



Geochemistry Baseline Report  
Jay Project  
Appendix G, Humidity Cell Testing Figures  
September 2014

## **ANNEX VIII: APPENDIX G**

## **HUMIDITY CELL TESTING FIGURES**

## Table of Contents

<b>G1 DIABASE.....</b>	<b>1</b>
<b>G2 GRANITE.....</b>	<b>21</b>
<b>G3 KIMBERLITE.....</b>	<b>41</b>
<b>G4 METASEDIMENT.....</b>	<b>63</b>

## Figures

Figure G1-1	Diabase – pH.....	1
Figure G2-2	Diabase – Redox Potential.....	1
Figure G1-3	Diabase – Conductivity.....	2
Figure G1-4	Diabase – Sulphate .....	2
Figure G1-5	Diabase – Acidity.....	3
Figure G1-6	Diabase – Alkalinity .....	3
Figure G1-7	Diabase – Silver .....	4
Figure G1-8	Diabase – Aluminium.....	4
Figure G1-9	Diabase – Arsenic .....	5
Figure G1-10	Diabase – Boron.....	5
Figure G1-11	Diabase – Barium .....	6
Figure G1-12	Diabase – Beryllium.....	6
Figure G1-13	Diabase – Bismuth .....	7
Figure G1-14	Diabase – Calcium .....	7
Figure G1-15	Diabase – Cadmium .....	8
Figure G1-16	Diabase – Cobalt .....	8
Figure G1-17	Diabase – Chromium.....	9
Figure G1-18	Diabase – Copper.....	9
Figure G1-19	Diabase – Iron .....	10
Figure G1-20	Diabase – Mercury .....	10
Figure G1-21	Diabase – Potassium.....	11
Figure G1-22	Diabase – Lithium.....	11
Figure G1-23	Diabase – Magnesium.....	12
Figure G1-24	Diabase – Manganese.....	12
Figure G1-25	Diabase – Molybdenum.....	13
Figure G1-26	Diabase – Sodium .....	13
Figure G1-27	Diabase – Nickel.....	14
Figure G1-28	Diabase – Phosphorus .....	14
Figure G1-29	Diabase – Lead .....	15
Figure G1-30	Diabase – Sulphur .....	15
Figure G1-31	Diabase – Antimony .....	16
Figure G1-32	Diabase – Selenium .....	16

Figure G1-33	Diabase – Silicon.....	17
Figure G1-34	Diabase – Tin .....	17
Figure G1-35	Diabase – Strontium.....	18
Figure G1-36	Diabase – Titanium.....	18
Figure G1-37	Diabase – Thallium.....	19
Figure G1-38	Diabase – Uranium.....	19
Figure G1-39	Diabase – Vanadium .....	20
Figure G1-40	Diabase – Zinc.....	20
Figure G2-1	Granite – pH .....	21
Figure G2-2	Granite – Redox Potential .....	21
Figure G2-3	Granite – Conductivity .....	22
Figure G2-4	Granite – Sulphate.....	22
Figure G2-5	Granite – Acidity .....	23
Figure G2-6	Granite – Alkalinity.....	23
Figure G2-7	Granite – Silver.....	24
Figure G2-8	Granite – Aluminium .....	24
Figure G2-9	Granite – Arsenic.....	25
Figure G2-10	Granite – Boron .....	25
Figure G2-11	Granite – Barium .....	26
Figure G2-12	Granite – Beryllium .....	26
Figure G2-13	Granite – Bismuth.....	27
Figure G2-14	Granite – Calcium .....	27
Figure G2-15	Granite – Cadmium .....	28
Figure G2-16	Granite – Cobalt .....	28
Figure G2-17	Granite – Chromium .....	29
Figure G2-18	Granite – Copper .....	29
Figure G2-19	Granite – Iron.....	30
Figure G2-20	Granite – Mercury.....	30
Figure G2-21	Granite – Potassium .....	31
Figure G2-22	Granite – Lithium .....	31
Figure G2-23	Granite – Magnesium .....	32
Figure G2-24	Granite – Manganese .....	32
Figure G2-25	Granite – Molybdenum .....	33
Figure G2-26	Granite – Sodium.....	33
Figure G2-27	Granite – Nickel .....	34
Figure G2-28	Granite – Phosphorus.....	34
Figure G2-29	Granite – Lead.....	35
Figure G2-30	Granite – Antimony .....	35
Figure G2-31	Granite – Selenium .....	36
Figure G2-32	Granite – Silicon .....	36
Figure G2-33	Granite – Tin .....	37
Figure G2-34	Granite – Strontium .....	37
Figure G2-35	Granite – Titanium .....	38
Figure G2-36	Granite – Thallium .....	38

Figure G2-37	Granite – Uranium .....	39
Figure G2-38	Granite – Vanadium.....	39
Figure G2-39	Granite – Zinc .....	40
Figure G3-1	Kimberlite – pH .....	41
Figure G3-2	Kimberlite – Redox Potential.....	41
Figure G3-3	Kimberlite – Conductivity .....	42
Figure G3-4	Kimberlite – Sulphate .....	42
Figure G3-5	Kimberlite – Acidity .....	43
Figure G3-6	Kimberlite – Alkalinity .....	43
Figure G3-7	Kimberlite – Silver.....	44
Figure G3-8	Kimberlite – Aluminium.....	44
Figure G3-9	Kimberlite – Arsenic.....	45
Figure G3-10	Kimberlite – Boron .....	45
Figure G3-11	Kimberlite – Barium .....	46
Figure G3-12	Kimberlite – Beryllium.....	46
Figure G3-13	Kimberlite – Bismuth.....	47
Figure G3-14	Kimberlite – Calcium.....	47
Figure G3-15	Kimberlite – Cadmium .....	48
Figure G3-16	Kimberlite – Cobalt .....	48
Figure G3-17	Kimberlite – Chromium .....	49
Figure G3-18	Kimberlite – Copper.....	49
Figure G3-19	Kimberlite – Iron .....	50
Figure G3-20	Kimberlite – Mercury.....	50
Figure G3-21	Kimberlite – Potassium.....	51
Figure G3-22	Kimberlite – Lithium .....	51
Figure G3-23	Kimberlite – Magnesium.....	52
Figure G3-24	Kimberlite – Manganese.....	52
Figure G3-25	Kimberlite – Molybdenum.....	53
Figure G3-26	Kimberlite – Sodium .....	53
Figure G3-27	Kimberlite – Nickel.....	54
Figure G3-28	Kimberlite – Phosphorus .....	54
Figure G3-29	Kimberlite – Lead.....	55
Figure G3-30	Kimberlite – Sulphur .....	55
Figure G3-31	Kimberlite – Antimony.....	56
Figure G3-32	Kimberlite – Selenium.....	56
Figure G3-33	Kimberlite – Silicon .....	57
Figure G3-34	Kimberlite – Tin.....	57
Figure G3-35	Kimberlite – Strontium .....	58
Figure G3-36	Kimberlite – Titanium.....	58
Figure G3-37	Kimberlite – Thallium.....	59
Figure G3-38	Kimberlite – Uranium .....	59
Figure G3-39	Kimberlite – Vanadium .....	60
Figure G3-40	Kimberlite – Zinc.....	60
Figure G3-41	Kimberlite – Cerium .....	61

Figure G3-42	Kimberlite – Tellurium .....	61
Figure G3-43	Kimberlite – Tungsten.....	62
Figure G4-1	Metasediments – pH.....	63
Figure G4-2	Metasediments – Redox Potential.....	63
Figure G4-3	Metasediments – Conductivity .....	64
Figure G4-4	Metasediments – Sulphate .....	64
Figure G4-5	Metasediments – Acidity.....	65
Figure G4-6	Metasediments – Alkalinity .....	65
Figure G4-7	Metasediments – Silver .....	66
Figure G4-8	Metasediments – Aluminium .....	66
Figure G4-9	Metasediments – Arsenic .....	67
Figure G4-10	Metasediments – Boron.....	67
Figure G4-11	Metasediments – Barium.....	68
Figure G4-12	Metasediments – Beryllium .....	68
Figure G4-13	Metasediments – Bismuth .....	69
Figure G4-14	Metasediments – Calcium .....	69
Figure G4-15	Metasediments – Cadmium.....	70
Figure G4-16	Metasediments – Cobalt.....	70
Figure G4-17	Metasediments – Chromium.....	71
Figure G4-18	Metasediments – Copper .....	71
Figure G4-19	Metasediments – Iron .....	72
Figure G4-20	Metasediments – Mercury .....	72
Figure G4-21	Metasediments – Potassium .....	73
Figure G4-22	Metasediments – Lithium.....	73
Figure G4-23	Metasediments – Magnesium .....	74
Figure G4-24	Metasediments – Manganese .....	74
Figure G4-25	Metasediments – Molybdenum .....	75
Figure G4-26	Metasediments – Sodium .....	75
Figure G4-27	Metasediments – Nickel .....	76
Figure G4-28	Metasediments – Phosphorus .....	76
Figure G4-29	Metasediments – Lead .....	77
Figure G4-30	Metasediments – Sulphur.....	77
Figure G4-31	Metasediments – Antimony .....	78
Figure G4-32	Metasediments – Selenium .....	78
Figure G4-33	Metasediments – Silicon.....	79
Figure G4-34	Metasediments – Tin .....	79
Figure G4-35	Metasediments – Strontium.....	80
Figure G4-36	Metasediments – Titanium .....	80
Figure G4-37	Metasediments – Thallium.....	81
Figure G4-38	Metasediments – Uranium.....	81
Figure G4-39	Metasediments – Vanadium .....	82
Figure G4-40	Metasediments – Zinc .....	82

## Abbreviations

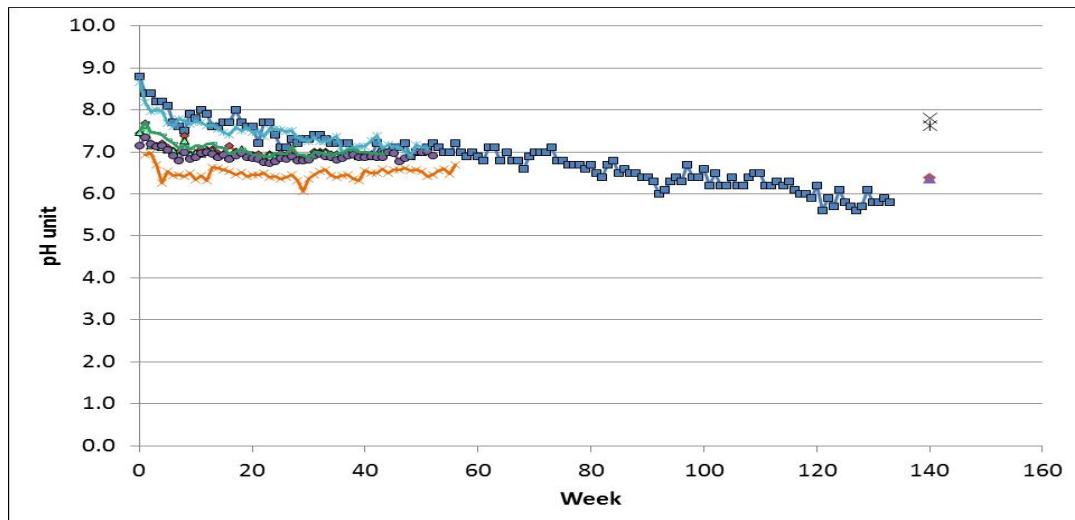
Abbreviation	Definition
Ag	silver (argentum)
Al	aluminum
As	arsenic
B	boron
Ba	barium
Be	beryllium
Bi	bismuth
Ca	calcium
Cd	cadmium
Ce	cerium
Co	cobalt
Cond.	conductivity
Cr	chromium
Cu	copper
Eh	reduction potential
Fe	iron (ferrum)
Hg	mercury (hydrargyrum)
K	potassium (kalium)
Li	lithium
Mg	magnesium
Mn	manganese
Mo	molybdenum
Na	sodium (natrium)
Ni	nickel
P	phosphorous
Pb	lead (plumbum)
S	sulphur
Sb	antimony (stibium)
Se	selenium
Si	silicon
Sn	tin (stannum)
Sr	strontium
Ta	tantalum
Te	tellurium
Ti	titanium
Tl	thallium
U	uranium
V	vanadium
Zn	zinc

## Units of Measure

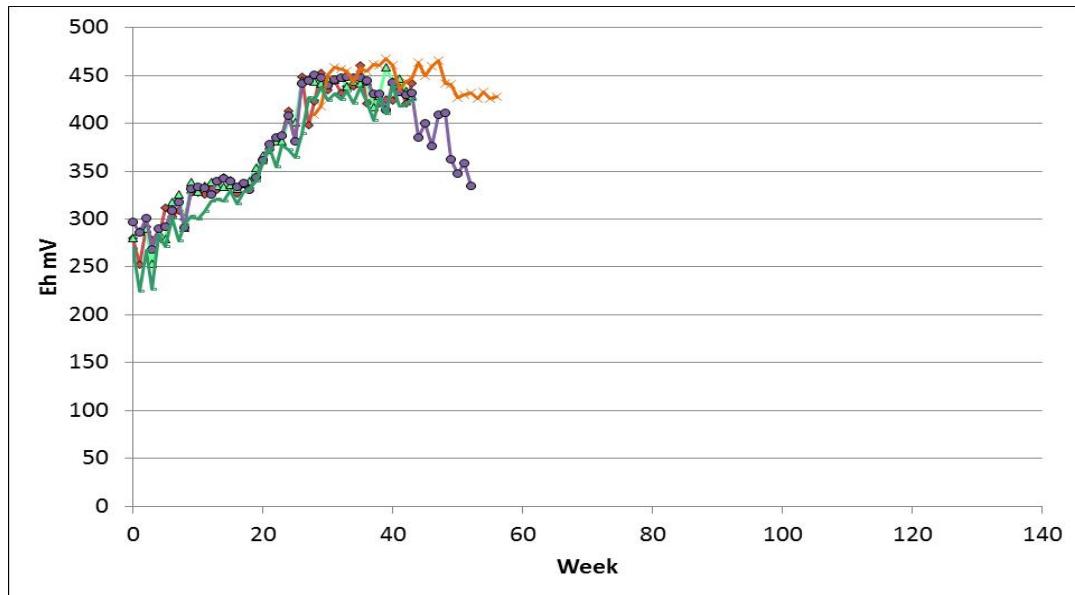
Unit	Definition
mgCaCO <sub>3</sub> /L	milligrams calcium carbonate per litre
mg/L	milligrams per litre
mV	millivolt
µmho/cm	micromho per centimetre (mho are a unit of conductance)

## G1 DIABASE

**Figure G1-1 Diabase – pH**



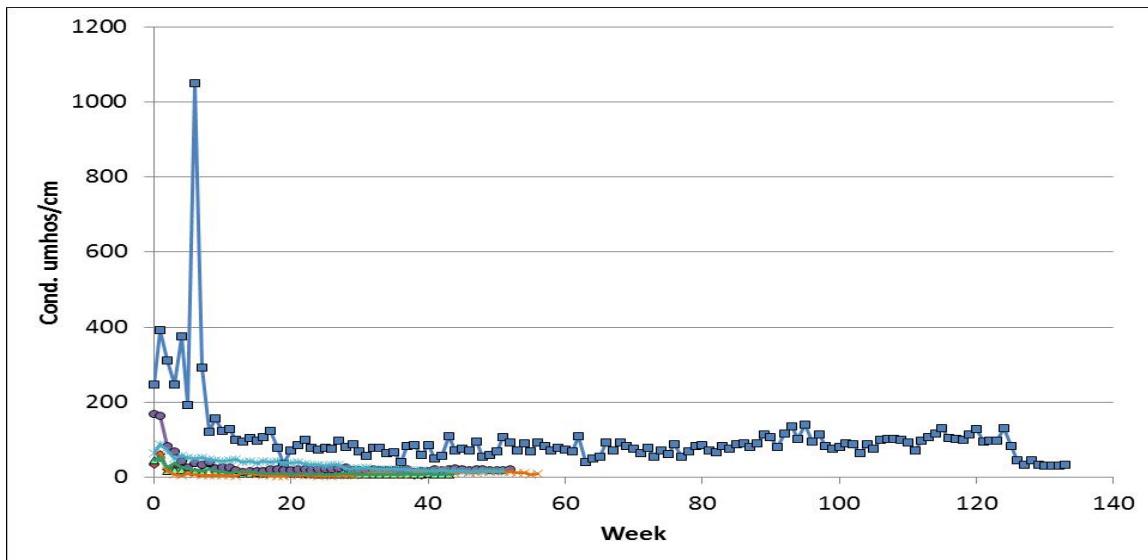
**Figure G2-2 Diabase – Redox Potential**



Eh = redox potential; mV = millivolt.

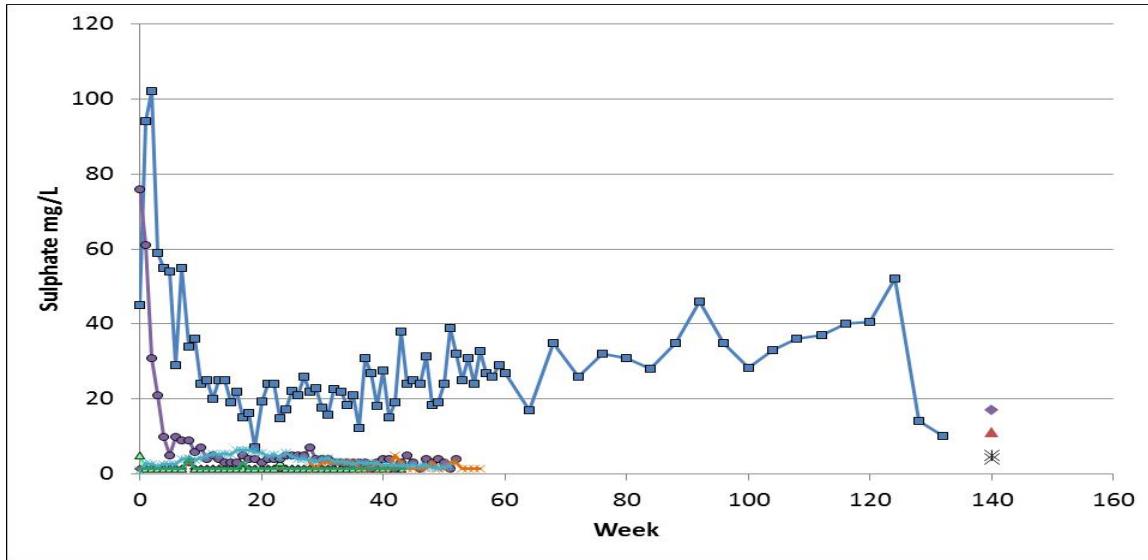
■ FUC 3-3 70 - Fox	◆ HC-5 - Sable	△ HC-3 - Pigeon
● HC-4 - Pigeon	○ HC-4 Leach - Pigeon	▲ HC-Pdef-1 - Pigeon
▬ HC-3 - Beartooth	✖ 2014-DD-040 - Shake Flask Extraction	✖ 2014-DD-049 - Shake Flask Extraction
◆ 2014-DD-040 - Net Acid Generation	▲ 2014-DD-049 - Net Acid Generation	

**Figure G1-3 Diabase – Conductivity**

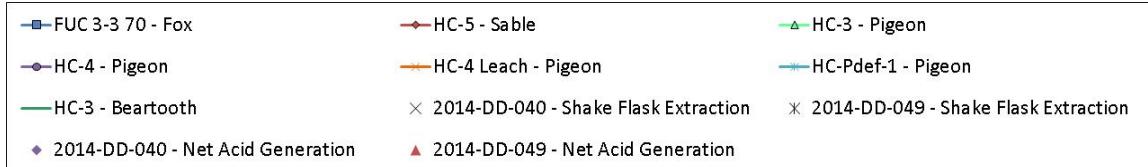


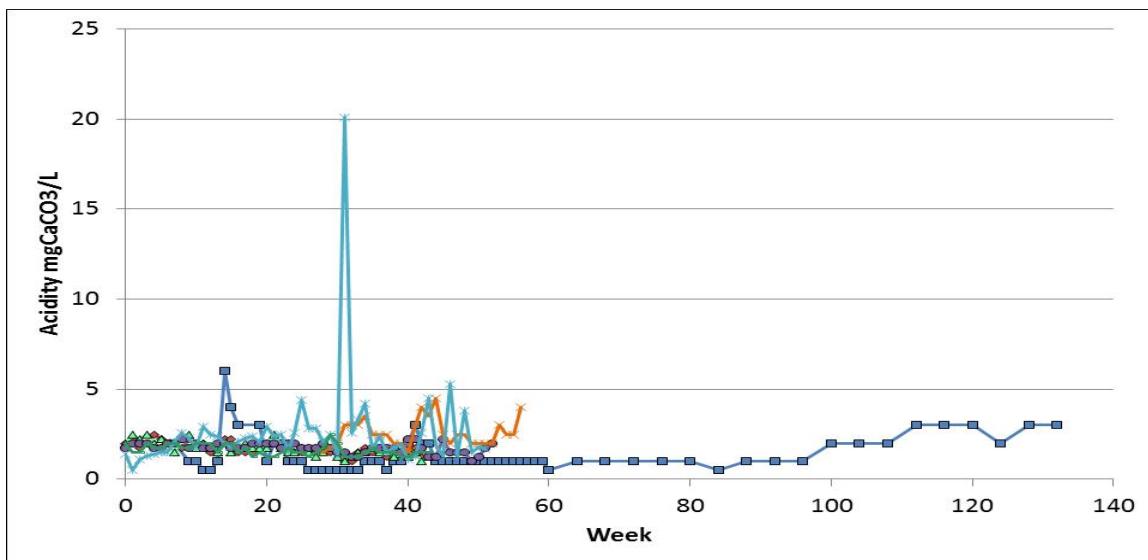
Cond. = conductivity;  $\mu\text{mho}/\text{cm}$  = micromho per centimetre.

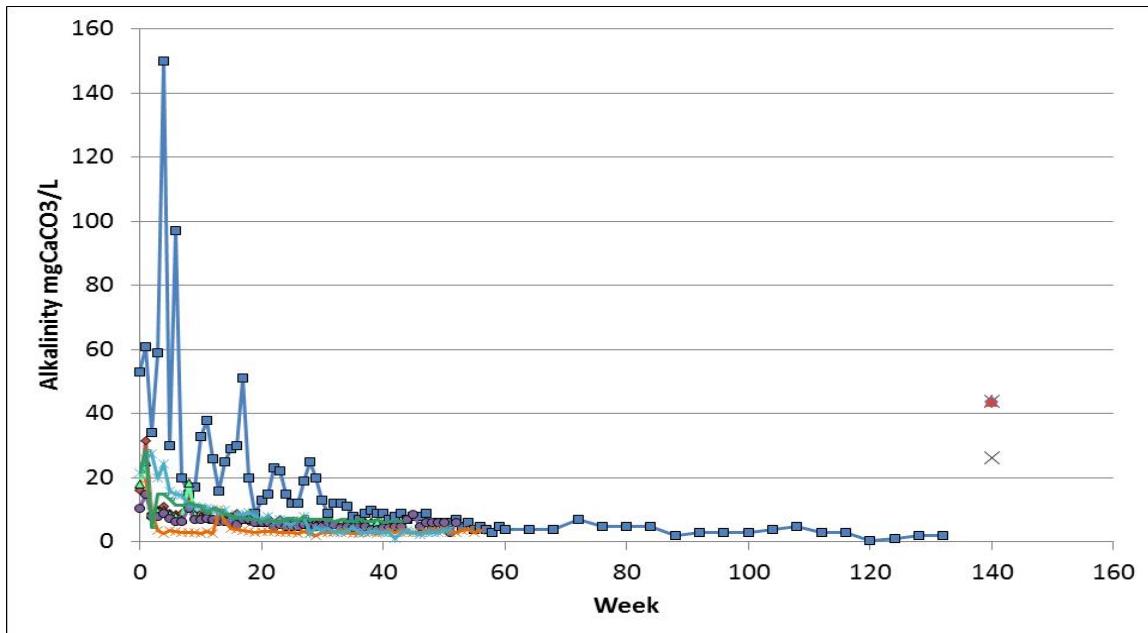
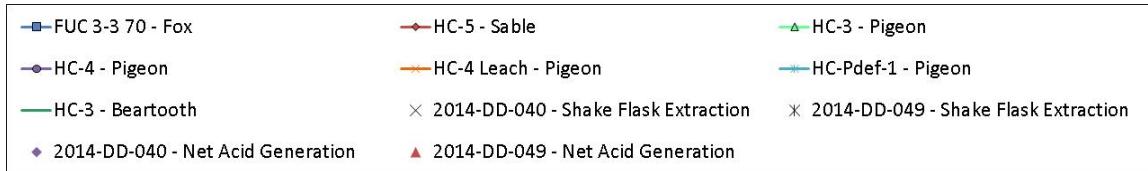
**Figure G1-4 Diabase – Sulphate**

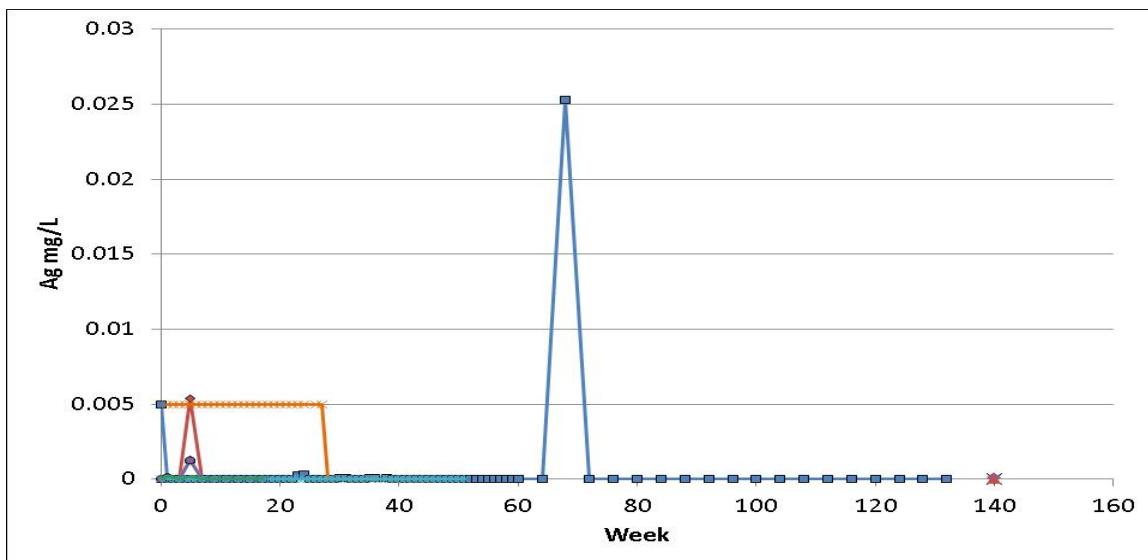


mg/L = milligrams per litre.

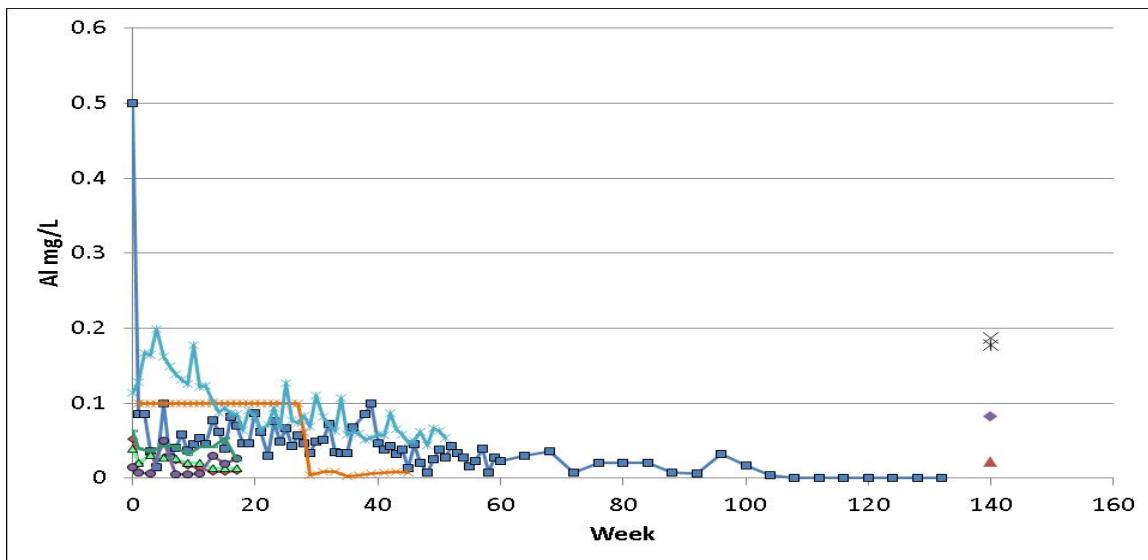


**Figure G1-5 Diabase – Acidity**

 mgCaCO<sub>3</sub>/L = milligrams calcium carbonate per litre.

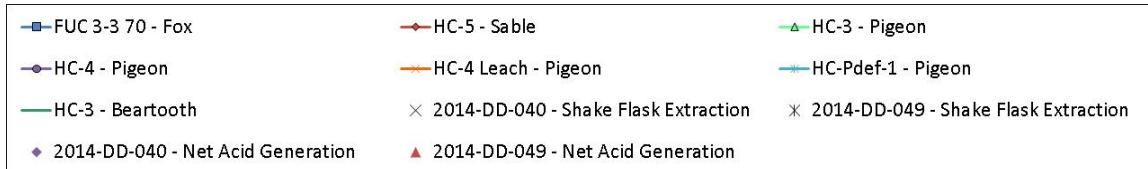
**Figure G1-6 Diabase – Alkalinity**

 mgCaCO<sub>3</sub>/L = milligrams calcium carbonate per litre.


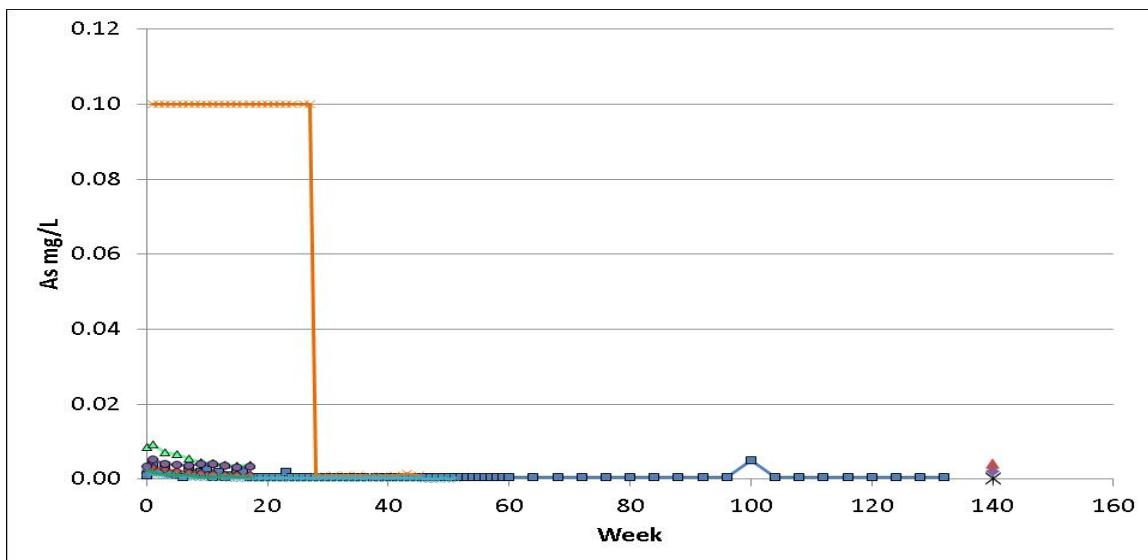
**Figure G1-7 Diabase – Silver**


mg/L = milligrams per litre; Ag = silver.

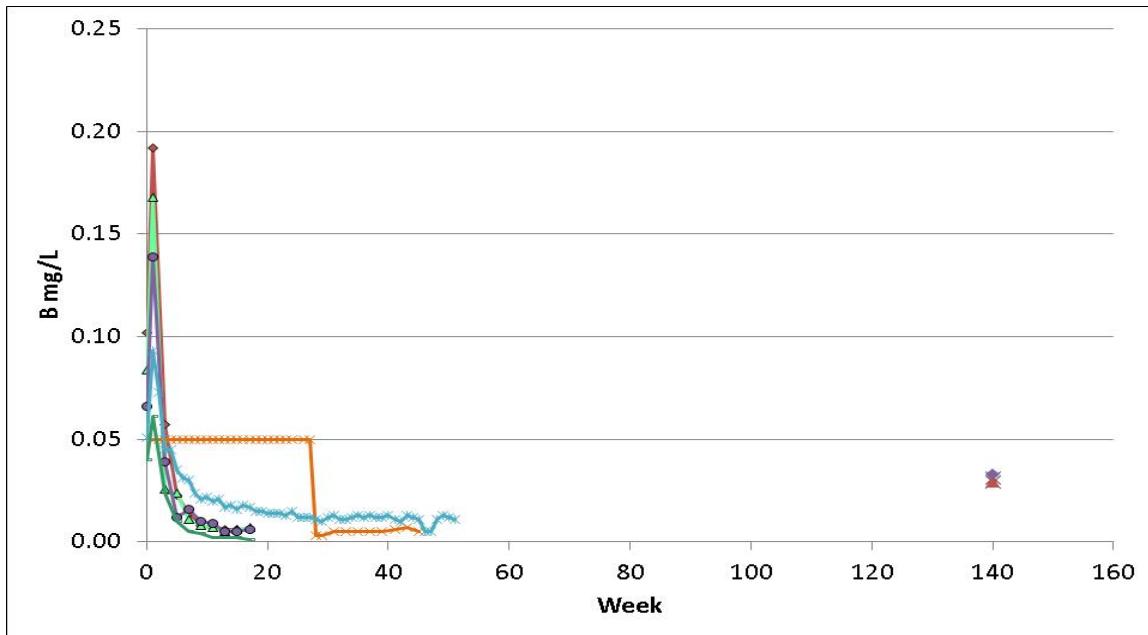
**Figure G1-8 Diabase – Aluminium**


mg/L = milligrams per litre; Al = aluminium.



**Figure G1-9 Diabase – Arsenic**


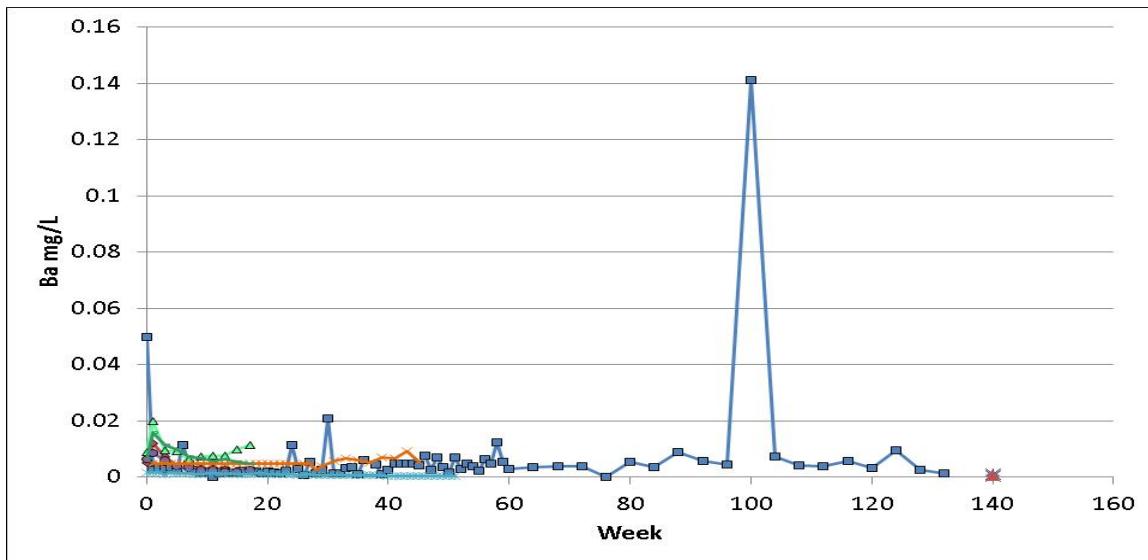
mg/L = milligrams per litre; As = arsenic.

**Figure G1-10 Diabase – Boron**


mg/L = milligrams per litre; B = boron.

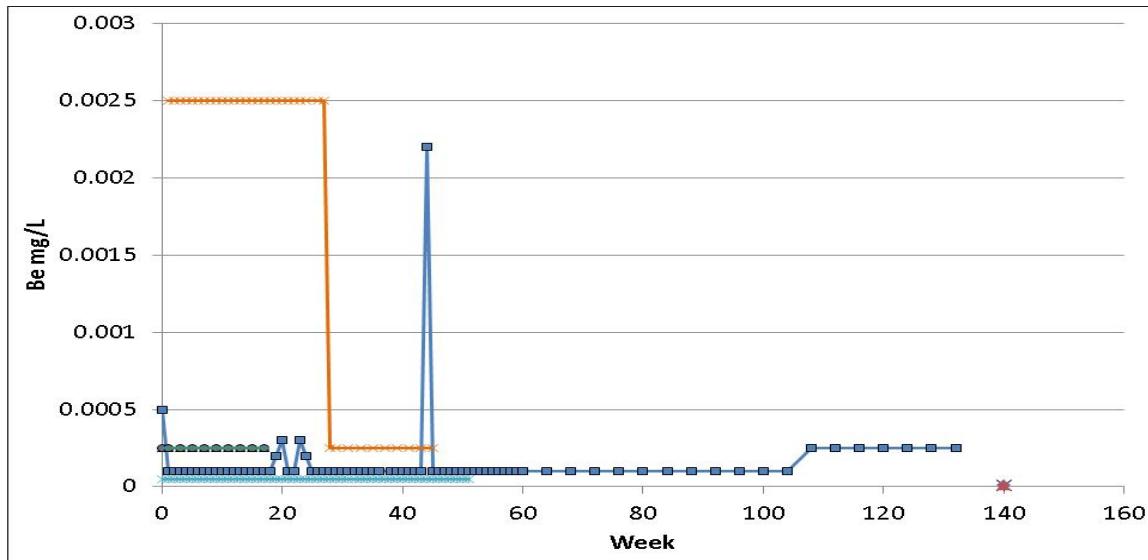
■ FUC 3-3 70 - Fox	■ HC-5 - Sable	▲ HC-3 - Pigeon
● HC-4 - Pigeon	— HC-4 Leach - Pigeon	■ HC-Pdef-1 - Pigeon
— HC-3 - Beartooth	× 2014-DD-040 - Shake Flask Extraction	× 2014-DD-049 - Shake Flask Extraction
◆ 2014-DD-040 - Net Acid Generation	▲ 2014-DD-049 - Net Acid Generation	

**Figure G1-11 Diabase – Barium**

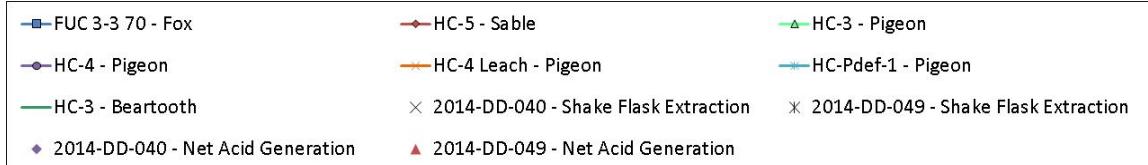


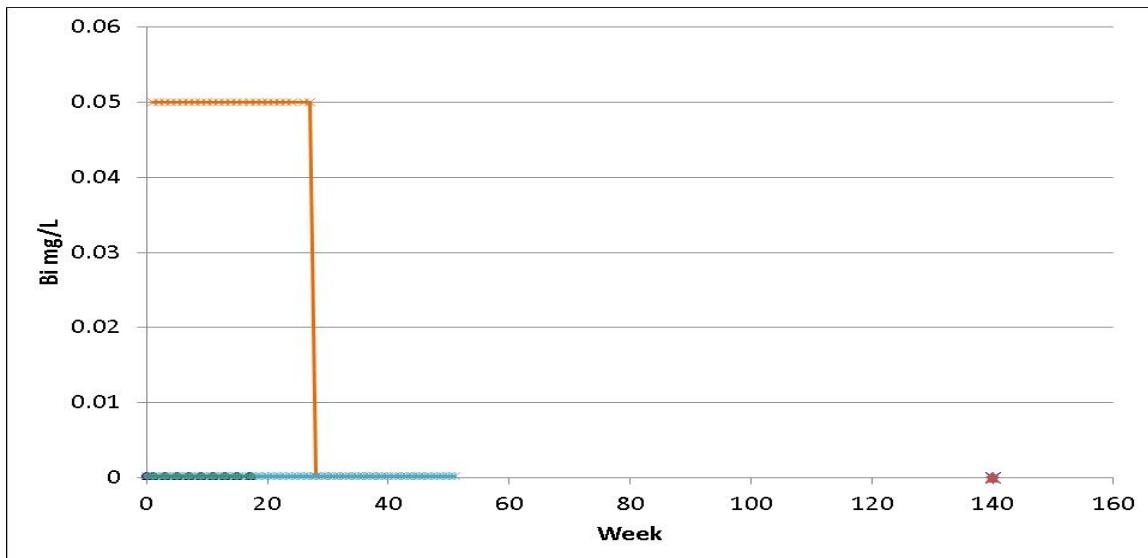
mg/L = milligrams per litre; Ba = barium.

**Figure G1-12 Diabase – Beryllium**

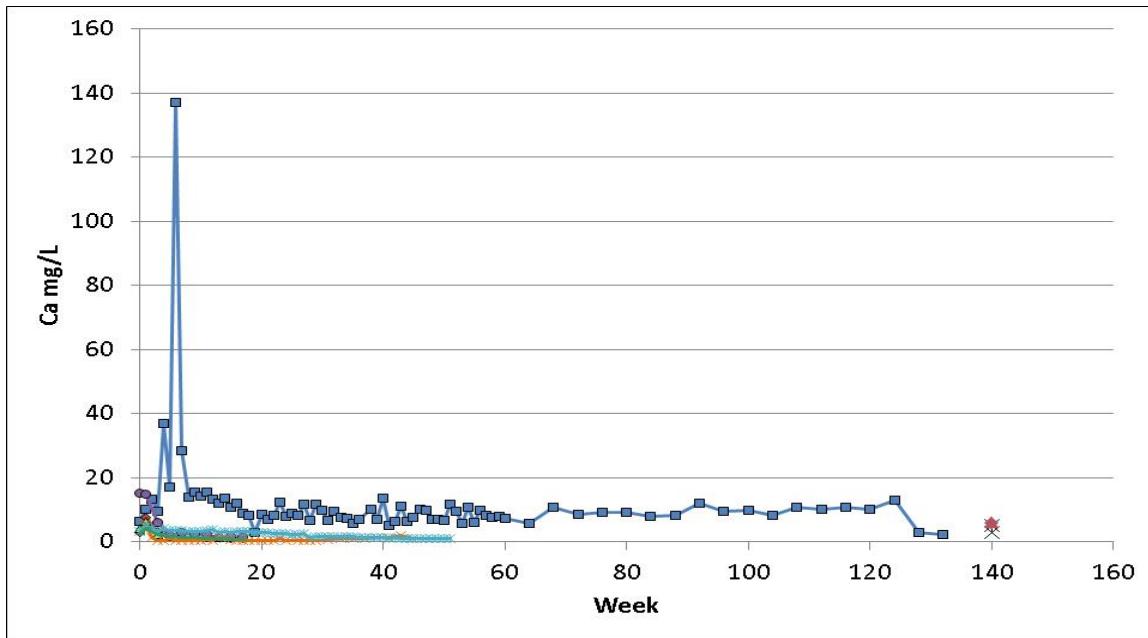


mg/L = milligrams per litre; Be = beryllium.



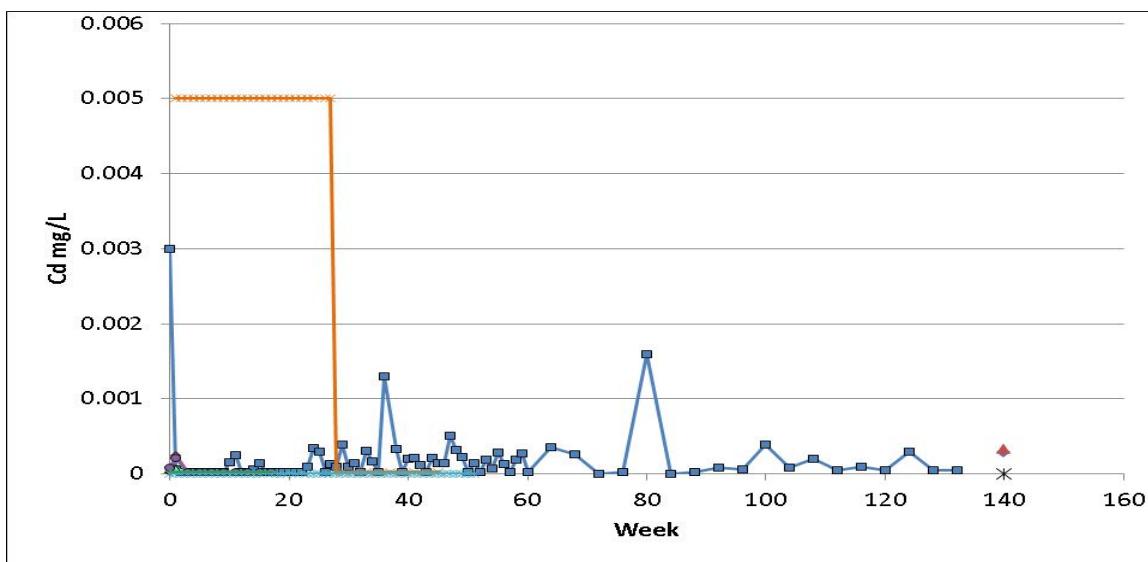
**Figure G1-13 Diabase – Bismuth**


mg/L = milligrams per litre; Bi = bismuth.

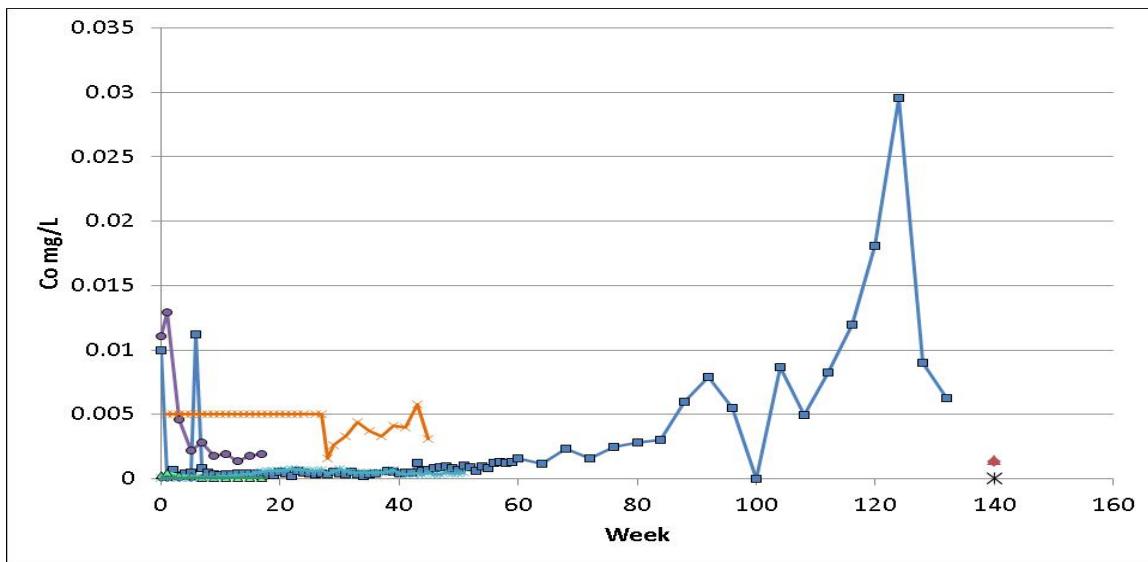
**Figure G1-14 Diabase – Calcium**


mg/L = milligrams per litre; Ca = calcium.

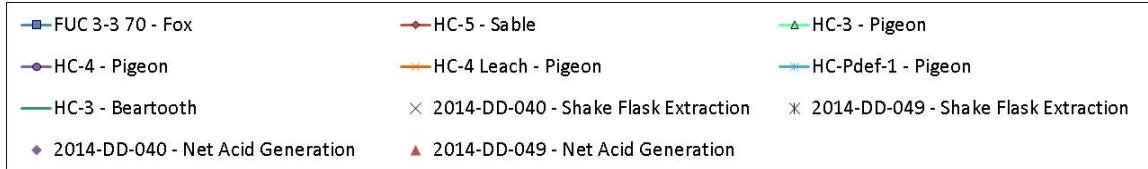
■ FUC 3-3 70 - Fox	◆ HC-5 - Sable	▲ HC-3 - Pigeon
● HC-4 - Pigeon	▬ HC-4 Leach - Pigeon	▬ HC-Pdef-1 - Pigeon
▬ HC-3 - Beartooth	× 2014-DD-040 - Shake Flask Extraction	* 2014-DD-049 - Shake Flask Extraction
♦ 2014-DD-040 - Net Acid Generation	▲ 2014-DD-049 - Net Acid Generation	

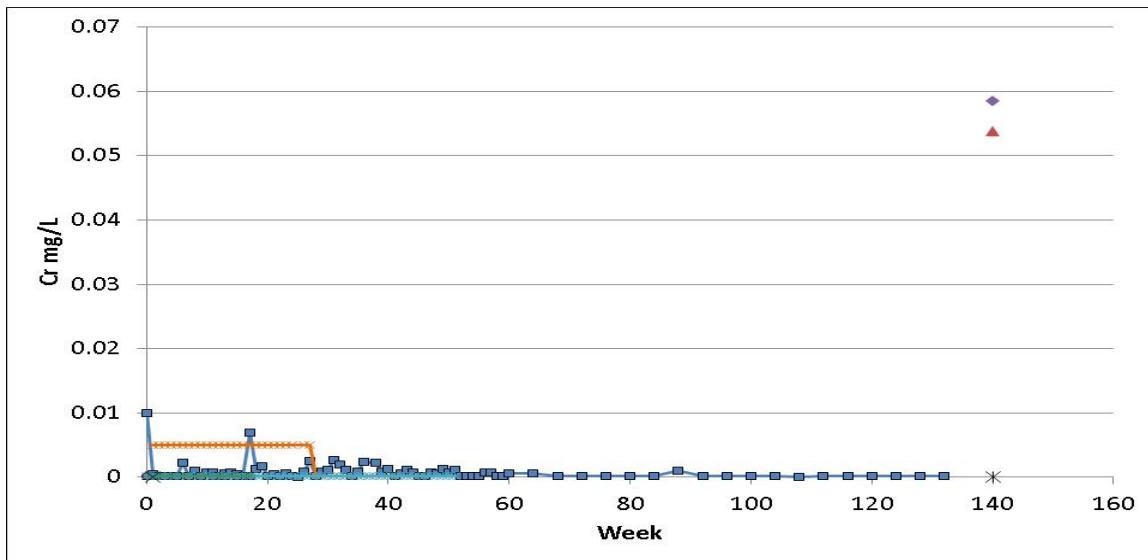
**Figure G1-15 Diabase – Cadmium**


mg/L = milligrams per litre; Cd = cadmium.

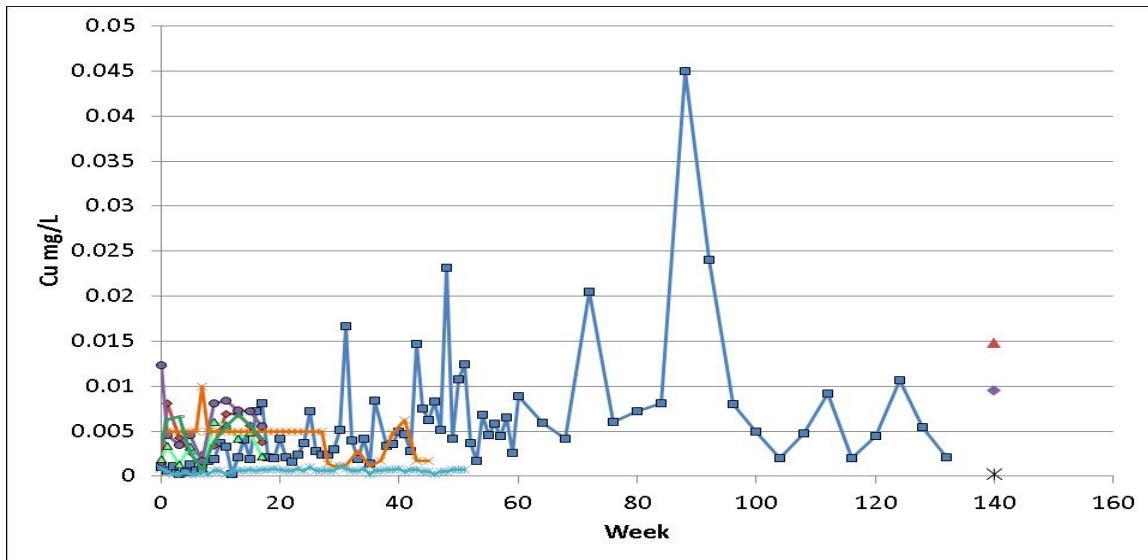
**Figure G1-16 Diabase – Cobalt**


mg/L = milligrams per litre; Co = cobalt.

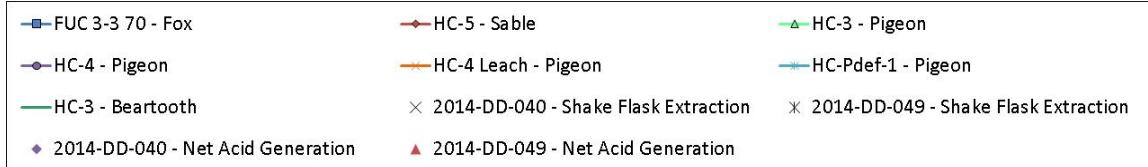


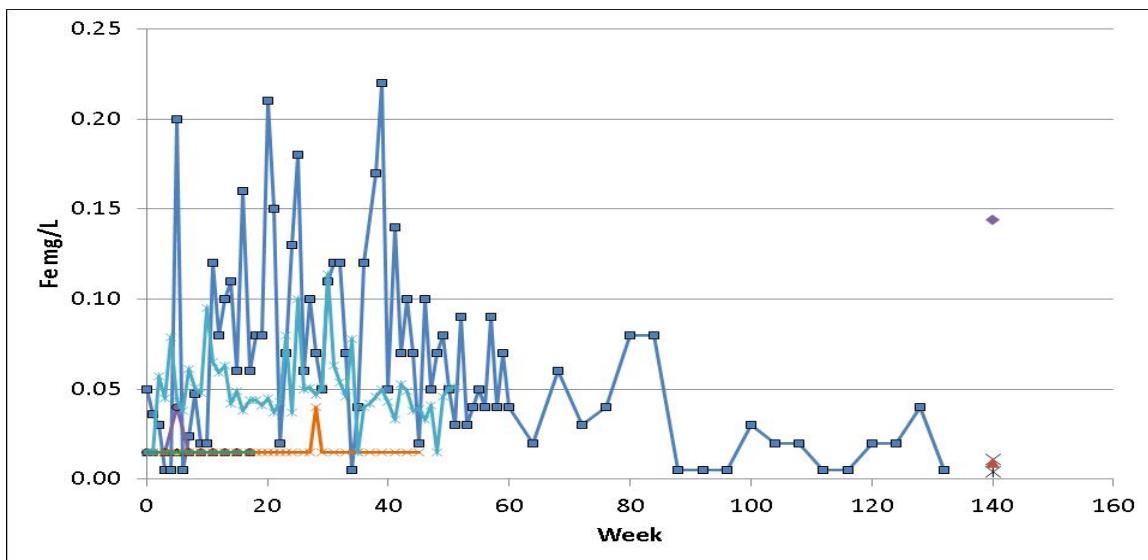
**Figure G1-17 Diabase – Chromium**


mg/L = milligrams per litre; Cr = chromium.

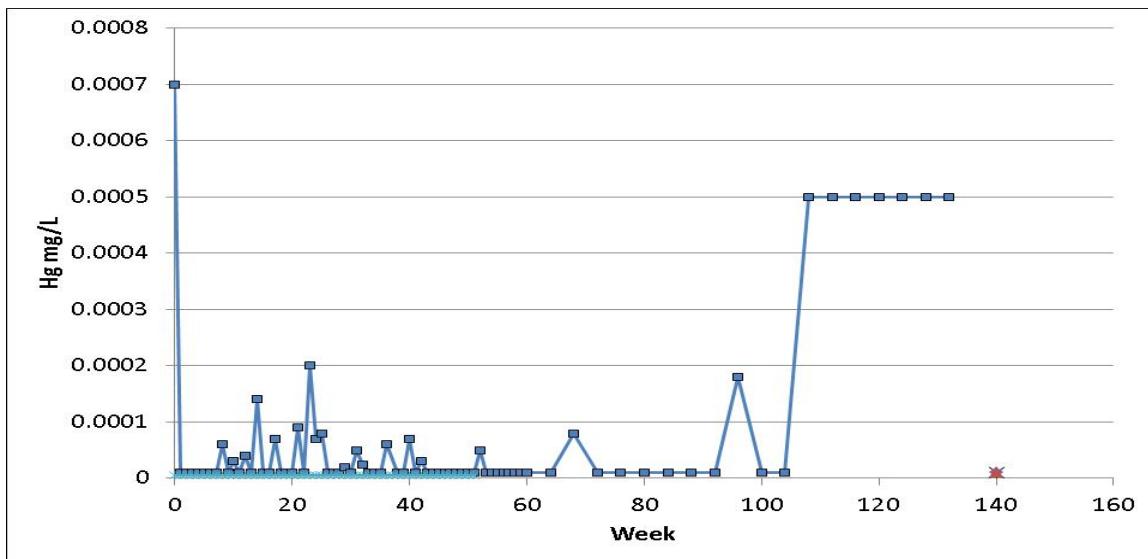
**Figure G1-18 Diabase – Copper**


mg/L = milligrams per litre; Cu = copper.

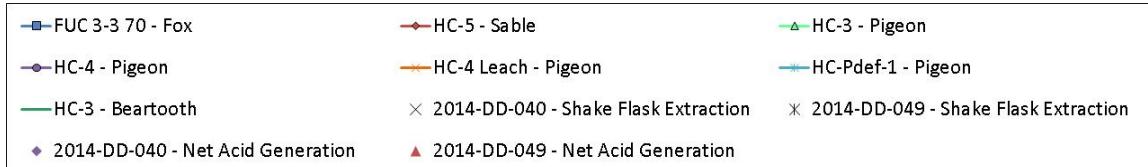


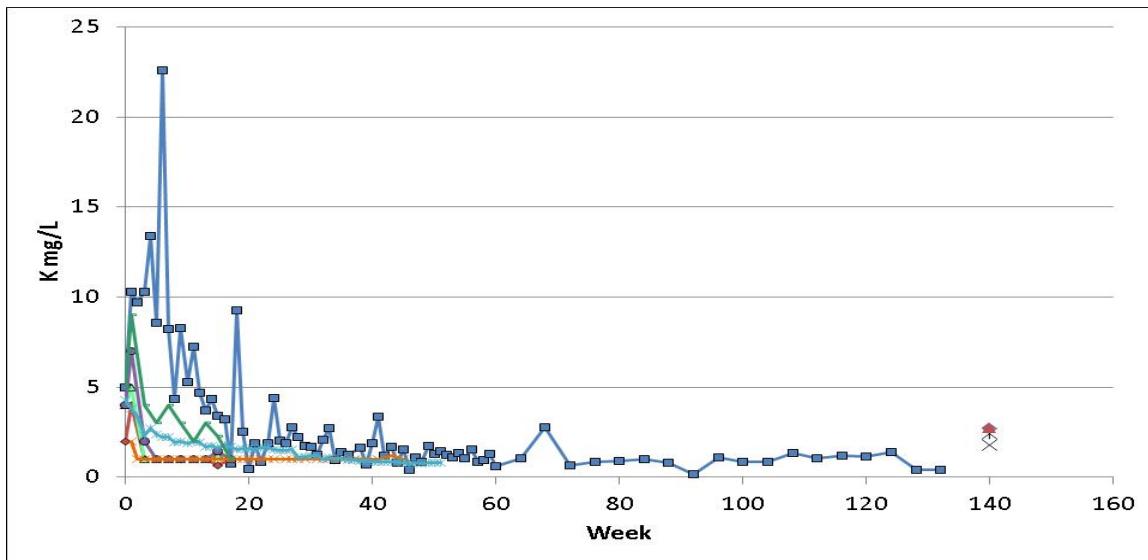
**Figure G1-19 Diabase – Iron**


mg/L = milligrams per litre; Fe = iron.

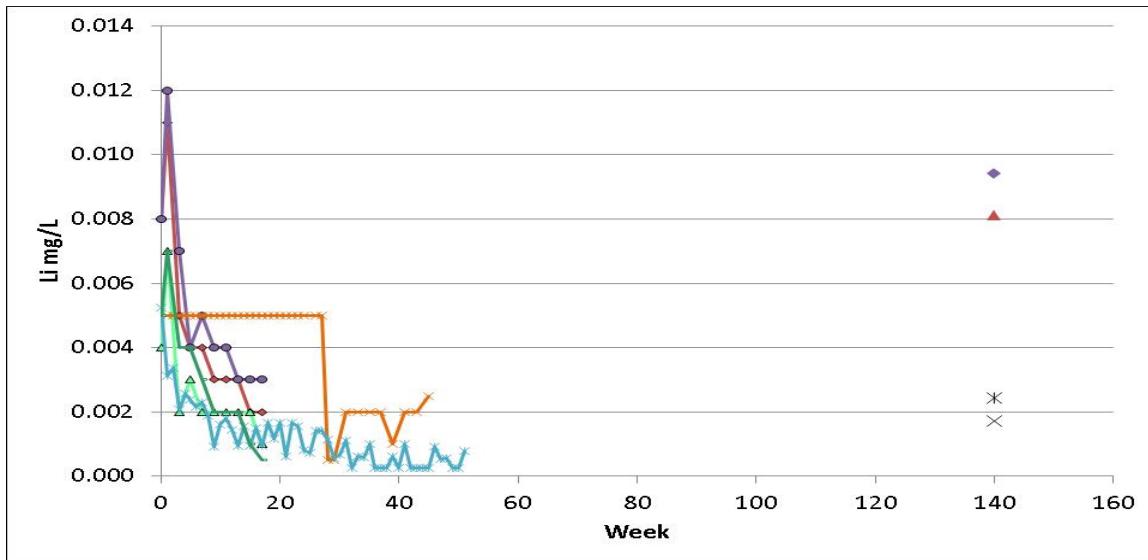
**Figure G1-20 Diabase – Mercury**


mg/L = milligrams per litre; Hg = mercury.

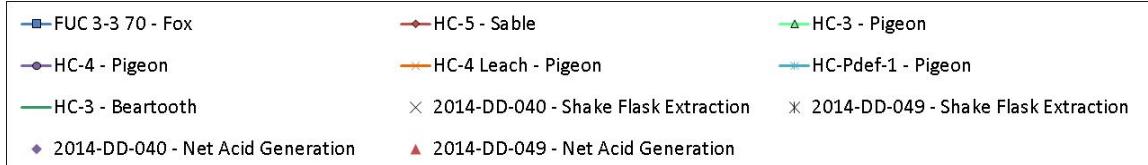


**Figure G1-21 Diabase – Potassium**


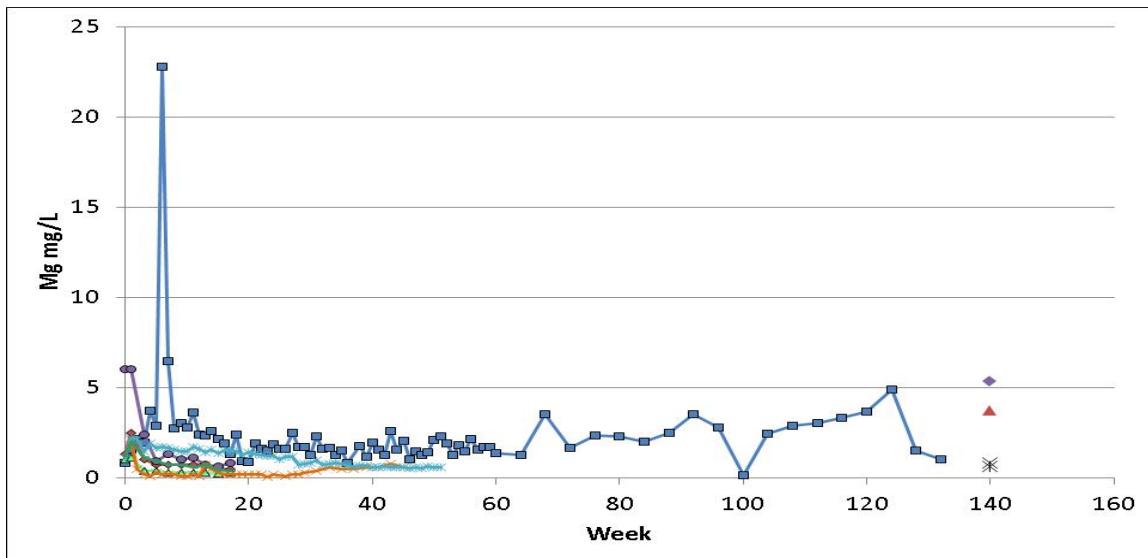
mg/L = milligrams per litre; K = potassium.

**Figure G1-22 Diabase – Lithium**


mg/L = milligrams per litre; Li = lithium.

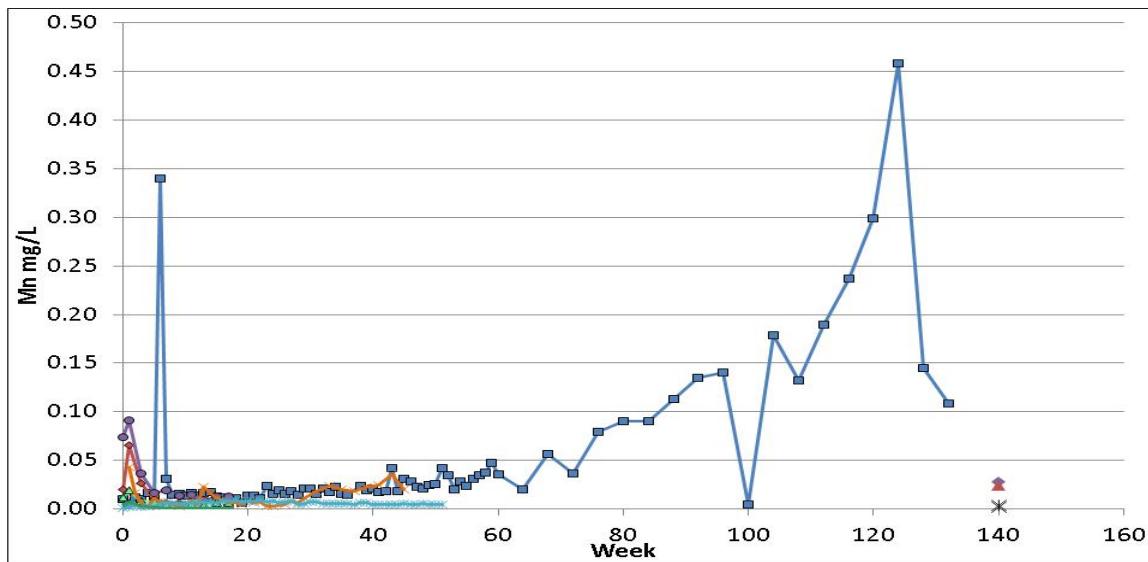


**Figure G1-23 Diabase – Magnesium**

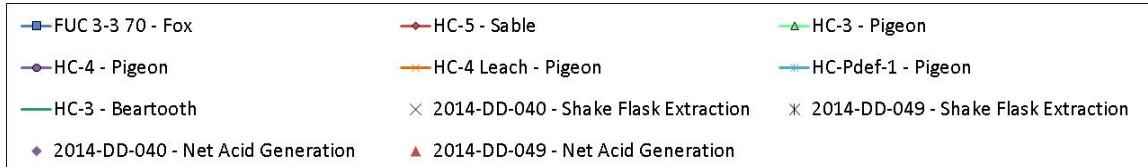


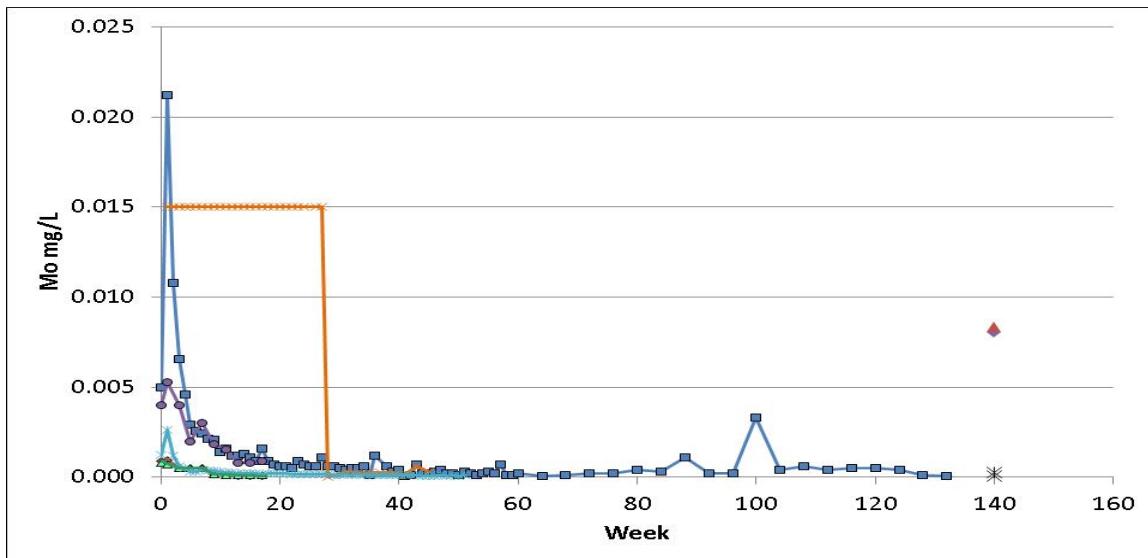
mg/L = milligrams per litre; Mg = magnesium.

**Figure G1-24 Diabase – Manganese**

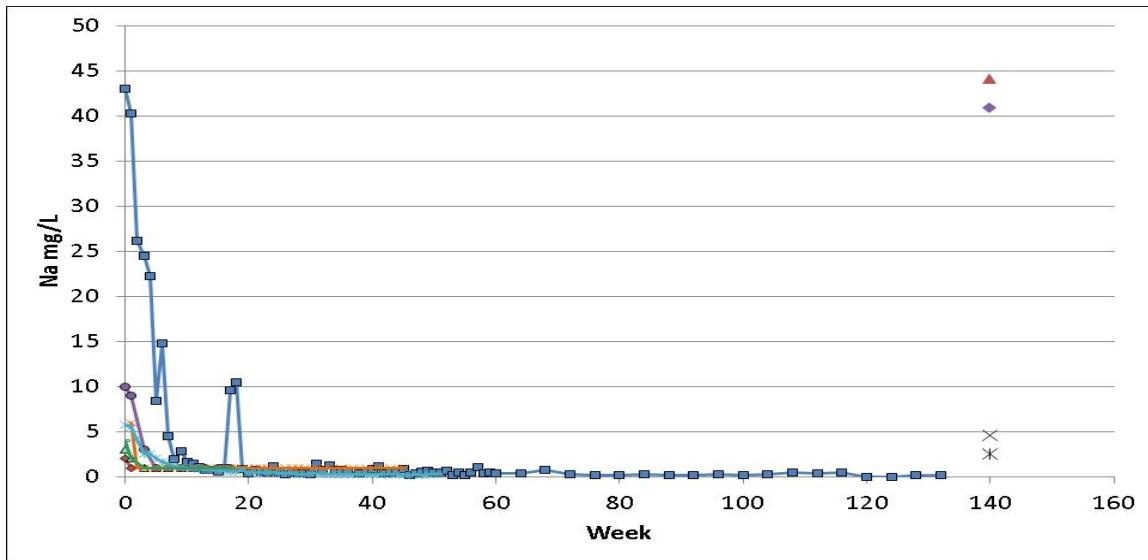


mg/L = milligrams per litre; Mn = manganese.

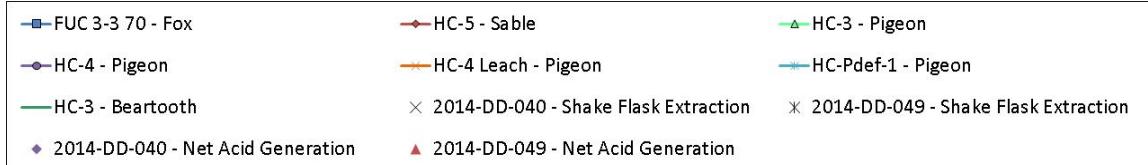


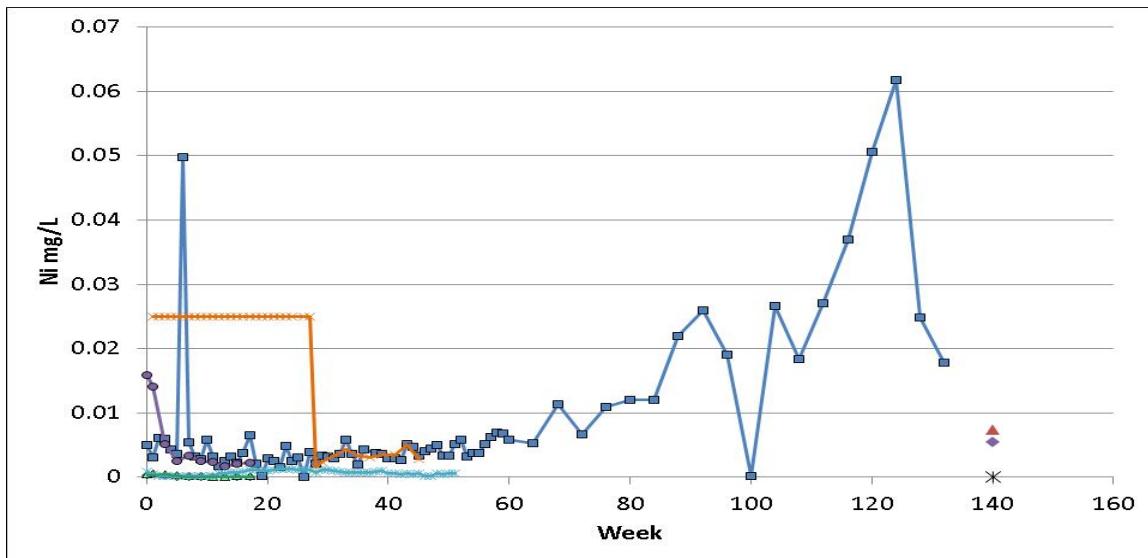
**Figure G1-25 Diabase – Molybdenum**


mg/L = milligrams per litre; Mo = molybdenum.

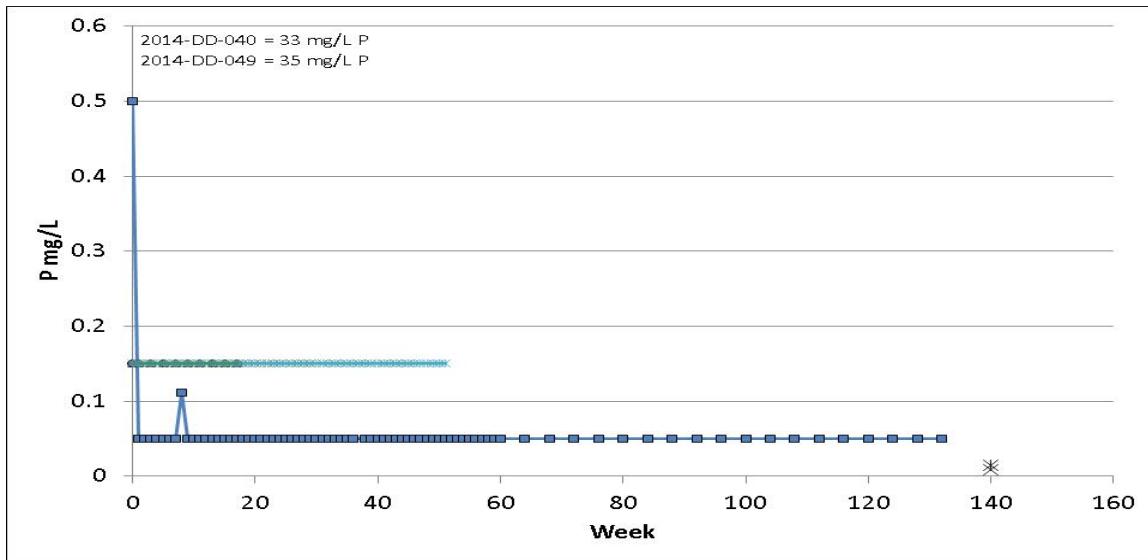
**Figure G1-26 Diabase – Sodium**


mg/L = milligrams per litre; Na = sodium.

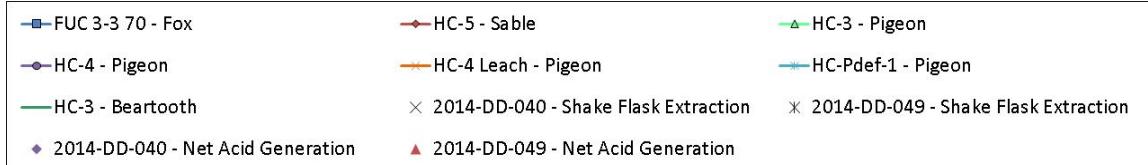


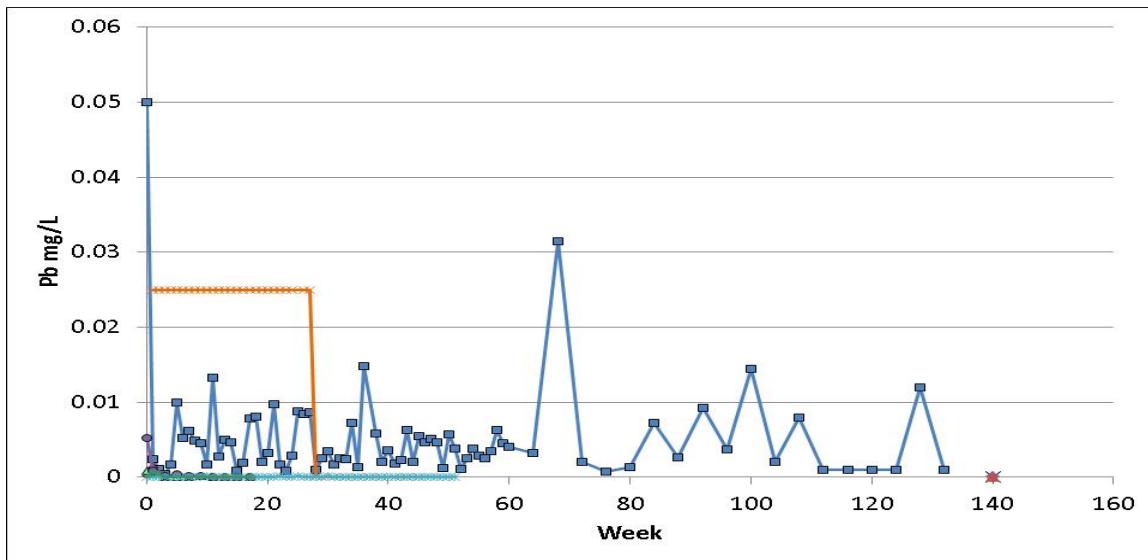
**Figure G1-27 Diabase – Nickel**


mg/L = milligrams per litre; Ni = nickel.

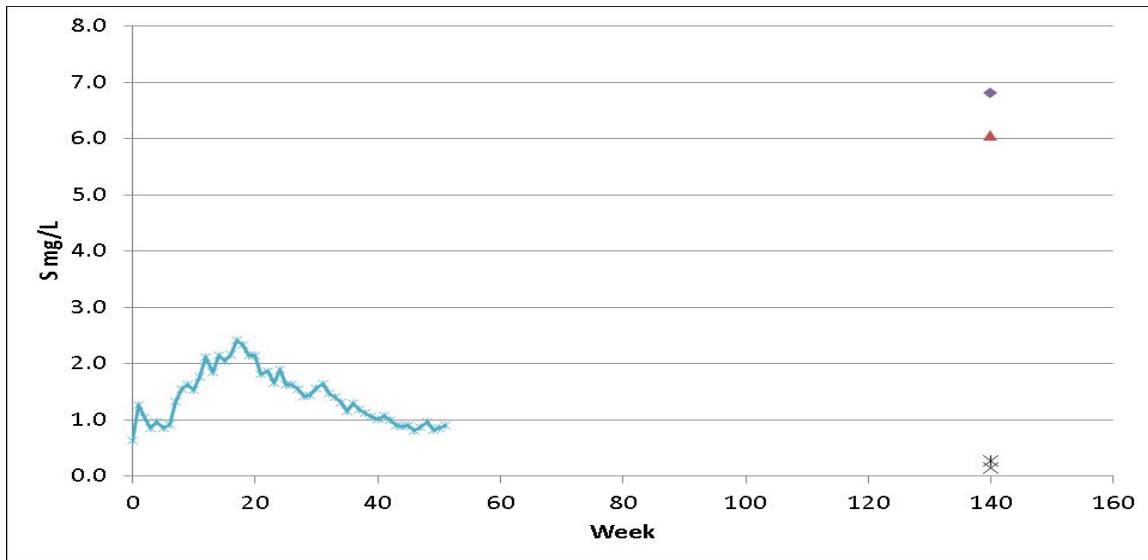
**Figure G1-28 Diabase – Phosphorus**


mg/L = milligrams per litre; P = phosphorus.



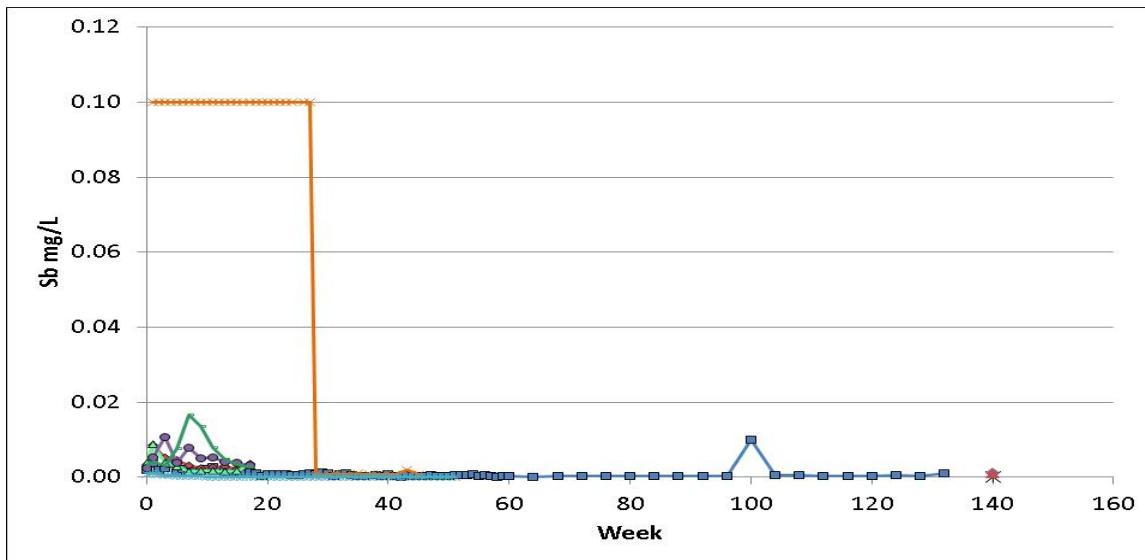
**Figure G1-29 Diabase – Lead**


mg/L = milligrams per litre; Pb = lead.

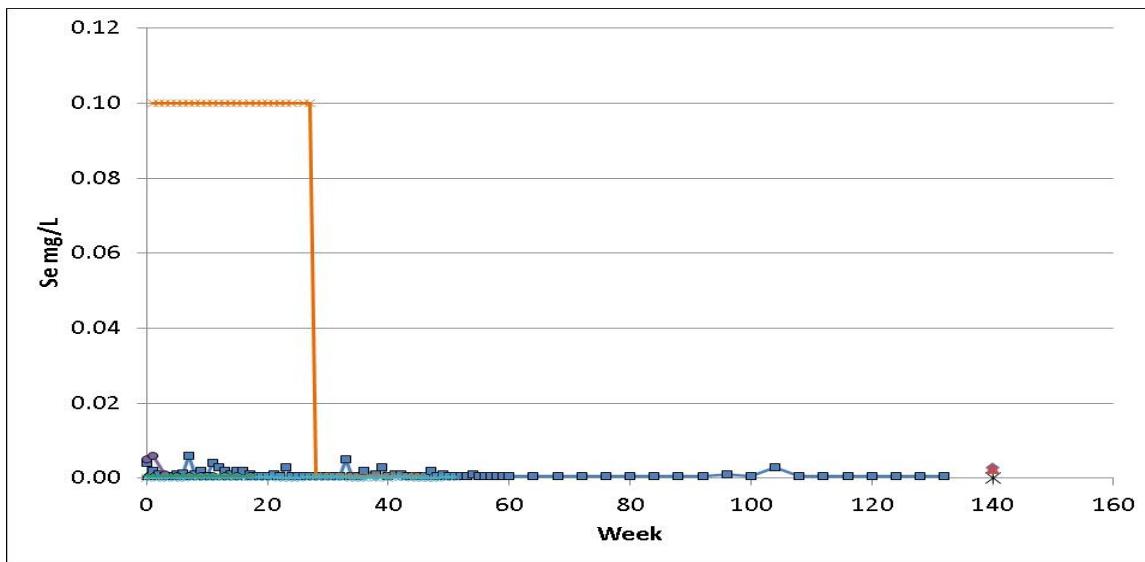
**Figure G1-30 Diabase – Sulphur**


mg/L = milligrams per litre; S = sulphur.

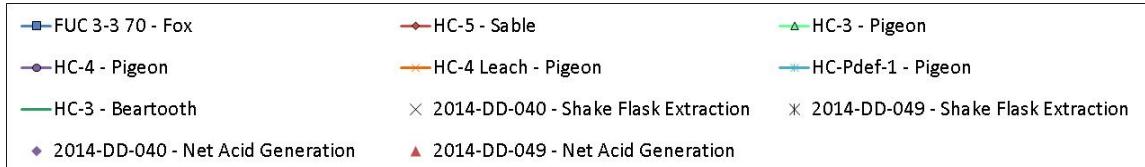
■ FUC 3-3 70 - Fox	◆ HC-5 - Sable	▲ HC-3 - Pigeon
● HC-4 - Pigeon	○ HC-4 Leach - Pigeon	■ HC-Pdef-1 - Pigeon
— HC-3 - Beartooth	× 2014-DD-040 - Shake Flask Extraction	× 2014-DD-049 - Shake Flask Extraction
◆ 2014-DD-040 - Net Acid Generation	▲ 2014-DD-049 - Net Acid Generation	* 2014-DD-049 - Net Acid Generation

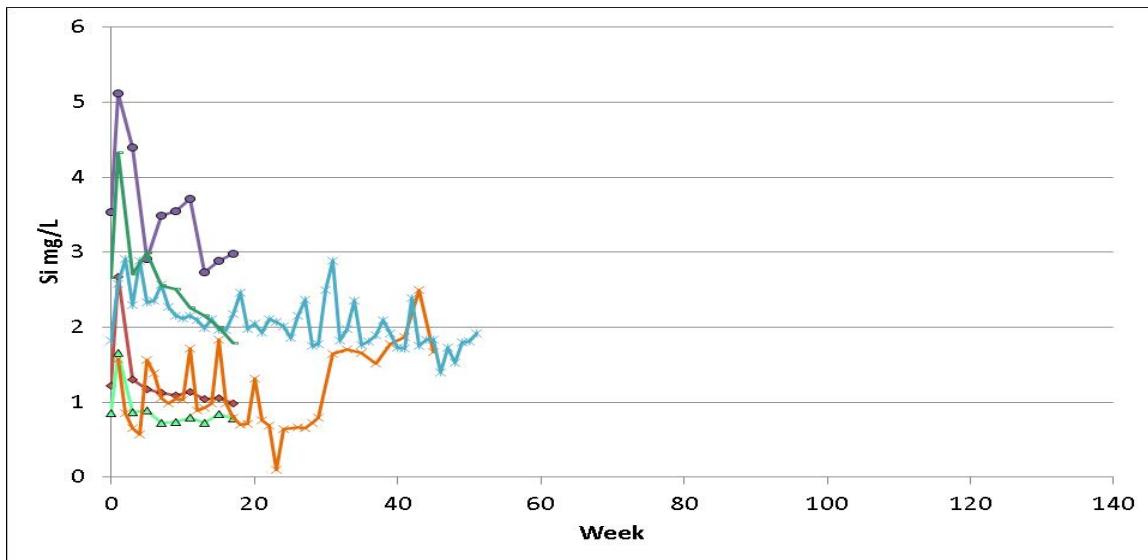
**Figure G1-31 Diabase – Antimony**


mg/L = milligrams per litre; Sb = antimony.

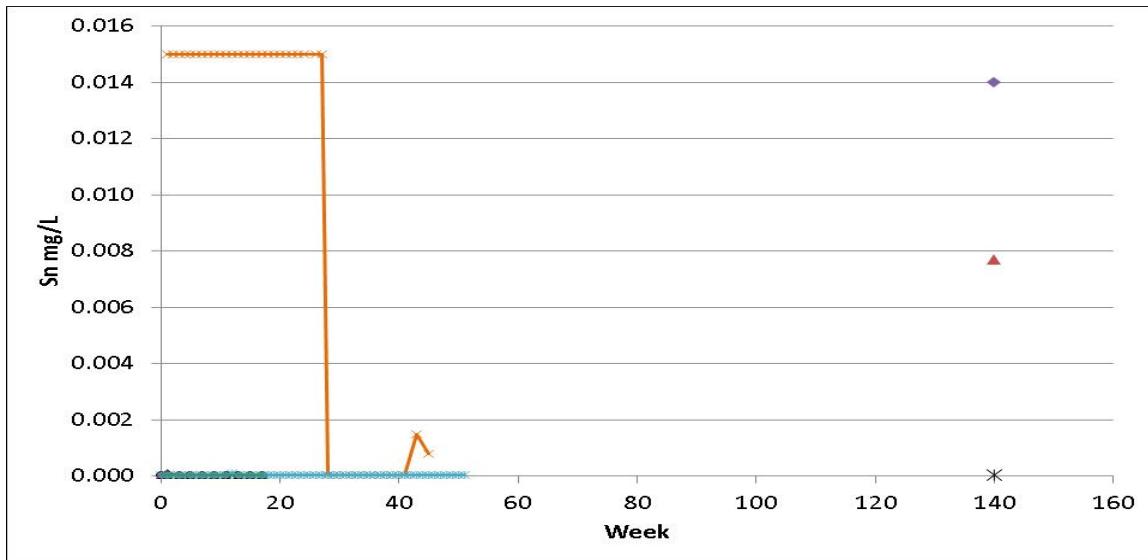
**Figure G1-32 Diabase – Selenium**


mg/L = milligrams per litre; Se = selenium.

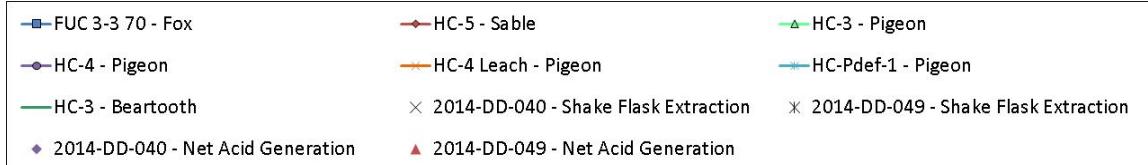


**Figure G1-33 Diabase – Silicon**


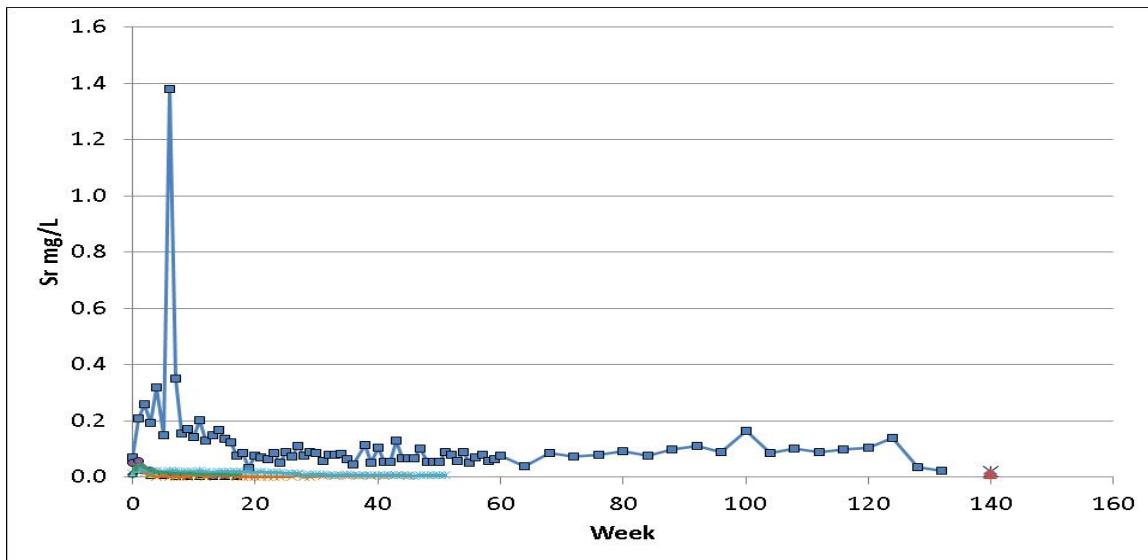
mg/L = milligrams per litre; Si = silicon.

**Figure G1-34 Diabase – Tin**


mg/L = milligrams per litre; Sn = tin.

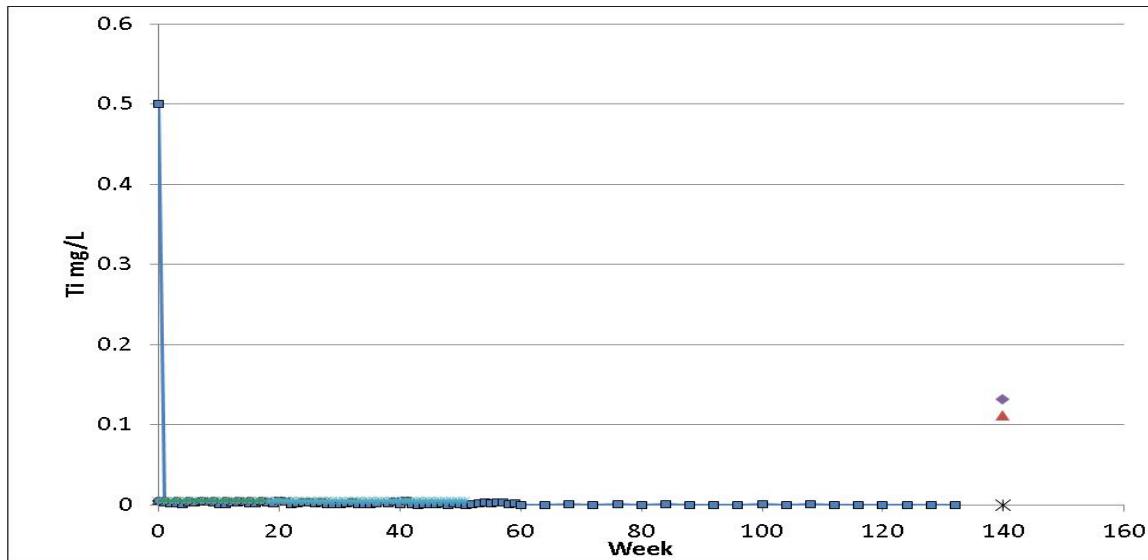


**Figure G1-35 Diabase – Strontium**

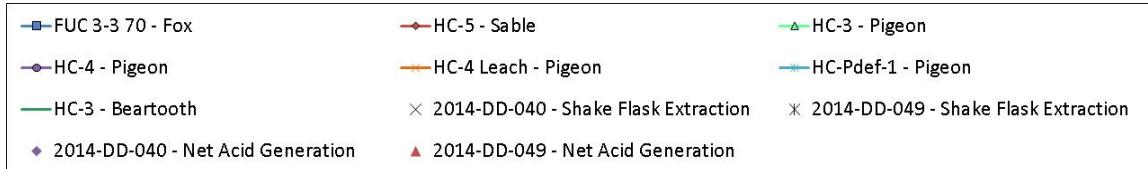


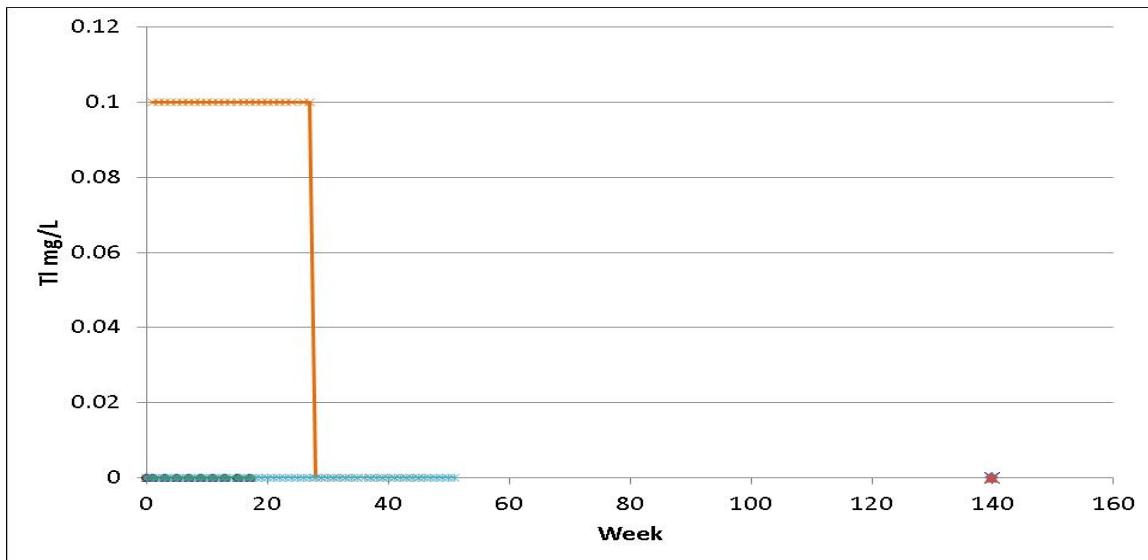
mg/L = milligrams per litre; Sr = strontium.

**Figure G1-36 Diabase – Titanium**

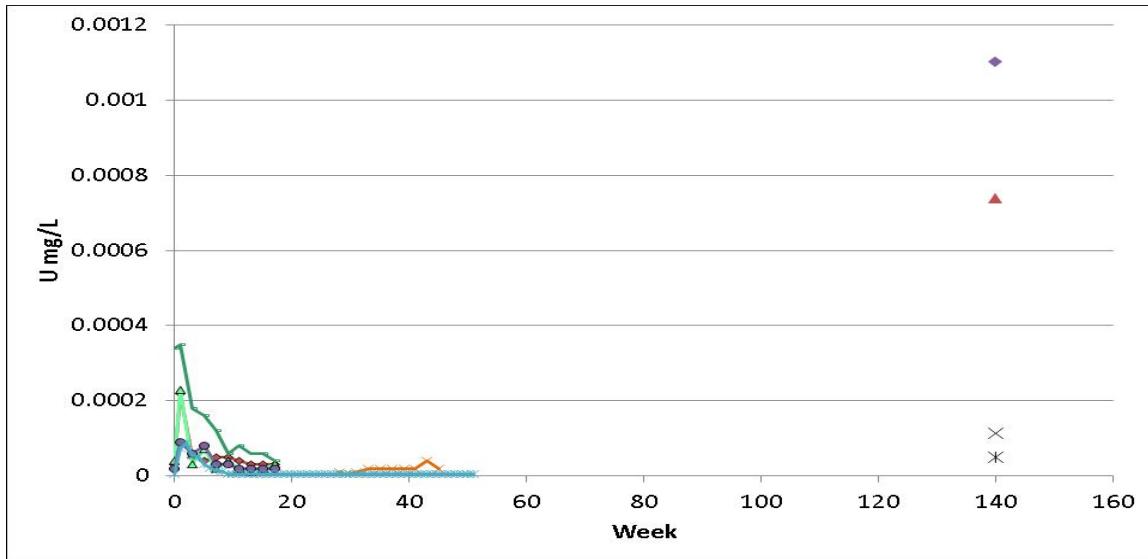


mg/L = milligrams per litre; Ti = titanium.

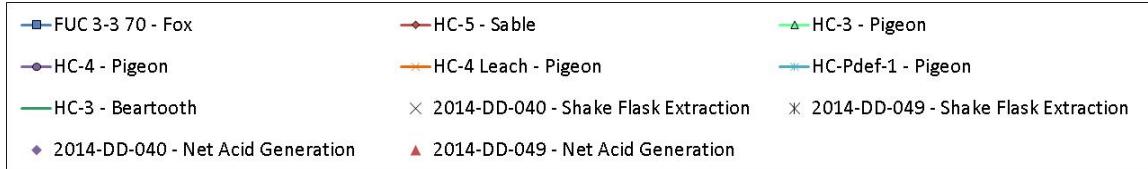


**Figure G1-37 Diabase – Thallium**


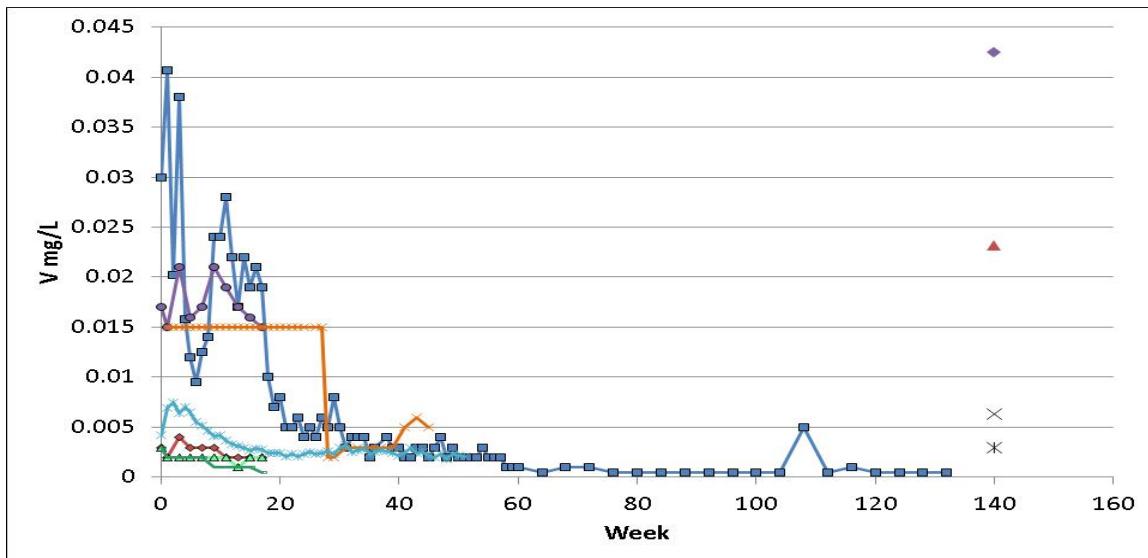
mg/L = milligrams per litre; Tl = thallium.

**Figure G1-38 Diabase – Uranium**


mg/L = milligrams per litre; U = uranium.

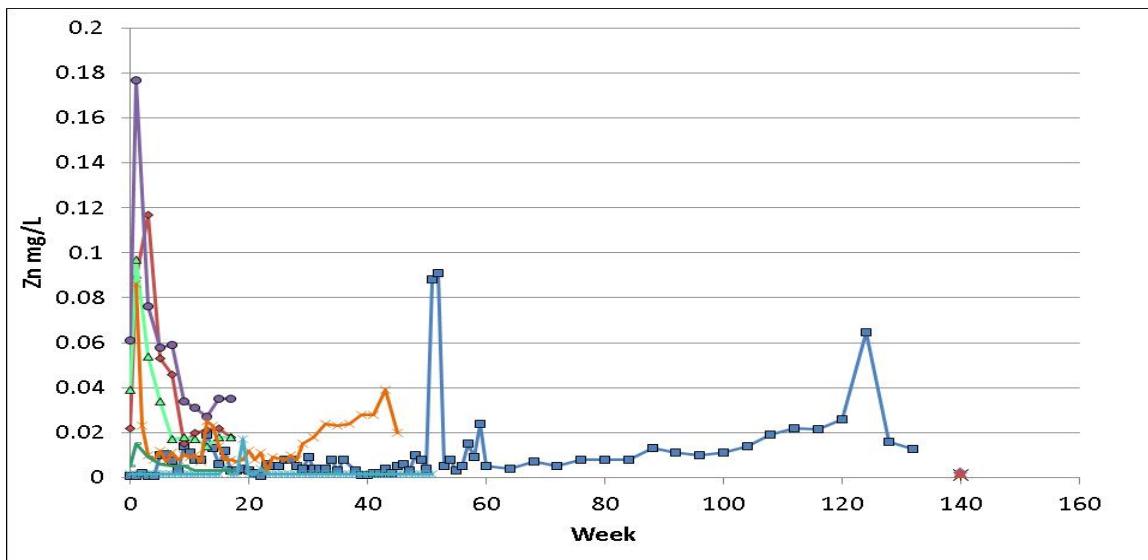


**Figure G1-39 Diabase – Vanadium**



mg/L = milligrams per litre; V = vanadium.

**Figure G1-40 Diabase – Zinc**

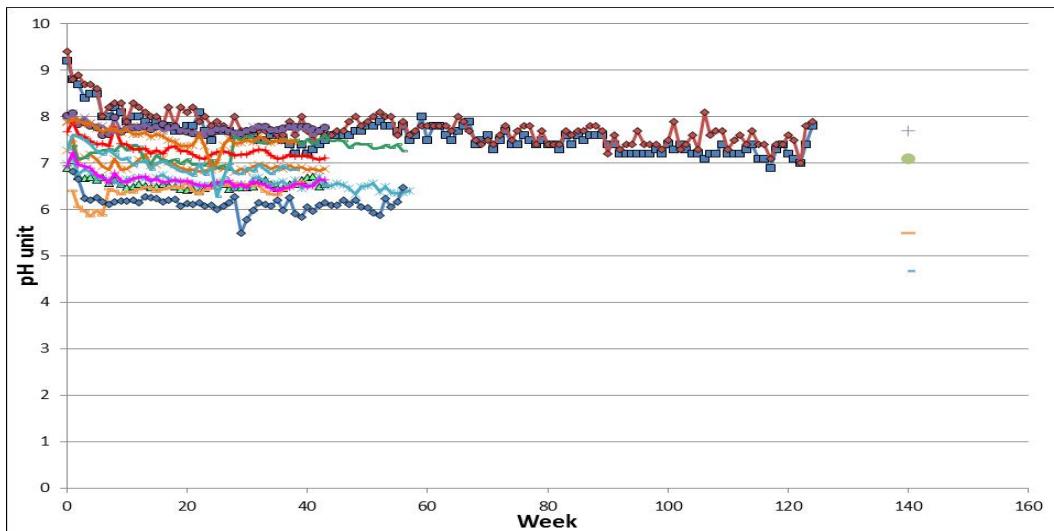


mg/L = milligrams per litre; Zn = zinc.

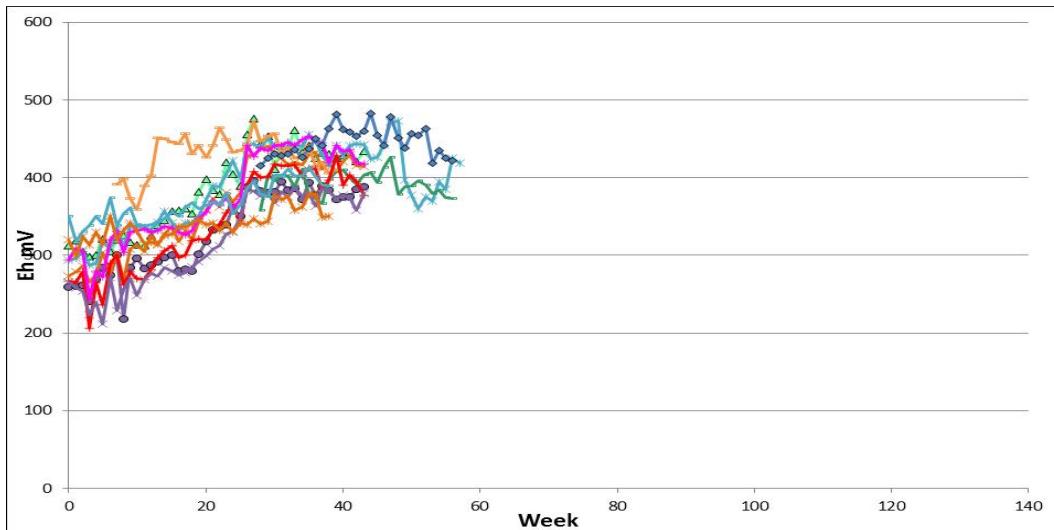
The legend identifies seven series: FUC 3-3 70 - Fox (blue square), HC-5 - Sable (red diamond), HC-3 - Pigeon (green triangle), HC-4 - Pigeon (purple circle), HC-4 Leach - Pigeon (orange cross), HC-Pdef-1 - Pigeon (teal diamond), HC-3 - Beartooth (green line), 2014-DD-040 - Shake Flask Extraction (grey cross), 2014-DD-049 - Shake Flask Extraction (grey asterisk), 2014-DD-040 - Net Acid Generation (grey diamond), and 2014-DD-049 - Net Acid Generation (grey triangle).

## G2 GRANITE

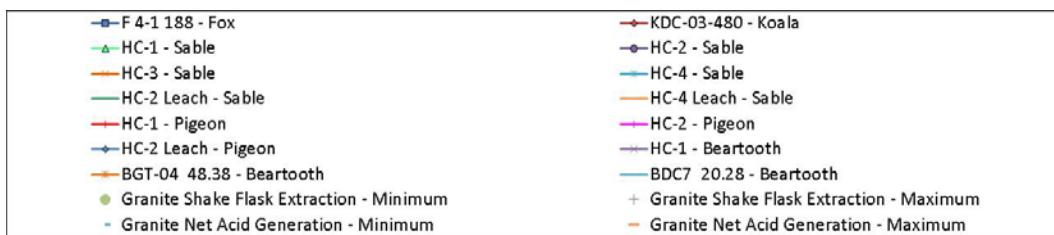
**Figure G2-1 Granite – pH**



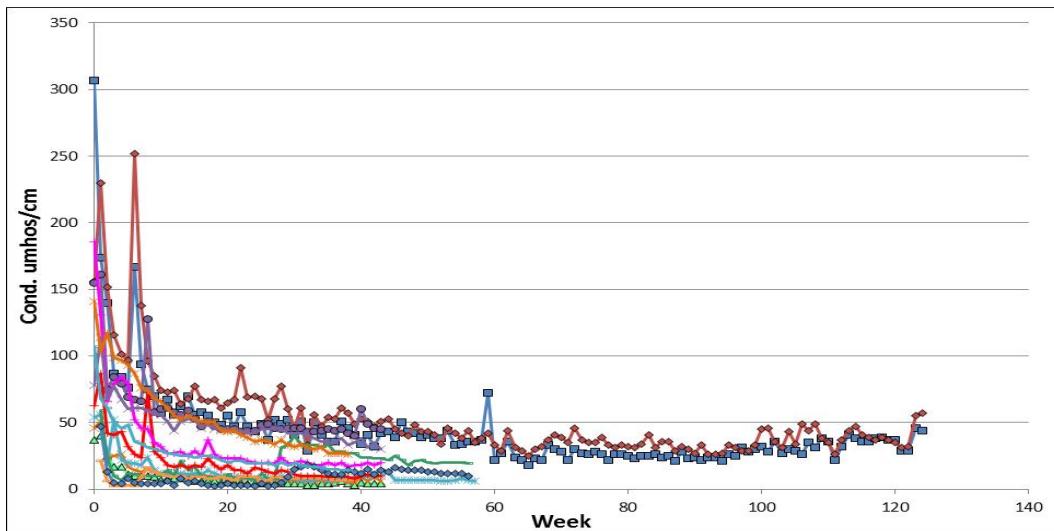
**Figure G2-2 Granite – Redox Potential**



Eh = redox potential; mV = millivolt.

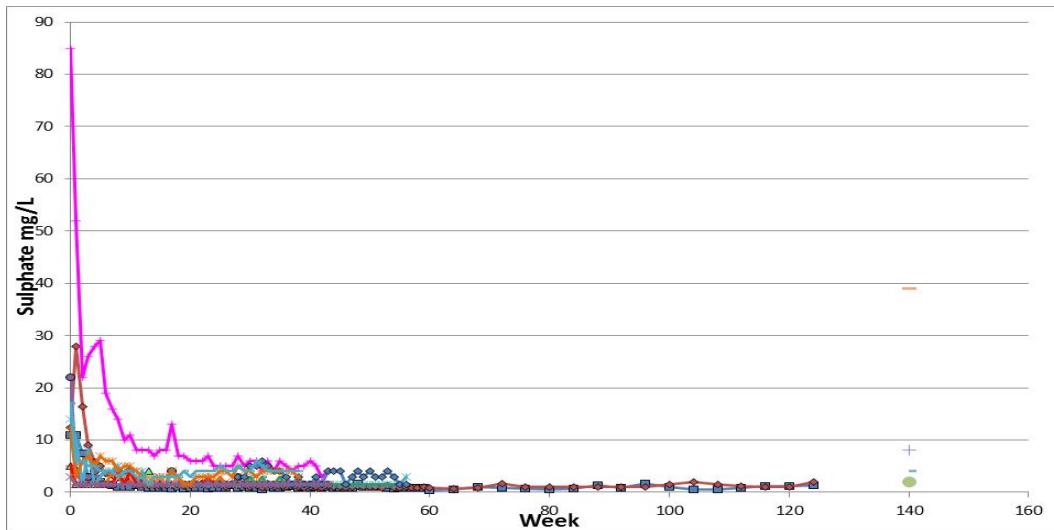


**Figure G2-3 Granite – Conductivity**

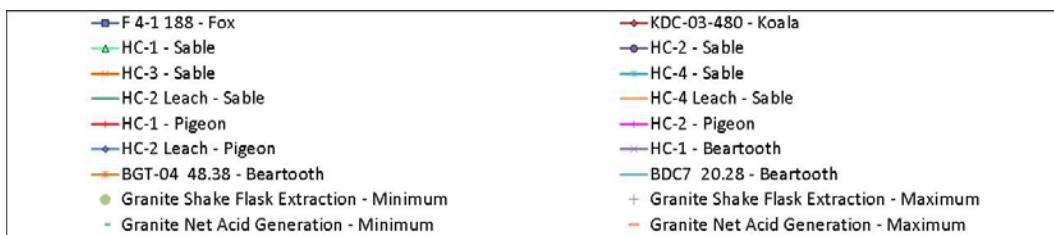


Cond. = conductivity;  $\mu\text{mho}/\text{cm}$  = micromho per centimetre.

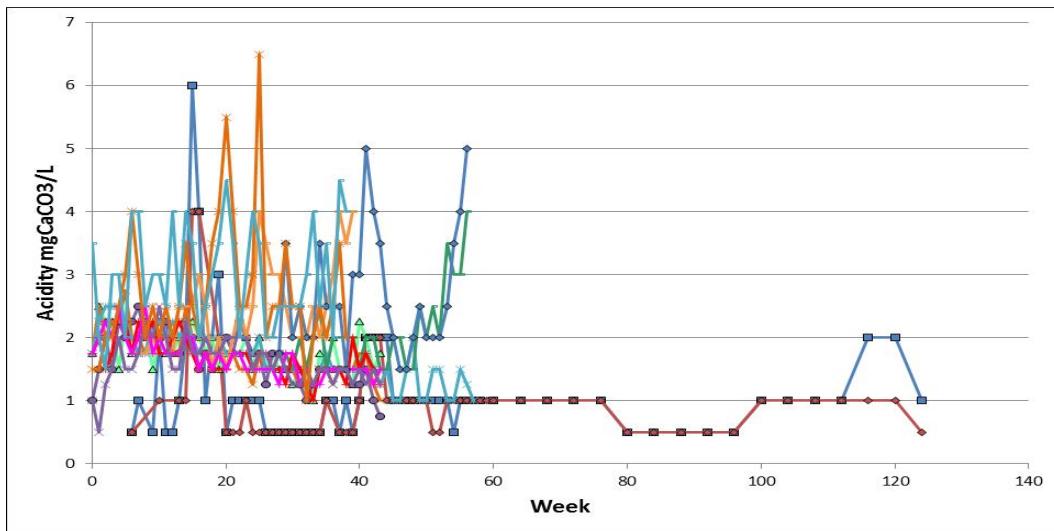
**Figure G2-4 Granite – Sulphate**



mg/L = milligrams per litre.

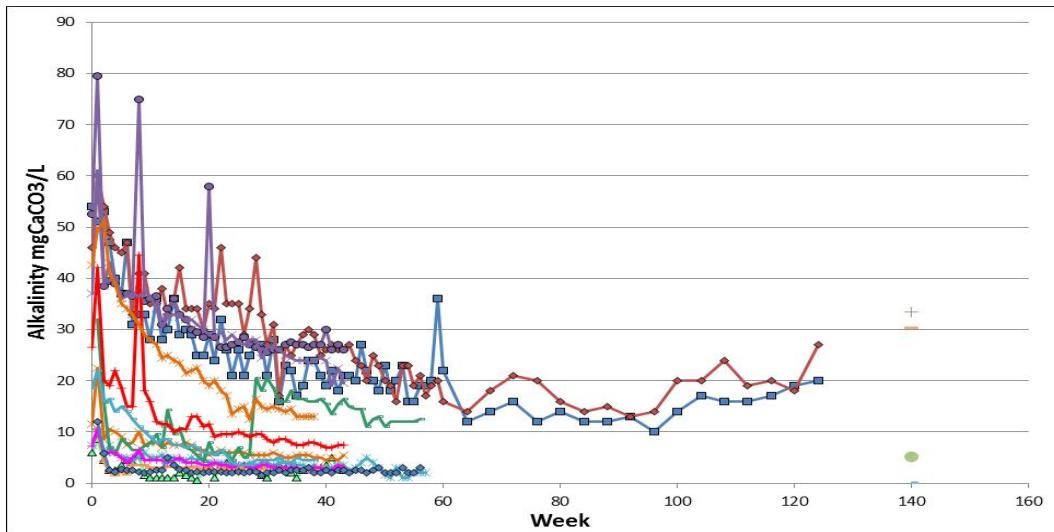


**Figure G2-5 Granite – Acidity**

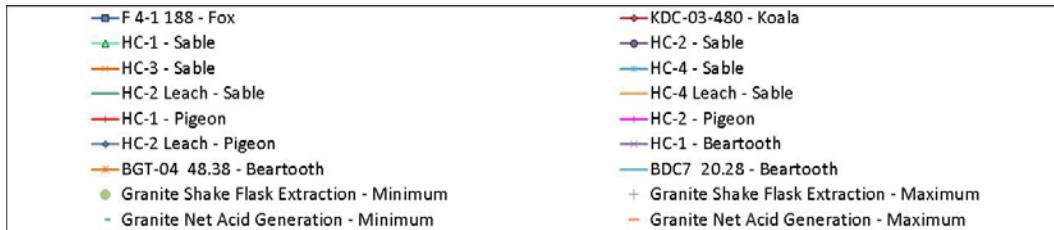


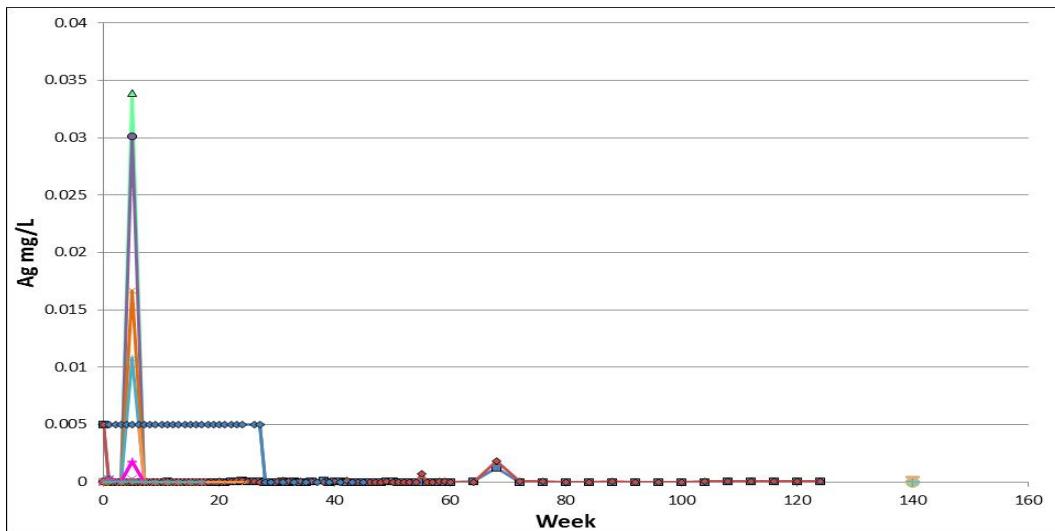
mgCaCO<sub>3</sub>/L = milligrams calcium carbonate per litre.

**Figure G2-6 Granite – Alkalinity**

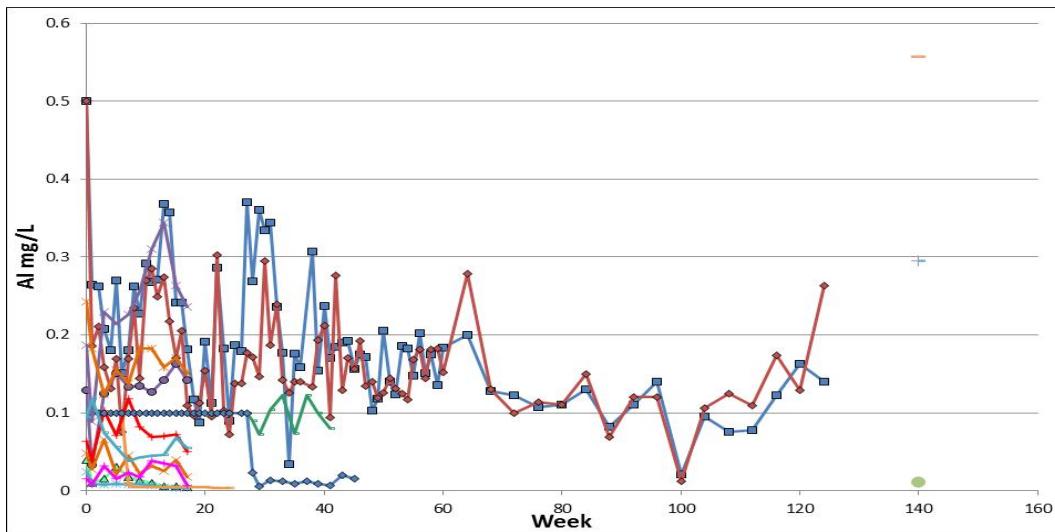


mgCaCO<sub>3</sub>/L = milligrams calcium carbonate per litre.

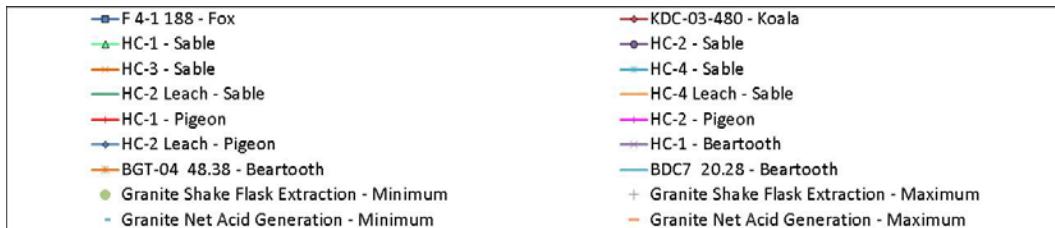


**Figure G2-7 Granite – Silver**


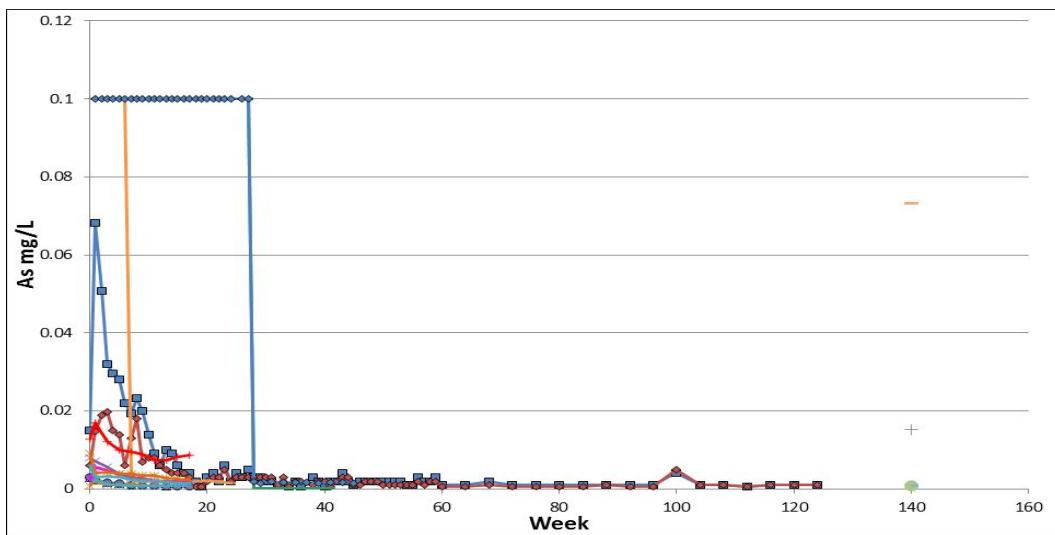
mg/L = milligrams per litre; Ag = silver.

**Figure G2-8 Granite – Aluminium**


mg/L = milligrams per litre; Al = aluminium.

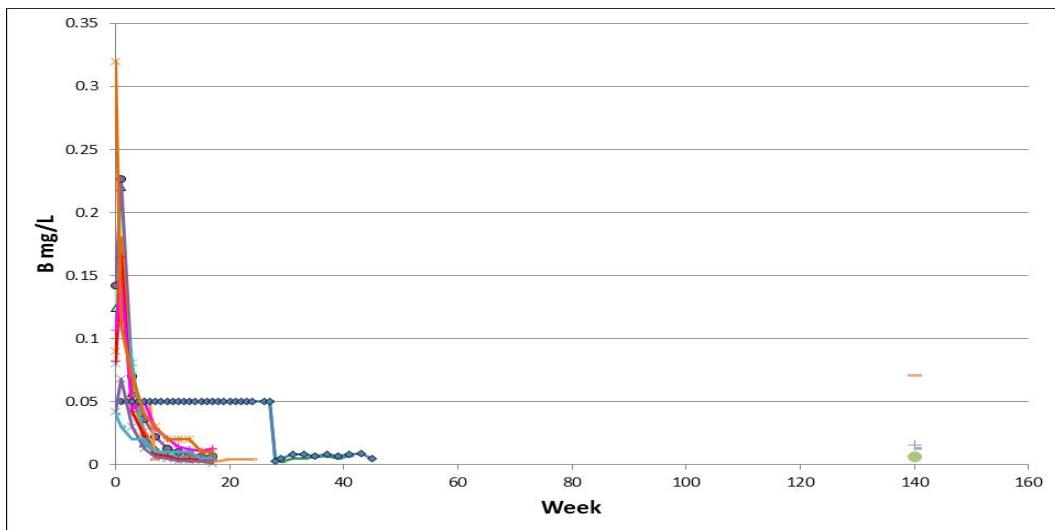


**Figure G2-9 Granite – Arsenic**

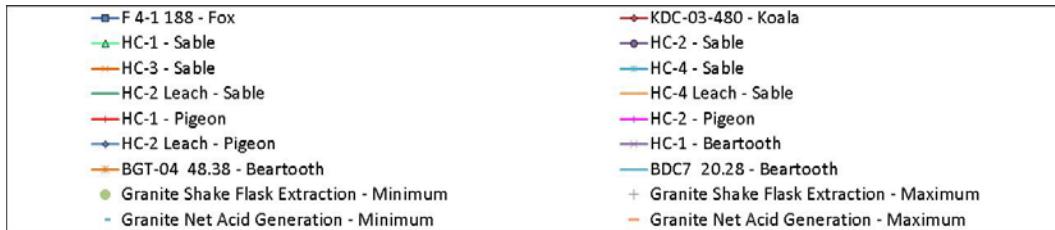


mg/L = milligrams per litre; As = arsenic.

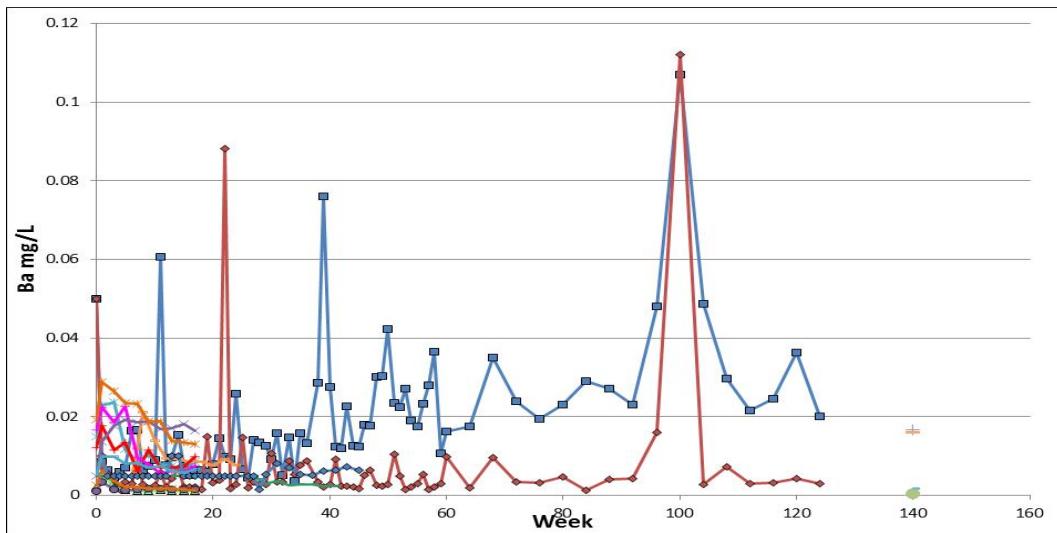
**Figure G2-10 Granite – Boron**



mg/L = milligrams per litre; B = boron.

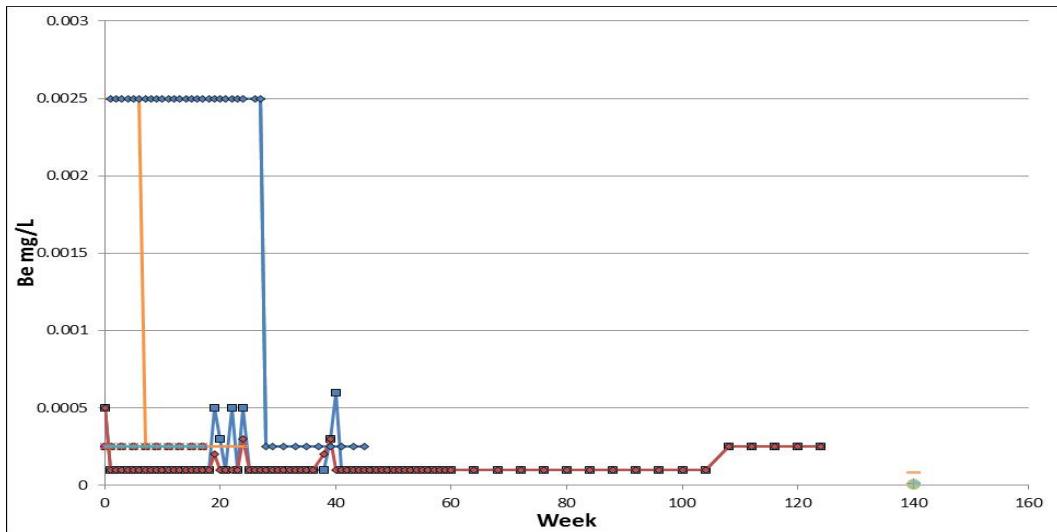


**Figure G2-11 Granite – Barium**

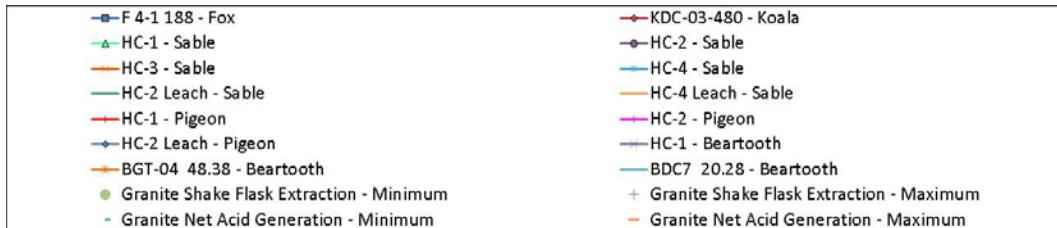


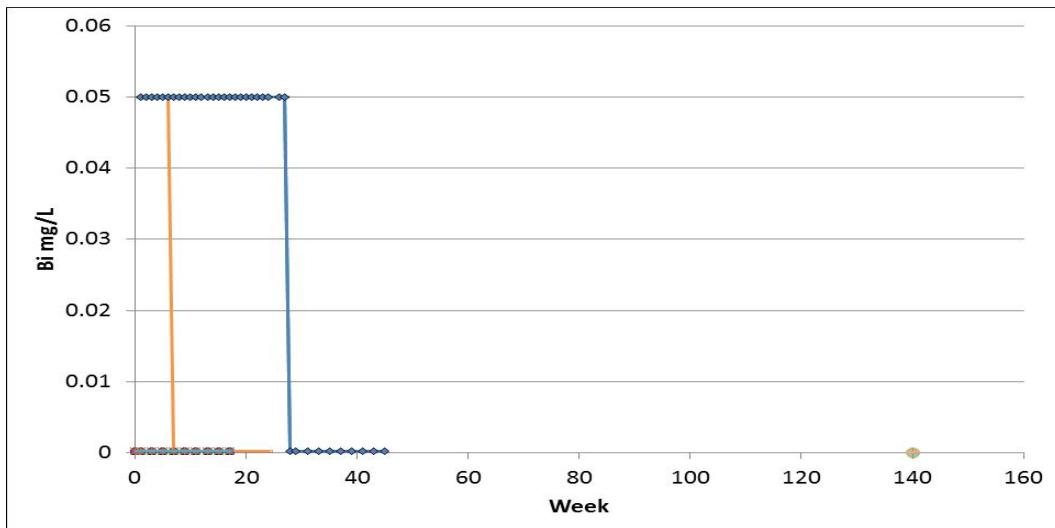
mg/L = milligrams per litre; Ba = barium.

**Figure G2-12 Granite – Beryllium**

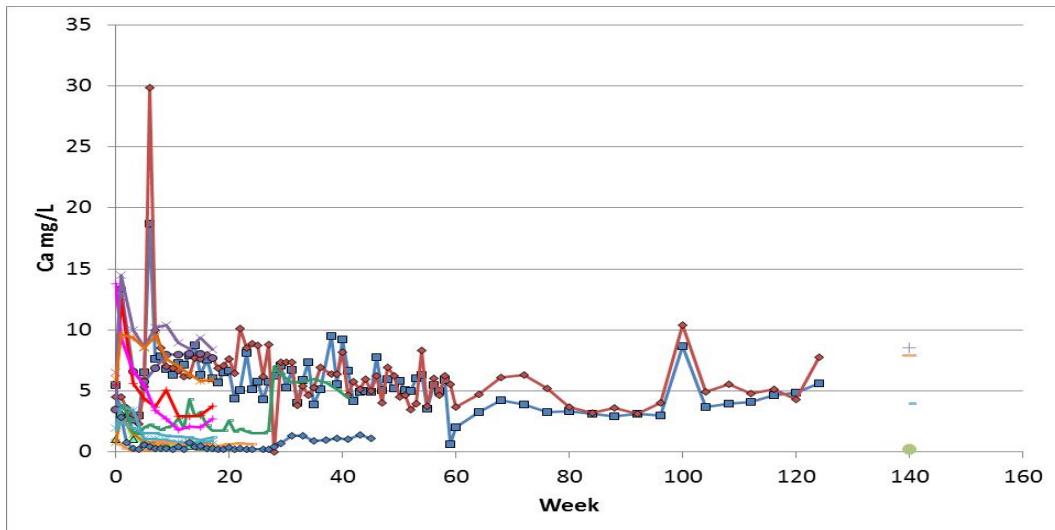


mg/L = milligrams per litre; Be = beryllium.

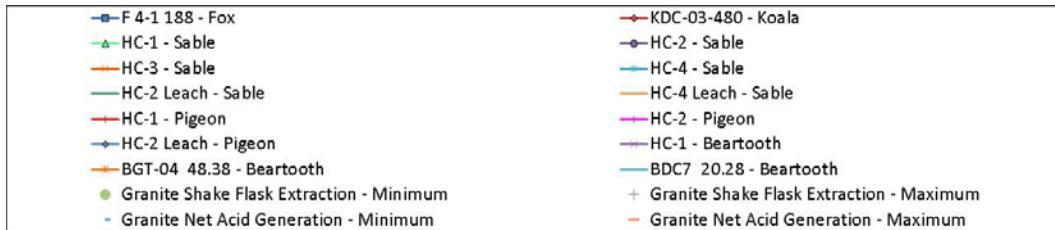


**Figure G2-13 Granite – Bismuth**


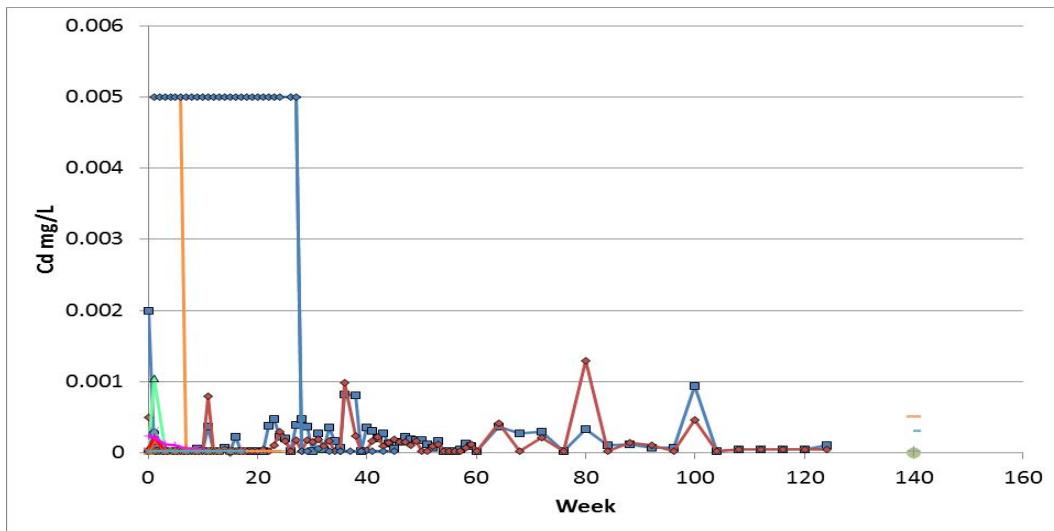
mg/L = milligrams per litre; Bi = bismuth.

**Figure G2-14 Granite – Calcium**


mg/L = milligrams per litre; Ca = calcium.

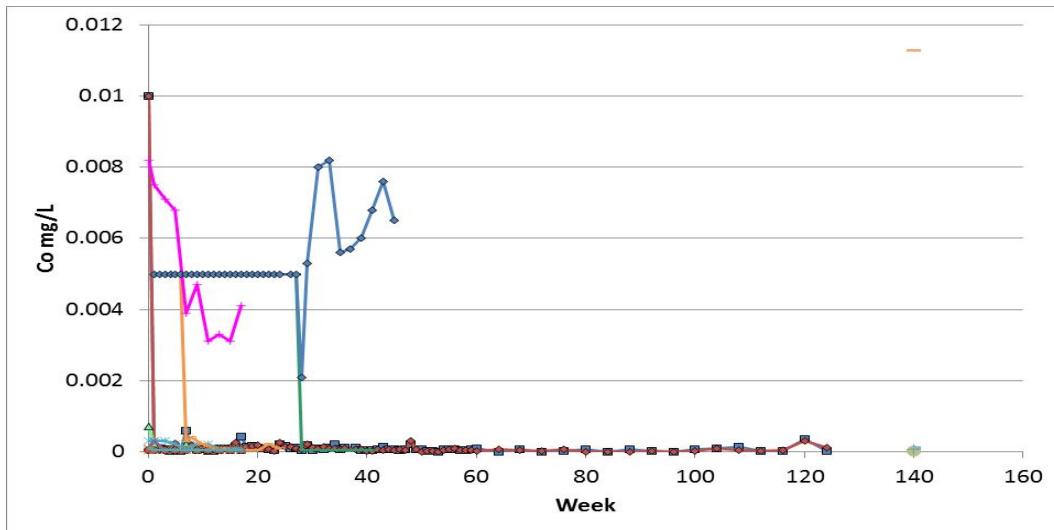


**Figure G2-15 Granite – Cadmium**

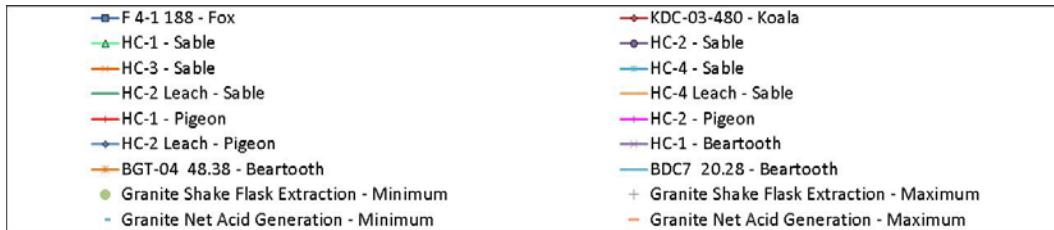


mg/L = milligrams per litre; Cd = cadmium.

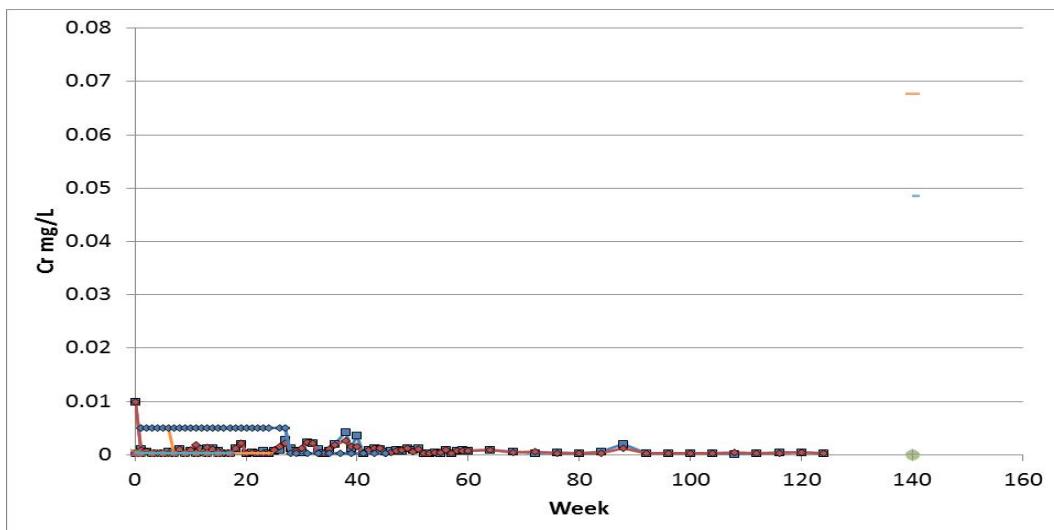
**Figure G2-16 Granite – Cobalt**



mg/L = milligrams per litre; Co = cobalt.

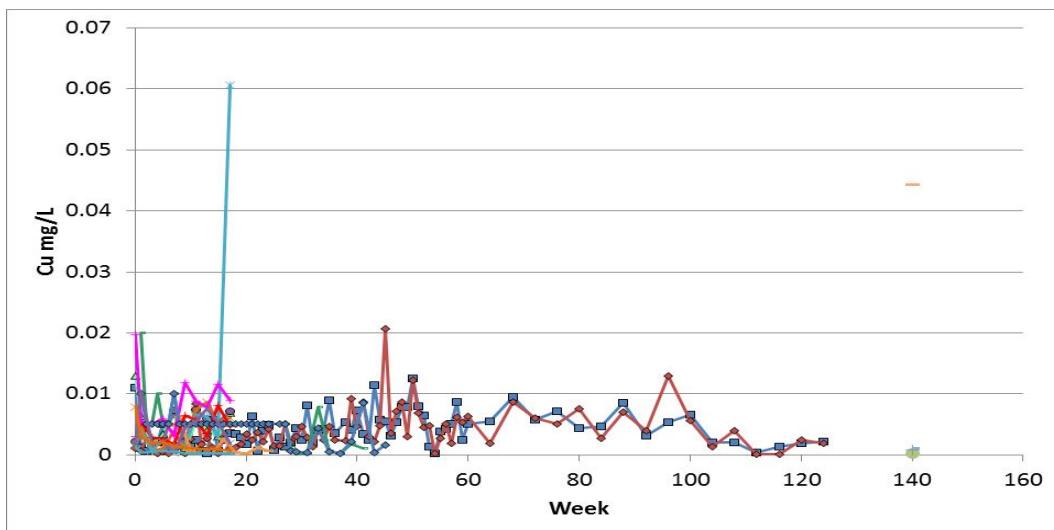


**Figure G2-17 Granite – Chromium**

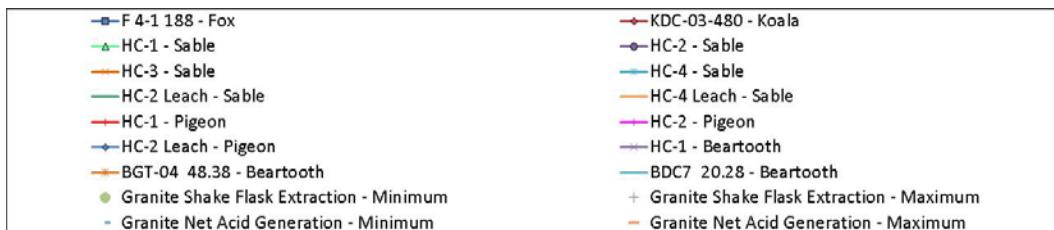


mg/L = milligrams per litre; Cr = chromium.

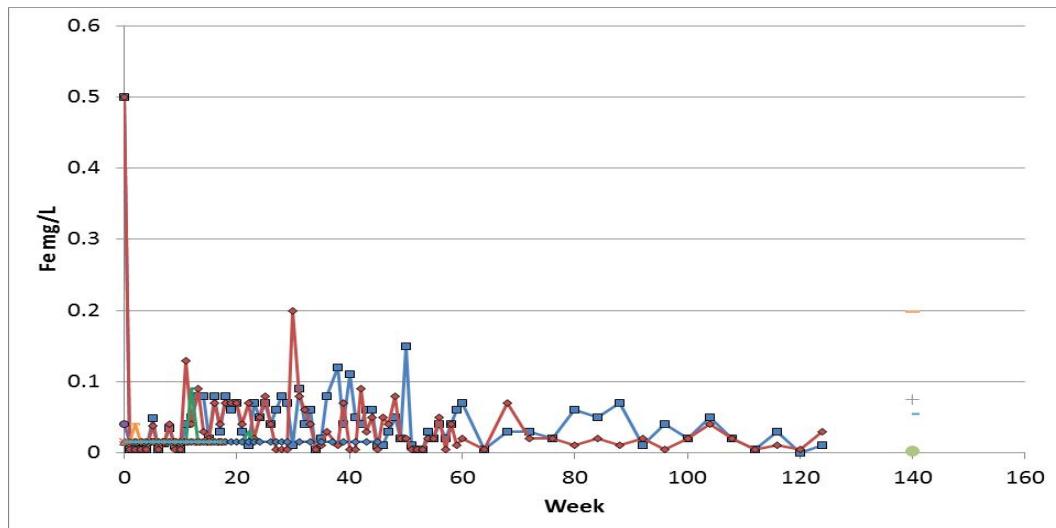
**Figure G2-18 Granite – Copper**



mg/L = milligrams per litre; Cu = copper.

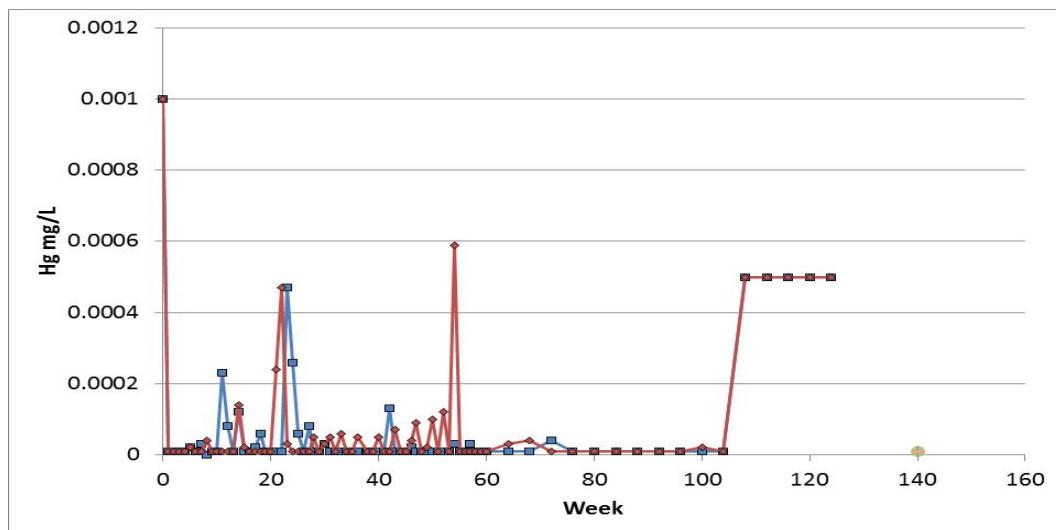


**Figure G2-19 Granite – Iron**



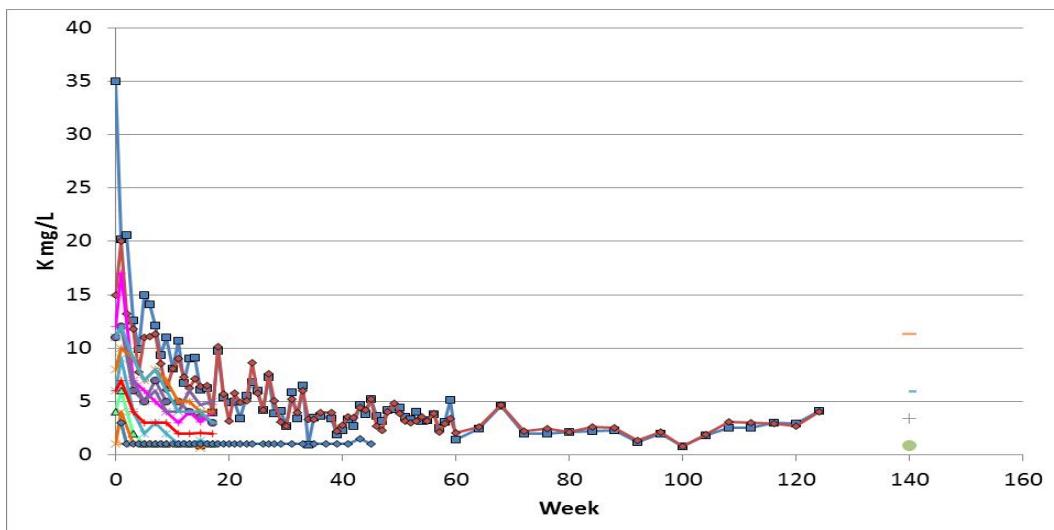
mg/L = milligrams per litre; Fe = iron.

**Figure G2-20 Granite – Mercury**

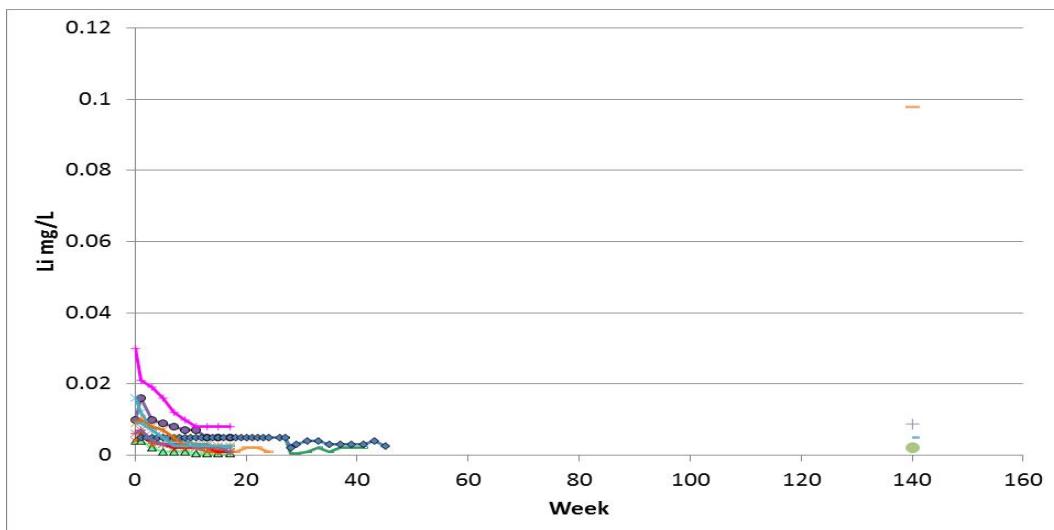


mg/L = milligrams per litre; Hg = mercury.

—■— F 4-1 188 - Fox	—■— KDC-03-480 - Koala
—▲— HC-1 - Sable	—●— HC-2 - Sable
—○— HC-3 - Sable	—○— HC-4 - Sable
—■— HC-2 Leach - Sable	—○— HC-4 Leach - Sable
—●— HC-1 - Pigeon	—●— HC-2 - Pigeon
—◆— HC-2 Leach - Pigeon	—●— HC-1 - Beartooth
—○— BGT-04 48.38 - Beartooth	—○— BDC7 20.28 - Beartooth
● Granite Shake Flask Extraction - Minimum	+ Granite Shake Flask Extraction - Maximum
- Granite Net Acid Generation - Minimum	- Granite Net Acid Generation - Maximum

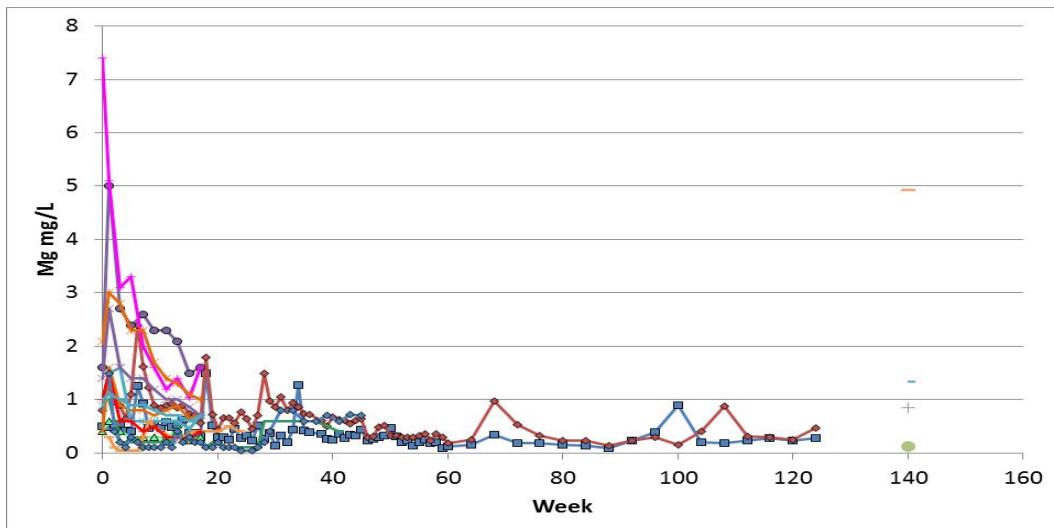
**Figure G2-21 Granite – Potassium**


mg/L = milligrams per litre; K = potassium.

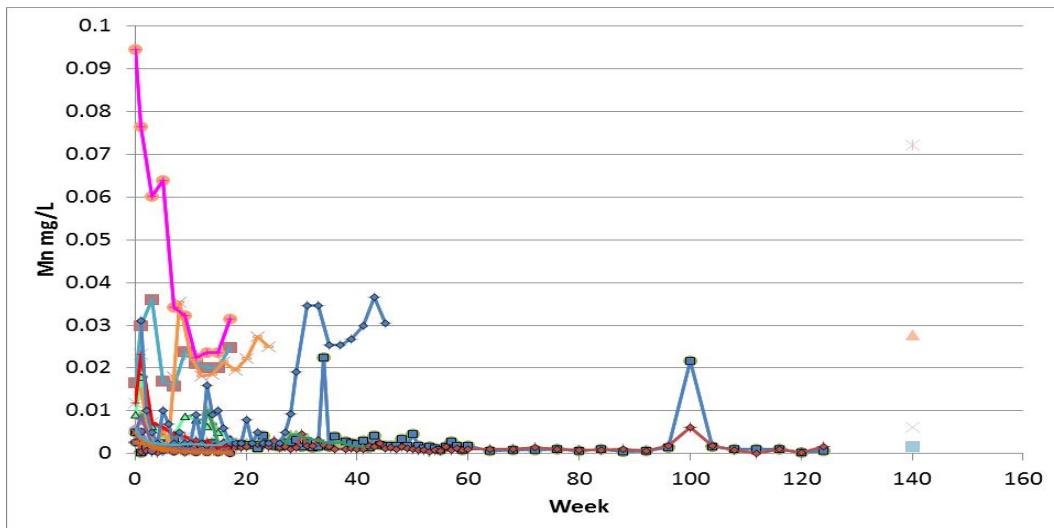
**Figure G2-22 Granite – Lithium**


mg/L = milligrams per litre; Li = lithium.

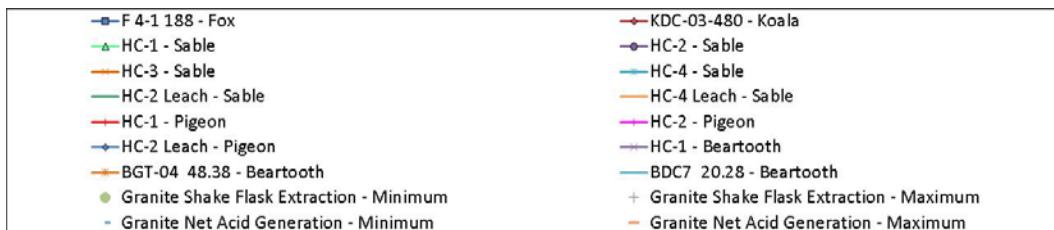
■ F 4-1 188 - Fox	■ KDC-03-480 - Koala
▲ HC-1 - Sable	■ HC-2 - Sable
— HC-3 - Sable	— HC-4 - Sable
— HC-2 Leach - Sable	— HC-4 Leach - Sable
— HC-1 - Pigeon	— HC-2 - Pigeon
— HC-2 Leach - Pigeon	— HC-1 - Beartooth
— BGT-04 48.38 - Beartooth	— BDC7 20.28 - Beartooth
● Granite Shake Flask Extraction - Minimum	+ Granite Shake Flask Extraction - Maximum
- Granite Net Acid Generation - Minimum	- Granite Net Acid Generation - Maximum

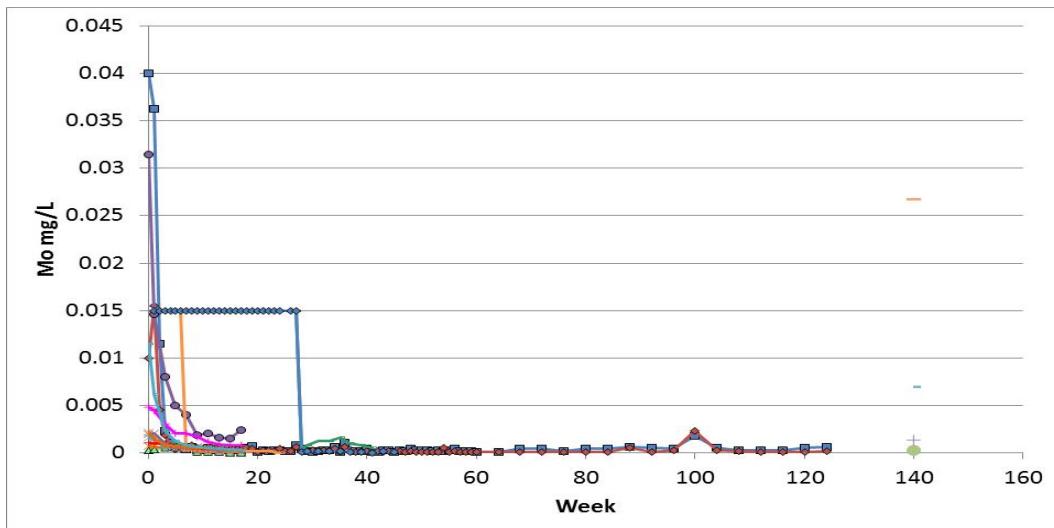
**Figure G2-23 Granite – Magnesium**


mg/L = milligrams per litre; Mg = magnesium.

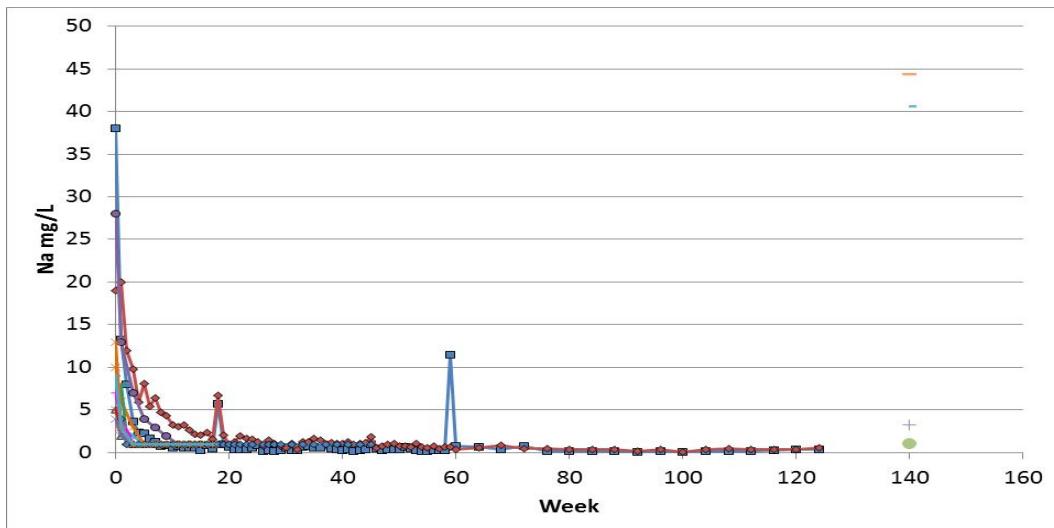
**Figure G2-24 Granite – Manganese**


mg/L = milligrams per litre; Mn = manganese.



**Figure G2-25 Granite – Molybdenum**


mg/L = milligrams per litre; Mo = molybdenum.

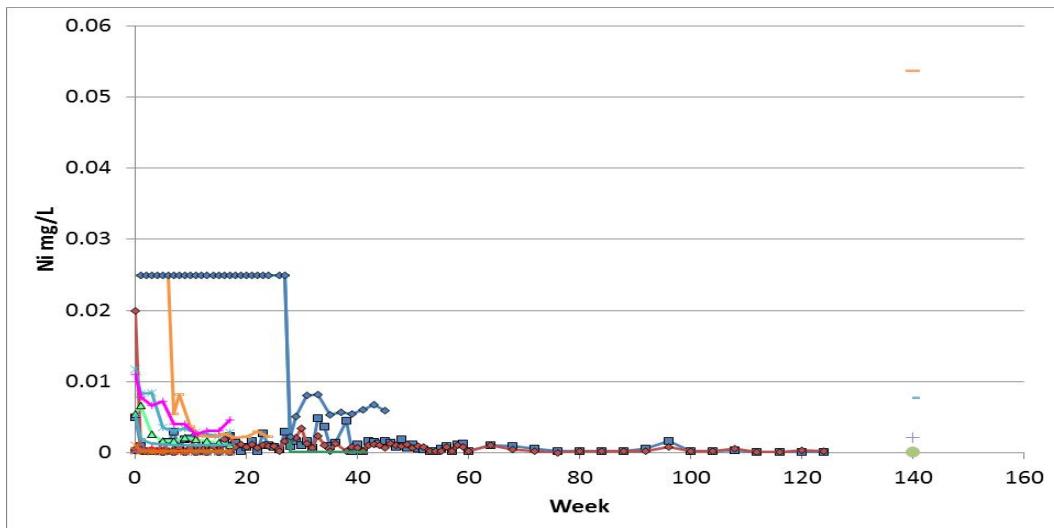
**Figure G2-26 Granite – Sodium**


mg/L = milligrams per litre; Na = sodium.

■ F 4-1 188 - Fox	■ KDC-03-480 - Koala
▲ HC-1 - Sable	● HC-2 - Sable
● HC-3 - Sable	■ HC-4 - Sable
■ HC-2 Leach - Sable	■ HC-4 Leach - Sable
■ HC-1 - Pigeon	■ HC-2 - Pigeon
■ HC-2 Leach - Pigeon	■ HC-1 - Beartooth
■ BGT-04 48.38 - Beartooth	■ BDC7 20.28 - Beartooth
● Granite Shake Flask Extraction - Minimum	+
- Granite Net Acid Generation - Minimum	- Granite Net Acid Generation - Maximum

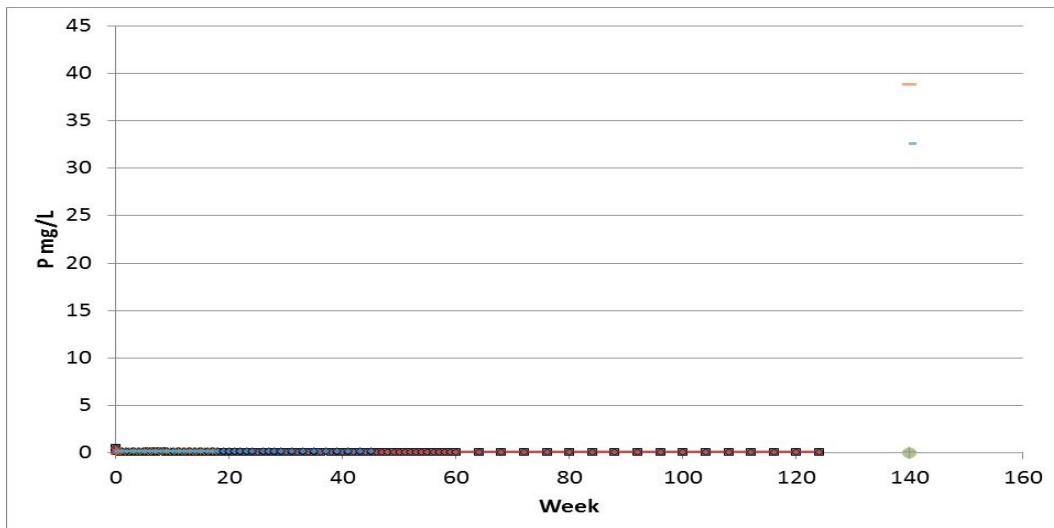


**Figure G2-27 Granite – Nickel**



mg/L = milligrams per litre; Ni = nickel.

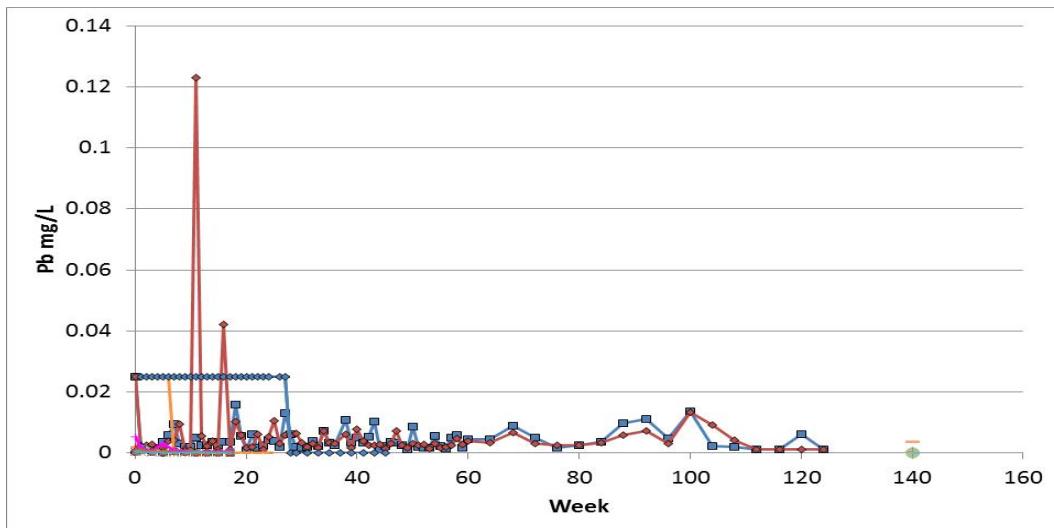
### **Figure G2-28 Granite – Phosphorus**



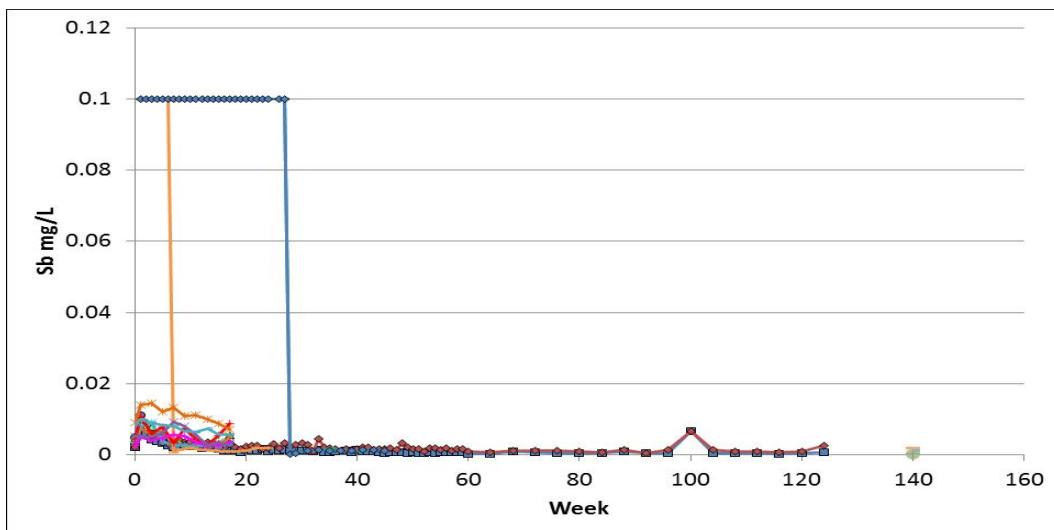
mg/L = milligrams per litre; P = phosphorus.

The legend identifies the following series:

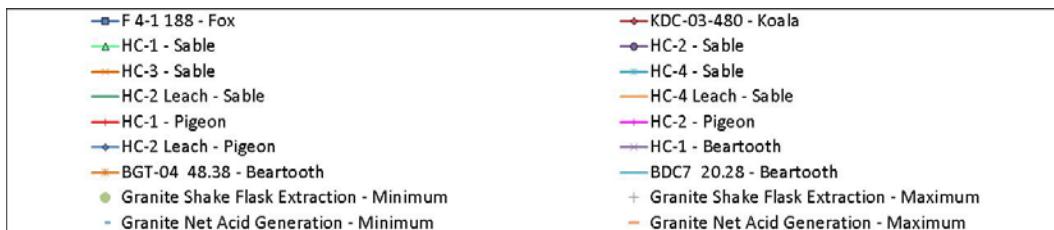
- F 4-1 188 - Fox
- HC-1 - Sable
- HC-3 - Sable
- HC-2 Leach - Sable
- HC-1 - Pigeon
- HC-2 Leach - Pigeon
- BGT-04 48.38 - Beartooth
- Granite Shake Flask Extraction - Minimum
- Granite Net Acid Generation - Minimum
- KDC-03-480 - Koala
- HC-2 - Sable
- HC-4 - Sable
- HC-4 Leach - Sable
- HC-2 - Pigeon
- HC-1 - Beartooth
- BDC7 20.28 - Beartooth
- Granite Shake Flask Extraction - Maximum
- Granite Net Acid Generation - Maximum

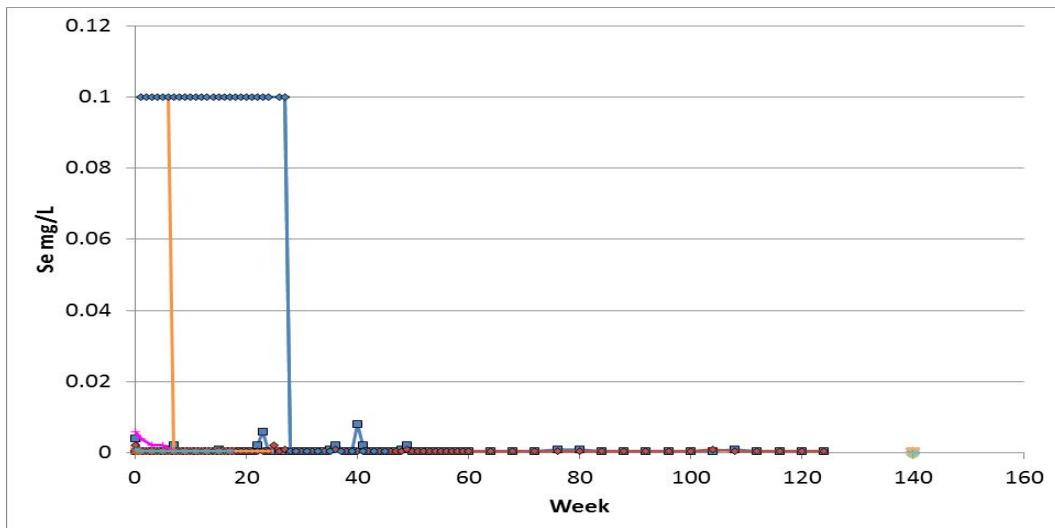
**Figure G2-29 Granite – Lead**


mg/L = milligrams per litre; Pb = lead.

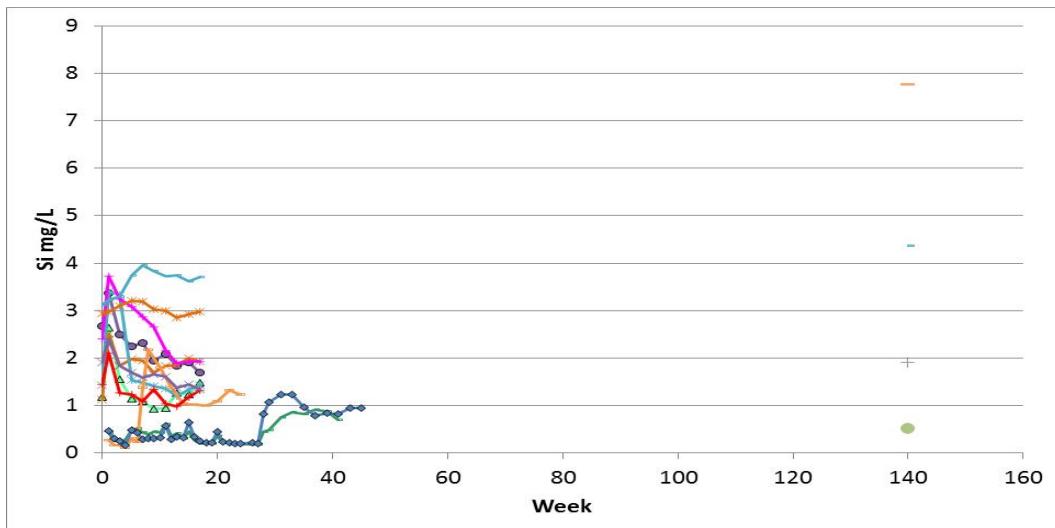
**Figure G2-30 Granite – Antimony**


mg/L = milligrams per litre; Sb = antimony.

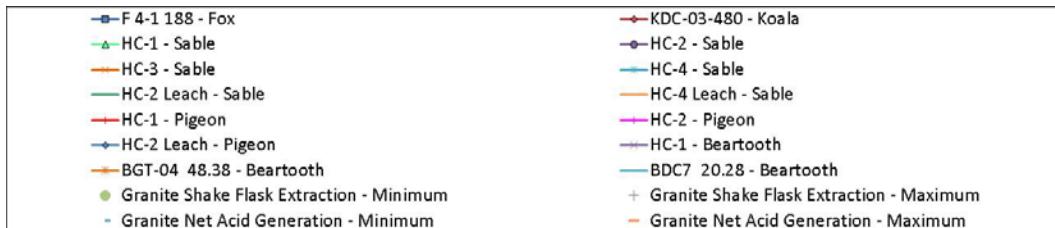


**Figure G2-31 Granite – Selenium**


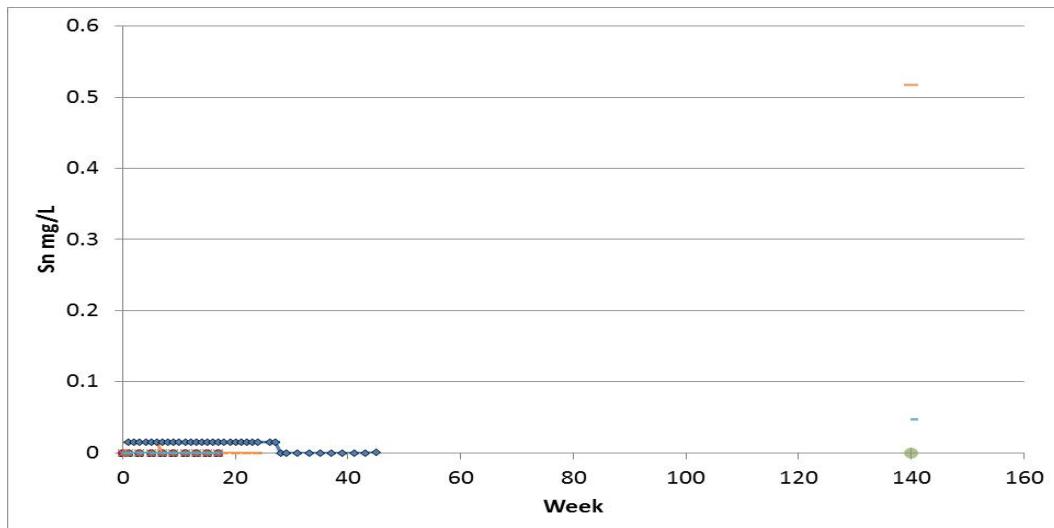
mg/L = milligrams per litre; Se = selenium.

**Figure G2-32 Granite – Silicon**


mg/L = milligrams per litre; Si = silicon.

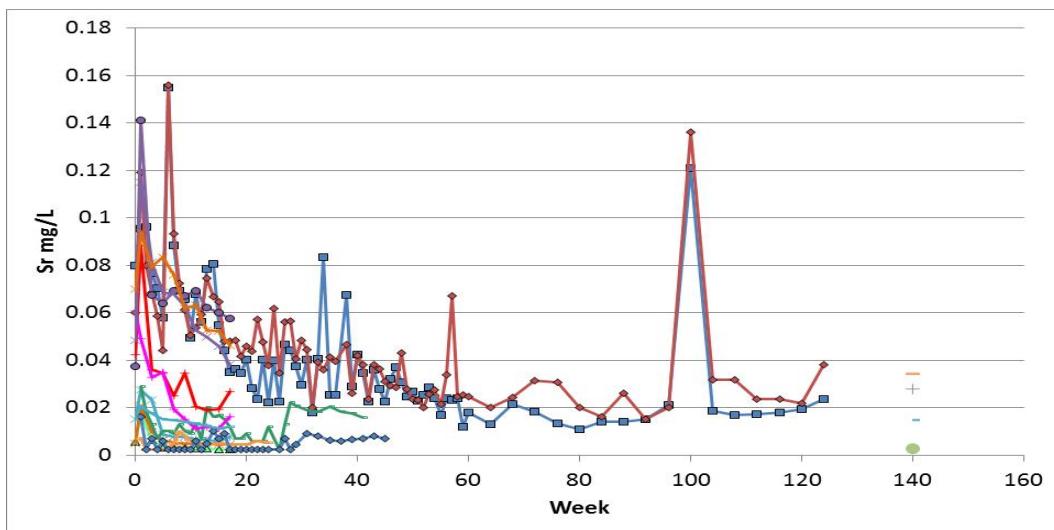


**Figure G2-33 Granite – Tin**

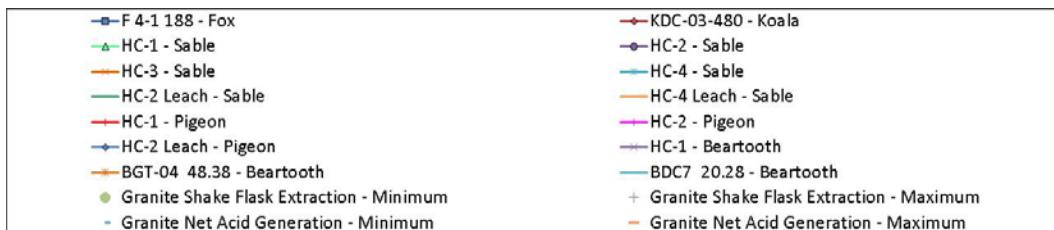


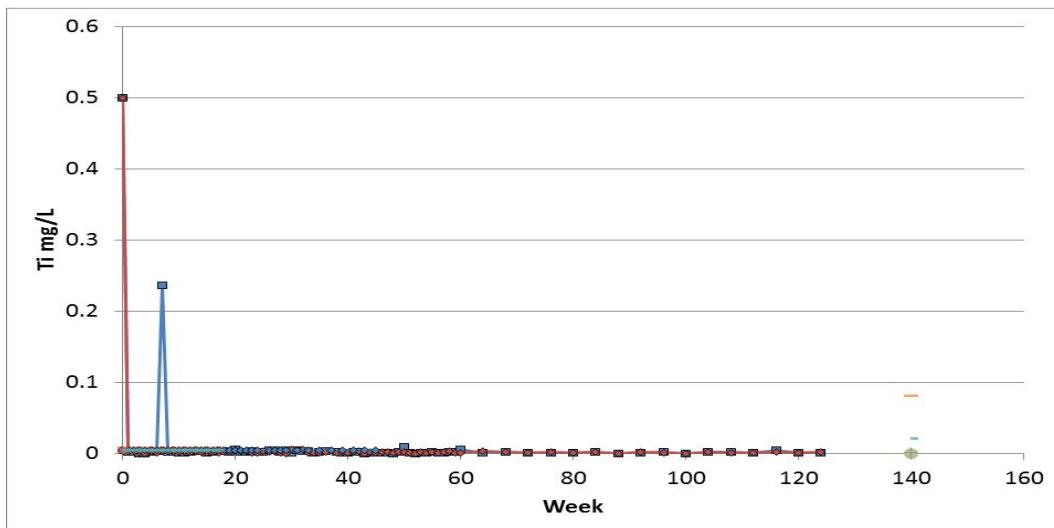
mg/L = milligrams per litre; Sn = tin.

**Figure G2-34 Granite – Strontium**

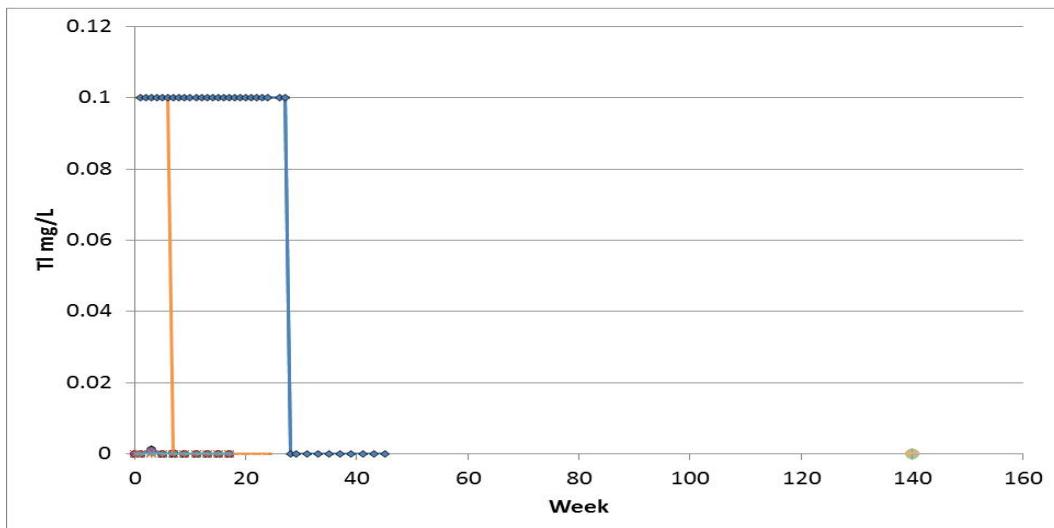


mg/L = milligrams per litre; Sr = strontium.

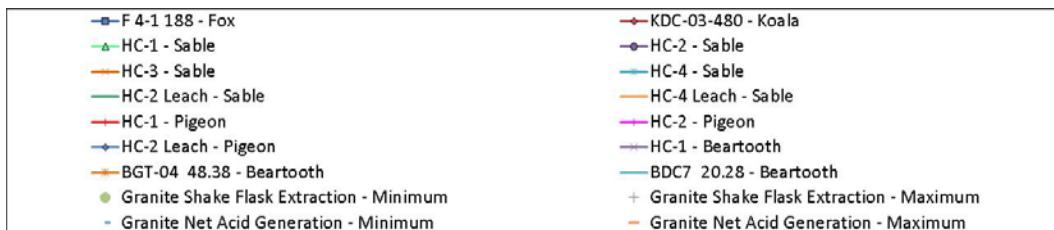


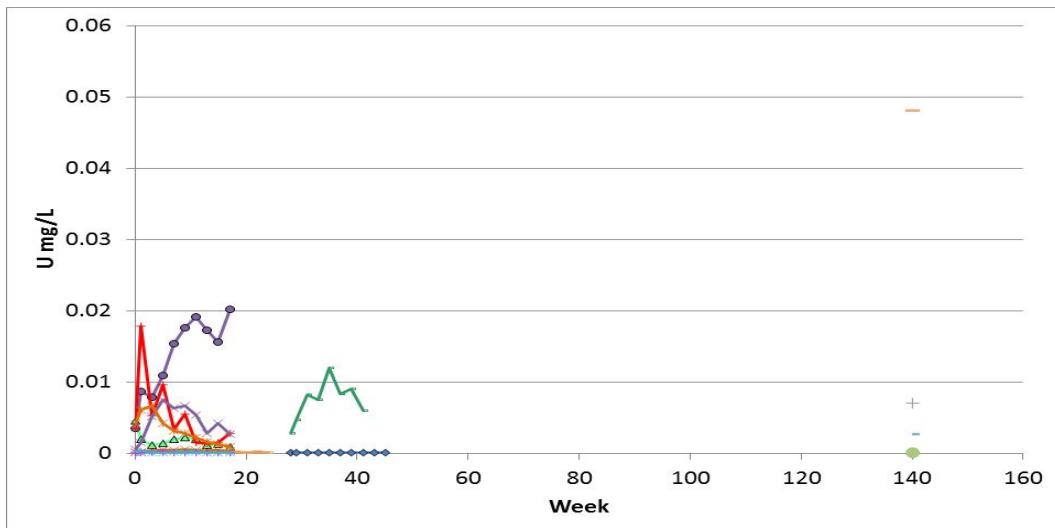
**Figure G2-35 Granite – Titanium**


mg/L = milligrams per litre; Ti = titanium.

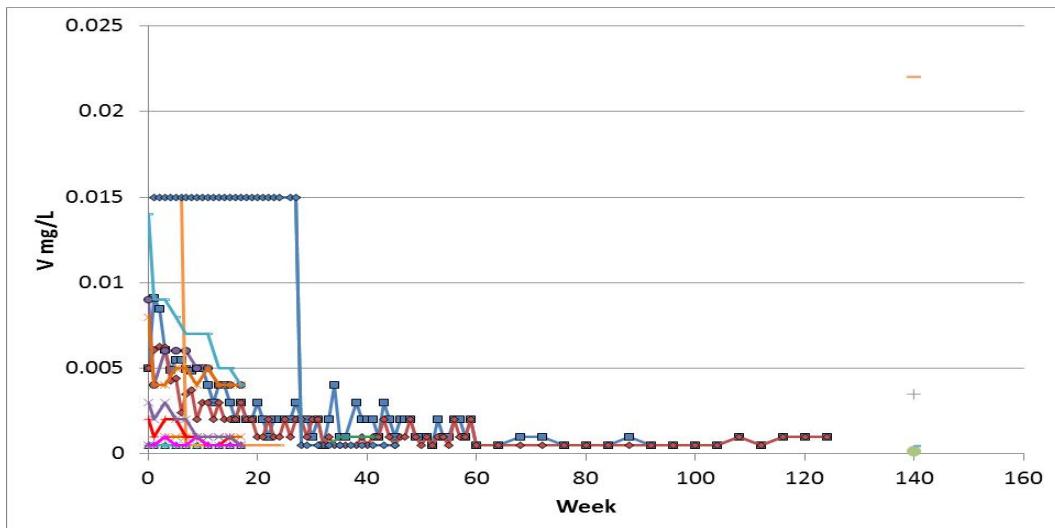
**Figure G2-36 Granite – Thallium**


mg/L = milligrams per litre; TI = thallium.



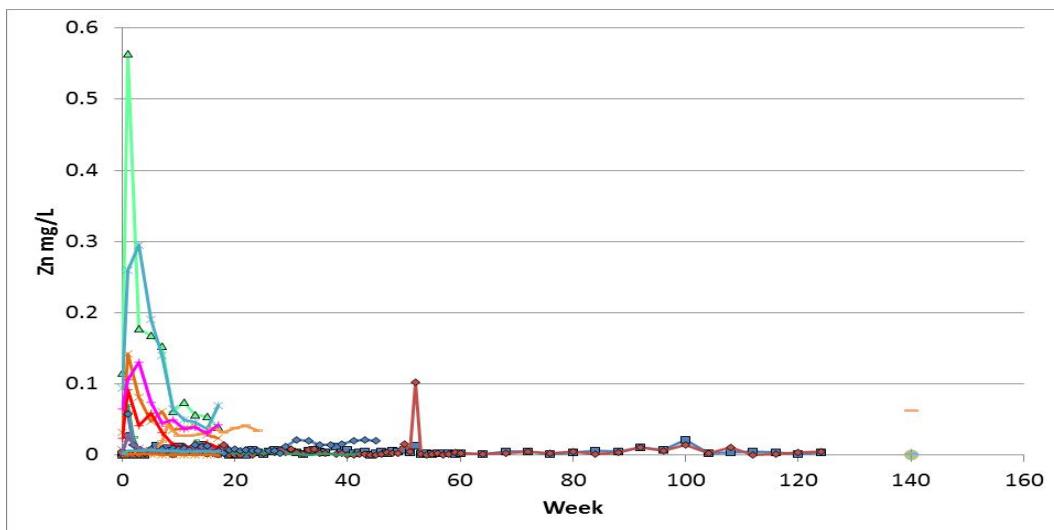
**Figure G2-37 Granite – Uranium**


mg/L = milligrams per litre; U = uranium.

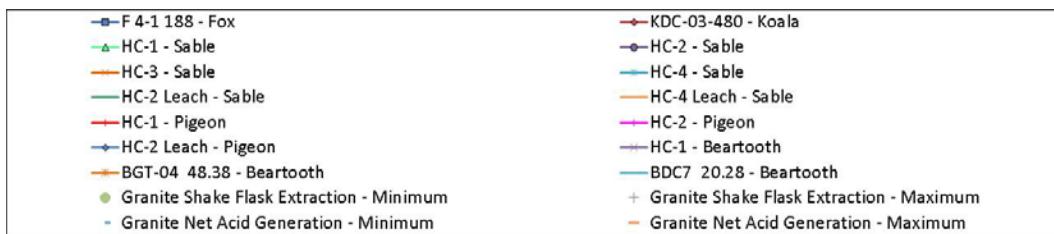
**Figure G2-38 Granite – Vanadium**


mg/L = milligrams per litre; V = vanadium.

—■— F 4-1 188 - Fox	—■— KDC-03-480 - Koala
—▲— HC-1 - Sable	—●— HC-2 - Sable
—●— HC-3 - Sable	—●— HC-4 - Sable
—■— HC-2 Leach - Sable	—●— HC-4 Leach - Sable
—●— HC-1 - Pigeon	—●— HC-2 - Pigeon
—●— HC-2 Leach - Pigeon	—●— HC-1 - Beartooth
—●— BGT-04 48.38 - Beartooth	—●— BDC7 20.28 - Beartooth
● Granite Shake Flask Extraction - Minimum	+
—●— Granite Net Acid Generation - Minimum	—●— Granite Net Acid Generation - Maximum

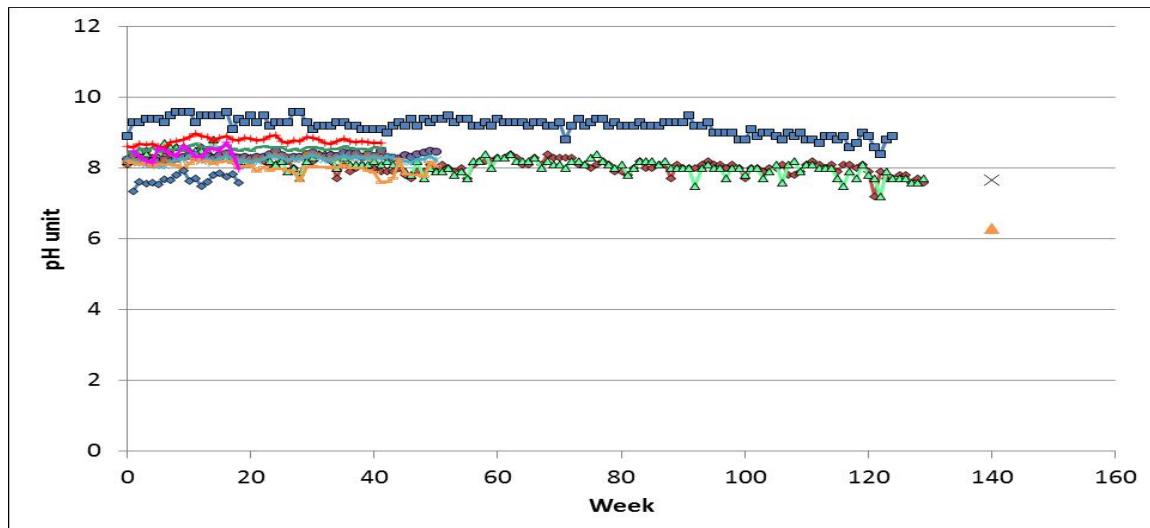
**Figure G2-39 Granite – Zinc**


mg/L = milligrams per litre; Zn = zinc.

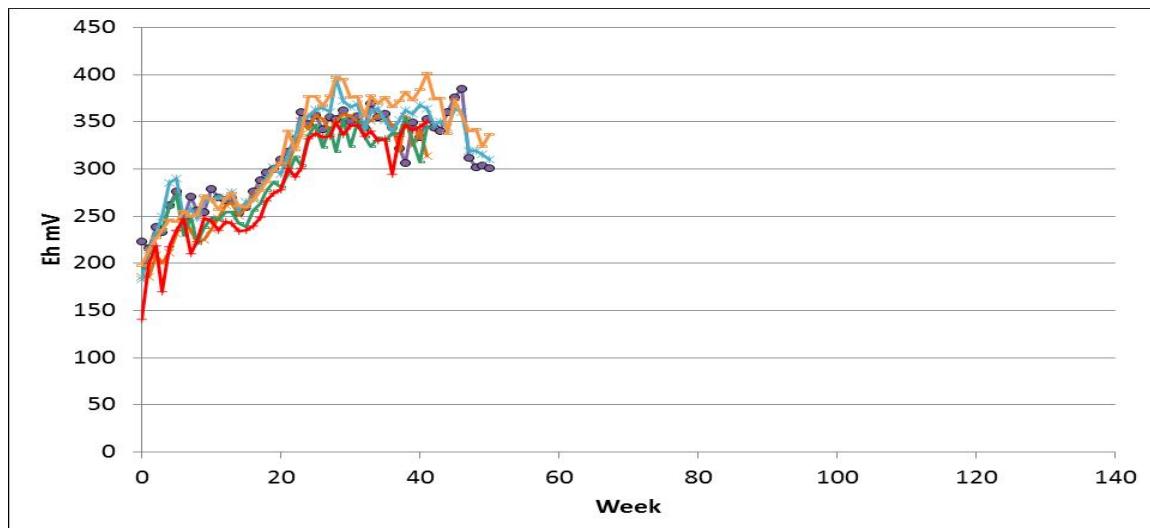


## G3 KIMBERLITE

**Figure G3-1 Kimberlite – pH**

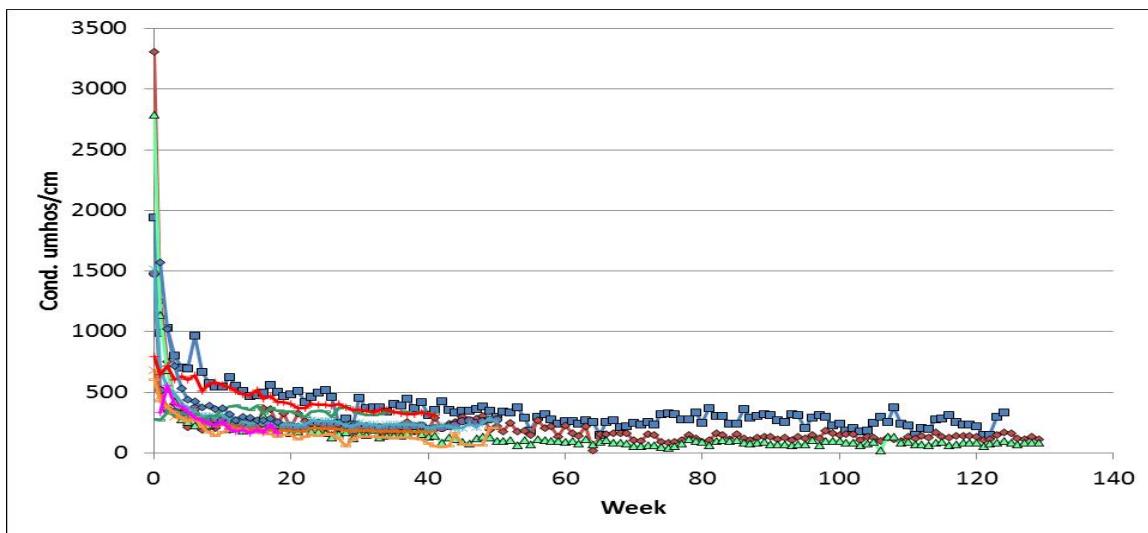


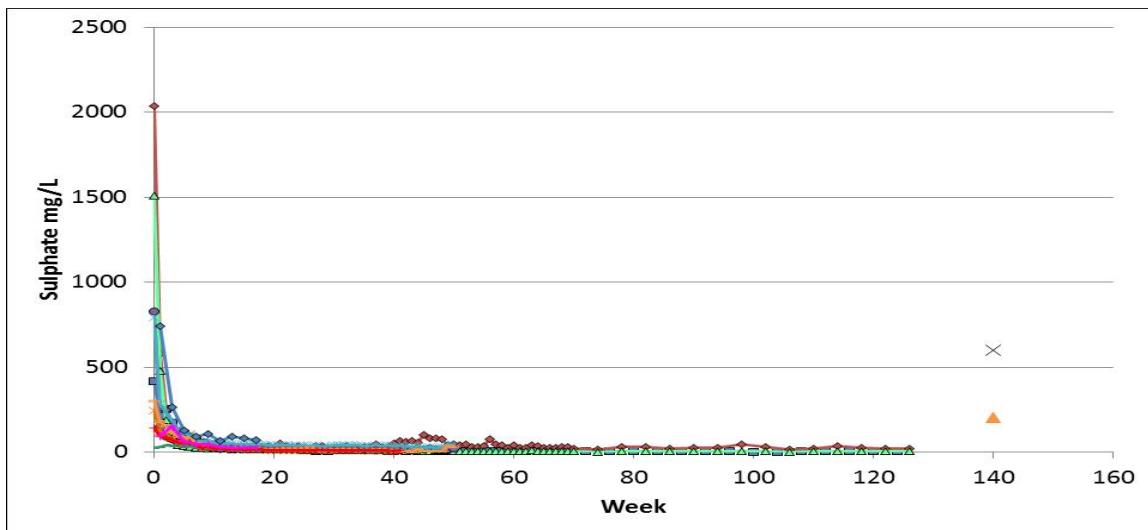
**Figure G3-2 Kimberlite – Redox Potential**



Eh = redox potential; mV = millivolt.

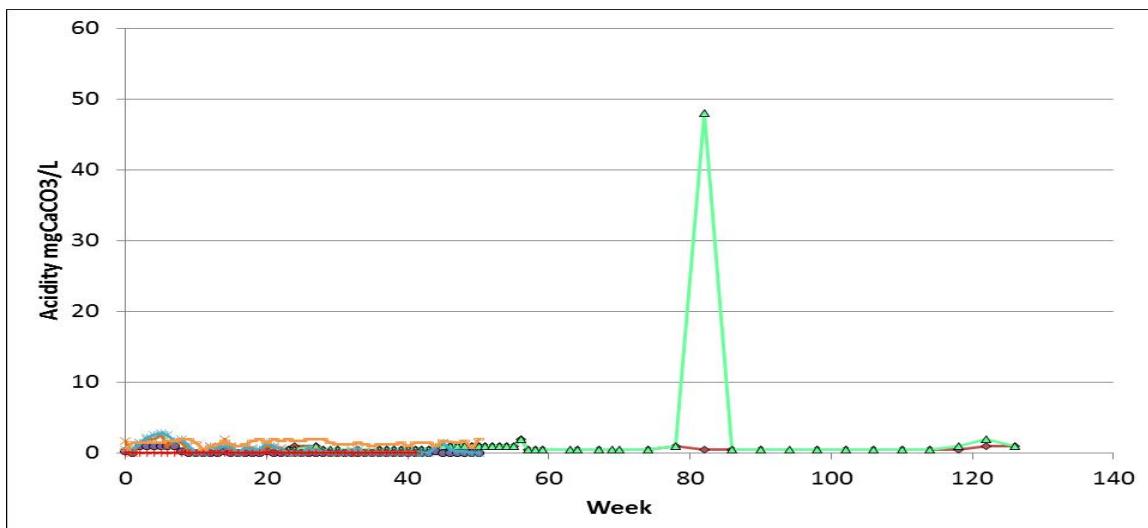


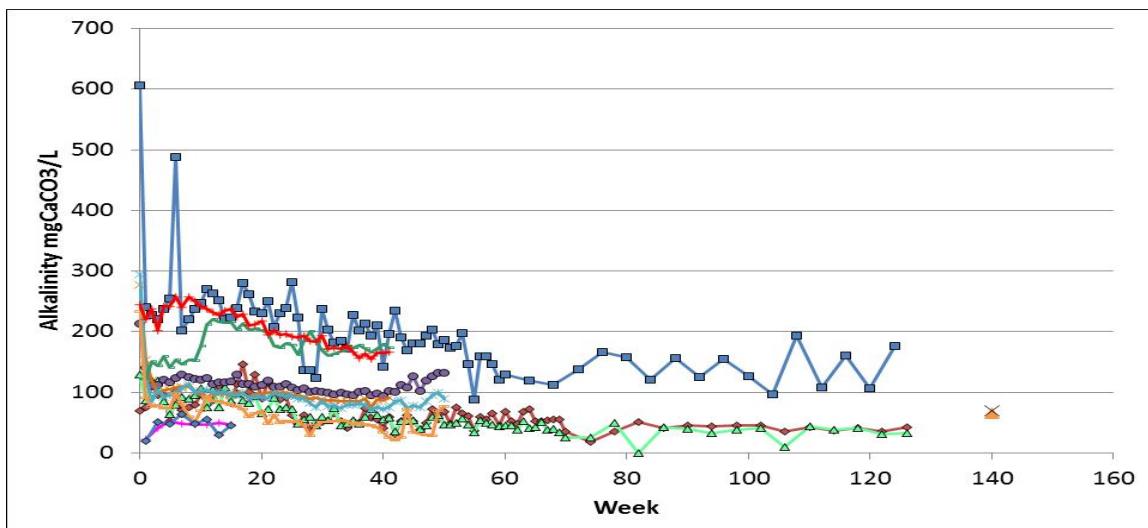
**Figure G3-3 Kimberlite – Conductivity**

 Cond. = conductivity;  $\mu\text{mho}/\text{cm}$  = micromho per centimetre.

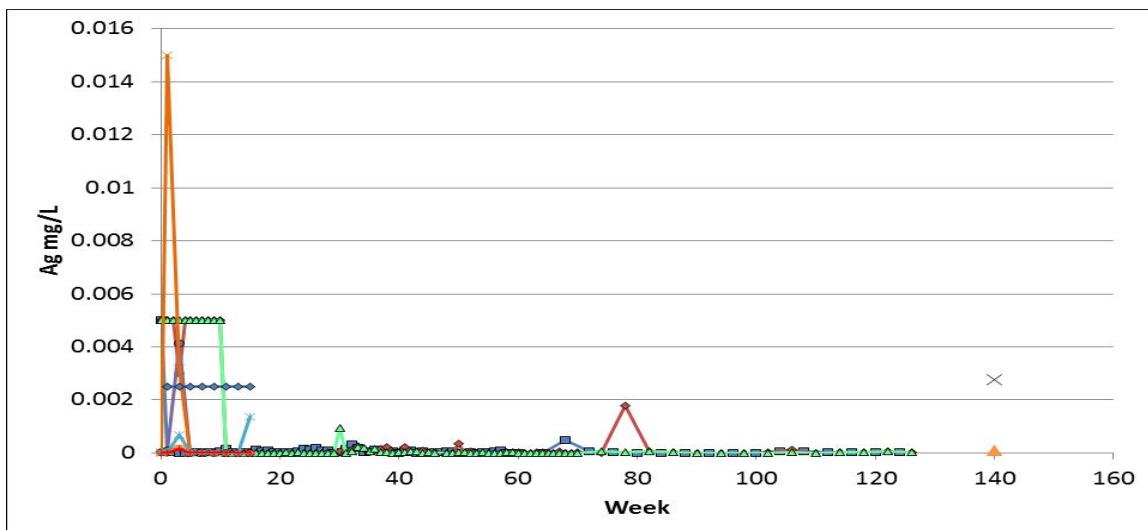
**Figure G3-4 Kimberlite – Sulphate**


mg/L = milligrams per litre.

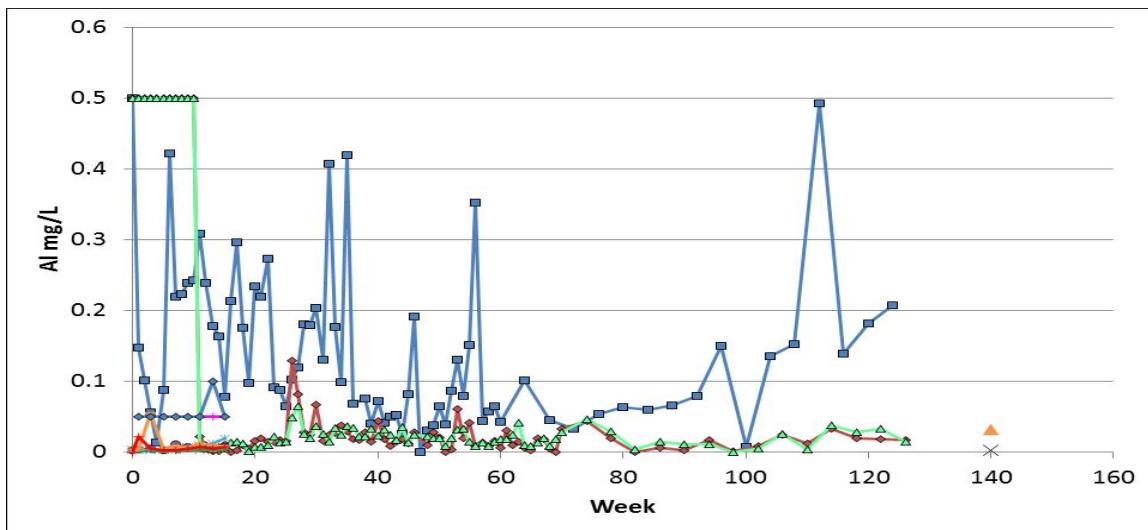


**Figure G3-5 Kimberlite – Acidity**

 mgCaCO<sub>3</sub>/L = milligrams calcium carbonate per litre.

**Figure G3-6 Kimberlite – Alkalinity**

 mgCaCO<sub>3</sub>/L = milligrams calcium carbonate per litre.

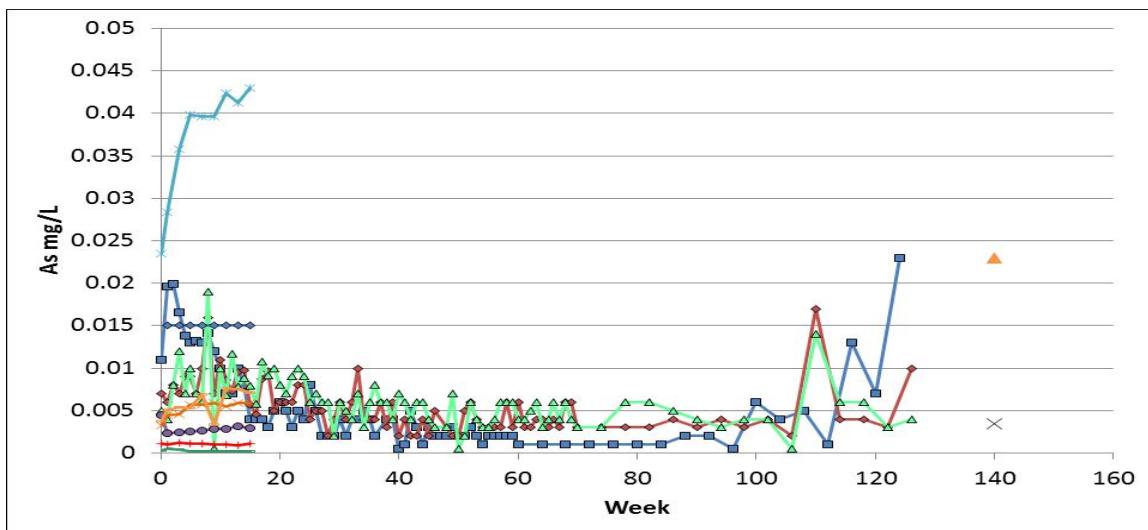

**Figure G3-7 Kimberlite – Silver**


mg/L = milligrams per litre; Ag = silver.

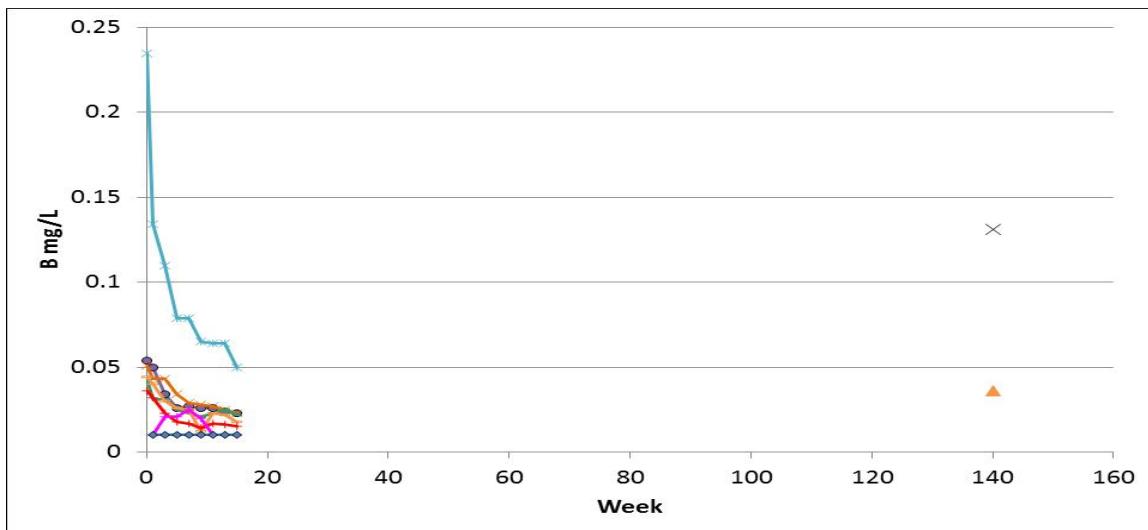
**Figure G3-8 Kimberlite – Aluminium**


mg/L = milligrams per litre; Al = aluminium.



**Figure G3-9 Kimberlite – Arsenic**


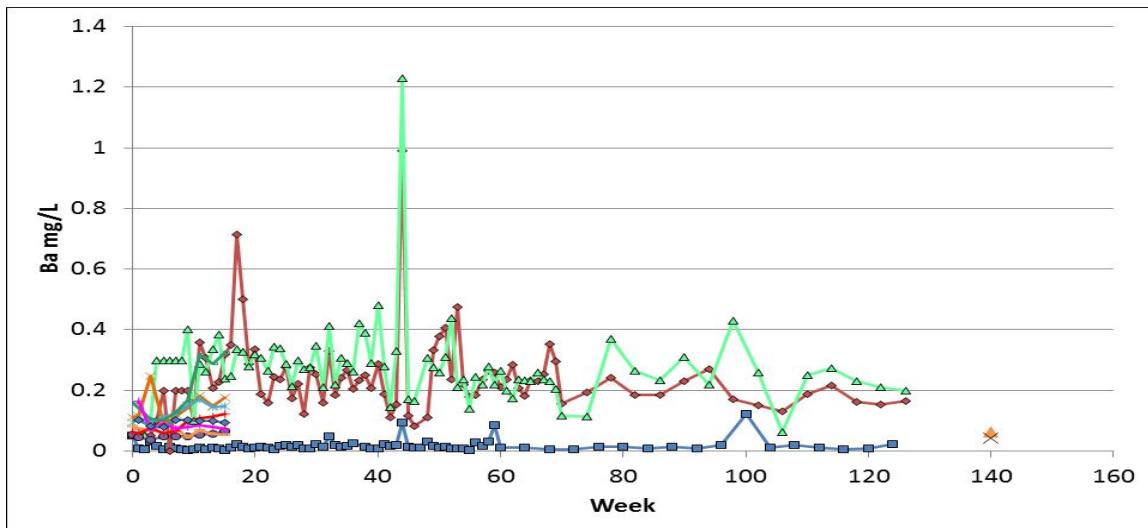
mg/L = milligrams per litre; As = arsenic.

**Figure G3-10 Kimberlite – Boron**


mg/L = milligrams per litre; B = boron.

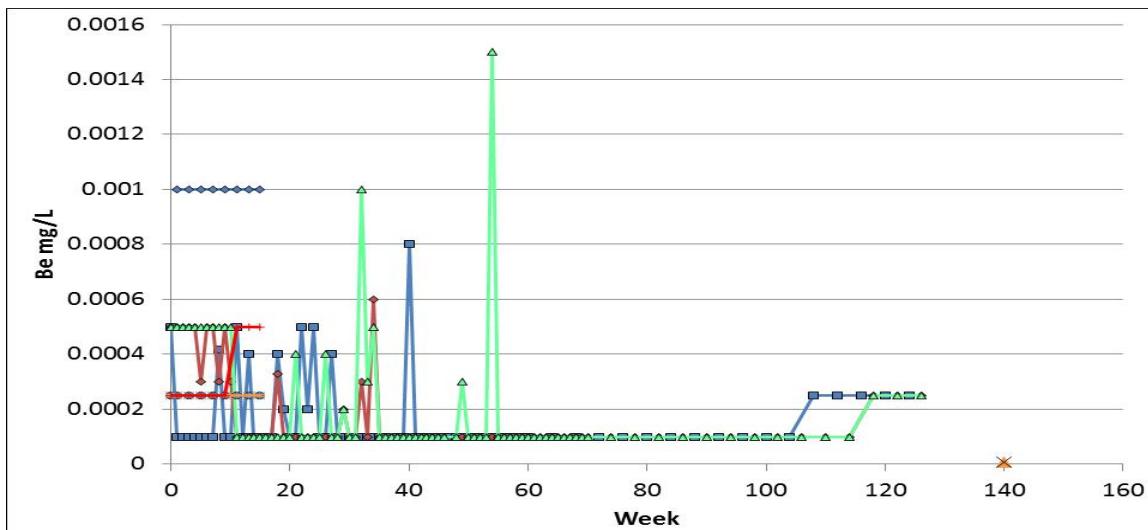


**Figure G3-11 Kimberlite – Barium**



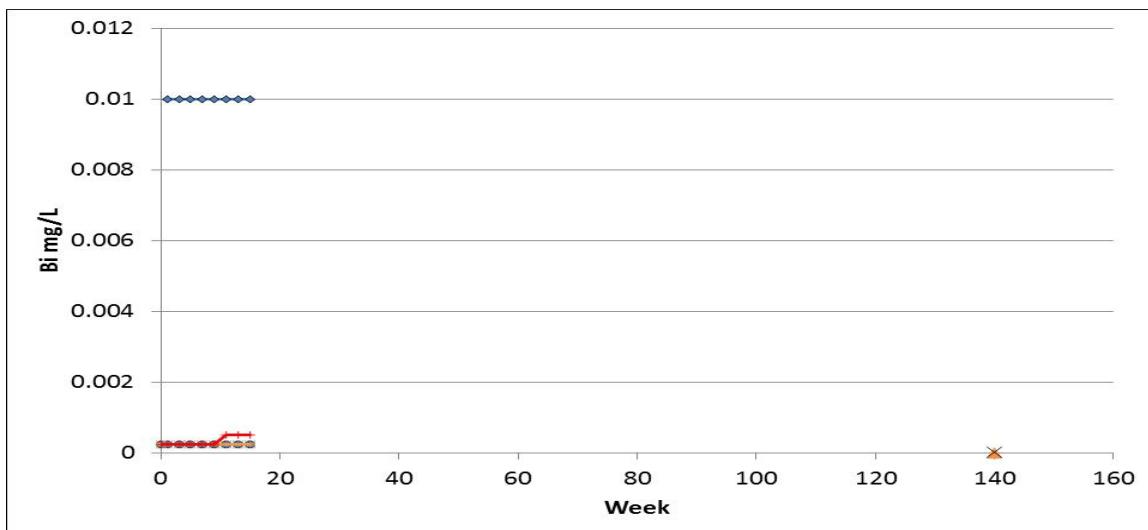
mg/L = milligrams per litre; Ba = barium.

**Figure G3-12 Kimberlite – Beryllium**

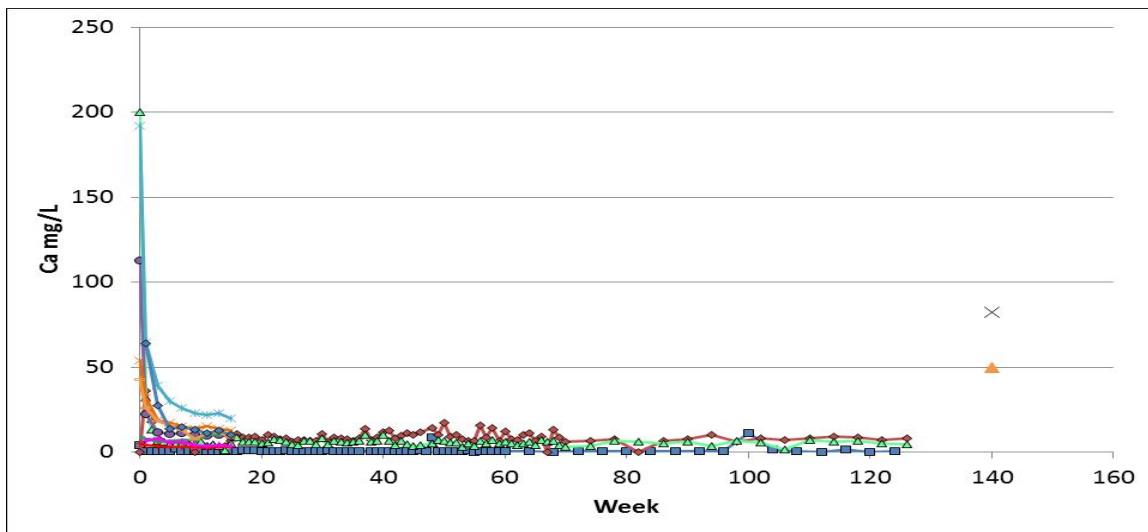


mg/L = milligrams per litre; Be = beryllium.



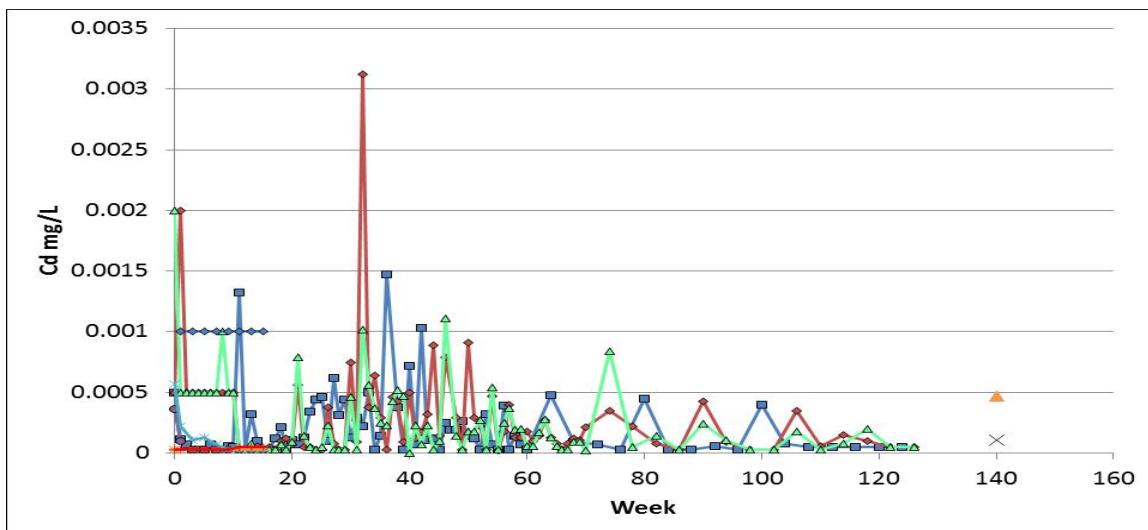
**Figure G3-13 Kimberlite – Bismuth**


mg/L = milligrams per litre; Bi = bismuth.

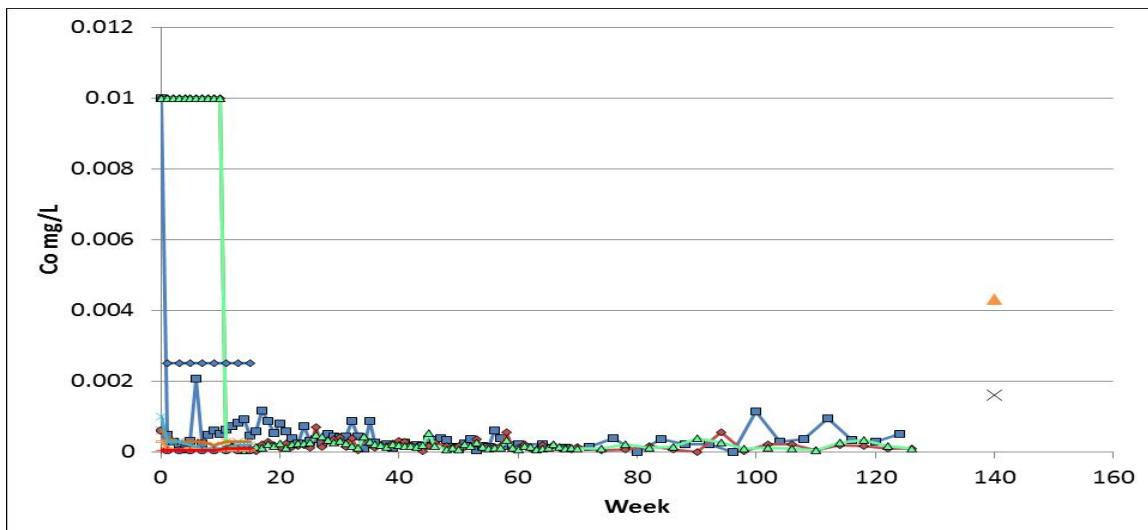
**Figure G3-14 Kimberlite – Calcium**


mg/L = milligrams per litre; Ca = calcium.



**Figure G3-15 Kimberlite – Cadmium**


mg/L = milligrams per litre; Cd = cadmium.

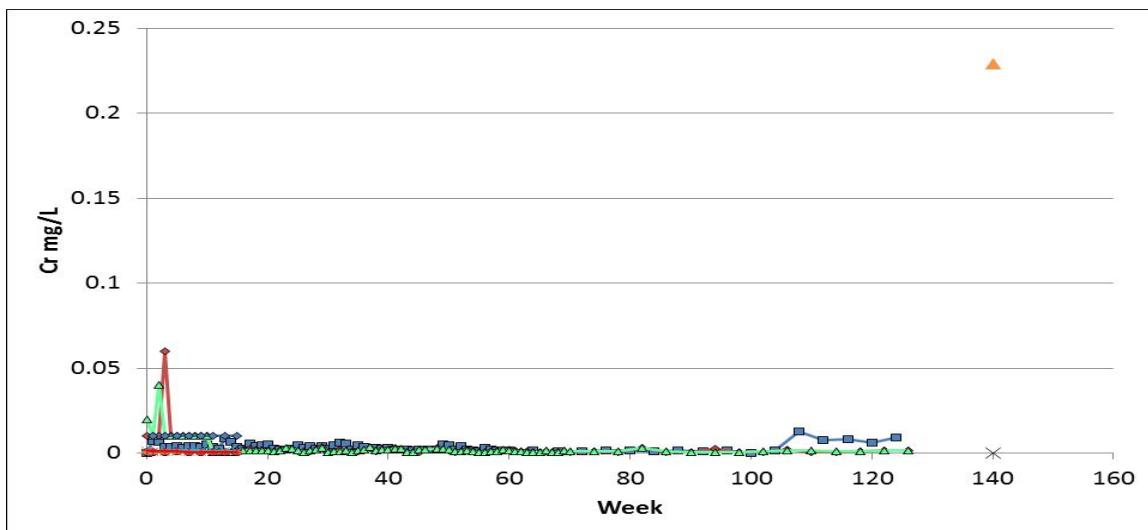
**Figure G3-16 Kimberlite – Cobalt**


mg/L = milligrams per litre; Co = cobalt.



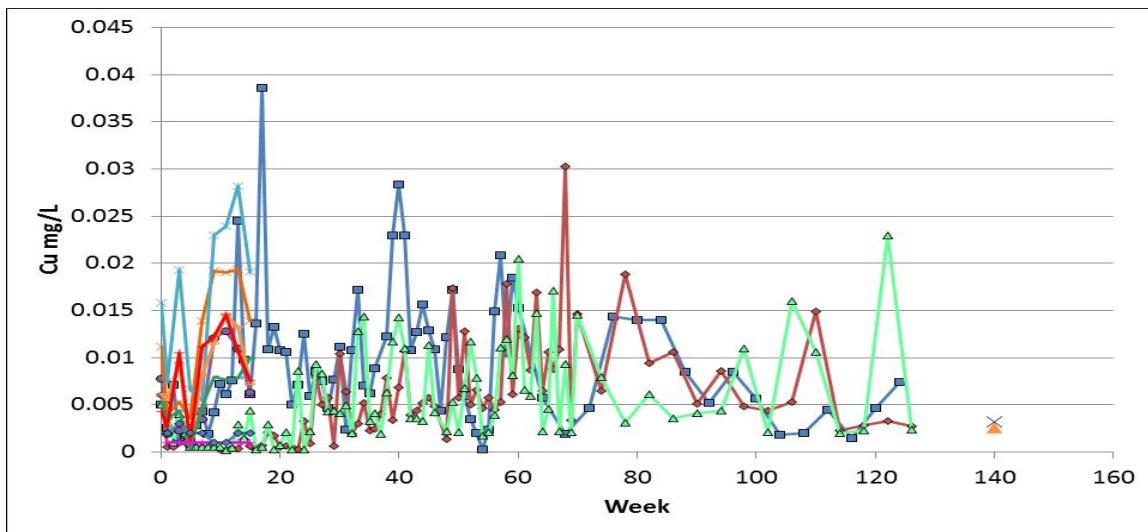


**Figure G3-17 Kimberlite – Chromium**



mg/L = milligrams per litre; Cr = chromium.

**Figure G3-18 Kimberlite – Copper**

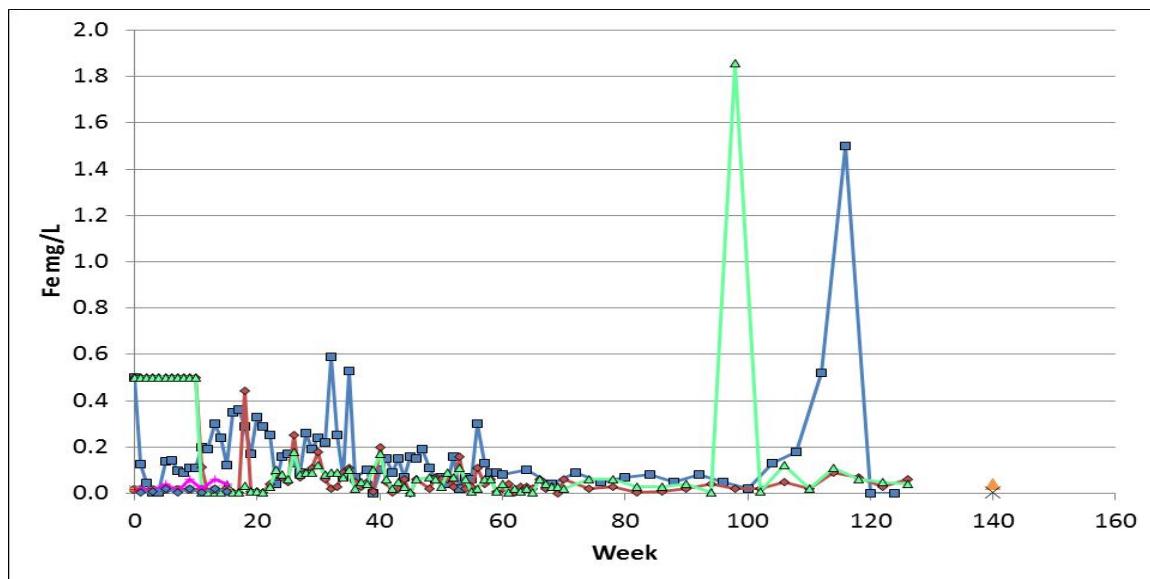


mg/L = milligrams per litre; Cu = copper.

The legend identifies the following series:

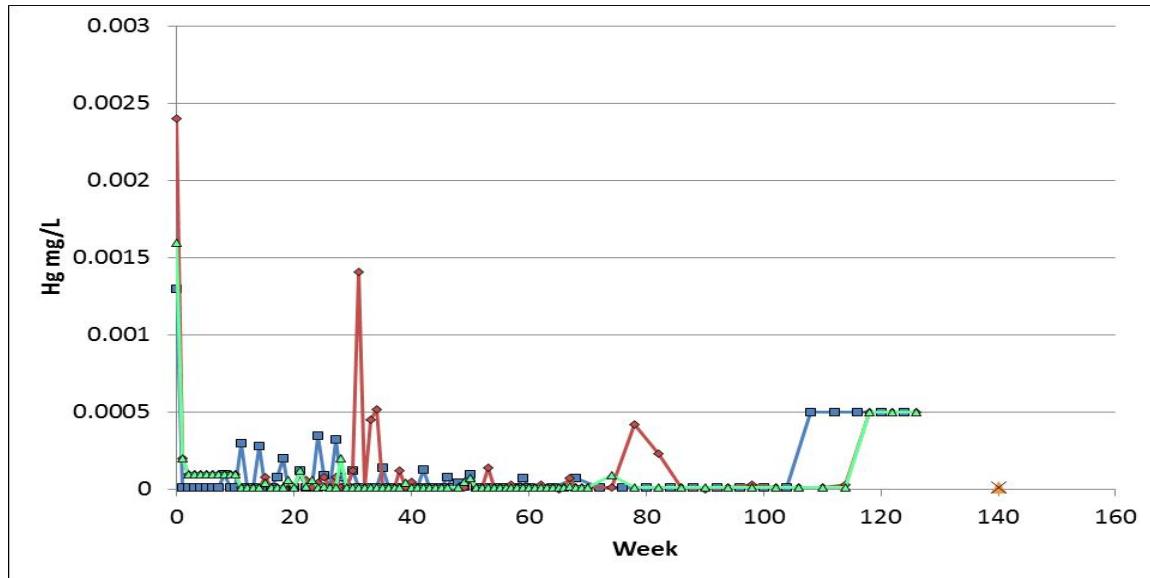
- F1-1 216 - Fox
- M19-100M - Misery
- M19-106M - Misery
- HC-6 - Sable
- HC-7 - Sable
- HC-5 - Pigeon
- HC-6 - Pigeon
- HC-4 - Beartooth
- HC-5 - Beartooth
- HC-1 - CKRSA
- HC-2 - CKRSA
- 2014-DD-042 - Net Acid Generation
- 2014-DD-042 - Shake Flask Extraction

**Figure G3-19 Kimberlite – Iron**



mg/L = milligrams per litre; Fe = iron.

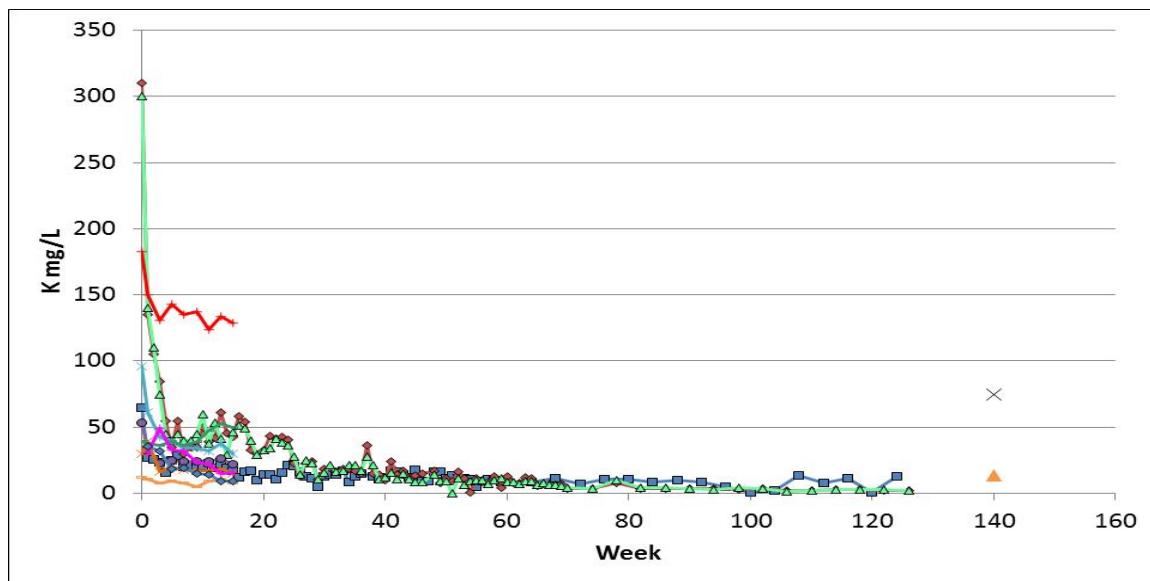
**Figure G3-20 Kimberlite – Mercury**



mg/L = milligrams per litre; Hg = mercury.

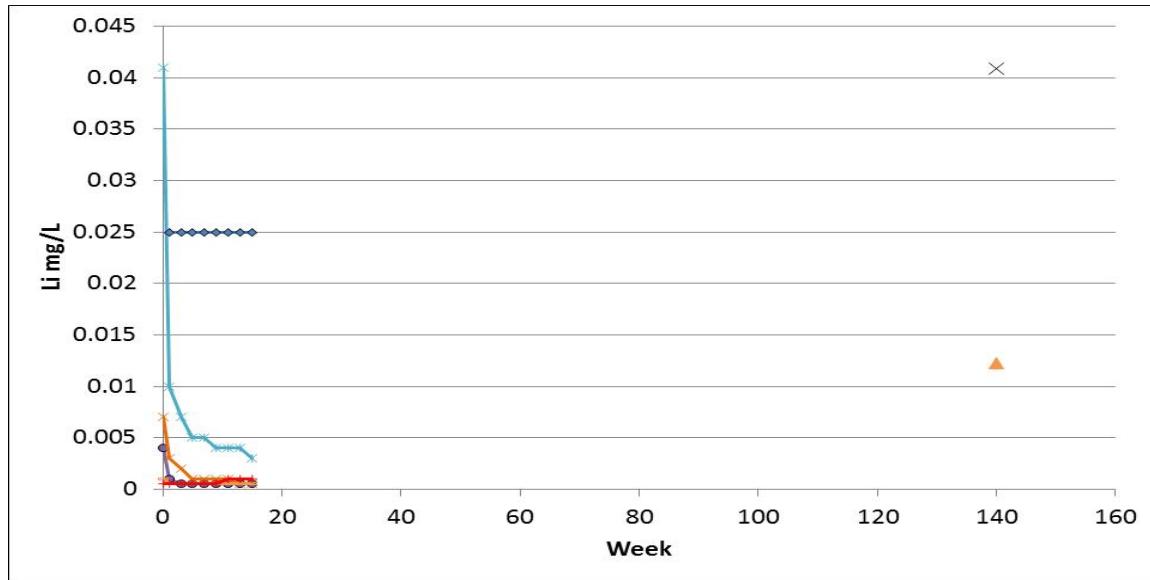


**Figure G3-21 Kimberlite – Potassium**



mg/L = milligrams per litre; K = potassium.

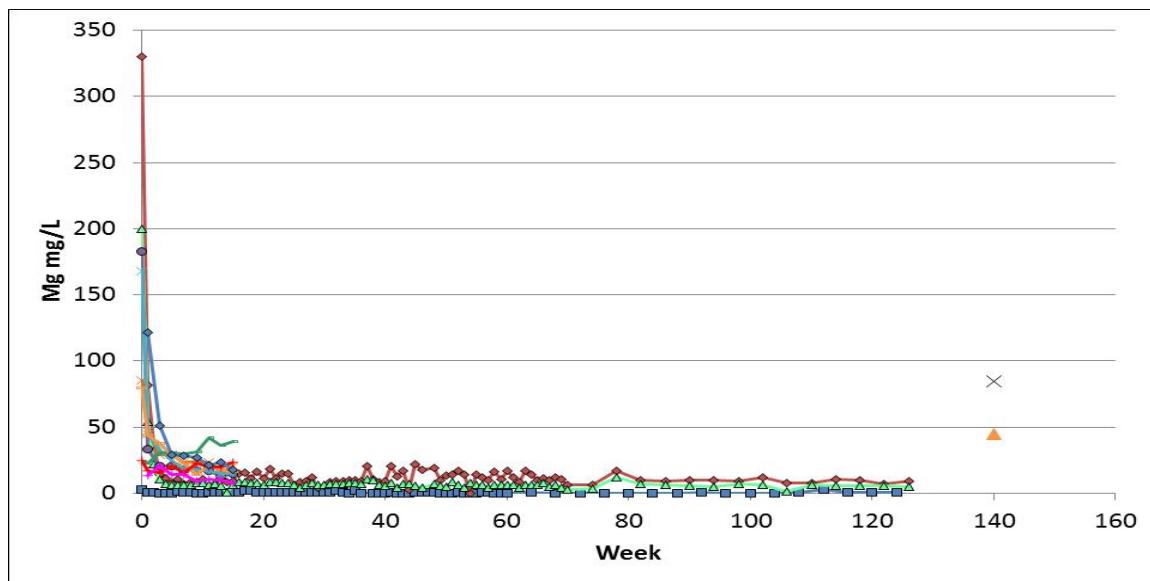
**Figure G3-22 Kimberlite – Lithium**



mg/L = milligrams per litre; Li = lithium.

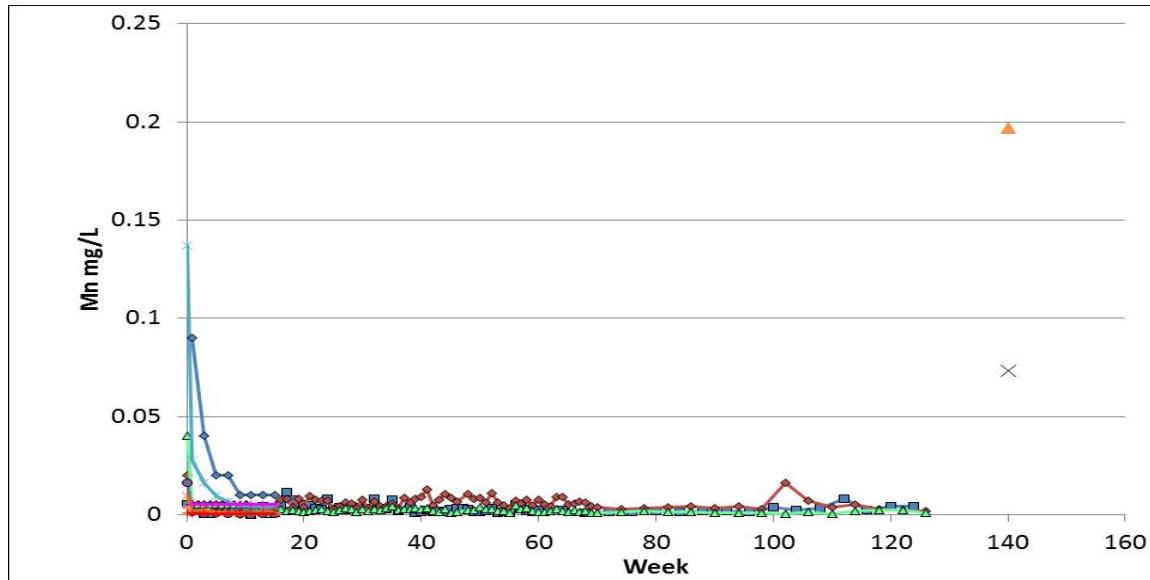
-■- F1-1 216 - Fox	-●- HC-6 - Sable	-◆- M19-100M - Misery	-△- M19-106M - Misery
-○- HC-6 - Pigeon	-○- HC-1 - CKRSA	-○- HC-7 - Sable	-○- HC-5 - Pigeon
-×- HC-2 - CKRSA	-×- 2014-DD-042 - Net Acid Generation	-×- HC-4 - Beartooth	-×- HC-5 - Beartooth
✗ 2014-DD-042 - Shake Flask Extraction			▲ 2014-DD-042 - Net Acid Generation

**Figure G3-23 Kimberlite – Magnesium**



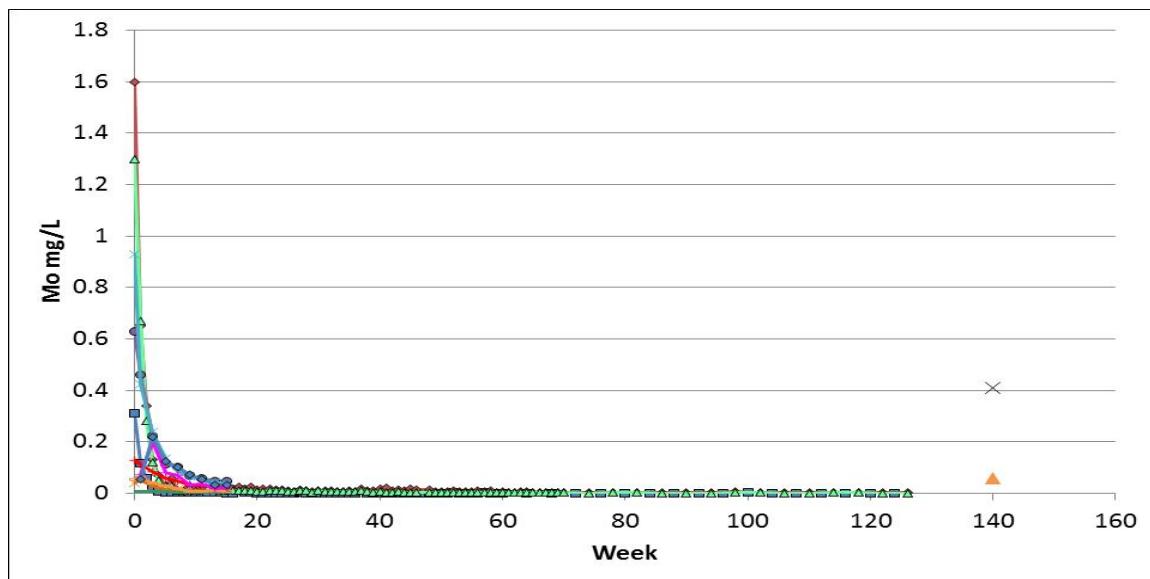
mg/L = milligrams per litre; Mg = magnesium.

**Figure G3-24 Kimberlite – Manganese**

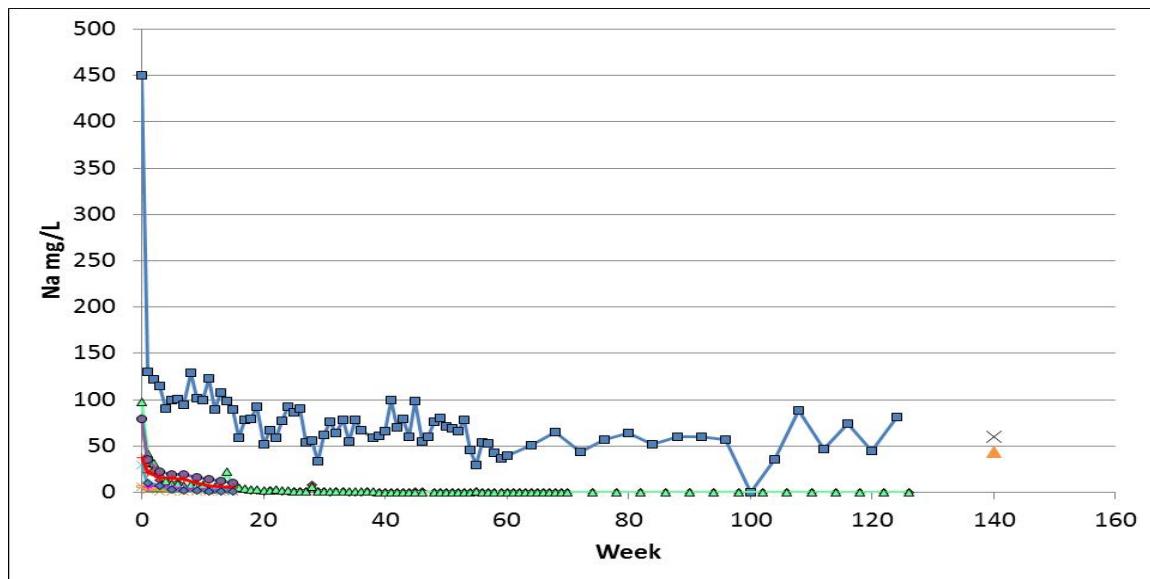


mg/L = milligrams per litre; Mn = manganese.

-■- F1-1 216 - Fox	-●- M19-100M - Misery	-△- M19-106M - Misery
-●- HC-6 - Sable	-○- HC-7 - Sable	-●- HC-5 - Pigeon
-■- HC-6 - Pigeon	-○- HC-4 - Beartooth	-○- HC-5 - Beartooth
-●- HC-1 - CKRSA	-●- HC-2 - CKRSA	-▲- 2014-DD-042 - Net Acid Generation
✗ 2014-DD-042 - Shake Flask Extraction		

**Figure G3-25 Kimberlite – Molybdenum**


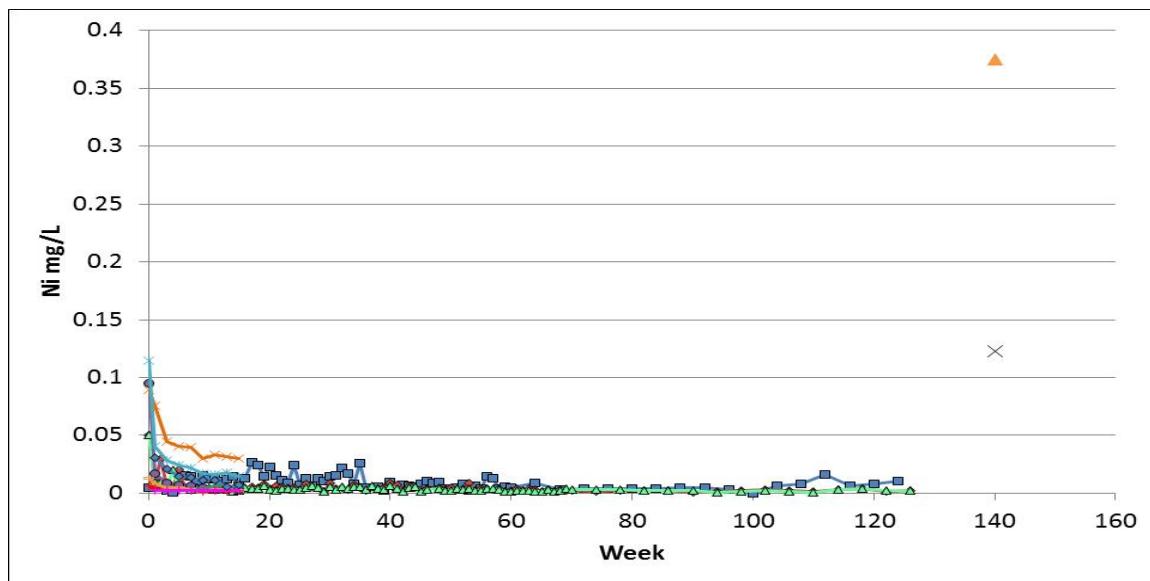
mg/L = milligrams per litre; Mo = molybdenum.

**Figure G3-26 Kimberlite – Sodium**


mg/L = milligrams per litre; Na = sodium.

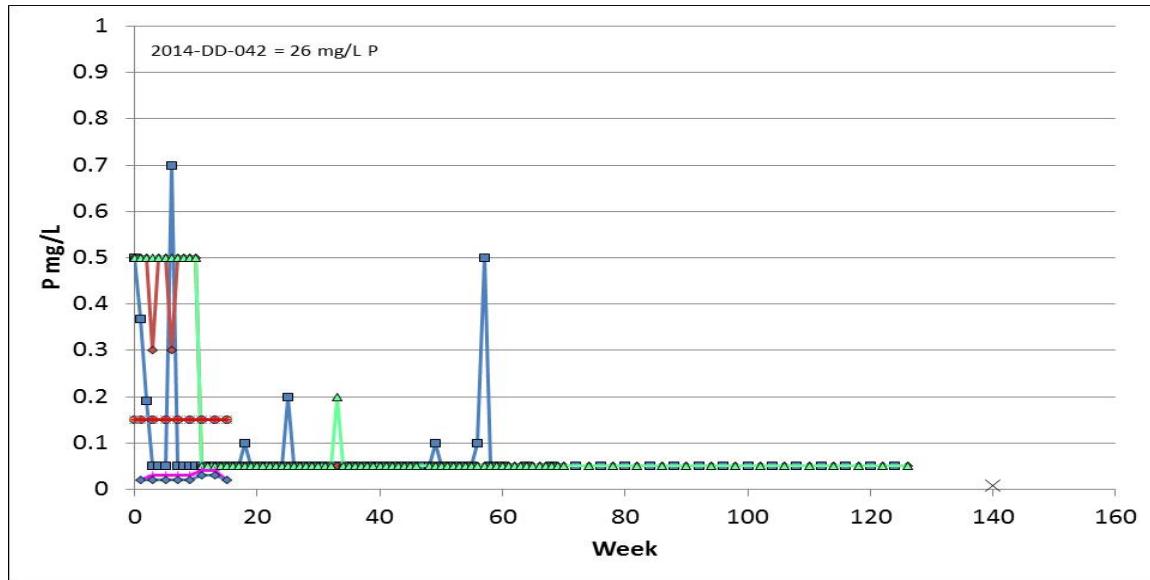


**Figure G3-27 Kimberlite – Nickel**



mg/L = milligrams per litre; Ni = nickel.

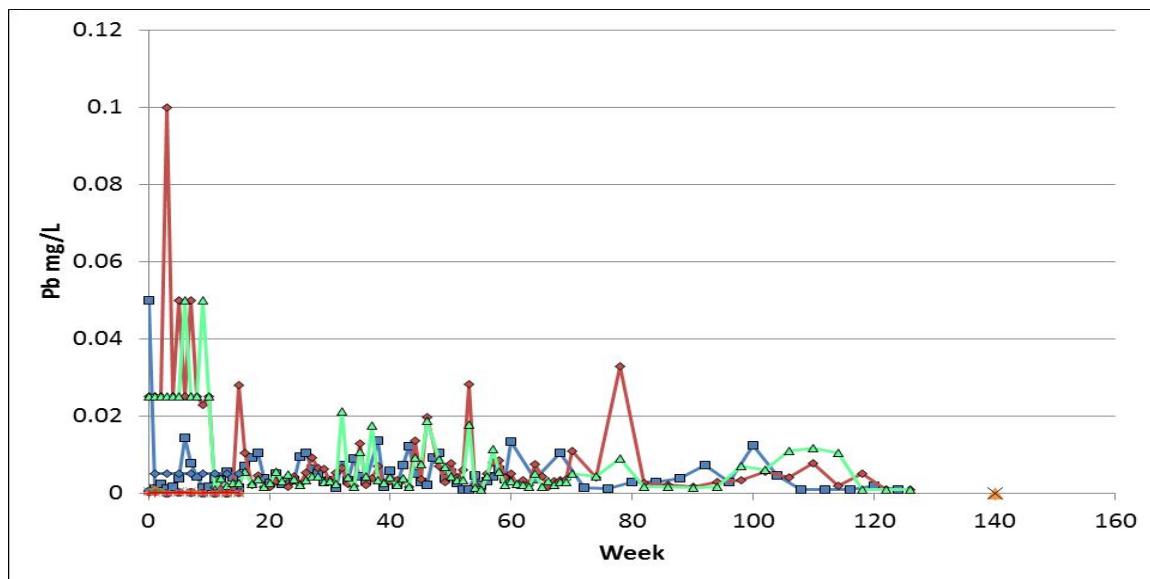
**Figure G3-28 Kimberlite – Phosphorus**



mg/L = milligrams per litre ; P = phosphorus.

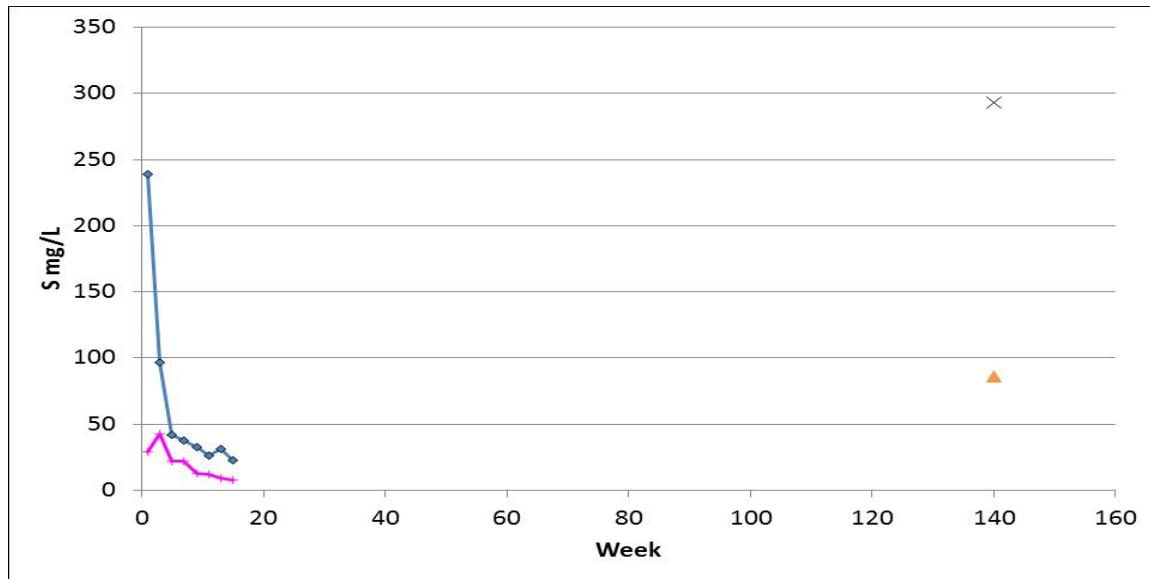
-■- F1-1 216 - Fox	-●- HC-6 - Sable	-◆- M19-100M - Misery	-△- M19-106M - Misery
-○- HC-6 - Pigeon	-○- HC-7 - Sable	-○- HC-5 - Pigeon	-○- HC-4 - Beartooth
-■- HC-1 - CKRSA	-○- HC-2 - CKRSA	-■- HC-5 - Beartooth	-■- HC-4 - Beartooth
× 2014-DD-042 - Shake Flask Extraction			▲ 2014-DD-042 - Net Acid Generation

**Figure G3-29 Kimberlite – Lead**



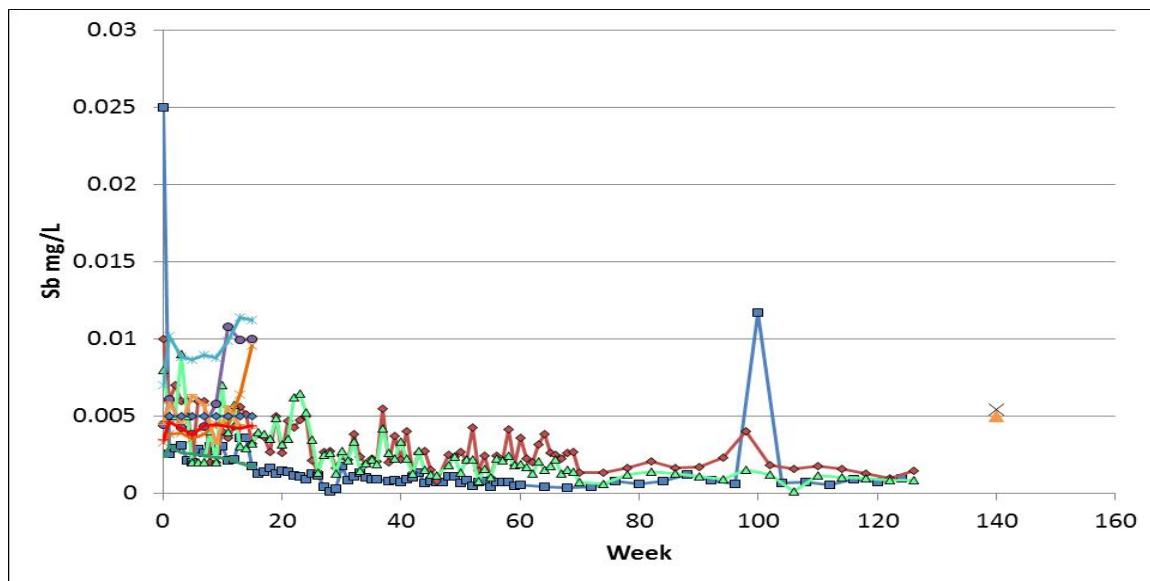
mg/L = milligrams per litre; Pb = lead.

**Figure G3-30 Kimberlite – Sulphur**

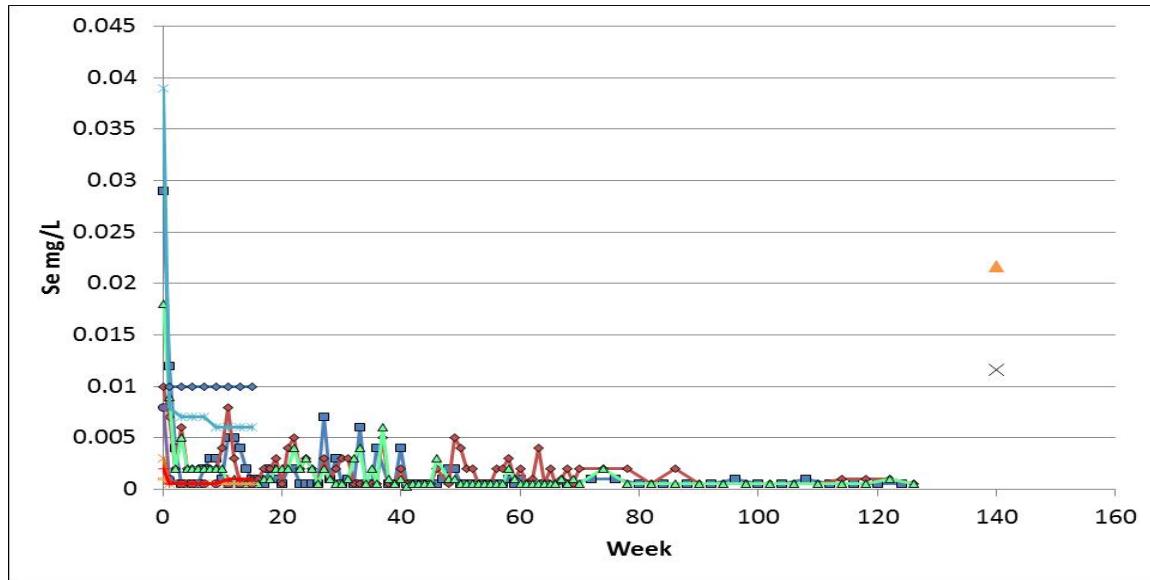


mg/L = milligrams per litre; S = sulphur.

-■- F1-1 216 - Fox	-◆- M19-100M - Misery	-△- M19-106M - Misery
-●- HC-6 - Sable	-○- HC-7 - Sable	-×- HC-5 - Pigeon
-— HC-6 - Pigeon	-— HC-4 - Beartooth	-— HC-5 - Beartooth
-— HC-1 - CKRSA	-— HC-2 - CKRSA	-▲- 2014-DD-042 - Net Acid Generation
× 2014-DD-042 - Shake Flask Extraction		

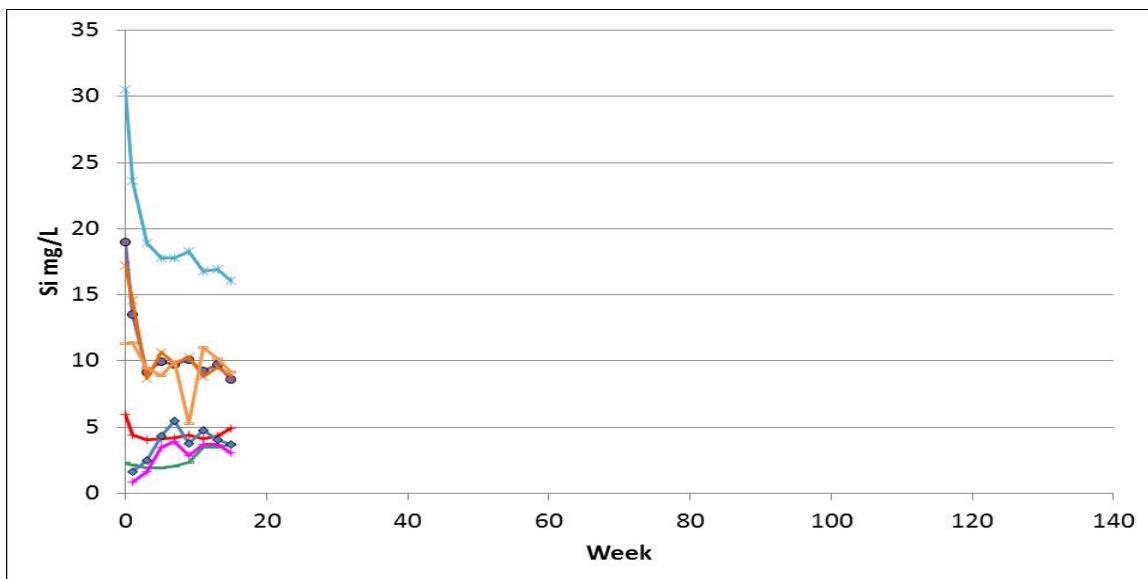
**Figure G3-31 Kimberlite – Antimony**


mg/L = milligrams per litre; Sb = antimony.

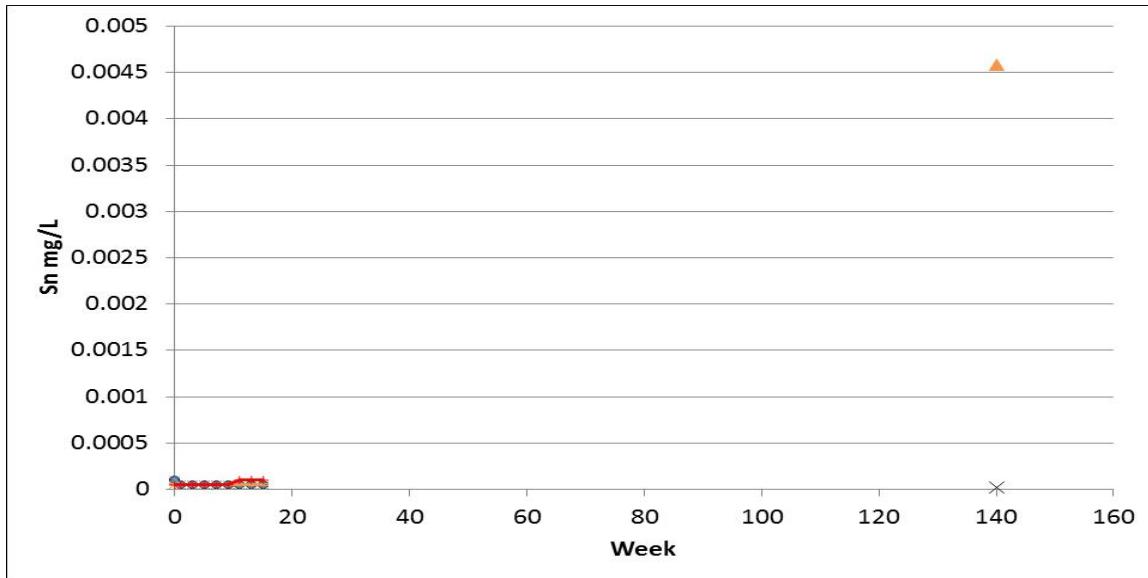
**Figure G3-32 Kimberlite – Selenium**


mg/L = milligrams per litre; Se = selenium.

■ F1-1 216 - Fox	■ M19-100M - Misery	△ M19-106M - Misery
● HC-6 - Sable	○ HC-7 - Sable	▲ HC-5 - Pigeon
— HC-6 - Pigeon	— HC-4 - Beartooth	— HC-5 - Beartooth
— HC-1 - CKRSA	— HC-2 - CKRSA	— 2014-DD-042 - Net Acid Generation
× 2014-DD-042 - Shake Flask Extraction		

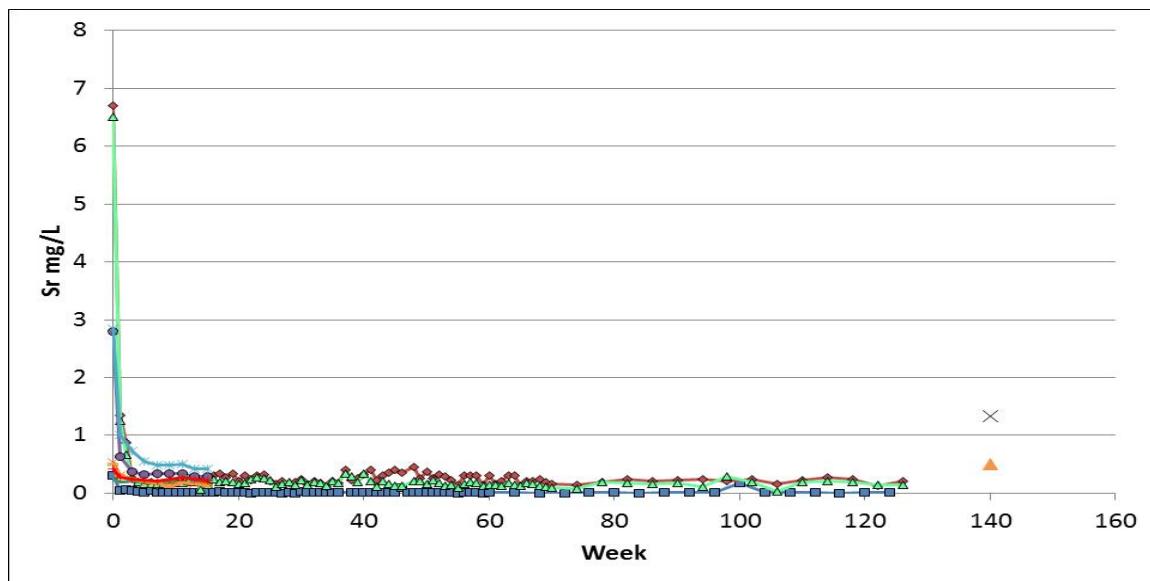
**Figure G3-33 Kimberlite – Silicon**


mg/L = milligrams per litre; Si = silicon.

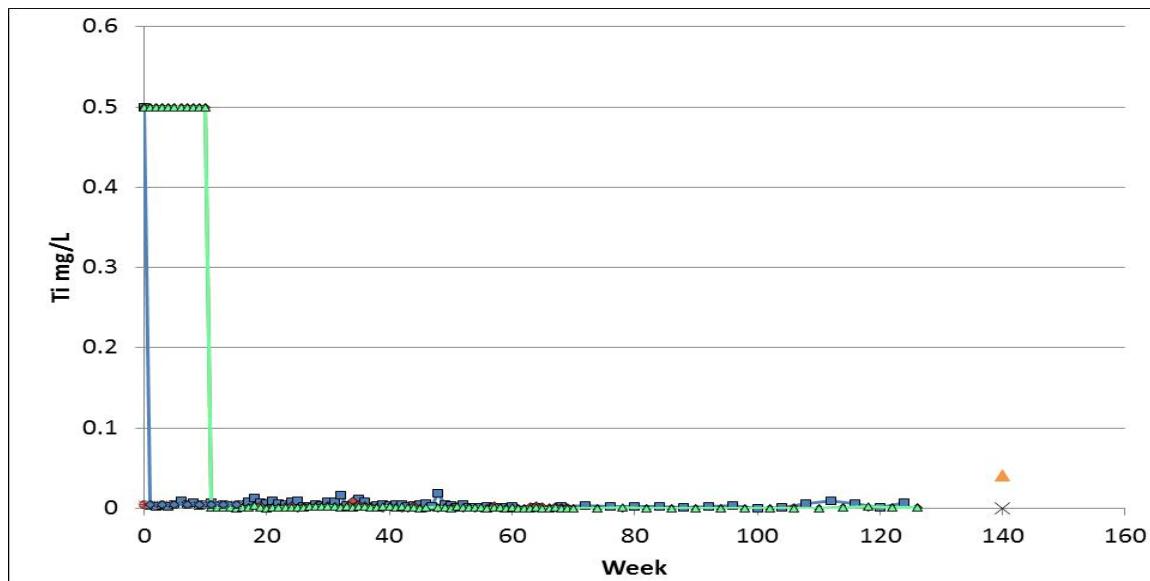
**Figure G3-34 Kimberlite – Tin**


mg/L = milligrams per litre; Sn = tin.

-■- F1-1 216 - Fox	-●- HC-6 - Sable	-◆- M19-100M - Misery	-△- M19-106M - Misery
-○- HC-6 - Pigeon	-○- HC-7 - Sable	-○- HC-5 - Pigeon	-○- HC-5 - Beartooth
-■- HC-1 - CKRSA	-○- HC-4 - Beartooth	-■- HC-2 - CKRSA	-▲- 2014-DD-042 - Net Acid Generation
× 2014-DD-042 - Shake Flask Extraction			

**Figure G3-35 Kimberlite – Strontium**


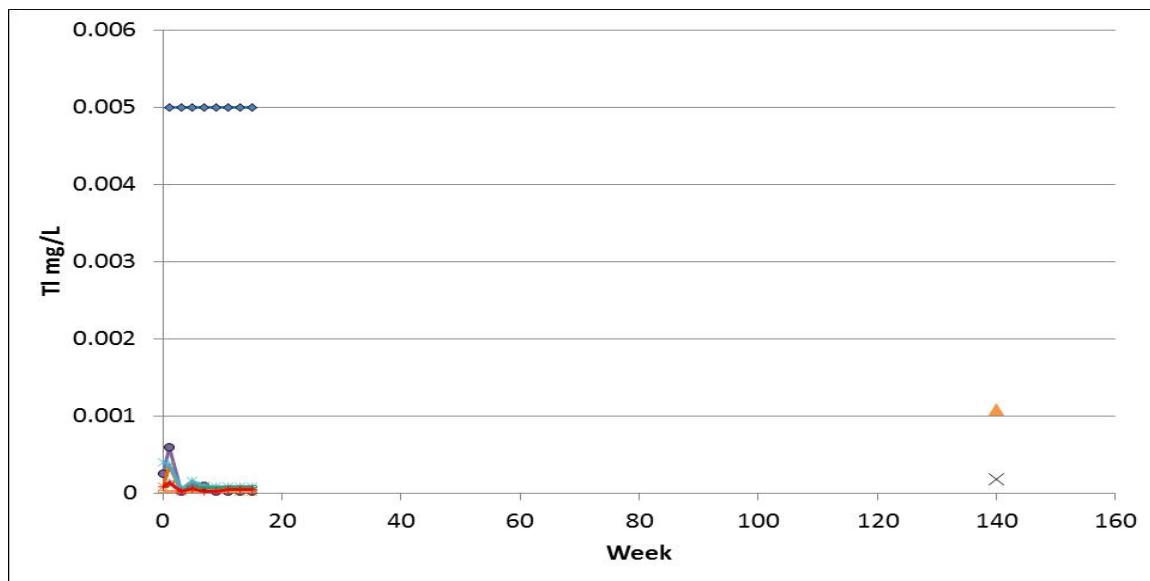
mg/L = milligrams per litre; Sr = strontium.

**Figure G3-36 Kimberlite – Titanium**


mg/L = milligrams per litre; Ti = titanium.

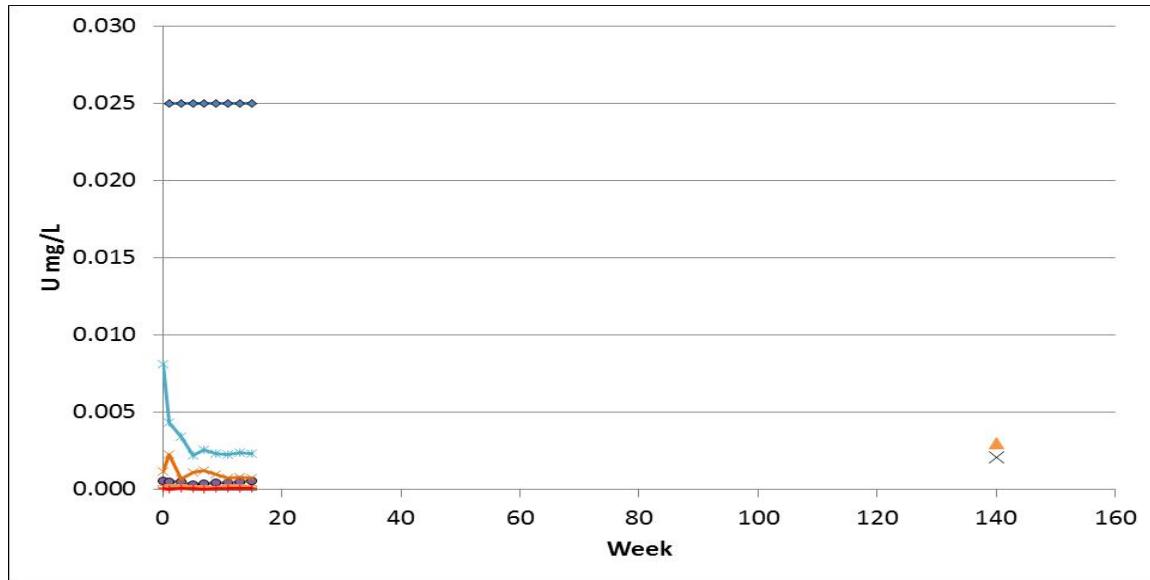


**Figure G3-37 Kimberlite – Thallium**



mg/L = milligrams per litre; Tl = thallium.

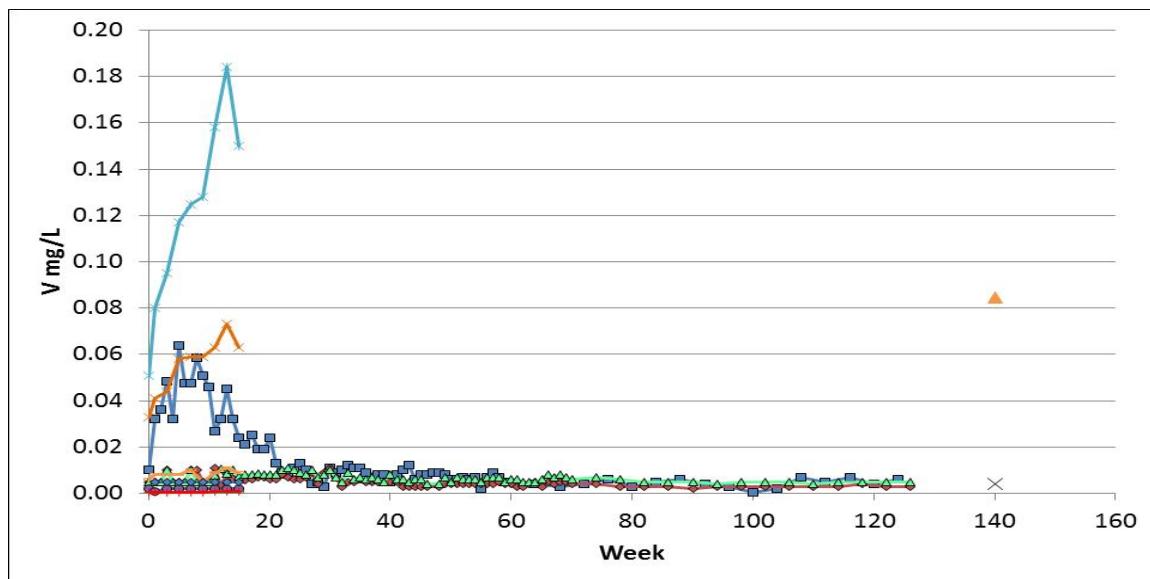
**Figure G3-38 Kimberlite – Uranium**



mg/L = milligrams per litre; U = uranium.

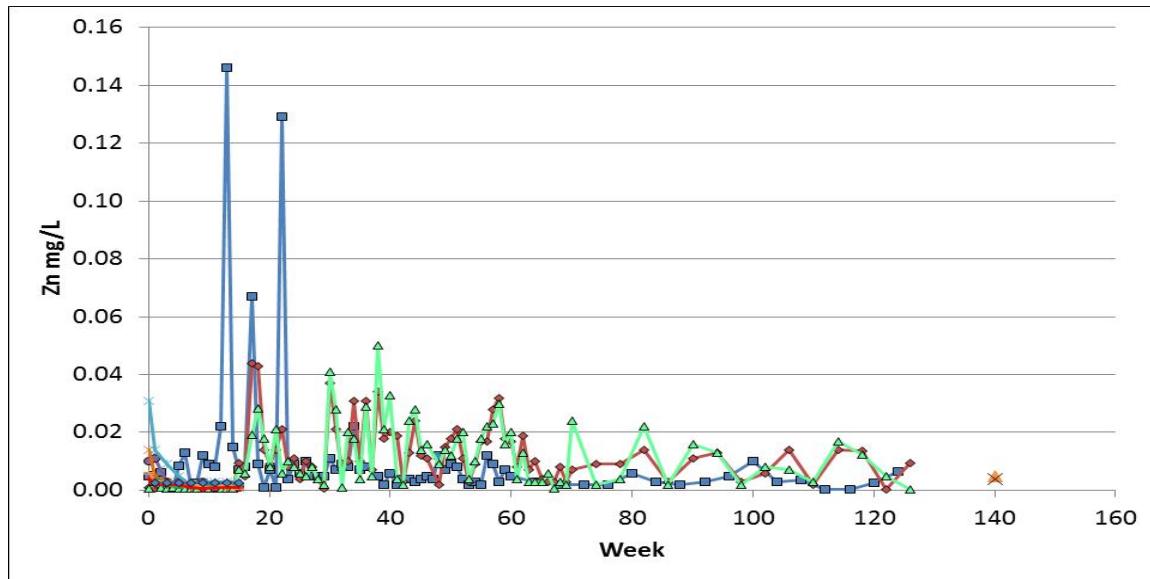
-■ F1-1 216 - Fox	-● M19-100M - Misery	-△ M19-106M - Misery
-● HC-6 - Sable	-○ HC-7 - Sable	-● HC-5 - Pigeon
-■ HC-6 - Pigeon	-○ HC-4 - Beartooth	-● HC-5 - Beartooth
-■ HC-1 - CKRSA	-● HC-2 - CKRSA	-▲ 2014-DD-042 - Net Acid Generation
✗ 2014-DD-042 - Shake Flask Extraction		

**Figure G3-39 Kimberlite – Vanadium**



mg/L = milligrams per litre; V = vanadium.

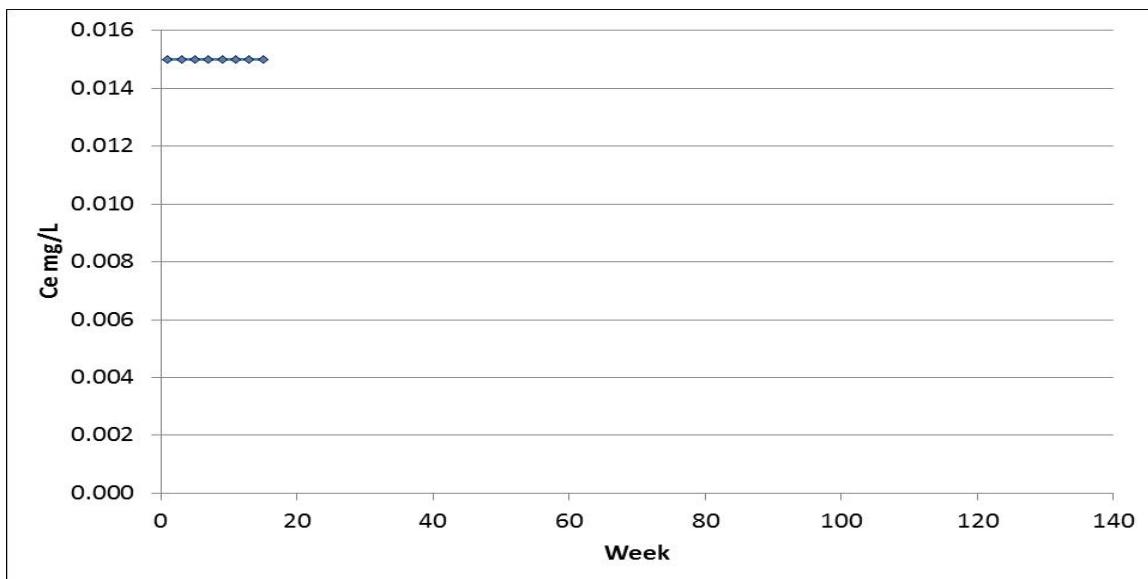
**Figure G3-40 Kimberlite – Zinc**



mg/L = milligrams per litre; Zn = zinc.

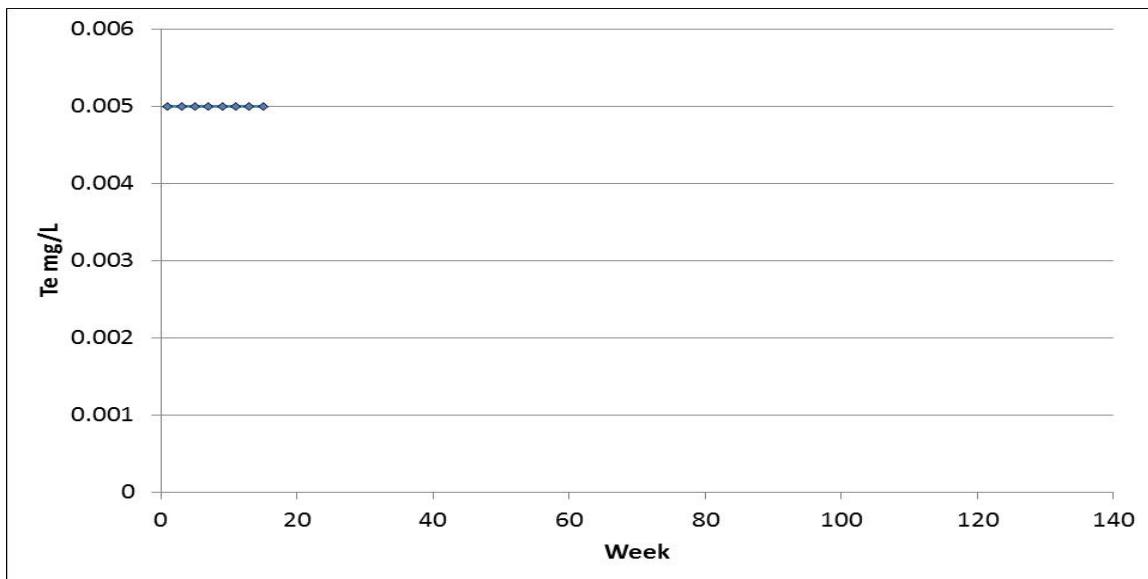


**Figure G3-41 Kimberlite – Cerium**



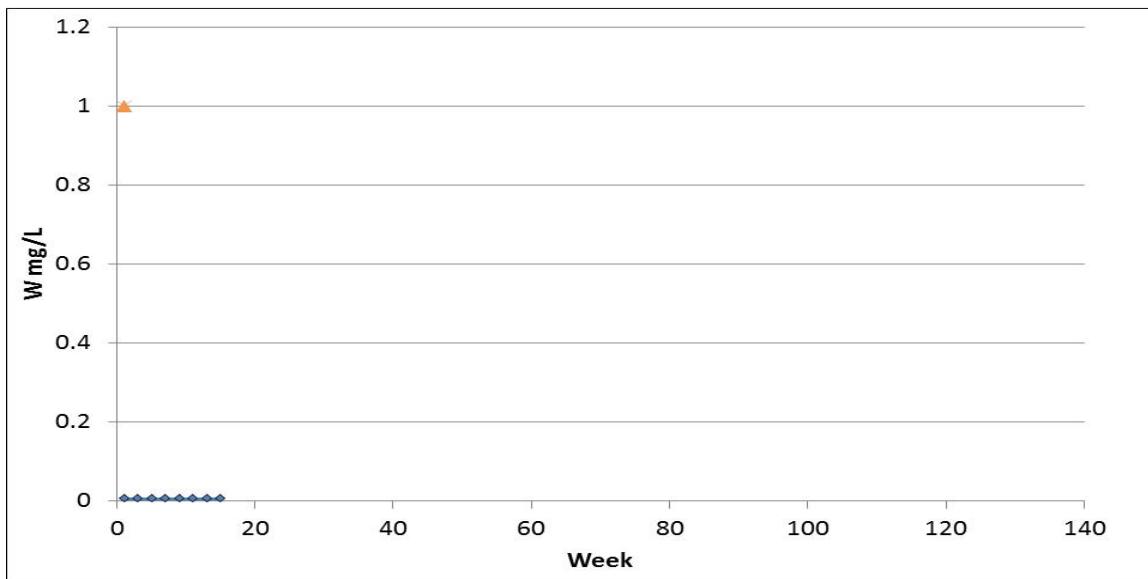
mg/L = milligrams per litre; Ce = cerium.

**Figure G3-42 Kimberlite – Tellurium**



mg/L = milligrams per litre; Te = tellurium.



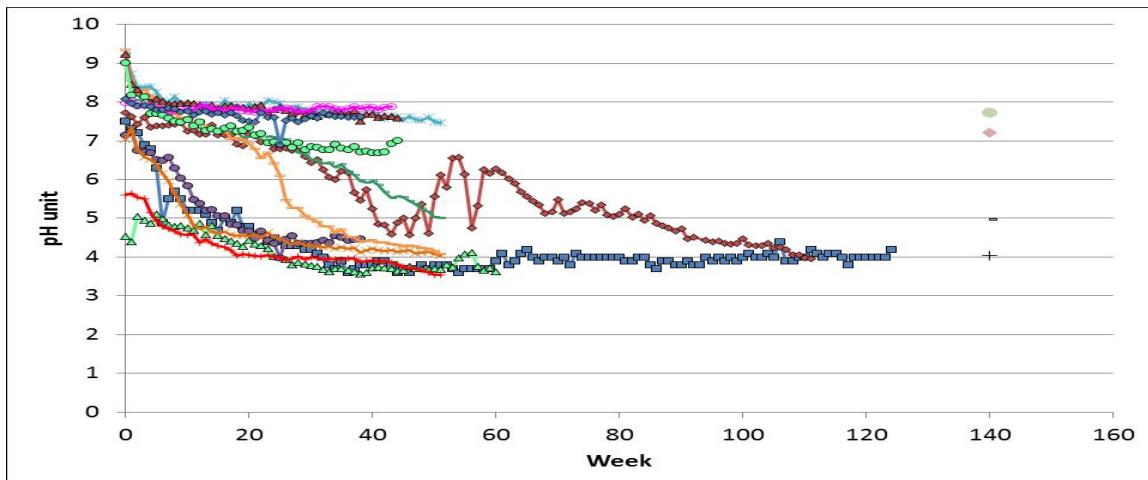
**Figure G3-43 Kimberlite – Tungsten**


mg/L = milligrams per litre, W = tungsten.

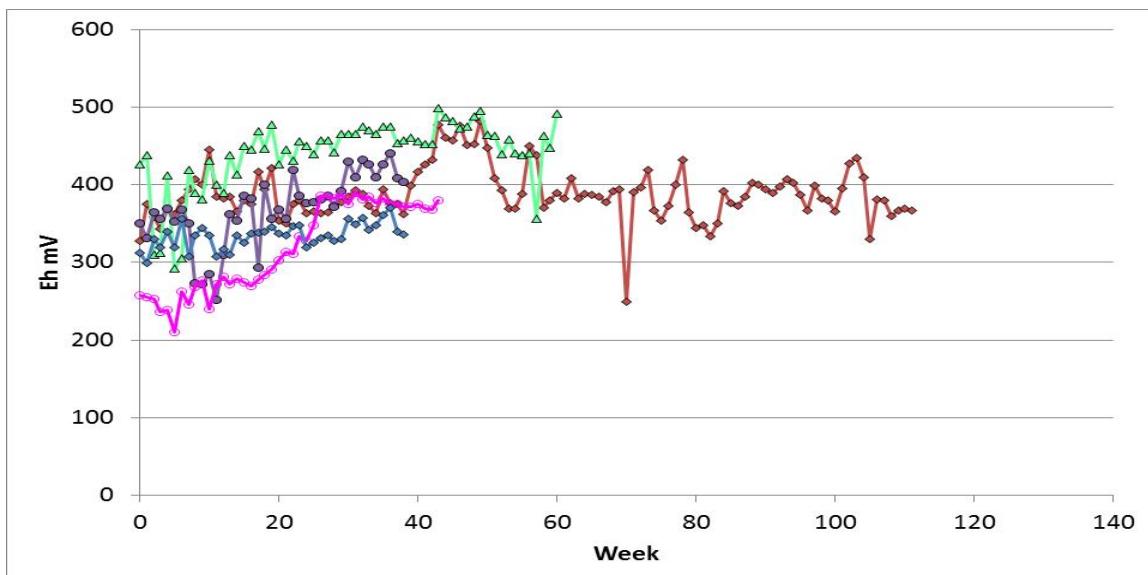


## G4 METASEDIMENTS

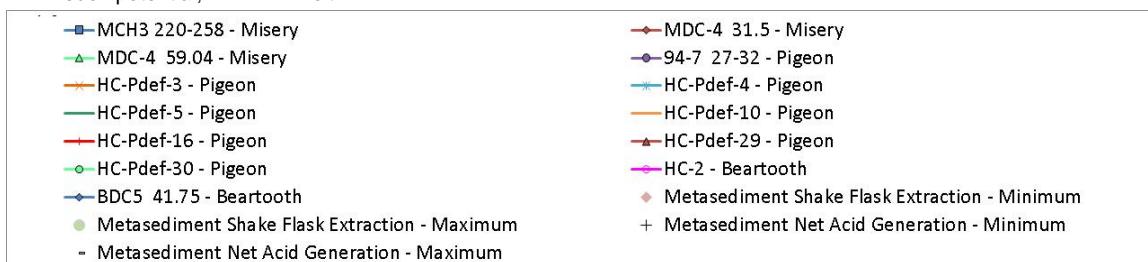
**Figure G4-1 Metasediments – pH**

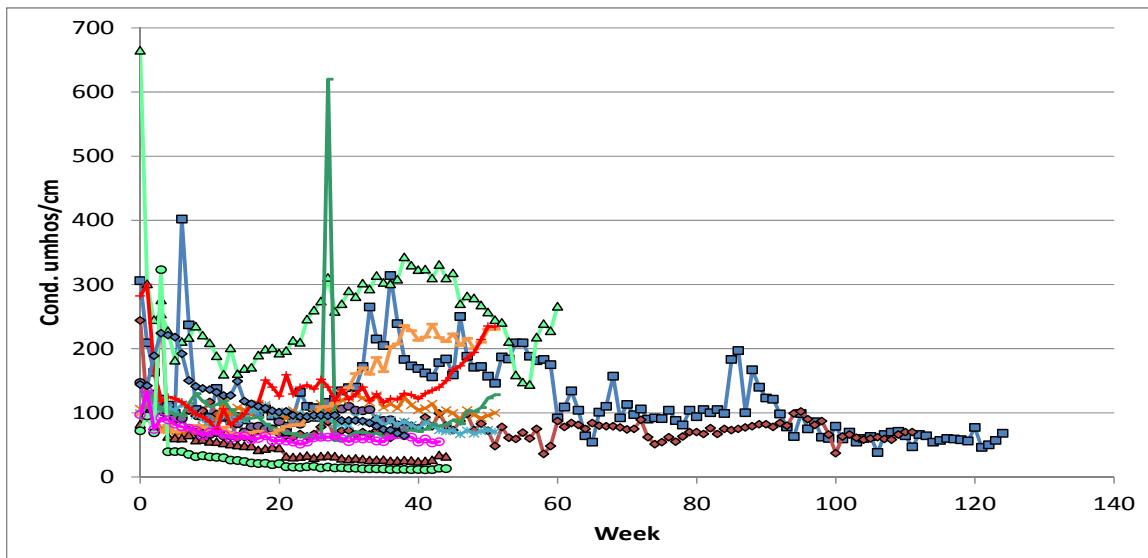


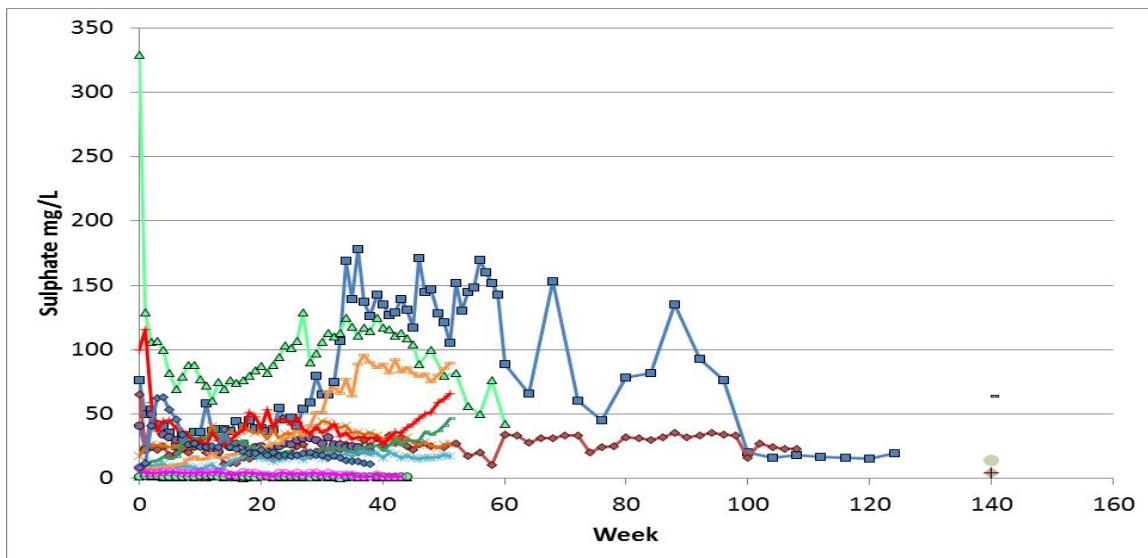
**Figure G4-2 Metasediments – Redox Potential**



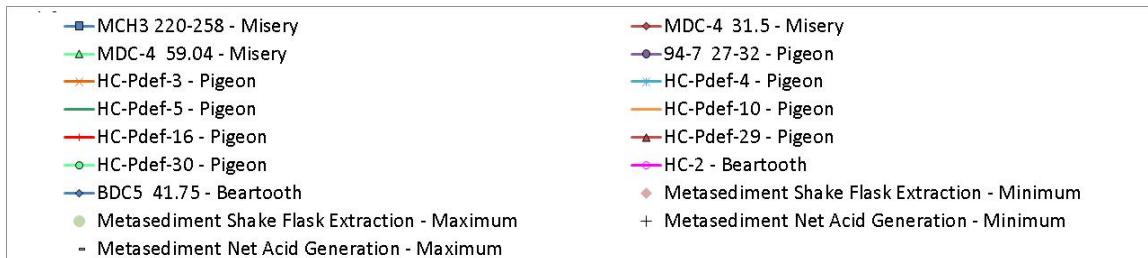
Eh = redox potential; mV = millivolt.

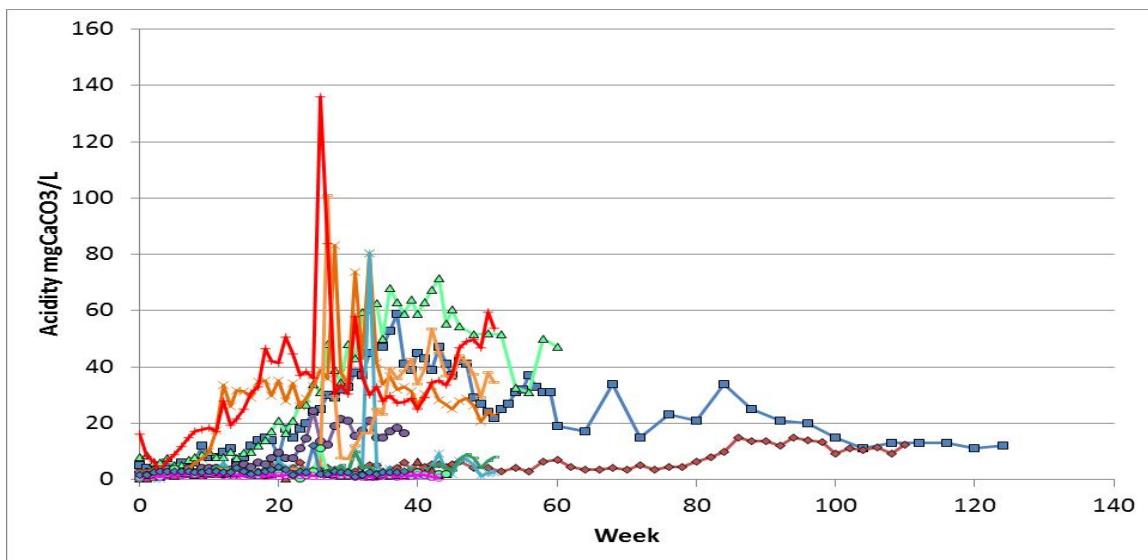


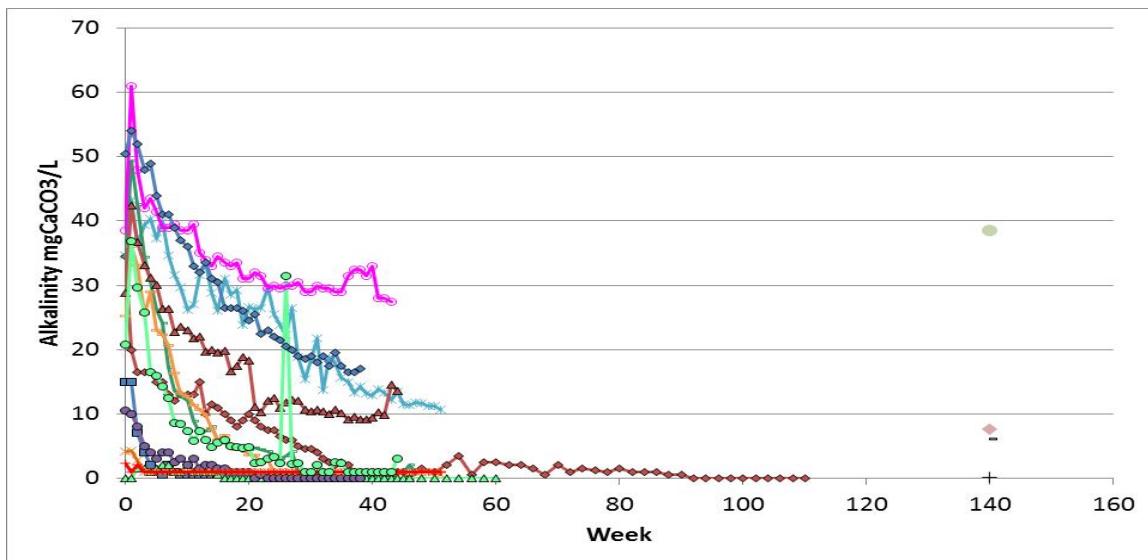
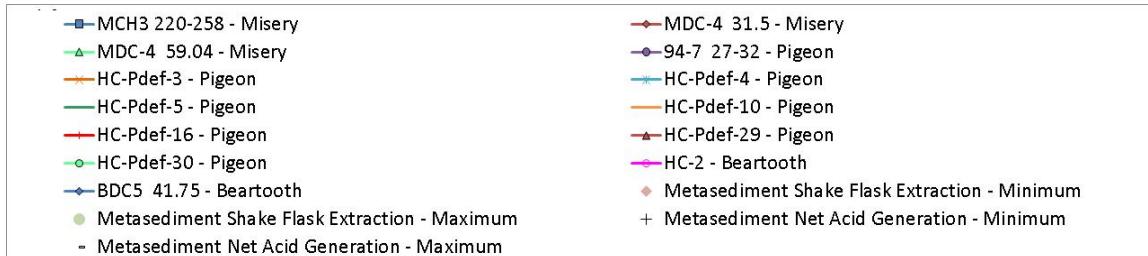
**Figure G4-3 Metasediments – Conductivity**

 Cond. = conductivity;  $\mu\text{mho}/\text{cm}$  = micromho per centimetre.

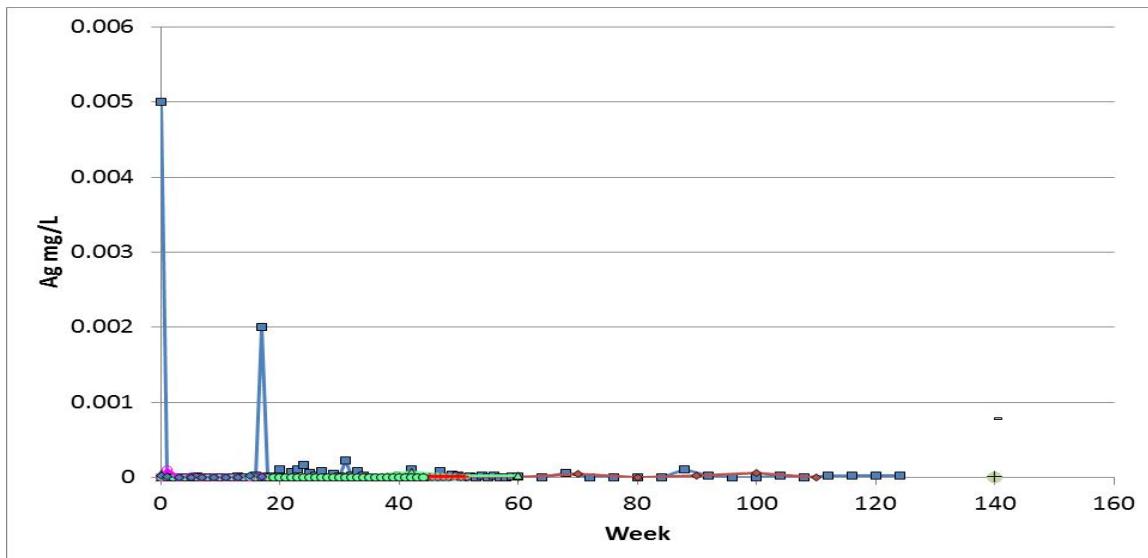
**Figure G4-4 Metasediments – Sulphate**


mg/L = milligrams per litre.

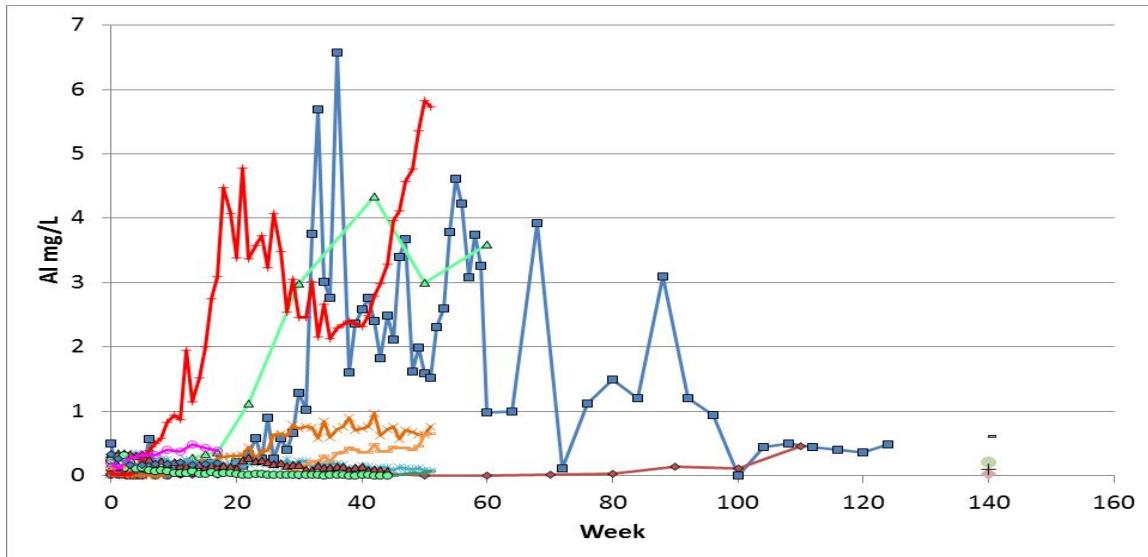


**Figure G4-5 Metasediments – Acidity**

 mg CaCO<sub>3</sub>/L = milligrams calcium carbonate per litre.

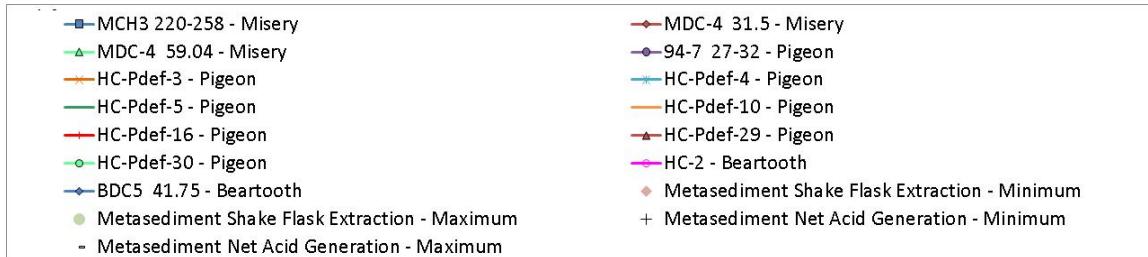
**Figure G4-6 Metasediments – Alkalinity**

 mgCaCO<sub>3</sub>/L = milligrams calcium carbonate per litre.


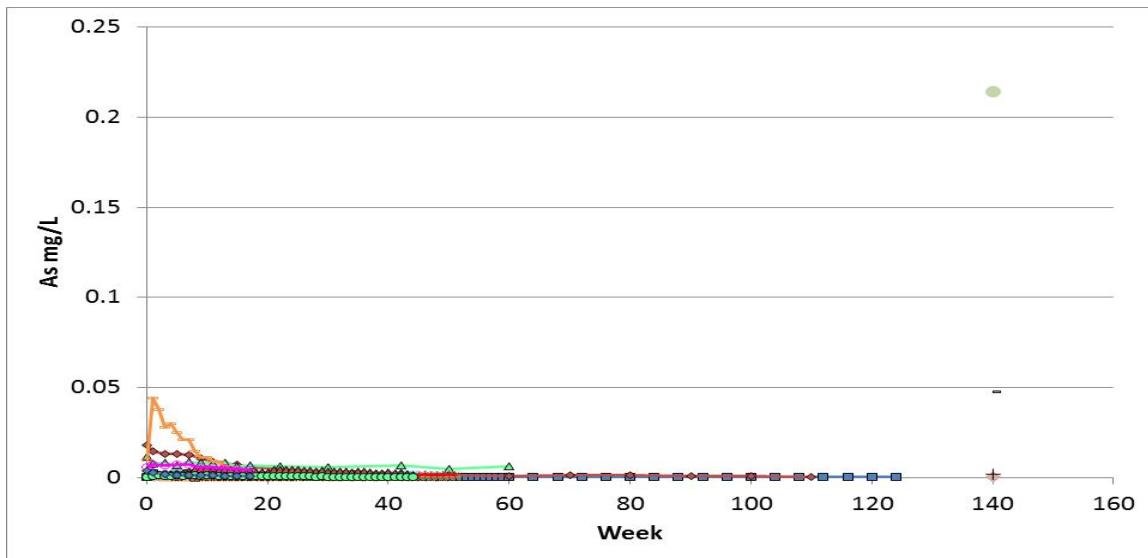
**Figure G4-7 Metasediments – Silver**


mg/L = milligrams per litre; Ag = silver.

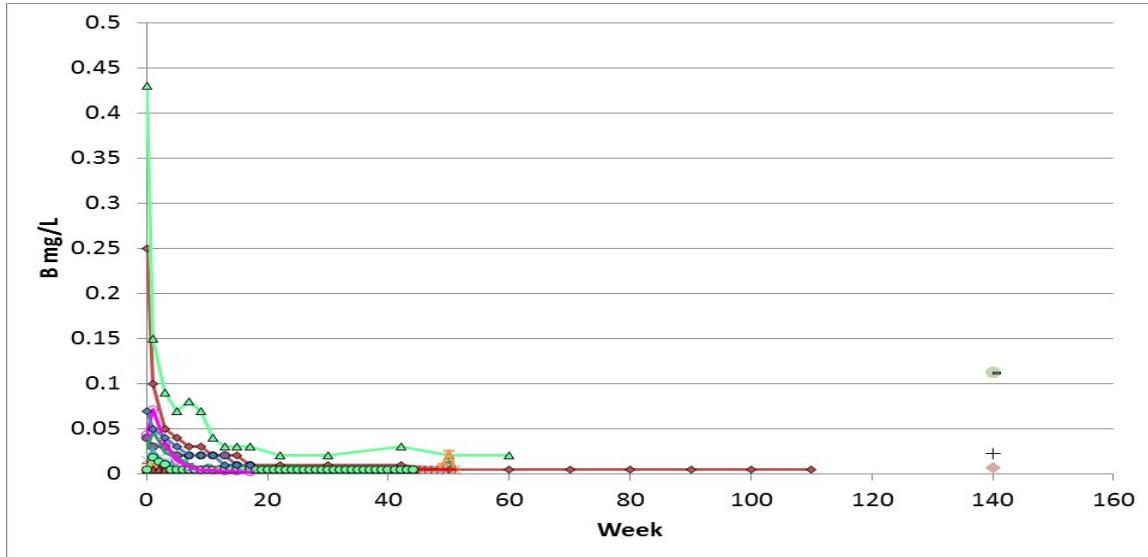
**Figure G4-8 Metasediments – Aluminium**


mg/L = milligrams per litre; Al = aluminium.

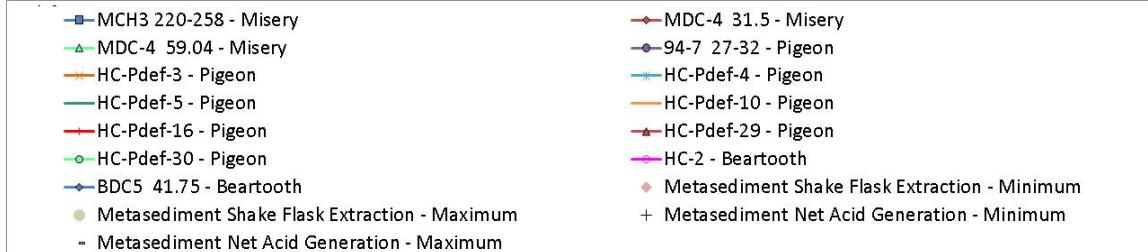


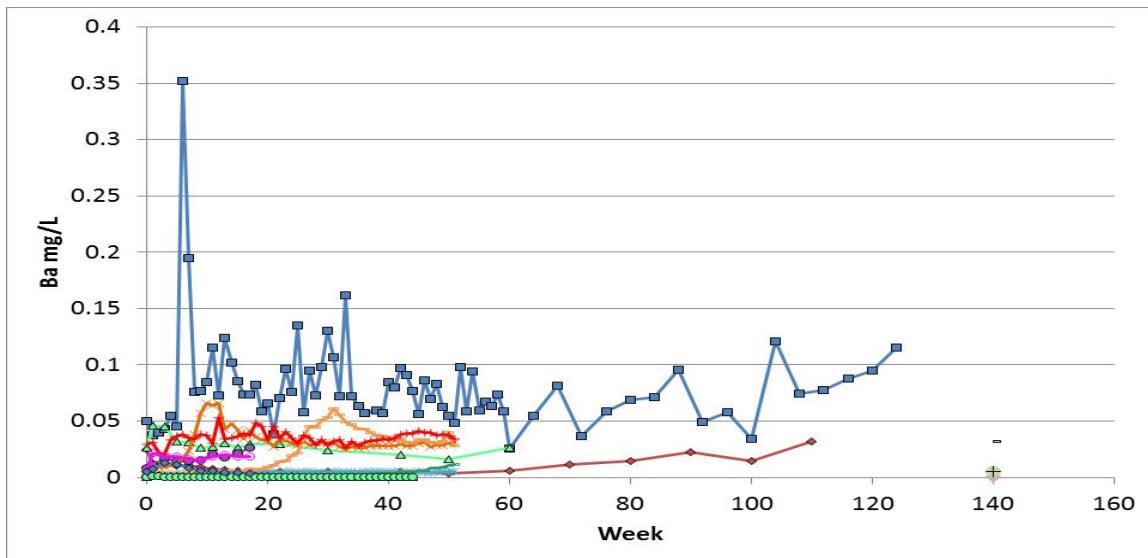
**Figure G4-9 Metasediments – Arsenic**


mg/L = milligrams per litre; As = arsenic.

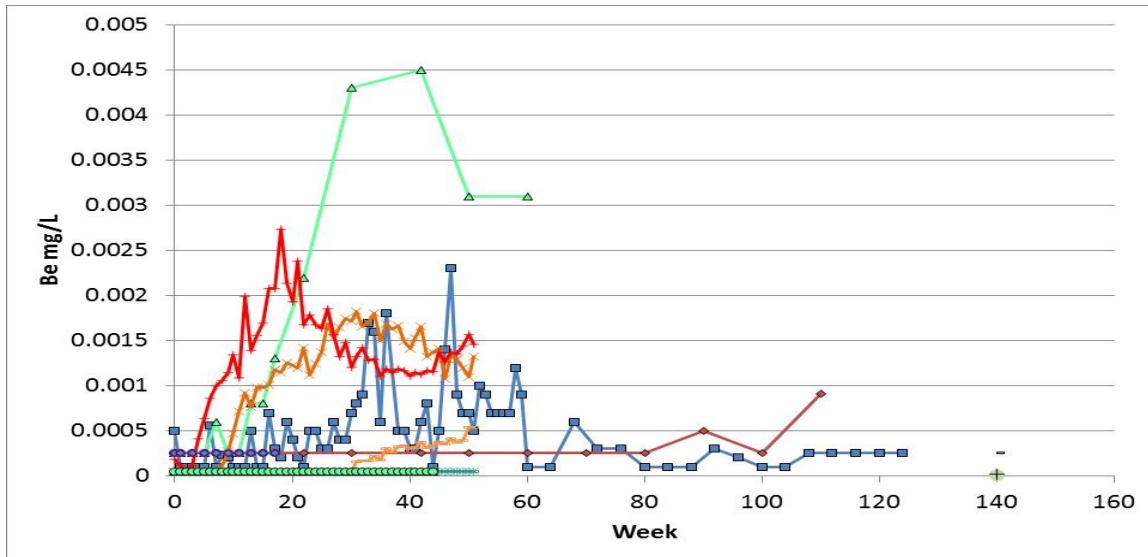
**Figure G4-10 Metasediments – Boron**


mg/L = milligrams per litre; B = boron.

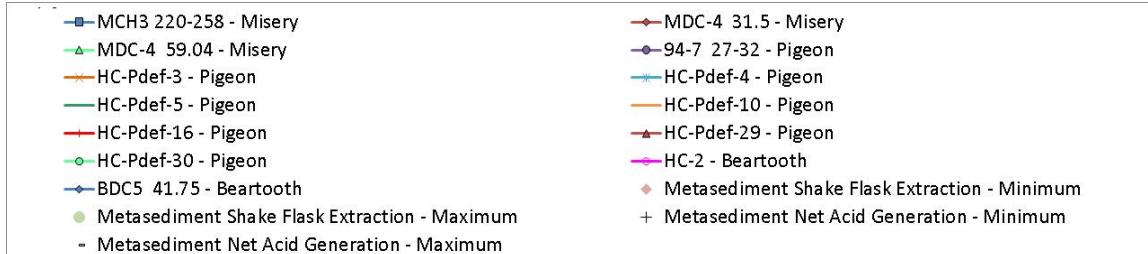


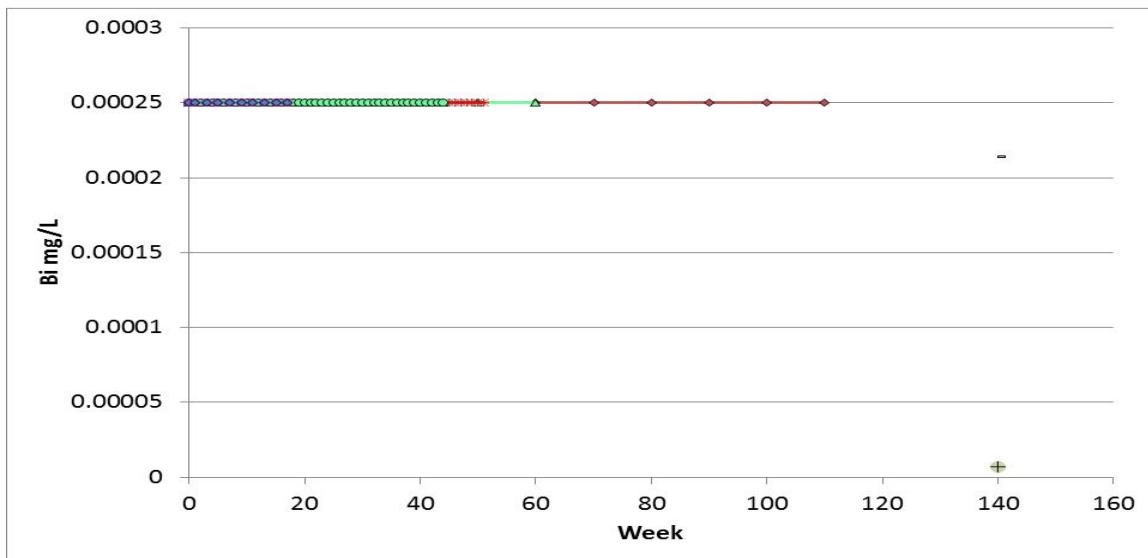
**Figure G4-11 Metasediments – Barium**


mg/L = milligrams per litre; Ba = barium.

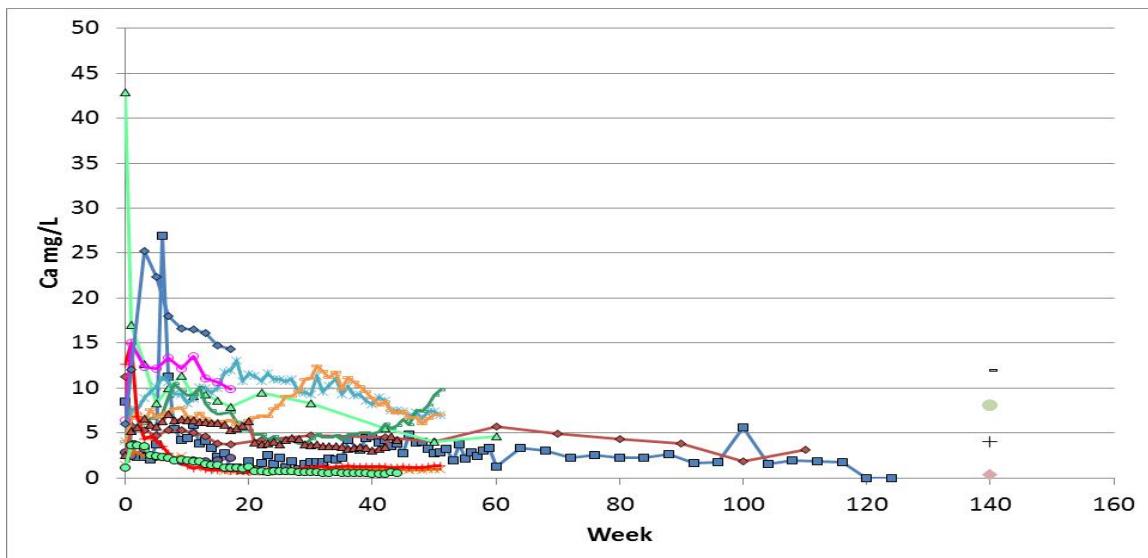
**Figure G4-12 Metasediments – Beryllium**


mg/L = milligrams per litre; Be = beryllium.

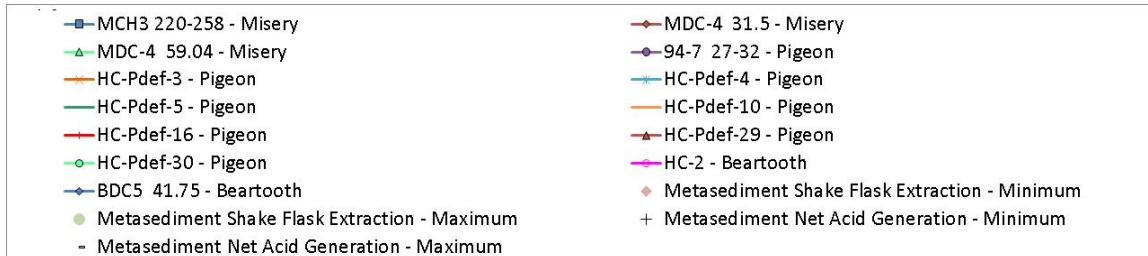


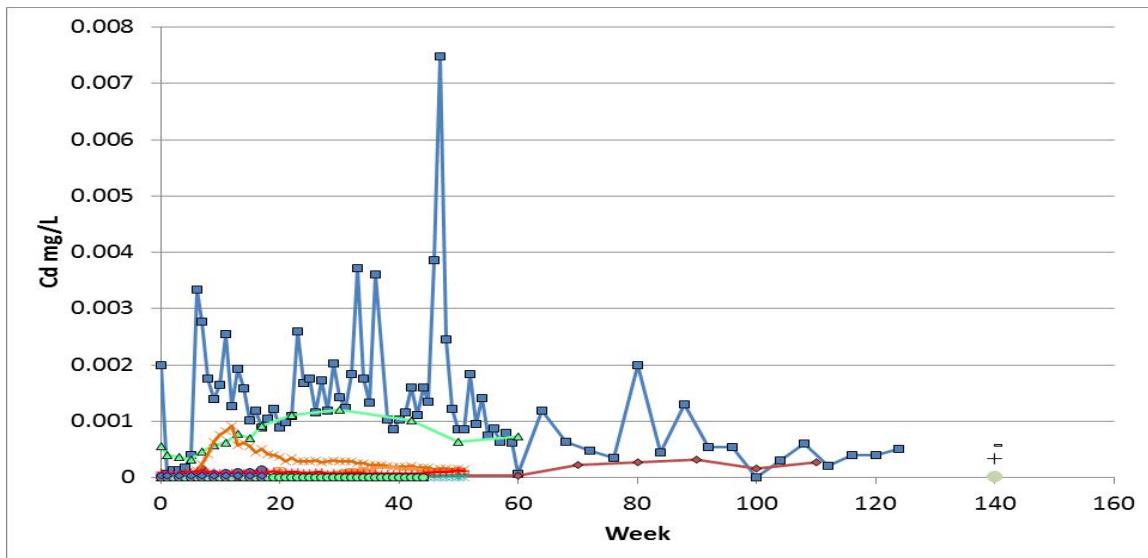
**Figure G4-13 Metasediments – Bismuth**


mg/L = milligrams per litre; Bi = bismuth.

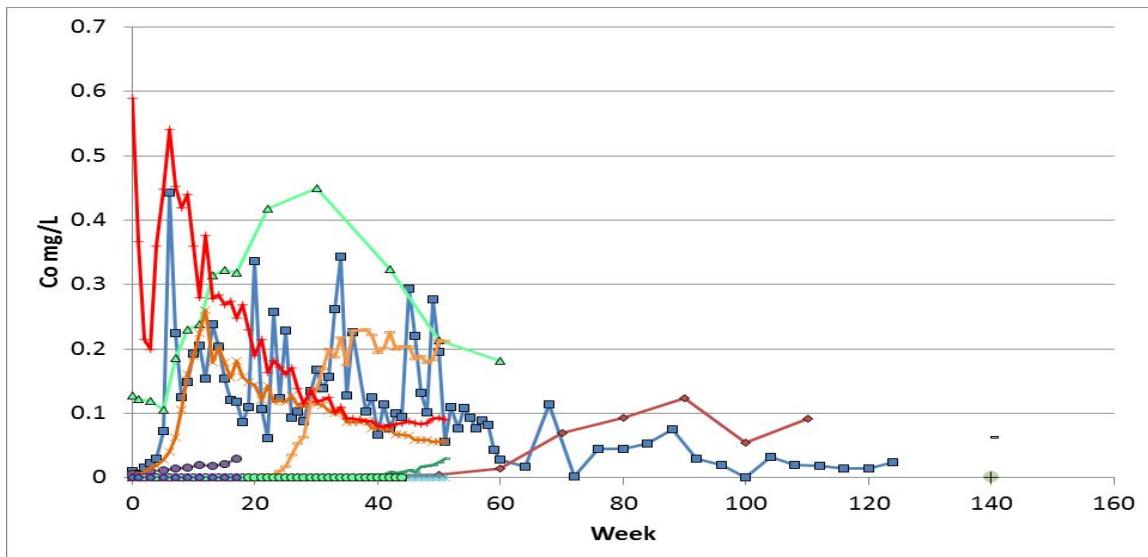
**Figure G4-14 Metasediments – Calcium**


mg/L = milligrams per litre; Ca = calcium.

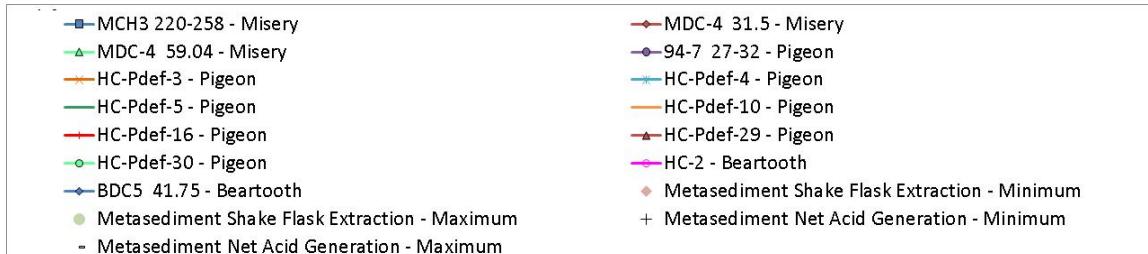


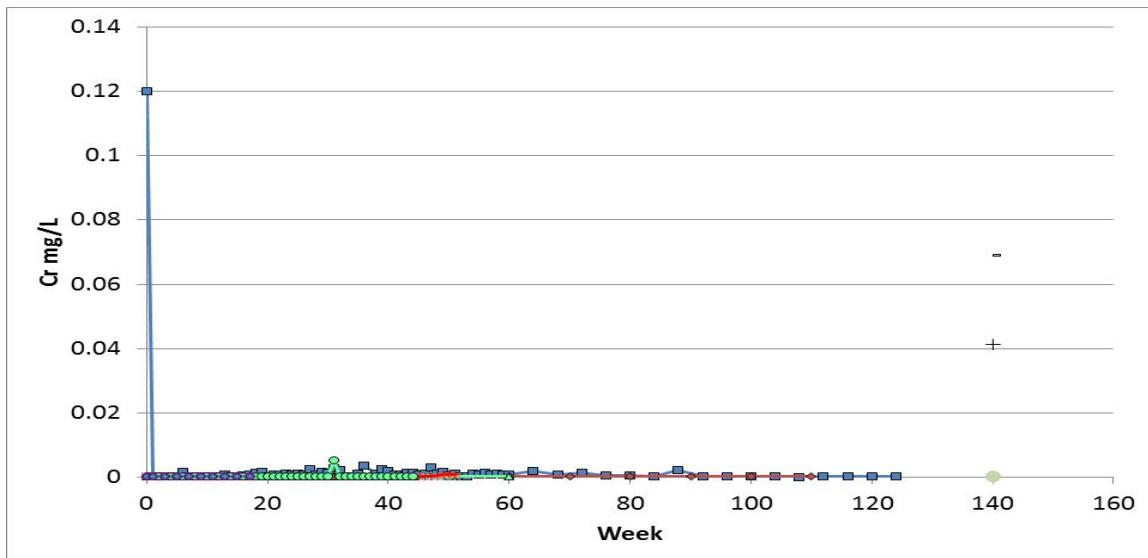
**Figure G4-15 Metasediments – Cadmium**


mg/L = milligrams per litre; Cd = cadmium.

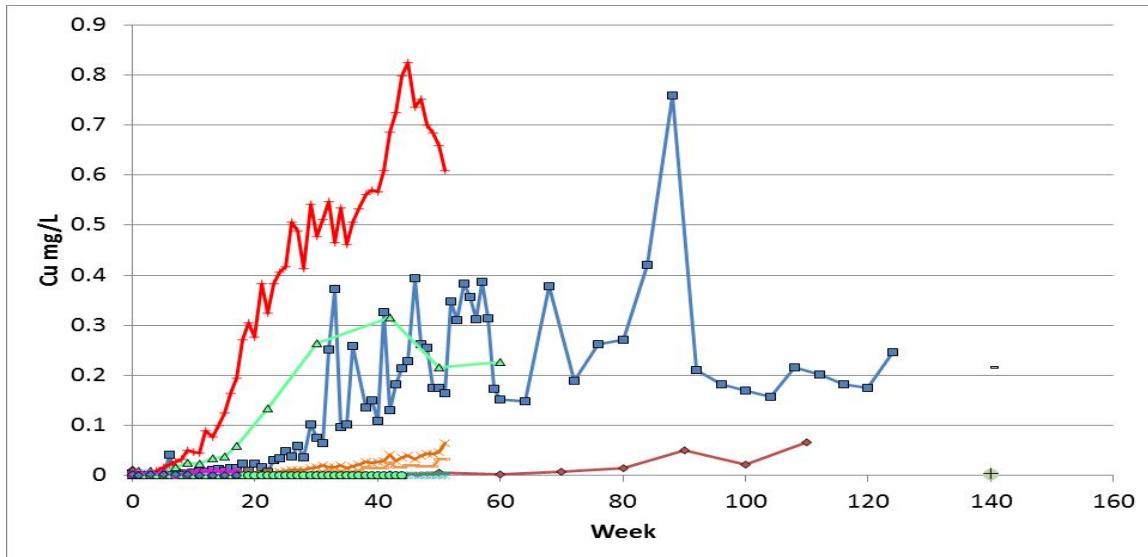
**Figure G4-16 Metasediments – Cobalt**


mg/L = milligrams per litre; Co = cobalt.

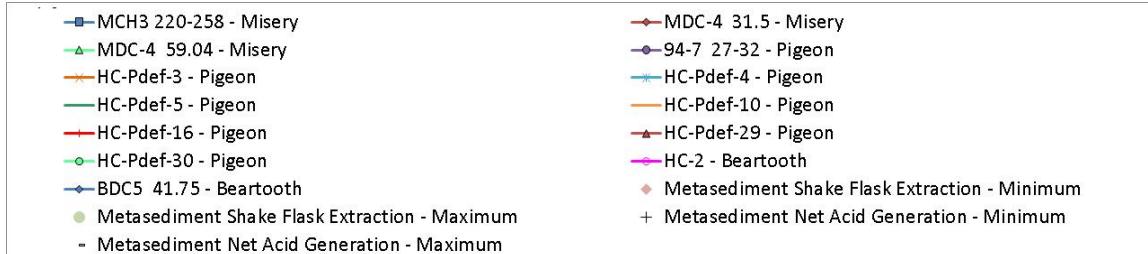


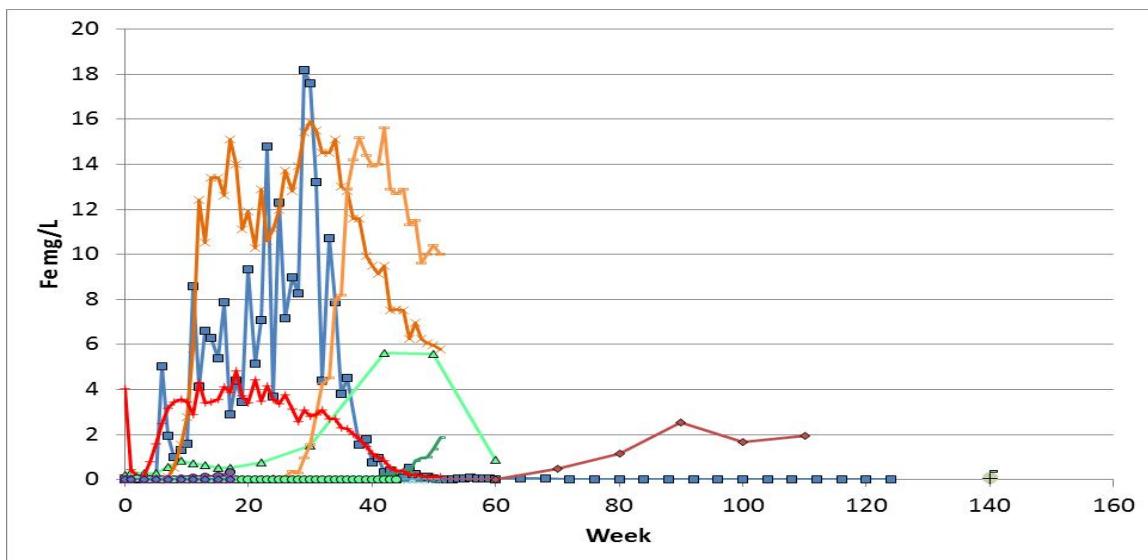
**Figure G4-17 Metasediments – Chromium**


mg/L = milligrams per litre; Cr = chromium.

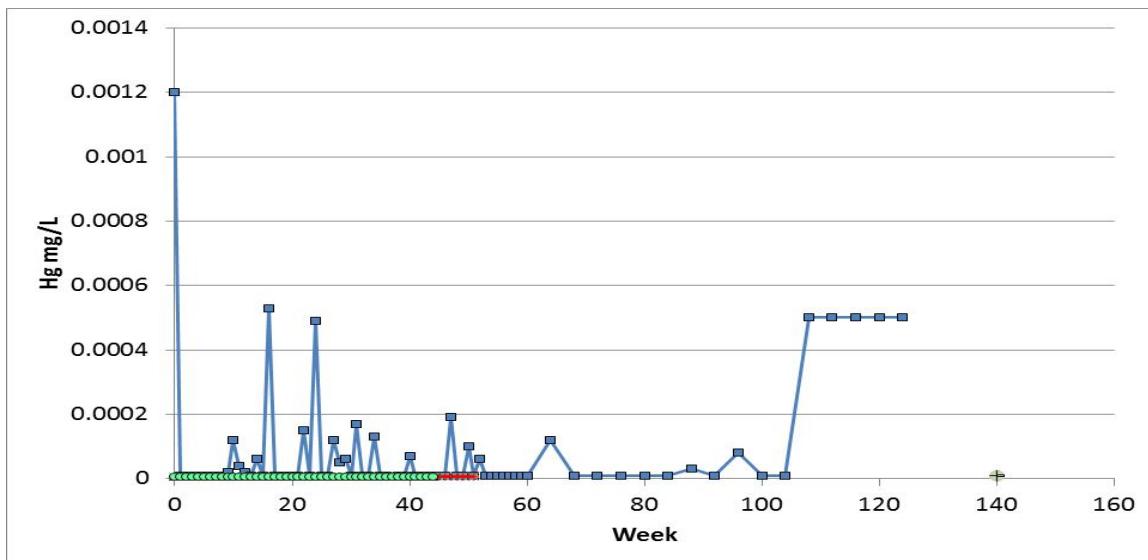
**Figure G4-18 Metasediments – Copper**


mg/L = milligrams per litre; Cu = copper.

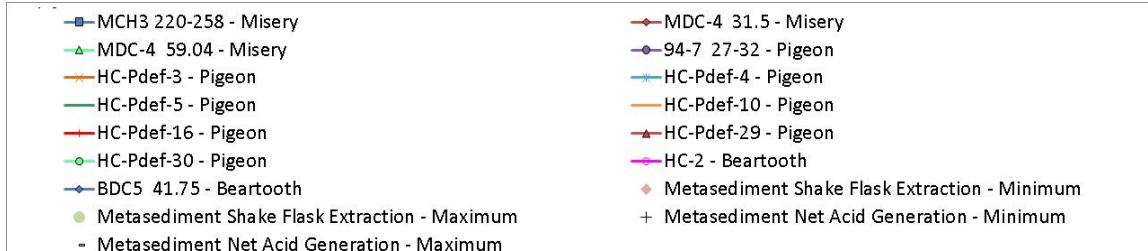


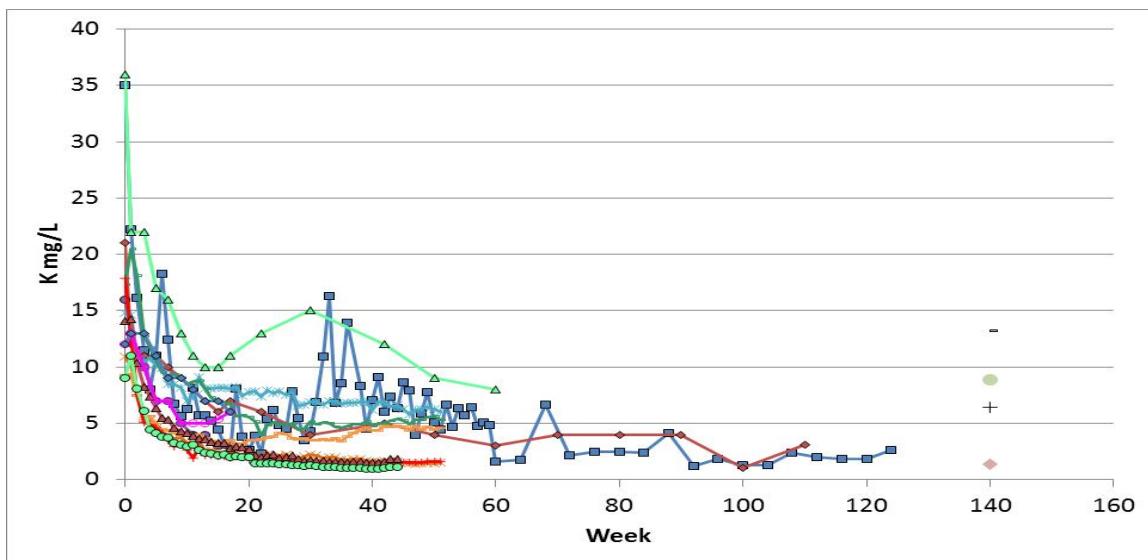
**Figure G4-19 Metasediments – Iron**


mg/L = milligrams per litre; Fe = iron.

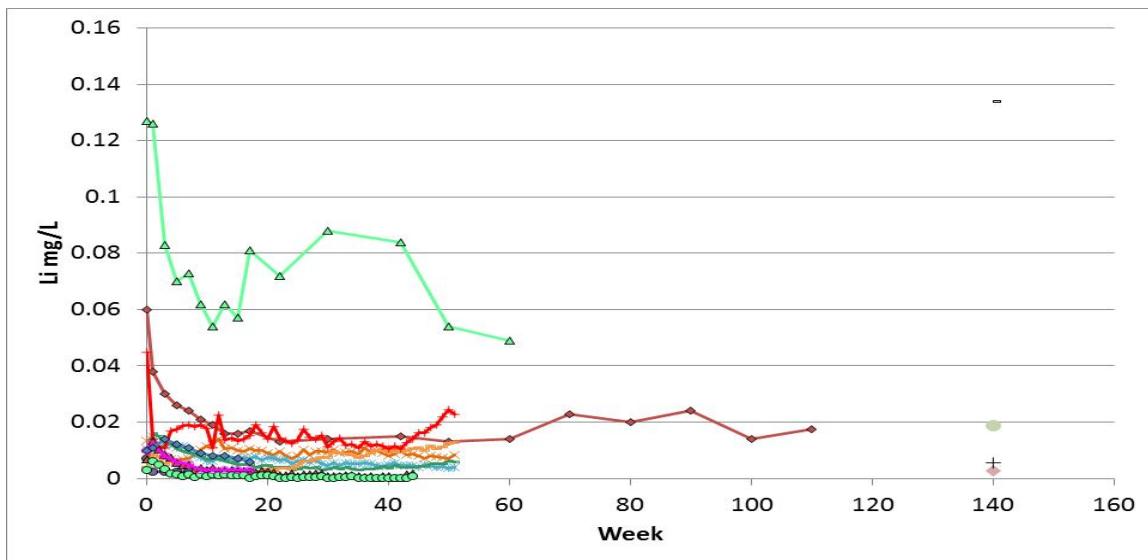
**Figure G4-20 Metasediments – Mercury**


mg/L = milligrams per litre; Hg = mercury.

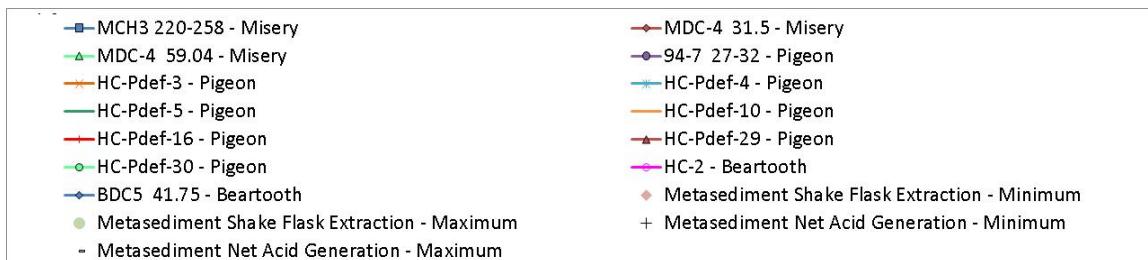


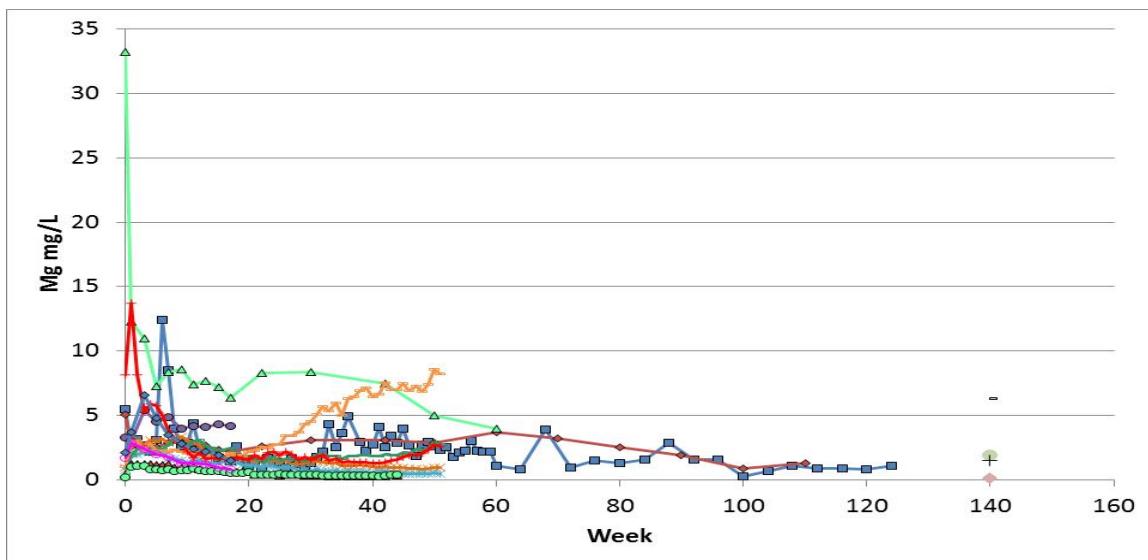
**Figure G4-21 Metasediments – Potassium**


mg/L = milligrams per litre; K = potassium.

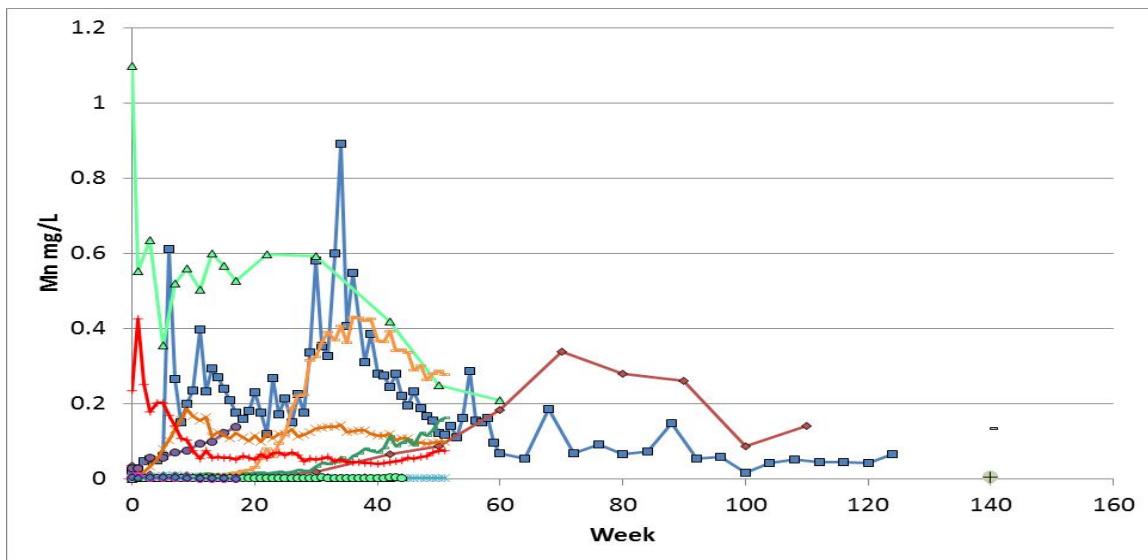
**Figure G4-22 Metasediments – Lithium**


mg/L = milligrams per litre; Li = lithium.

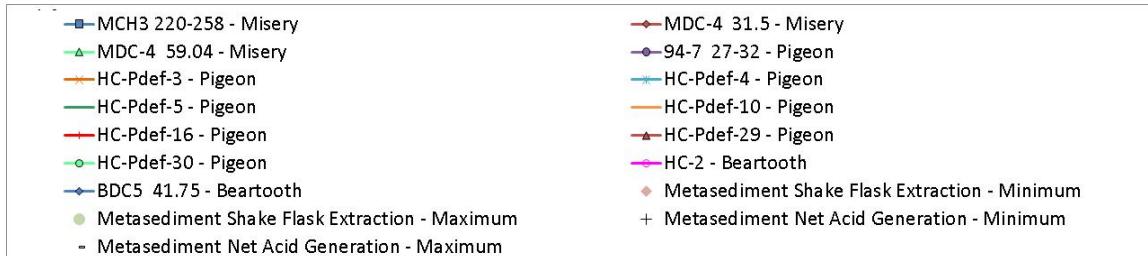


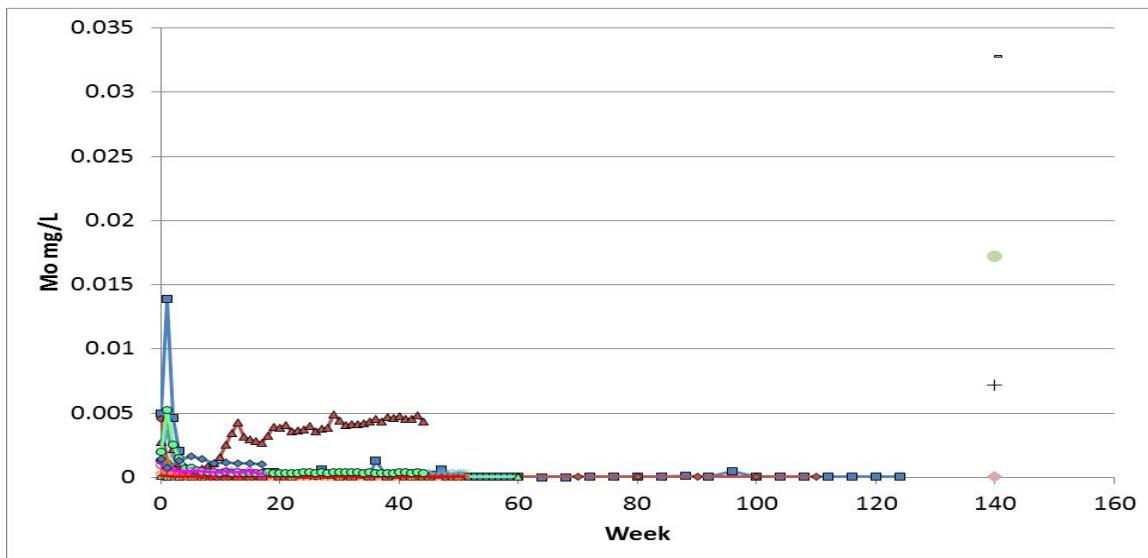
**Figure G4-23 Metasediments – Magnesium**


mg/L = milligrams per litre; Mg = magnesium.

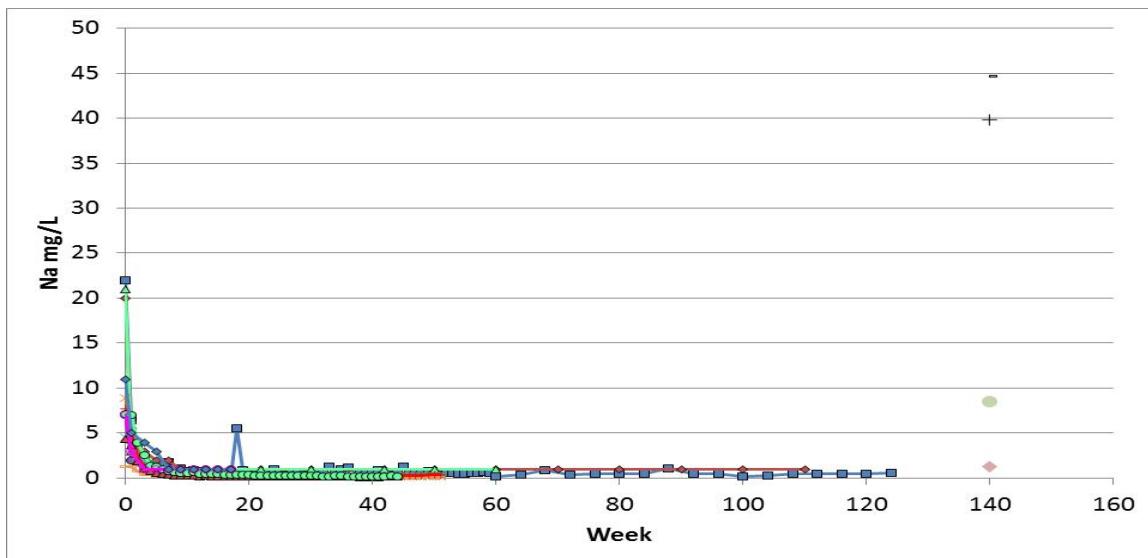
**Figure G4-24 Metasediments – Manganese**


mg/L = milligrams per litre; Mn = manganese.



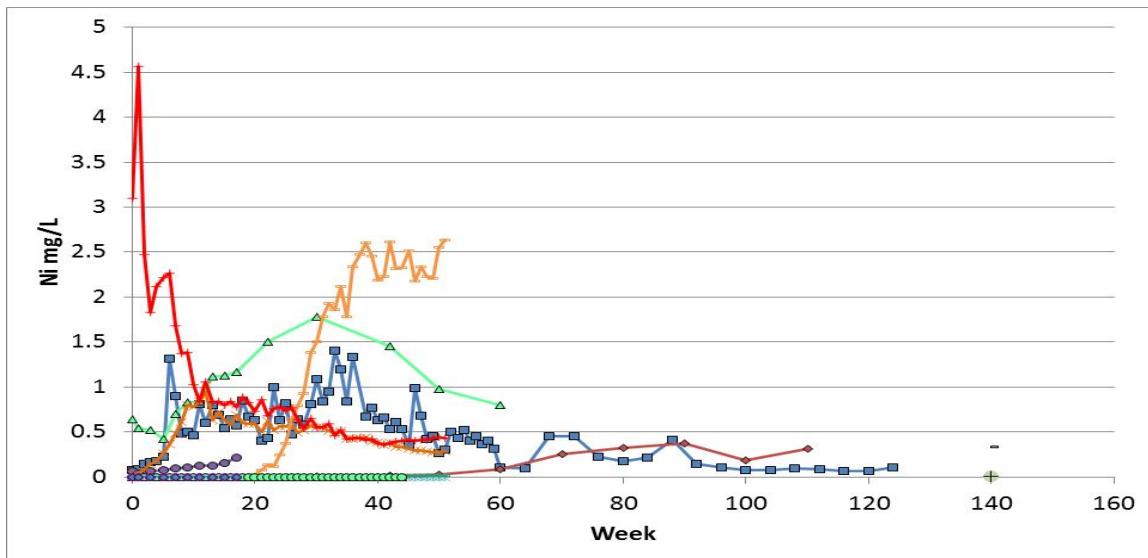
**Figure G4-25 Metasediments – Molybdenum**


mg/L = milligrams per litre; Mo = molybdenum.

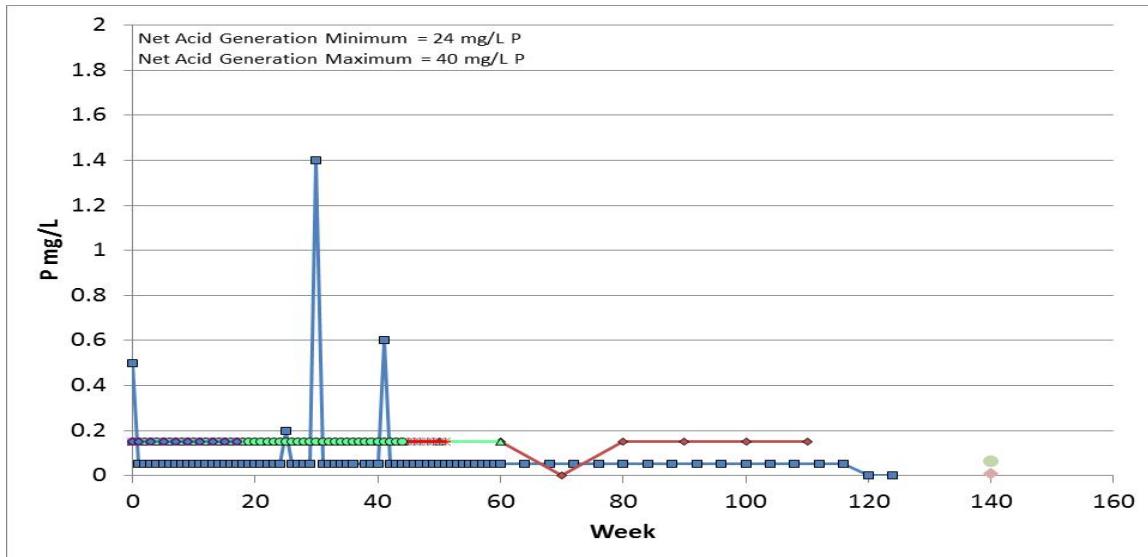
**Figure G4-26 Metasediments – Sodium**


mg/L = milligrams per litre; Na = sodium.

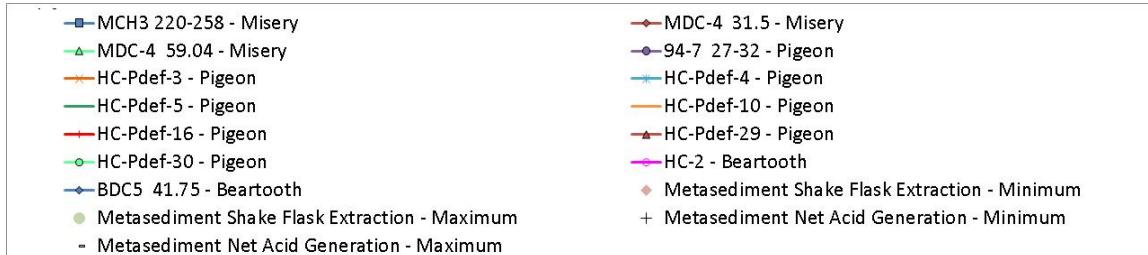
- |   |   |
|---|---|
| - MCH3 220-258 - Misery                         | - MDC-4 31.5 - Misery                           |
| - MDC-4 59.04 - Misery                          | - 94-7 27-32 - Pigeon                           |
| - HC-Pdef-3 - Pigeon                            | - HC-Pdef-4 - Pigeon                            |
| - HC-Pdef-5 - Pigeon                            | - HC-Pdef-10 - Pigeon                           |
| - HC-Pdef-16 - Pigeon                           | - HC-Pdef-29 - Pigeon                           |
| - HC-Pdef-30 - Pigeon                           | - HC-2 - Beartooth                              |
| - BDC5 41.75 - Beartooth                        | - Metasediment Shake Flask Extraction - Minimum |
| - Metasediment Shake Flask Extraction - Maximum | - Metasediment Net Acid Generation - Minimum    |

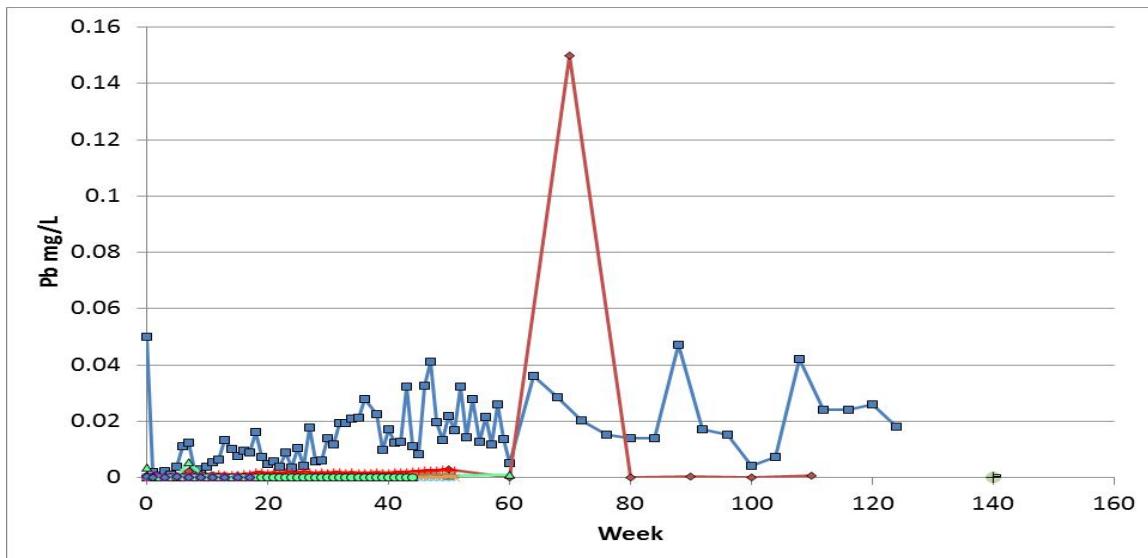
**Figure G4-27 Metasediments – Nickel**


mg/L = milligrams per litre; Ni = nickel.

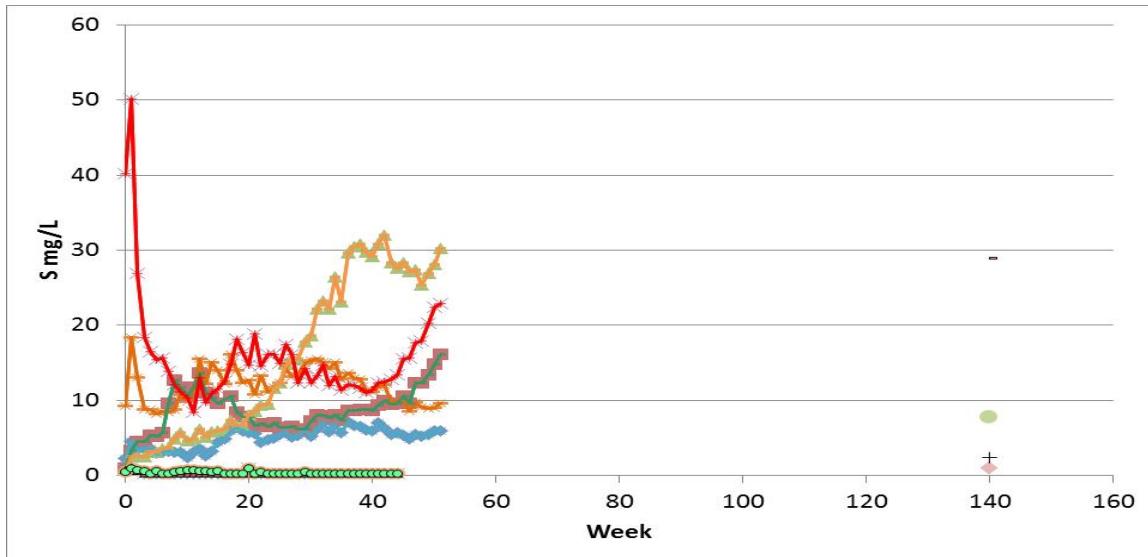
**Figure G4-28 Metasediments – Phosphorus**


mg/L = milligrams per litre; P = phosphorus.

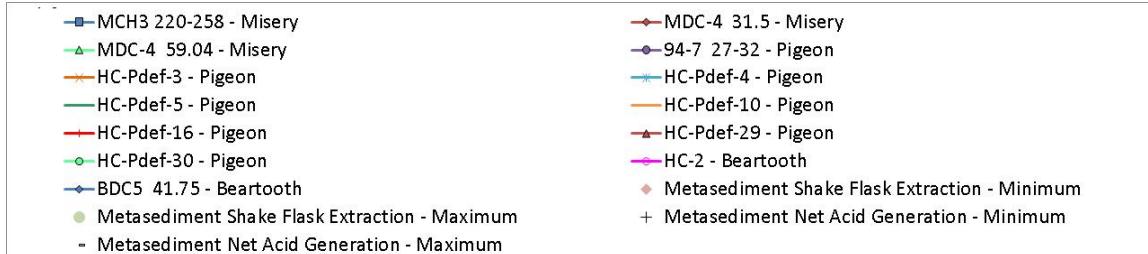


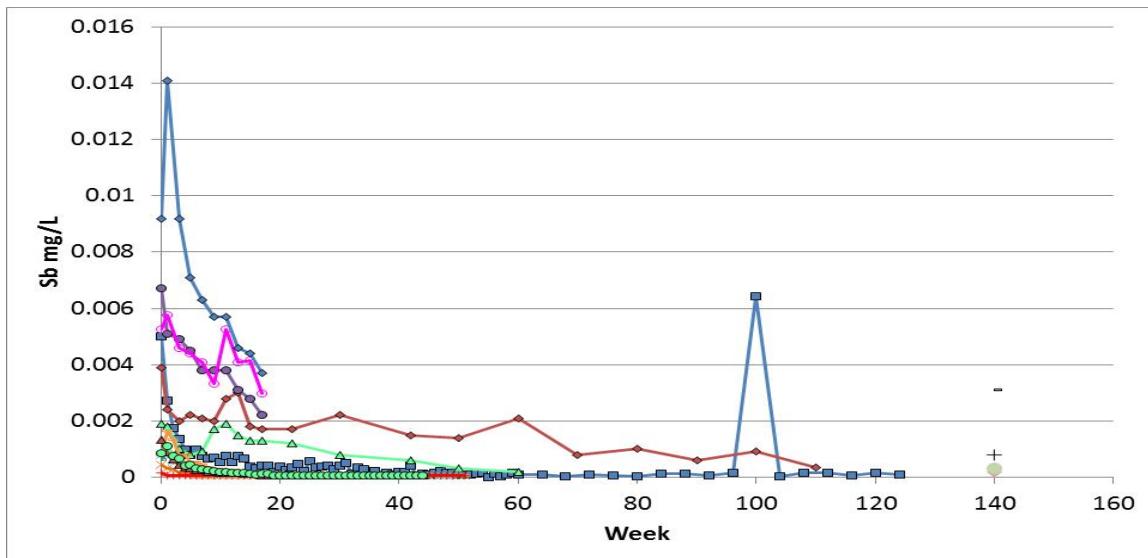
**Figure G4-29 Metasediments – Lead**


mg/L = milligrams per litre; Pb = lead.

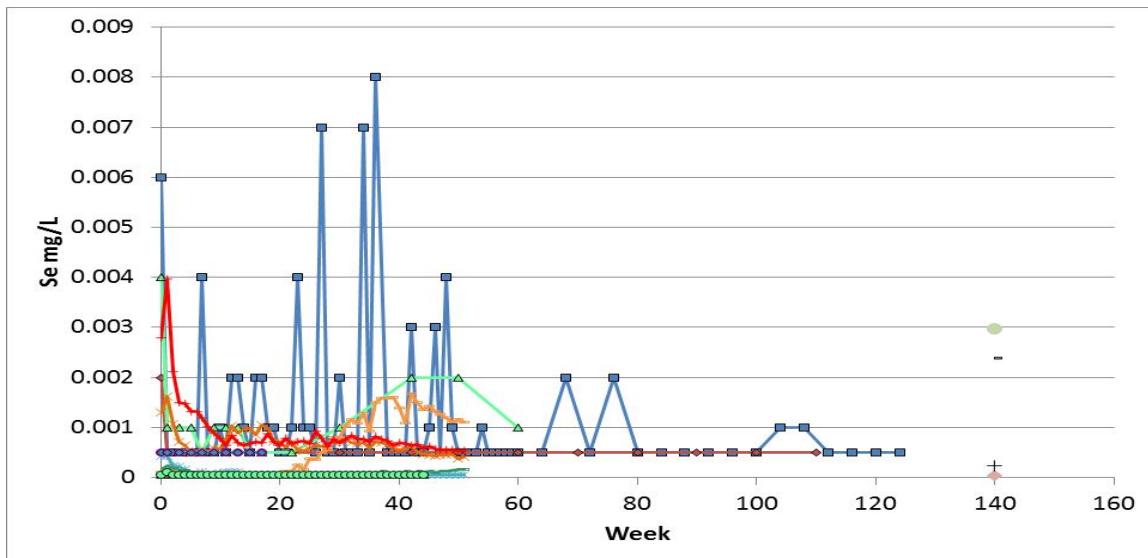
**Figure G4-30 Metasediments – Sulphur**


mg/L = milligrams per litre; S = sulphur.



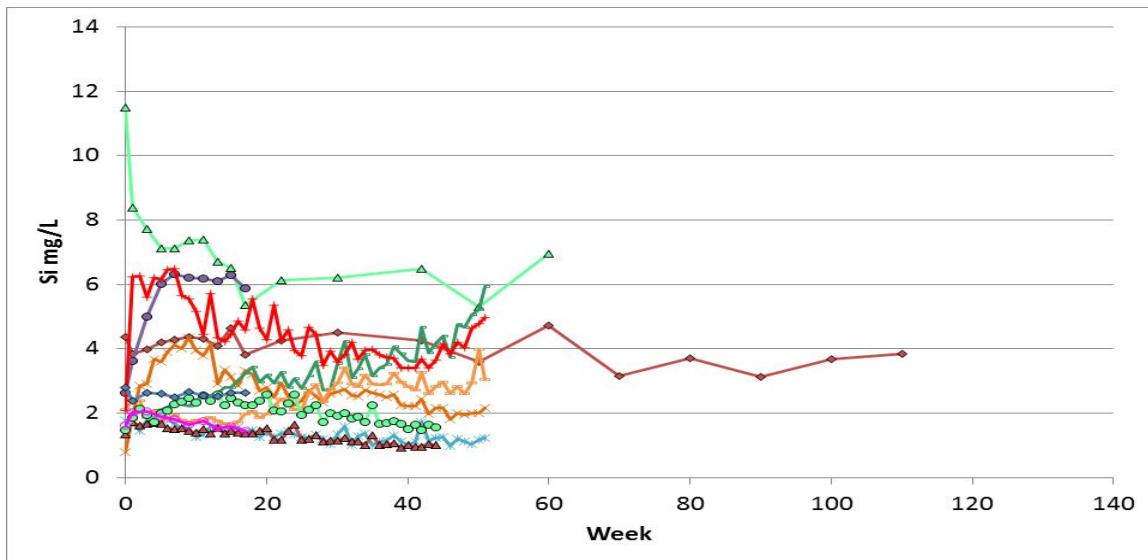
**Figure G4-31 Metasediments – Antimony**


mg/L = milligrams per litre; Sb = antimony.

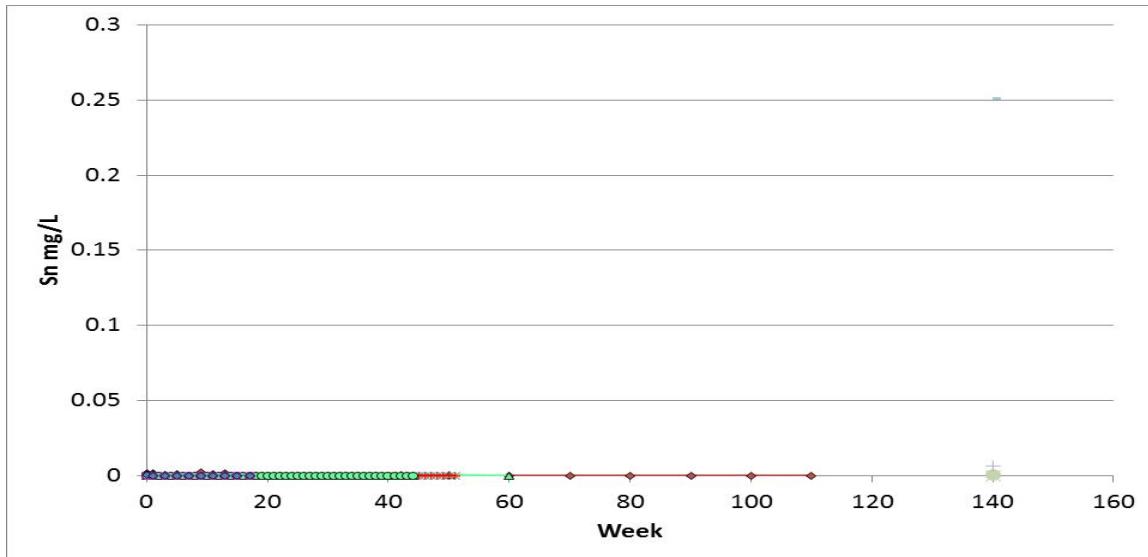
**Figure G4-32 Metasediments – Selenium**


mg/L = milligrams per litre; Se = selenium.

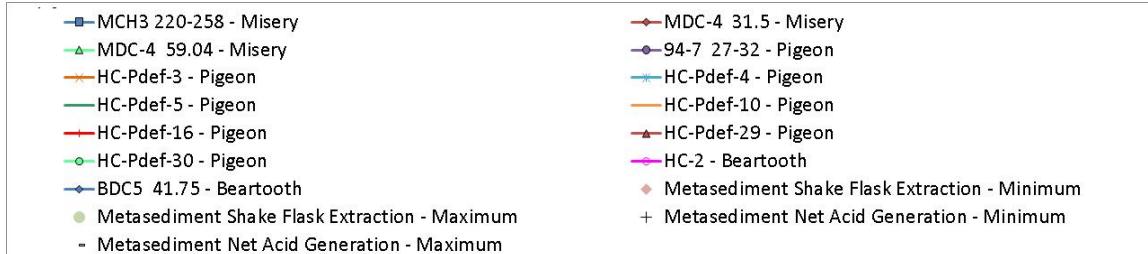
- MCH3 220-258 - Misery	- MDC-4 31.5 - Misery
- MDC-4 59.04 - Misery	- 94-7 27-32 - Pigeon
- HC-Pdef-3 - Pigeon	- HC-Pdef-4 - Pigeon
- HC-Pdef-5 - Pigeon	- HC-Pdef-10 - Pigeon
- HC-Pdef-16 - Pigeon	- HC-Pdef-29 - Pigeon
- HC-Pdef-30 - Pigeon	- HC-2 - Beartooth
- BDC5 41.75 - Beartooth	- Metasediment Shake Flask Extraction - Minimum
- Metasediment Shake Flask Extraction - Maximum	- Metasediment Net Acid Generation - Minimum
- Metasediment Net Acid Generation - Maximum	

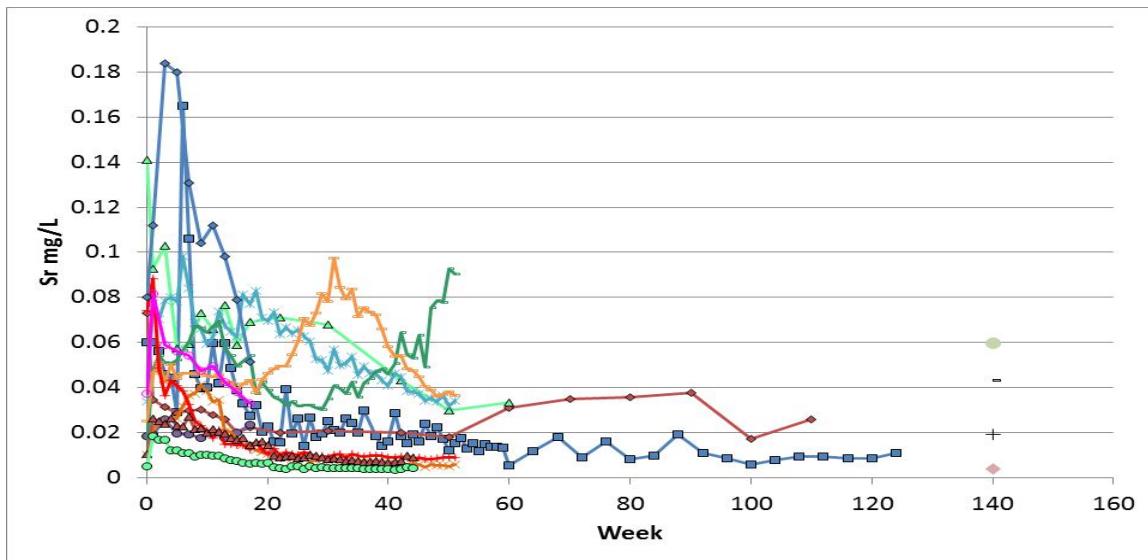
**Figure G4-33 Metasediments – Silicon**


mg/L = milligrams per litre; Si – silicon.

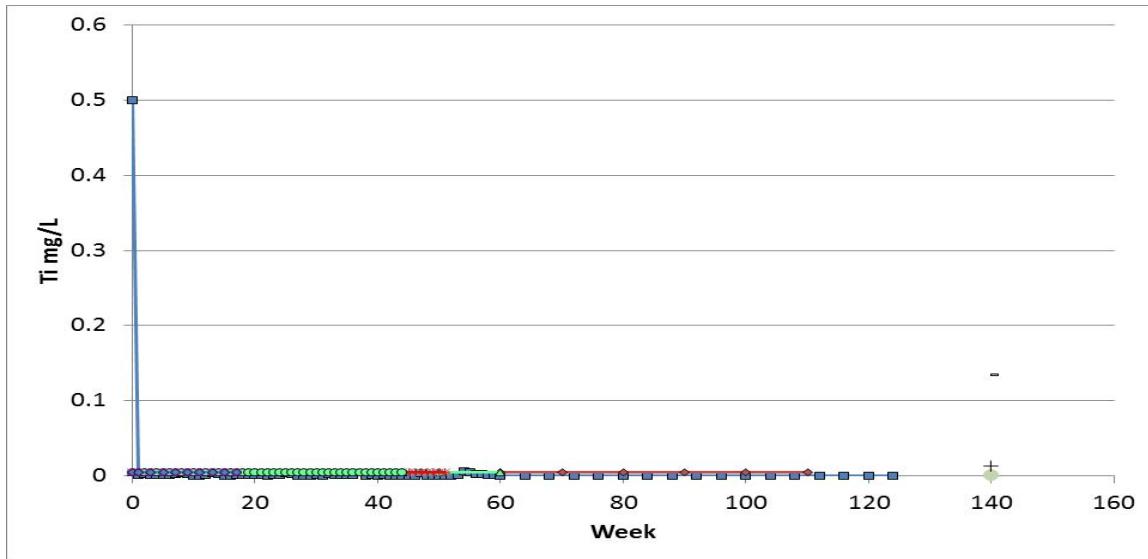
**Figure G4-34 Metasediments – Tin**


mg/L = milligrams per litre; Sn = tin.

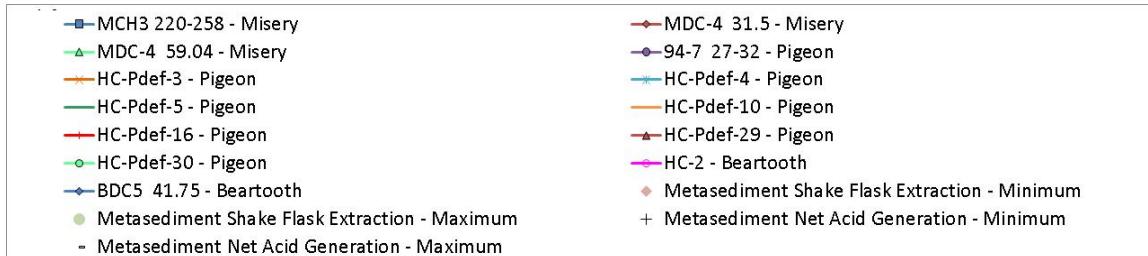


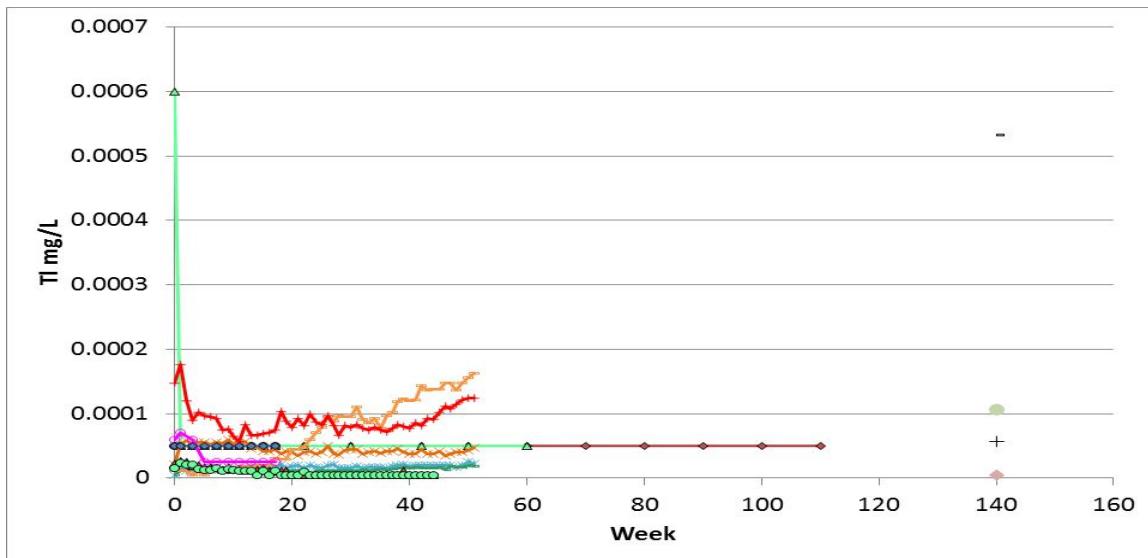
**Figure G4-35 Metasediments – Strontium**


mg/L = milligrams per litre; Sr = strontium.

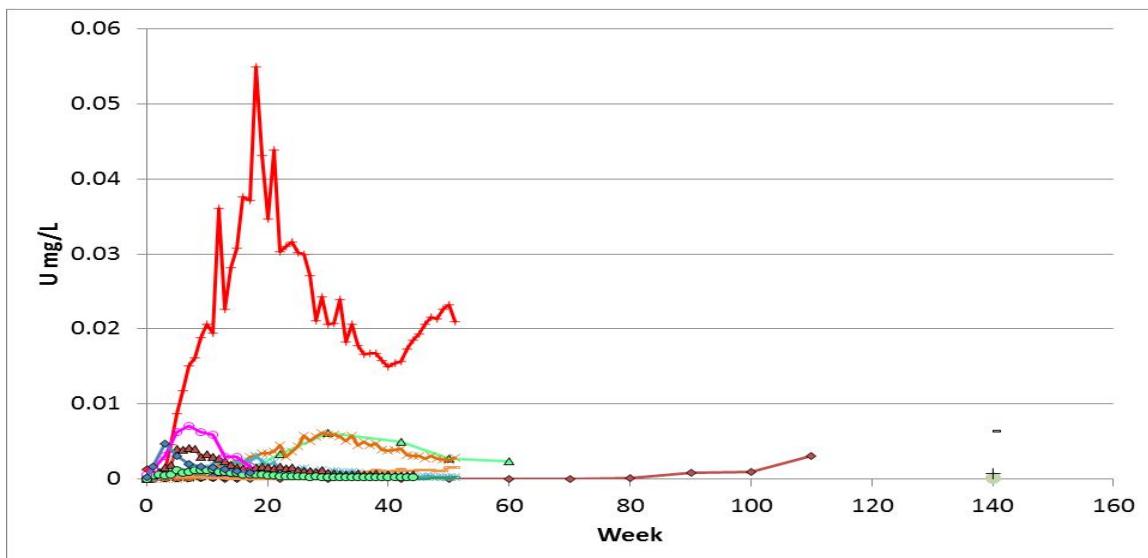
**Figure G4-36 Metasediments – Titanium**


mg/L = milligrams per litre; Ti = titanium.



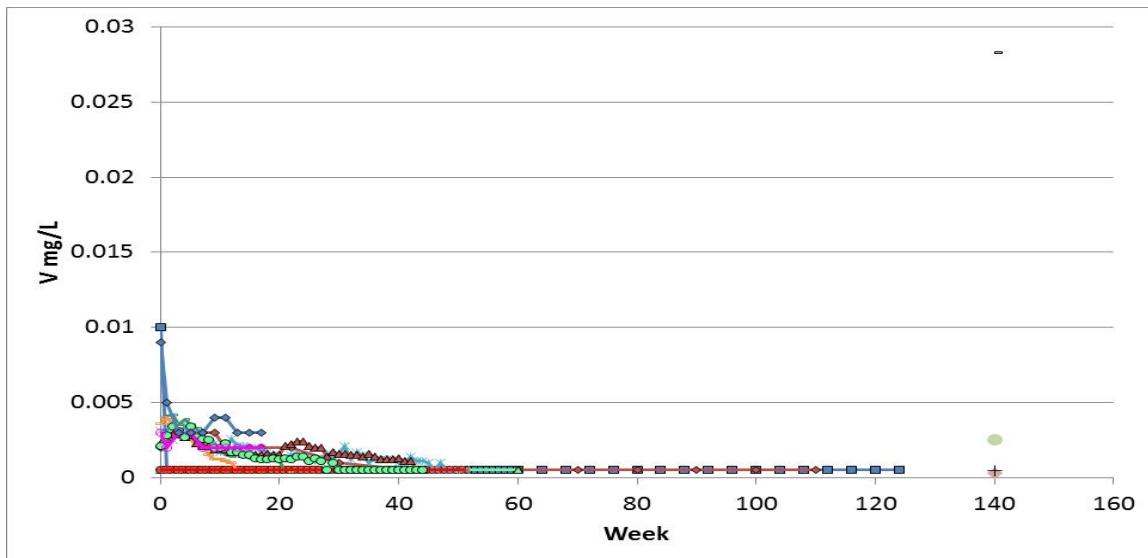
**Figure G4-37 Metasediments – Thallium**


mg/L = milligrams per litre; Tl = Thallium.

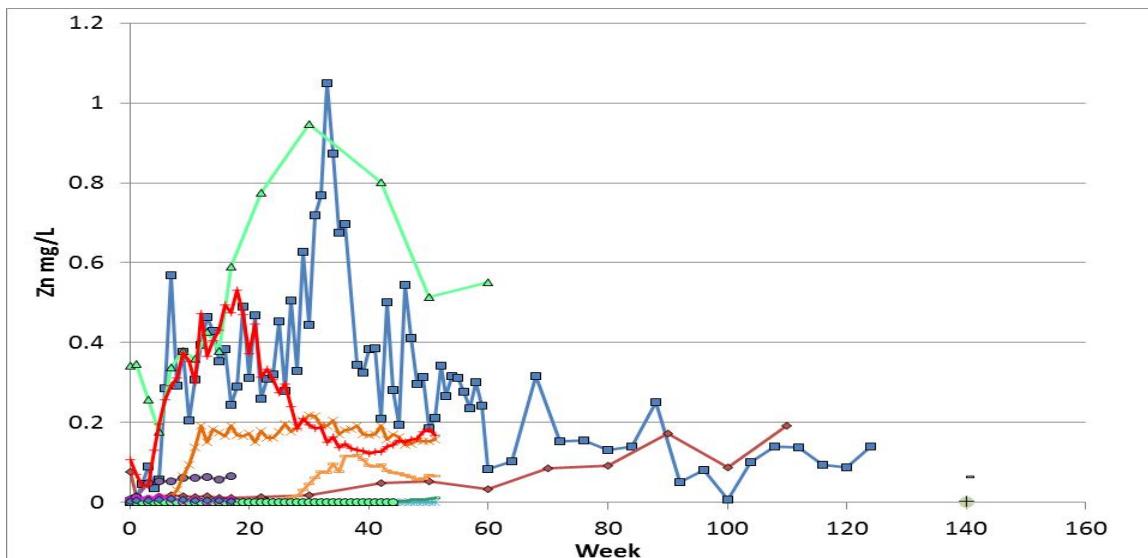
**Figure G4-38 Metasediments – Uranium**


mg/L = milligrams per litre; U = uranium.

- MCH3 220-258 - Misery	- MDC-4 31.5 - Misery
- MDC-4 59.04 - Misery	- 94-7 27-32 - Pigeon
- HC-Pdef-3 - Pigeon	- HC-Pdef-4 - Pigeon
- HC-Pdef-5 - Pigeon	- HC-Pdef-10 - Pigeon
- HC-Pdef-16 - Pigeon	- HC-Pdef-29 - Pigeon
- HC-Pdef-30 - Pigeon	- HC-2 - Beartooth
- BDC5 41.75 - Beartooth	♦ Metasediment Shake Flask Extraction - Minimum
- Metasediment Shake Flask Extraction - Maximum	+ Metasediment Net Acid Generation - Minimum
- Metasediment Net Acid Generation - Maximum	

**Figure G4-39 Metasediments – Vanadium**


mg/L = milligrams per litre; V = vanadium

**Figure G4-40 Metasediments – Zinc**


mg/L = milligrams per litre; Zn = zinc.

