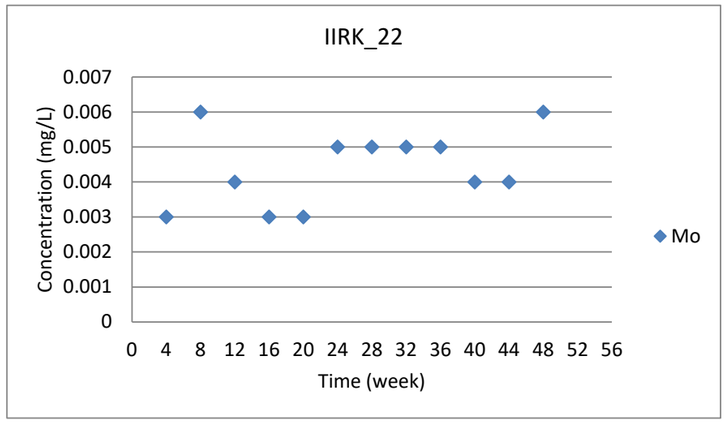

IIRK_22
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cr

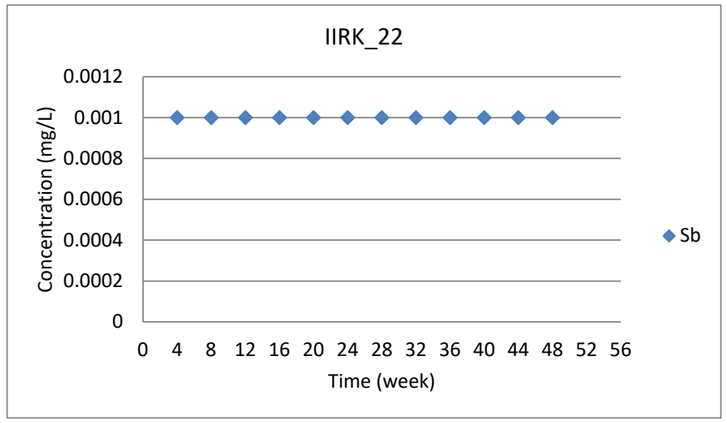

IIRK_22
Concentration (mg/L)
0.3
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
B

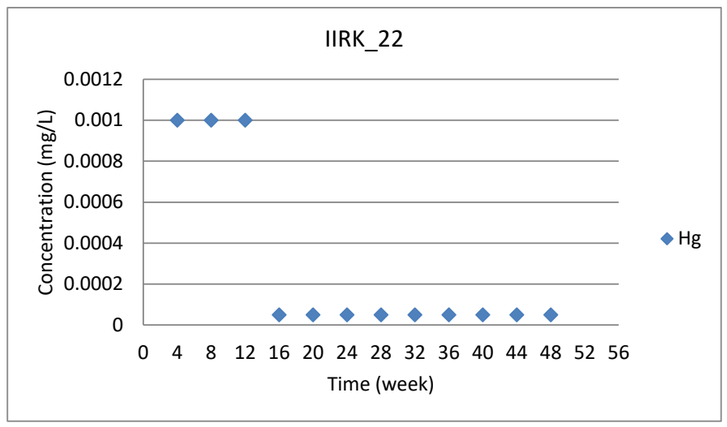

IIRK_22
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cd

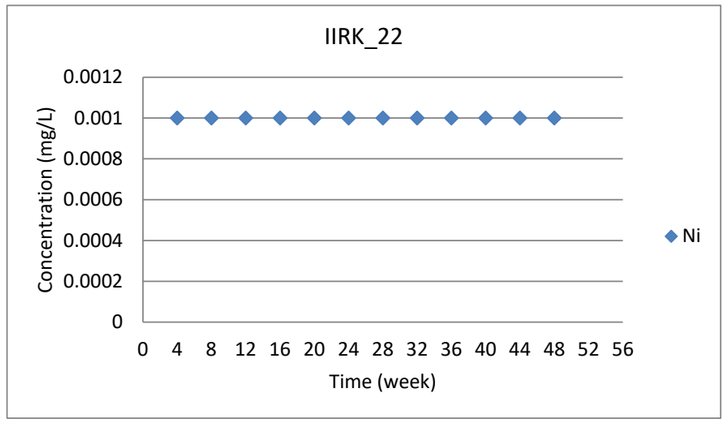

IIRK_22
Concentration (mg/L)
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cu

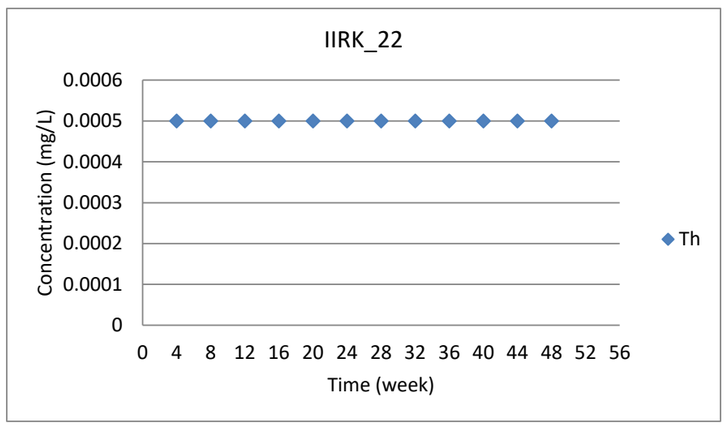

IIRK_22
Concentration (mg/L)
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Fe

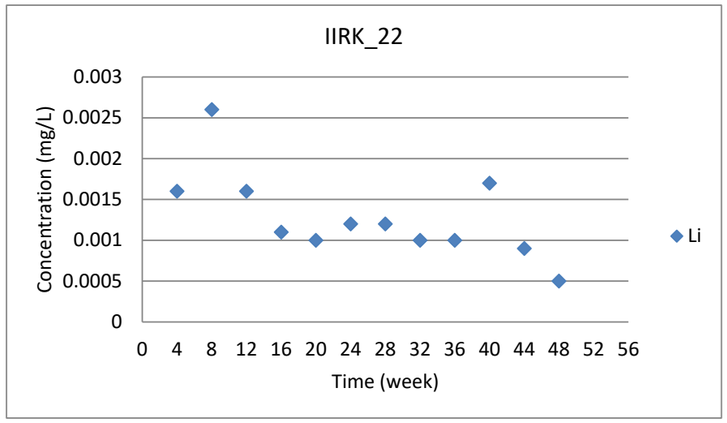

IIRK_22
Concentration (mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mo

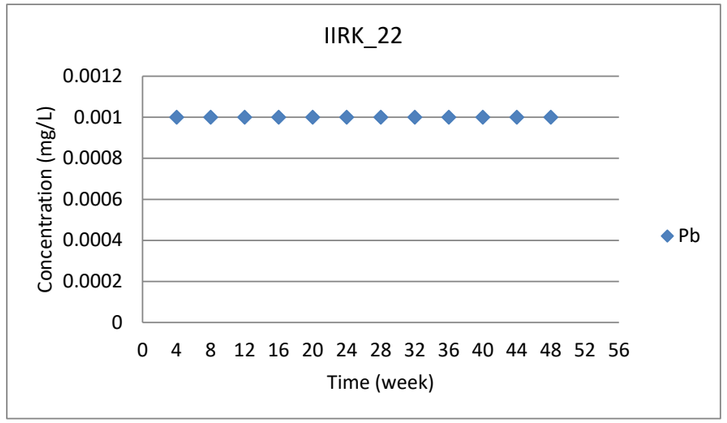

IIRK_22
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sb

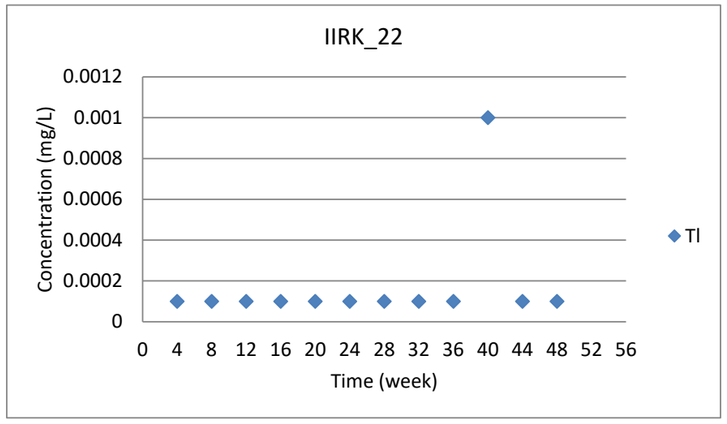

IIRK_22
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Hg

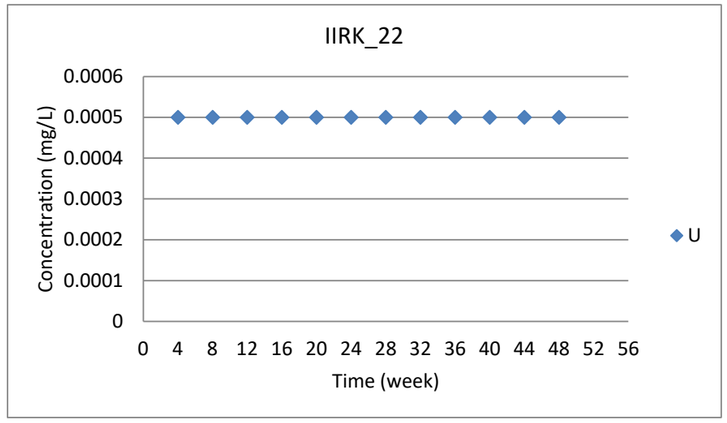

IIRK_22
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ni

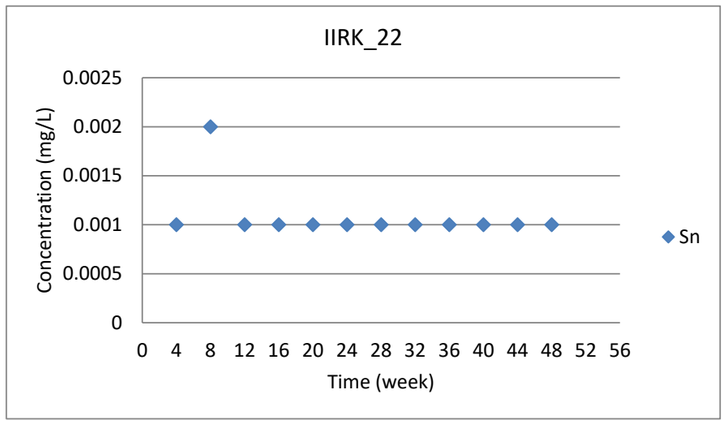

IIRK_22
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Th

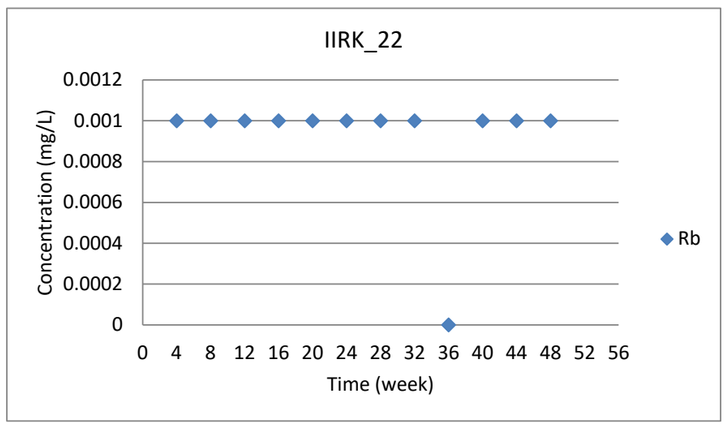

IIRK_22
Concentration (mg/L)
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Li

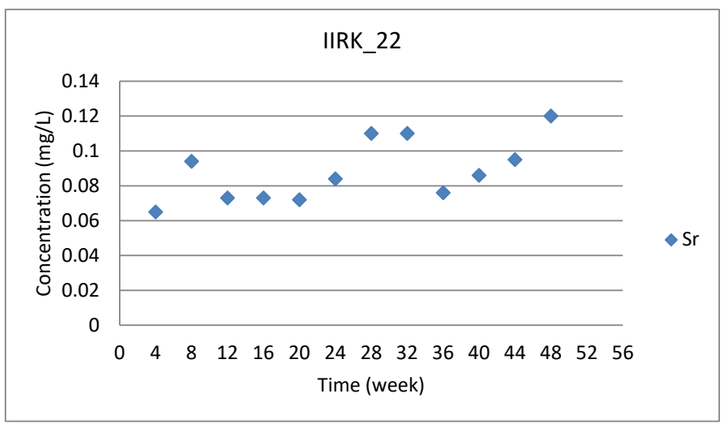

IIRK_22
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Pb

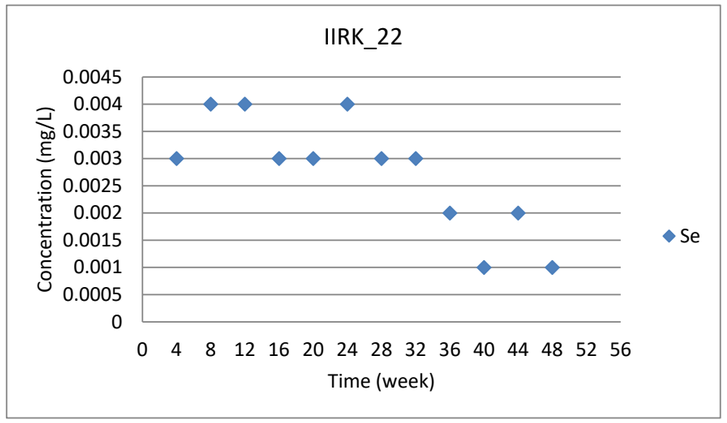

IIRK_22
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Tl

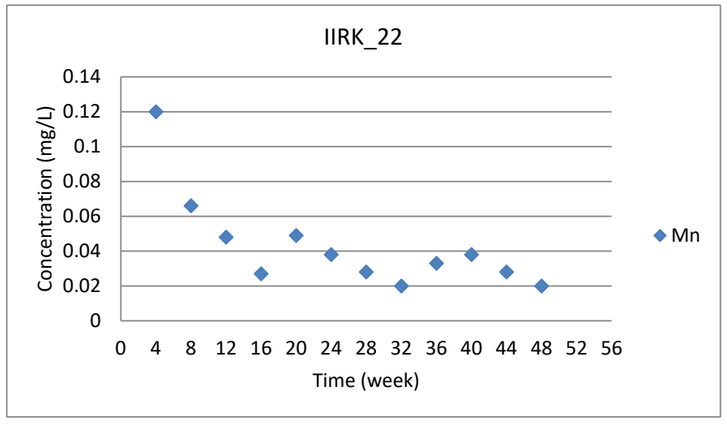

IIRK_22
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
U


IIRK_22
Concentration (mg/L)
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sn

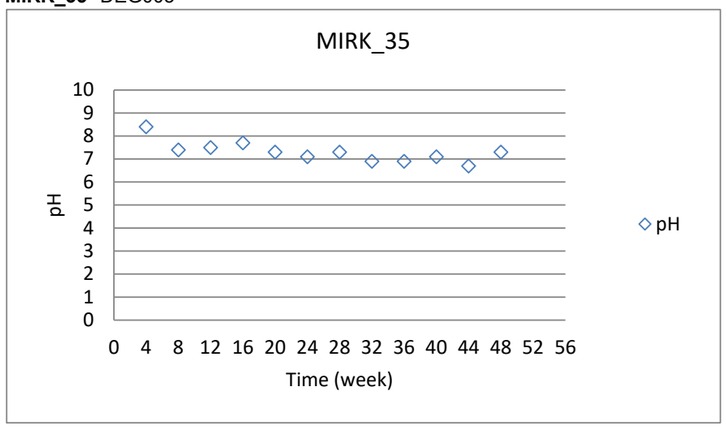

IIRK_22
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Rb

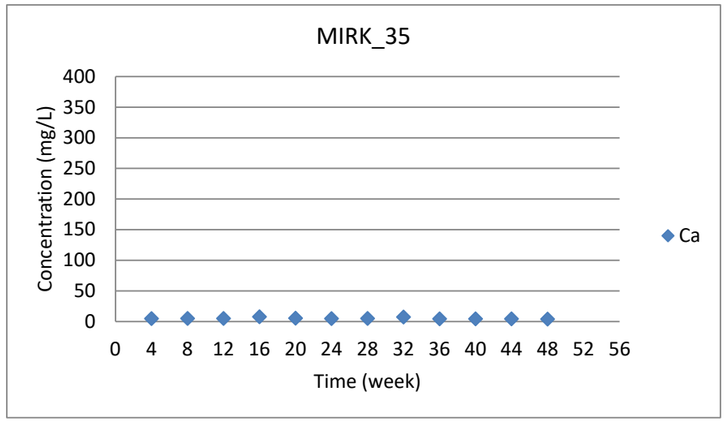

IIRK_22
Concentration (mg/L)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sr

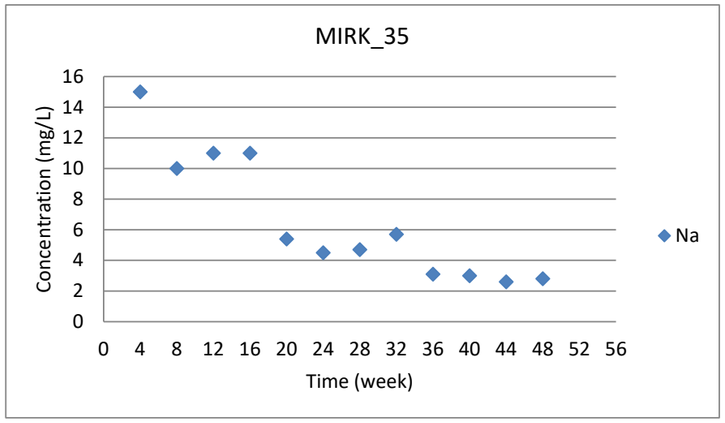

IIRK_22
Concentration (mg/L)
0.0045
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Se

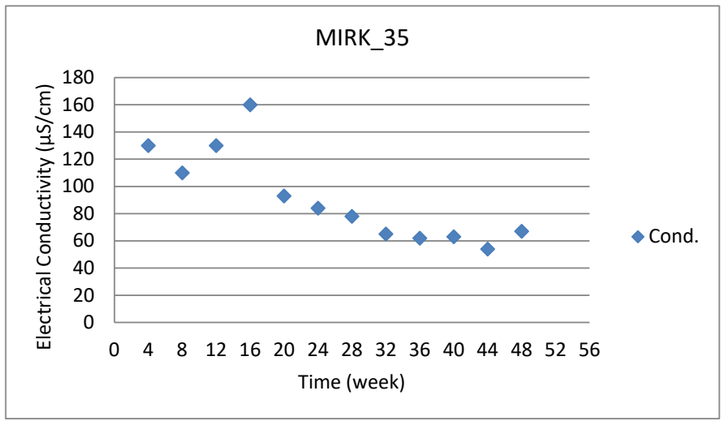

IIRK_22
Concentration (mg/L)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mn

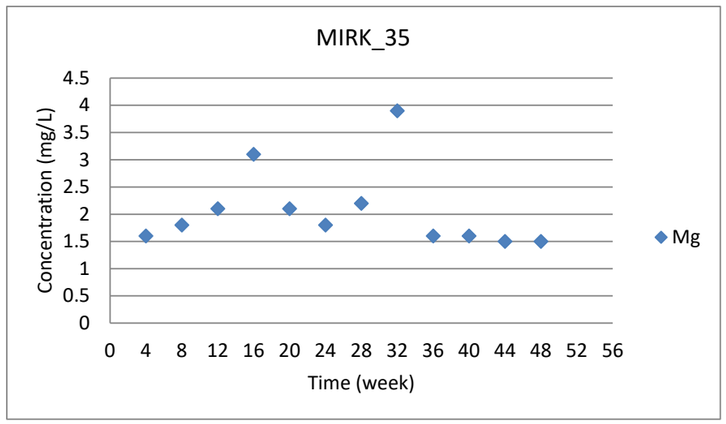
MIRK_35 DEG003

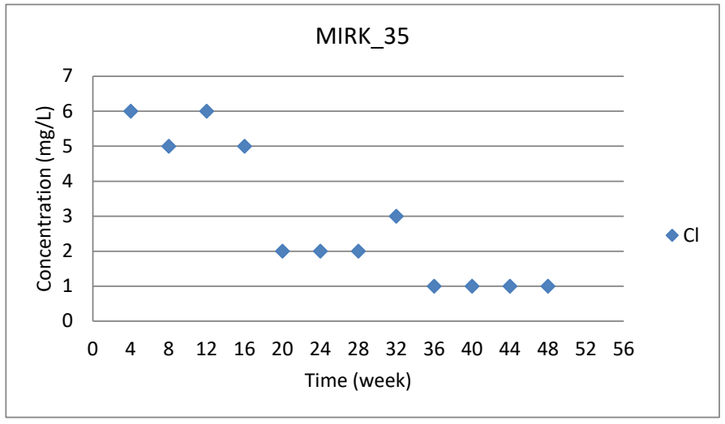


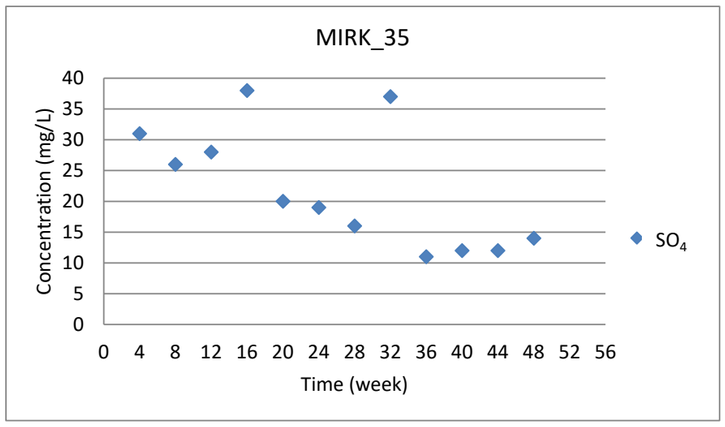


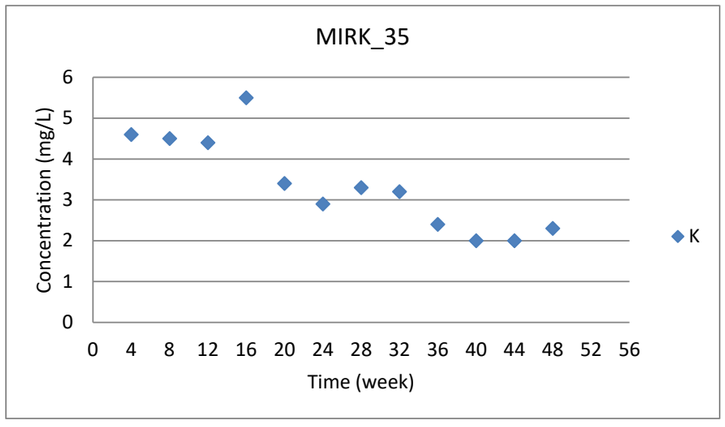


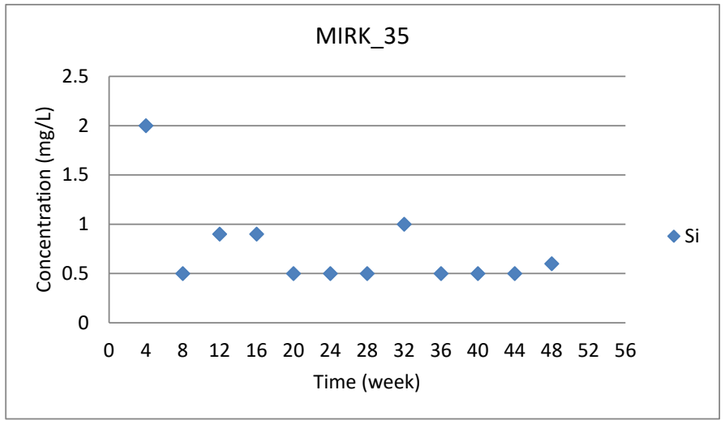


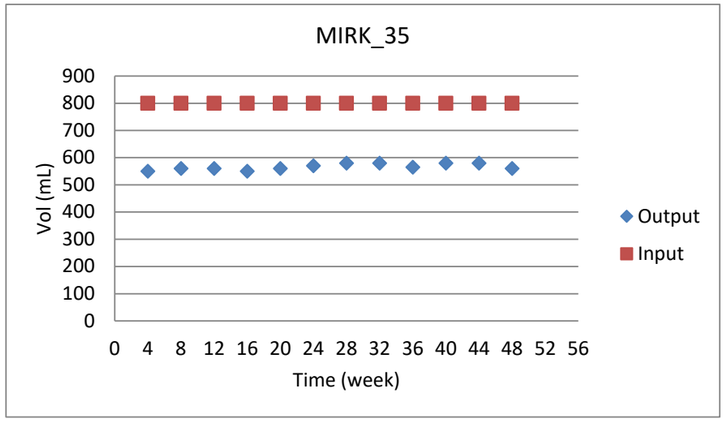


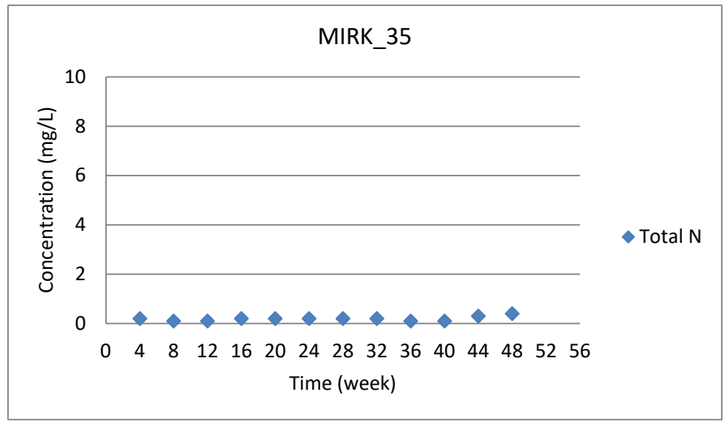


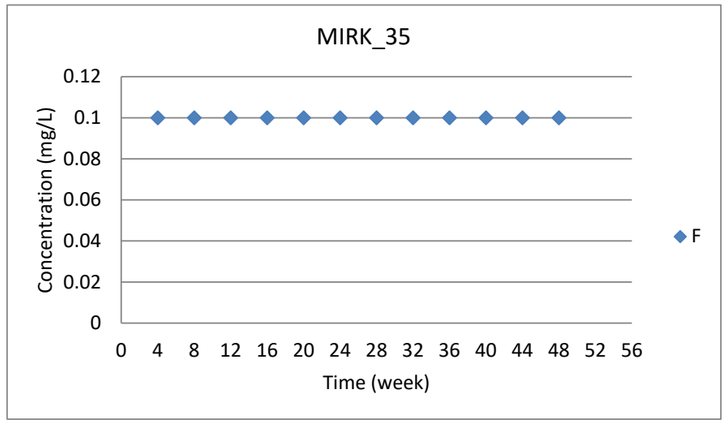


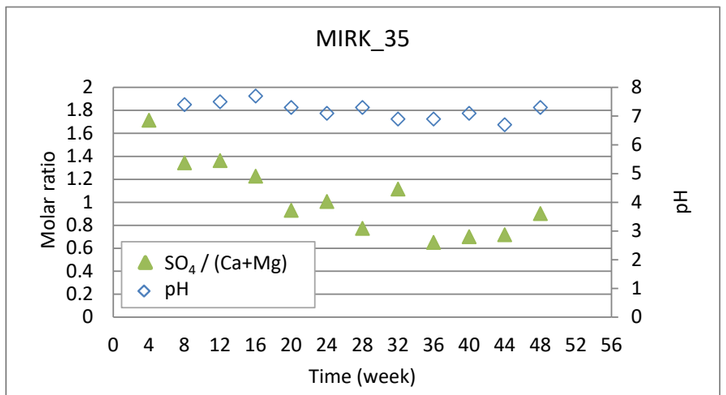


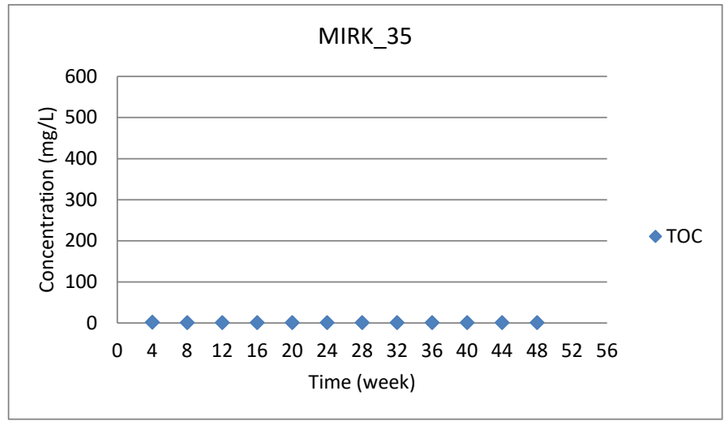


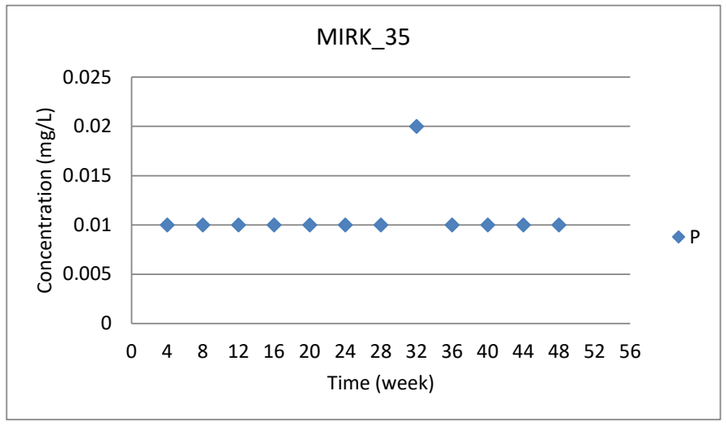

MIRK_35
Vol (mL)
900
800
700
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Output
Input

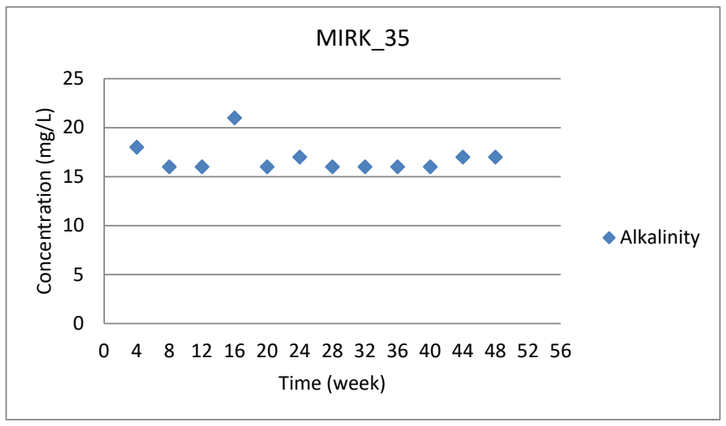

MIRK_35
Concentration (mg/L)
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Total N

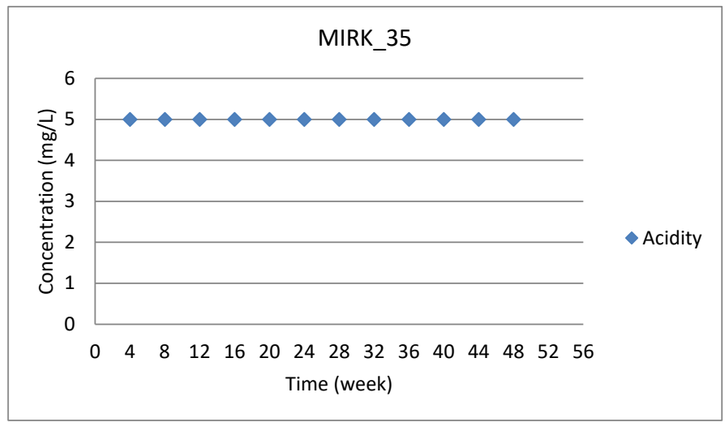

MIRK_35
Concentration (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
F

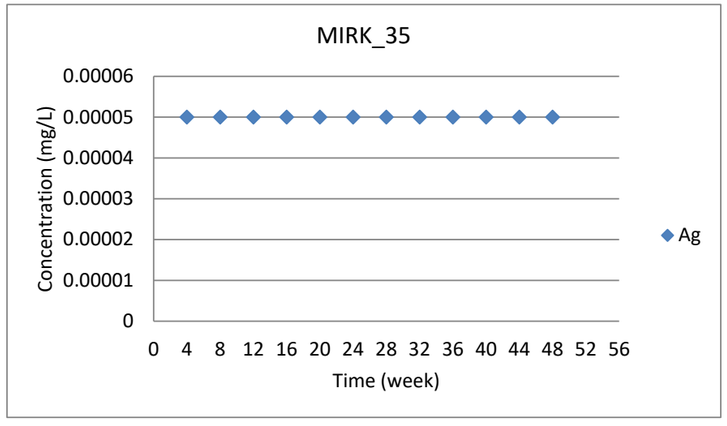

MIRK_35
Molar ratio
pH
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
SO4 / (Ca+Mg)
pH

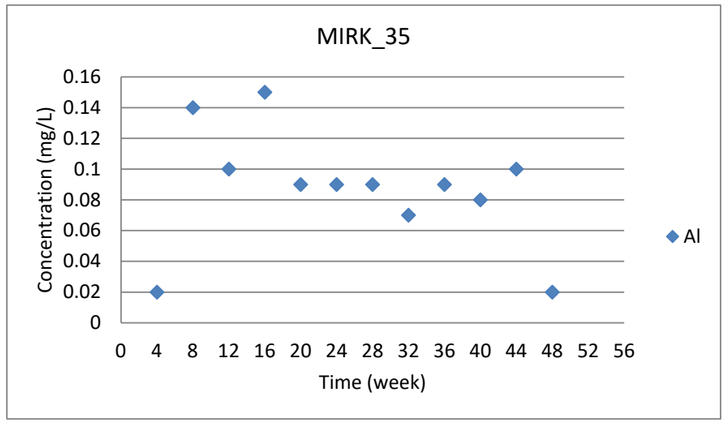

MIRK_35
Concentration (mg/L)
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
TOC

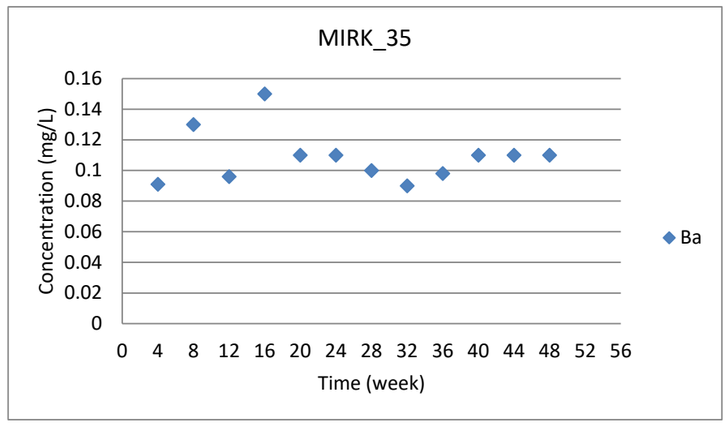

MIRK_35
Concentration (mg/L)
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
P

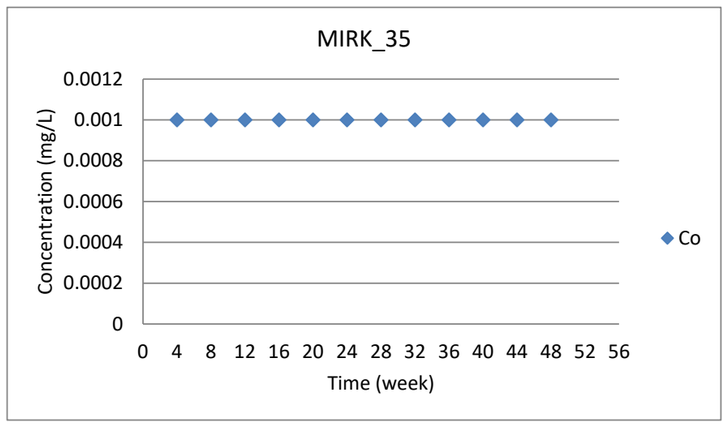

MIRK_35
Concentration (mg/L)
25
20
15
10
5
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Alkalinity

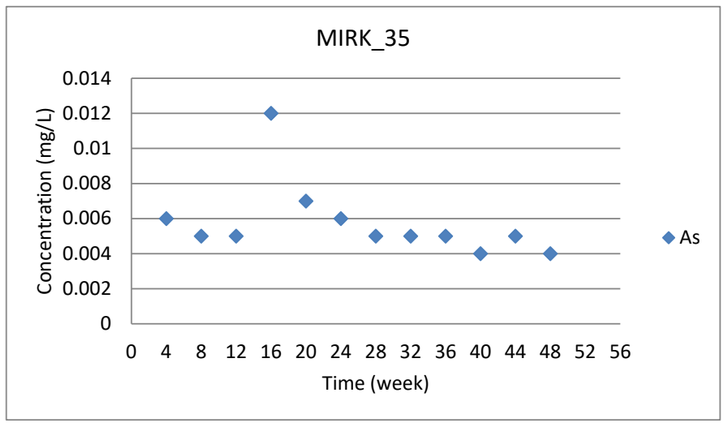

MIRK_35
Concentration (mg/L)
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Acidity

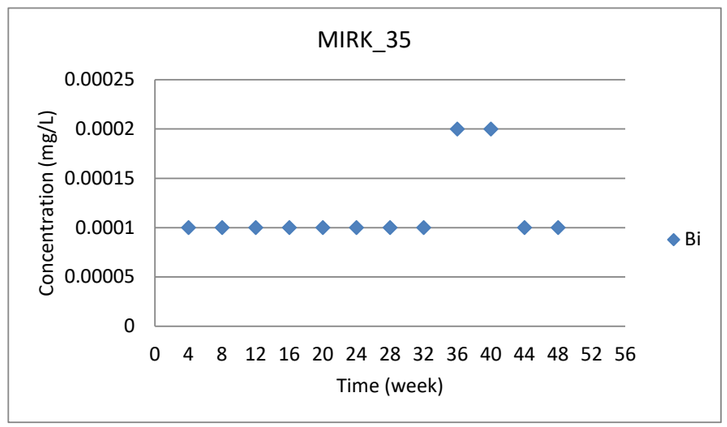

MIRK_35
Concentration (mg/L)
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ag

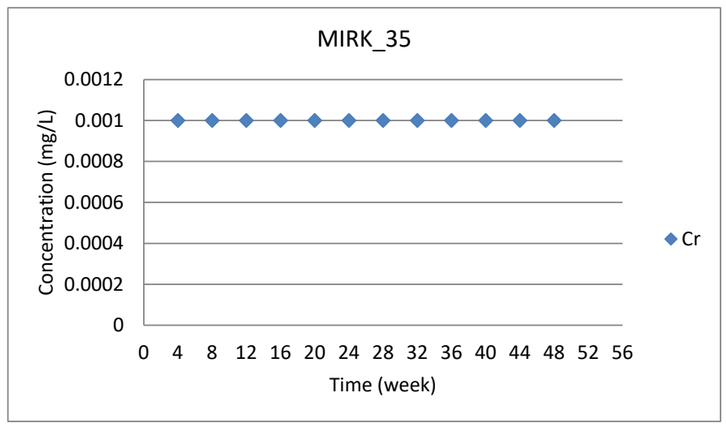

MIRK_35
Concentration (mg/L)
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Al

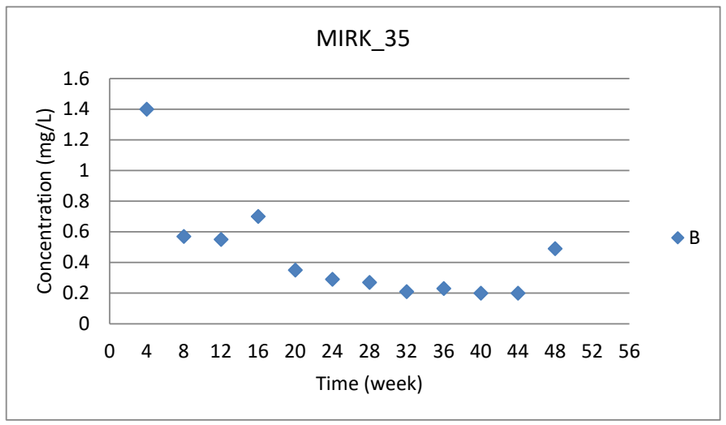

MIRK_35
Concentration (mg/L)
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ba

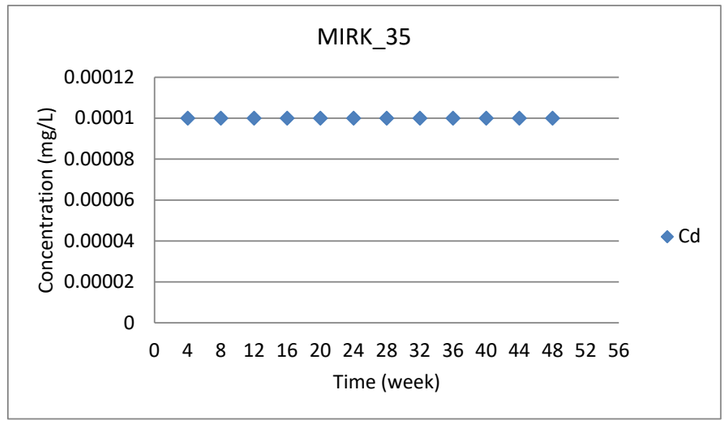

MIRK_35
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Co

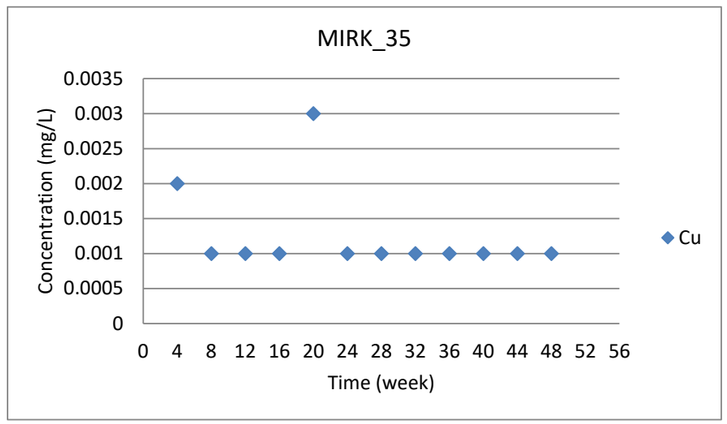

MIRK_35
Concentration (mg/L)
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
As

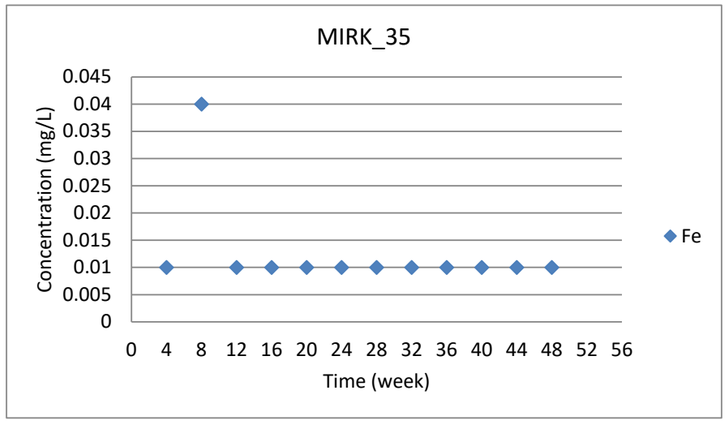

MIRK_35
Concentration (mg/L)
0.00025
0.0002
0.00015
0.0001
0.00005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Bi

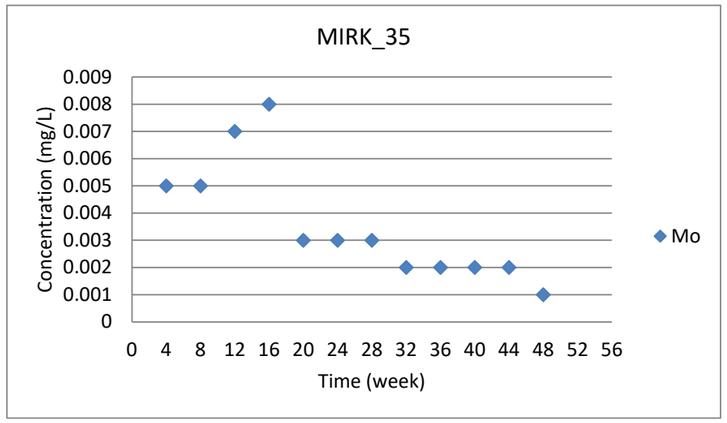

MIRK_35
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cr

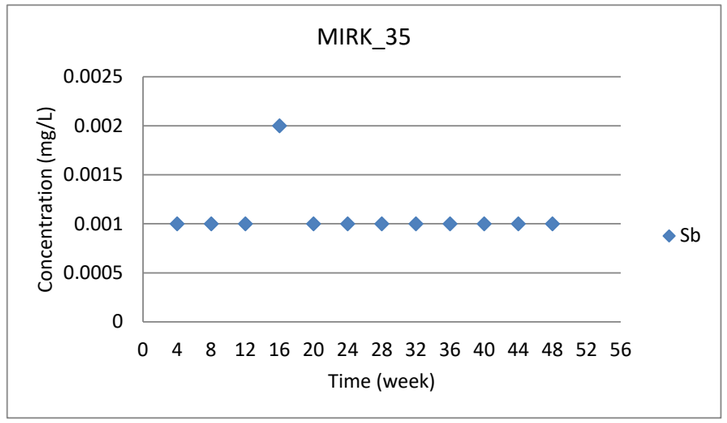

MIRK_35
Concentration (mg/L)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
B

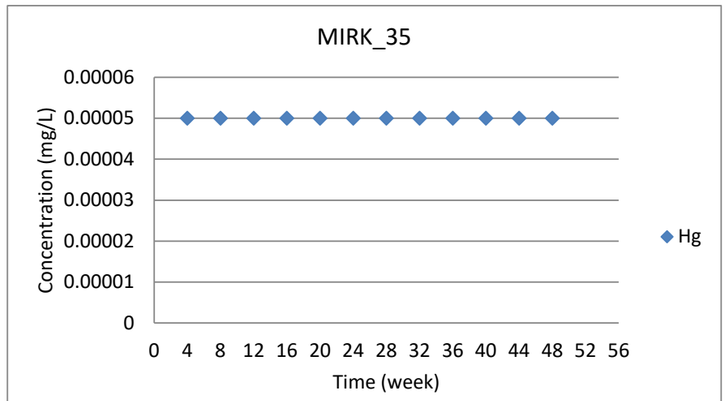

MIRK_35
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cd

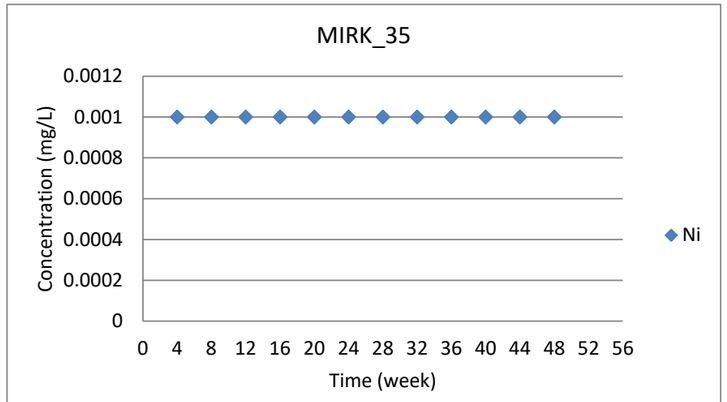

MIRK_35
Concentration (mg/L)
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cu

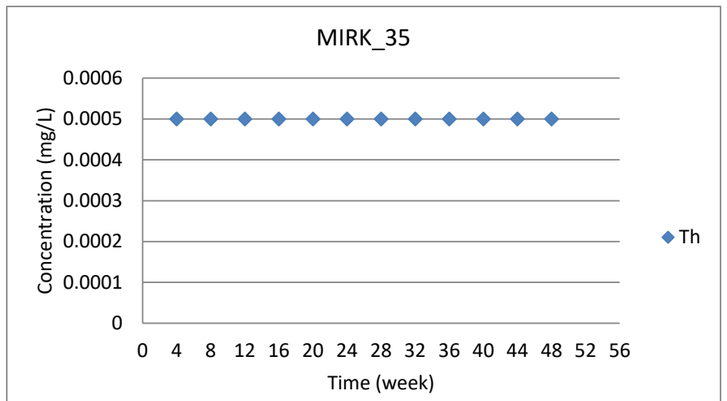

MIRK_35
Concentration (mg/L)
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Fe

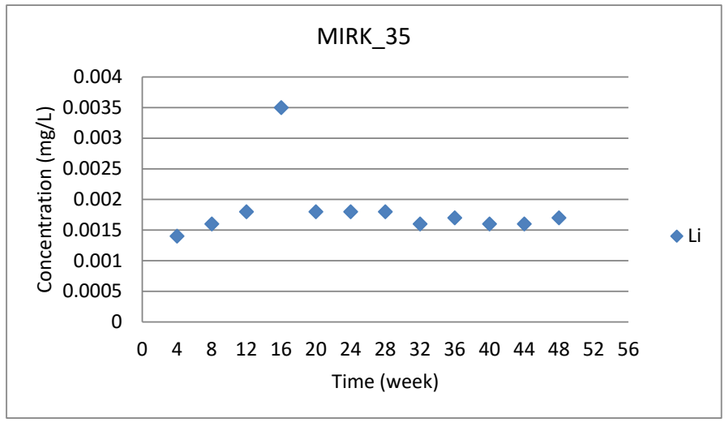

MIRK_35
Concentration (mg/L)
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mo

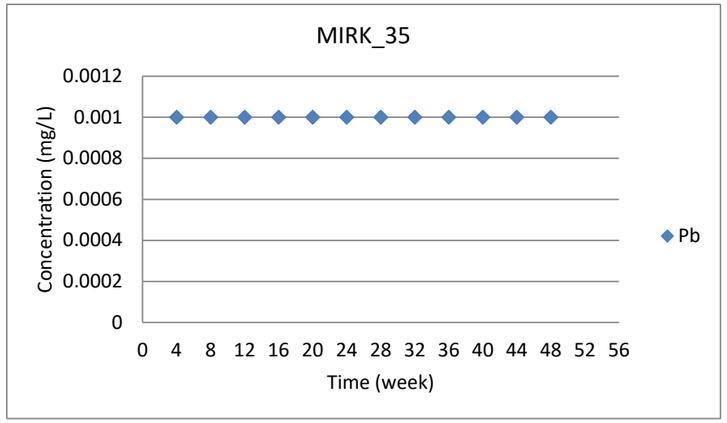

MIRK_35
Concentration (mg/L)
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sb

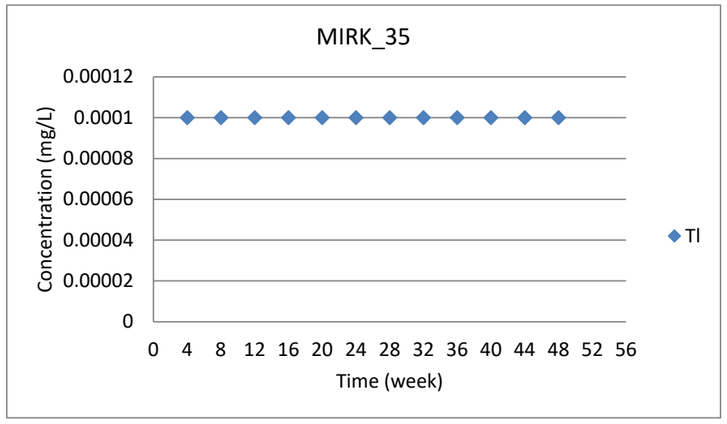

MIRK_35
Concentration (mg/L)
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Hg

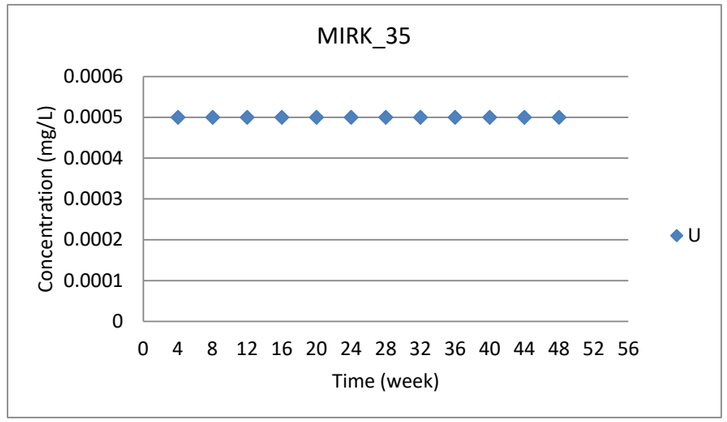

MIRK_35
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ni

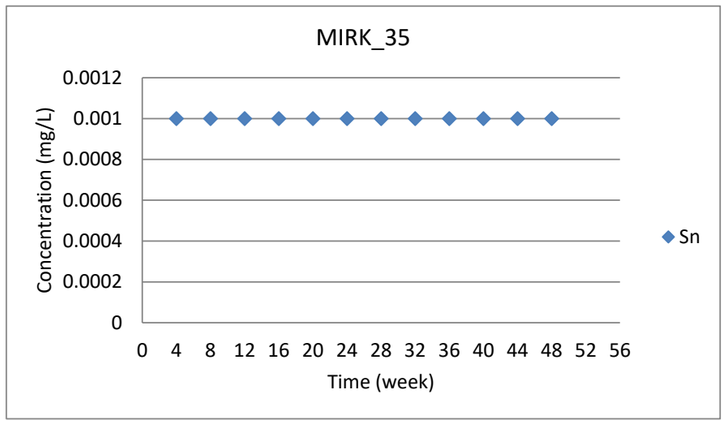

MIRK_35
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Th

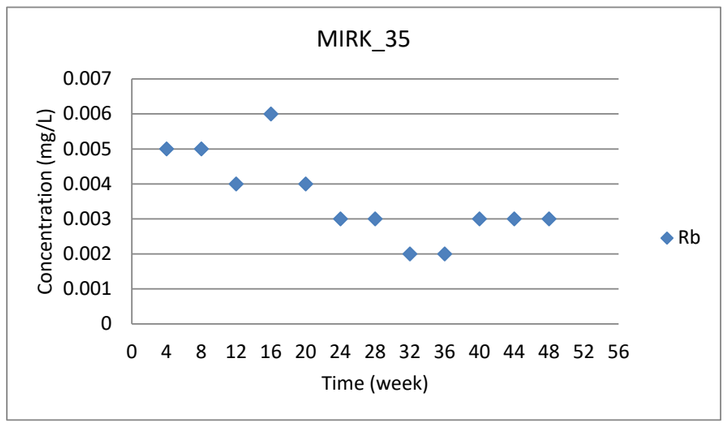

MIRK_35
Concentration (mg/L)
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Li

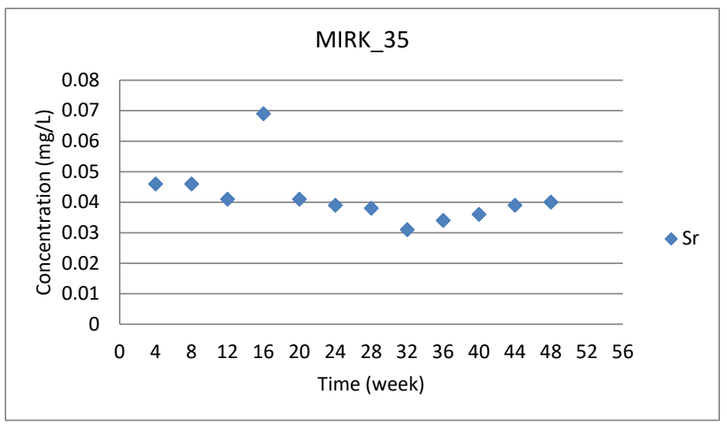

MIRK_35
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Pb

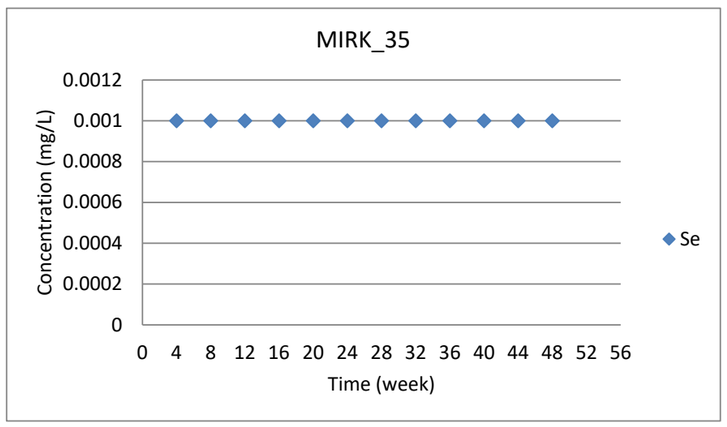

MIRK_35
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Tl

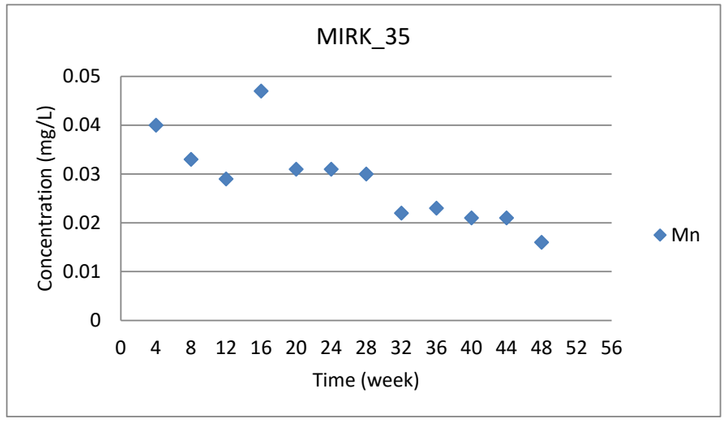

MIRK_35
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
U


MIRK_35
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sn

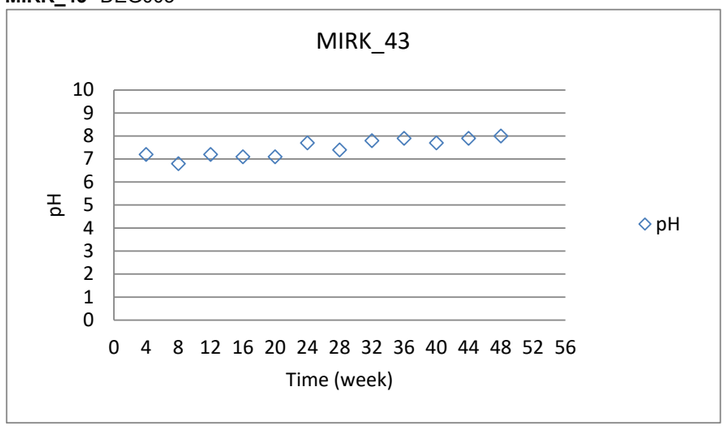

MIRK_35
Concentration (mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Rb

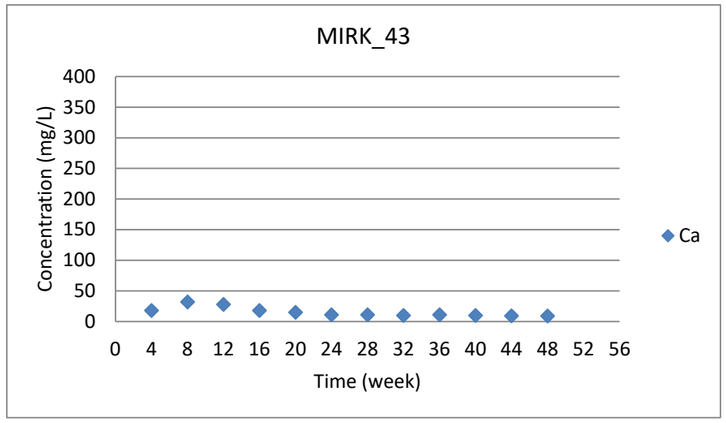

MIRK_35
Concentration (mg/L)
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sr

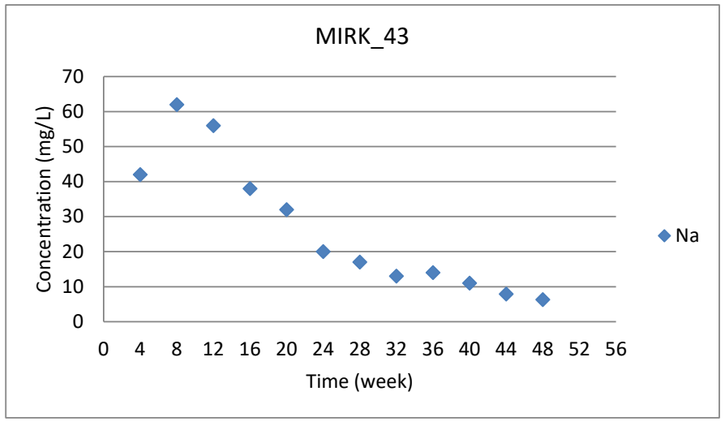

MIRK_35
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Se

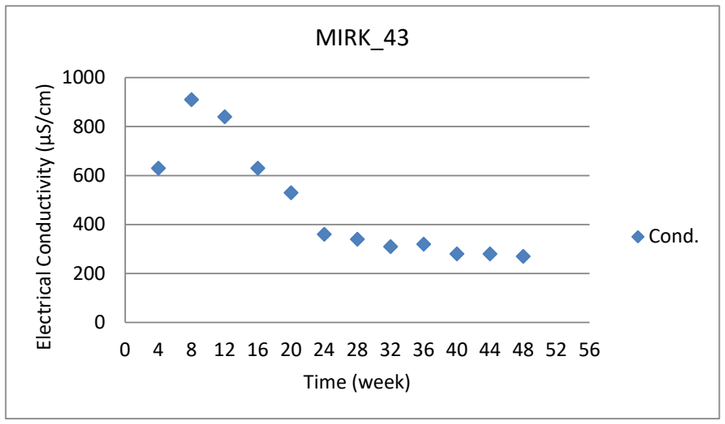

MIRK_35
Concentration (mg/L)
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mn

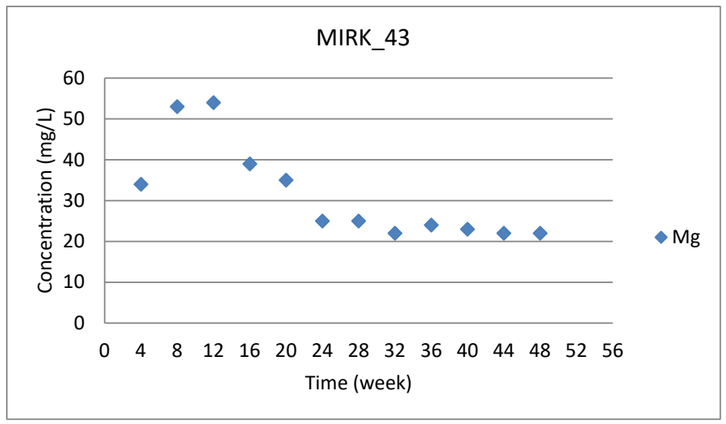
MIRK_43 DEG003

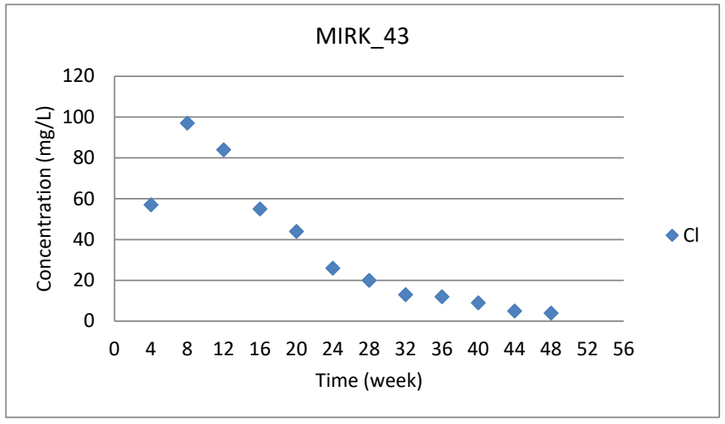


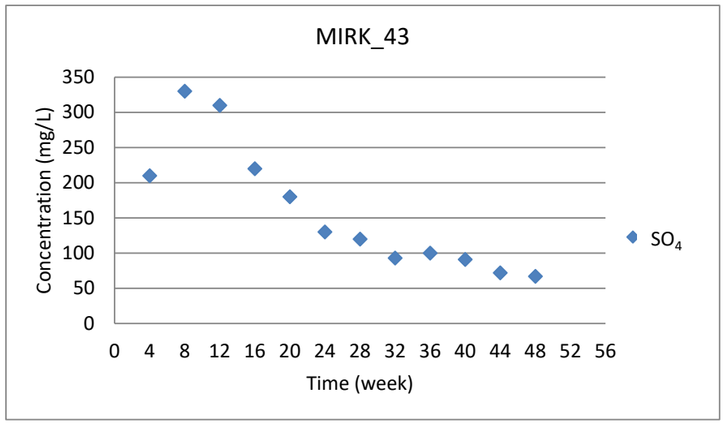


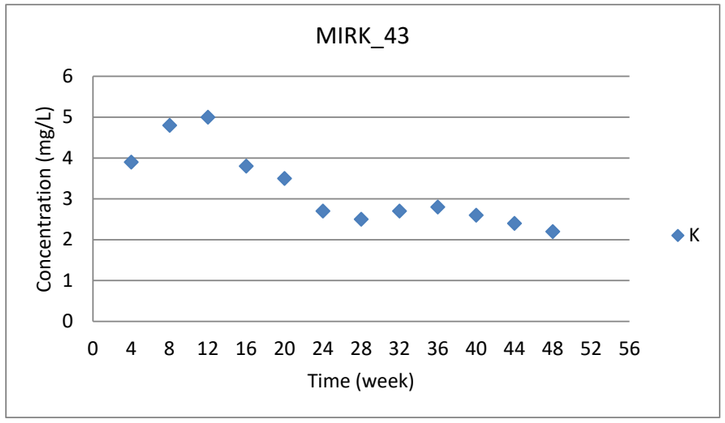


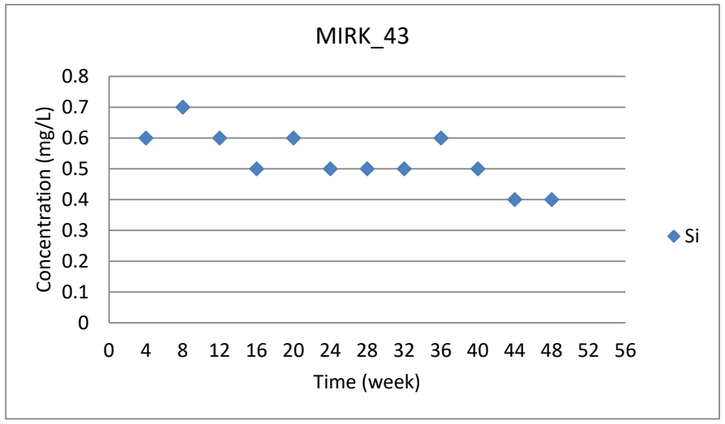


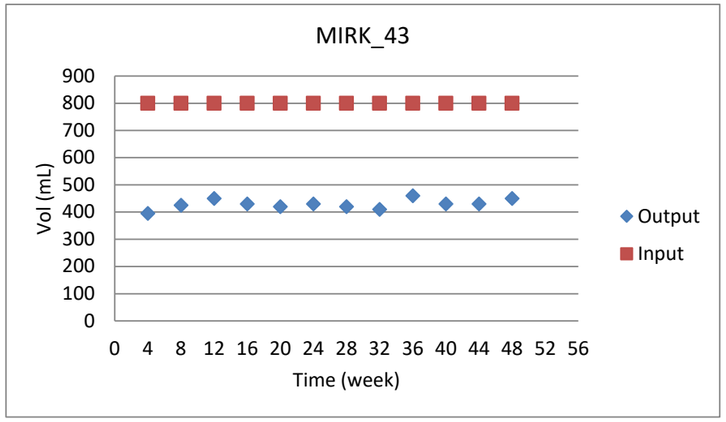


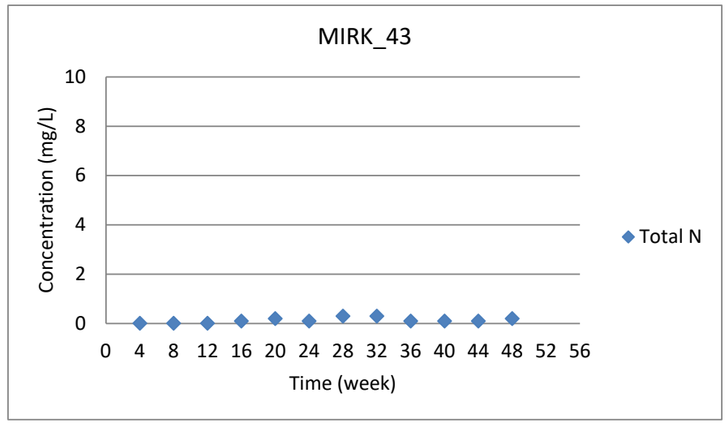


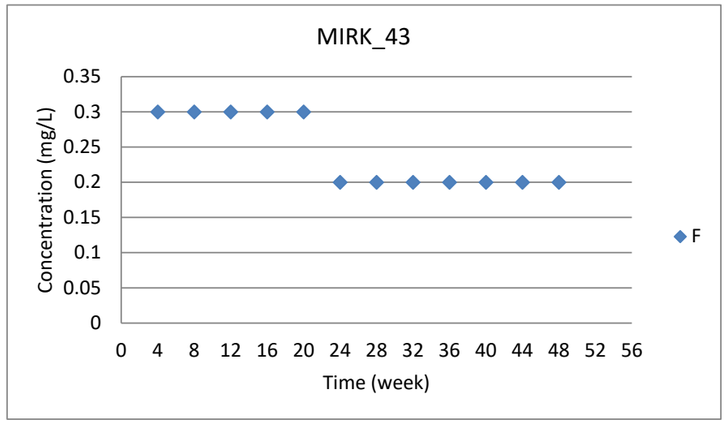


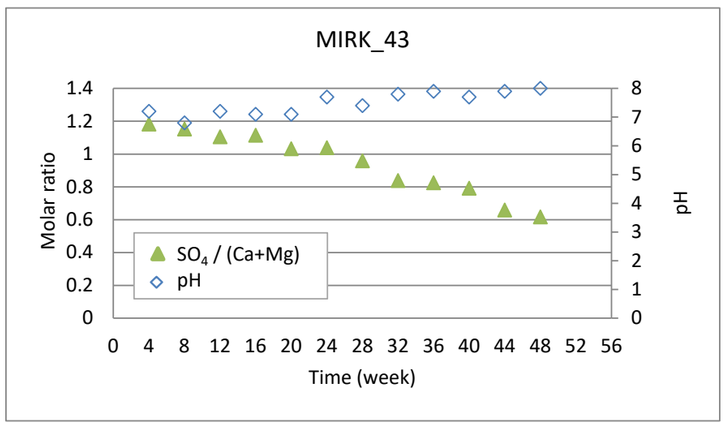


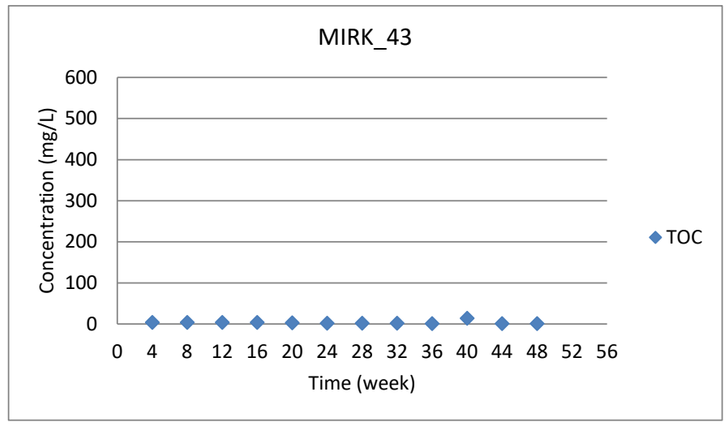


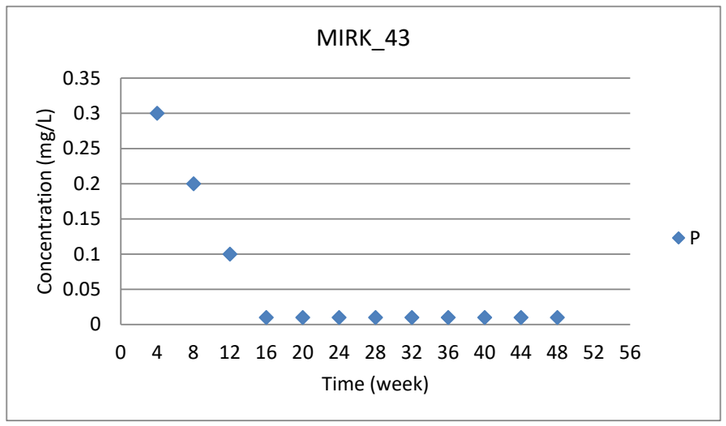

MIRK_43
Vol (mL)
900
800
700
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Output
Input

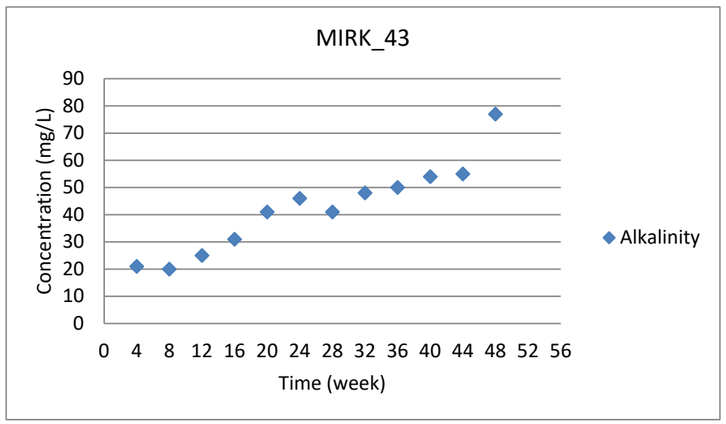

MIRK_43
Concentration (mg/L)
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Total N

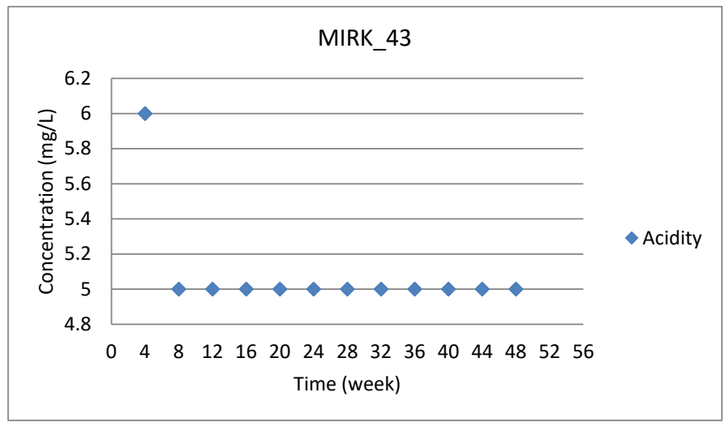

MIRK_43
Concentration (mg/L)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
F

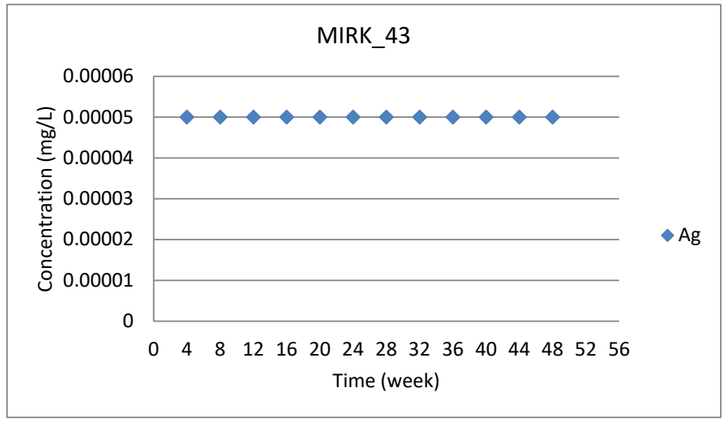

MIRK_43
Molar ratio
1.4
1.2
1
0.8
0.6
0.4
0.2
0
pH
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
SO4 / (Ca+Mg)
pH

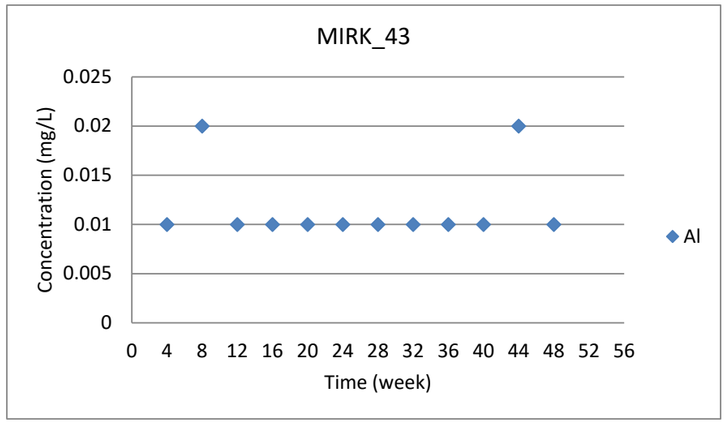

MIRK_43
Concentration (mg/L)
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
TOC

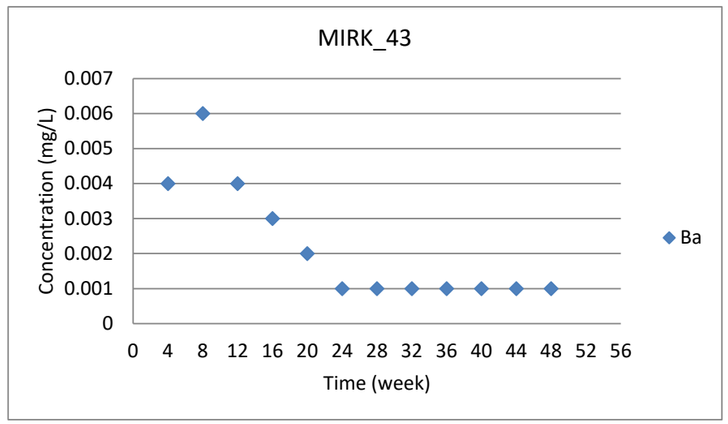

MIRK_43
Concentration (mg/L)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
P

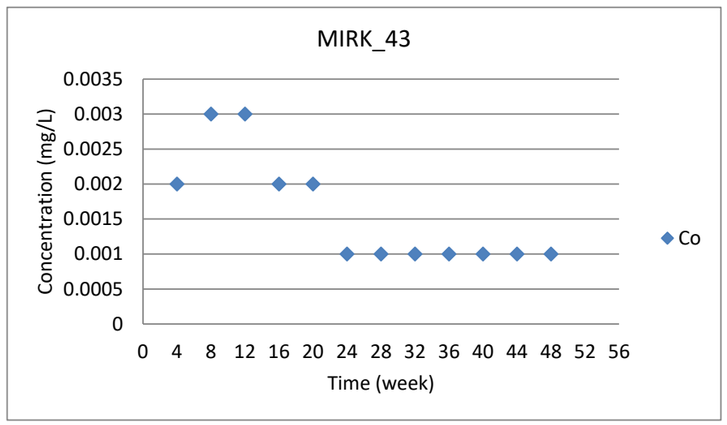

MIRK_43
Concentration (mg/L)
90
80
70
60
50
40
30
20
10
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Alkalinity

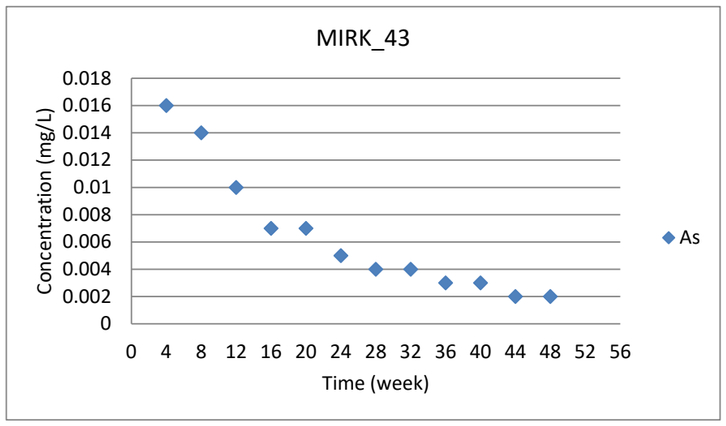

MIRK_43
Concentration (mg/L)
6.2
6
5.8
5.6
5.4
5.2
5
4.8
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Acidity

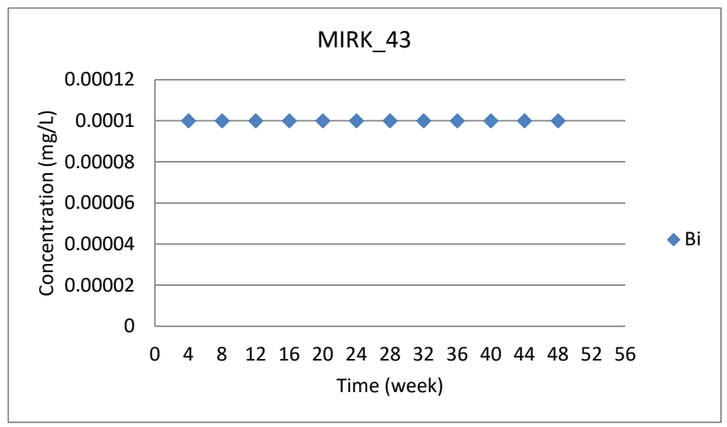

MIRK_43
Concentration (mg/L)
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ag

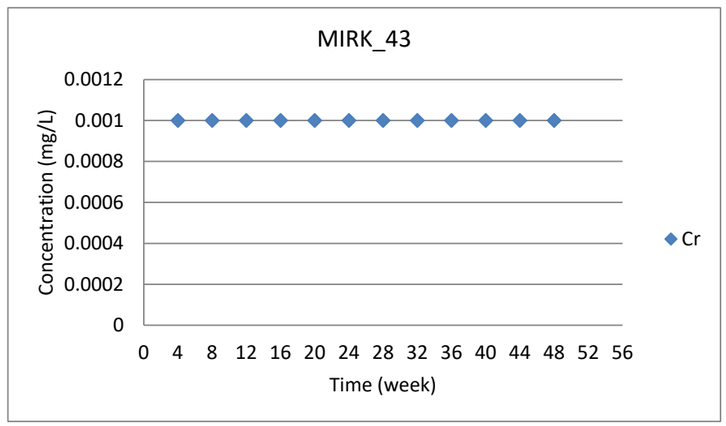

MIRK_43
Concentration (mg/L)
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Al

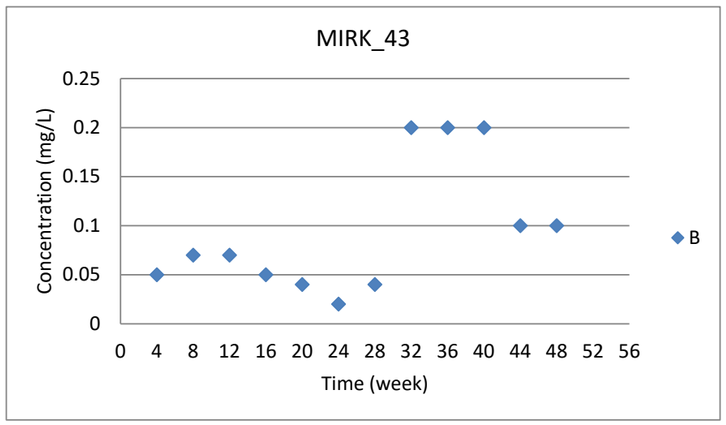

MIRK_43
Concentration (mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ba

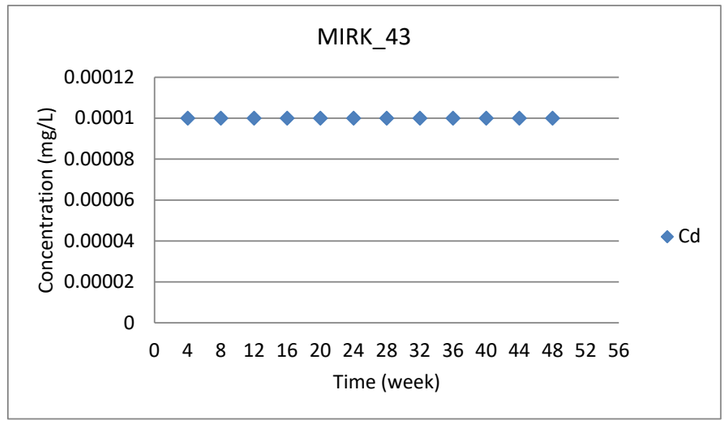

MIRK_43
Concentration (mg/L)
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Co

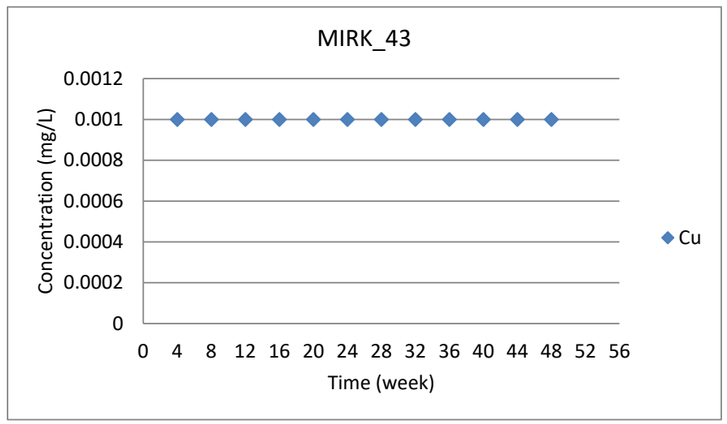

MIRK_43
Concentration (mg/L)
0.018
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
As

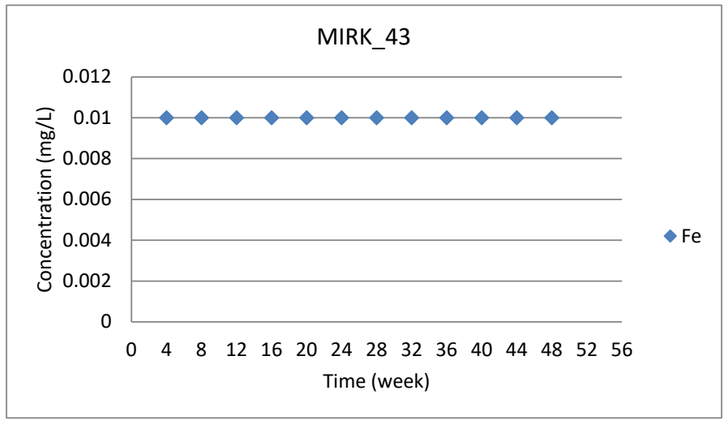

MIRK_43
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Bi

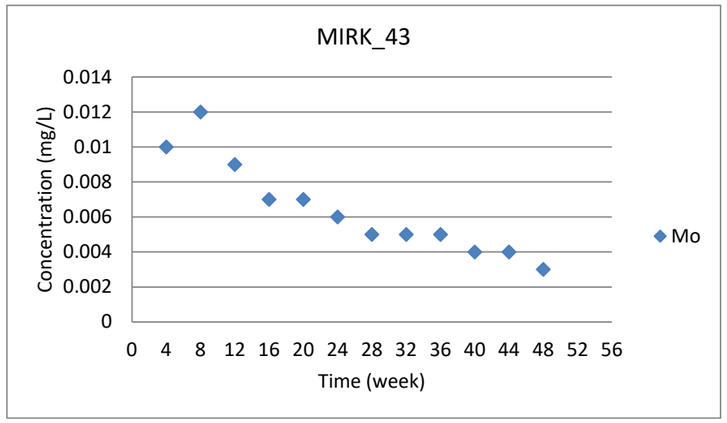

MIRK_43
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cr

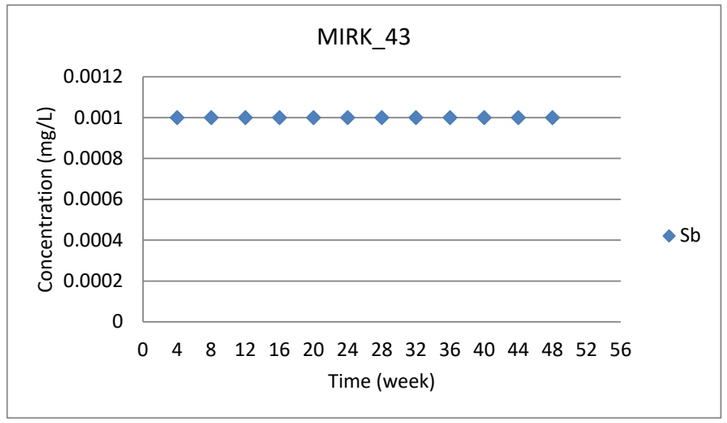

MIRK_43
Concentration (mg/L)
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
B

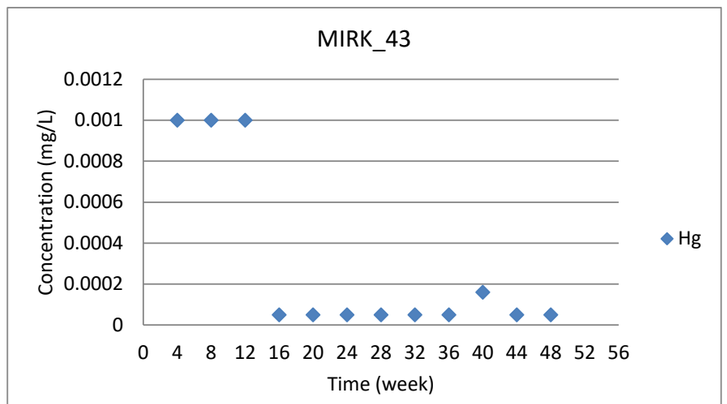

MIRK_43
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cd

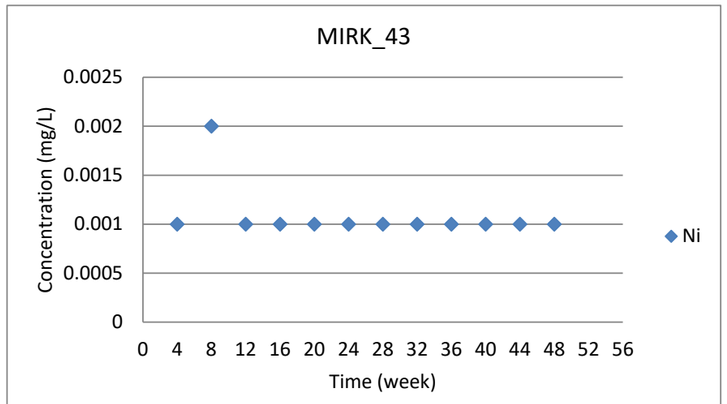

MIRK_43
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cu

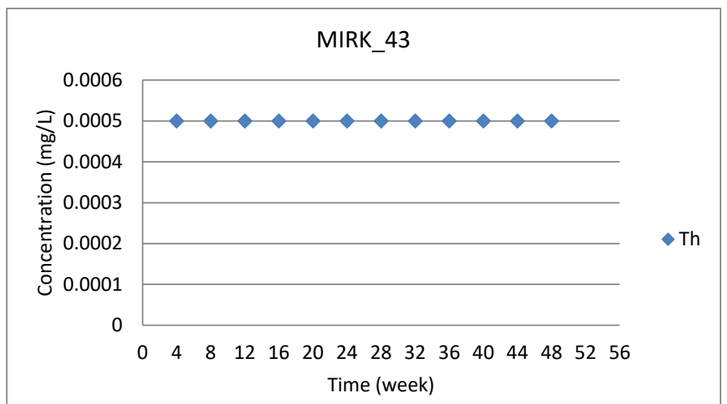

MIRK_43
Concentration (mg/L)
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Fe

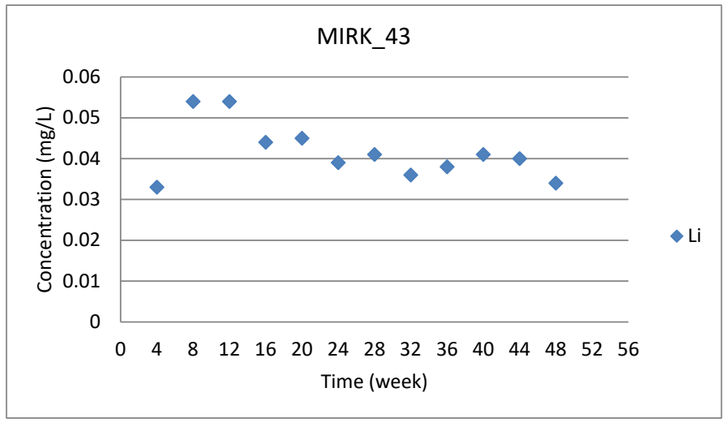

MIRK_43
Concentration (mg/L)
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mo

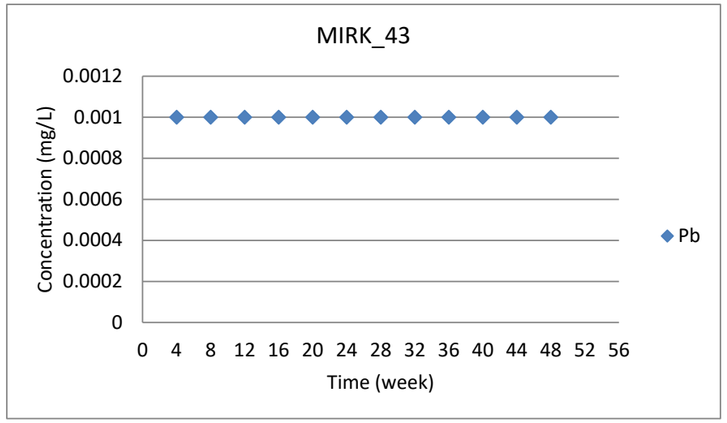

MIRK_43
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sb

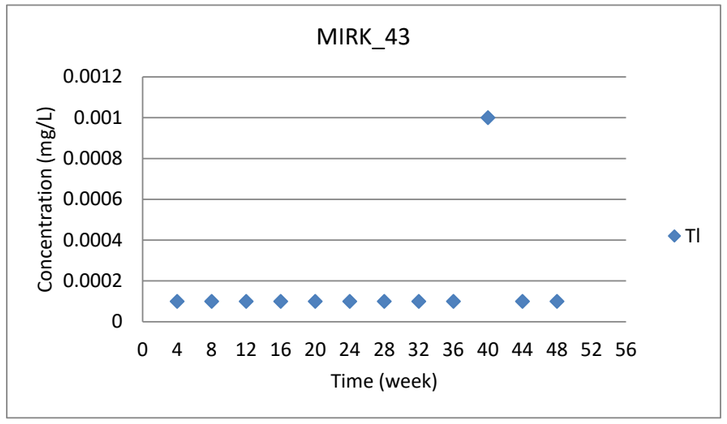

MIRK_43
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Hg

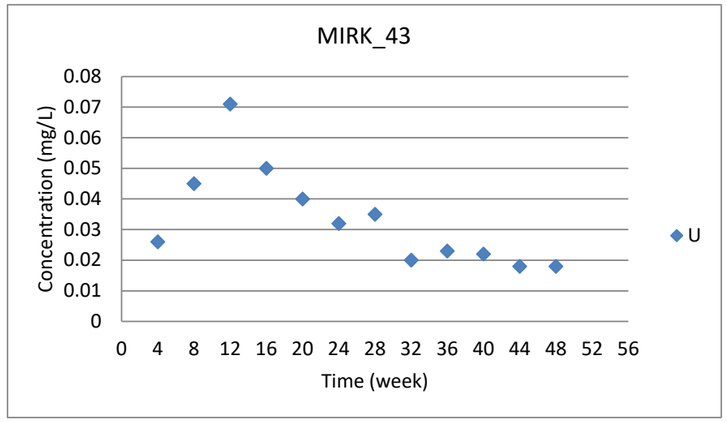

MIRK_43
Concentration (mg/L)
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ni

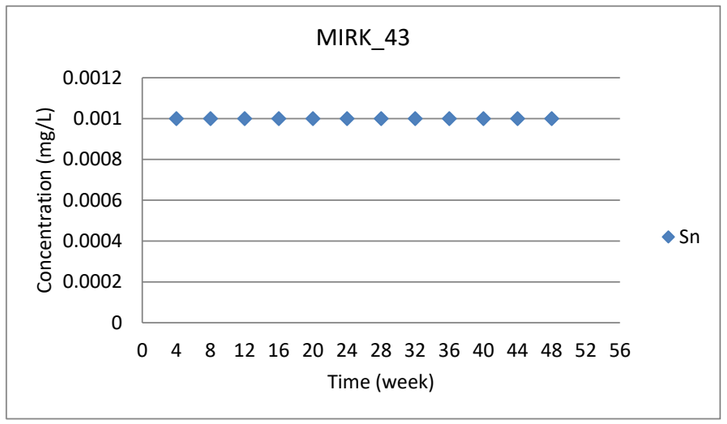

MIRK_43
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Th

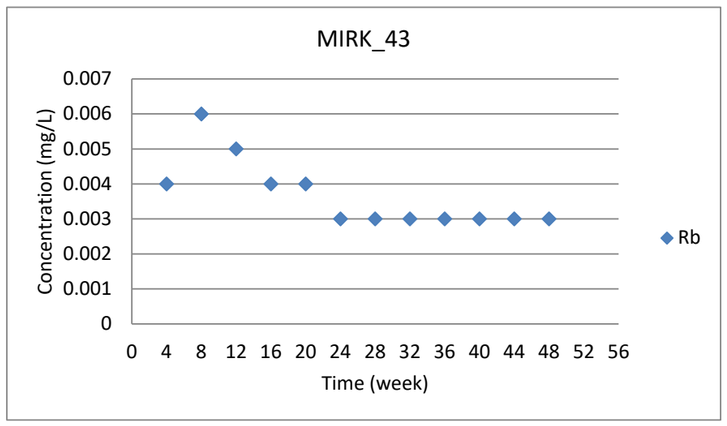

MIRK_43
Concentration (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Li

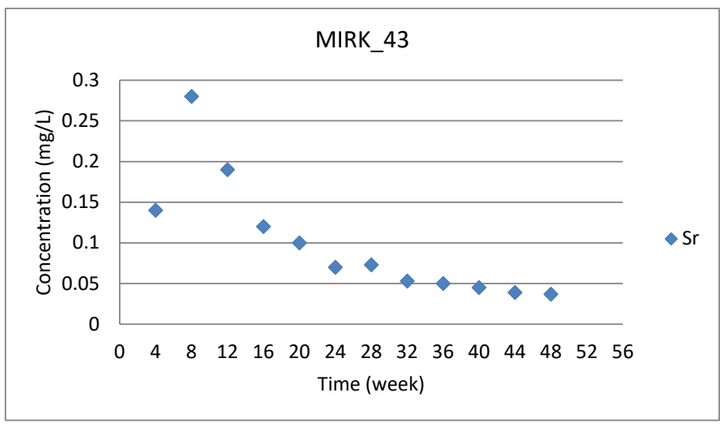

MIRK_43
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Pb

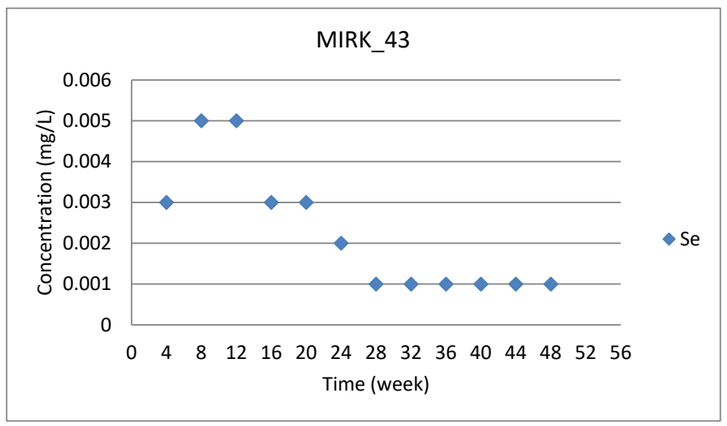

MIRK_43
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Tl

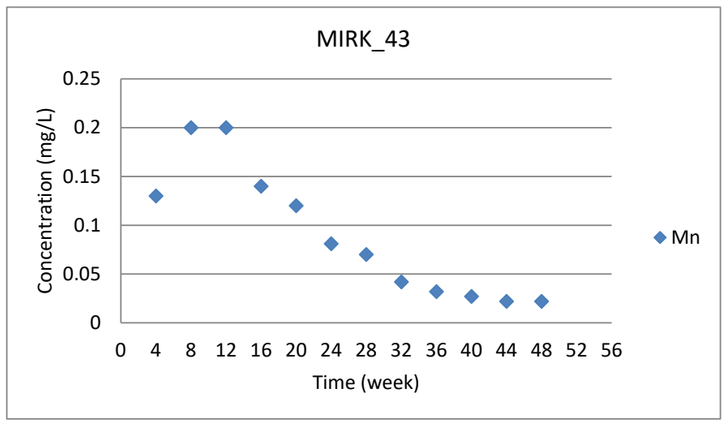

MIRK_43
Concentration (mg/L)
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
U


MIRK_43
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sn

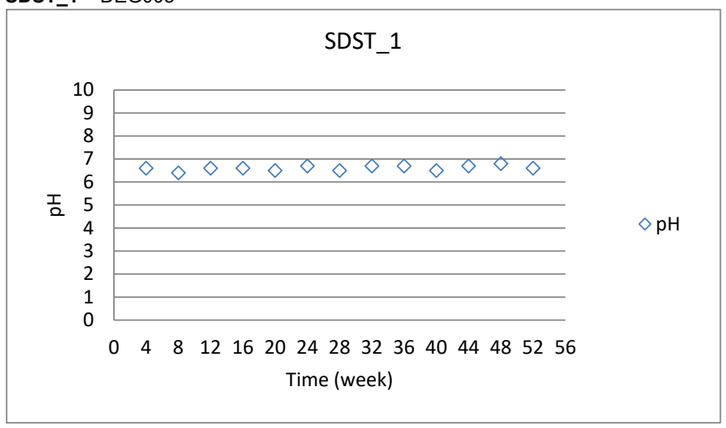

MIRK_43
Concentration (mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Rb

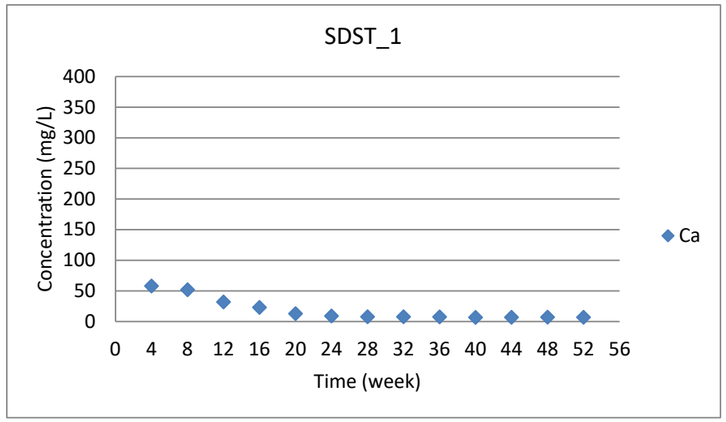

MIRK_43
Concentration (mg/L)
0.3
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sr

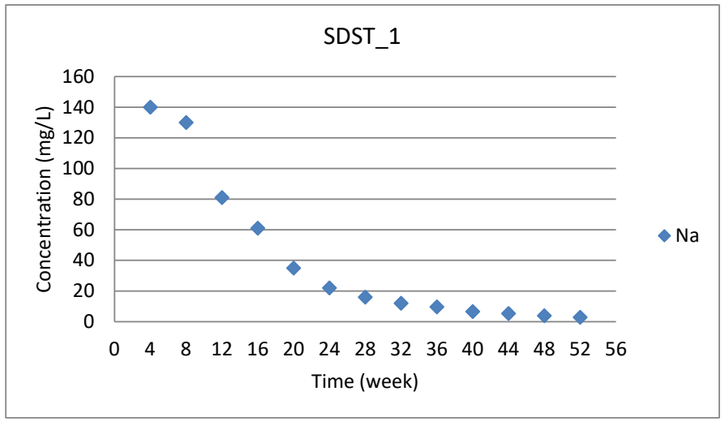

MIRK_43
Concentration (mg/L)
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Se

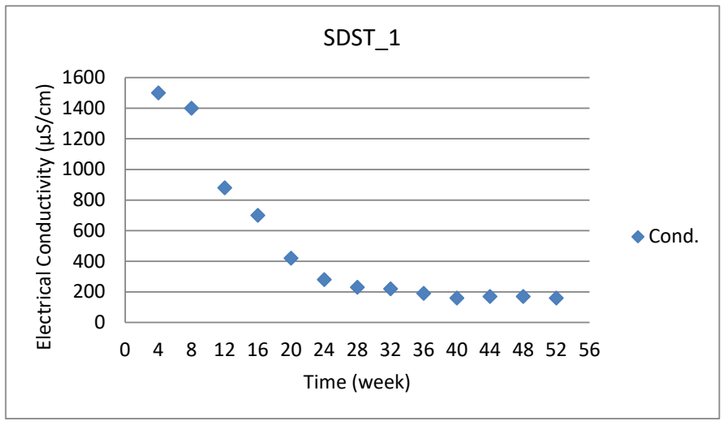

MIRK_43
Concentration (mg/L)
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mn

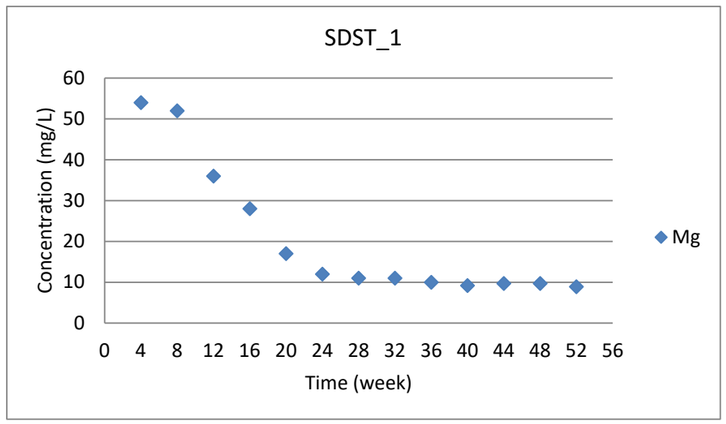
SDST_1 DEG003

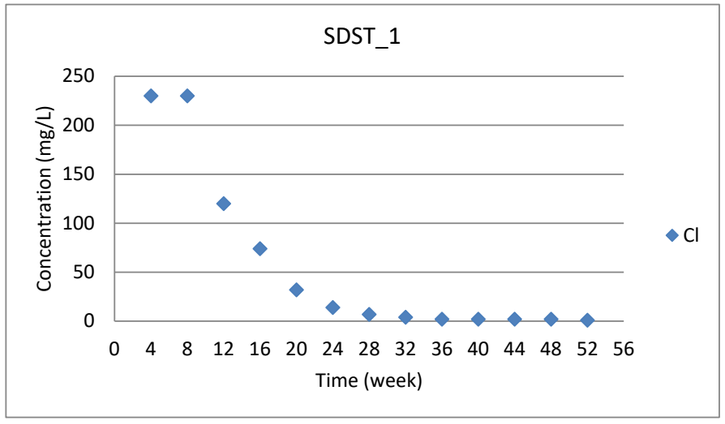


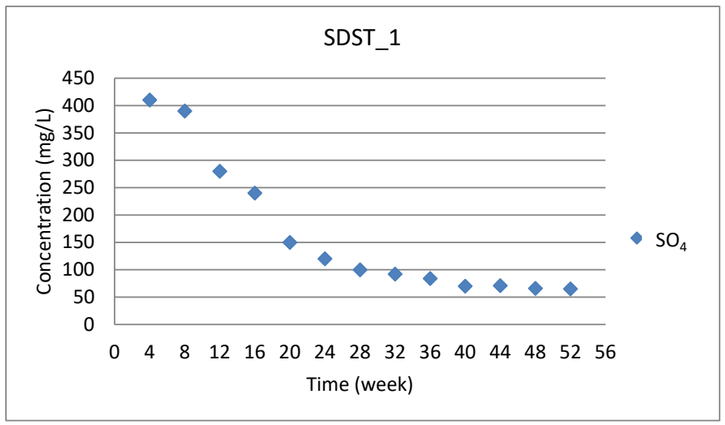


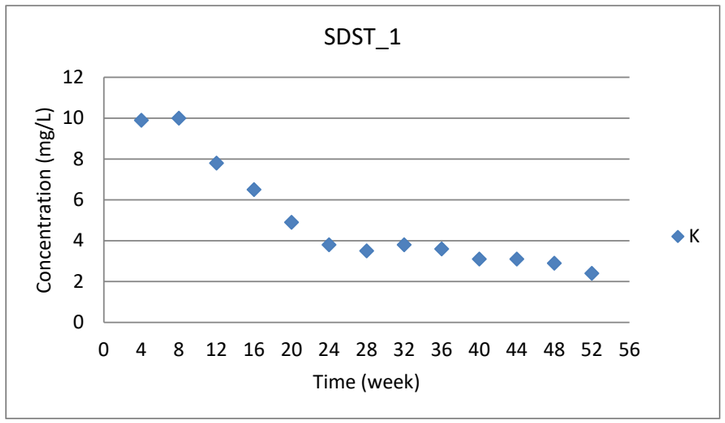


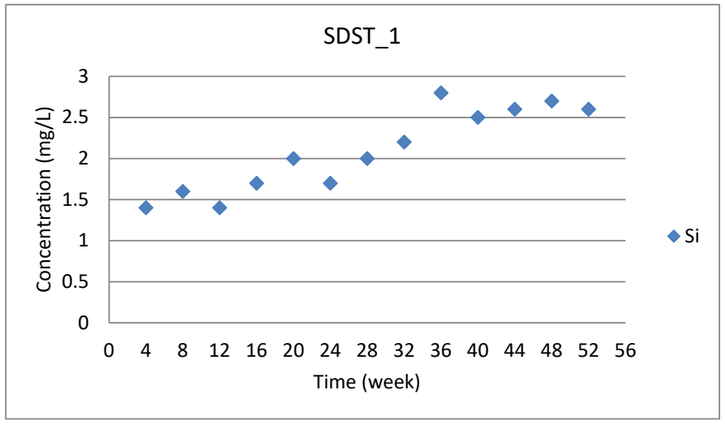


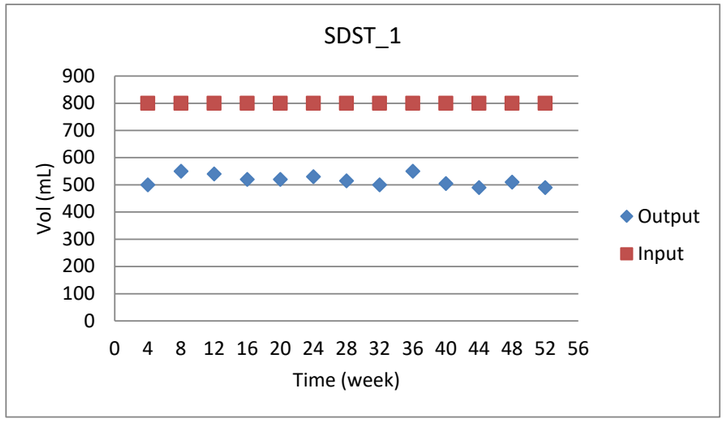


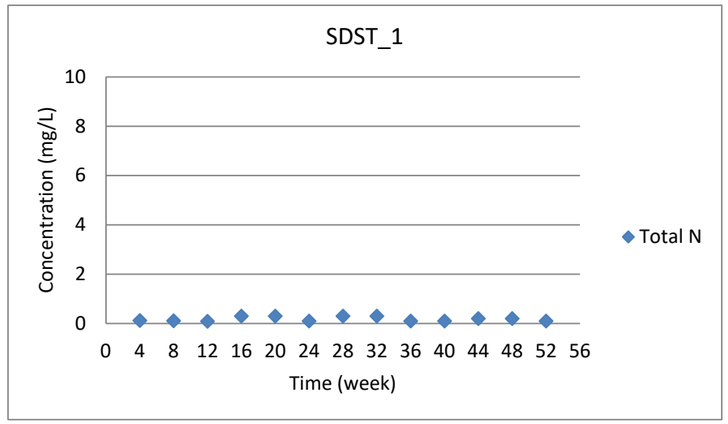


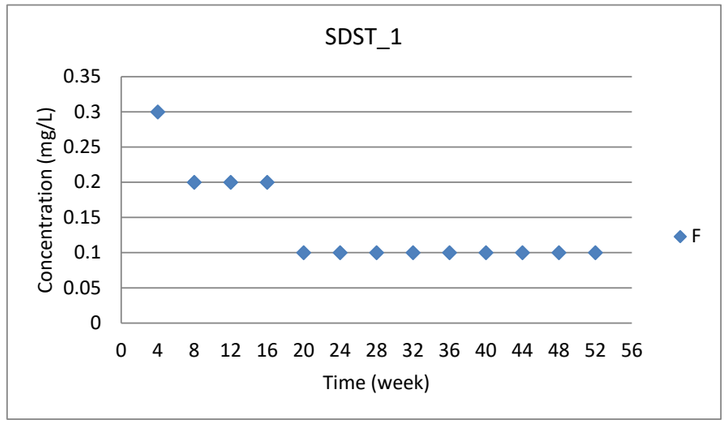


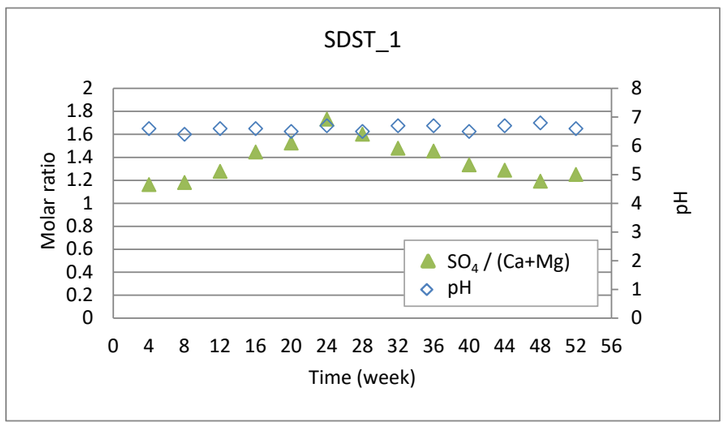


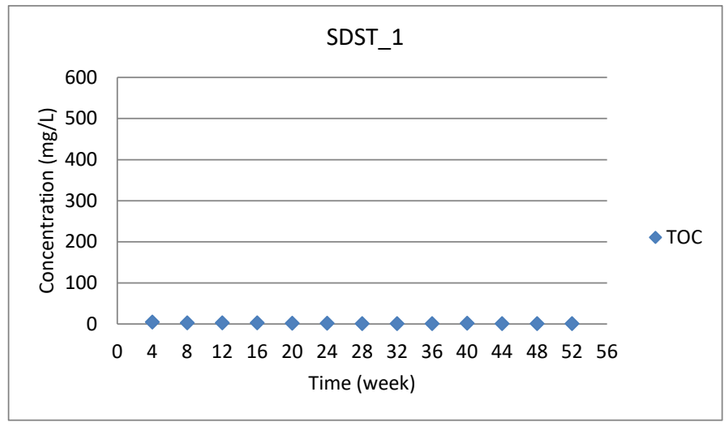


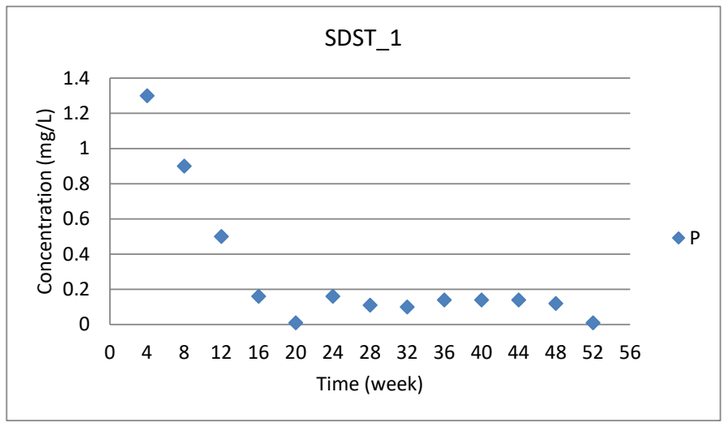

SDST_1
Vol (mL)
900
800
700
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Output
Input

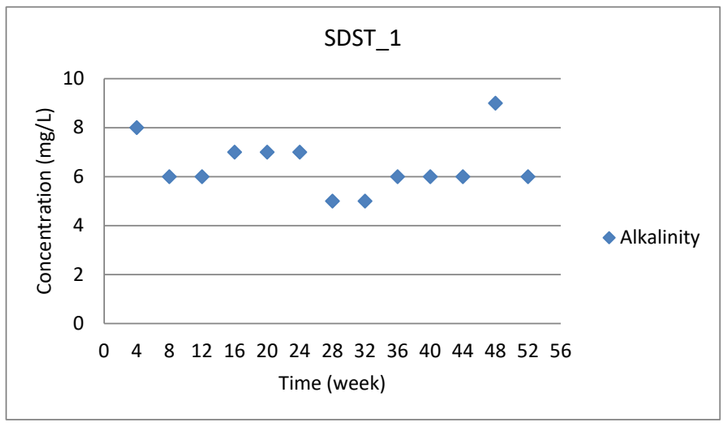

SDST_1
Concentration (mg/L)
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Total N

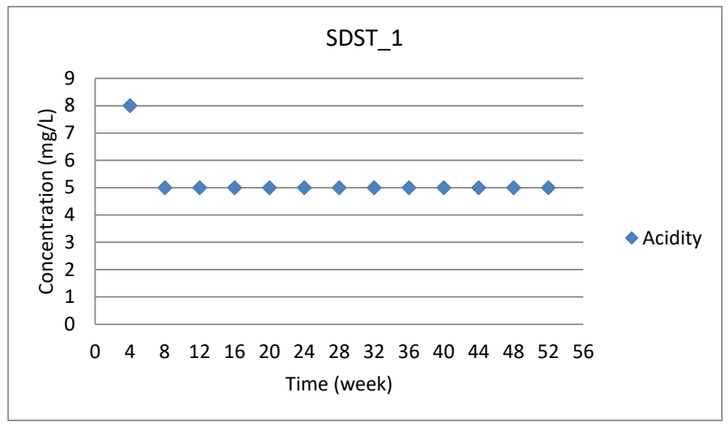

SDST_1
Concentration (mg/L)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
F

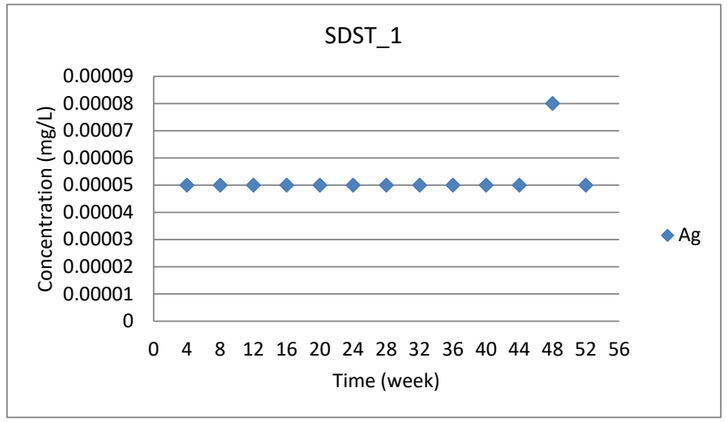

SDST_1
Molar ratio
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
pH
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
SO4 / (Ca+Mg)
pH

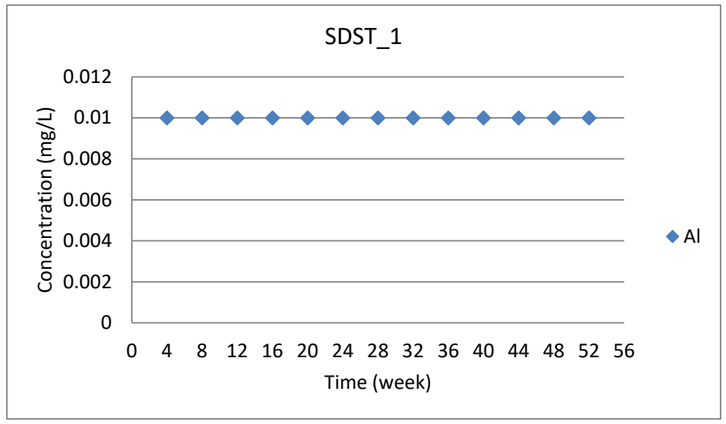

SDST_1
Concentration (mg/L)
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
TOC

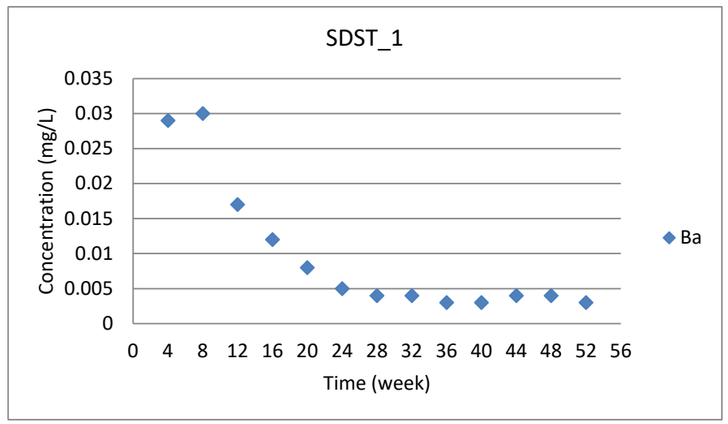

SDST_1
Concentration (mg/L)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
P

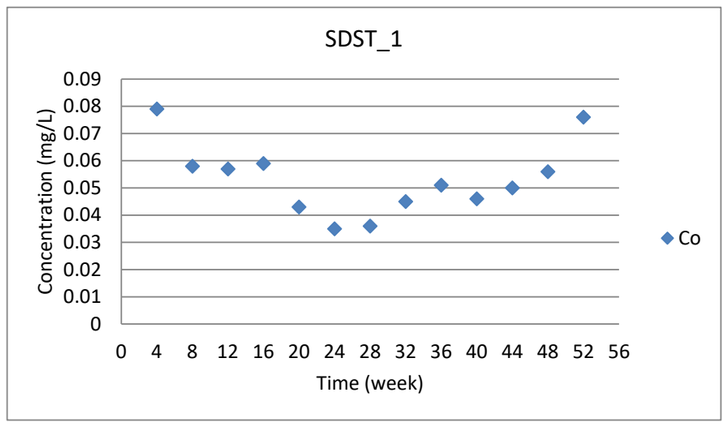

SDST_1
Concentration (mg/L)
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Alkalinity

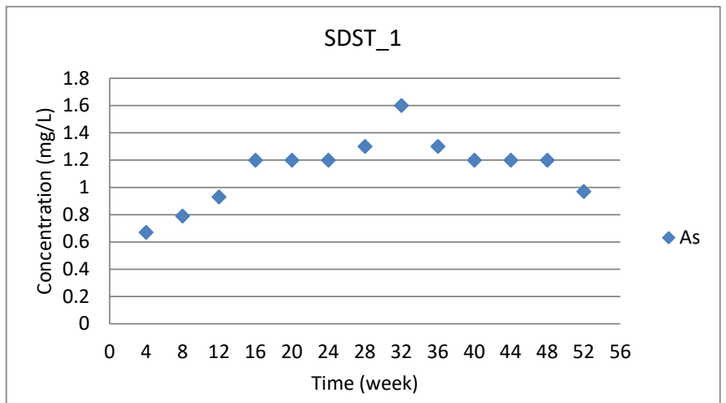

SDST_1
Concentration (mg/L)
9
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Acidity

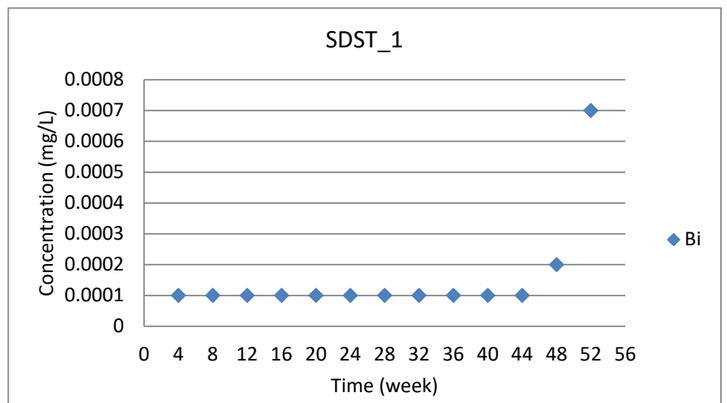

SDST_1
Concentration (mg/L)
0.00009
0.00008
0.00007
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ag

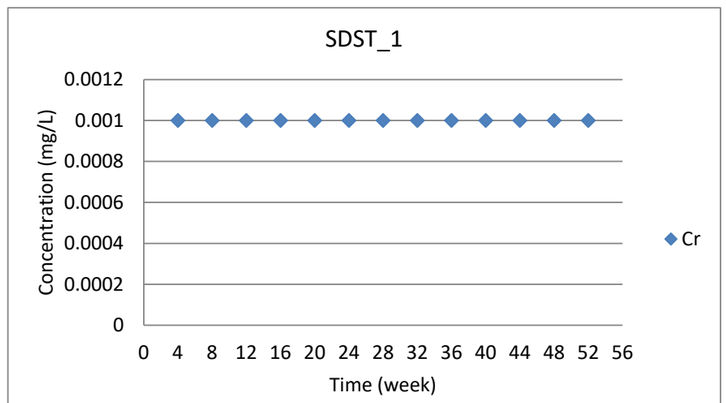

SDST_1
Concentration (mg/L)
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Al

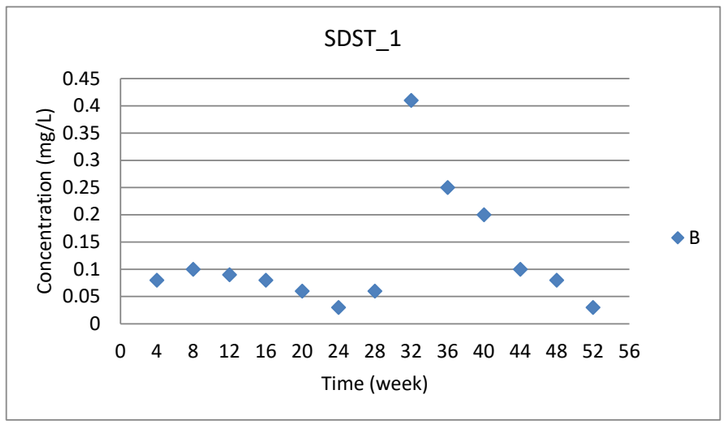

SDST_1
Concentration (mg/L)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ba

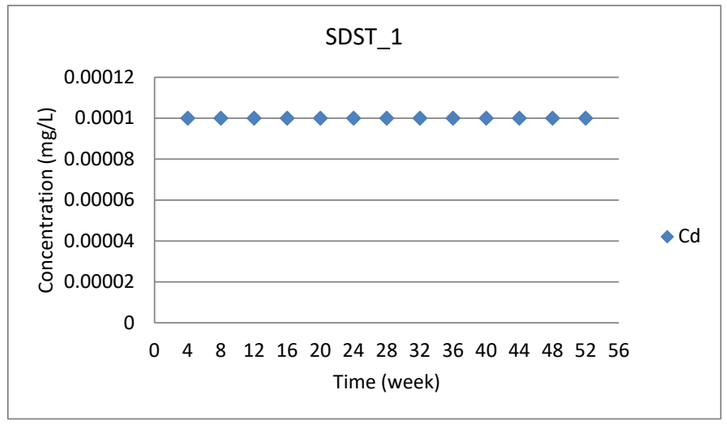

SDST_1
Concentration (mg/L)
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Co

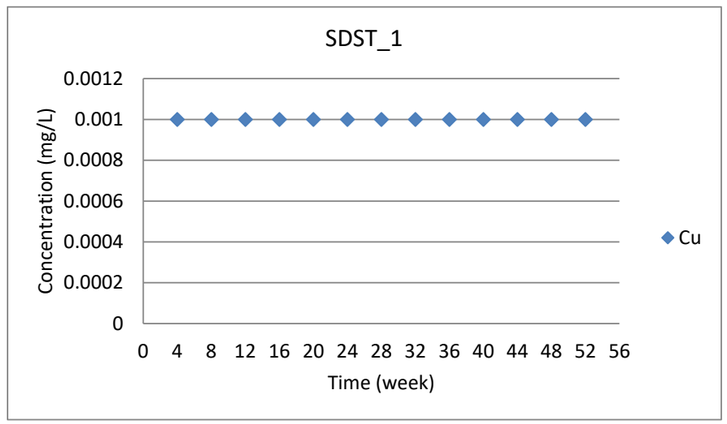

SDST_1
Concentration (mg/L)
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
As

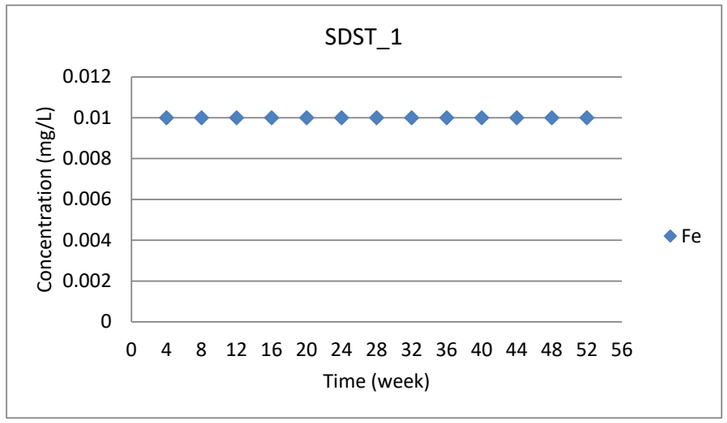

SDST_1
Concentration (mg/L)
0.0008
0.0007
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Bi

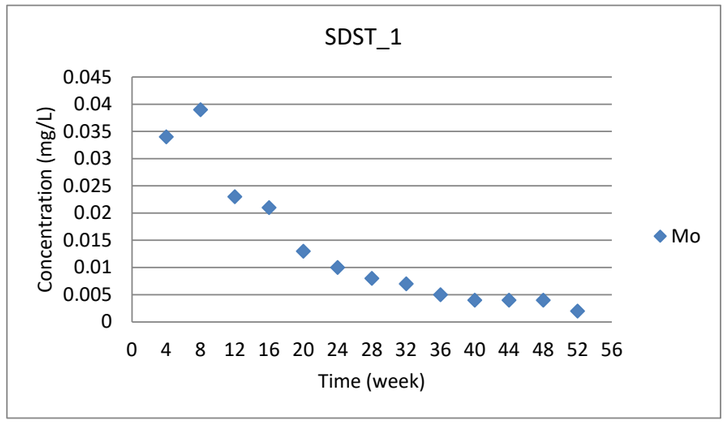

SDST_1
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cr

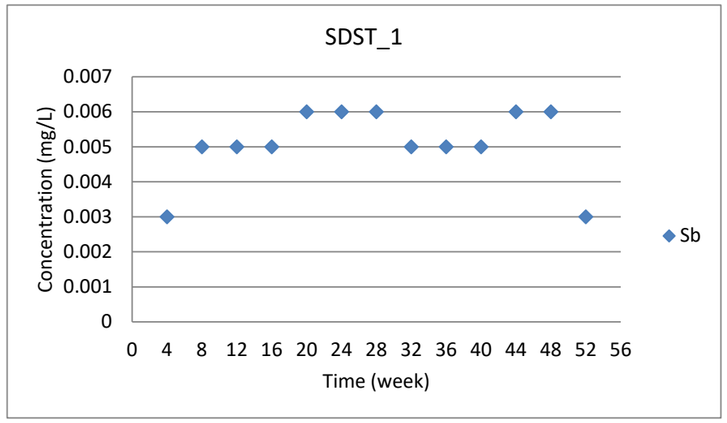

SDST_1
Concentration (mg/L)
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
B

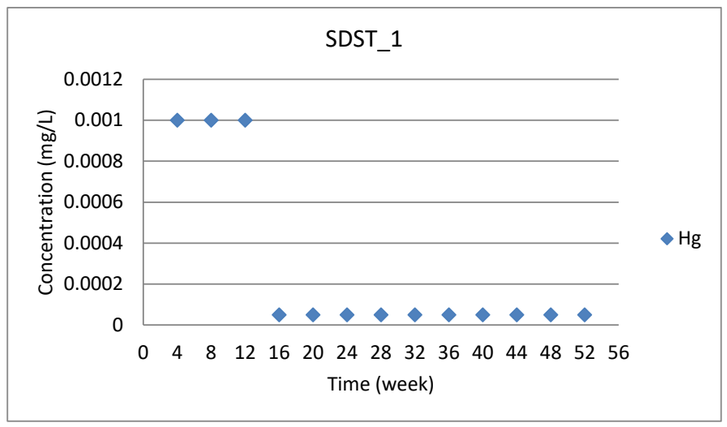

SDST_1
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cd

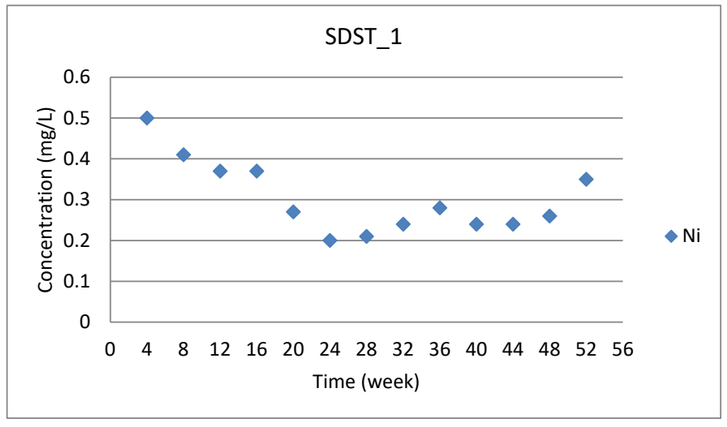

SDST_1
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cu

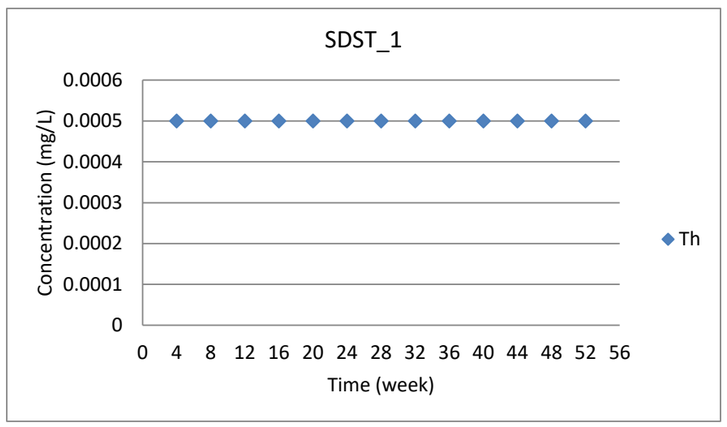

SDST_1
Concentration (mg/L)
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Fe

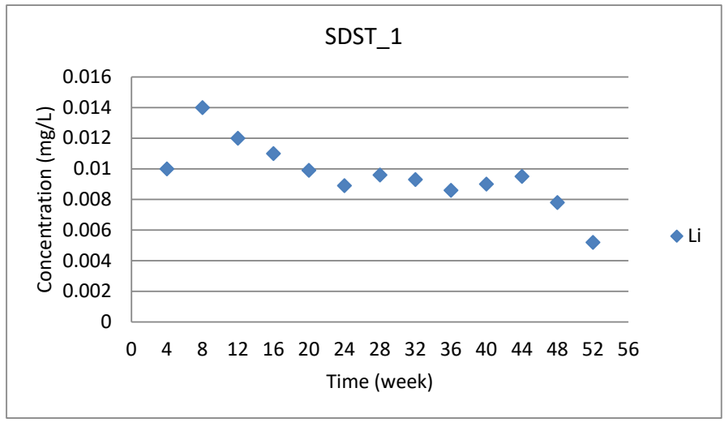

SDST_1
Concentration (mg/L)
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mo

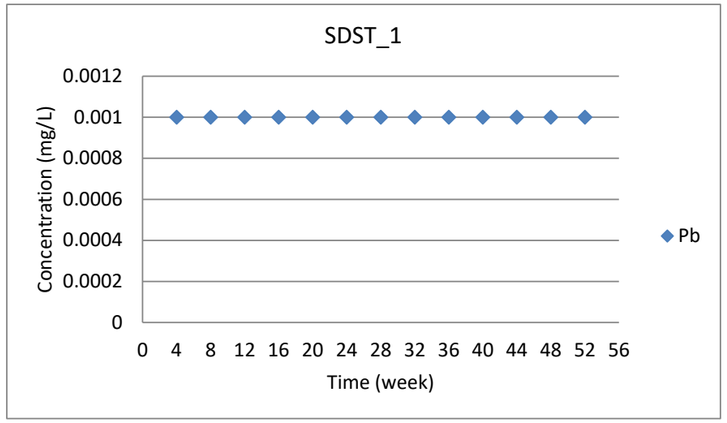

SDST_1
Concentration (mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sb

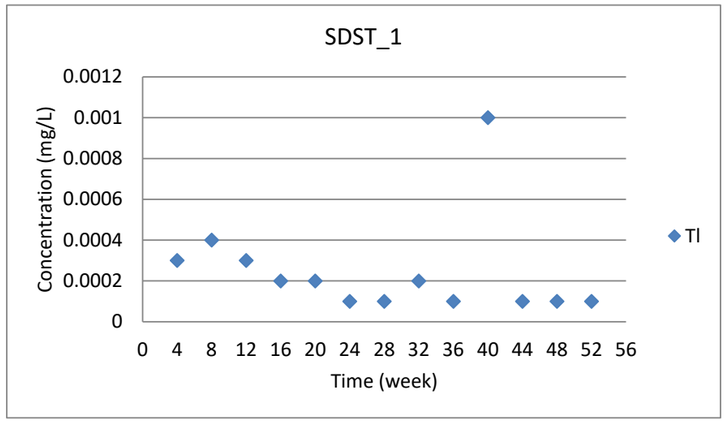

SDST_1
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Hg

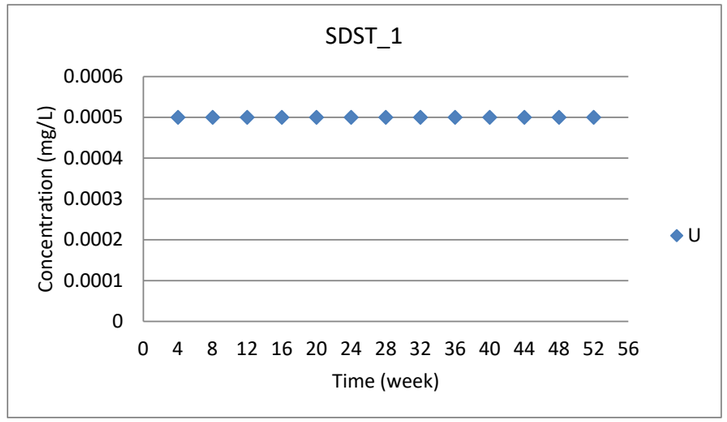

SDST_1
Concentration (mg/L)
0.6
0.5
0.4
0.3
0.2
0.1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ni

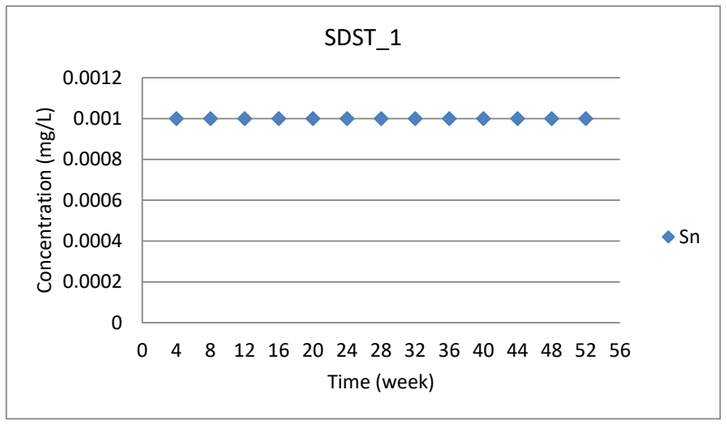

SDST_1
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Th

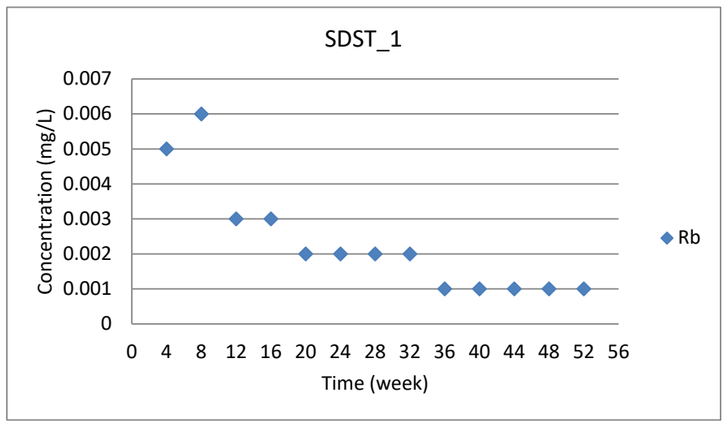

SDST_1
Concentration (mg/L)
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Li

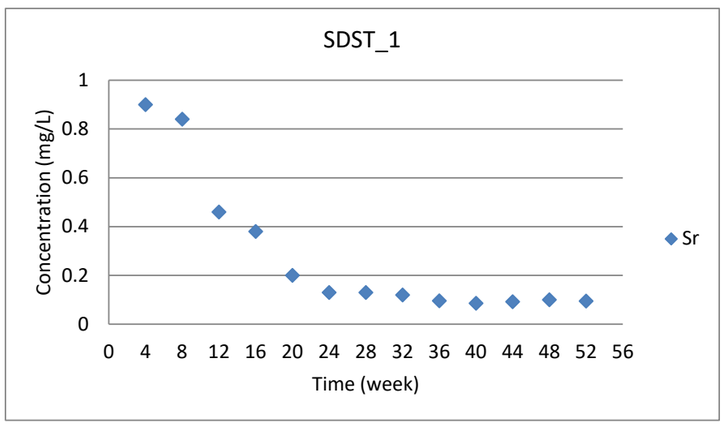

SDST_1
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Pb

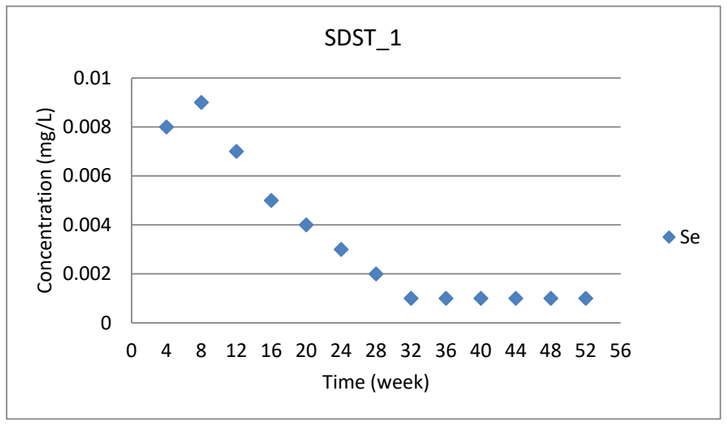

SDST_1
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Tl

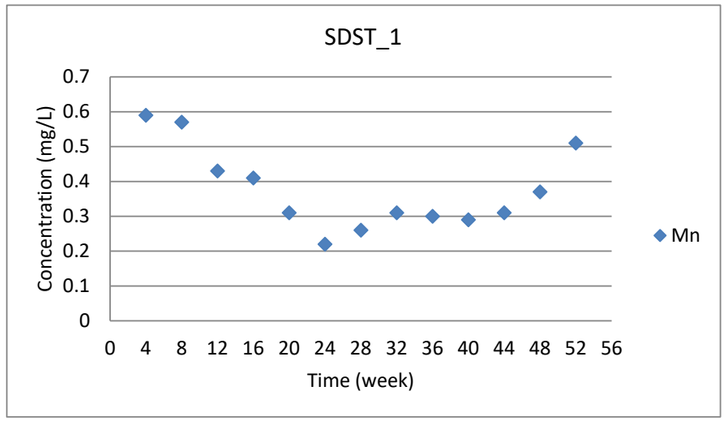

SDST_1
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
U


SDST_1
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sn

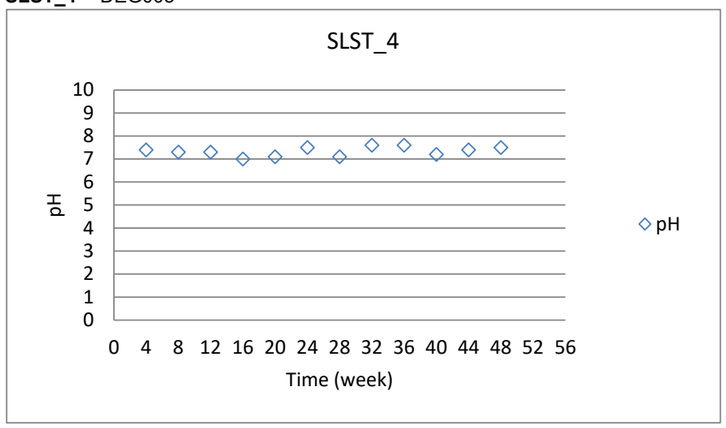

SDST_1
Concentration (mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Rb

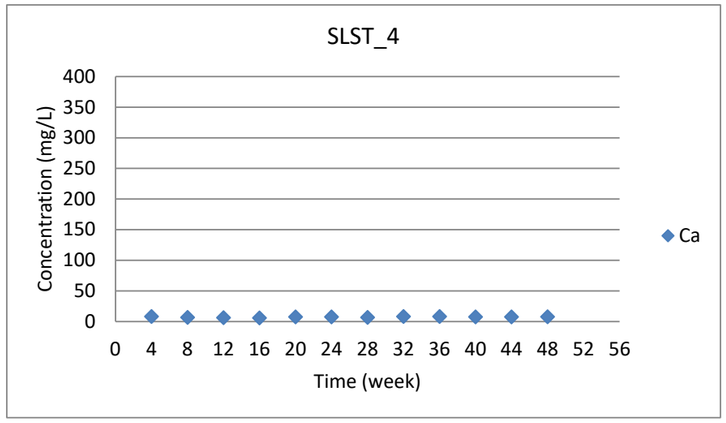

SDST_1
Concentration (mg/L)
1
0.8
0.6
0.4
0.2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sr

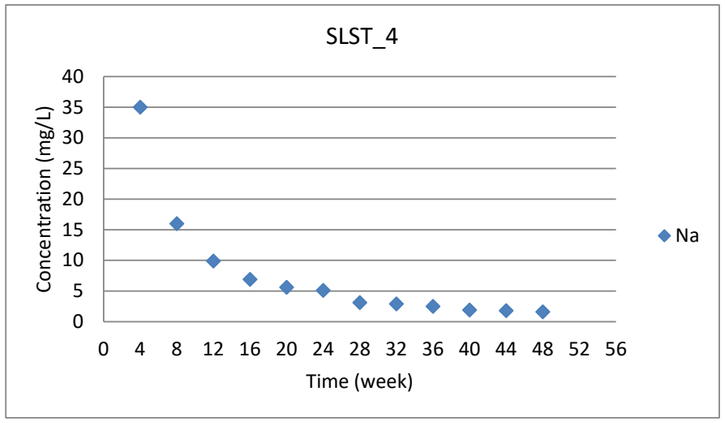

SDST_1
Concentration (mg/L)
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Se

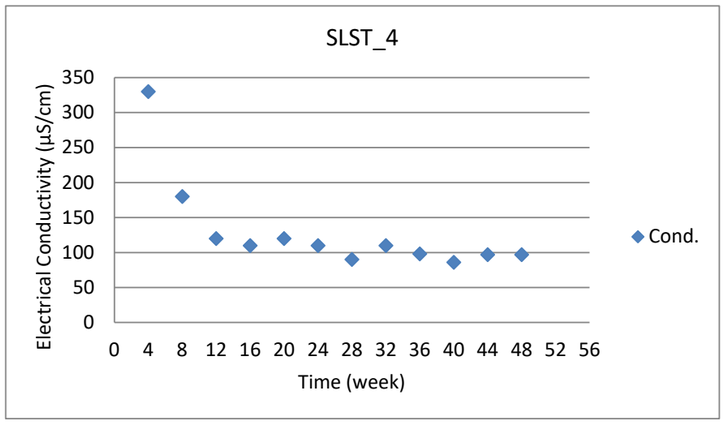

SDST_1
Concentration (mg/L)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mn

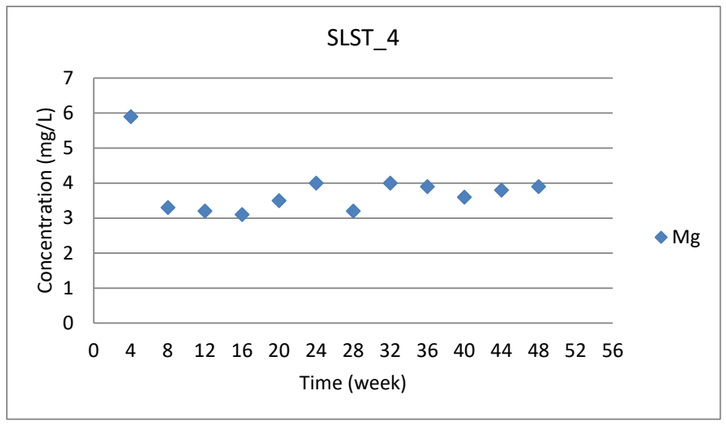
SLST_4 DEG003

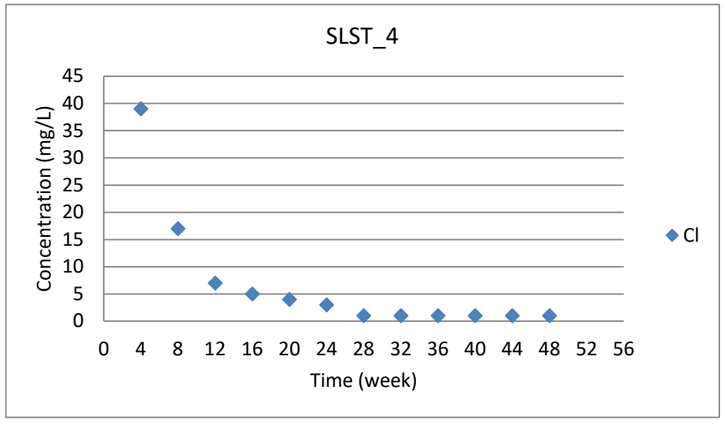


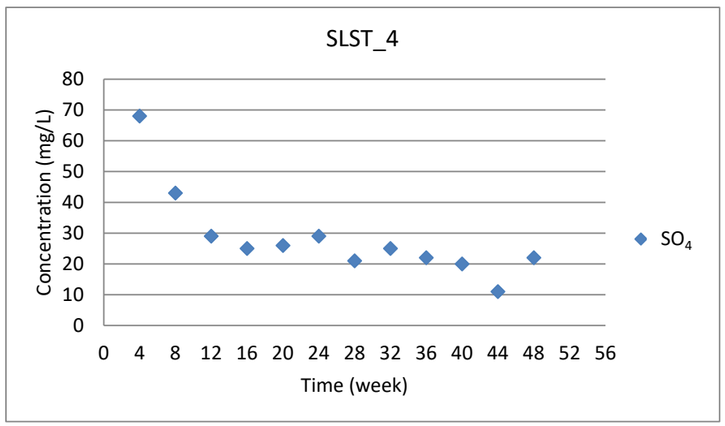


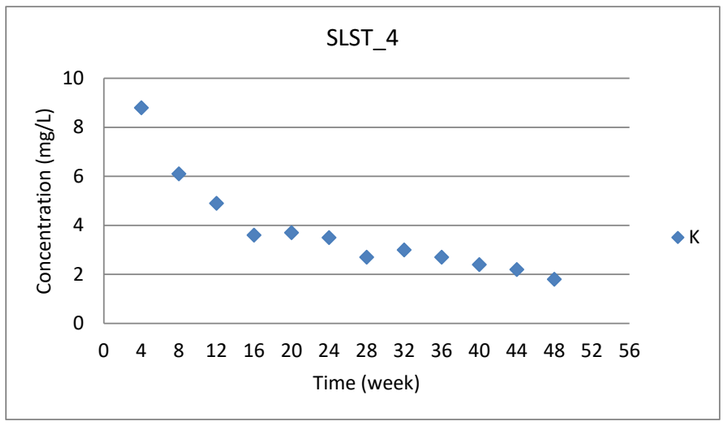


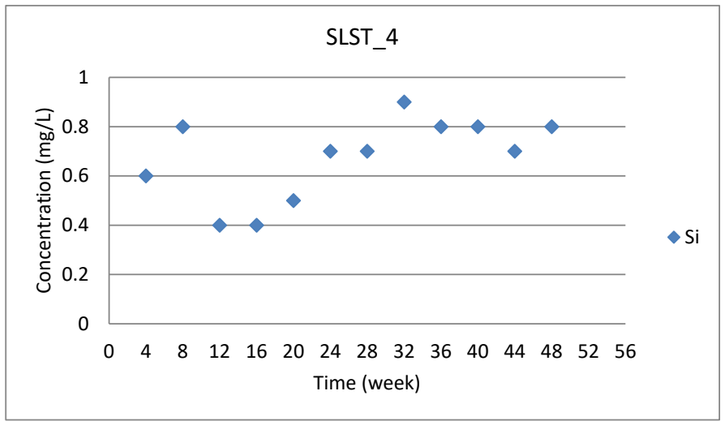


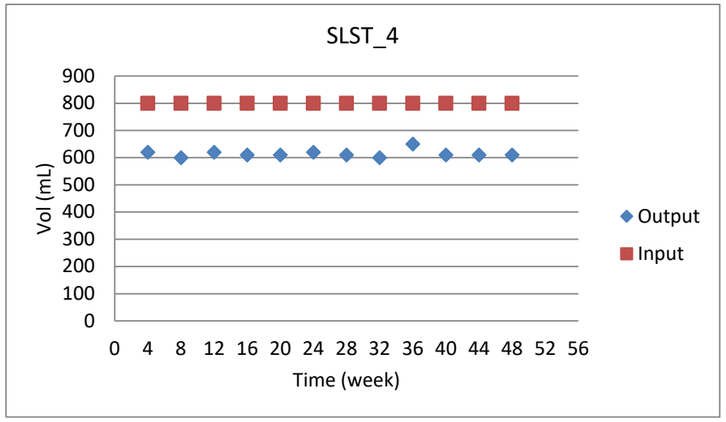


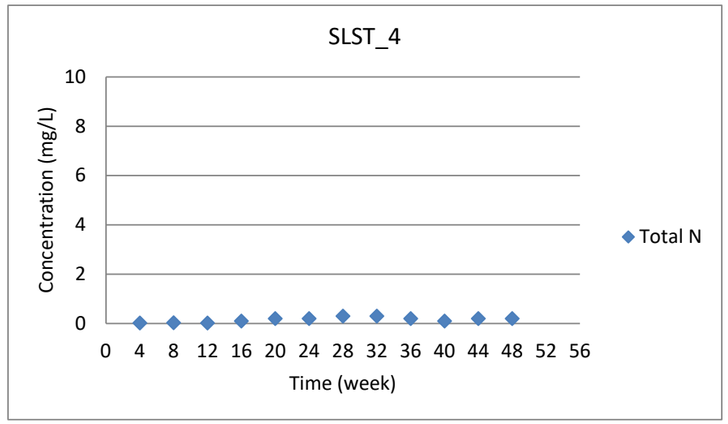


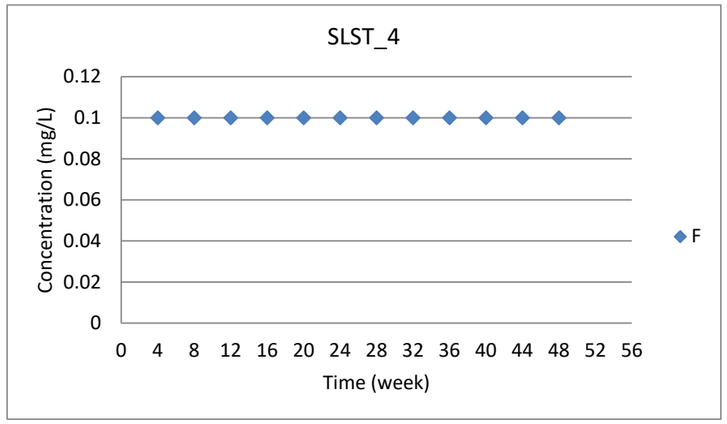


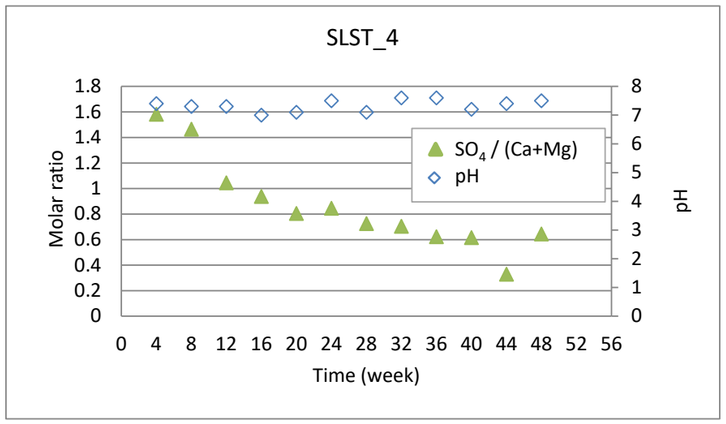


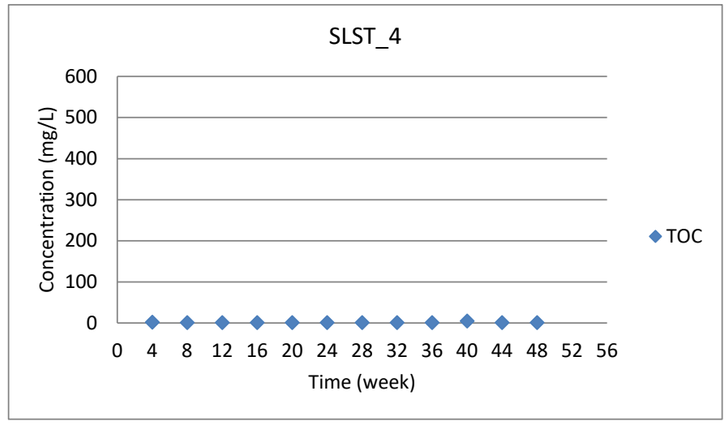


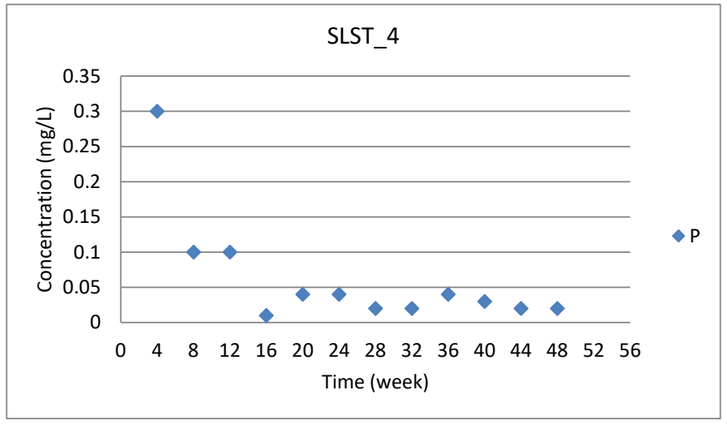

SLST_4
Vol (mL)
900
800
700
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Output
Input

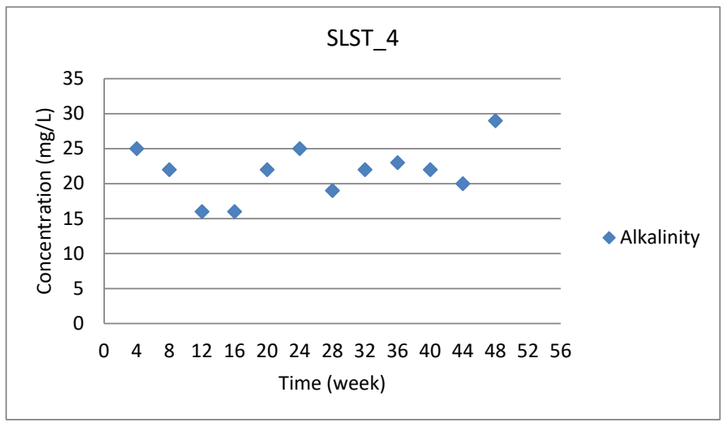

SLST_4
Concentration (mg/L)
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Total N

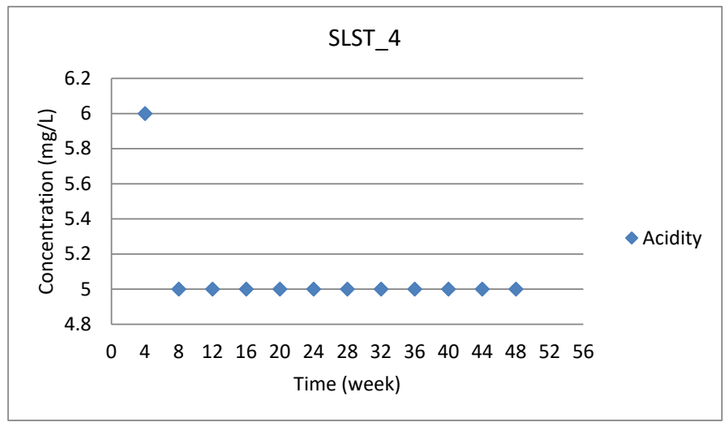

SLST_4
Concentration (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
F

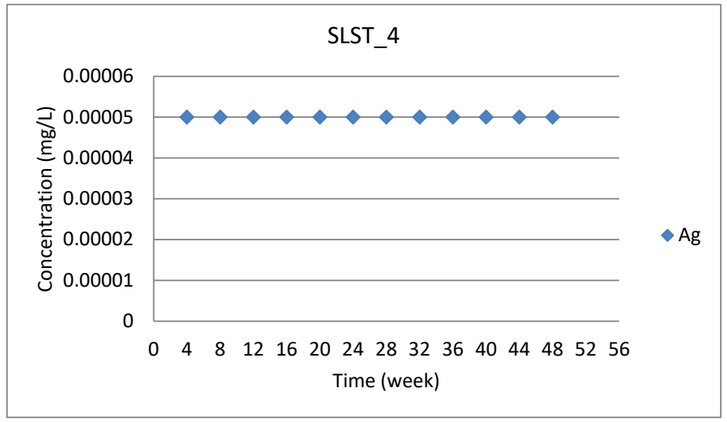

SLST_4
Molar ratio
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
pH
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
SO4 / (Ca+Mg)
pH

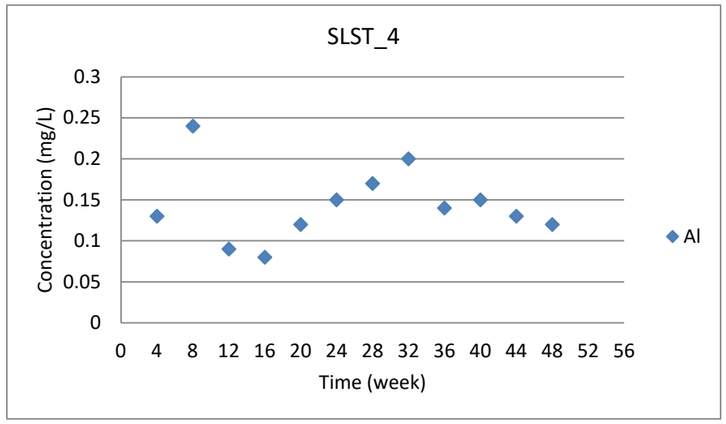

SLST_4
Concentration (mg/L)
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
TOC

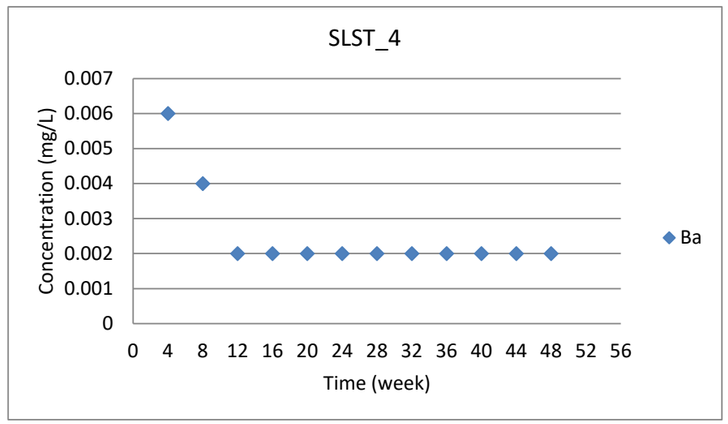

SLST_4
Concentration (mg/L)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
P

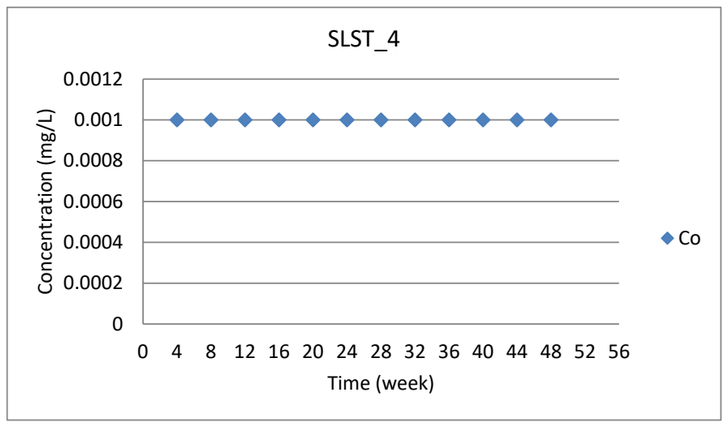

SLST_4
Concentration (mg/L)
35
30
25
20
15
10
5
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Alkalinity

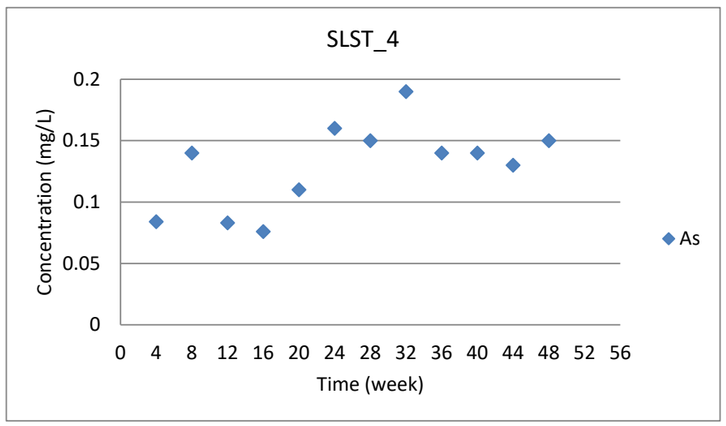

SLST_4
Concentration (mg/L)
6.2
6
5.8
5.6
5.4
5.2
5
4.8
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Acidity

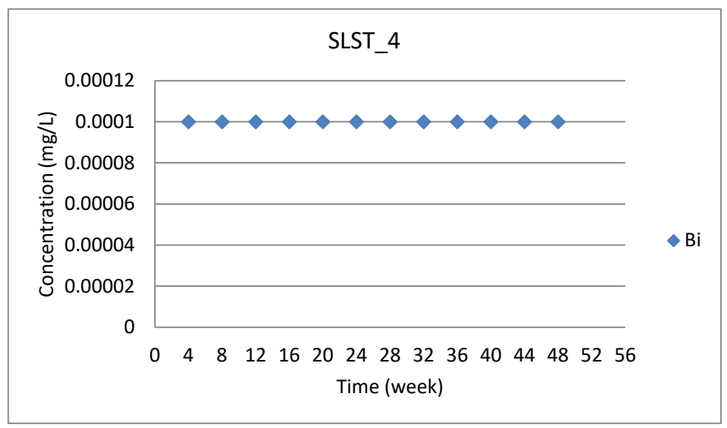

SLST_4
Concentration (mg/L)
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ag

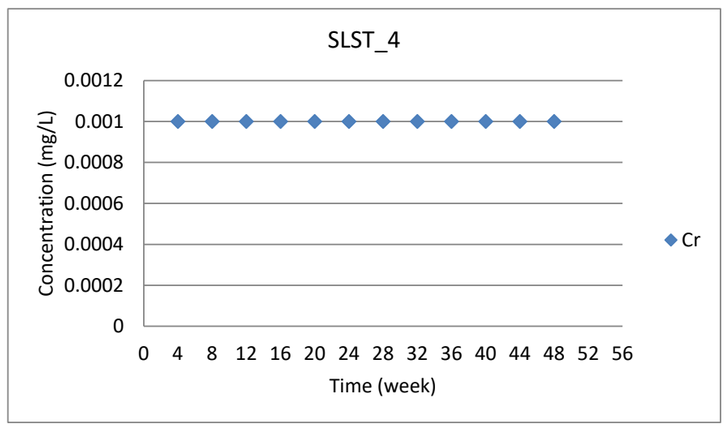

SLST_4
Concentration (mg/L)
0.3
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Al

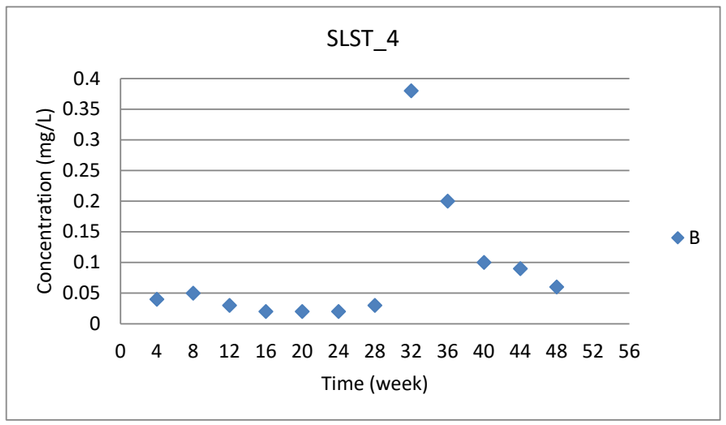

SLST_4
Concentration (mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ba

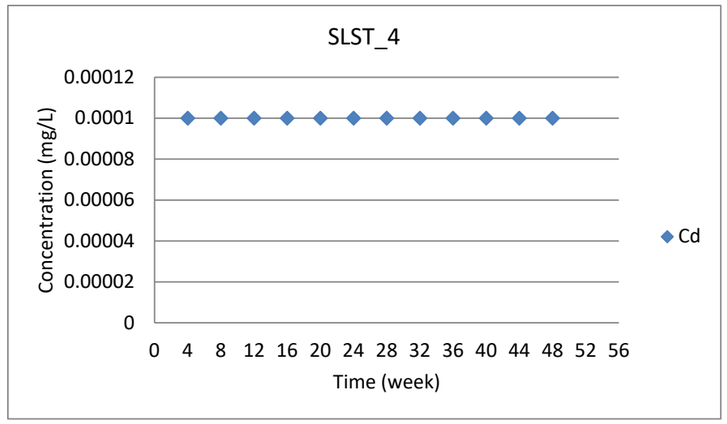

SLST_4
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Co

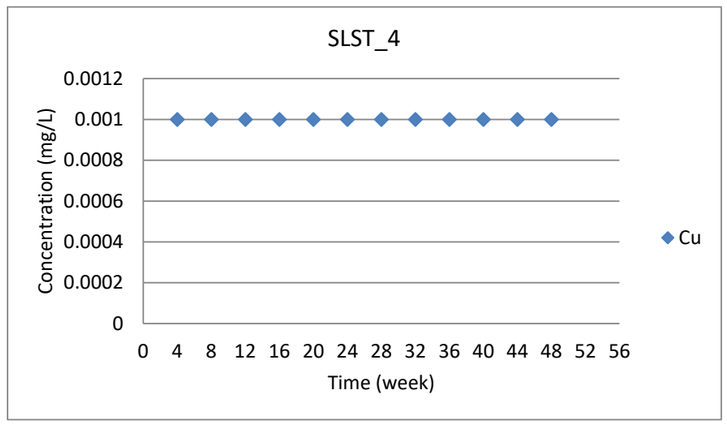

SLST_4
Concentration (mg/L)
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
As

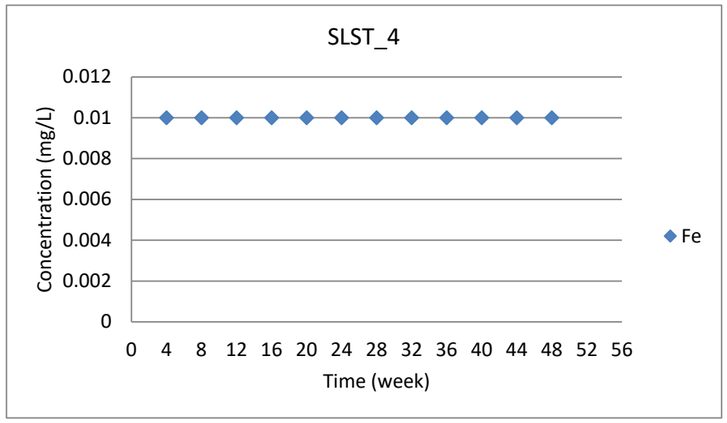

SLST_4
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Bi

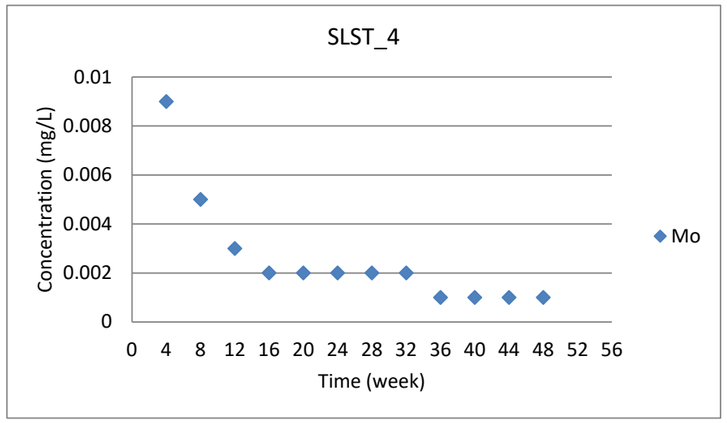

SLST_4
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cr

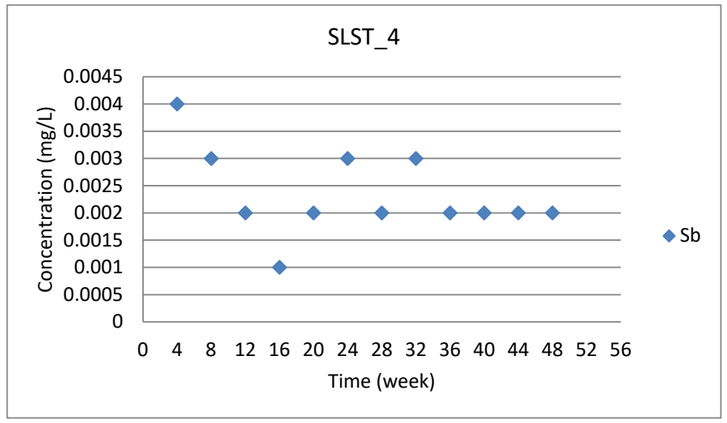

SLST_4
Concentration (mg/L)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
B

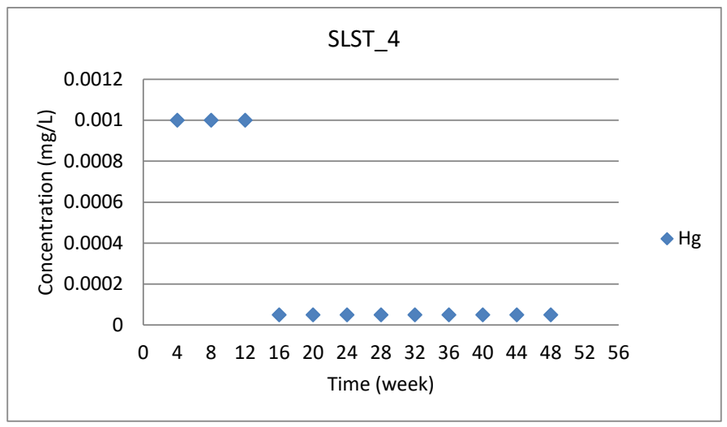

SLST_4
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cd

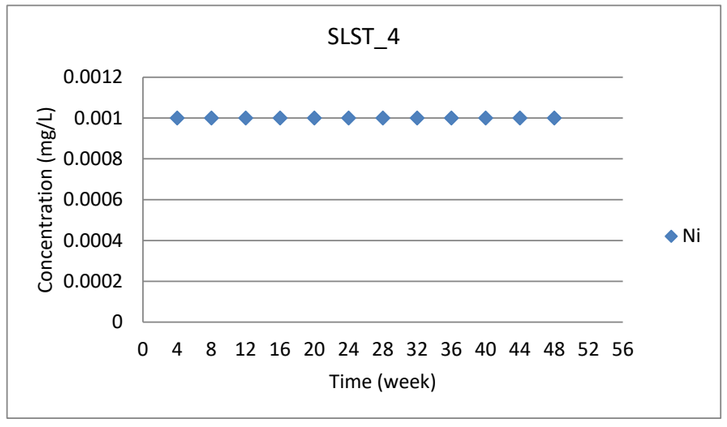

SLST_4
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cu

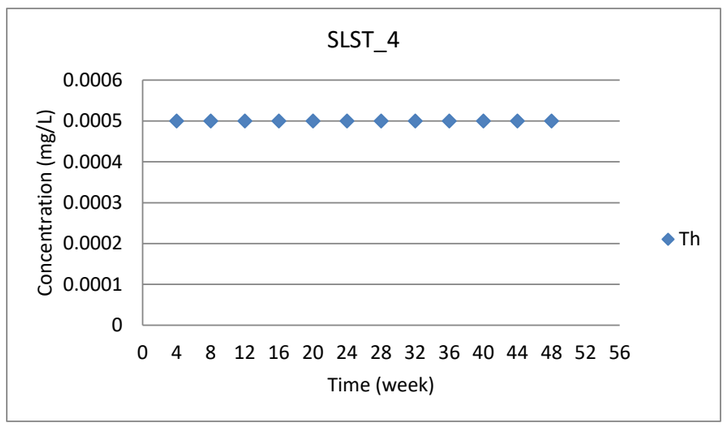

SLST_4
Concentration (mg/L)
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Fe

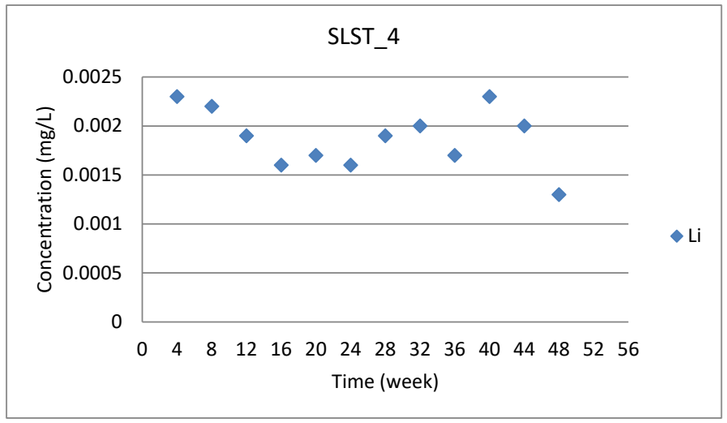

SLST_4
Concentration (mg/L)
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mo

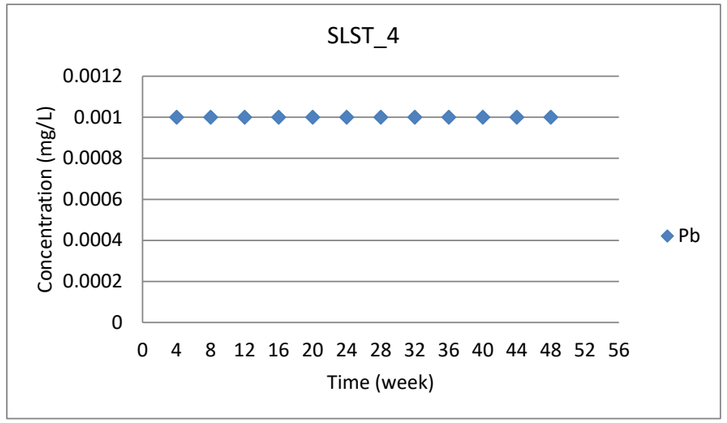

SLST_4
Concentration (mg/L)
0.0045
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sb

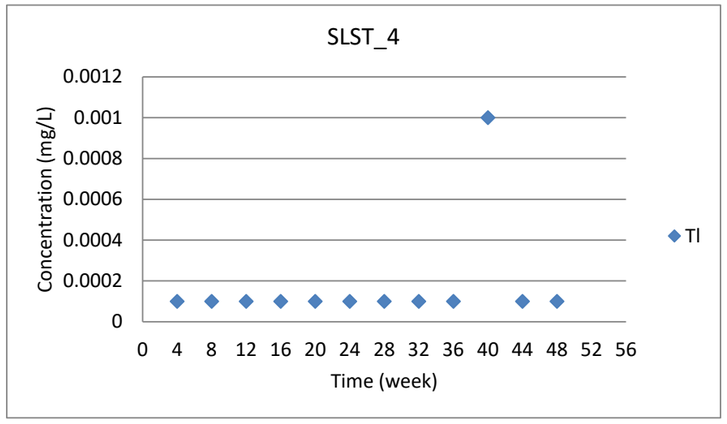

SLST_4
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Hg

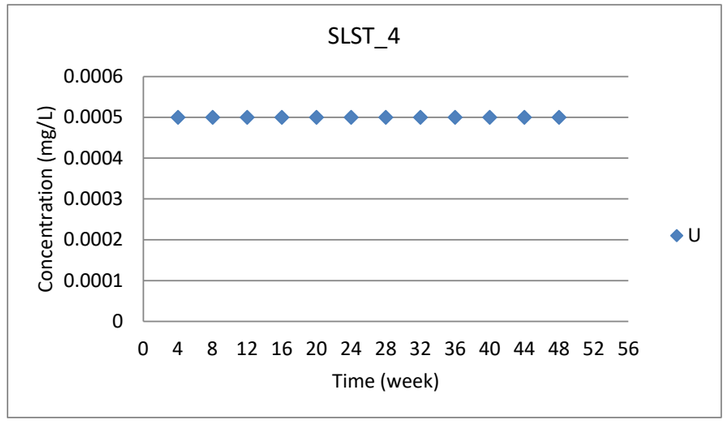

SLST_4
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ni

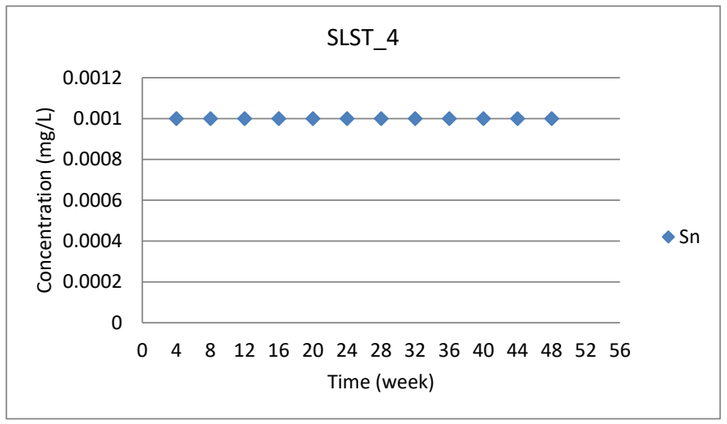

SLST_4
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Th

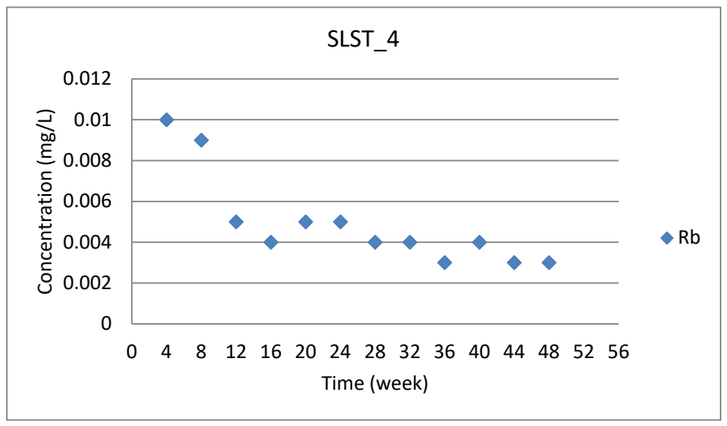

SLST_4
Concentration (mg/L)
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Li

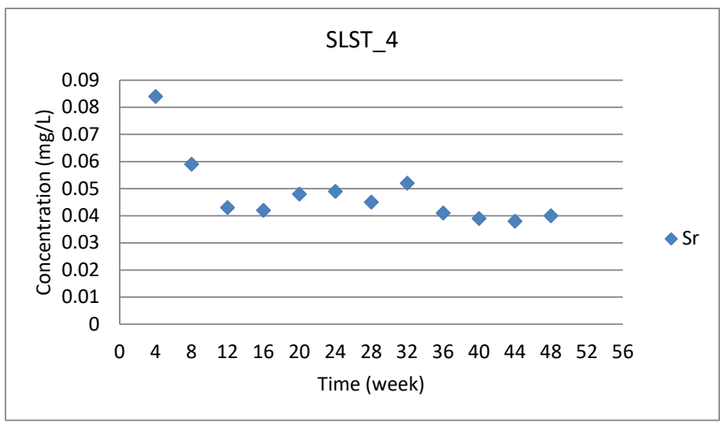

SLST_4
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Pb

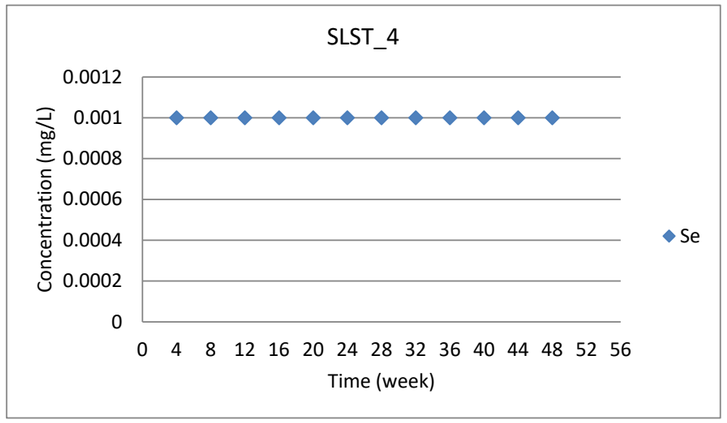

SLST_4
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Tl

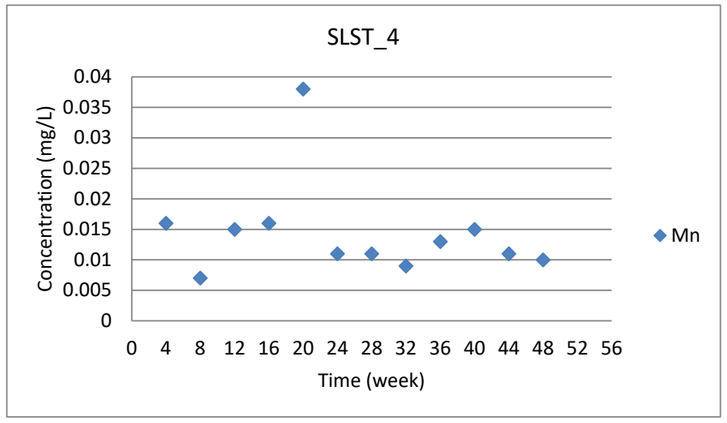

SLST_4
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
U


SLST_4
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sn

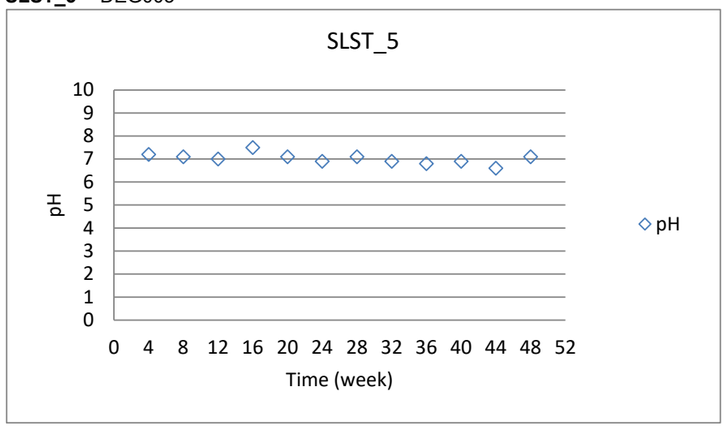

SLST_4
Concentration (mg/L)
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Rb

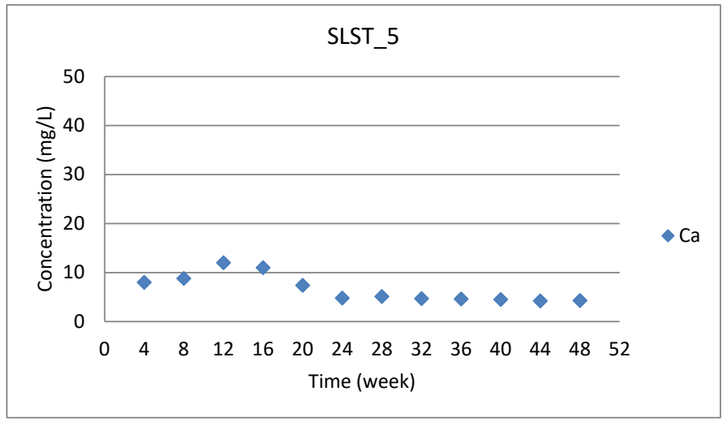

SLST_4
Concentration (mg/L)
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sr

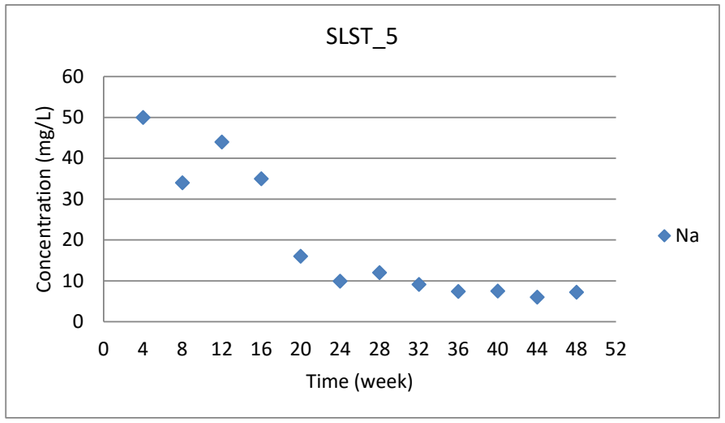

SLST_4
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Se

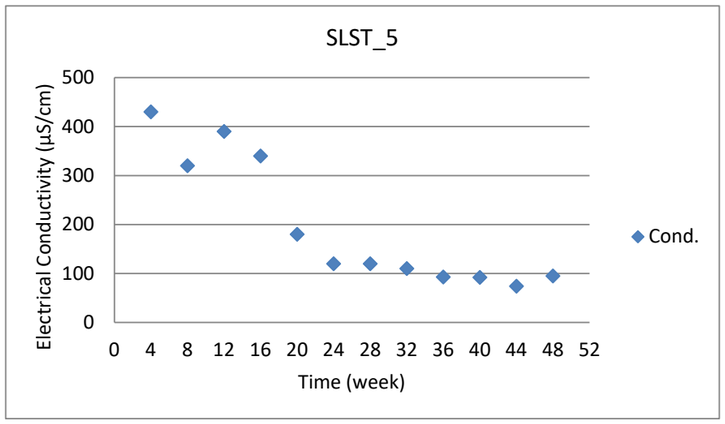

SLST_4
Concentration (mg/L)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mn

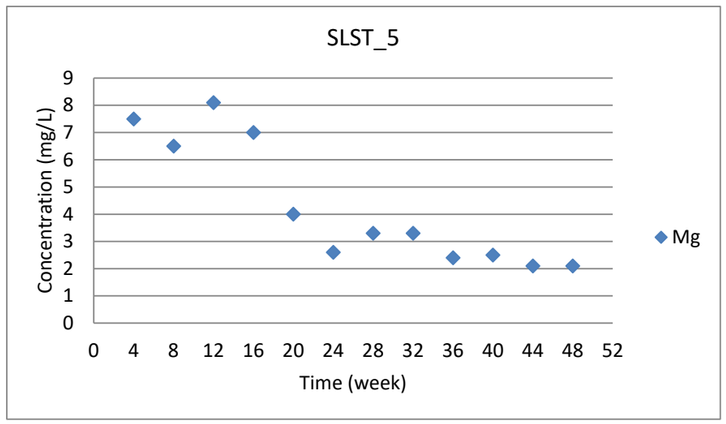
SLST_5 DEG003

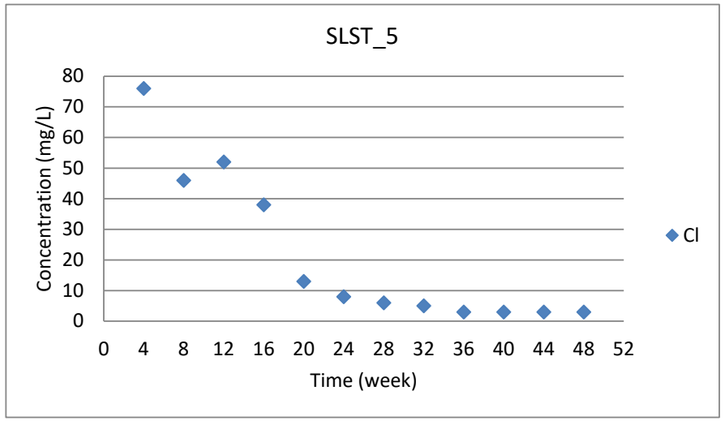


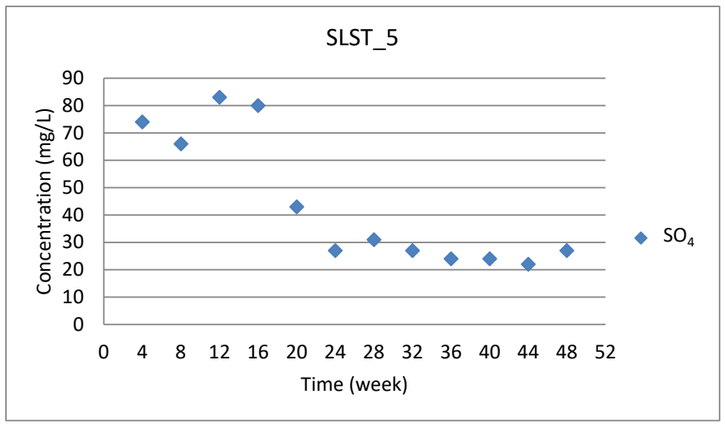


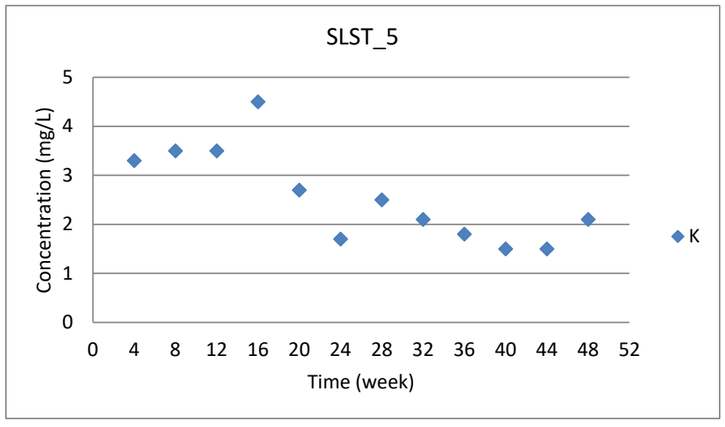


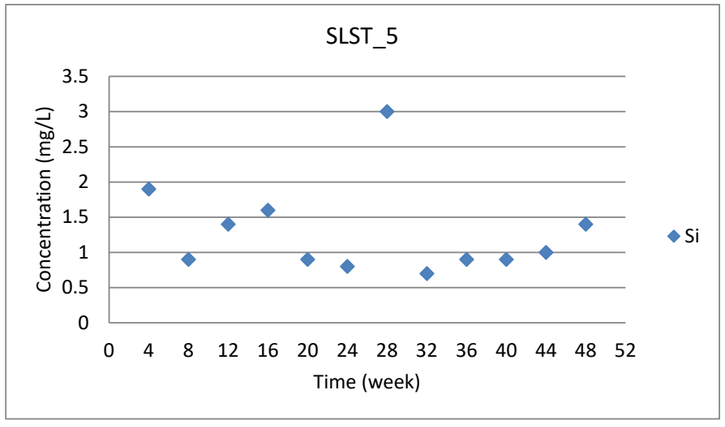


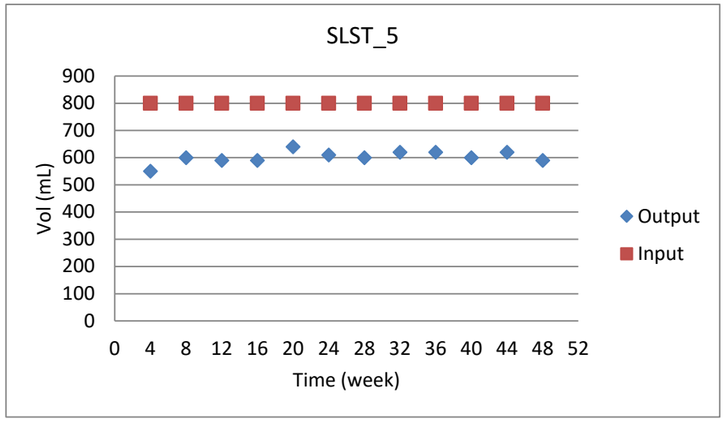


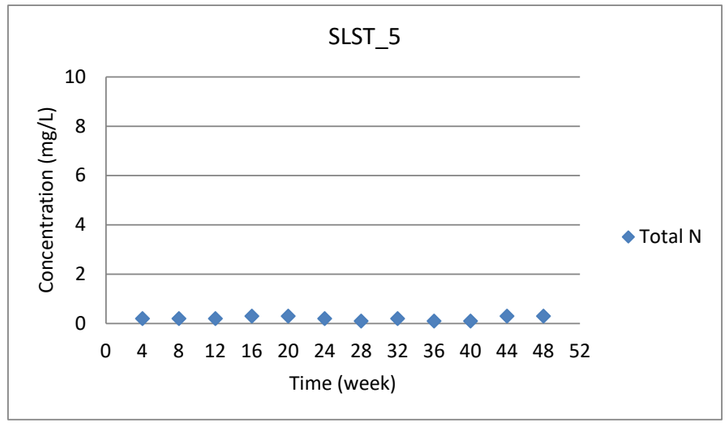


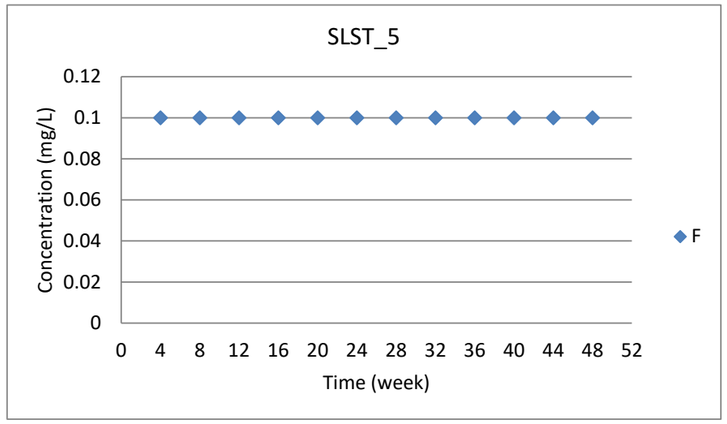


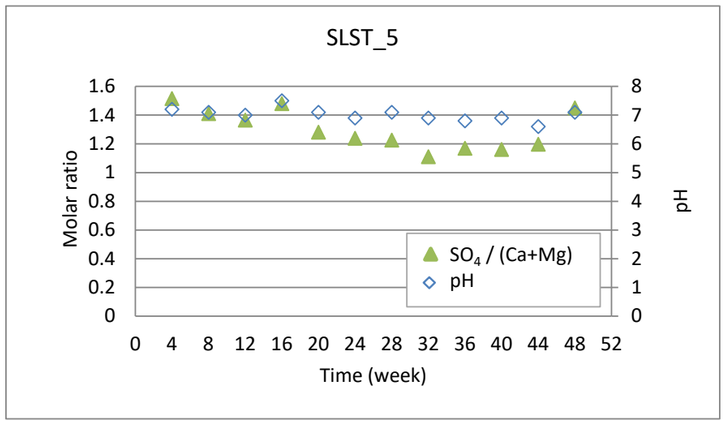


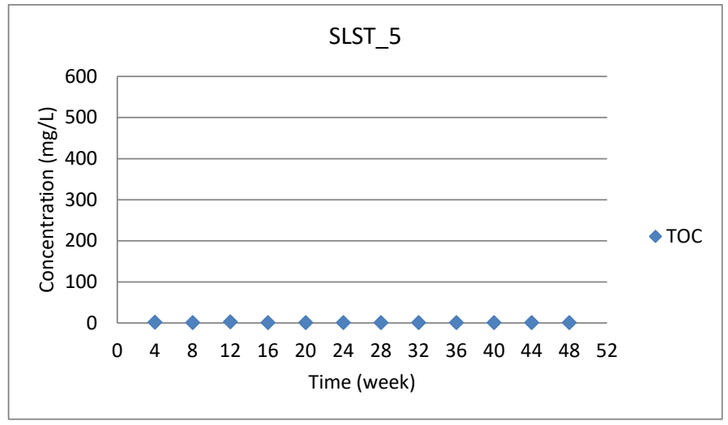


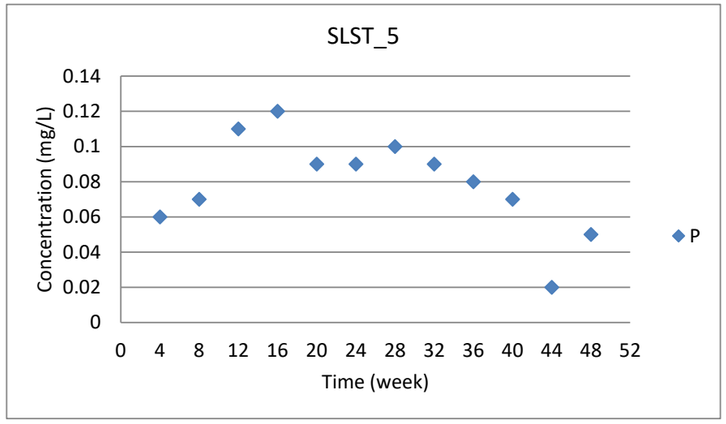

SLST_5
Vol (mL)
900
800
700
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Output
Input

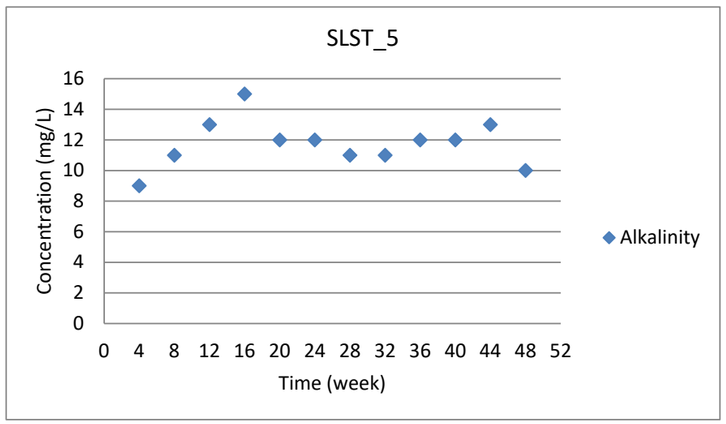

SLST_5
Concentration (mg/L)
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Total N

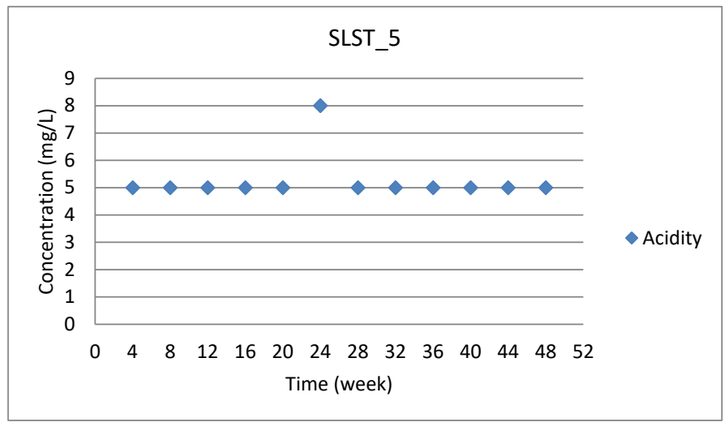

SLST_5
Concentration (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
F

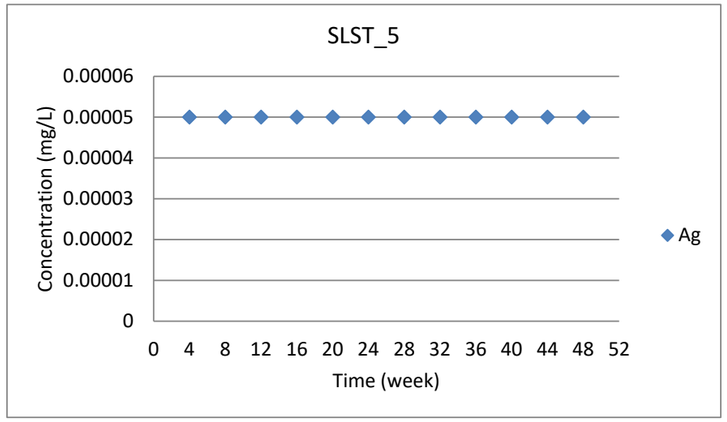

SLST_5
Molar ratio
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
pH
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
SO4 / (Ca+Mg)
pH

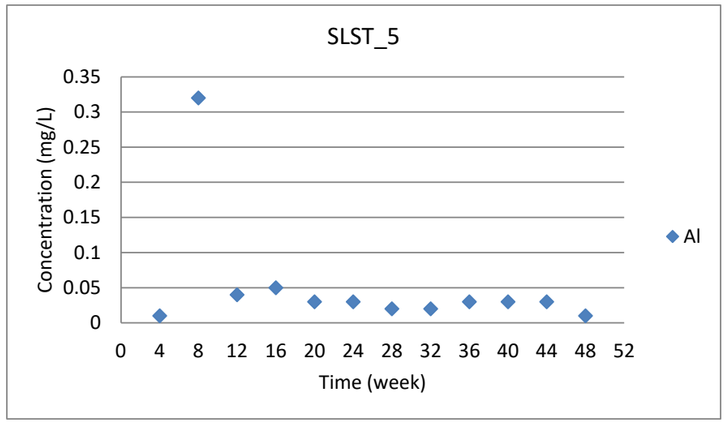

SLST_5
Concentration (mg/L)
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
TOC

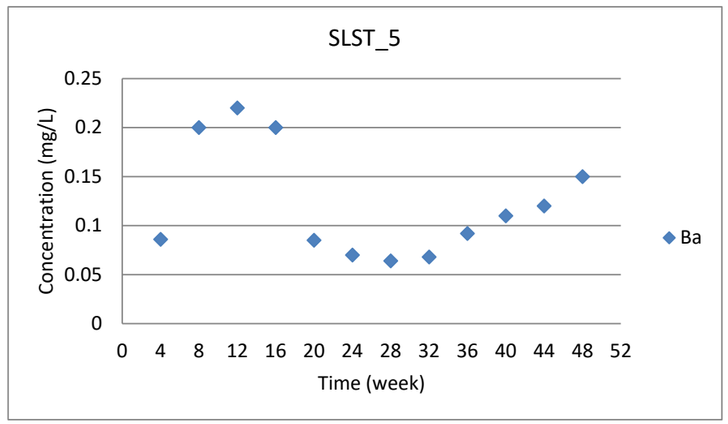

SLST_5
Concentration (mg/L)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
P

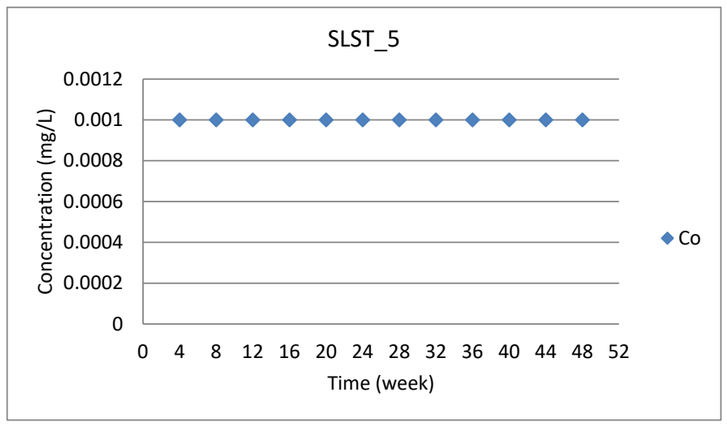

SLST_5
Concentration (mg/L)
16
14
12
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Alkalinity

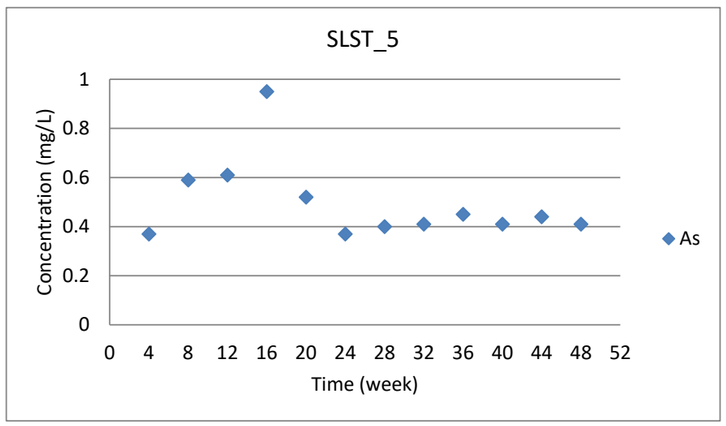

SLST_5
Concentration (mg/L)
9
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Acidity

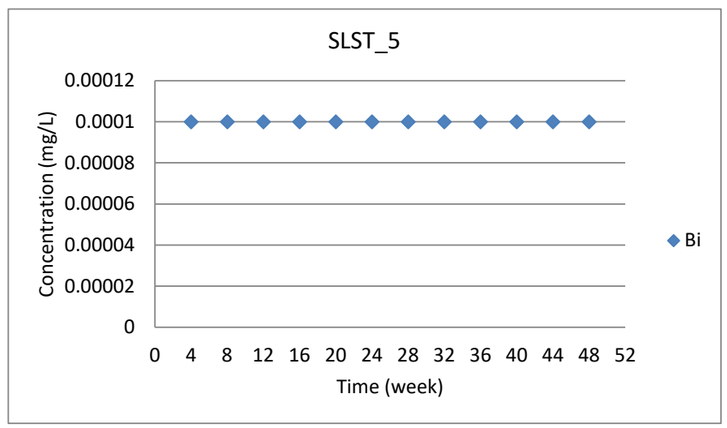

SLST_5
Concentration (mg/L)
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Ag

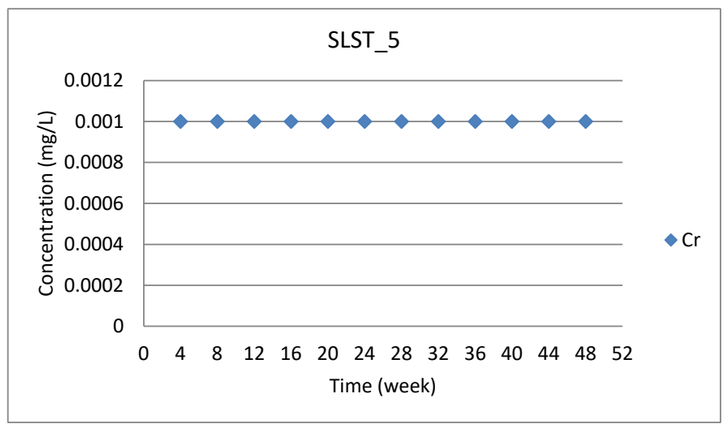

SLST_5
Concentration (mg/L)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Al

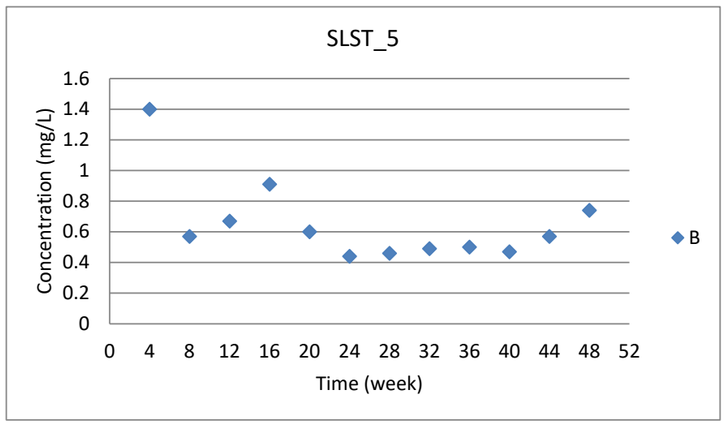

SLST_5
Concentration (mg/L)
0.25
0.2
0.15
0.1
0.05
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Ba

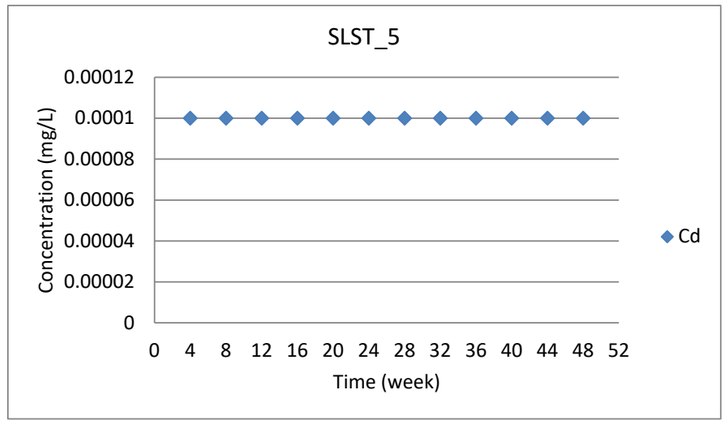

SLST_5
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Co

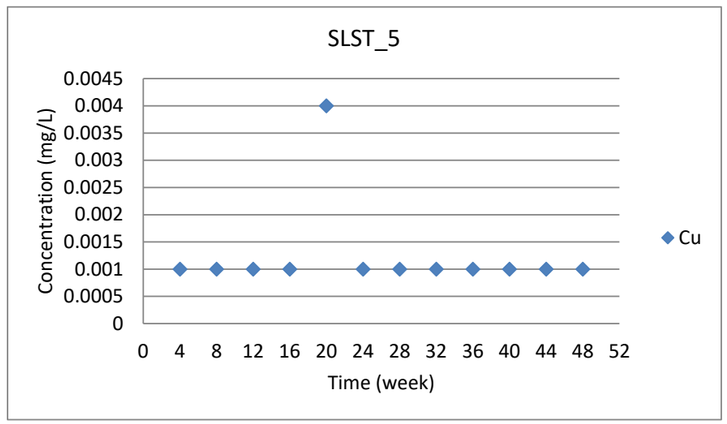

SLST_5
Concentration (mg/L)
1
0.8
0.6
0.4
0.2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
As

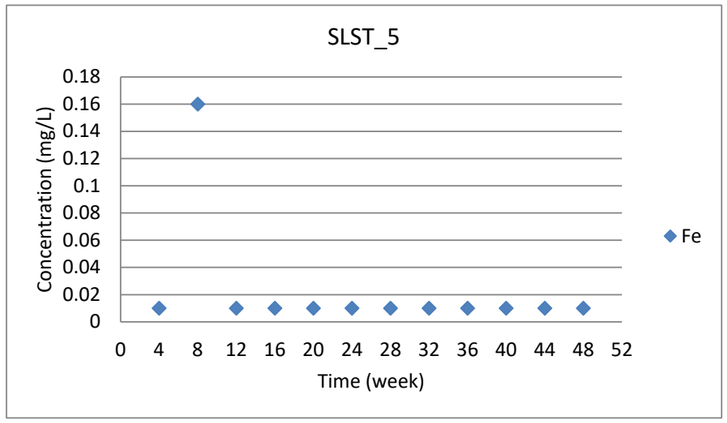

SLST_5
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Bi

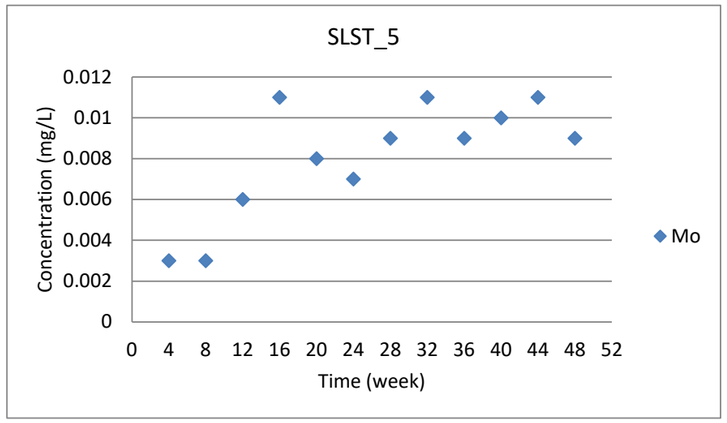

SLST_5
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Cr

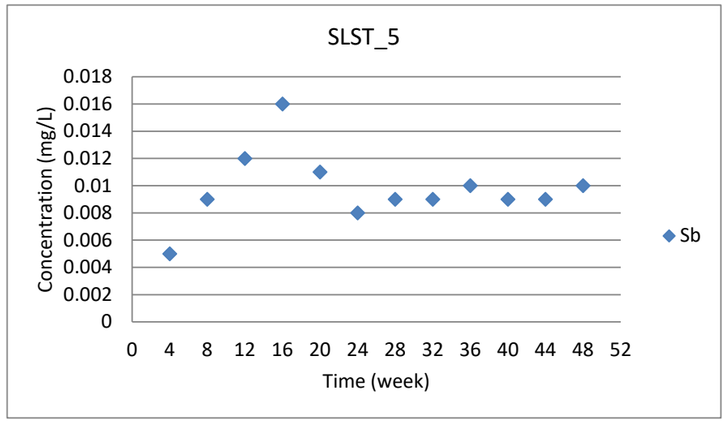

SLST_5
Concentration (mg/L)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
B

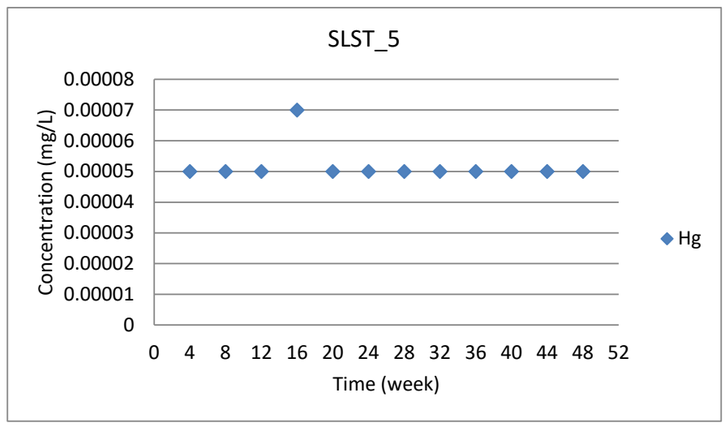

SLST_5
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Cd

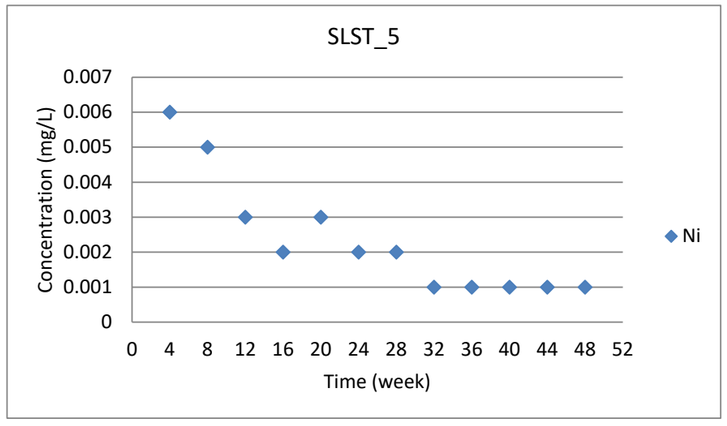

SLST_5
Concentration (mg/L)
0.0045
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Cu

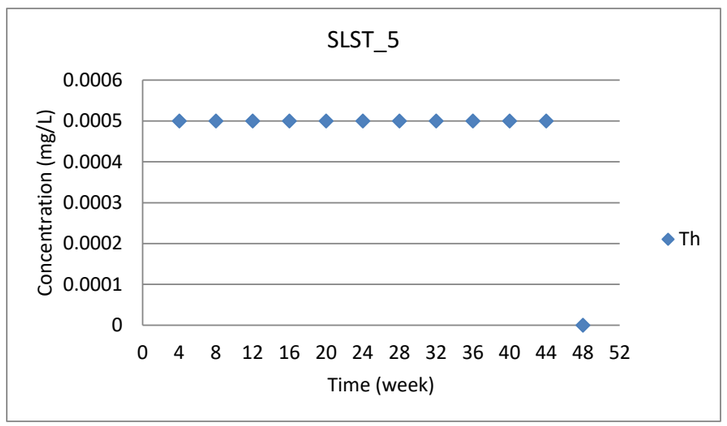

SLST_5
Concentration (mg/L)
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Fe

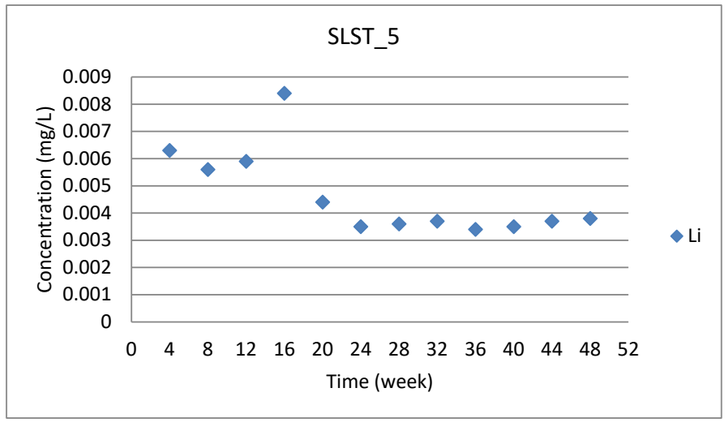

SLST_5
Concentration (mg/L)
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Mo

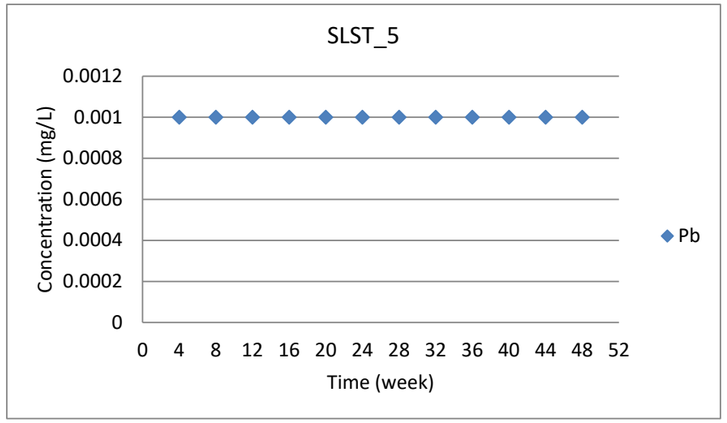

SLST_5
Concentration (mg/L)
0.018
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Sb

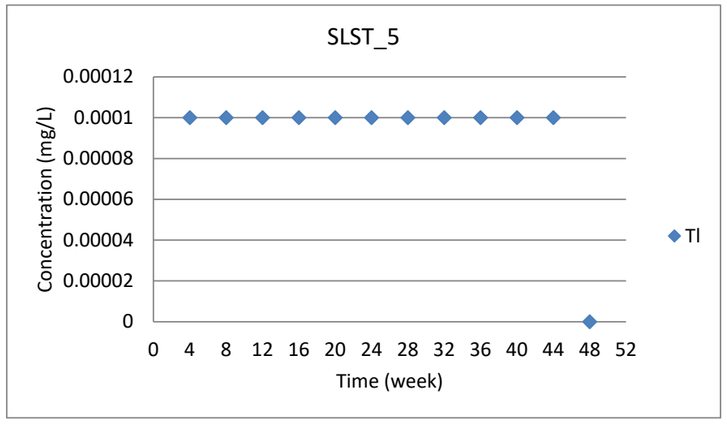

SLST_5
Concentration (mg/L)
0.00008
0.00007
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Hg

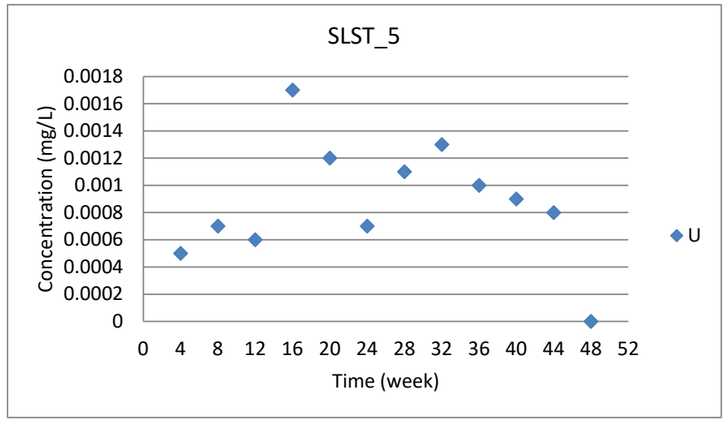

SLST_5
Concentration (mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Ni

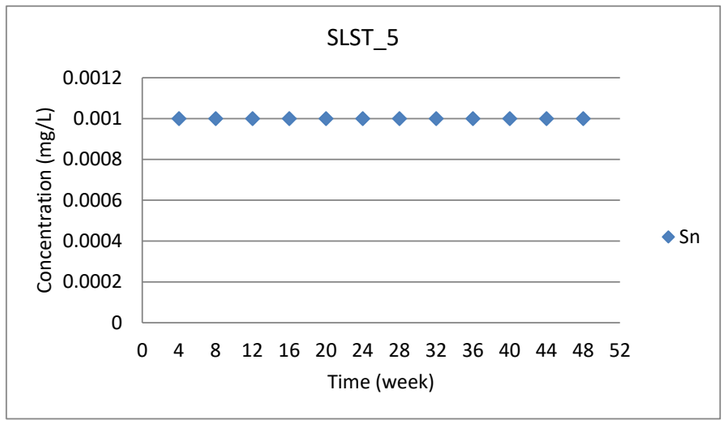

SLST_5
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Th

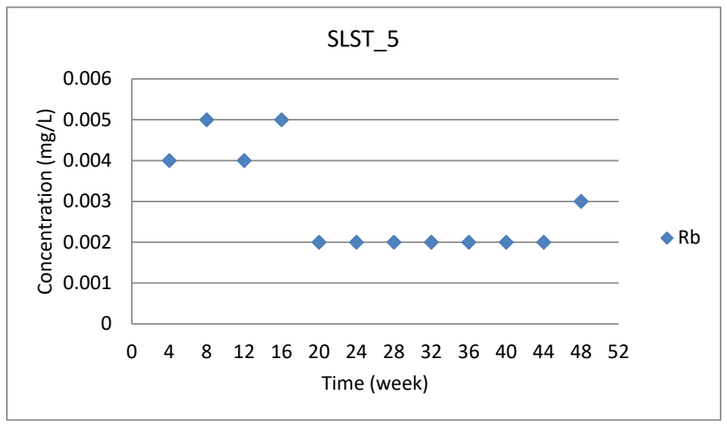

SLST_5
Concentration (mg/L)
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Li

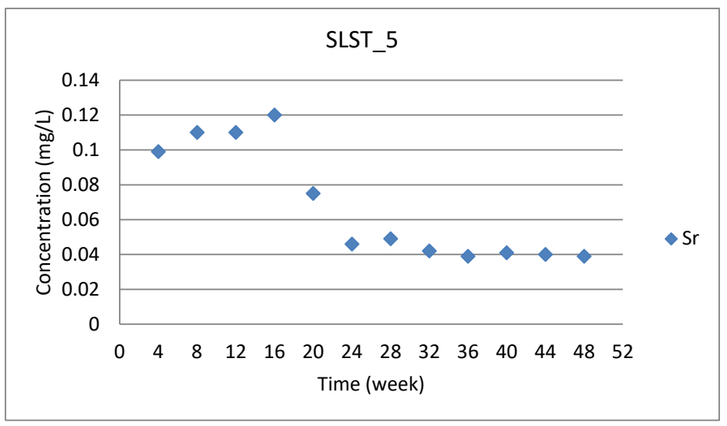

SLST_5
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Pb

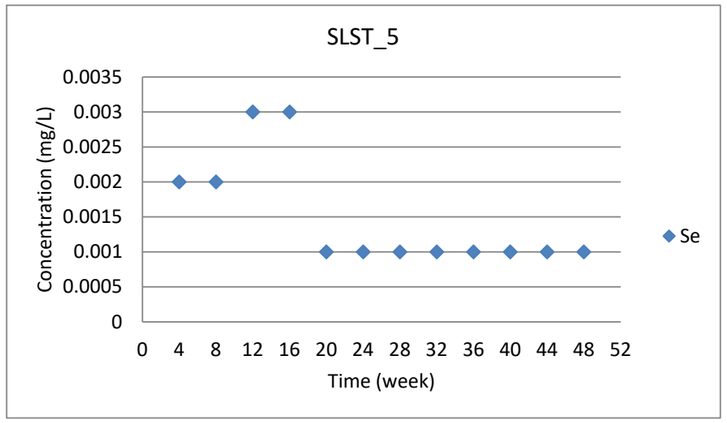

SLST_5
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Tl

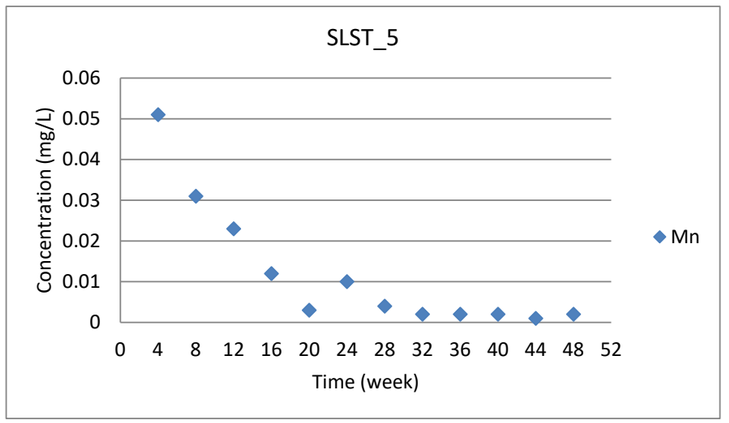

SLST_5
Concentration (mg/L)
0.0018
0.0016
0.0014
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
U


SLST_5
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Sn

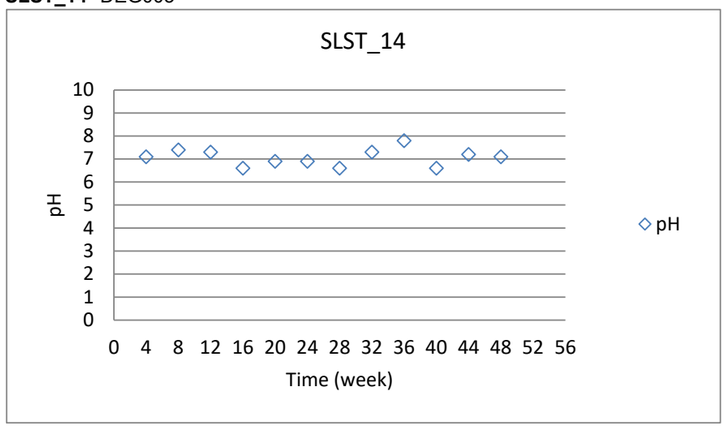

SLST_5
Concentration (mg/L)
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Rb

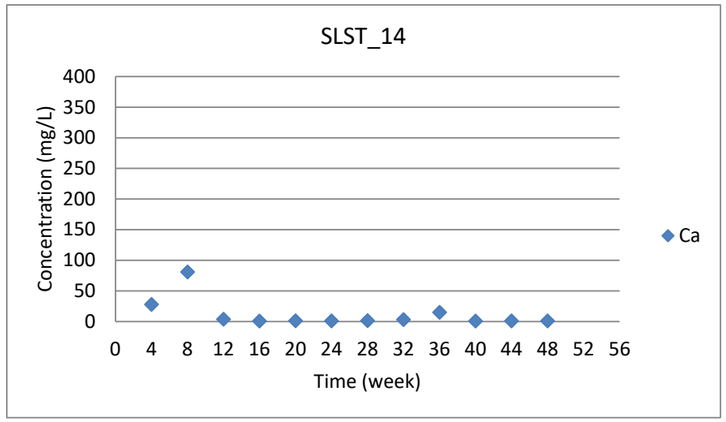

SLST_5
Concentration (mg/L)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Sr

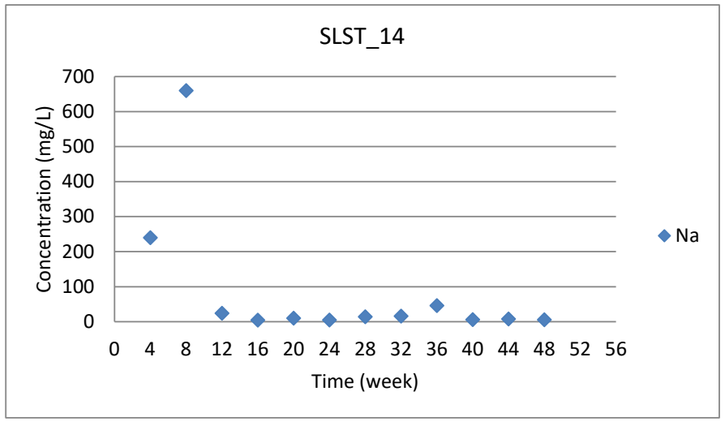

SLST_5
Concentration (mg/L)
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Se

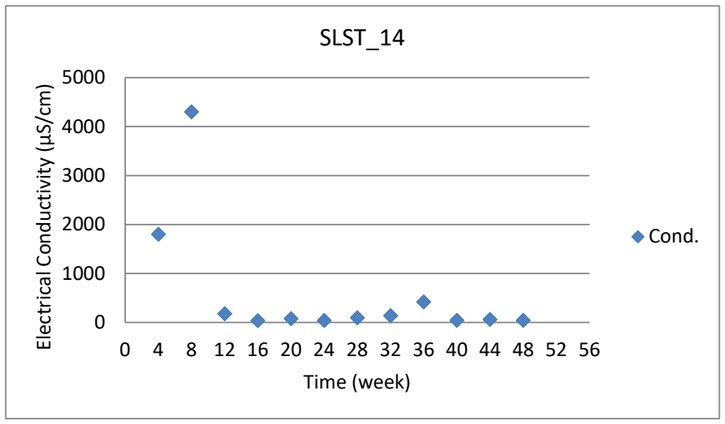

SLST_5
Concentration (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52
Time (week)
Mn

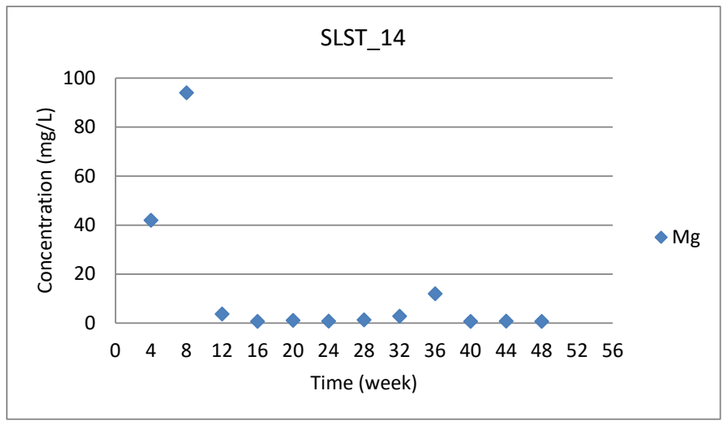
SLST_14 DEG003

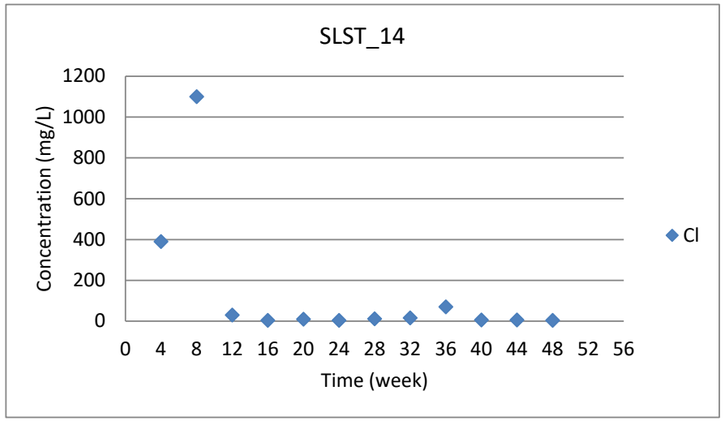


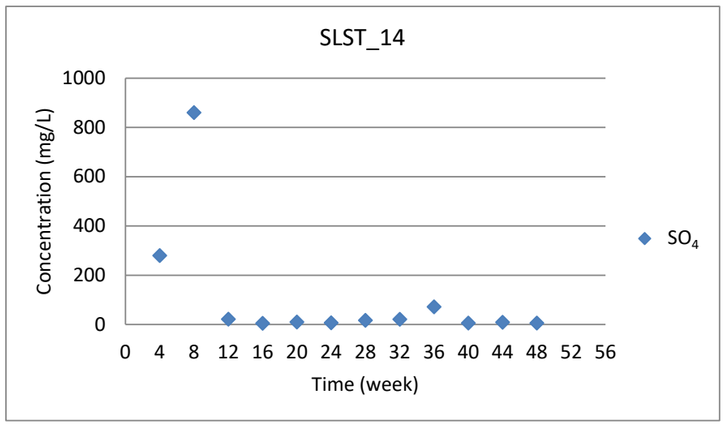


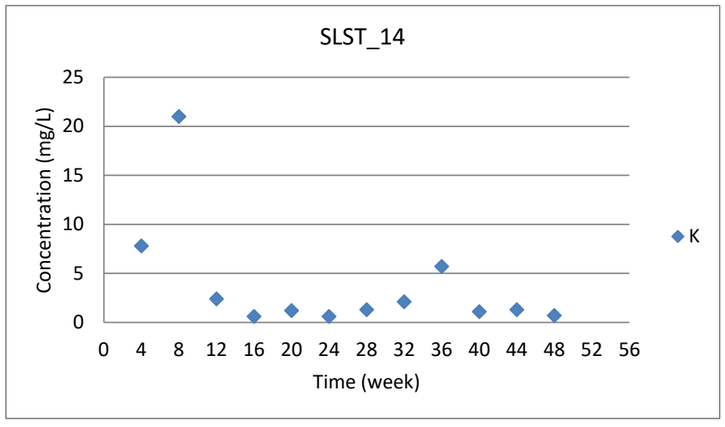


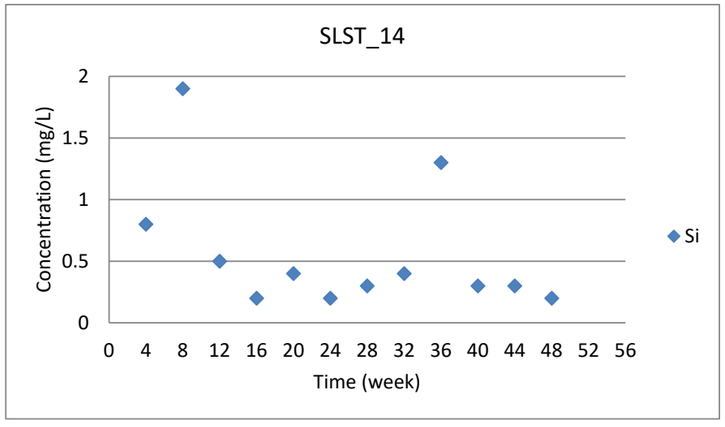


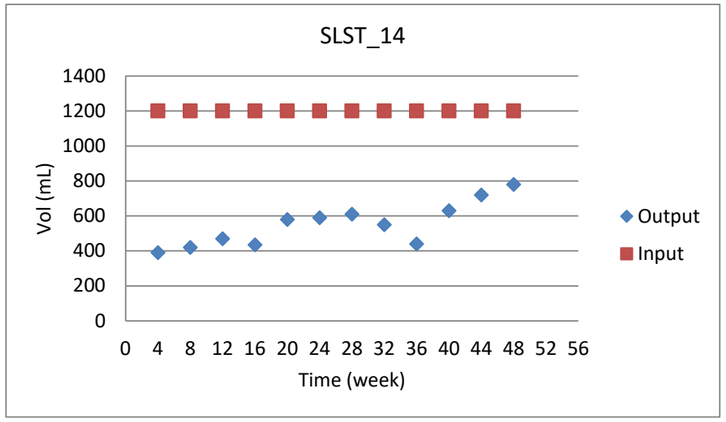


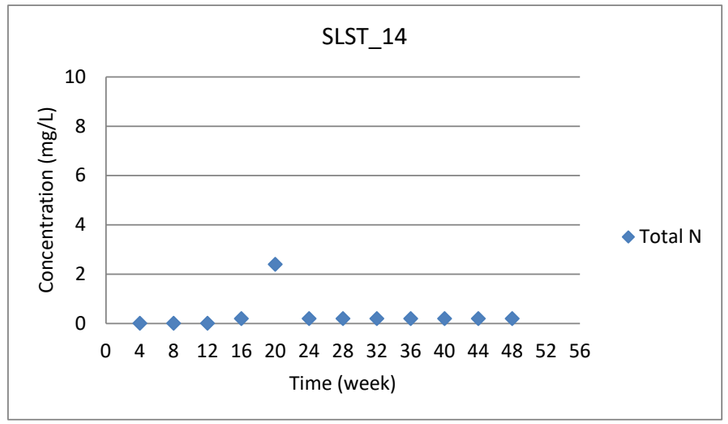


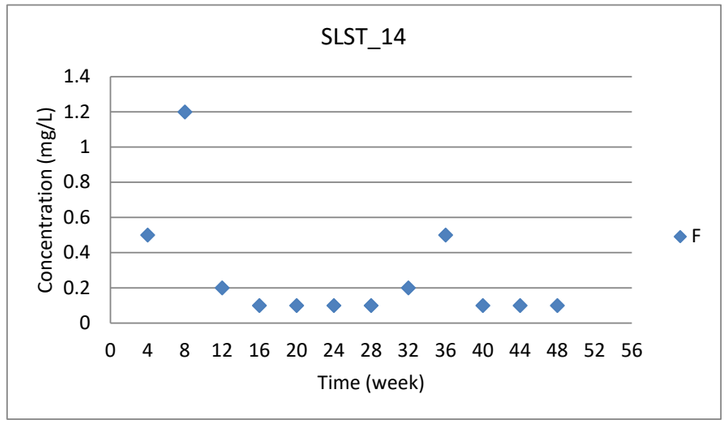


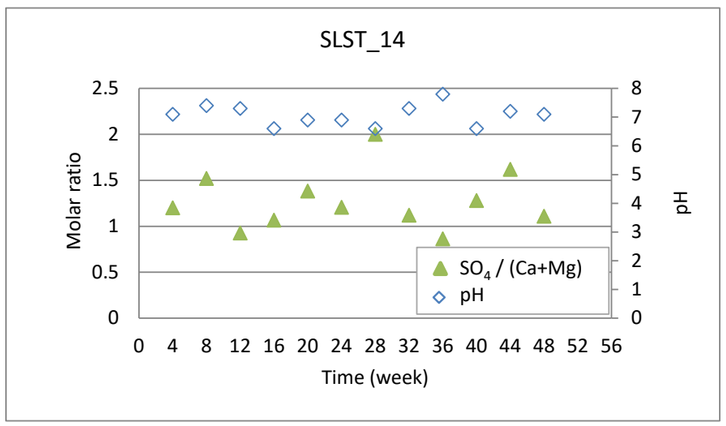


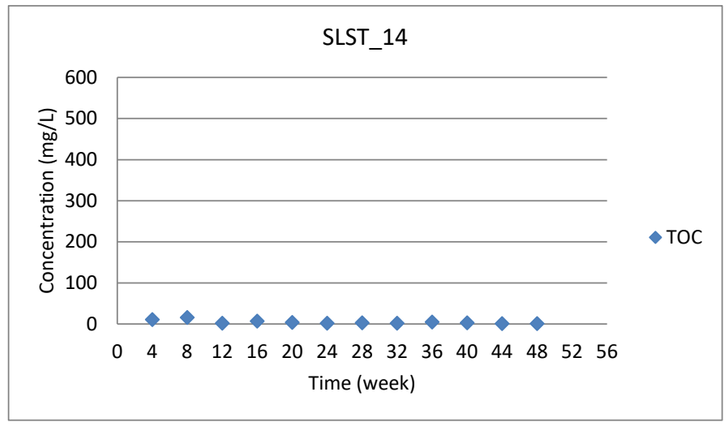


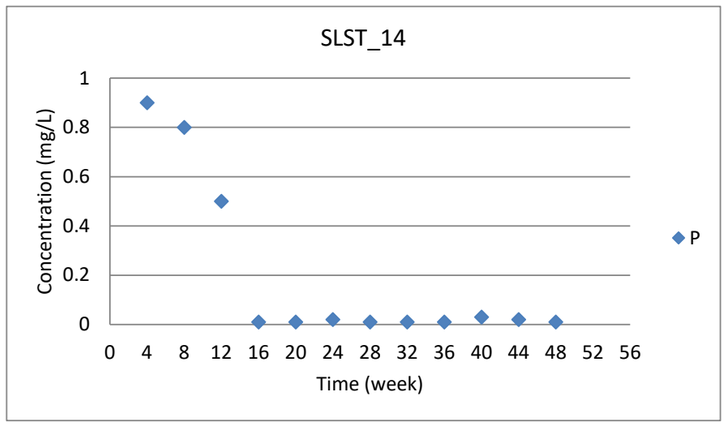

SLST_14
Vol (mL)
1400
1200
1000
800
600
400
200
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Output
Input

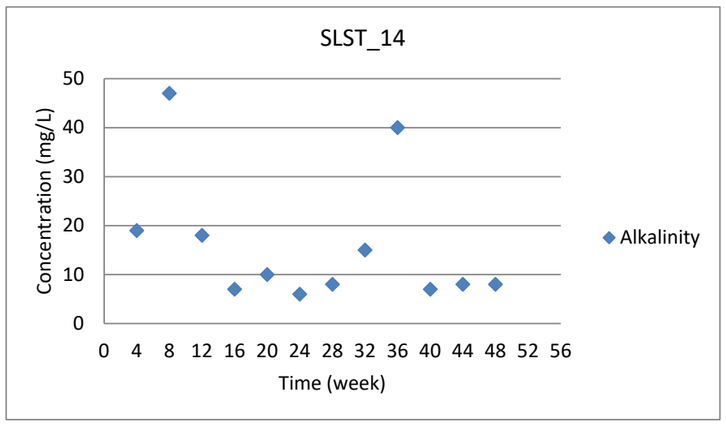

SLST_14
Concentration (mg/L)
10
8
6
4
2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Total N

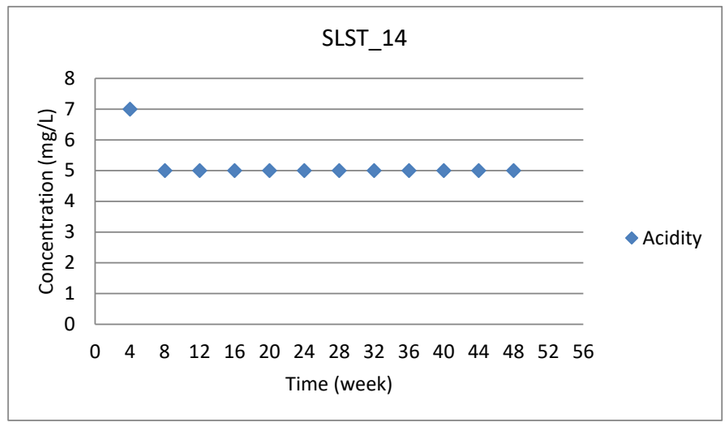

SLST_14
Concentration (mg/L)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
F

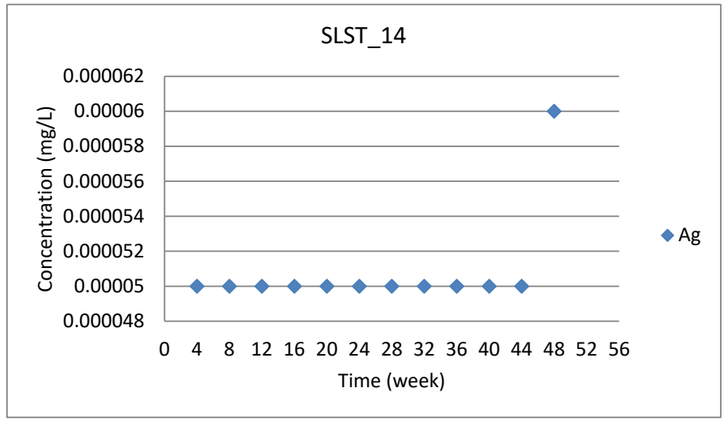

SLST_14
Molar ratio
2.5
2
1.5
1
0.5
0
pH
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
SO4 / (Ca+Mg)
pH

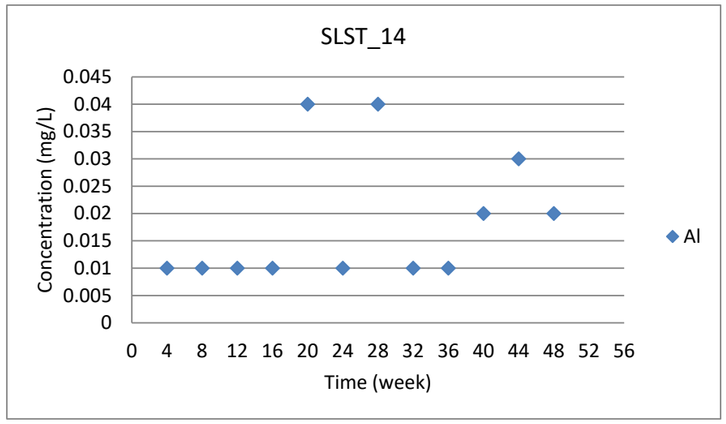

SLST_14
Concentration (mg/L)
600
500
400
300
200
100
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
TOC

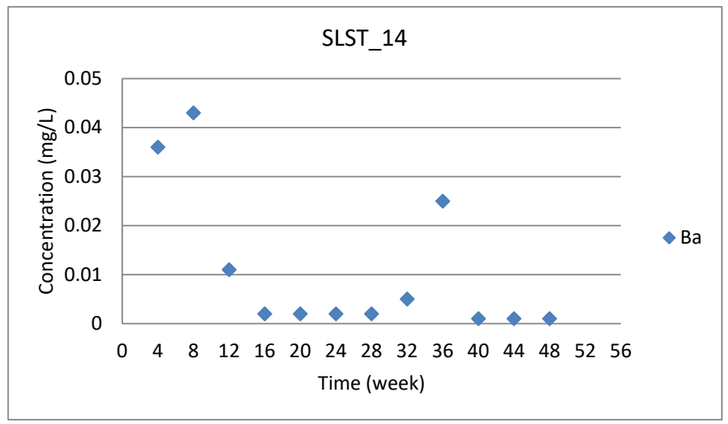

SLST_14
Concentration (mg/L)
1
0.8
0.6
0.4
0.2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
P

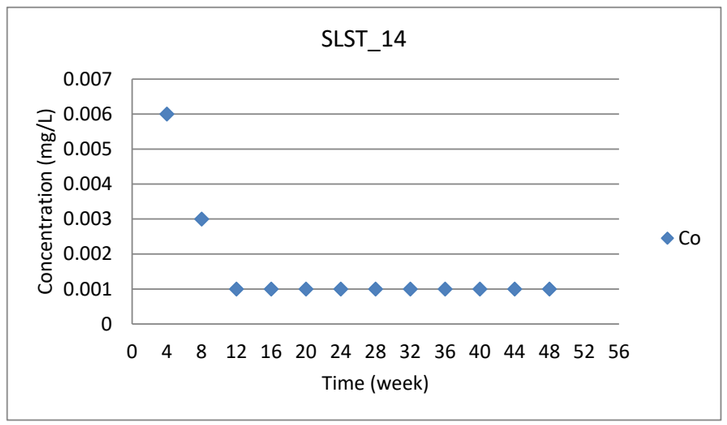

SLST_14
Concentration (mg/L)
50
40
30
20
10
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Alkalinity

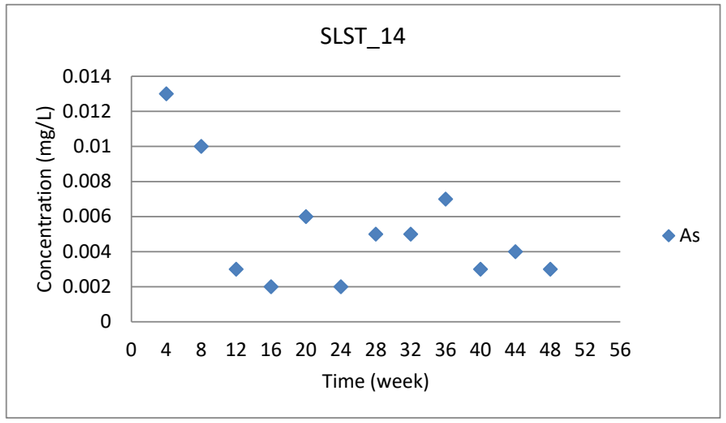

SLST_14
Concentration (mg/L)
8
7
6
5
4
3
2
1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Acidity

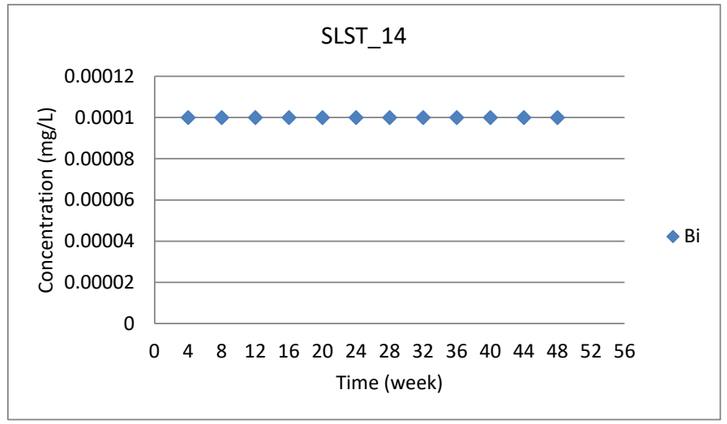

SLST_14
Concentration (mg/L)
0.000062
0.00006
0.000058
0.000056
0.000054
0.000052
0.00005
0.000048
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ag

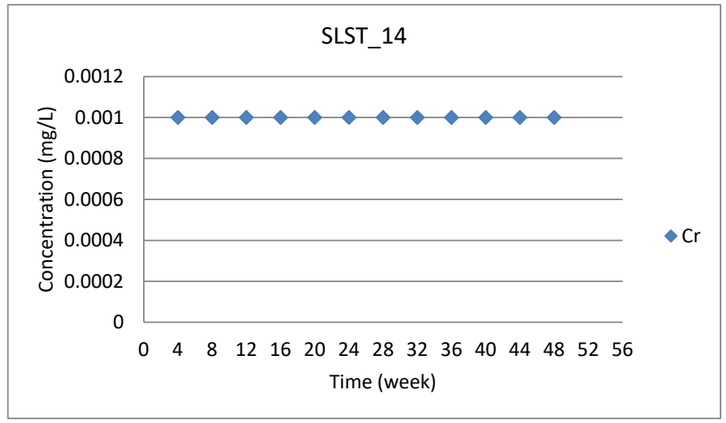

SLST_14
Concentration (mg/L)
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Al

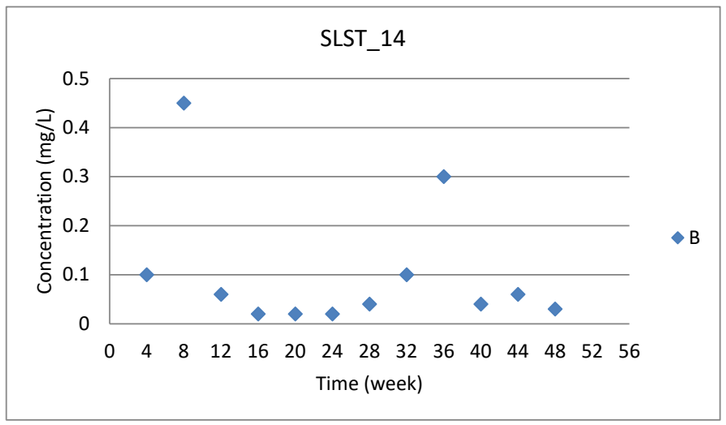

SLST_14
Concentration (mg/L)
0.05
0.04
0.03
0.02
0.01
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ba

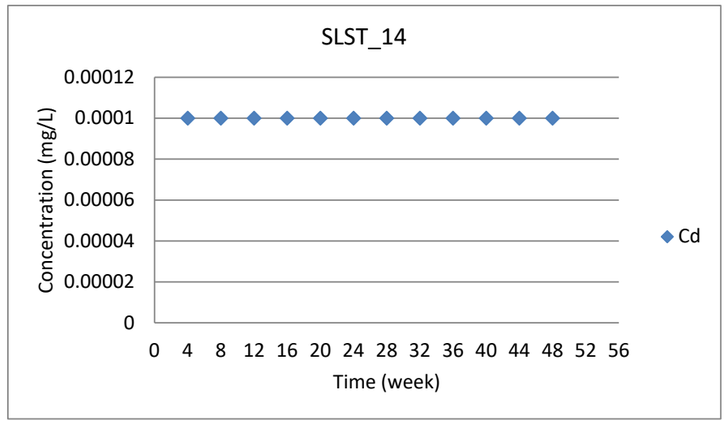

SLST_14
Concentration (mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Co

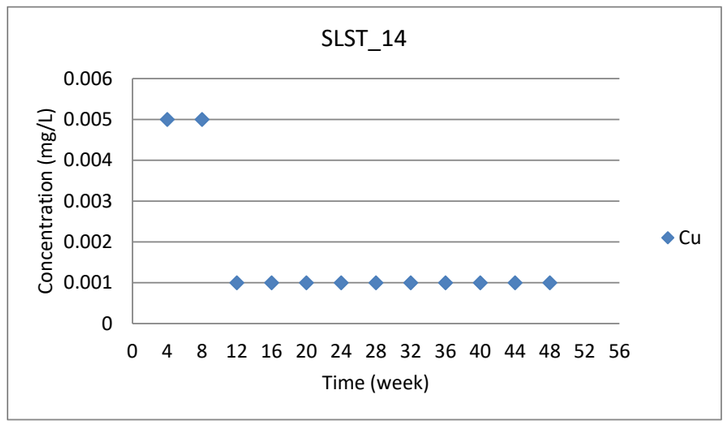

SLST_14
Concentration (mg/L)
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
As

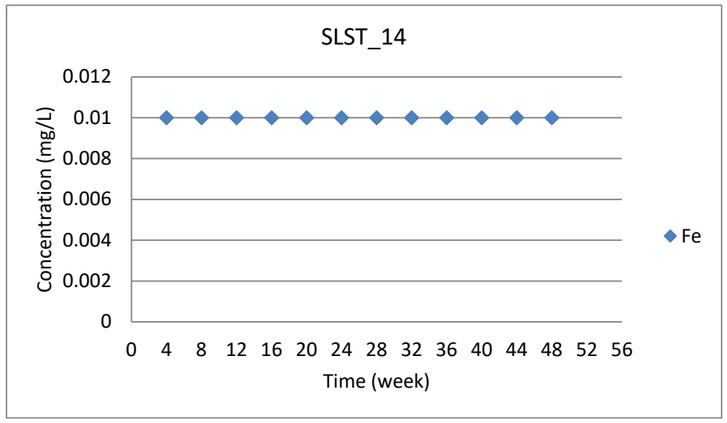

SLST_14
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Bi

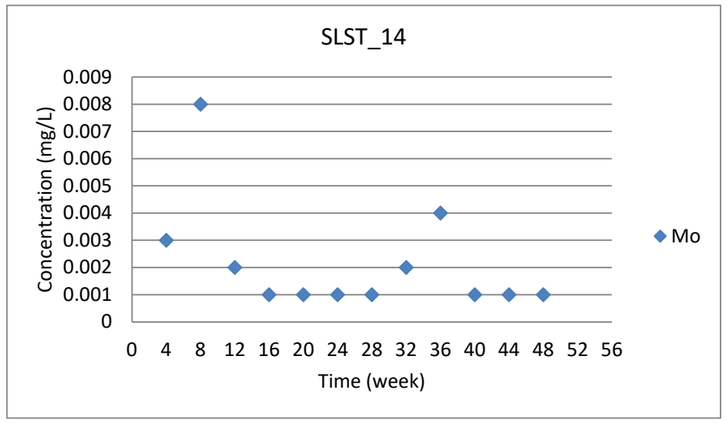

SLST_14
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cr

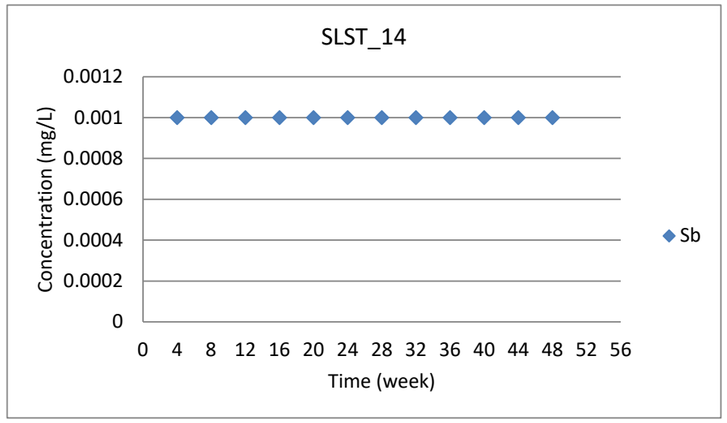

SLST_14
Concentration (mg/L)
0.5
0.4
0.3
0.2
0.1
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
B

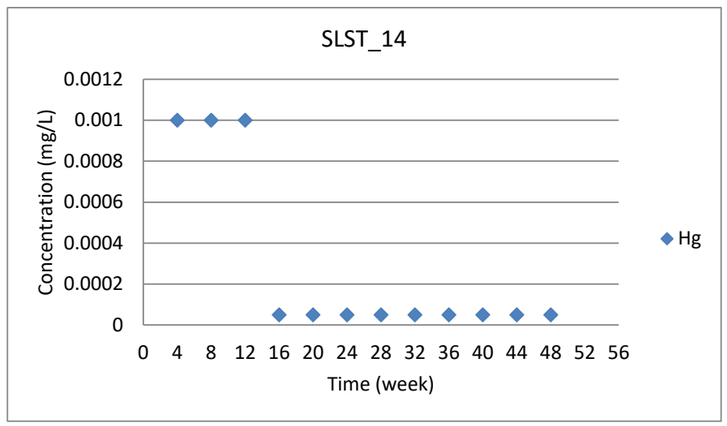

SLST_14
Concentration (mg/L)
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cd

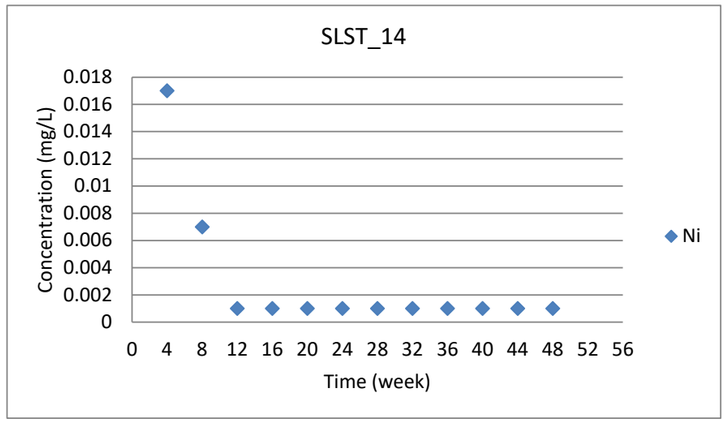

SLST_14
Concentration (mg/L)
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Cu

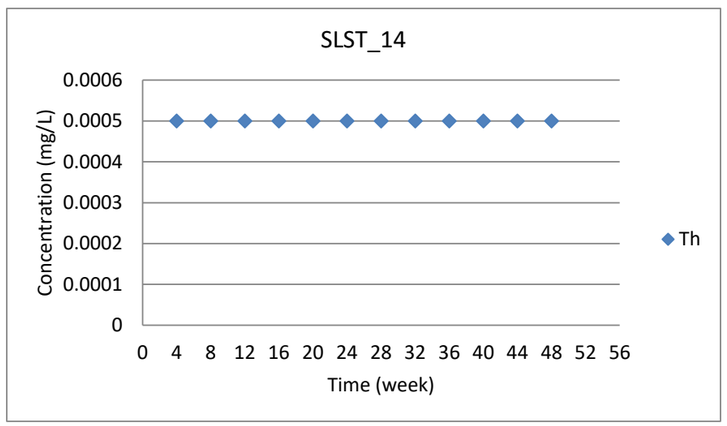

SLST_14
Concentration (mg/L)
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Fe

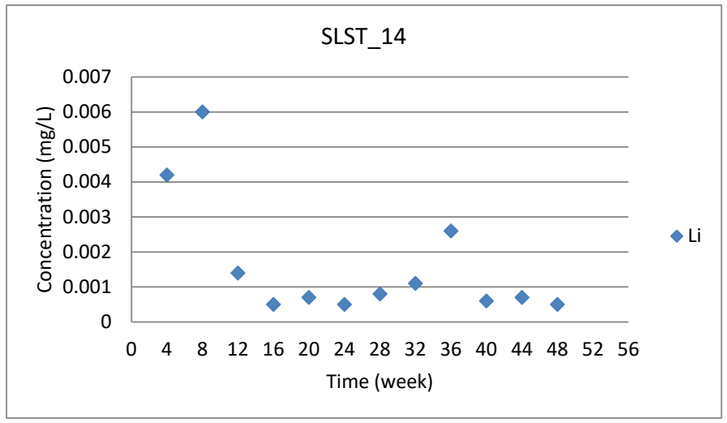

SLST_14
Concentration (mg/L)
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mo

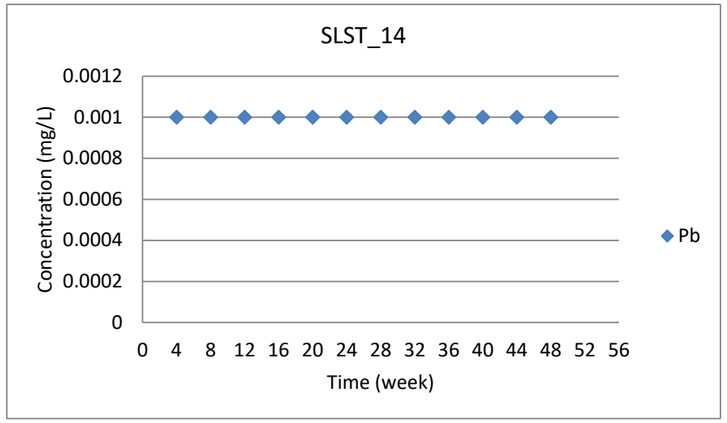

SLST_14
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sb

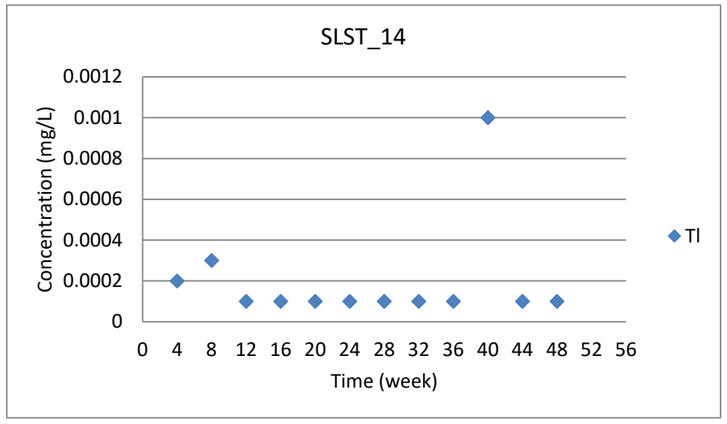

SLST_14
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Hg

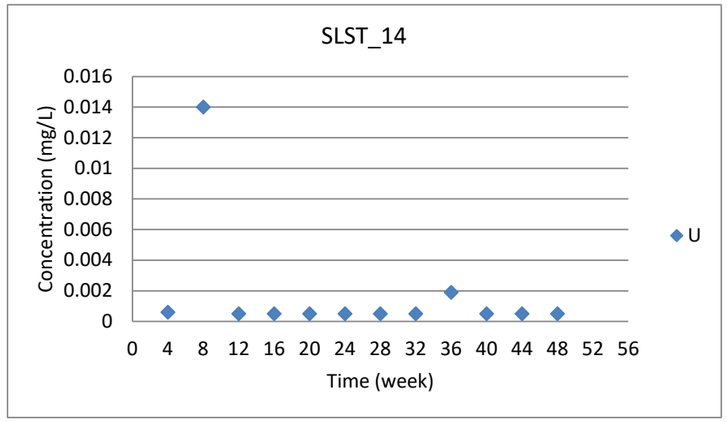

SLST_14
Concentration (mg/L)
0.018
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Ni

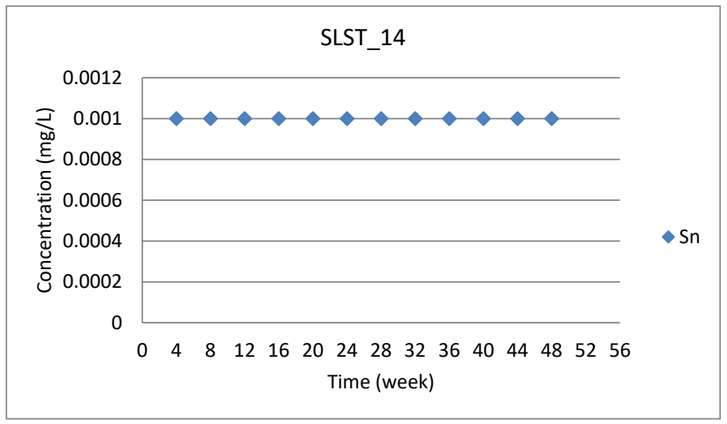

SLST_14
Concentration (mg/L)
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Th

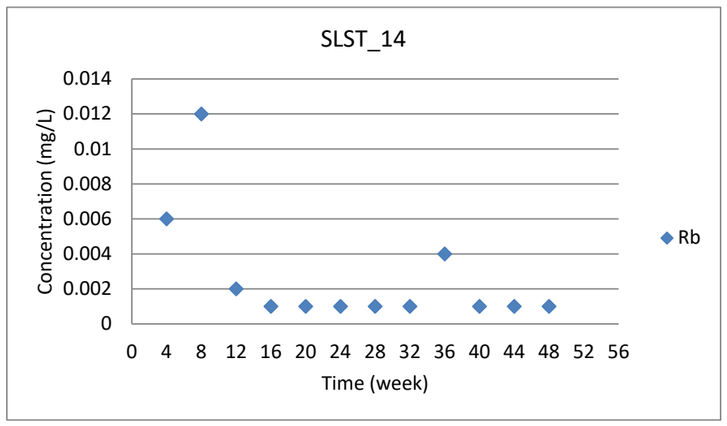

SLST_14
Concentration (mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Li

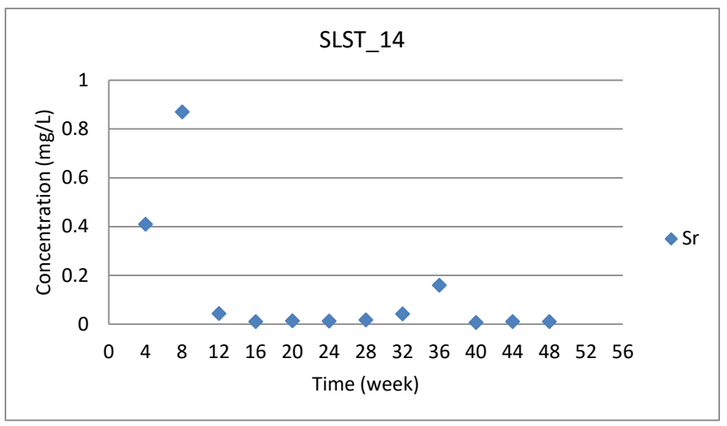

SLST_14
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Pb

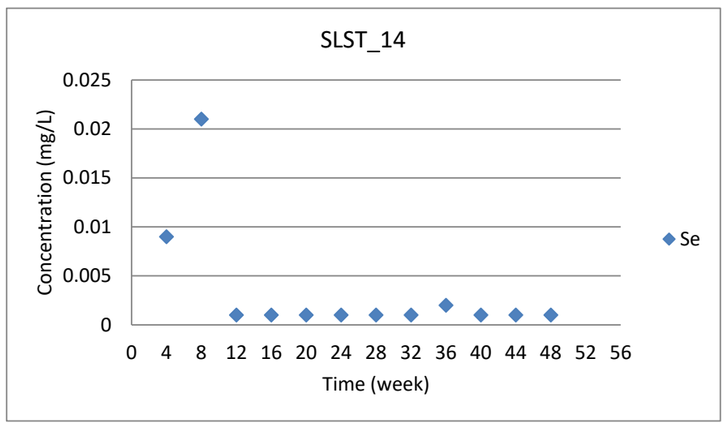

SLST_14
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Tl

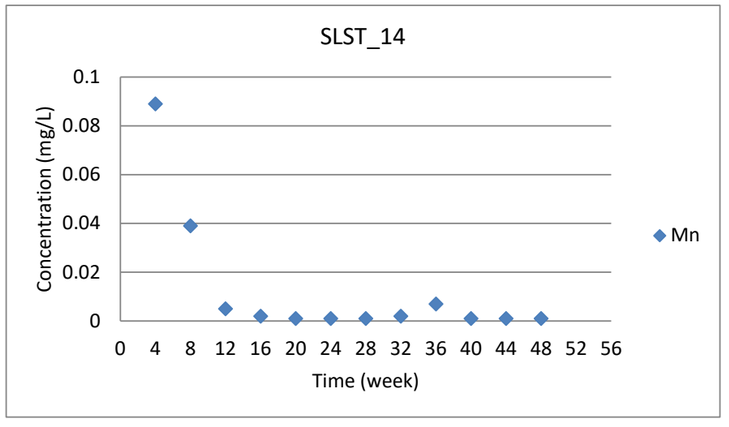

SLST_14
Concentration (mg/L)
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
U


SLST_14
Concentration (mg/L)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sn

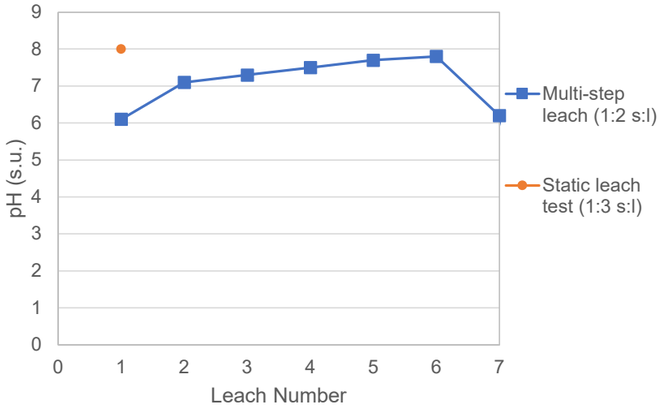

SLST_14
Concentration (mg/L)
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Rb

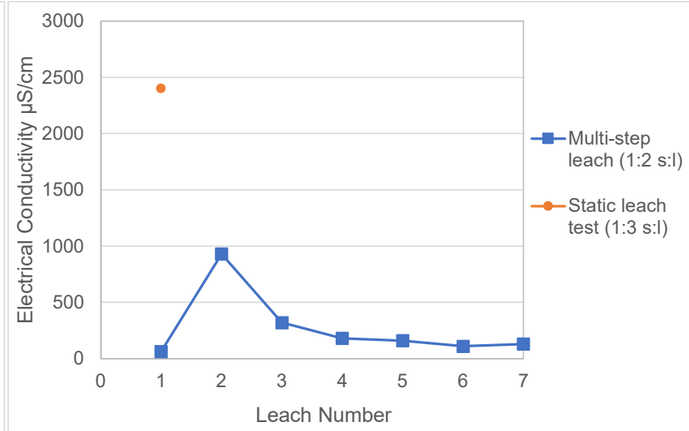

SLST_14
Concentration (mg/L)
1
0.8
0.6
0.4
0.2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Sr

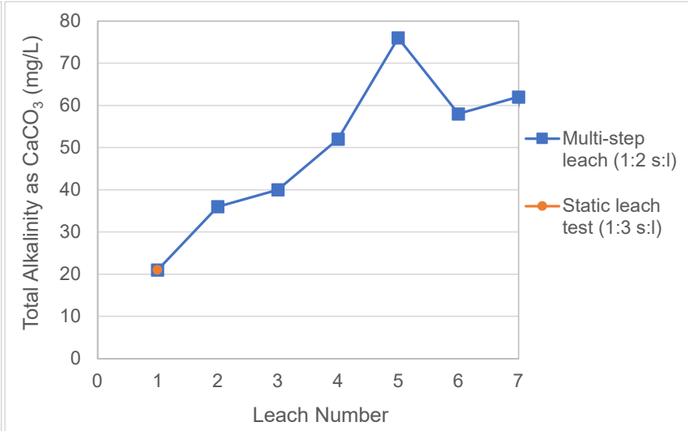

SLST_14
Concentration (mg/L)
0.025
0.02
0.015
0.01
0.005
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Se

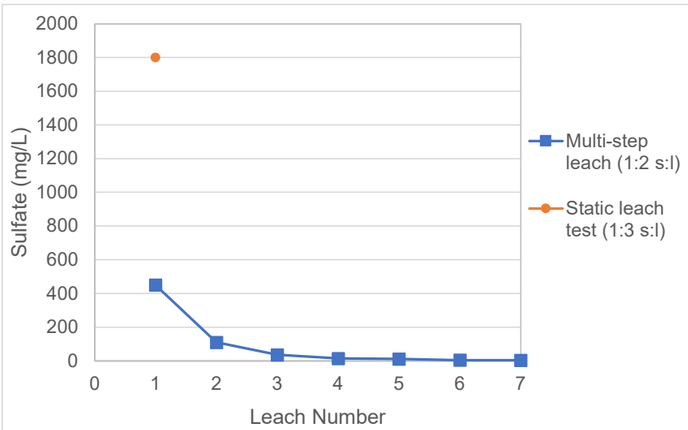

SLST_14
Concentration (mg/L)
0.1
0.08
0.06
0.04
0.02
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
Time (week)
Mn

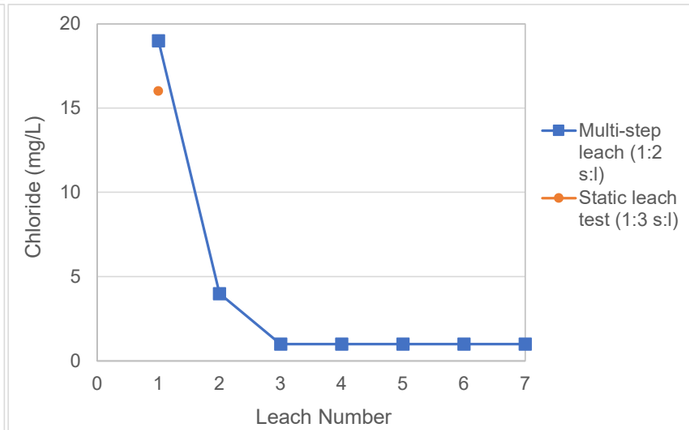
Appendix C Multi-step leachate concentration plots

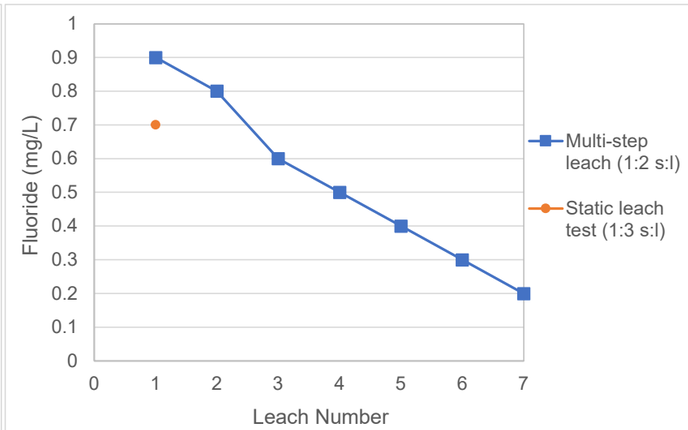

pH (s.u.)
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

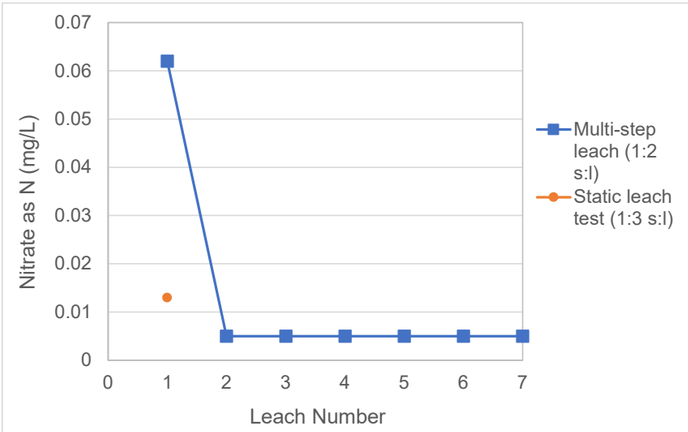

Electrical Conductivity µS/cm
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

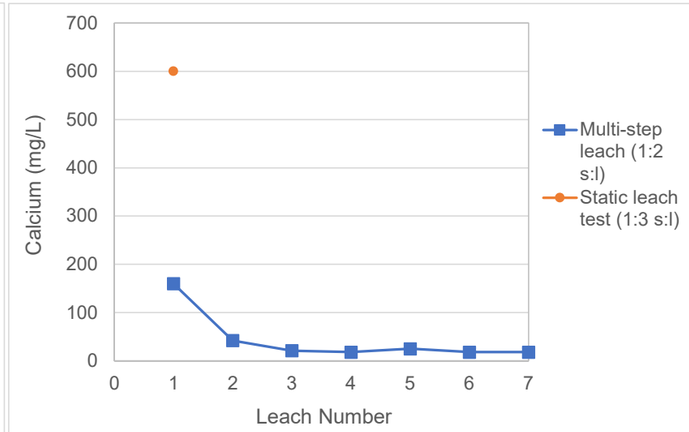

Total Alkalinity as CaCO3 (mg/L)
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

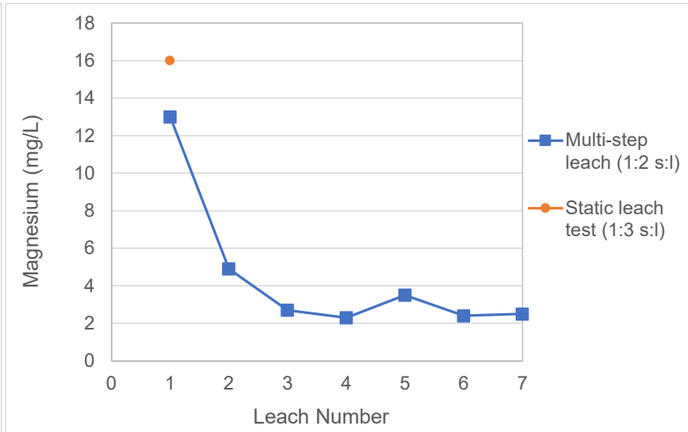

Sulfate (mg/L)
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

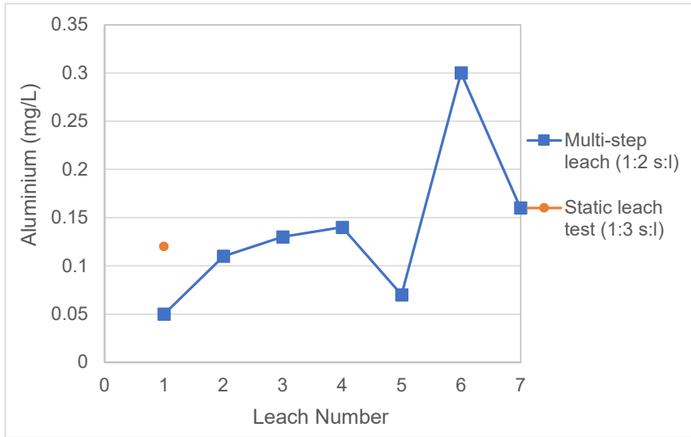

Chloride (mg/L)
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

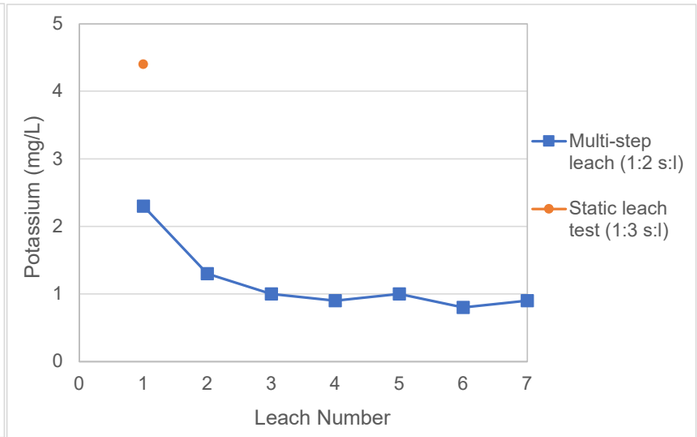

Fluoride (mg/L)
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

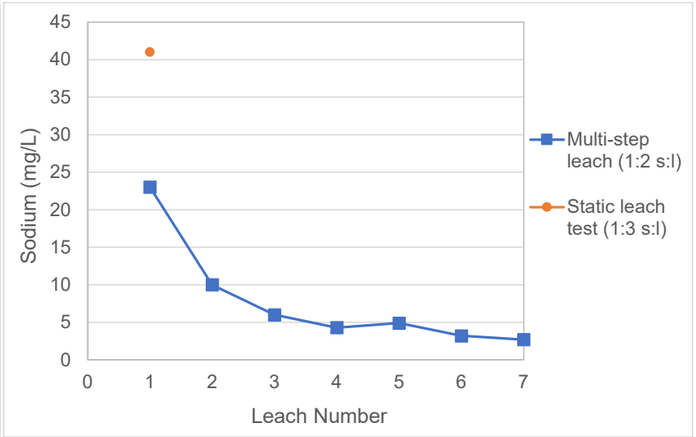

Nitrate as N (mg/L)
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

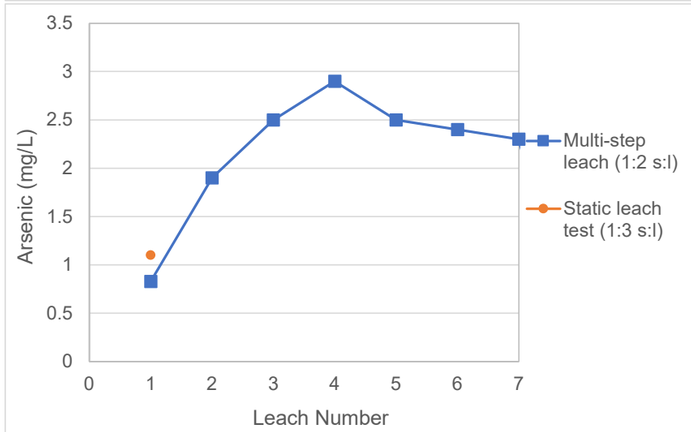

Calcium (mg/L)
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

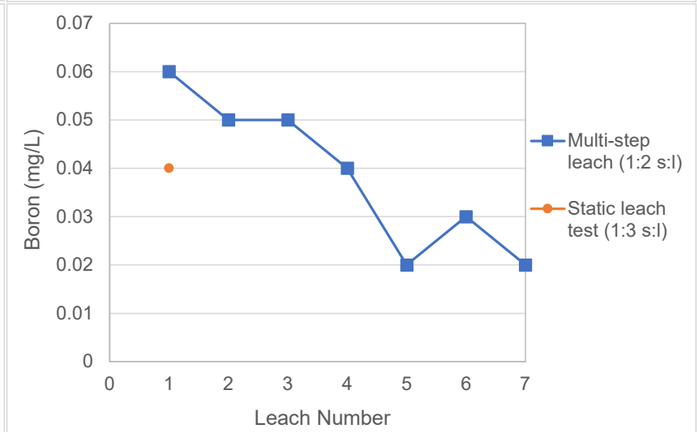

Magnesium (mg/L)
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

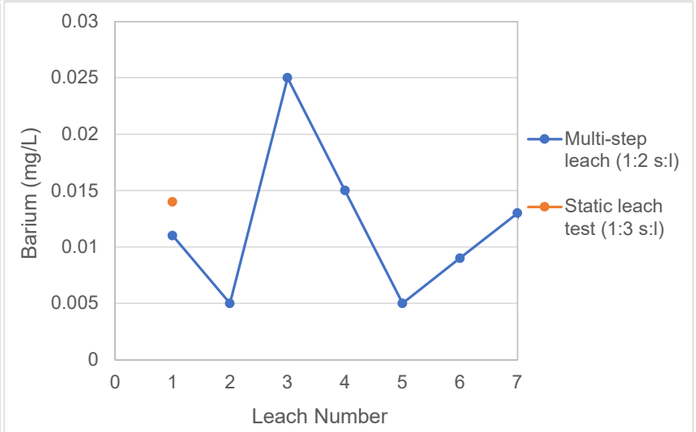

Aluminium (mg/L)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

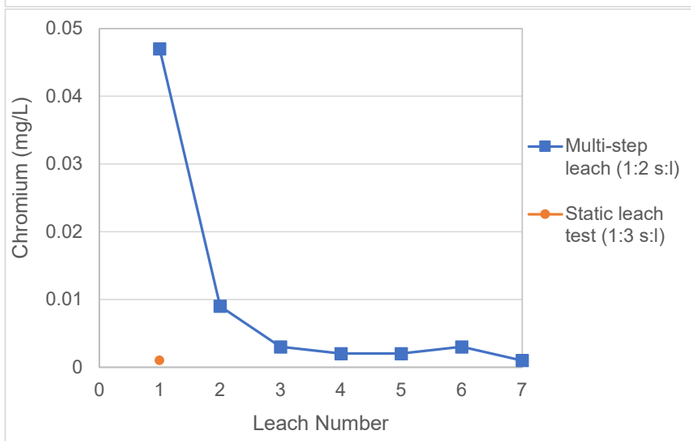

Potassium (mg/L)
5
4
3
2
1
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

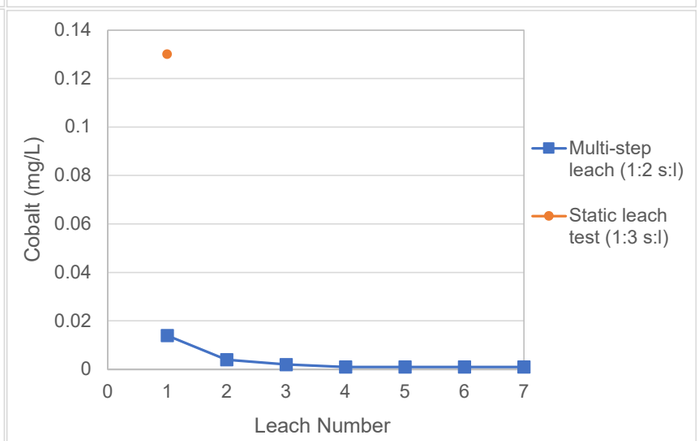

Sodium (mg/L)
45
40
35
30
25
20
15
10
5
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

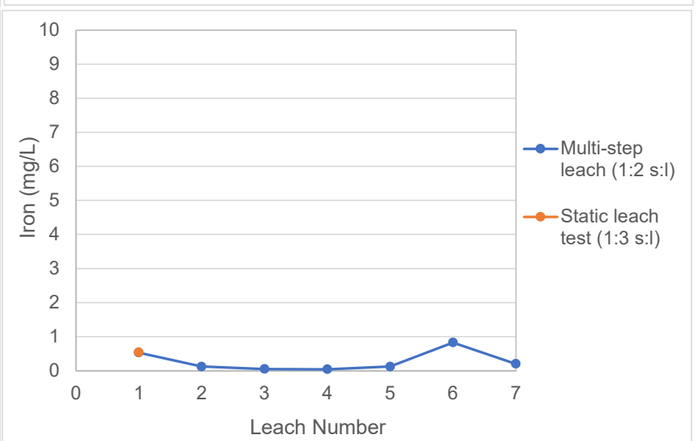

Arsenic (mg/L)
3.5
3
2.5
2
1.5
1
0.5
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

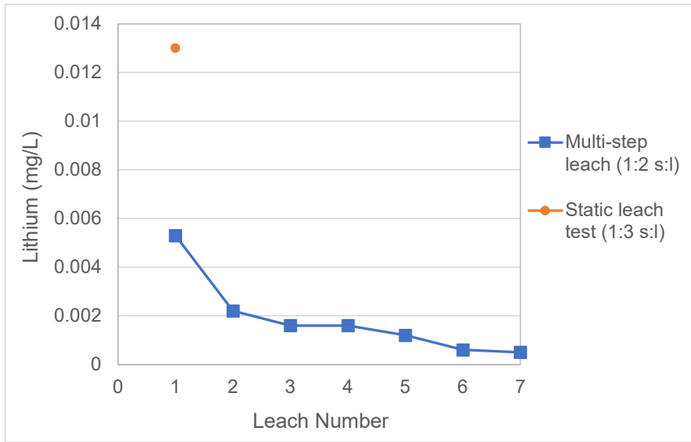

Boron (mg/L)
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

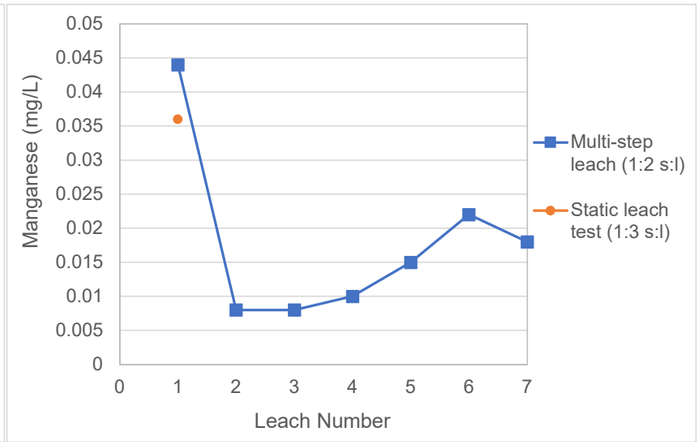

Barium (mg/L)
0.03
0.025
0.02
0.015
0.01
0.005
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

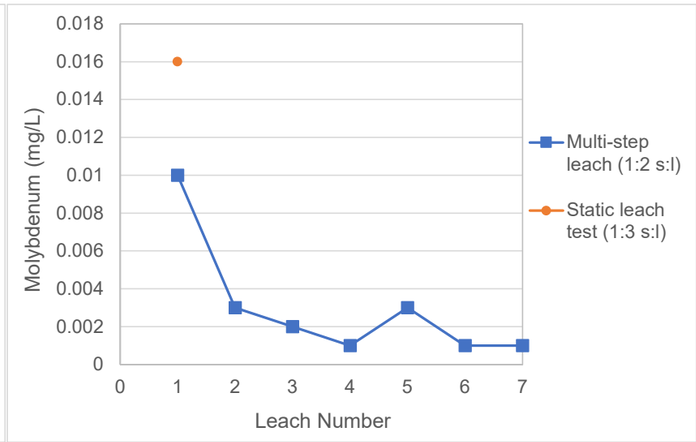

Chromium (mg/L)
0.05
0.04
0.03
0.02
0.01
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

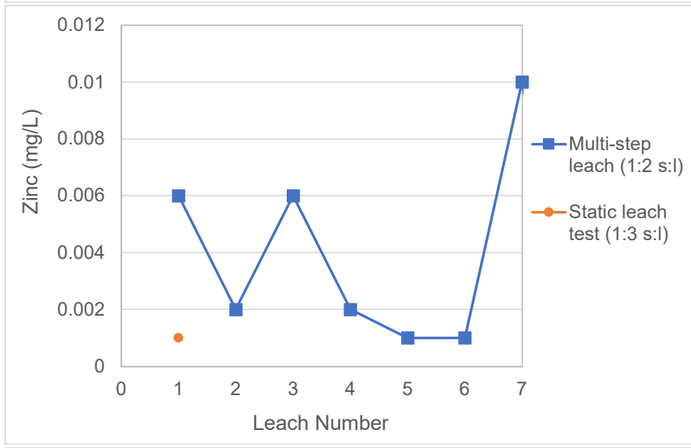

Cobalt (mg/L)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

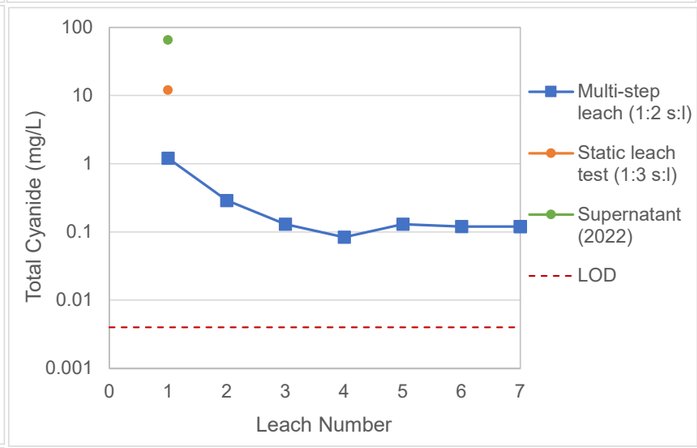

Iron (mg/L)
10
9
8
7
6
5
4
3
2
1
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

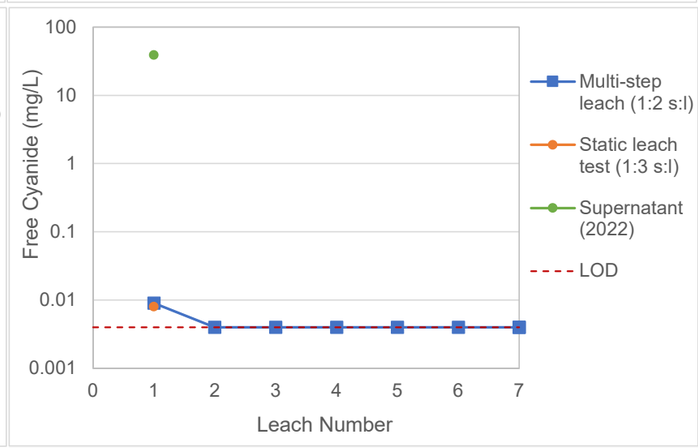

Lithium (mg/L)
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

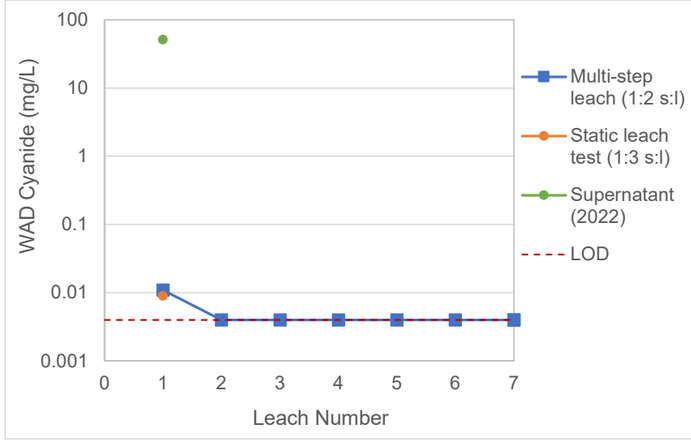

Manganese (mg/L)
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

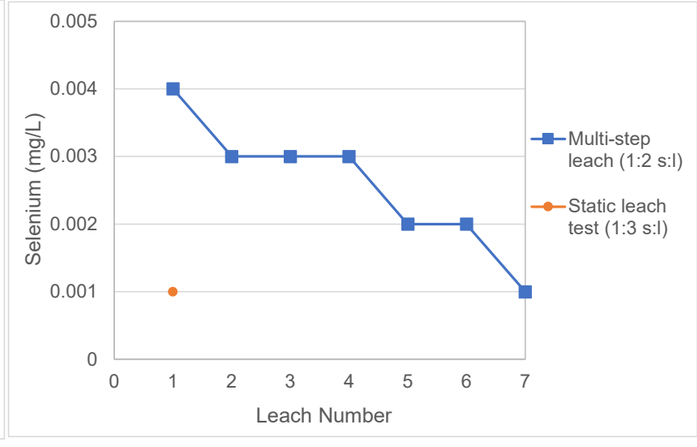

Molybdenum (mg/L)
0.018
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

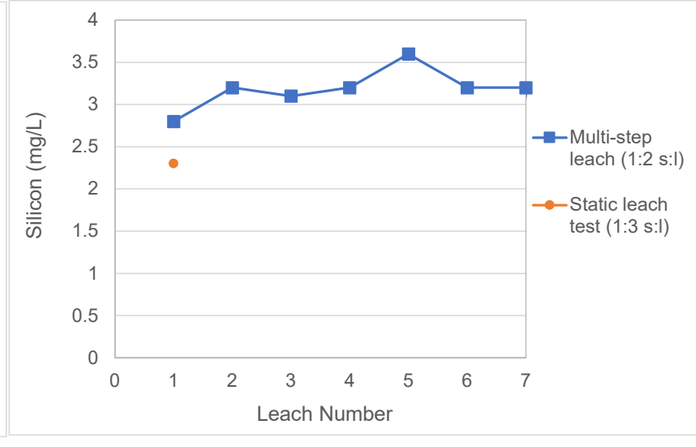

Zinc (mg/L)
0.012
0.01
0.008
0.006
0.004
0.002
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

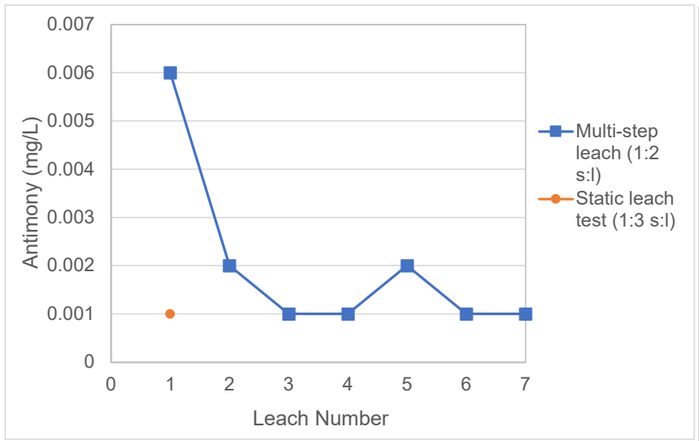

Total Cyanide (mg/L)
100
10
1
0.1
0.01
0.001
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)
Supernatant (2022)
LOD

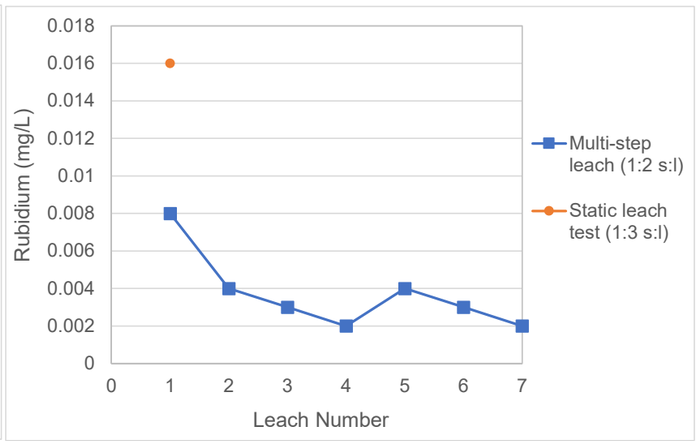

Free Cyanide (mg/L)
100
10
1
0.1
0.01
0.001
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)
Supernatant (2022)
LOD

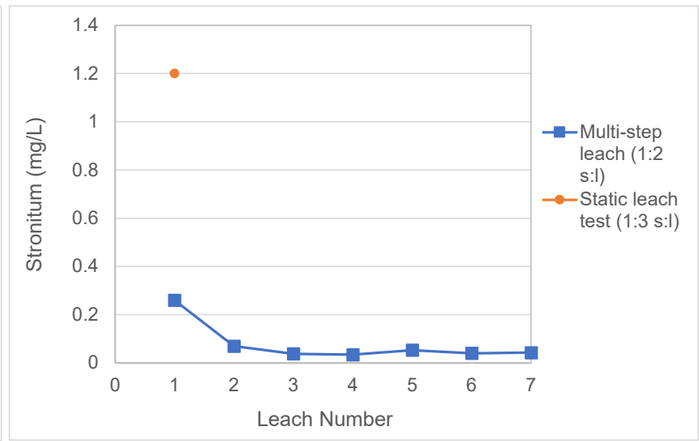

WAD Cyanide (mg/L)
100
10
1
0.1
0.01
0.001
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)
Supernatant (2022)
LOD

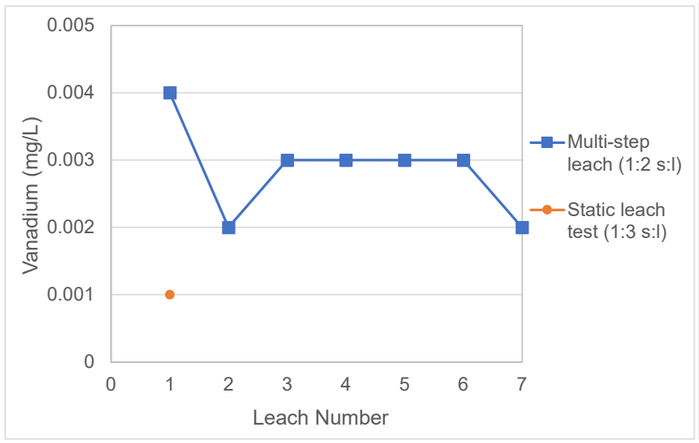

Selenium (mg/L)
0.005
0.004
0.003
0.002
0.001
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

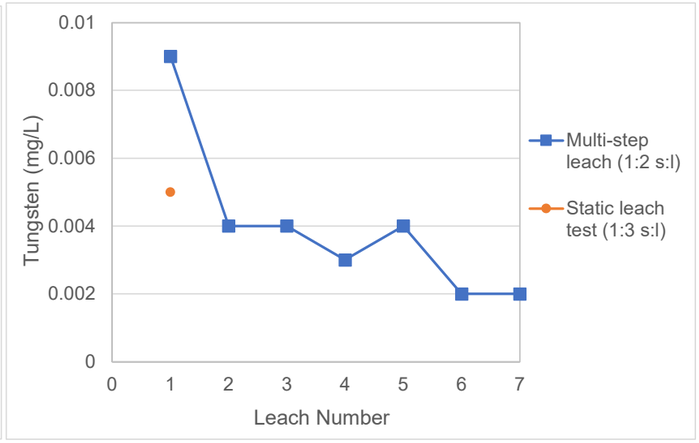

Silicon (mg/L)
4
3.5
3
2.5
2
1.5
1
0.5
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)

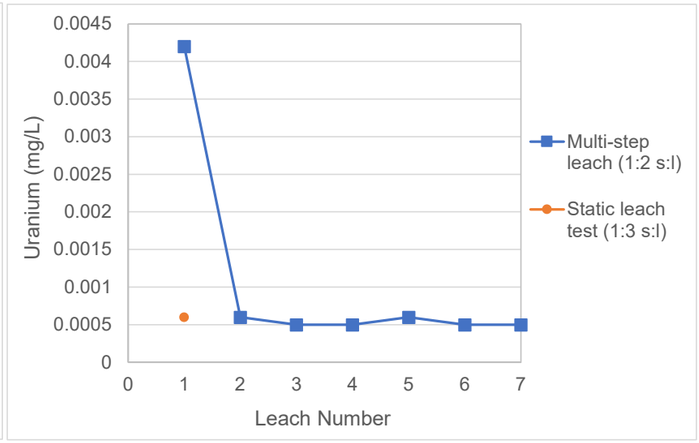

Antimony (mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)


Rubidium (mg/L)
0.018
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)


Stronitum (mg/L)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)


Vanadium (mg/L)
0.005
0.004
0.003
0.002
0.001
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)


Tungsten (mg/L)
0.01
0.008
0.006
0.004
0.002
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)


Uranium (mg/L)
0.0045
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0 1 2 3 4 5 6 7
Leach Number
Multi-step leach (1:2 s:l)
Static leach test (1:3 s:l)